Traffic Impact Assessment
221 Fox Street Development
Town of Penetanguishene

WMI File 09-062
July 2022

Prepared by

WMI & Associates Limited
119 Collier Street, Barrie Ontario L4M 1H5

Table of Contents

1.0 Introduction 1

2.0 Study Area/Context 1

3.0 Traffic Volume Impacts 2
3.1 Background Traffic 2
3.2 Other Development Traffic 2
3.3 Trip Generation 3
3.4 Trip Distribution 3
3.5 Background + Overall Development Traffic 4

4.0 Warrant Analyses 4
4.1 All Way Stop 4
4.2 Signal Warrants 5

5.0 Sight-Distance Geometry 5
5.1 External / Critical Intersections 5
5.2 Internal Intersections 5

6.0 Pedestrian Crossing Warrants 6
6.1 Future Vehicle / Pedestrian Traffic Analyses 6

7.0 Conclusion 8

Appendices

Appendix A – Figures
Appendix B – Traffic Calculations

1.0 Introduction

WMI & Associates has been retained by Slate Asset management to prepare a Traffic Impact Assessment for the 221 Fox Street residential development located in the Town of Penetanguishene. The development plan is based on a Draft Plan of Common Elements Condominium Plan (the concept plan), prepared by Celeste Phillips Planning Inc. dated July 14, 2022.

The proposed development is an infill condominium townhome development bound between Fox St. to the west, Church Street to the east, Broad Street to the north, and the Village at Bay Moorings Development to the south. The development plan consists of 88 townhome units fronting onto a network of private roads, a SWM facility block, and numerous undeveloped open space areas. The primary vehicular and pedestrian access route will be via Beck Boulevard, which will be extended northward from the Village at Bay Moorings Development and which will connect to Fox Street to the east. A secondary access is provided via the Beck Boulevard/ Hunter Road connection to Fox Street to the south.

This Traffic Impact Assessment considers the future condition as being the full build-out of this development, which will entail the completed connection of Beck Boulevard between Fox Street and Hunter Road. Note that the analysis of a future connection of Beck Boulevard south of Hunter Road to Fox St. is beyond the scope of this study.

The Site Location Plan (Figure 1), contained in **Appendix A**, illustrates the new development, other developments in the area, as well as existing road locations within the study area. The concept plan, prepared by Celeste Phillips Planning Inc., is also contained within **Appendix A** for reference.

2.0 Study Area/Context

Based on the scope of the proposed development and the area wide context within the Town of Penetanguishene, the study area is limited to the proposed Beck Boulevard and Fox Street Intersection, as well as the intersections of Fox Street and Hunter Road and Broad Street and Jury Drive.

Fox Street and Broad Street are 2-lane rural roadways consisting of a 7.5m asphalt width, gravel shoulders and drainage ditches. They are collector roads with a posted speed limit of 50km/h, and a presumed design speed of 60 km/h. Both the Fox Street / Hunter Road intersection and the Broad Street / Jury Drive intersections are uncontrolled intersections, such that only vehicles on the minor road approaches are required to stop. All approaches at both intersections comprise a single lane in each direction.

The proposed new intersection of Beck Boulevard and Fox Street is located approximately 460m north of the Fox Street and Hunter Road Intersection. It is also proposed to be a simple 2-lane uncontrolled intersection.

A new residential development project located in close proximity to the subject site, known as the Champlain Shores development (formerly Bay Moorings Marina), is currently under construction and is expected to contribute additional vehicular traffic to the area. This development is located immediately to the south-west of the subject development, opposite Fox Street.

The adjacent Village at Bay Moorings development to the south is fully build out and assumed to be 100% occupied, as such the trips generated by this development are captured by the recently obtained traffic counts.

3.0 Traffic Volume Impacts

3.1 Background Traffic

Background (existing) traffic volumes at the intersections of Fox Street & Hunter Road, as well as Broad Street & Jury Drive have been determined by a traffic count study conducted on June 16, 2022 by Ontario Traffic Inc. during the 7AM – 9AM, and the 4PM to 6PM peak periods.

From this provided data, a Background Traffic Distribution Sketch, Figure 2A, has been prepared, illustrating the turning movements for the 1-hour peak period during both the 7 to 9 AM and 4 to 6 PM timeframes. This figure is contained in **Appendix A** for reference, as is the summary of the traffic count data, prepared by Ontario Traffic Inc.

To account for the anticipated background traffic growth in the surrounding area, a growth rate of 2% per annum (as provided by the Town of Penetanguishene) has been applied to the counts provided by Ontario Traffic Inc. to estimate the 10-year horizon traffic increases at the subject intersections. From this information, a Background Traffic sketch for the year 2034 (Figure 2B) has been prepared and is contained in **Appendix A** for reference.

3.2 Other Development Traffic

The Champlain Shores Development that is currently under construction and contains no occupied units at the time of writing this report, is located immediately to the south-west of the subject development, opposite Fox Street. The anticipated traffic impact is detailed in the Traffic Impact Assessment section of the Functional Servicing and Stormwater Management report for the Bay Moorings Marina development, completed by WMI & Associates Limited (dated February 2019). This report identifies that 76 peak hour trips will be generated onto the local road network (onto Fox Street). The report does not specify the directional distribution of trips (to the north or south on Fox Street), however based on the analysis provided in this report, it is estimated that 80% of the trips resulting from this residential development will be to/from Fox Street south, and that 20% of the trips will be to/from Fox Street north.

An additional rental housing development, located at 77 Fox Street, is also proposed for construction this year. Due to its distant location from the subject development and

accessibility to other collector and arterial roads, this development is not expected to generate additional traffic in this study area, as such it is not considered in the 'Other Development Traffic' scenario.

Based on the data from the Champlain Shores development, and assuming that the peak hour trips apply equally to the AM and PM peak conditions, an Other Development Traffic Distribution Sketch has been prepared. Refer to Figure 3B in **Appendix A**.

3.3 Trip Generation

Trip generation rates were estimated for the subject 221 Fox Street development using data from the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 10th Edition. The multi-family housing datasets for low-rise buildings (up to 2 stories) were utilized to determine a viable trip generation rate for the proposed Townhome units. The data for the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 7am and 9am' time period, and the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 4pm and 6pm' time period were utilized since these data sets best represent the peak travel periods in residential neighborhoods such as this.

Using the fitted curve equation from the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 7am and 9am' and 'One Hour Between 4pm and 6pm reports, forty three (43) and fifty three (53) total vehicular trips (entering and exiting) are expected to be generated by this development, respectively.

Refer to the Trip Generation Spreadsheets contained in **Appendix B** for reference.

3.4 Trip Distribution

From an analysis of the existing and proposed road network, typical travel routes, and likely destinations, trip distribution patterns have been estimated to determine the total development traffic impact within the study area and at each critical intersection.

It is estimated that 80% of the overall 221 Fox Street Development traffic will travel to/ from the intersection of Beck Boulevard and Fox Street to the north, since this is the shortest / quickest route to access Fox Street and Broad Streets, which are the primary collector roads in this area. The remaining 20% of the development traffic will travel to/ from the southern Hunter Road/ Fox Street intersection to access Fox Street. Of the 80% that is entering/ exiting at Beck / Fox, 80% will enter/ exit from the south, and 20% will enter / exit from the north. Of the 20% that utilizes the Hunter / Fox intersection, it is estimated that 100% will enter/ exit from the south.
It is assumed that the majority of vehicles entering / exiting the development will travel to/from the south, since the majority of the Town's population / commerce and access to arterial roads is most easily accessed from the south.

The following additional assumptions & simplifications were applied to the distribution of trips:

- It is assumed that traffic from the Village at Bay Moorings Development will continue to utilize existing intersections, and will not be diverted to the new Beck Boulevard and Fox Street.
- The trip distribution analysis assigns all trips from the Champlain Shores development to the main intersection that is located approximately 180m north of Hunter Road on Fox Street.

From the trip generation calculations and estimates of trip distribution, Development Traffic Distribution sketches for the subject 221 Fox Street development (Figure 3A), and for Other developments (Figure 3B) have been prepared; they are contained in **Appendix A** for reference.

3.5 Background + Overall Development Traffic

The combination of background and anticipated development traffic (both from the subject development and other developments) for both the AM and PM Peak periods for the full build-out year (2024) and 10-year horizon (2034) are illustrated on Figures 4A, 4B respectively, and are contained in **Appendix A** for reference.

In assuming a typical capacity of approximately 650-750 vehicles/hour/lane for a collector road with a rural-road cross-section, it can be seen that Fox St. has sufficient capacity to accommodate background + development traffic in the 2034 scenario, as this road will see a maximum projected 131 vehicles/hour/lane in the southbound direction and 145 vehicles/hour/lane in the northbound direction, as illustrated on Figure 4B.

4.0 Warrant Analyses

Warrant analyses have been completed for traffic signals and all-way stop controls at the critical intersections of Fox Street and Beck Boulevard, and Fox Street and Hunter Road, using the Background + Development Traffic (2034) scenario as illustrated on Figure 4B. The following sections provide specific information on the warrant analyses considered, and note the specific intersections where signalization or all way stop control should be considered.

4.1 All Way Stop

A review of all-way stop minimum volume warrants has been done as per the guidelines of the Ministry of Transportation's OTM Book 5.

Based on this criteria, the all-way stop warrants for both arterial / major road intersections and minor road intersections have not been met, therefore it is not recommended that all-way stop control be implemented at either intersection.

It should be noted that other factors such as a high population growth rate at the north end of the town, or shifts in travel patterns could warrant future consideration of providing all way stop control at these intersections, however it is not anticipated that these controls will be required following the full-build out of the subject development based on future traffic volume estimates, and available future development information at the time of writing this report.

The All Way Stop Warrant Calculation spreadsheets are contained in **Appendix B** for reference.

4.2 Signal Warrants

A signal warrant analysis has been done for critical intersections as per the guidelines of Ministry of Transportation's Ontario Traffic Manual (OTM) Book 12. Using Justification #7 (signal warrants for projected volumes), Warrants 1A & 1B, and 2A & 2B indicate that signals are not required.

Refer to the Signal Warrant Calculation for Forecasted Volumes spreadsheet contained in **Appendix B**.

5.0 Sight-Distance Geometry

The Transportation Association of Canada (TAC) outline specific sight distance criteria to ensure safe vehicular movement to and from site accesses and intersecting roadways and to ensure that through traffic on the adjacent roadway will have adequate time and space for manoeuvrability and braking. An assessment of sight-distance has been conducted at the proposed external intersections on Fox Street, as well as at the internal intersections within the site.

5.1 External / Critical Intersections

From a field review of existing site conditions and sight-lines from the vantage point of the proposed Beck Boulevard / Fox Street and Hunter Road / Fox Street intersections, visibility is noted as being adequate since there are no vertical or horizontal curves or other notable obstructions within the Fox Street right-of-way to impede visibility. Based on these observations, there are no sight-distance concerns at these locations.

5.2 Internal Intersections

Adequate sight-lines are to be maintained at the proposed internal road intersections with the extension of Beck Boulevard through the site. The concept plan proposes a horizontal curve in the road, located to the north of the internal road intersections (Part 89 & 90) with the extension of Beck Boulevard. The critical maneuver (with the least visibility based on proposed road alignment geometry) is that of a right turn onto Beck Boulevard from the Part 89 approach. The minimum sight distance according to TAC criteria under this condition is 95m for the right turn from stop condition (case B2), for

an assumed 50km/hr design speed, as per table 9.9.6 of the TAC Geometric Design Guide for Canadian Roads (June 2017). From a desktop review, the sight distance appears to be approximately equal to 95m.

It is further noted that there are no significant vertical curves proposed within the road which would present a sight-distance concern. Therefore, the road / site access design within the 221 Fox Street development is geometrically adequate with respect to sight-distance.

6.0 Pedestrian Crossing Warrants

The following presents a pedestrian crossing warrant analysis at the proposed Beck Boulevard and Fox Street Intersection.

Guidance for the planning & design of pedestrian crossings has been taken from MTO Book 15, entitled 'Pedestrian Crossing Facilities' (December 2009). Additional guidance with respect to pedestrian warrants are referenced from Part 4 of MTO Book 12 (Traffic Signals, November 2007).

The MTO Book 15 guideline classifies pedestrian crossing facilities into those that are controlled and those that are uncontrolled. Controlled pedestrian crossing facilities constitute a signalized or stop/yield sign access to allow pedestrian movements across roads. These facilities are warranted in moderate to high vehicle, and high pedestrian traffic environments, to allow safe pedestrian movements.

