TRAFFIC IMPACT STUDY

INDIGO2
EDEN OAK (RAGLAN) INC.
TOWN OF COLLINGWOOD

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.
1 FIRST STREET
COLLINGWOOD, ONTARIO
L9Y 4R3

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CROZIER
CONSULTING ENGINEERS

Identification	Date	Description of Work
Rev. 0	December 2021	First Submission to the Town and the County

1 EXECUTIVE SUMMARY

C.F. Crozier & Associates Inc. (Crozier) was retained by Eden Oak (Raglan) Inc. (the Client) to prepare a Traffic Impact Study (TIS) in support of the Zoning By-law Amendment and Draft Plan of Subdivision for a residential development, IndigO2, located at 452 Raglan Street (the Site) in the Town of Collingwood (the Town).

The Draft Plan proposes 21 single detached units and 107 townhouse units. The site includes four roadways to serve the site which will connect to the existing boundary road network through Kirby Avenue, Peel Street and Williams Street.

The analysis contained within this report was completed based on a previous version of the Draft Plan which proposed 21 single detached units and 98 townhouse units. The trip generation described herein is understated by 5 and 7 two-way trips in the a.m. and p.m. peak hours, respectively. As such, the findings and conclusions contained within this report remain valid when considering the final Draft Plan dated November 16, 2021.

It is anticipated that the proposed development will be completed by 2024. Accordingly, the horizon years of 2024 and 2029 have been analyzed, representing the build out year and 5 years beyond full build out.

To be consistent with the Town's 2019 Transportation Study Update, a growth rate of 0.5 percent was used on all roadways to establish the base future background traffic volumes. Background developments, in close proximity to the site, were also included in the analysis.

The detailed analysis contained within this report has resulted in the following key findings:

- Under existing conditions, the study intersections are operating at a Level of Service (LOS) "C" or better, with excess capacity for growth. This analysis took into consideration the completion of the left-turn lane on Poplar Sideroad at Portland Street and the realignment of Tracey Lane/Findlay Drive at Hurontario Street.

- Under 2029 future background conditions, the intersections of Tracey Lane/Findlay Drive and Hurontario Street, Poplar Sideroad and Portland Street, and Collins Street and Peel Street are expected to operate at a LOS "C" or better; LOS of "E" or better; and LOS of "A", respectively.

- The proposed development is expected to generate 67 and 81 trips in the weekday a.m. and p.m. peak hours, respectively. As noted, this trip generation was based on a previous version of the site plan and is understated by 5 and 7 two-way trips in the a.m. and p.m. peak hours, respectively. As such, the findings and conclusions contained within this report remain valid when considering the final Draft Plan prepared by MHBC Consulting, dated November 16, 2021.

- The proposed development will result in additional traffic volumes to local roads north and west of the site. The addition of traffic volumes on Collins Street is forecasted to be 17vehicles or less. The addition of traffic volumes on Peel Street is forecasted to be 19 vehicles or less. The intersections of Collins Street and Hurontario Street, as well as Peel Street and Hume Street are signalized and can support additional traffic volumes.

- Under the 2029 future total traffic volume conditions, the study intersections do not warrant signalization. The analysis followed the procedures specified in Chapter 4 of the "Ontario

Traffic Manual – Book 12", March 2012 for Justifications 1 (Minimum Vehicle Volume), 2 (Delay to Cross Traffic) and 3 (Volume/Delay Combination). The future total peak hour volumes were assigned to the 8-hours based on the percentage of the peak hour traffic volumes established from the existing 8-hour traffic data.

- Under 2029 future total conditions, the intersections of Tracey Lane/Findlay Drive and Hurontario Street, Poplar Sideroad and Portland Street, and Collins Street and Peel Street are expected to operate at a LOS "C; LOS of "E" or better; and LOS of "A", respectively.
    - The addition of the site generated traffic at the intersections of Poplar Sideroad and Portland Street is expected to result in a maximum increase in the control delay of 6.6 s and a maximum increase in volume-to-capacity ratio of 0.08, associated with the southbound approach, when compared to the future background traffic operations.
- Sidewalks will be provided throughout the site, tying into the existing infrastructure on Williams Street, Peel Street and Kirby Avenue, and provide connectivity to the Rail Trail. Internal intersection traffic control and crosswalks will be reviewed through detailed design.

It is concluded that the traffic generated by the proposed development can be accommodated by the boundary road network.

The analysis described herein was prepared using a previous version of the Draft Plan. The findings and conclusions contained within this report remain valid when considering the final Draft Plan, as prepared by MHBC Planning dated November 16, 2021. Any minor changes to the Plan will not materially impact the conclusions of this report.

The proposed Zoning By-law Amendment and Draft Plan of Subdivision Applications can be supported from a traffic operations perspective.

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2 INTRODUCTION

2.1 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Eden Oak (Raglan) Inc. (the Client) to prepare a Traffic Impact Study (TIS) in support of the Zoning By-law Amendment and Draft Plan of Subdivision for a residential development, IndigO2, located at 452 Raglan Street (the Site) in the Town of Collingwood (the Town).

2.2 Purpose

The purpose of the study is to explore the impacts of the proposed development on the boundary road network by analyzing the following:

- Traffic operations at the study intersections under existing, future background, and future total traffic volume conditions
- Forecasted trip generation of the proposed development

The TIS has been prepared in accordance with the Terms of Reference established with the Town. **Appendix A** includes correspondence with Town staff.

2.3 Development Proposal

The Draft Plan proposes the development of 21 single detached units, 107 townhouse units, a trail connection, and park space. The site includes four roadways to serve the site which will connect to the existing boundary road network through Kirby Avenue, Peel Street and Williams Street.

The analysis contained within this report was completed based on a previous version of the Draft Plan which proposed 21 single detached units and 98 townhouse units. The trip generation described herein is understated by 5 and 7 two-way trips in the a.m. and p.m. peak hours, respectively. As such, the findings and conclusions contained within this report remain valid when considering the final Draft Plan dated November 16, 2021.

Figure 1 includes the proposed Draft Plan prepared by MHBC Planning (November 16, 2021).

3 EXISTING CONDITIONS

3.1 Development Lands

The property is approximately 9.03 ha and currently consists of agricultural lands, a house, and a river. The property is bounded by environmentally protected lands to the south and east; a pedestrian trail to the west (former Railway); and residential lands to the north. The area is zoned as residential and environmental protection.

The location of the site is illustrated in the Site Location Plan included as **Figure 2**. Relevant excerpts from the Town's Zoning By-law and Official Plan have been included as **Appendix B** and **Appendix C**, respectively.

3.2 Key Intersections

The analysis contained herein includes the operations of the following key intersections:

- Tracey Lane/Findlay Drive and Hurontario Street
- Poplar Sideroad and Portland Street
- Collins Street and Peel Street

Figure 3 illustrates the existing traffic control and lane configurations at the study intersections.

3.3 Boundary Road Network

The boundary road network is described in **Table 1.** The information included below was obtained from the Town of Collingwood Official Plan "Schedule D – Transportation Plan", included in **Appendix C**.

Table 1: Boundary Road Network

Roadway	Hurontario Street (Country Road 124)	Collins Street	Peel Street	Poplar Sideroad	Portland Street	Tracey Lane / Findlay Drive
Direction	North-South	East-West	North-South	East-West	North-South	East - West
Classification	County Road (Arterial)	Future Collector	Future Collector (north of Collins, otherwise local)	County Road (Arterial)	Local	Local
Jurisdiction	Town of Collingwood (North of Poplar Sideroad) Simcoe County (South of Poplar Sideroad)	Town of Collingwood	Town of Collingwood	Simcoe County	Town of Collingwood	Town of Collingwood
Posted Speed Limit	50 km/h (Posted)	50 km/hr (Assumed)	50 km/hr (Assumed)	60 km/hr (Posted)	50 km/hr (Assumed)	40 km/hr (Posted on Findlay Drive)
Total Number of Lanes Per Direction	1	1	1	1	1	1

3.4 Active Transportation Facilities

Collingwood has many active transportation facilities near site. The Train Trail which provides off-road cycling from the site south to Clearview Township and north to downtown Collingwood. The Train Trail connects to Collingwood's extensive trail system with connections to Meaford and Wasaga Beach. The Collingwood Trails map has been included as **Appendix D.** Additionally, the development is serviced by close connections to four Collingwood Transit routes running at thirty to sixty-minute headways, the Collingwood Transit map and schedule have been included as **Appendix E.** The active transportation facilities near the site are summarized in **Table 2**.

Table 2: Active Transportation Facilities

Roadway	Hurontario Street (Country Road 124)	County Road 124	Collins Street	Peel Street	Poplar Sideroad	Portland Street	Tracey Lane	Findlay Drive
Sidewalk	One side, 3m	None	Two Sides, 2m	Two Sides, 2m (north of Train Trail only 1 side)	East-West	One Side, 2m	Not yet Complete	One Side
Cycling Facilities	None	None	Designated on Road Cycling Route (shared)	Designated on Road Cycling Route (shared)	None	None	None	None
Transit Routes	East Route, West Route, Crosstown Route, and Wasaga Beach Link	None	East Route	East Route	Wasaga Beach Link	None	None	None

3.5 Traffic Data

Turning movement counts at the study intersections were undertaken by Spectrum Data Inc. from 6:00 a.m. to 10:00 a.m., and 3:00 p.m. to 7:00 p.m. on Tuesday, July 27, 2021. The 2021 turning movement counts have been included in **Appendix F**, and **Figure 4** illustrates the weekday a.m. and p.m. peak hour traffic volumes.

Peak hour factors (PHF) associated with the weekday a.m. and p.m. peak hours were calculated for each intersection based on the existing traffic volumes. **Table 3** outlines the PHFs as calculated and applied to the model for the study intersections.

Table 3: Intersection Peak Hours

Intersection	Date	Peak Hour	Peak Hour Factor
Tracey Lane/Findlay Drive and Hurontario Street	Tuesday, July 27th, 2021	8:15 – 9:15 A.M.	0.95
		3:45 – 4:45 P.M.	0.95
Poplar Sideroad and Portland Street		8:00 – 9:00 A.M.	0.86
		4:30 – 5:30 P.M.	0.83
Collins Street and Peel Street		8:15 – 9:15 A.M.	0.95
		4:30 – 5:30 P.M.	0.89

3.6 Intersection Operations

The operations of the study intersections were analyzed based on the traffic volumes illustrated in **Figure 4**. Level of Service (LOS) definitions have been included in **Appendix G**, with detailed capacity analysis worksheets included in **Appendix H. Table 4** outlines the existing traffic operations at the study intersections. This analysis took into consideration the completion of the lef-turn lane on Poplar Sideroad at Portland Street, and the realignment of Tracey Lane/Findlay Drive at Hurontario Street.

Table 4: 2021 Existing Level of Service

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay[2]	Maximum v/c ratio[2]
Tracey Lane/Findlay Drive and Hurontario Street	Stop (Two-way)	A.M.	B	12.3 s (EB)	0.08 (EB)
		P.M.	B	13.2 s (EB)	0.12 (EB)
Poplar Sideroad and Portland Street	Stop (3-legged)	A.M.	B	14.2 s (SB)	0.12 (SB)
		P.M.	C	16.2 s (SB)	0.14 (SB)
Collins Street and Peel Street	Stop (All-way)	A.M.	A	7.5 s (SB)	0.07 (EB)
		P.M.	A	7.6 s (EB)	0.12 (SB)

Note[1]: The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.

Note[2]: The maximum v/c ratio for two-way stop-controlled intersections represents the maximum v/c for the minor road approach movements at the intersection.

As noted above, the intersection of Tracey Lane and Hurontario Street is operating with a LOS "B" and the intersection of Poplar Sideroad and Portland Street are currently operating with a LOS "C" or better in the weekday a.m. and p.m. peak hours. Additionally, the intersection of Collins Street and Peel street is operating with a LOS of "A" during the weekday a.m. and p.m. peak hours. The existing volume-to-capacity ratios indicate that the boundary road network has excess capacity to accommodate increased traffic growth.

4 FUTURE BACKGROUND CONDITIONS

4.1 Horizon Years

It is anticipated that the proposed development will be completed by 2024. Accordingly, the horizon years of 2024 and 2029 have been analyzed, representing the build out year and 5 years beyond full build out.

4.2 Growth Rate & Roadway Improvements

To be consistent with the Town of Collingwood 2019 Transportation Study completed by Burnside, a growth rate of 0.5% has been applied to all roadways to establish the base future background traffic volumes. No roadway improvements have been identified at the study intersections within the horizon years of the study.

4.3 Background Development Trip Generation

Several developments have been identified in close proximity to the site which may have forecasted trips travelling past the site and through the study intersections. The background developments are as follows:

- Riverside Midrise
- Harmony Living
- Eden Oak
- Charleston Homes
- Pretty River Estates (Phase 2)
- 225 Collins Street

For conservative analysis purposes, it was assumed that all the background developments listed above will be fully built out by the first horizon year (2024).

The trip generation forecasts for the background developments have been summarized in **Table 8** and the trip assignment of the background developments has been included in **Figures 5 – 13.** Background developments information has been included in **Appendix I** for reference.

The trip generation of the Pretty River Phase 2, and Charleston Homes developments was adopted from the original Eden Oak TIS prepared by Cole dated December 2018. The trip generation of the remaining background developments was forecasted using the ITE Trip Generation Manual, 10th Edition.

Trips generated by the Charleston homes development have been illustrated on the trip assignment figures provided in the original Eden Oak Traffic Impact Study (Cole, 2018). The original report did not include information pertaining to the specific unit type, unit count or inbound/outbound breakdown for the Charleston Homes subdivisions. Accordingly, the trip generation has not been included in **Table 8**.

Table 5: Background Development Trip Generation

Development	Land Use	Number of Units/ GFA	Roadway Peak Hour	Number of Trips		
				Inbound	Outbound	Total
Riverside Midrise	Midrise (LUC: 221 "Multifamily Housing (Midrise)")	156	Weekday A.M.	14	42	56
			Weekday P.M.	41	27	68
Harmony Living	Townhomes (LUC: 220 "Multifamily Housing (Low-Rise)")	80	Weekday A.M.	9	30	39
			Weekday P.M.	30	18	48
Eden Oak	Single Family Detached Homes (LUC: 210 "Single Family Detached Homes")	146	Weekday A.M.	25	76	101
			Weekday P.M.	86	50	136
	Townhomes (LUC: 220 "Multifamily Housing (Low-Rise)")	40	Weekday A.M.	7	25	32
			Weekday P.M.	25	15	40
Pretty River Estates (Phase 2)	Townhomes (LUC: 220 "Multifamily Housing (Low-Rise)")	131	Weekday A.M.	15	48	63
			Weekday P.M.	51	30	81
	Single Family Detached Homes (LUC: 210 "Single Family Detached Homes")	21	Weekday A.M.	5	15	20
			Weekday P.M.	14	9	23
225 Collins Street	Midrise (LUC: 221 "Multifamily Housing (Midrise)")	10	Weekday A.M.	1	3	4
			Weekday P.M.	3	2	5
	Retail (LUC: 820 "Shopping Center")	4 200 ft^2 GFA	Weekday A.M.	2	1	4
			Weekday P.M.	8	8	16

Note: The above trip generation was adopted from the original studies, with relevant excerpts contained in Appendix J, or calculated using the ITE Trip Generation Manual, 10th Edition

4.4 Background Trip Distribution and Assignment

The trips generated by the Riverside Midrise, Harmony Living, and 225 Collins Street background developments during future background scenarios were distributed to the boundary road network using the trip distributions in **Figures 5, 6 and 7,** respectively. This distribution is consistent with the site generated trip distribution described in detail in **Section 5.2** of this report, and is described below:

- 30% via Hurontario Street northbound to/from the downtown core
  - 10% at Tracey Lane
  - 20% at Collin Street
- 24% via Hume Street westbound to/from the downtown core
- 26% via Poplar Sideroad eastbound to/from Wasaga Beach
- 20% via Poplar Sideroad westbound to/from the Town of the Blue Mountains and Nottawa

The corresponding trip assignments for these developments are illustrated in **Figures 8, 9 and 10**.

The trips generated by the Eden Oak, Charleston Homes, and Pretty River Estates Phase 2 background developments during future background scenarios were adopted from the original Eden Oak Traffic Impact Study (Cole, 2018)**.** The trip assignments corresponding with these developments are illustrated in **Figure 11, 12, and 13**.