Uncontrolled accesses are intended for areas where low vehicular / pedestrian volume is anticipated, such that there will be sufficient time and space to allow pedestrians to cross the road between gaps in vehicular traffic flow.

Book 15 recommends that decisions pertaining to the implementation of pedestrian crossing facilities be based on pre-existing conditions, however the possible use of such facilities should be considered early on in the planning process. As such, the following analysis provides a preliminary opinion as to whether a controlled pedestrian crossing facility or uncontrolled crossing on Fox Street should be implemented.

6.1 Future Vehicle / Pedestrian Traffic Analyses

The justification for a controlled pedestrian access is primarily based on a 'Pedestrian warrant analysis as described in MTO Book 12. This justification considers the mix of vehicular and pedestrian volume at a designated location to see if a controlled pedestrian crossing facility is warranted. While pedestrian crossing volumes are not known at this stage, it is anticipated that they would be low since the contemplated crossing location is intended to primarily serve the proposed 221 Fox Street Development, which is to comprise 88 residential units. It is not anticipated that this crossing location will be frequented by other users since there is no direct pedestrian link to existing neighbourhoods to the west, north or east of the subject development,

and since the Bay Moorings development to the south has its own pedestrian access to the east via Bay Moorings Boulevard. Additionally, there are no pedestrian-intensive facilities in the area, such as schools, that would warrant the inclusion of a controlled pedestrian crossing.

From the preceding traffic volume analysis under the Background + Development Traffic 2034 scenario, it is determined that the magnitude of future traffic volume increase at the time of full subdivision build-out would be approximately 1700 vehicles over an 8-hour period (PM peak hour total trips on all approaches = 212 x 8 hours = 1696 vehicles).

In order for a controlled access to be warranted given this volume of traffic, the pedestrian volume would need to be in the order of 900 people in the same 8-hour period. Based on the relatively small size of the development that this crossing would serve (88 residential units) it is unlikely that 900 or more pedestrians would utilize this crossing. A rough estimate of pedestrian crossing trips could be determined by assuming that 20% of the population of the subdivision crosses Fox Street during an 8 hour period, so 88 units * 3 persons per unit x 0.20 = 53 trips. This approximate number of trips (for comparison purposes only), demonstrates that the estimated minimum warrant (900 pedestrian crossings) far surpasses the anticipated trips (53).

Based on these findings, it is our opinion that a controlled pedestrian crossing facility is not warranted at the subject location. Rather, it is recommended that certain pedestrian treatments be implemented along Fox Street to alert drivers of the presence of increased pedestrian crossing activity in the area. The recommended measure is the placement of ‘pedestrian ahead Wc-7’ signs that are clearly visible to both southbound and northbound traffic.

Once the 221 Fox Street development is fully occupied, it is recommended that the pedestrian warrant analyses be re-evaluated in the future ‘pre-existing’ condition (in accordance with Book 15 criteria), to determine if pedestrian crossing facility upgrades and/or signalization is warranted.

MTO Book 12 excerpts are contained in **Appendix B** for reference.

7.0 Conclusion

This Traffic Impact Assessment demonstrates that the proposed 221 Fox Street Development can be accommodated without adverse impacts on existing transportation systems. Specifically;

- The estimated maximum increase of 53 peak hourly trips (during the PM peak hour) onto Fox Street & Broad Street is relatively insignificant in terms of traffic volume, and should be easily accommodated by existing roads.

- All-way stop controls and signal controls are determined to not be warranted at any of the new or existing intersections, under the 10-year horizon scenario.

- Sight distances at both intersections with Fox Street, as well as within the internal roads are noted to be adequate.

- A pedestrian crossing is not warranted due to low vehicular and pedestrian traffic at the Beck Boulevard and Fox Street Intersections.

Should you have any questions or require additional information, please contact the undersigned.

Yours truly,

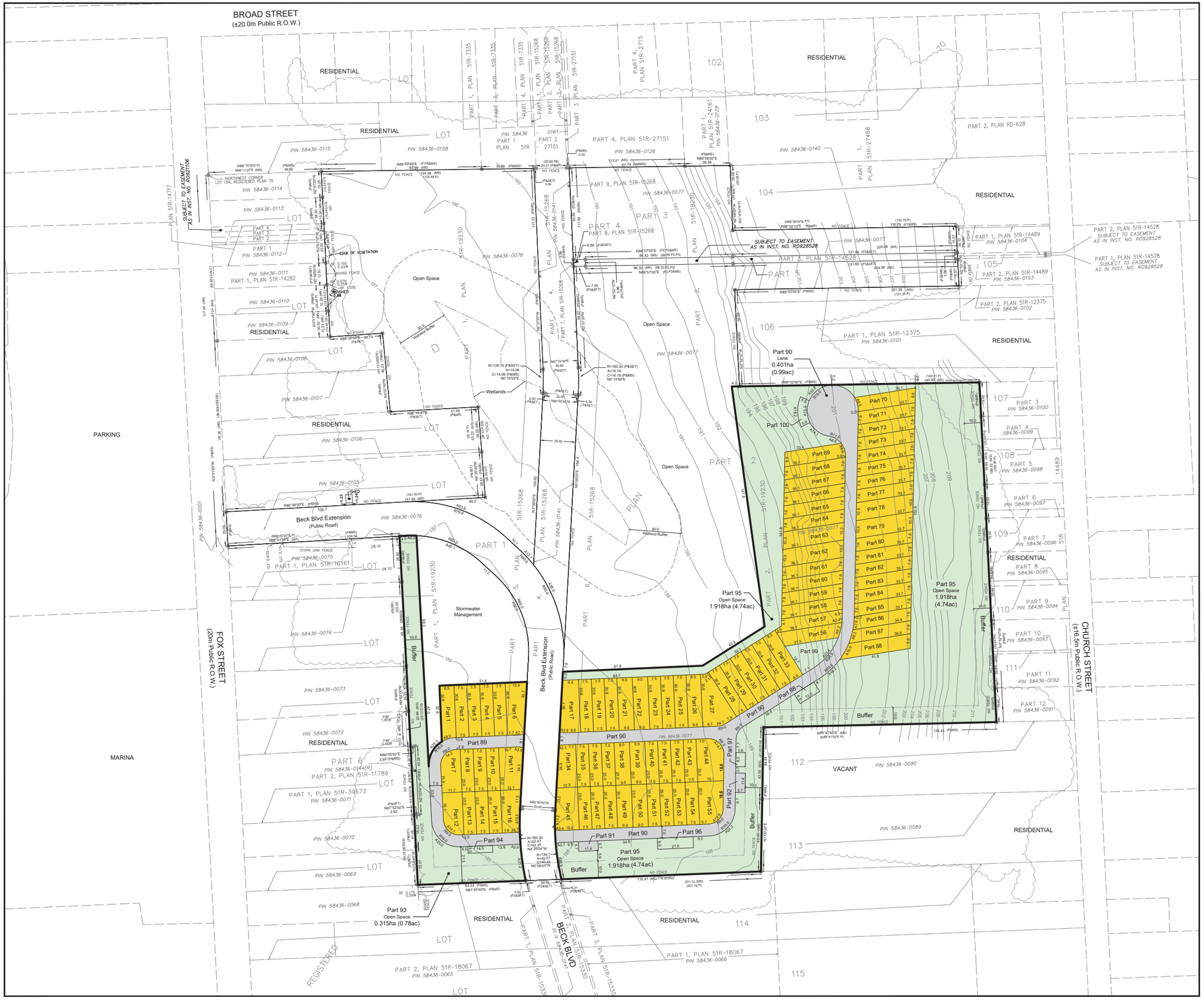
WMI & Associates Limited

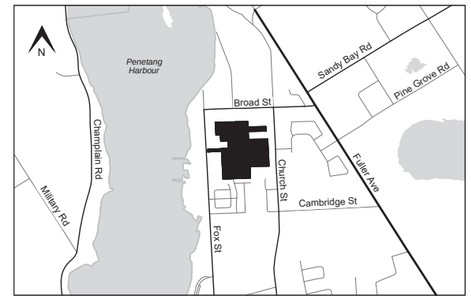
Jonathan Reimer, P.Eng.

Z:\Projects\2009\09-062\Reports\TIS\220713_TIA.docx

APPENDIX A

Figures





Key Map Scale 1 : 20,000

DRAFT PLAN OF COMMON ELEMENTS CONDOMINIUM

QUEEN'S COURT

PART OF LOTS 104 TO 113 WEST OF CHURCH STREET, REGISTERED PLAN 70,
MILITARY AND NAVAL RESERVE
TOWN OF PENETANGUISHENE, COUNTY OF SIMCOE

LAND USE SCHEDULE

USE	PARTS	UNITS	AREA ha	AREA ac	%
RESIDENTIAL TOWNHOMES	1 - 88	88	2.220	5.49	44.0
COMMON ELEMENT LANE	89 - 92		0.517	1.28	10.3
COMMON ELEMENT OPEN SPACE	93 - 100		2.308	5.70	45.7
TOTAL		**88**	**5.046**	**12.47**	**100**

COUNTY OF SIMCOE APPROVAL

APPROVED IN ACCORDANCE WITH SECTION 51(31) OF THE *PLANNING ACT*, RSO, 1990, CHAPTER P.13, AS AMENDED,

THIS _____ DAY OF _____, 20_____.

OWNER'S CERTIFICATE

I,_____, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE CELESTE PHILLIPS PLANNING INC. TO PREPARE AND SUBMIT A DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE: _____ _____

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN ON THIS PLAN.

DATE: _____ _____

LAURENCE J. KUELLING, O.L.S.
J.D. BARNES LIMITED

ADDITIONAL INFORMATION
REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a)	AS SHOWN	f)	AS SHOWN	i)	TIOGA LOAMY SAND
b)	AS SHOWN	f1)	NONE	j)	AS SHOWN
c)	AS SHOWN	g)	AS SHOWN	k)	FULL MUNICIPAL SERVICES
d)	AS SHOWN	h)	MUNICIPAL WATER	l)	AS SHOWN
e)	AS SHOWN				

No.	DATE	REVISION	BY

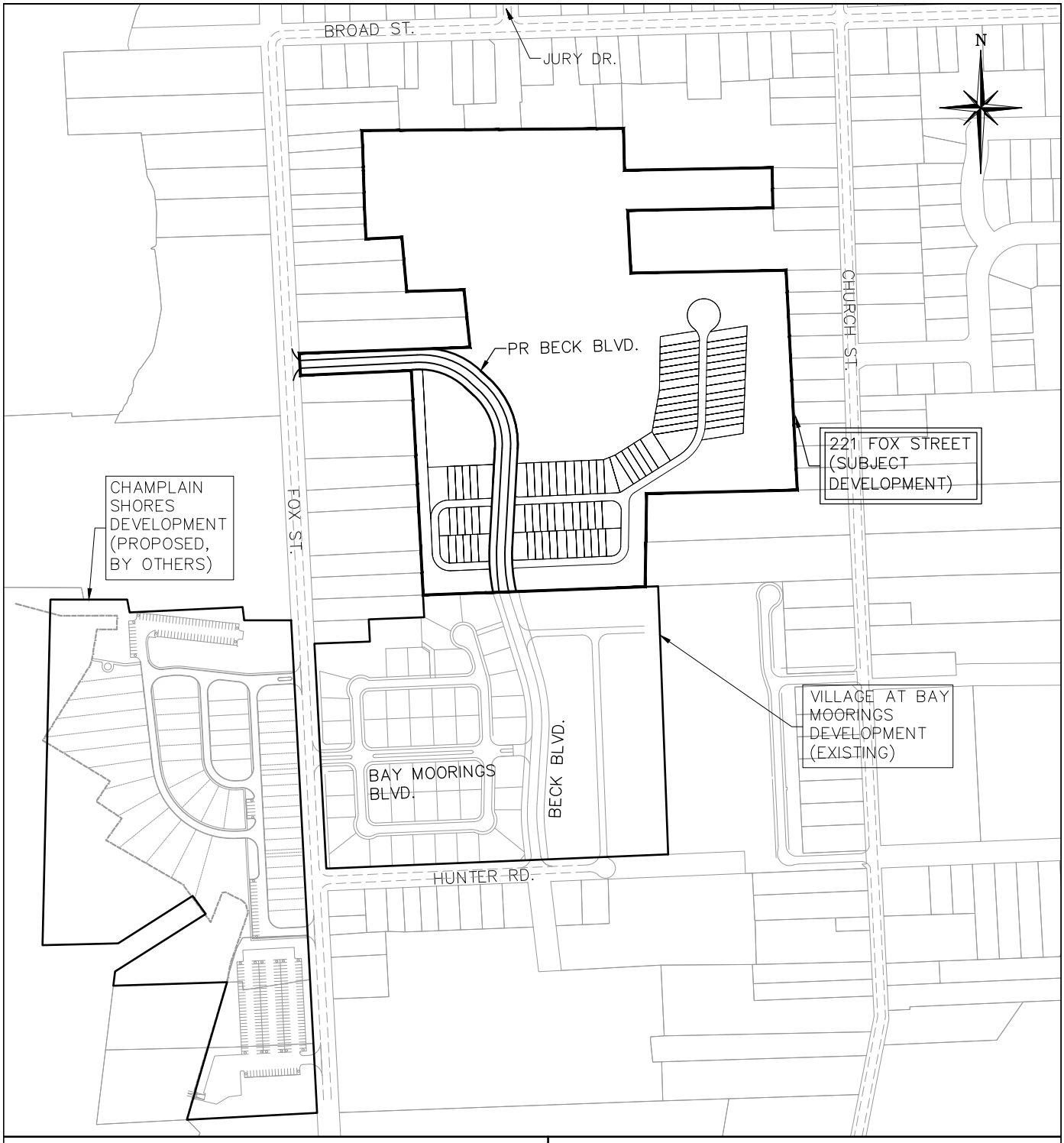
Stamp

0 25 50 75m
Scale 1 : 1,000

Date: July 14, 2022
Drawn By: AM
Checked By: CP

N

celeste PHILLIPS PLANNING INC.
85 Bayfield Street, Suite 300
Barrie, ON L4M 3A7
T: 705 797 8977
C: 705 730 8850
celeste@cplan.ca