The total background trip assignment is illustrated in **Figure 14.**

4.5 Intersection Operations

The 2024 and 2029 future background traffic operations are summarized in **Table 6 and Table 7,** respectively. The operations were based on the future background traffic volumes illustrated in **Figure 15 and Figure 16** for 2024 and 2029 horizon years, respectively. These volumes reflect a 0.5% growth rate and the trips generated by the above noted planned background developments. The LOS definitions and capacity analysis worksheets have been included in **Appendix G** and **Appendix H**, respectively.

Table 6: 2024 Future Background Level of Service

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay	Maximum v/c ratio[2]
Tracey Lane/Findlay Drive and Hurontario Street	Stop (Two-way)	A.M.	B	14.7 s (EB)	0.16 (WB)
		P.M.	C	16.3 s (EB)	0.16 (EB)
Poplar Sideroad and Portland Street	Stop (T)	A.M.	C	20.9 s	0.45 (SB)
		P.M.	D	33.3 s	0.55 (SB)
Collins Street and Peel Street	Stop (Four-way)	A.M.	A	7.5 s (EB)	0.08 (EB)
		P.M.	A	7.8 s (EB)	0.16 (SB)

Note[1]: The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.

Note[2]: The maximum v/c ratio for two-way stop-controlled intersections represents the maximum v/c for the minor road approach movements at the intersection.

Table 7: 2029 Future Background Level of Service

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay	Maximum v/c ratio[2]
Tracey Lane/Findlay Drive and Hurontario Street	Stop (Two-way)	A.M.	B	14.9 s (EB)	0.16 (WB)
		P.M.	C	16.6 s (EB)	0.17 (EB & WB)
Poplar Sideroad and Portland Street	Stop (T)	A.M.	C	21.6 s	0.46 (SB)
		P.M.	E	35.8 s	0.57 (SB)
Collins Street and Peel Street	Stop (Four-way)	A.M.	A	7.5 s	0.09 (EB)
		P.M.	A	8.0 s	0.16 (SB)

Note[1]: The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.

Note[2]: The maximum v/c ratio for two-way stop-controlled intersections represents the maximum v/c for the minor road approach movements at the intersection.

The intersection of Tracey Lane/Findlay Drive and Hurontario Street is expected to operate with a LOS "C" or better under 2029 future background traffic volume conditions. The maximum control delay of 16.6 s and maximum volume-to-capacity ratio of 0.17 (EB) indicates that the intersection has reserve capacity for increases in traffic volumes.

The intersection of Poplar Sideroad and Portland Street is expected to operate with a LOS "E" or better under 2029 future background traffic volume conditions. The maximum control delay of 35.8 s and maximum volume-to-capacity ratio of 0.57 (SB) indicates that the intersection is expected to operate acceptably with reserve capacity for increases in traffic volumes.

The intersection of Collins Street and Peel Street is expected to operate with a LOS "A" or better under 2029 future background traffic volume conditions. The maximum control delay of 8.0 s (EB) and maximum volume-to-capacity ratio of 0.16 (SB) indicates that the intersection is expected to operate well with reserve capacity for increases in traffic volumes.

5 SITE GENERATED TRAFFIC

5.1 Trip Generation

The proposed site will result in additional vehicles on the boundary road network that previously did not exist.

As noted previously, the following trip generation calculations were based on a previous version of the Draft Plan, which proposed 98 townhouse units. The final Draft Plan contains 107 townhouse units. This results in a forecasted trip generation that is understated by 5 and 7 two-way trips in the a.m. and p.m. peak hours, respectively. As such, the findings and conclusions contained within this report remain valid when considering the final Draft Plan prepared by MHBC Consulting, dated November 16, 2021.

The trip generation of the residential development was forecasted using the fitted curve equations provided in the ITE Trip Generation Manual, 10th Edition under the Land Use Category 220 "Multifamily Housing (Low-Rise)" and 210 "Single-Family Detached Housing". Relevant excerpts have been included as **Appendix J**. The forecasted trips are summarized in **Table 8**.

Table 8: ITE Trip Generation

Land Use	Peak Hour	Number of Trips		
		Inbound	Outbound	Total
LUC: 210 Single-Family Detached Housing (21 Units)	Weekday A.M.	5	15	20
	Weekday P.M.	14	9	23
LUC 220: Multifamily Housing (Low-Rise) (98 Units)	Weekday A.M.	11	36	47
	Weekday P.M.	37	21	58
TOTAL	**Weekday A.M.**	**16**	**51**	**67**
	Weekday P.M.	**51**	**30**	**81**

5.2 Trip Distribution and Assignment

The Jones Consulting Group Ltd. completed a Traffic Impact Study (August 2004) for the lands formerly known as the Hughes Development, which encompassed the Riverside developments and the now built Lockhart Meadows residential development. The trips generated by the proposed development were distributed to the boundary road network based on the trip distribution described in the Hughes Development TIS. This trip distribution was found to be consistent with the distribution utilized in the original Eden Oak TIS, and thus was used for this analysis.

- 30% via Hurontario Street northbound to/from the downtown core
  - 10% at Tracey Lane
  - 20% at Collin Street
- 24% via Hume Street westbound to/from the downtown core
- 26% via Poplar Sideroad eastbound to/from Wasaga Beach
- 20% via Poplar Sideroad westbound to/from the Town of the Blue Mountains and Nottawa

It is acknowledged that the site has two connections to Collins Street through Williams Street and Peel Street. For the purpose of this assessment, the accesses were consolidated to review the impacts of the site generated traffic at the intersection of Peel Street and Collins Street. As described in **Section 6.3**, the intersection of Peel Street and Collins Street is anticipated to operate with a LOS "A" under 2029 future total traffic volume conditions. Accordingly, the redistribution of the inbound and outbound trips between the two access points is expected to have a minimal impact on the operations of the boundary road network.

The trips generated by the proposed development were assigned to the boundary road network per the distributions illustrated in **Figure 17**. The corresponding trip assignment is illustrated in **Figure 18**.

5.3 Minor intersection Assignment & Qualitative Assessments

5.3.1 Collins Street & Hurontario Street

The intersection of Collins Street and Hurontario Street has infrastructure to support higher traffic volumes including signals and auxiliary left-turn lanes on all approaches. Additional site generated trips on Collins Street are anticipated to be 13 and 17 two-way trips in the a.m. and p.m. hours, respectively. This is not expected to result in operational issues at the signalized intersection.

5.3.2 Peel Street & Hume Street

The intersection of Peel Street and Hume Street has infrastructure to support higher traffic volumes including signals and auxiliary left-turn lanes on all approaches. Additional vehicle trips on Peel Street are anticipated to be 17 and 19 two-way trips in the a.m. and p.m. hours, respectively. This is not expected to result in operational issues at the signalized intersection.

6 TOTAL FUTURE CONDITIONS

6.1 Basis of Assessment

The traffic impacts arising from the proposed development were assessed based on the site generated traffic illustrated in **Figure 18** being superimposed on the future background traffic volumes in **Figures 15, and 16**. The resulting total traffic volumes for the weekday a.m. and p.m. peak hours are illustrated in **Figures 19, and 20** for the 2024 and 2029 horizon years, respectively.

6.2 Signal Justification

A signal warrant analysis was undertaken for the intersections of Poplar Sideroad and Portland and Tracey Land and Hurontario Street based on the 2029 future total traffic volumes. The analysis followed the procedures specified in Chapter 4 of the "Ontario Traffic Manual – Book 12", March 2012 for Justifications 1 (Minimum Vehicle Volume), 2 (Delay to Cross Traffic) and 3 (Volume/Delay Combination). The future total peak hour volumes were assigned to the 8-hours based on the percentage of the peak hour traffic volumes established from the existing 8-hour traffic data.

The results of the signal warrant analyses are summarized in **Table 9** and **Table** 10 and the warrant sheets have been included in **Appendix K**. Signals are not warranted at either intersection under projected 2029 future total traffic volume conditions. The requirement for signals should continue to be monitored by the Town and County as new developments are constructed and occupied within the study area.

Table 9: Signal Warrant Analysis Results
2029 Traffic Volume Conditions at Tracey Lane/Findlay Drive and Hurontario Street

Justification		Section Percent	Signal Justified
1. Minimum Vehicular Volume	A. Total Volume	88%	No
	B. Crossing volume	61%	
2. Delay to Cross Traffic	A. Main Road	83%	No
	B. Crossing Road	50%	
3. Combination	A. Justification 1	61%	No
	B. Justification 2	59%	

Table 10: Signal Warrant Analysis Results
2029 Traffic Volume Conditions at Poplar Sideroad and Portland Street

Justification		Section Percent[1]	Signal Justified
1. Minimum Vehicular Volume	A. Total Volume	95%	No
	B. Crossing volume	58%	
2. Delay to Cross Traffic	A. Main Road	93%	No
	B. Crossing Road	90%	
3. Combination	B. Justification 1	58%	No
	B. Justification 2	90%	

Note[1]: Poplar Sideroad and Portland Street is a "T" intersection, accordingly, the minimum section percentage requirements are increased by 50%.

6.3 Intersection Operations

The 2024 and 2029 future total traffic operations of the boundary road network are summarized in **Table 11** and **Table 12**. The LOS definitions are included in **Appendix G**, and the detailed capacity analysis worksheets are included in **Appendix H**.

Table 11: 2024 Future Total Level of Service

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay	Maximum v/c ratio[2]
Tracey Lane/Findlay Drive and Hurontario Street	Stop (Two-way)	A.M.	B	14.9 s (EB)	0.16 (WB)
		P.M.	C	16.6 s (EB)	0.17 (EB & WB)
Poplar Sideroad and Portland Street	Stop (T)	A.M.	C	23.0 s	0.51 (SB)
		P.M.	E	40.2 s	0.63 (SB)
Collins Street and Peel Street	Stop (Four-way)	A.M.	A	7.6 s	0.10 (NB)
		P.M.	A	7.9 s	0.18 (SB)

Note[1]: The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note[2]: The maximum v/c ratio for two-way stop-controlled intersections represents the maximum v/c for the minor road approach movements at the intersection.

Table 12: 2029 Future Total Level of Service

Intersection	Control	Peak Hour	Level of Service[1]	Control Delay	Maximum v/c ratio[2]
Tracey Lane/Findlay Drive and Hurontario Street	Stop (Two-way)	A.M.	C	15.2 s (EB)	0.17 (WB)
		P.M.	C	16.9 s (EB)	0.17 (EB & WB)
Poplar Sideroad and Portland Street	Stop (T)	A.M.	C	23.9 s	0.53 (SB)
		P.M.	E	44.1 s	0.66 (SB)
Collins Street and Peel Street	Stop (Four-way)	A.M.	A	7.6 s	0.10 (NB)
		P.M.	A	8.0 s	0.18 (SB)

Note[1]: The Level of Service of a stop-controlled intersection is based on the delay associated with the critical minor road approach.
Note[2]: The maximum v/c ratio for two-way stop-controlled intersections represents the maximum v/c for the minor road approach movements at the intersection.

The intersection of Tracey Lane and Hurontario Street is expected to operate at a LOS "C" or better in the weekday a.m. and p.m. peak hours. The addition of the site generated traffic is expected to result in a maximum increase in control delay of 0.3 s, and no increase in the maximum volume-to-capacity when compared to the future background traffic operations. SimTraffic reports indicate the maximum eastbound and westbound queues are anticipated to be 24.5 m and 14.4 m, respectively, which can be supported on the roadway without blocking access to other sites.

The intersection Poplar and Portland Street is expected to operate at a LOS "E" or better in the weekday a.m. and p.m. peak hours. The addition of the site generated traffic is expected to result in a maximum increase in control delay of 3.9 s, and an increase in the maximum volume-to-capacity of 0.03 when compared to the future background traffic operations. SimTraffic reports indicate that the maximum southbound queue is anticipated to be 34.1 m, which can be supported on the roadway without blocking other intersections. The maximum eastbound and westbound queues are anticipated to be 15.9 m and 1.9 m, respectively, which can be contained within their respective storage lengths of 110 m and 20 m.

The intersection of Collins Street and Peel Street is anticipated to operate at a LOS of "A" in the weekday a.m. and p.m. peak hours. The addition of the site generated traffic is expected to result in a maximum increase in control delay of 0.1 s when compared to the future background traffic operations. SimTraffic reports indicate that the maximum 95th percentile queue associated with this intersection will be 16.9 m for the southbound traffic, this can be supported as there is approximately 75 m to the next intersection.

These metrics indicate that the trips generated by the proposed development are anticipated to have a minimal impact on the operations of the boundary road network. Accordingly, the proposed development can be supported from a traffic operations perspective.

7 Active Transportation

7.1 Pedestrian and Cycling Linkages

The site is located to the east of the Clearview/Collingwood Rail Trail (the Rail Trail), a walking and cycling rail trail that runs from downtown Collingwood to Stayner. Additional trails connect to the community gardens, dog park, children's park, and beach. In Collingwood, the Train Trail connects to the Georgian Trail which runs east to Meaford through Harbourview Park, Craigleith, and Thornbury. Further pedestrian connections are provided though sidewalks to Downtown Collingwood, other nearby developments, and local amenities such as the YMCA. Further cycling connections are facilitated though bike lanes and multi-use sidewalks on Hume Street, First Street, and the Pretty River Parkway.

Sidewalks will be provided throughout the site, tying into the existing sidewalks on Williams Street, Peel Street and Kirby Avenue, and will provide connectivity to the Rail Trail.

7.2 Crosswalk Locations

The specific location of pedestrian crossings will be established through detailed design. This would include a review of pedestrian crossing treatments at stop-controlled intersections, as well as the pedestrian crossing at the Rail Trail.

7.3 Traffic Calming Measures

The Draft Plan has been designed with shorter and some curved roadways to encourage reduced speeds on the internal road network. Intersection control types will be reviewed through detailed design, and the inclusion of both two-way and all-way stop controlled intersections would further reduce driver speeds. Additionally, the proposed urban residential cross-section (20 metres) permits on-street parking, which will also contribute to lower driver speeds.

7.4 Internal Road Layout and Intersection Geometry

The internal road network has been designed with considerations for the Town's 2007 Design Standards. The Town's 2007 Design Standards permit intersection angles between 70 degrees and 110 degrees for local-to-local road intersections. "Street A" and "Street B" intersect at an angle of 77 degrees, which is within the allowable range. "Street C" connects with "Street B" and "Street D" at 90 degree intersections. The road elbows on "Street A", "Street B" and "Street D" will be reviewed during detailed design to confirm conformance with the Town's Standard Drawing 224 "Road Elbow Design".

8 CONCLUSIONS

The detailed analysis contained within this report has resulted in the following key findings:

- Under existing conditions, the study intersections of are operating at a LOS "C" or better, with excess capacity for growth. This analysis took into consideration the completion of the left-turn lane on Poplar Sideroad and Portland Street and the realignment of Tracey Lane/Findlay Drive at Hurontario Street.

- Under 2029 future background conditions, the intersections of Tracey Lane/Finlay Drive and Hurontario Street, Poplar Sideroad and Portland Street, and Collins Street and Peel Street are expected to operate at a LOS "C" or better; LOS of "E" or better; and LOS of "A", respectively.

- The proposed development is expected to generate 67 and 81 trips in the weekday a.m. and p.m. peak hours, respectively. As noted, this trip generation was based on a previous version of the site plan and is understated by 5 and 7 two-way trips in the a.m. and p.m. peak hours, respectively. As such, the findings and conclusions contained within this report remain valid when considering the final Draft Plan prepared by MHBC Consulting, dated November 16, 2021.

- The proposed development will result in additional traffic volumes to local roads north and west of the site. The addition of traffic volumes on Collins Street is forecasted to be 17 vehicles or less. The addition of traffic volumes on Peel Street is forecasted to be 19 vehicles or less. The intersections of Collins Street and Hurontario Street as well as Peel Street and Hume Street are signalized and can support additional traffic volumes.

- Under the 2029 future total traffic volume conditions, the study intersections do not warrant signalization. The analysis followed the procedures specified in Chapter 4 of the "Ontario Traffic Manual – Book 12", March 2012 for Justifications 1 (Minimum Vehicle Volume), 2 (Delay to Cross Traffic) and 3 (Volume/Delay Combination). The future total peak hour volumes were assigned to the 8-hours based on the percentage of the peak hour traffic volumes established from the existing 8-hour traffic data.