Drawing Title

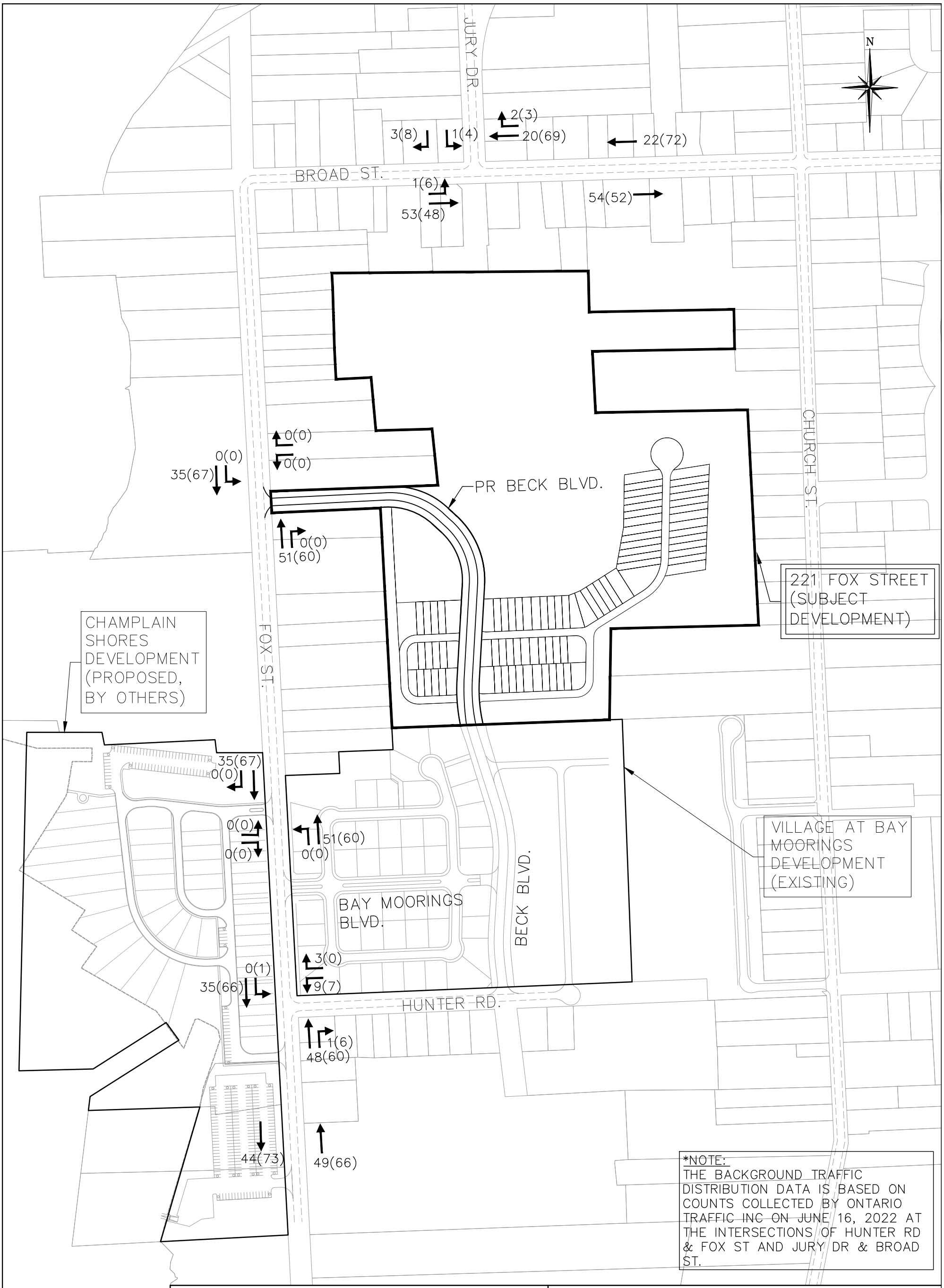
SITE LOCATION PLAN

Project Title

221 FOX STREET DEVELOPMENT

WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

Drawn By	Checked By	Figure No.
AB	JR	FIG1
Scale: N.T.S.	Project No.: 09-062	



*NOTE:
THE BACKGROUND TRAFFIC DISTRIBUTION DATA IS BASED ON COUNTS COLLECTED BY ONTARIO TRAFFIC INC ON JUNE 16, 2022 AT THE INTERSECTIONS OF HUNTER RD & FOX ST AND JURY DR & BROAD ST.

LEGEND:
000 AM PEAK HOUR
(000) PM PEAK HOUR

Drawing Title

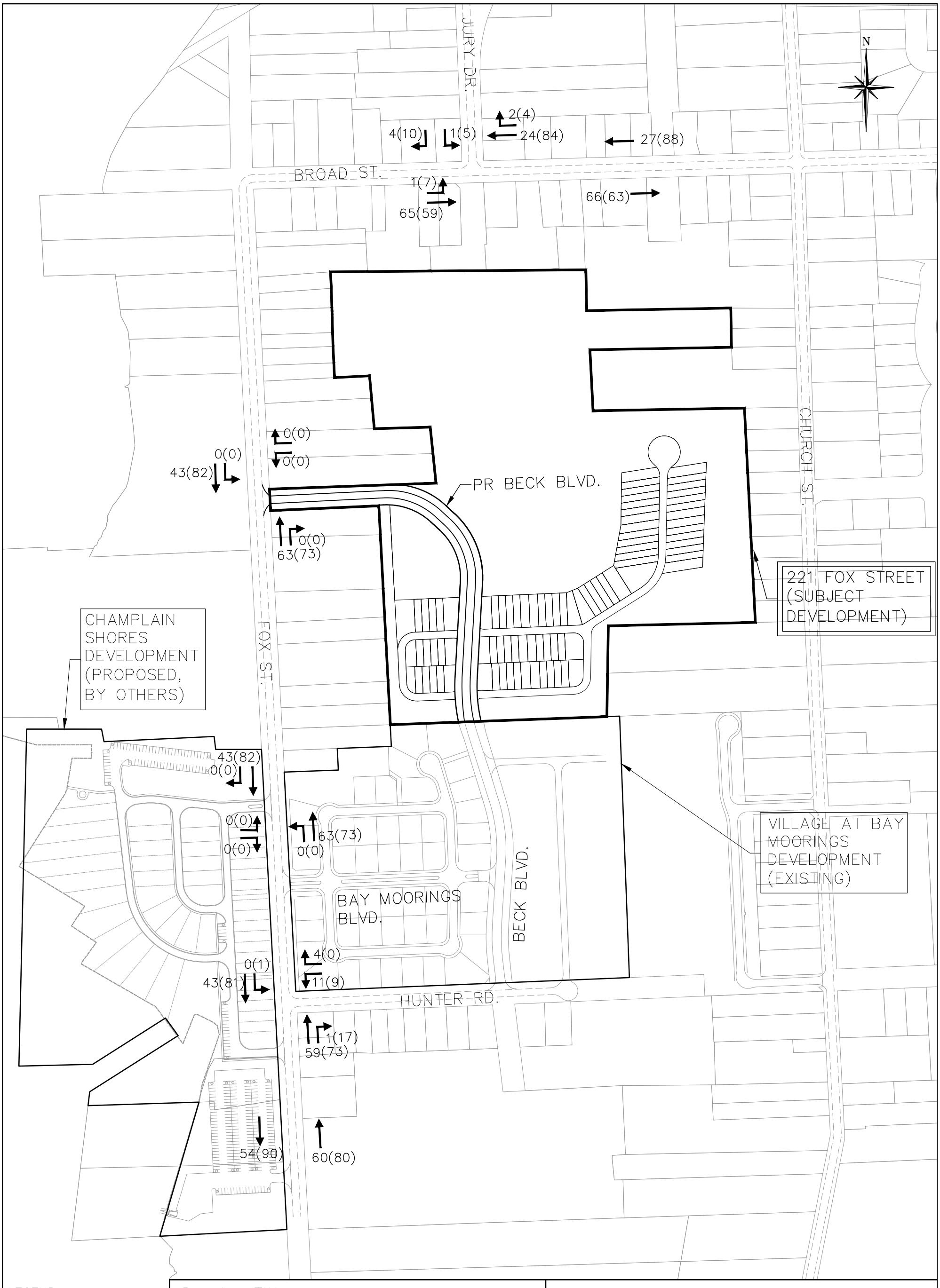
BACKGROUND TRAFFIC DISTRIBUTION – 2024

Project Title

221 FOX STREET DEVELOPMENT

WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

Drawn By	Checked By	Figure No.
AB	JR	FIG2A
Scale: N.T.S.	Project No.: 09–062	



LEGEND:
000 AM PEAK HOUR
(000) PM PEAK HOUR

Drawing Title

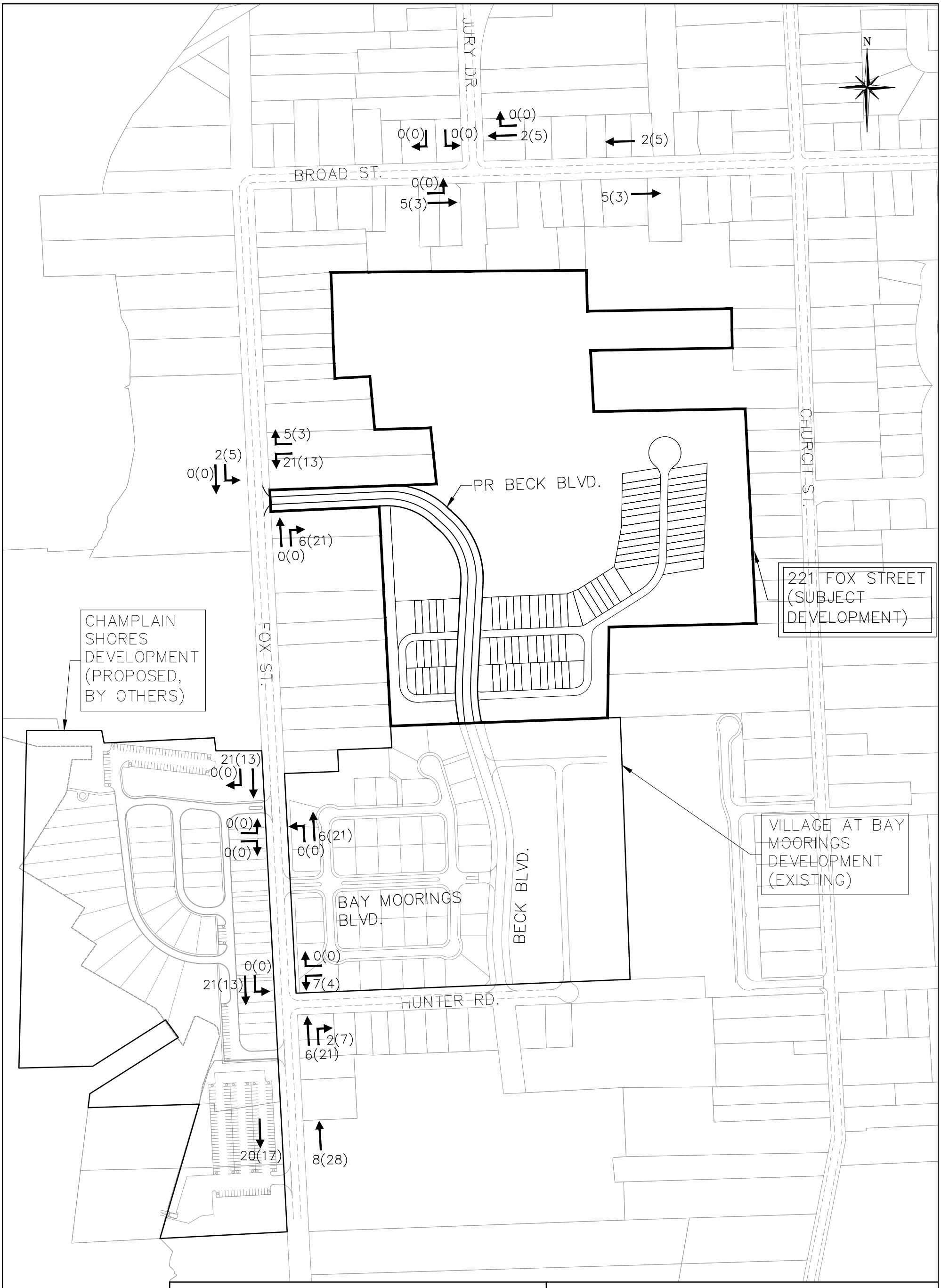
BACKGROUND TRAFFIC DISTRIBUTION – 2034 (10 YR HORIZON)