- Under 2029 future total conditions, the intersections of Tracey Lane/Finlay Drive and Hurontario Street, Poplar Sideroad and Portland Street, and Collins Street and Peel Street are expected to operate at a LOS "C"; LOS of "E" or better; and LOS of "A", respectively.
    - The addition of the site generated traffic at the intersections of Poplar Sideroad and Portland Street is expected to result in a maximum increase in the control delay of 6.6 s and a maximum increase in volume-to-capacity ratio of 0.08, associated with the southbound approach, when compared to the future background traffic operations.
- Sidewalks will be provided throughout the site, tying into the existing infrastructure on Williams Street, Peel Street and Kirby Avenue, and provide connectivity to the Rail Trail. Internal intersection traffic control and crosswalks will be reviewed through detailed design.

It is concluded that the traffic generated by the proposed development can be accommodated by the boundary road network.

The analysis described herein was prepared using a previous version of the Draft Plan. The findings and conclusions contained within this report remain valid when considering the final Draft Plan, as prepared by MHBC Planning dated November 16, 2021. Any minor changes to the Plan will not materially impact the conclusions of this report.

The proposed Zoning By-law Amendment and Draft Plan of Subdivision Applications can be supported from a traffic operations perspective.

C.F. CROZIER & ASSOCIATES INC.

LICENSED PROFESSIONAL ENGINEER
M. N. FERGUSON
1000505162
PROVINCE OF ONTARIO

Madeleine Ferguson, P.Eng.
Manager of Transportation

C.F. CROZIER & ASSOCIATES INC.

Emma Howlett, EIT
Engineering Intern, Transportation

MF/eh

J:\200\218 - Eden Oak\5833-452 Raglan St\Reports\Traffic\5833_TIS (December 2021).docx

APPENDIX A

Terms of Reference Correspondence

Emma Howlett

From: Madeleine Ferguson
Sent: July 7, 2021 4:44 PM
To: Emma Howlett
Subject: FW: 452 Raglan Street - TIS TOR
Attachments: TR15-0863 Updated TIS 20181219.pdf; 225 Collins Street Collingwood Architectural0.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Categories: Filed to Sharepoint

Madeleine Ferguson, P.Eng. | Manager of Transportation
DID: 705.434.3418

From: Stuart West <swest@collingwood.ca>
Sent: Wednesday, July 7, 2021 4:43 PM
To: Madeleine Ferguson <mferguson@cfcrozier.ca>
Cc: John Velick <jvelick@collingwood.ca>; Rebecca Alexander <ralexander@cfcrozier.ca>; Chris Doherty <chris.doherty@simcoe.ca>
Subject: RE: 452 Raglan Street - TIS TOR

Hi Madeline,

Finally have a chance to look at this. Comments and information are below in red, and additional information attached. Should you need anything further, please let me know.

Thank you,

Stuart West P.Eng.
Project Engineer, Engineering Services

Town of Collingwood
P.O Box 157, 545 Tenth Line North
Collingwood, ON, L9Y 3Z5
t: 705-445-1292 Ext. 4202 | c: 705-444-4884
swest@collingwood.ca | www.collingwood.ca

From: Madeleine Ferguson
Sent: Monday, June 21, 2021 4:31 PM
To: John Velick <jvelick@collingwood.ca>; Stuart West <swest@collingwood.ca>
Cc: Chris Doherty <chris.doherty@simcoe.ca>; Rebecca Alexander <ralexander@cfcrozier.ca>
Subject: 452 Raglan Street - TIS TOR

Hi John and Stu,

Thanks for taking the time to meet with our office to discuss the scope of the transportation and civil studies. Further to our discussion, I have summarized the scope in the below terms of reference for your review and consideration. I have also attached the current Concept Plan for your reference.

I spoke with Chris Doherty (copied) at the County about the scope of this study as well and have incorporated items from our conversation in the below TOR. If you could kindly provide me with the number of unoccupied/to be constructed units for Eden Oak that would be most helpful.

Please let me know if you have any questions or comments on the proposed scope.

- We will assess the following intersections based on new counts to be collected in the coming weeks:
    - Peel Street & Collins Street
    - Tracey Lane/Findlay Drive & Hurontario Street
    - Portland Street & Poplar Sideroad

- Assess the weekday a.m. and p.m. peak hours of the development.

- Forecast the trip generation characteristics of the development using the ITE Trip Generation Manual, 10th Edition. Trips will be distributed to the boundary road network based on the previously utilized distribution for the surrounding sites. This may be revised based on observed travel patterns and Transportation Tomorrow Survey (TTS) data.

- Assess the horizon years of full build-out (assumed 2024) as well as 5 years beyond (2029)

- So as to be consistent with the Town's 2019 Transportation Study, we will utilize a growth rate of 0.5% on all roadways to establish the base background traffic volumes. In addition to the 0.5% growth rate, we will also account for trips generated by a number of background developments in close proximity to the site, including:
    - Riverside Midrise
    - Harmony Living
    - Eden Oak (remaining units)***[Stuart West]*** - 200 Units occupied, 386 Units total
    - Charleston Homes***[Stuart West]*** - 50% occupied
    - Pretty River Estates (Phase 2)
    - ***[Stuart West] 225 Collins Street – Commercial/Residential Mix (390m2 retail, 10 residential apartments) – preconsult site plan attached***

- Prepare signal warrants for the intersections of Portland Street & Poplar Sideroad and Tracey Lane/Findlay Drive & Hurontario Street. The warrants will consider both future background and future total traffic volume conditions.

- Quantify the number of vehicles anticipated to utilize the intersections of Peel Street & Hume Street and Collins Street & Hurontario Street. Qualitatively assess the expected impacts of these trips.

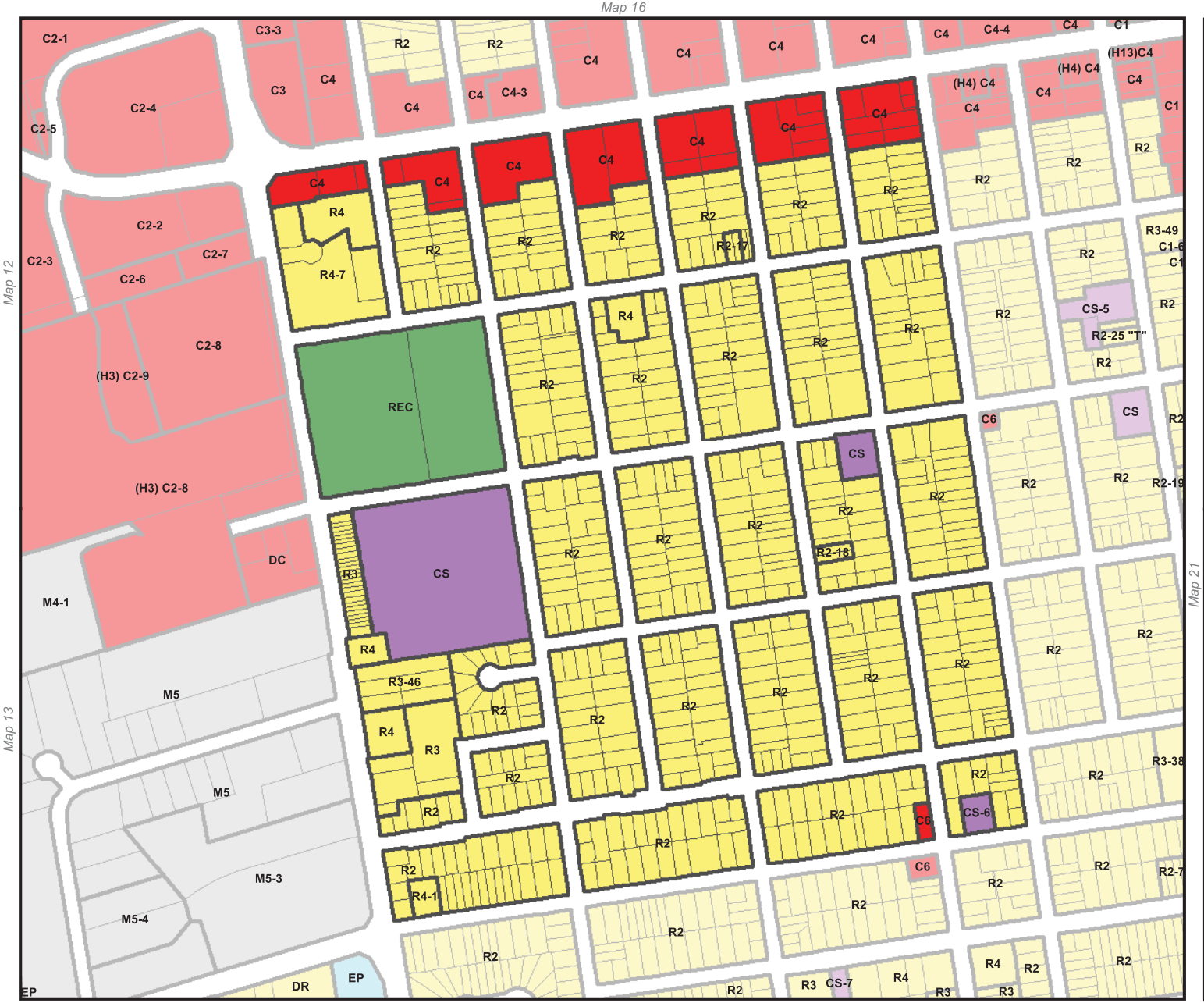
- Provide commentary on the internal road layout and intersection geometry, as well as the existing and future active transportation network. This will include a review of potential traffic calming measures on Williams Street and Kirby Avenue.
- ***[Stuart West] Include a section within the TIS that provides recommendations surrounding active transportation. This should include recommendations for pedestrian and cyclist linkages both within and external to the subdivision, traffic calming, and crosswalks.***

Thanks,
Maddie

APPENDIX B

Town of Collingwood Zoning By-Law Excerpts

Map 16



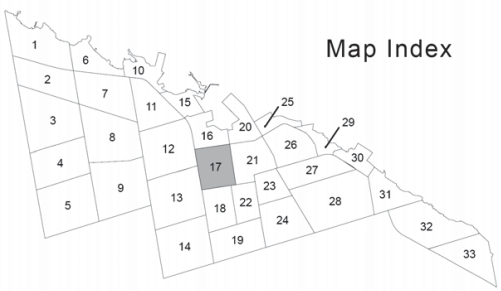
Map 12

Map 13

Map 21

Map 18

Collingwood Zoning By-Law Schedule 'A' - Map 17



REVISIONS

No.	Date	By-law
1	July 12, 2012	By-law No. 2012-089
2	August 4, 2015	By-law No. 2015-053
3	July 7, 2017	By-law No. 2017-044
4		
5		
6		
7		
8		
9		
10		

1:5000

0 20 40 80 120 160 200 Meters

Metres

Revised by:
RS

Produced by the Town of Collingwood, Planning Services.
The information contained herein is believed to be correct, however, the Town assumes no liability for negligence, inaccuracies or omissions. This drawing is not a legal survey.

APPENDIX C

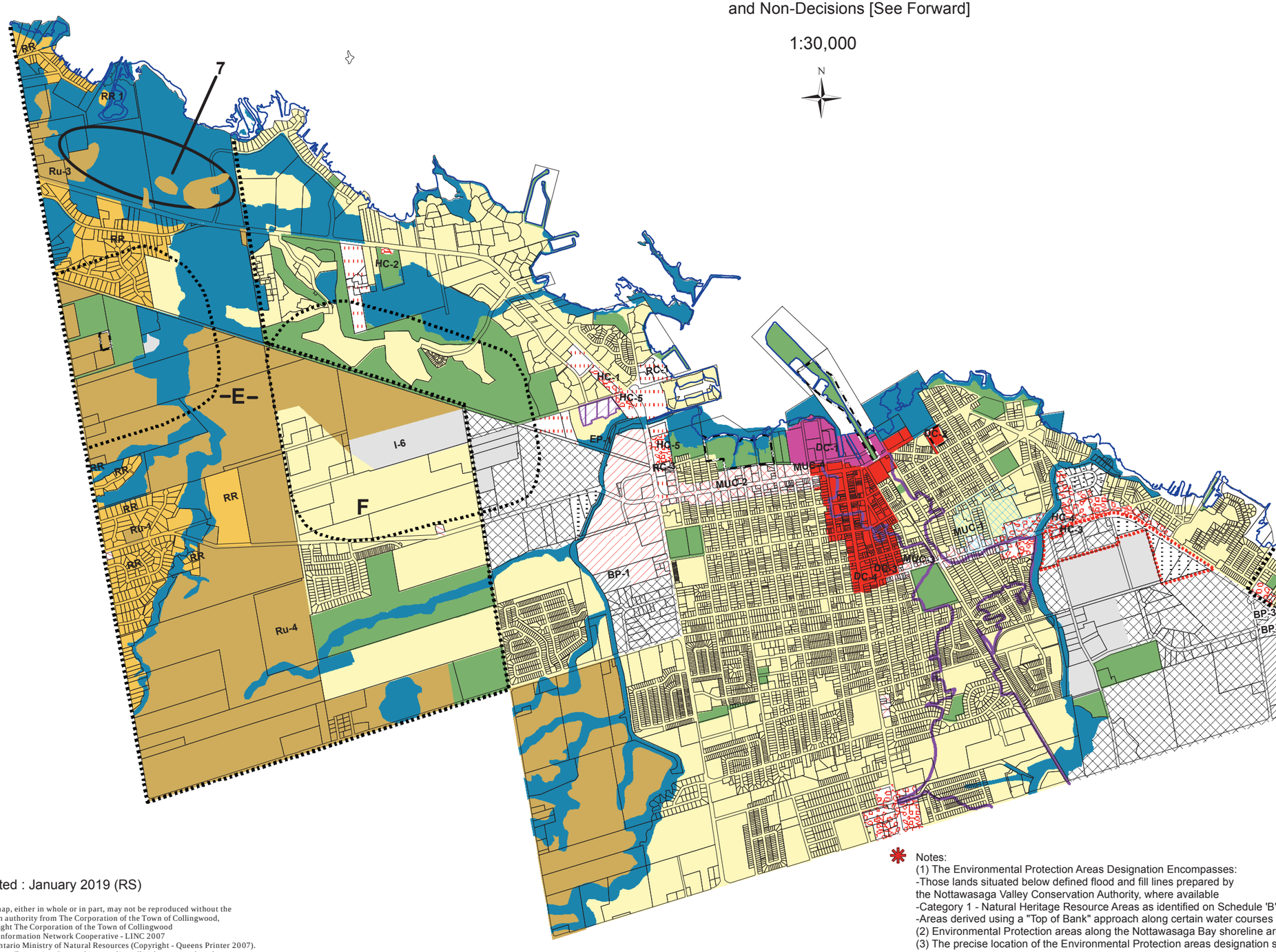
Town of Collingwood Official Plan Excerpts

Official Plan of the Town of Collingwood
SCHEDULE 'A' - Land Use Plan

Depicting OMB Appeals [See Appellant Chart/Appeal Disposition]
and Non-Decisions [See Forward]