Project Title

221 FOX STREET DEVELOPMENT

WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

Drawn By	Checked By	Figure No.
AB	JR	FIG2B
Scale: N.T.S.	Project No.: 09–062	



LEGEND:
000 AM PEAK HOUR
(000) PM PEAK HOUR

Drawing Title

SUBJECT DEVELOPMENT TRAFFIC DISTRIBUTION

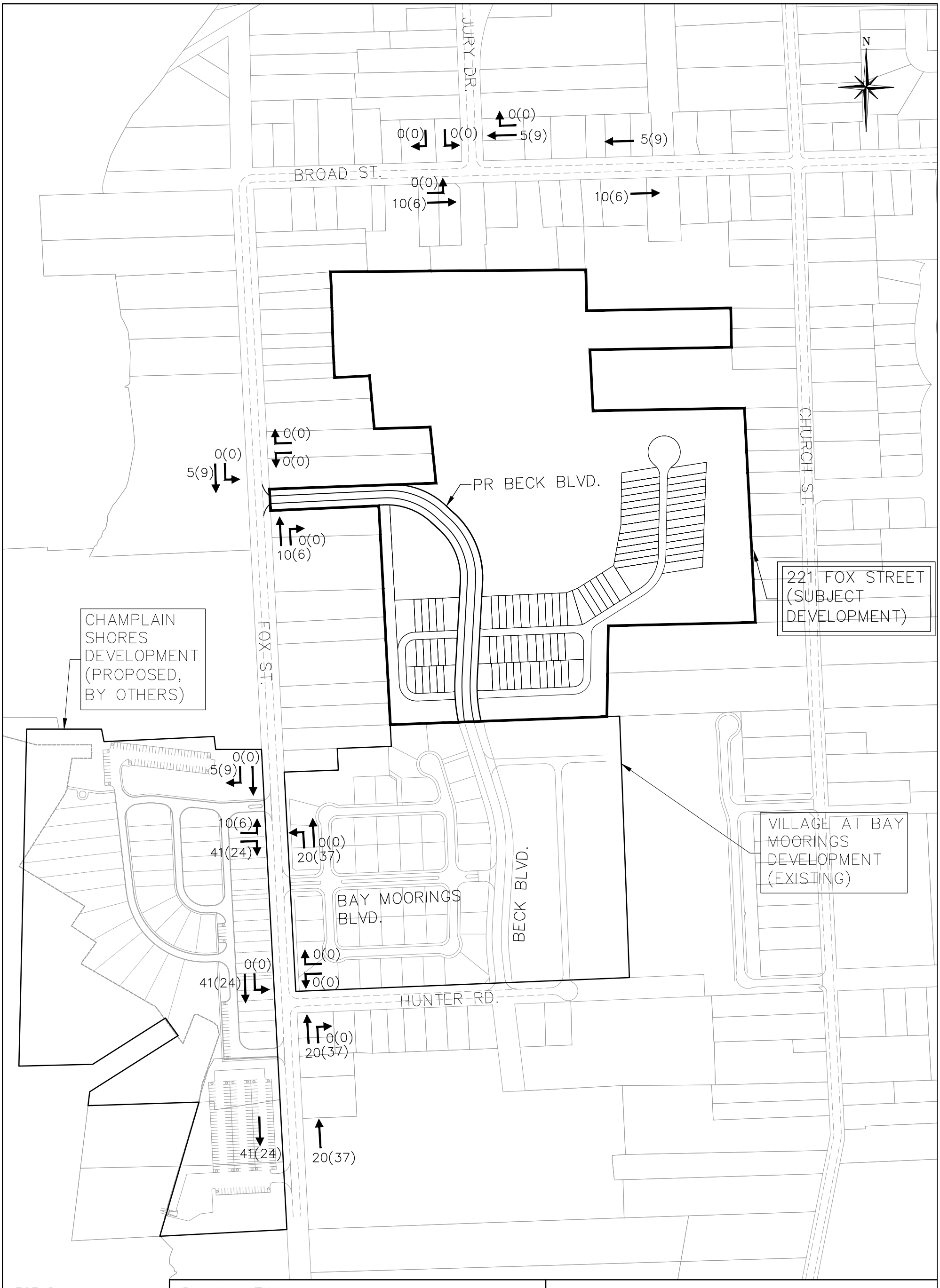
Project Title

221 FOX STREET DEVELOPMENT

WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

Drawn By	Checked By	Figure No.
AB	JR	FIG3A
Scale: N.T.S.	Project No.: 09-062	

Z:\Projects\2009\09-062\CAD\WMI\TIS\220713_TIS_base.dwg, 2022-07-14 1:56:23 PM



LEGEND:
000 AM PEAK HOUR
(000) PM PEAK HOUR

Drawing Title

OTHER DEVELOPMENT TRAFFIC DISTRIBUTION

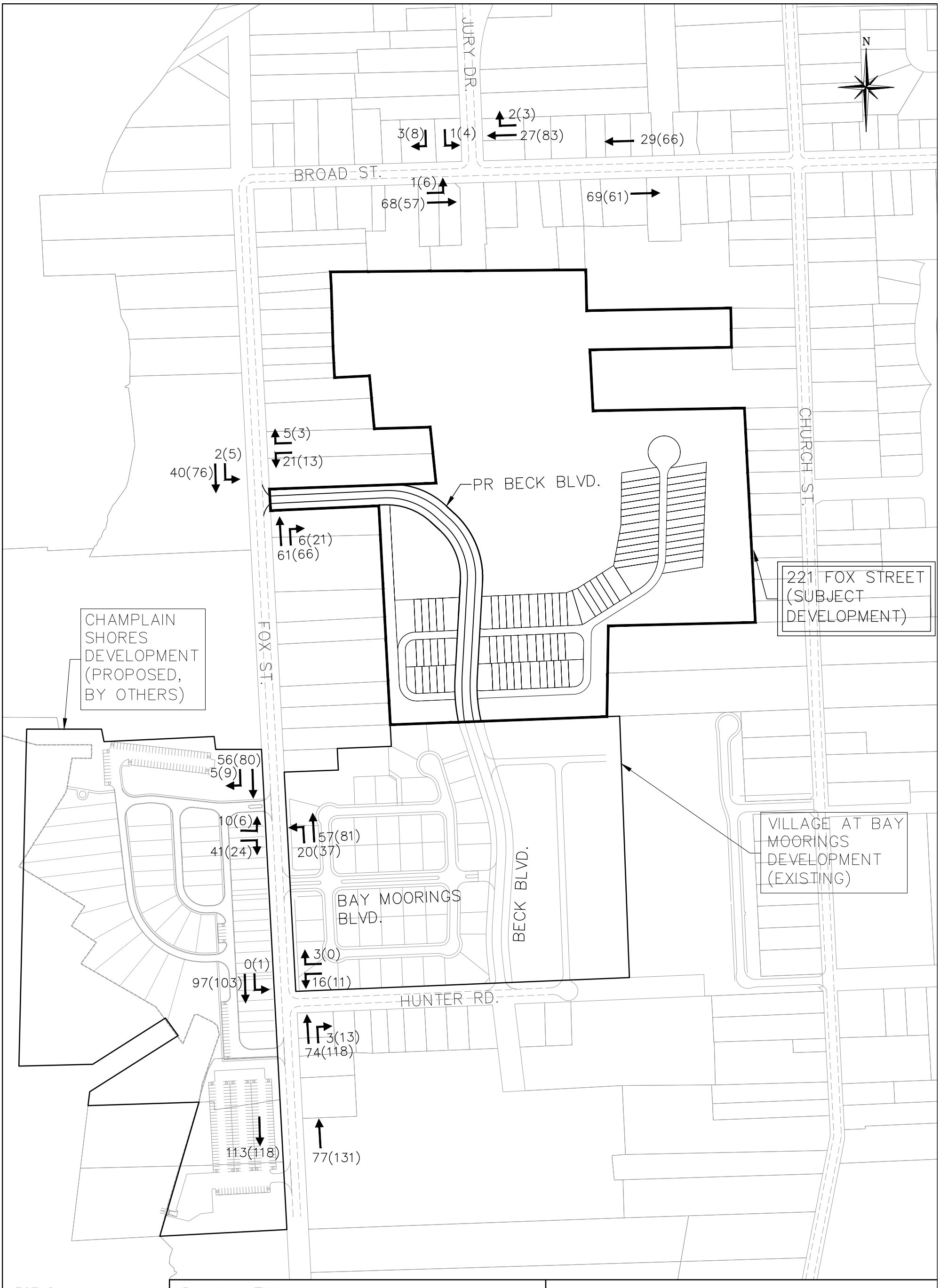
Project Title

221 FOX STREET DEVELOPMENT

WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

Drawn By	Checked By	Figure No.
AB	JR	FIG3B
Scale	Project No.	
N.T.S.	09-062	

Z:\Projects\2009\09-062\CAD\WMI\TIS\220713_TIS_base.dwg, 2022-07-14 1:56:23 PM



LEGEND:
000 AM PEAK HOUR
(000) PM PEAK HOUR

Drawing Title

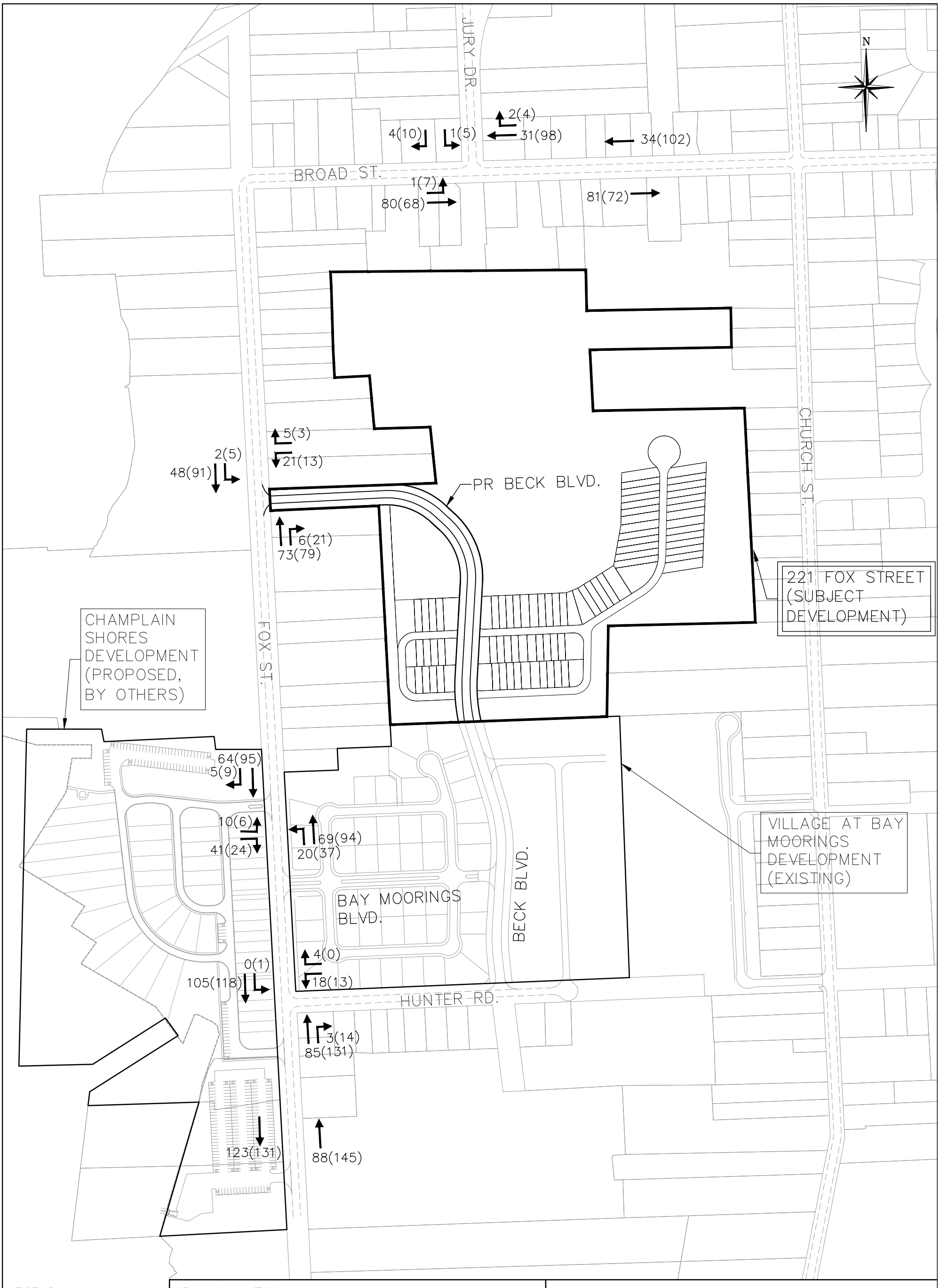
BACKGROUND + DEVELOPMENT TRAFFIC DISTRIBUTION – 2024

Project Title

221 FOX STREET DEVELOPMENT

WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

Drawn By	Checked By	Figure No.
AB	JR	FIG4A
Scale	Project No.	
N.T.S.	09–062	



LEGEND:
000 AM PEAK HOUR
(000) PM PEAK HOUR

Drawing Title

BACKGROUND + DEVELOPMENT TRAFFIC DISTRIBUTION – 2034

Project Title

221 FOX STREET DEVELOPMENT

WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

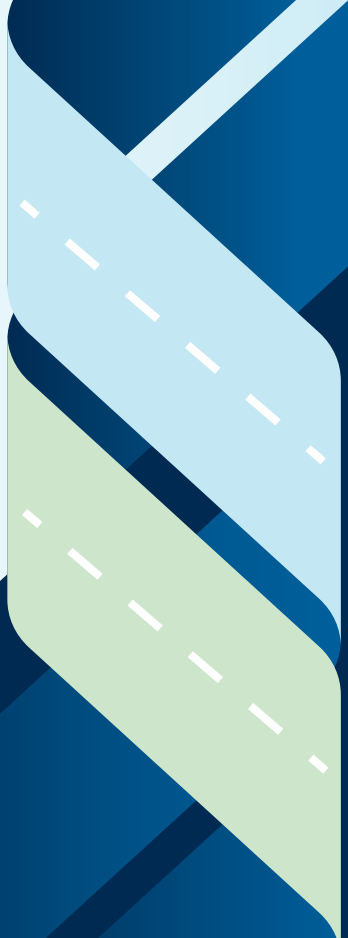
Drawn By	Checked By	Figure No.
AB	JR	FIG4B
Scale: N.T.S.	Project No.: 09–062	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #22-200 - WMI Engineering

Intersection Count Report

Intersection:	Hunter Rd & Fox St
Municipality:	Penetanguishene
Count Date:	Thursday, Jun 16, 2022
Site Code:	2220000001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Hunter Rd & Fox St
Site Code:	2220000001
Municipality:	Penetanguishene
Count Date:	Jun 16, 2022

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Hunter Rd & Fox St
Site Code:	2220000001
Municipality:	Penetanguishene
Count Date:	Jun 16, 2022

Fox St - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	39	0	0	39	0	0	37	1	0	38	0	77
08:00 - 09:00	0	24	0	0	24	0	0	29	1	0	30	0	54
BREAK													
16:00 - 17:00	1	58	0	0	59	0	0	60	5	0	65	0	124
17:00 - 18:00	1	46	0	0	47	1	0	46	10	0	56	0	103
GRAND TOTAL	**2**	**167**	**0**	**0**	**169**	**1**	**0**	**172**	**17**	**0**	**189**	**0**	**358**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Hunter Rd & Fox St
Site Code:	2220000001
Municipality:	Penetanguishene
Count Date:	Jun 16, 2022

Hunter Rd - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	5	0	3	0	8	2	0	0	0	0	0	0	8
08:00 - 09:00	5	0	0	0	5	0	0	0	0	0	0	0	5
BREAK													
16:00 - 17:00	6	0	0	0	6	5	2	0	0	0	2	0	8
17:00 - 18:00	6	0	0	0	6	1	0	0	0	0	0	0	6
GRAND TOTAL	**22**	**0**	**3**	**0**	**25**	**8**	**2**	**0**	**0**	**0**	**2**	**0**	**27**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hunter Rd & Fox St
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

North Approach - Fox St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0
07:15	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0
07:30	0	10	0	0	10	0	2	0	0	2	0	0	0	0	0	0
07:45	0	10	0	0	10	0	1	0	0	1	0	0	0	0	0	0
08:00	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0
08:15	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
08:30	0	6	0	0	6	0	2	0	0	2	0	0	0	0	0	0
08:45	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	57	0	0	57	0	6	0	0	6	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hunter Rd & Fox St
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

North Approach - Fox St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	1	22	0	0	23	0	0	0	0	0	0	0	0	0	0	0
16:15	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
16:30	0	11	0	0	11	0	3	0	0	3	0	0	0	0	0	0
16:45	0	14	0	0	14	0	1	0	0	1	0	0	0	0	0	0
17:00	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0
17:15	1	25	0	0	26	0	1	0	0	1	0	0	0	0	0	0
17:30	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	1
17:45	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2	99	0	0	101	0	5	0	0	5	0	0	0	0	0	1
GRAND TOTAL	2	156	0	0	158	0	11	0	0	11	0	0	0	0	0	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hunter Rd & Fox St
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

South Approach - Fox St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:15	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0
07:30	0	15	1	0	16	0	0	0	0	0	0	0	0	0	0	0
07:45	0	14	0	0	14	0	2	0	0	2	0	0	0	0	0	0
08:00	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0
08:15	0	6	0	0	6	0	3	0	0	3	0	0	0	0	0	0
08:30	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0
08:45	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	58	2	0	60	0	8	0	0	8	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hunter Rd & Fox St
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

South Approach - Fox St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	0	9	1	0	10	0	0	0	0	0	0	0	0	0	0	0
16:15	0	11	2	0	13	0	0	0	0	0	0	0	0	0	0	0
16:30	0	16	0	0	16	0	4	0	0	4	0	0	0	0	0	0
16:45	0	19	2	0	21	0	1	0	0	1	0	0	0	0	0	0
17:00	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	0
17:15	0	15	3	0	18	0	0	0	0	0	0	0	0	0	0	0
17:30	0	12	4	0	16	0	1	0	0	1	0	0	0	0	0	0
17:45	0	11	2	0	13	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	0	98	15	0	113	0	8	0	0	8	0	0	0	0	0	0
GRAND TOTAL	0	156	17	0	173	0	16	0	0	16	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hunter Rd & Fox St
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

East Approach - Hunter Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30	1	0	2	0	3	0	0	0	0	0	0	0	1	0	1	0
07:45	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1
08:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
08:15	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
08:30	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	10	0	2	0	12	0	0	0	0	0	0	0	1	0	1	2

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Hunter Rd & Fox St
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

East Approach - Hunter Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
16:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:15	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
16:30	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
16:45	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
17:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:15	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
17:45	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	11	0	0	0	11	1	0	0	0	1	0	0	0	0	0	6
GRAND TOTAL	21	0	2	0	23	1	0	0	0	1	0	0	1	0	1	8

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 07:30:00
To: 08:30:00

Intersection: Hunter Rd & Fox St
Site Code: 2220000001
Count Date: Jun 16, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Fox St runs N/S

North Approach

	Out	In	Total
Cars	31	45	76
Trucks	4	5	9
Bicycles	0	1	1
	35	**51**	**86**

Fox St

Bicycles	0	0	0
Trucks	4	0	0
Cars	31	0	0
Totals	**35**	**0**	**0**

Peds: 0

Peds: 0

Peds: 1

Totals	**48**	**1**	**0**
Cars	43	1	0
Trucks	5	0	0
Bicycles	0	0	0

Fox St

East Approach

	Out	In	Total
Cars	11	1	12
Trucks	0	0	0
Bicycles	1	0	1
	12	**1**	**13**

Hunter Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	3	2	0	1
	9	9	0	0

South Approach

	Out	In	Total
Cars	44	40	84
Trucks	5	4	9
Bicycles	0	0	0
	49	**44**	**93**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Hunter Rd & Fox St
Site Code:	2220000001
Count Date:	Jun 16, 2022
Period:	07:00 - 09:00

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

Start Time	North Approach Fox St						South Approach Fox St						East Approach Hunter Rd						West Approach						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:30	0	12		0	0	12		15	1	0	0	16	1		3	0	0	4					0		32
07:45	0	11		0	0	11		16	0	0	0	16	4		0	0	1	4					0		31
08:00	0	6		0	0	6		8	0	0	0	8	2		0	0	0	2					0		16
08:15	0	6		0	0	6		9	0	0	0	9	2		0	0	0	2					0		17
Grand Total	**0**	**35**		**0**	**0**	**35**		**48**	**1**	**0**	**0**	**49**	**9**		**3**	**0**	**1**	**12**					**0**	**0**	**96**
Approach %	0	100		0		-		98	2	0		-	75		25	0								-	
Totals %	0	36.5		0		36.5		50	1	0		51	9.4		3.1	0		12.5						0	
PHF	**0**	**0.73**		**0**		**0.73**		**0.75**	**0.25**	**0**		**0.77**	**0.56**		**0.25**	**0**		**0.75**						**0**	**0.75**
Cars	0	31		0		31		43	1	0		44	9		2	0		11						0	86
% Cars	0	88.6		0		88.6		89.6	100	0		89.8	100		66.7	0		91.7						0	89.6
Trucks	0	4		0		4		5	0	0		5	0		0	0		0						0	9
% Trucks	0	11.4		0		11.4		10.4	0	0		10.2	0		0	0		0						0	9.4
Bicycles	0	0		0		0		0	0	0		0	0		1	0		1						0	1
% Bicycles	0	0		0		0		0	0	0		0	0		33.3	0		8.3						0	1
Peds					0	-					0	-					1	-					0	-	1
% Peds					0	-					0	-					100	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:30:00
To:	18:00:00	To:	17:30:00

Intersection: Hunter Rd & Fox St
Site Code: 2220000001
Count Date: Jun 16, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Fox St runs N/S

North Approach

	Out	In	Total
Cars	62	55	117
Trucks	5	7	12
Bicycles	0	0	0
	67	**62**	**129**

Fox St

Bicycles	0	0	0
Trucks	5	0	0
Cars	61	1	0
Totals	**66**	**1**	**0**

Peds: 0

Peds: 0

Peds: 3

Totals	**60**	**6**	**0**
Cars	55	6	0
Trucks	5	0	0
Bicycles	0	0	0

Fox St

East Approach

	Out	In	Total
Cars	6	7	13
Trucks	1	0	1
Bicycles	0	0	0
	7	**7**	**14**

Hunter Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	0	0	0	0
	7	6	1	0

South Approach

	Out	In	Total
Cars	61	67	128
Trucks	5	6	11
Bicycles	0	0	0
	66	**73**	**139**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Hunter Rd & Fox St
Site Code:	2220000001
Count Date:	Jun 16, 2022
Period:	16:00 - 18:00

Peak Hour Data (16:30 - 17:30)