1:30,000

N



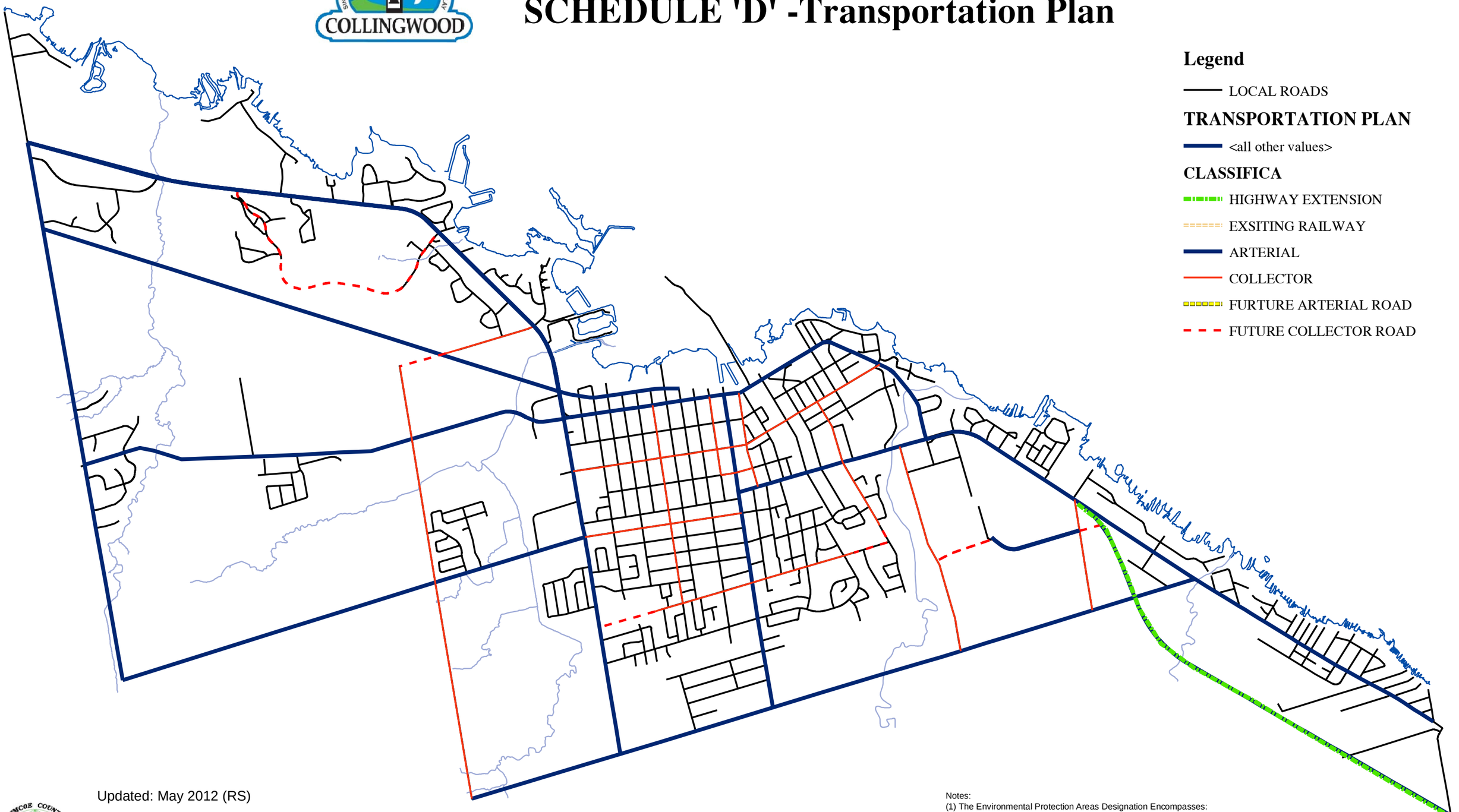
Legend

- Inactive Private Landfill
- Industrial Fringe
- Pretty River Flood Fringe
- Secondary Plan Boundary
- Waste Disposal Assessment Areas
- Business Park
- Downtown Commercial Core
- Environment Protection
- Highway Commercial
- Industrial Park
- Light Industrial
- Mixed Use Commercial
- Industrial
- Recreation
- Regional Commercial District
- Residential
- Resort Commercial
- Restrictive Commercial
- Rural
- Rural Residential
- Shipyards
- Special Policy Area- Health
- Well Head
- Residential-Mixed Use

Printed : January 2019 (RS)

Notes:
(1) The Environmental Protection Areas Designation Encompasses:
-Those lands situated below defined flood and fill lines prepared by
the Nottawasaga Valley Conservation Authority, where available
-Category 1 - Natural Heritage Resource Areas as identified on Schedule 'B' to the Official Plan
-Areas derived using a "Top of Bank" approach along certain water courses where flood and/or fill lines are not available
(2) Environmental Protection areas along the Nottawasaga Bay shoreline are shown conceptually
(3) The precise location of the Environmental Protection areas designation shall, in all cases,
be determined as development proceeds in consultation with The County of Simcoe
(Nottawasaga Valley Conservation Authority) and the Town of Collingwood.

Official Plan of the Town of Collingwood
SCHEDULE 'D' -Transportation Plan



Legend

LOCAL ROADS

TRANSPORTATION PLAN

<all other values>

CLASSIFICA

HIGHWAY EXTENSION

EXSITING RAILWAY

ARTERIAL

COLLECTOR

FURTURE ARTERIAL ROAD

FUTURE COLLECTOR ROAD

N

Updated: May 2012 (RS)

Notes:
(1) The Environmental Protection Areas Designation Encompasses:
-Those lands situated below defined flood and fill lines prepared by
the Nottawasaga Valley Conservation Authority, where available
-Category 1 - Natural Heritage Resource Areas as identified on Schedule 'B' to the Official Plan
-Areas derived using a "Top of Bank" approach along certain water courses where flood and/or fill lines are not available
(2) Environmental Protection areas along the Nottawasaga Bay shoreline are shown conceptually
(3) The precise location of the Environmental Protection areas designation shall, in all cases,
be determined as development proceeds in consultation with The County of Simcoe
(Nottawasaga Valley Conservation Authority) and the Town of Collingwood.

APPENDIX D

Collingwood Trail Maps

APPENDIX E

Collingwood Transit Route and Schedule

Collingwood Wasaga Beach Link - Collingwood East to Wasaga Beach

Hurontario Street at TD Bank (Colltrans Stop)	Hurontario Street at Macs (Colltrans Stop)	St. Marie Street and Hume Street (Colltrans Stop)	YMCA on Hume Street (Colltrans Stop)	Hume Street and Minnesota	TSC Hardware Store (Colltrans Stop)	Raglan Street at Ron Emo Drive	Georgian College	Poplar Sideroad at Summerview Avenue	Beachwood and Poplar Sideroad	Hwy 26 and Cook Street off Highway	Relax Inn	Rockdell Restaurant	Fairgrounds Road (Right Turn Lane)	Bluewater Gate Entrance	Krown Rust Control/Penzoil	Wasaga Motel	Lorna Dune	58th Street at Lights	Home Hardware on Mosely (Current Stop)	45th Street at Superstore	Ramblewood Medical Centre (BY REQUEST ONLY)
MONDAY - SUNDAY																					
6:01	6:01	6:02	6:02	6:03	6:04	6:06	6:07	6:10	6:10	6:11	6:12	6:12	6:13	6:13	6:14	6:15	6:17	6:18	6:19	6:20	N/A
7:01	7:01	7:02	7:02	7 :03	7:04	7:06	7:07	7:10	7:10	7:11	7:12	7:12	7:13	7:13	7:14	7:15	7:17	7:18	7:19	7:20	N/A
8:01	8:01	8:02	8:02	8:03	8:04	8:06	8:07	8:10	8:10	8:11	8:12	8:12	8:13	8:13	8:14	8:15	8:17	8:18	8:19	8:20	N/A
9:01	9:01	9:02	9:02	9:03	9:04	9:06	9:07	9:10	9:10	9:11	9:12	9:12	9:13	9:13	9:14	9:15	9:17	9:18	9:19	9:20	N/A
10:01	10:01	10:02	10:02	10:03	10:04	10:06	10:07	10:10	10:10	10:11	10:12	10:12	10:13	10:13	10:14	10:15	10:17	10:18	10:19	10:20	N/A
11:01	11:01	11:02	11:02	11:03	11:04	11:06	11:07	11:10	11:10	11:11	11:12	11:12	11:13	11:13	11:14	11:15	11:17	11:18	11:19	11:20	N/A
12:01	12:01	12:02	12:02	12:03	12:04	12:06	12:07	12:10	12:10	12:11	12:12	12:12	12:13	12:13	12:14	12:15	12:17	12:18	12:19	12:20	N/A
1:01	1:01	1:02	1:02	1:03	1:04	1:06	1:07	1:10	1:10	1:11	1:12	1:12	1:13	1:13	1:14	1:15	1:17	1:18	1:19	1:20	N/A
2:01	2:01	2:02	2:02	2:03	2:04	2:06	2:07	2:10	2:10	2:11	2:12	2:12	2:13	2:13	2:14	2:15	2:17	2:18	2:19	2:20	N/A
3:01	3:01	3:02	3:02	3:03	3:04	3:06	3:07	3:10	3:10	3:11	3:12	3:12	3:13	3:13	3:14	3:15	3:17	3:18	3:19	3:20	N/A
4:01	4:01	4:02	4:02	4:03	4:04	4:06	4:07	4:10	4:10	4:11	4:12	4:12	4:13	4:13	4:14	4:15	4:17	4:18	4:19	4:20	N/A
5:01	5:01	5:02	5:02	5:03	5:04	5:06	5:07	5:10	5:10	5:11	5:12	5:12	5:13	5:13	5:14	5:15	5:17	5:18	5:19	5:20	N/A
6:01	6:01	6:02	6:02	6:03	6:04	6:06	6:07	6:10	6:10	6:11	6:12	6:12	6:13	6:13	6:14	6:15	6:17	6:18	6:19	6:20	N/A
7:01	7:01	7:02	7:02	7:03	7:04	7:06	7:07	7:10	7:10	7:11	7:12	7:12	7:13	7:13	7:14	7:15	7:17	7:18	7:19	7:20	N/A
8:01	8:01	8:02	8:02	8:03	8:04	8:06	8:07	8:10	8:10	8:11	8:12	8:12	8:13	8:13	8:14	8:15	8:17	8:18	8:19	8:20	N/A