Start Time	North Approach Fox St						South Approach Fox St						East Approach Hunter Rd						West Approach						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:30	0	14		0	0	14		20	0	0	0	20	2		0	0	0	2					0		36
16:45	0	15		0	0	15		20	2	0	0	22	1		0	0	3	1					0		38
17:00	0	11		0	0	11		5	1	0	0	6	1		0	0	0	1					0		18
17:15	1	26		0	0	27		15	3	0	0	18	3		0	0	0	3					0		48
Grand Total	**1**	**66**		**0**	**0**	**67**		**60**	**6**	**0**	**0**	**66**	**7**		**0**	**0**	**3**	**7**					**0**	**0**	**140**
Approach %	1.5	98.5		0		-		90.9	9.1	0		-	100		0	0		-						-	
Totals %	0.7	47.1		0		47.9		42.9	4.3	0		47.1	5		0	0		5						0	
PHF	**0.25**	**0.63**		**0**		**0.62**		**0.75**	**0.5**	**0**		**0.75**	**0.58**		**0**	**0**		**0.58**						**0**	**0.73**
Cars	1	61		0		62		55	6	0		61	6		0	0		6						0	129
% Cars	100	92.4		0		92.5		91.7	100	0		92.4	85.7		0	0		85.7						0	92.1
Trucks	0	5		0		5		5	0	0		5	1		0	0		1						0	11
% Trucks	0	7.6		0		7.5		8.3	0	0		7.6	14.3		0	0		14.3						0	7.9
Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
% Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
Peds					0	-					0	-					3	-					0	-	3
% Peds					0	-					0	-					100	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #22-200 - WMI Engineering

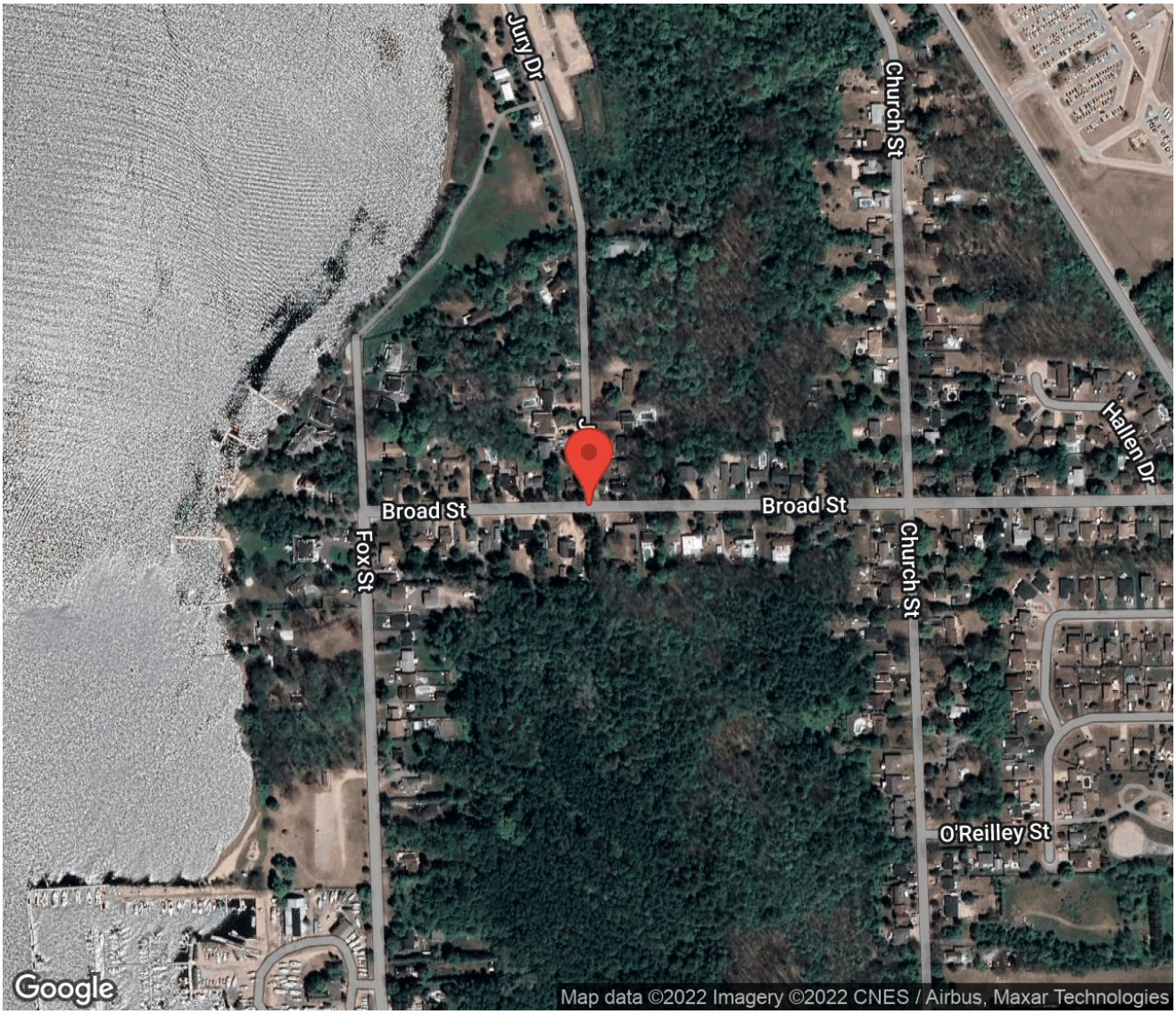
Intersection Count Report

Intersection:	Broad St & Jury Dr
Municipality:	Penetanguishene
Count Date:	Thursday, Jun 16, 2022
Site Code:	2220000001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 16:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Broad St & Jury Dr
Site Code:	2220000001
Municipality:	Penetanguishene
Count Date:	Jun 16, 2022



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Broad St & Jury Dr
Site Code:	2220000001
Municipality:	Penetanguishene
Count Date:	Jun 16, 2022

Jury Dr - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	3	0	3	0	0	0	0	0	0	0	3
08:00 - 09:00	2	0	4	0	6	0	0	0	0	0	0	0	6
BREAK													
16:00 - 17:00	4	0	8	0	12	0	0	0	0	0	0	0	12
17:00 - 18:00	4	0	8	0	12	0	0	0	0	0	0	0	12
GRAND TOTAL	**10**	**0**	**23**	**0**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection:	Broad St & Jury Dr
Site Code:	2220000001
Municipality:	Penetanguishene
Count Date:	Jun 16, 2022

Broad St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	21	1	0	22	1	1	37	0	0	38	0	60
08:00 - 09:00	0	15	1	0	16	1	1	36	0	0	37	0	53
BREAK													
16:00 - 17:00	0	69	3	0	72	0	6	48	0	0	54	0	126
17:00 - 18:00	0	54	2	0	56	0	7	37	0	0	44	0	100
GRAND TOTAL	**0**	**159**	**7**	**0**	**166**	**2**	**15**	**158**	**0**	**0**	**173**	**0**	**339**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

North Approach - Jury Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
08:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2	0	7	0	9	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

North Approach - Jury Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0
16:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
16:30	2	0	2	0	4	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
17:00	1	0	4	0	5	0	0	0	0	0	0	0	0	0	0	0
17:15	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
17:30	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
17:45	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	8	0	16	0	24	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	10	0	23	0	33	0	0	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

East Approach - Broad St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
07:15	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	1
07:30	0	6	0	0	6	0	0	0	0	0	0	0	1	0	1	0
07:45	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
08:00	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
08:15	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	0
08:30	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0
08:45	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	1
SUBTOTAL	0	36	1	0	37	0	0	0	0	0	0	0	1	0	1	2

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

East Approach - Broad St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
16:00	0	26	0	0	26	0	1	0	0	1	0	0	0	0	0	0
16:15	0	15	1	0	16	0	0	0	0	0	0	0	0	0	0	0
16:30	0	9	1	0	10	0	2	0	0	2	0	0	0	0	0	0
16:45	0	16	1	0	17	0	0	0	0	0	0	0	0	0	0	0
17:00	0	7	1	0	8	0	1	0	0	1	0	0	0	0	0	0
17:15	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	0
17:30	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	0
17:45	0	14	1	0	15	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	119	5	0	124	0	4	0	0	4	0	0	0	0	0	0
GRAND TOTAL	**0**	**155**	**6**	**0**	**161**	**0**	**4**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**1**	**2**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

West Approach - Broad St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:15	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
07:30	0	20	0	0	20	0	1	0	0	1	0	1	0	0	1	0
07:45	1	12	0	0	13	0	0	0	0	0	0	0	0	0	0	0
08:00	0	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0
08:15	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
08:30	1	9	0	0	10	0	1	0	0	1	0	0	0	0	0	0
08:45	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2	70	0	0	72	0	2	0	0	2	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Municipality: Penetanguishene
Count Date: Jun 16, 2022

West Approach - Broad St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
16:00	2	15	0	0	17	0	0	0	0	0	0	0	0	0	0	0
16:15	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0
16:30	2	11	0	0	13	0	0	0	0	0	0	0	0	0	0	0
16:45	2	10	0	0	12	0	1	0	0	1	0	0	0	0	0	0
17:00	5	9	0	0	14	0	0	0	0	0	0	0	0	0	0	0
17:15	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
17:30	2	10	0	0	12	0	0	0	0	0	0	0	0	0	0	0
17:45	0	10	0	0	10	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	13	83	0	0	96	0	2	0	0	2	0	0	0	0	0	0
GRAND TOTAL	15	153	0	0	168	0	4	0	0	4	0	1	0	0	1	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:30:00
To:	09:00:00	To:	08:30:00

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Count Date: Jun 16, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Broad St runs E/W

North Approach

	Out	In	Total
Cars	4	2	6
Trucks	0	0	0
Bicycles	0	1	1
	4	**3**	**7**

Jury Dr

Bicycles	0	0	0
Trucks	0	0	0
Cars	3	1	0
Totals	**3**	**1**	**0**

East Approach

	Out	In	Total
Cars	21	52	73
Trucks	0	1	1
Bicycles	1	1	2
	22	**54**	**76**

Broad St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	1	**1**	
1	1	51	**53**	

Peds: 0

N
W E
S

Peds: 0

Peds: 0

Broad St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	2	1	0	1
	20	20	0	0

West Approach

	Out	In	Total
Cars	52	23	75
Trucks	1	0	1
Bicycles	1	0	1
	54	**23**	**77**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Count Date: Jun 16, 2022
Period: 07:00 - 09:00

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

Start Time	North Approach Jury Dr						South Approach						East Approach Broad St						West Approach Broad St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:30	0		1	0	0	1					0			6	1	0	0	7	0	22		0	0	22	30
07:45	0		0	0	0	0					0			7	0	0	0	7	1	12		0	0	13	20
08:00	1		2	0	0	3					0			3	0	0	0	3	0	12		0	0	12	18
08:15	0		0	0	0	0					0			4	1	0	0	5	0	7		0	0	7	12
Grand Total	**1**		**3**	**0**	**0**	**4**					**0**	**0**		**20**	**2**	**0**	**0**	**22**	**1**	**53**		**0**	**0**	**54**	**80**
Approach %	25		75	0		-						-		90.9	9.1	0		-	1.9	98.1		0		-	
Totals %	1.3		3.8	0		5						0		25	2.5	0		27.5	1.3	66.3		0		67.5	
PHF	**0.25**		**0.38**	**0**		**0.33**						**0**		**0.71**	**0.5**	**0**		**0.79**	**0.25**	**0.6**		**0**		**0.61**	**0.67**
Cars	1		3	0		4						0		20	1	0		21	1	51		0		52	77
% Cars	100		100	0		100						0		100	50	0		95.5	100	96.2		0		96.3	96.3
Trucks	0		0	0		0						0		0	0	0		0	0	1		0		1	1
% Trucks	0		0	0		0						0		0	0	0		0	0	1.9		0		1.9	1.3
Bicycles	0		0	0		0						0		0	1	0		1	0	1		0		1	2
% Bicycles	0		0	0		0						0		0	50	0		4.5	0	1.9		0		1.9	2.5
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

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

Intersection: Broad St & Jury Dr
Site Code: 2220000001
Count Date: Jun 16, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Broad St runs E/W

North Approach

	Out	In	Total
Cars	12	9	21
Trucks	0	0	0
Bicycles	0	0	0
	12	**9**	**21**

Jury Dr

Bicycles	0	0	0
Trucks	0	0	0
Cars	8	4	0
Totals	**8**	**4**	**0**

East Approach

	Out	In	Total
Cars	69	51	120
Trucks	3	1	4
Bicycles	0	0	0
	72	**52**	**124**

Peds: 0

Broad St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	6	**6**	
0	1	47	**48**	

Peds: 0

Peds: 0

Broad St

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	3	3	0	0
	69	66	3	0

Peds: 0

West Approach

	Out	In	Total
Cars	53	74	127
Trucks	1	3	4
Bicycles	0	0	0
	54	**77**	**131**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Broad St & Jury Dr
Site Code:	2220000001
Count Date:	Jun 16, 2022
Period:	16:00 - 18:00

Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Jury Dr						South Approach						East Approach Broad St						West Approach Broad St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:00	1		3	0	0	4					0			27	0	0	0	27	2	15		0	0	17	48
16:15	1		0	0	0	1					0			15	1	0	0	16	0	11		0	0	11	28
16:30	2		2	0	0	4					0			11	1	0	0	12	2	11		0	0	13	29
16:45	0		3	0	0	3					0			16	1	0	0	17	2	11		0	0	13	33
Grand Total	**4**		**8**	**0**	**0**	**12**					**0**	**0**		**69**	**3**	**0**	**0**	**72**	**6**	**48**		**0**	**0**	**54**	**138**
Approach %	33.3		66.7	0		-						-		95.8	4.2	0		-	11.1	88.9		0		-	
Totals %	2.9		5.8	0		8.7						0		50	2.2	0		52.2	4.3	34.8		0		39.1	
PHF	**0.5**		**0.67**	**0**		**0.75**						**0**		**0.64**	**0.75**	**0**		**0.67**	**0.75**	**0.8**		**0**		**0.79**	**0.72**
Cars	4		8	0		12						0		66	3	0		69	6	47		0		53	134
% Cars	100		100	0		100						0		95.7	100	0		95.8	100	97.9		0		98.1	97.1
Trucks	0		0	0		0						0		3	0	0		3	0	1		0		1	4
% Trucks	0		0	0		0						0		4.3	0	0		4.2	0	2.1		0		1.9	2.9
Bicycles	0		0	0		0						0		0	0	0		0	0	0		0		0	0
% Bicycles	0		0	0		0						0		0	0	0		0	0	0		0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

APPENDIX B

Traffic Calculations

WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

TRIP GENERATION SPREADSHEET

VEHICLE TRIP ENDS VS. DWELLING UNITS
ON A WEEKDAY, PEAK HOUR OF ADJACENT STREET TRAFFIC, ONE HOUR BETWEEN 7AM AND 9AM

Date: 13-Jul-22 **Project No.:** 09-062

Project: 221 Fox Street **Prepared By:** JR

References: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition

Development	ITE Code & Land Use	Independent Variable	Total Trips- From Fitted Curve Equation [Ln(T) = 0.95Ln(X) - 0.51]		
			Total Trips:	Entering (23%)	Exiting (77%)
221 Fox Street Development	220: Multifamily Housing (Low Rise)	88 units	**43**	10	33

Notes:
This analysis is based on the Draft Plan of Common Elements Condominium- Queen's Court (Part of Lots 104 to 113 West of Church Street, Registered Plan 70, Military and Naval Reserve, Town of Penetanguishene, County of Simcoe) dated July 10, 2022.

Z:\Projects\2009\09-062\Spreadsheets\TIS\[220713_Signal_Warrant_Calculation.xlsx]2034_Fox+Beck

WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

TRIP GENERATION SPREADSHEET

VEHICLE TRIP ENDS VS. DWELLING UNITS
ON A WEEKDAY, PEAK HOUR OF ADJACENT STREET TRAFFIC, ONE HOUR BETWEEN 4PM AND 6PM

Date: 13-Jul-22 **Project No.:** 09-062

Project: 221 Fox Street **Prepared By:** JR

References: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition

Development	ITE Code & Land Use	Independent Variable	Total Trips- From Fitted Curve Equation [Ln(T) = 0.89Ln(X) - 0.02]		
			Total Trips:	Entering (63%)	Exiting (37%)
221 Fox Street Development	220: Multifamily Housing (Low Rise)	88 units	**53**	33	20

Notes:
This analysis is based on the Draft Plan of Common Elements Condominium- Queen's Court (Part of Lots 104 to 113 West of Church Street, Registered Plan 70, Military and Naval Reserve, Town of Penetanguishene, County of Simcoe) dated July 10, 2022.

Z:\Projects\2009\09-062\Spreadsheets\TIS\[220713_Signal_Warrant_Calculation.xlsx]2034_Fox+Beck

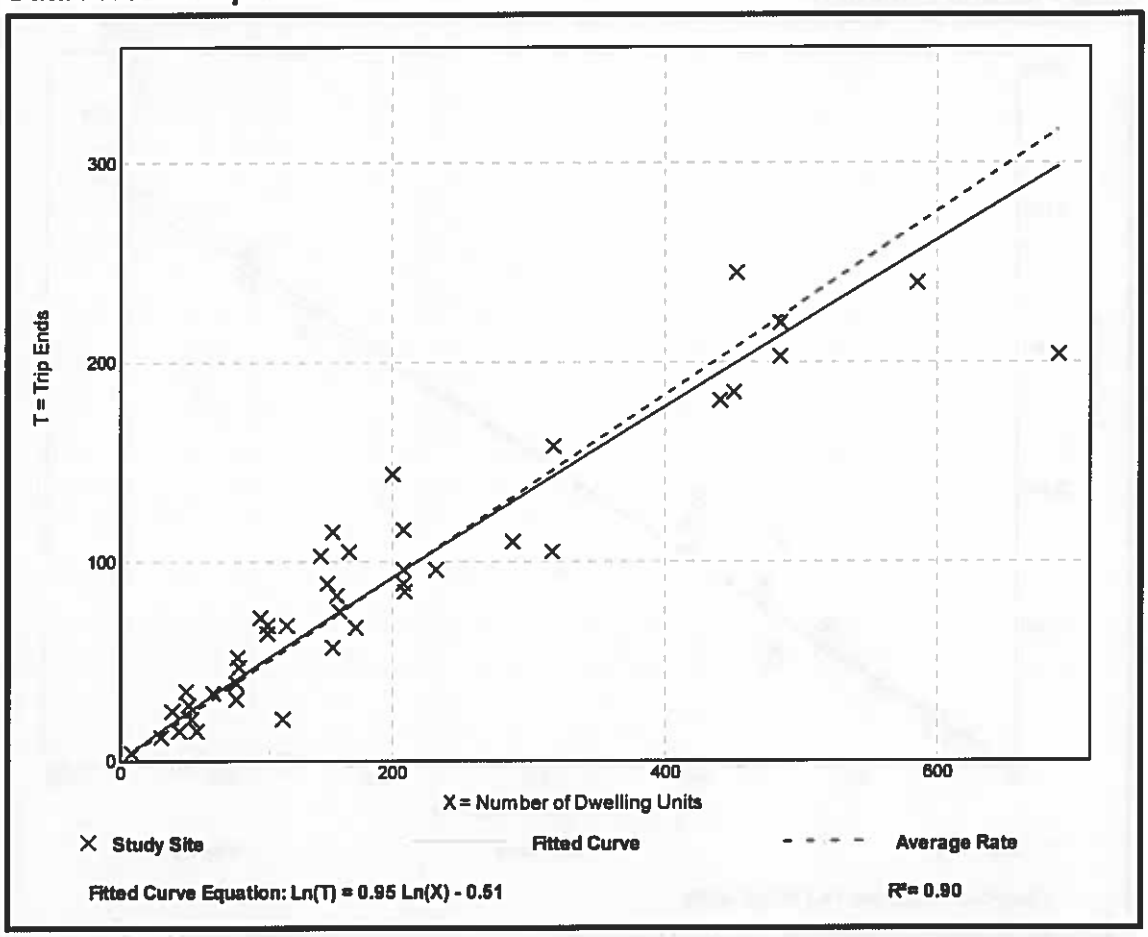
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 42
Avg. Num. of Dwelling Units: 199
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



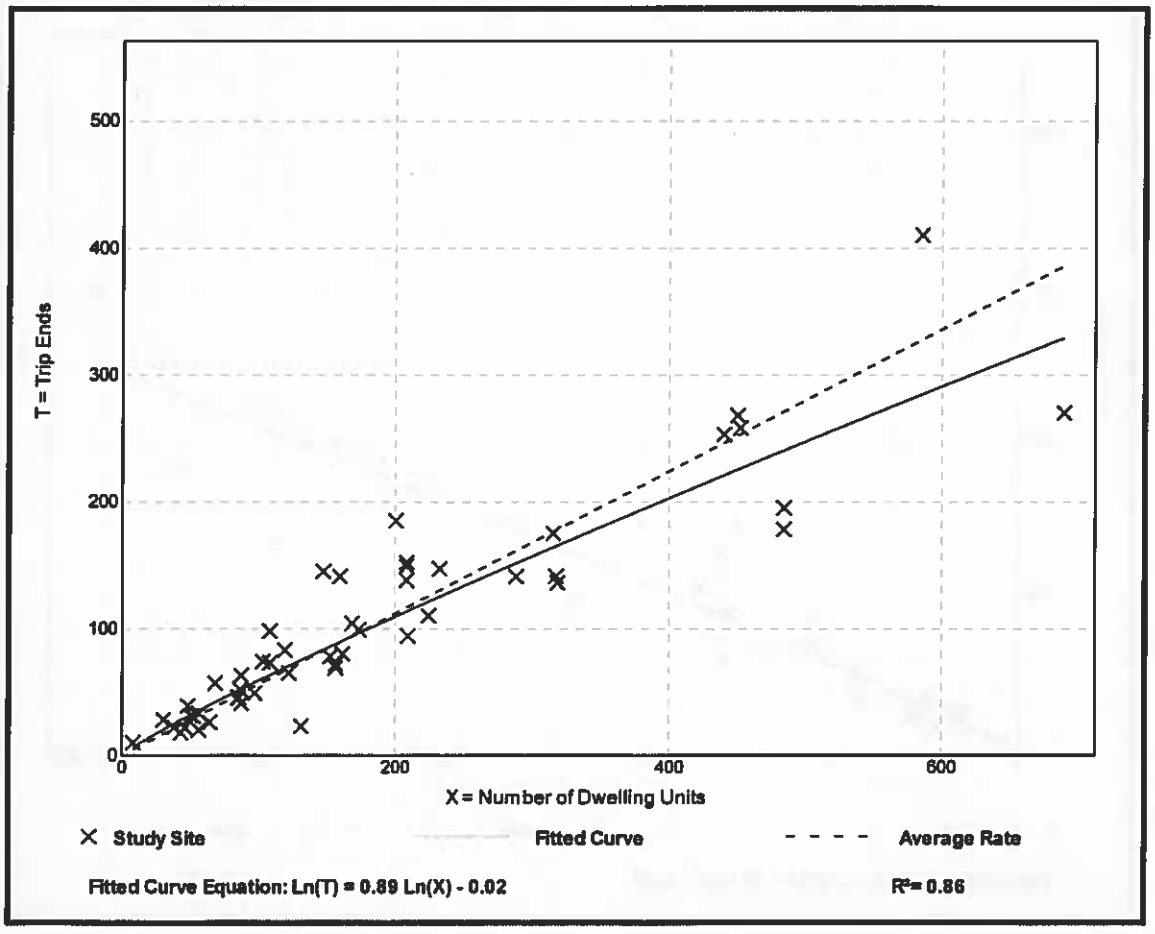
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 50
Avg. Num. of Dwelling Units: 187
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

ALL WAY STOP WARRANT CALCULATION- MAJOR ROADS
(OTM Book 5)

Date: 13-Jul-22 **Project No.:** 09-062

Project: 221 Fox Street **Prepared By:** JR

Scenario:	Background + Development Traffic- 2034- PM Peak
Intersection:	Fox St. / Hunter Rd.

Total vehicle volume (all approaches):	277
Total vehicle volume on major road:	264
Total vehicle volume on minor road:	13
*Total pedestrian volume (minor road):	20

Arterial & Major Roads Warrant:

All-way stop control must be considered where the following conditions are met:	**Value**		**Condition Met?**
Total vehicle volume on all intersection approaches >500 veh/hr for each of any 8 hours of the day	277 (veh)		No
Combined vehicle + peds volume on the minor street >200 per hr (all vehicles + pedestrians wishing to enter to intersection) for each of the same 8 hours, with an average delay to traffic on the minor street > 30s	13 (veh)	20 (peds)	No
Volume split < 70/30 (major road volume <2.33x minor road volume) (Major road volume = vehicles only, minor road volume = vehicles + pedestrians wanting to cross the major roadway)	8.00		No

All-way Stop Warranted? **No**

Warrant Result: Since all conditions are not met for all-way stop control, all way stop control is not recommended.

Note: *total pedestrian volume is an estimate.

WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

ALL WAY STOP WARRANT CALCULATION- MINOR ROADS
(OTM Book 5)

Date: 13-Jul-22 **Project No.:** 09-062

Project: 221 Fox Street **Prepared By:** JR

Scenario:	Background + Development Traffic- 2034- PM Peak
Intersection:	Fox St. / Hunter Rd.

3-way control? ("N" if 4-way control)	Y	(Y/N)
Total vehicle volume (all approaches):	277	
Total vehicle volume on major road:	264	
Total vehicle volume on minor road:	13	

Minor Roads Warrant:

All-way stop control must be considered where the following conditions are met:	**Value**	**Condition Met?**
Total vehicle volume on all intersection approaches >350 veh/hr for the highest hour recorded	277 (veh)	No
3-way cntrl: Volume split < 75/25 (major road volume <3.0x minor road volume) 4-way cntrl: Volume split < 65/35 (major road volume <1.86x minor road volume)	20.31 3-way control	No

All-way Stop Warranted? **No**

Warrant Result: Since all conditions are not met for all-way stop control, all way stop control is not recommended.

WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

ALL WAY STOP WARRANT CALCULATION- MAJOR ROADS
(OTM Book 5)

Date: 13-Jul-22 **Project No.:** 09-062

Project: 221 Fox Street **Prepared By:** JR

Scenario:	Background + Development Traffic- 2034- PM Peak
Intersection:	Fox St. / Beck Blvd.

Total vehicle volume (all approaches):	212
Total vehicle volume on major road:	196
Total vehicle volume on minor road:	16
*Total pedestrian volume (minor road):	53

Arterial & Major Roads Warrant:

All-way stop control must be considered where the following conditions are met:	**Value**		**Condition Met?**
Total vehicle volume on all intersection approaches >500 veh/hr for each of any 8 hours of the day	212 (veh)		No
Combined vehicle + peds volume on the minor street >200 per hr (all vehicles + pedestrians wishing to enter to intersection) for each of the same 8 hours, with an average delay to traffic on the minor street > 30s	16 (veh)	53 (peds)	No
Volume split < 70/30 (major road volume <2.33x minor road volume) (Major road volume = vehicles only, minor road volume = vehicles + pedestrians wanting to cross the major roadway)	2.84		No

All-way Stop Warranted? **No**

Warrant Result: Since all conditions are not met for all-way stop control, all way stop control is not recommended.

Note: *total pedestrian volume is an estimate.

WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

ALL WAY STOP WARRANT CALCULATION- MINOR ROADS
(OTM Book 5)

Date: 13-Jul-22 **Project No.:** 09-062

Project: 221 Fox Street **Prepared By:** JR

Scenario:	Background + Development Traffic- 2034- PM Peak
Intersection:	Fox St. / Beck Blvd.

3-way control? ("N" if 4-way control)	Y	(Y/N)
Total vehicle volume (all approaches):	212	
Total vehicle volume on major road:	196	
Total vehicle volume on minor road:	16	

Minor Roads Warrant:

All-way stop control must be considered where the following conditions are met:	**Value**	**Condition Met?**
Total vehicle volume on all intersection approaches >350 veh/hr for the highest hour recorded	212 (veh)	No
3-way cntrl: Volume split < 75/25 (major road volume <3.0x minor road volume) 4-way cntrl: Volume split < 65/35 (major road volume <1.86x minor road volume)	12.25 3-way control	No

All-way Stop Warranted? **No**

Warrant Result: Since all conditions are not met for all-way stop control, all way stop control is not recommended.

WMI & Associates Limited
120 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2029

SIGNAL WARRANT CALCULATIUON FOR FORECASTED VOLUMES
BACKGROUND + DEVELOPMENT TRAFFIC
(OTM Book 12 - Justification 7)

Date: 13-Jul-22 **Project Number:** 09-062

Project: 221 Fox Street **Prepared By:** JR

Horizon Year: **2034**
Region/City/Township: Penetanguishene

Major Street: Fox Street
Minor Street: Hunter Road

Number of Approach Lanes: 2
Tee Intersection? Y
Flow Conditions Free Flow

PM Forecast Only?

Time Period	Major Street: Fox Street						Minor Street: Hunter Road					
	Northbound			Southbound			Westbound			Eastbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak Hour		85	3	0	105		18		4			
PM Peak Hour		131	14	1	118		13		0			

Average Hourly Volumes				
Volume	AM	PM	AHV	Peds
1A-All	215	277	123	
1B-Minor	22	13	8.75	
2A-Major	193	264	114.25	
2B-Cross	18	13	7.75	20

Justification 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume	A or B % Fulfilled
	Flow Conditions	Free	Restricted	Free	Restricted		
		x					
	All Approaches	480	720	600	900	123	
					% Fulfilled	25.6%	
1B	Approach Lanes	1		2 or more		Average Hourly Volume	7.3%
	Flow Conditions	Free	Restricted	Free	Restricted		
		x					
	Minor Street Approaches	120	255	120	255	8.75	
					% Fulfilled	7.3%	

Warrant 2 - Delay To Crossing Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume	A or B % Fulfilled
	Flow Conditions	Free	Restricted	Free	Restricted		
		x					
	Major Street Approaches	480	720	600	900	114.25	
					% Fulfilled	23.8%	
2B	Approach Lanes	1		2 or more		Average Hourly Volume*	23.8%
	Flow Conditions	Free	Restricted	Free	Restricted		
		x					
	Traffic Crossing Major Street	50	75	120	170	28	
					% Fulfilled	55.5%	

*Vehicular + pedestrian crossing traffic

Warrant Results: Since Warrants #1 and #2 are not in excess of 120% fulfilled for an existing intersection, signalization is not warranted.

\\wminas\Public\Data\Projects\2009\09-062\Spreadsheets\TIS\[220713_Signal_Warrant_Calculation.xlsx]2034_Fox+Hunter

WMI & Associates Limited
120 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2029

SIGNAL WARRANT CALCULATIUON FOR FORECASTED VOLUMES
BACKGROUND + DEVELOPMENT TRAFFIC
(OTM Book 12 - Justification 7)

Date: 13-Jul-22 **Project Number:** 09-062

Project: 221 Fox Street **Prepared By:** JR

Horizon Year: **2034**
Region/City/Township: Penetanguishene

Major Street: Fox Street
Minor Street: Beck Boulevard

Number of Approach Lanes: 2
Tee Intersection? Y
Flow Conditions Free Flow

PM Forecast Only?

Time Period	Major Street: Fox Street						Minor Street: Beck Boulevard					
	Northbound			Southbound			Westbound			Eastbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
AM Peak Hour		73	6	2	48		21		5			
PM Peak Hour		79	21	5	91		13		3			

Average Hourly Volumes				
Volume	AM	PM	AHV	Peds
1A-All	155	212	91.75	
1B-Minor	26	16	10.5	
2A-Major	129	196	81.25	
2B-Cross	21	13	8.5	53

Justification 1 - Minimum Vehicular Volume

	Approach Lanes	1		2 or more		Average Hourly Volume	A or B % Fulfilled
1A	Flow Conditions	Free	Restricted	Free	Restricted		
		x					
	All Approaches	480	720	600	900	91.75	8.8%
					% Fulfilled	19.1%	
1B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
		x					
	Minor Street Approaches	120	255	120	255	10.5	
					% Fulfilled	8.8%	

Warrant 2 - Delay To Crossing Traffic

	Approach Lanes	1		2 or more		Average Hourly Volume	A or B % Fulfilled
2A	Flow Conditions	Free	Restricted	Free	Restricted		
		x					
	Major Street Approaches	480	720	600	900	81.25	16.9%
					% Fulfilled	16.9%	
2B	Approach Lanes	1		2 or more		Average Hourly Volume*	16.9%
	Flow Conditions	Free	Restricted	Free	Restricted		
		x					
	Traffic Crossing Major Street	50	75	120	170	62	
					% Fulfilled	123.0%	

*Vehicular + pedestrian crossing traffic

Warrant Results: Since Warrants #1 and #2 are not in excess of 120% fulfilled for an existing intersection, signalization is not warranted.

\\wminas\Public\Data\Projects\2009\09-062\Spreadsheets\TIS\[220713_Signal_Warrant_Calculation.xlsx]2034_Fox+Hunter

4.9 Justification 6 – Pedestrian Volume and Delay

Purpose

The minimum pedestrian volume conditions are intended for applications where the traffic volume on a main road is so heavy that pedestrians experience excessive delay or hazard in crossing the main road, or where high pedestrian crossing volumes produce the likelihood of such delays.

The justification is applicable to an unsignalized intersection or a mid-block location.

Once justification has been established, determination of the appropriate crossing protection device should be subject to site-specific engineering judgement (see Guideline 3 for options).

Standard

The need for a traffic control device at an intersection or mid-block location must be considered if both the following minimum pedestrian volume and delay criteria are met:

1. The total eight-hour pedestrian volume crossing the main road at an intersection or mid-block location during the highest eight hours of pedestrian traffic fulfils the

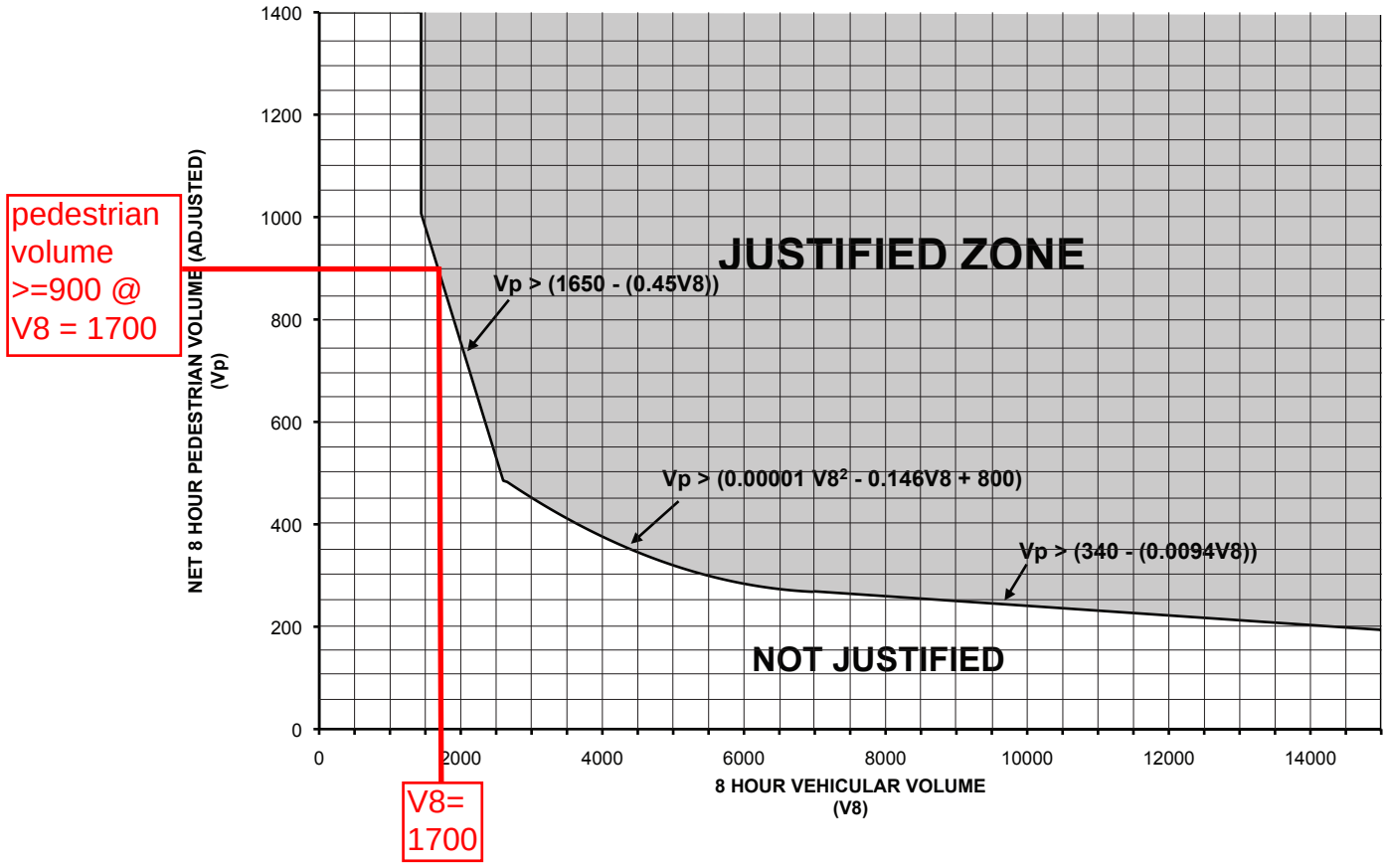


Figure 22 – Justification 6 – Pedestrian Volume