Collingwood Wasaga Beach Link - Wasaga Beach West to Collingwood

Mosely Street Tim Hortons (Current Stop)	58th Street at Traffic Signals	Lorna Dune Mini Putt	74th Street on paved shoulder	Marilyn Avenue on paved shoulder	Bluewater Gate at Entrance	Middlebrook Road on side of road	Rockdell Restaurant	Relax Inn	Hwy 26 and King Street off Highway	Wellington Street	Poplar Sideroad at Summerview Avenue	Georgian College	Raglan Street at Ron Emo Drive	Tim Hortons	Collingwood G&M Hospital at Heidelberg Inn	Peel Street across from Hanna Motors	Peel Street and Ontario Street	Ontario Street and Minnesota Street (Colltrans Stop)	Ontario Street and St. Marie Street (Colltrans Stop)
MONDAY - SUNDAY																			
6:31	6:33	6:34	6:36	6:37	6:38	6:38	6:39	6:39	6:40	6:40	6:41	6:44	6:45	6:48	6:48	6:49	6:50	6:51	6:52
7:31	7:33	7:34	7:36	7:37	7:38	7:38	7:39	7:39	7:40	7:40	7:41	7:44	7:45	7:48	7:48	7:49	7:50	7:51	7:52
8:31	8:33	8:34	8:36	8:37	8:38	8:38	8:39	8:39	8:40	8:40	8:41	8:44	8:45	8:48	8:48	8:49	8:50	8:51	8:52
9:31	9:33	9:34	9:36	9:37	9:38	9:38	9:39	9:39	9:40	9:40	9:41	9:44	9:45	9:48	9:48	9:49	9:50	9:51	9:52
10:31	10:33	10:34	10:36	10:37	10:38	10:38	10:39	10:39	10:40	10:40	10:41	10:44	10:45	10:48	10:48	10:49	10:50	10:51	10:52
11:31	11:33	11:34	11:36	11:37	11:38	11:38	11:39	11:39	11:40	11:40	11:41	11:44	11:45	11:48	11:48	11:49	11:50	11:51	11:52
12:31	12:33	12:34	12:36	12:37	12:38	12:38	12:39	12:39	12:40	12:40	12:41	12:44	12:45	12:48	12:48	12:49	12:50	12:51	12:52
1:31	1:33	1:34	1:36	1:37	1:38	1:38	1:39	1:39	1:40	1:40	1:41	1:44	1:45	1:48	1:48	1:49	1:50	1:51	1:52
2:31	2:33	2:34	2:36	2:37	2:38	2:38	2:39	2:39	2:40	2:40	2:41	2:44	2:45	2:48	2:48	2:49	2:50	2:51	2:52
3:31	3:33	3:34	3:36	3:37	3:38	3:38	3:39	3:39	3:40	3:40	3:41	3:44	3:45	3:48	3:48	3:49	3:50	3:51	3:52
4:31	4:33	4:34	4:36	4:37	4:38	4:38	4:39	4:39	4:40	4:40	4:41	4:44	4:45	4:48	4:48	4:49	4:50	4:51	4:52
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6:31	6:33	6:34	6:36	6:37	6:38	6:38	6:39	6:39	6:40	6:40	6:41	6:44	6:45	6:48	6:48	6:49	6:50	6:51	6:52
7:31	7:33	7:34	7:36	7:37	7:38	7:38	7:39	7:39	7:40	7:40	7:41	7:44	7:45	7:48	7:48	7:49	7:50	7:51	7:52
8:31	8:33	8:34	8:36	8:37	8:38	8:38	8:39	8:39	8:40	8:40	8:41	8:44	8:45	8:48	8:48	8:49	8:50	8:51	8:52

Blue Mountain Transit Link

Collingwood Terminal	Georgian Meadows (Outbound)	Blue Mountain Village	Craigleith	Georgian Meadows (Inbound)
MONDAY - SUNDAY				
7:00	7:06	7:20	7:27	7:37
8:00	8:06	8:20	8:27	8:37
9:00	9:06	9:20	9:27	9:37
10:00	10:06	10:20	10:27	10:37
11:00	11:06	11:20	11:27	11:37
12:00	12:06	12:20	12:27	12:37
1:00	1:06	1:20	1:27	1:37
2:00	2:06	2:20	2:27	2:37
3:00	3:06	3:20	3:27	3:37
4:00	4:06	4:20	4:27	4:37
5:00	5:06	5:20	5:27	5:37
6:00	6:06	6:20	6:27	6:37
7:00	7:06	7:20	7:27	7:37
8:00	8:06	8:20	8:27	8:37
9:00	-	-	-	-

Clearview Route

Weir Street	Stayner Collegiate Institute	Fountain Park	Station Park (Library)	Huron Meadows	Byng Public School	Stayner Foodland	Stayner Community Centre	Medical Centre	Brock Street	Coffee Culture	Superior Street	Wasaga Sands Subdivision	Wasaga Beach Superstore	Ramblewood Medical Centre
MONDAY - SATURDAY														
7:39	7:44	7:46	7:47	7:49	7:50	7:52	8:00	8:05	8:07	8:08	8:10	8:16	8:30	8:32
8:39	8:44	8:46	8:47	8:49	8:50	8:52	9:00	9:05	9:07	9:08	9:10	9:16	9:30	9:32
9:39	9:44	9:46	9:47	9:49	9:50	9:52	10:00	10:05	10:07	10:08	10:10	10:16	10:30	10:32
10:39	10:44	10:46	10:47	10:49	10:50	10:52	11:00	11:05	11:07	11:08	11:10	11:16	11:30	11:32
11:39	11:44	11:46	11:47	11:49	11:50	11:52	12:00	12:05	12:07	12:08	12:10	12:16	12:30	12:32
12:39	12:44	12:46	12:47	12:49	12:50	12:52	1:00	1:05	1:07	1:08	1:10	1:16	1:30	1:32
1:39	1:44	1:46	1:47	1:49	1:50	1:52	2:00	2:05	2:07	2:08	2:10	2:16	2:30	2:32
2:39	2:44	2:46	2:47	2:49	2:50	2:52	3:00	3:05	3:07	3:08	3:10	3:16	3:30	3:32
3:39	3:44	3:46	3:47	3:49	3:50	3:52	4:00	4:05	4:07	4:08	4:10	4:16	4:30	4:32
4:39	4:44	4:46	4:47	4:49	4:50	4:52	5:00	5:05	5:07	5:08	5:10	5:16	5:30	5:32
5:39	5:44	5:46	5:47	5:49	5:50	5:52	6:00	6:05	6:07	6:08	6:10	6:16	6:30	6:32
6:39	6:44	6:46	6:47	6:49	6:50	6:52	7:00	7:05	7:07	7:08	7:10	7:16	7:30	7:32
7:39	7:44	7:46	7:47	7:49	7:50	7:52	8:00	8:05	8:07	8:08	8:10	-	-	-
SUNDAY														
9:39	9:44	9:46	9:47	9:49	9:50	9:52	10:00	10:05	10:07	10:08	10:10	10:16	10:30	10:32
10:39	10:44	10:46	10:47	10:49	10:50	10:52	11:00	11:05	11:07	11:08	11:10	11:16	11:30	11:32
11:39	11:44	11:46	11:47	11:49	11:50	11:52	12:00	12:05	12:07	12:08	12:10	12:16	12:30	12:32
12:39	12:44	12:46	12:47	12:49	12:50	12:52	1:00	1:05	1:07	1:08	1:10	1:16	1:30	1:32
1:39	1:44	1:46	1:47	1:49	1:50	1:52	2:00	2:05	2:07	2:08	2:10	2:16	2:30	2:32
2:39	2:44	2:46	2:47	2:49	2:50	2:52	3:00	3:05	3:07	3:08	3:10	3:16	3:30	3:32
3:39	3:44	3:46	3:47	3:49	3:50	3:52	4:00	4:05	4:07	4:08	4:10	4:16	4:30	4:32
4:39	4:44	4:46	4:47	4:49	4:50	4:52	5:00	5:05	5:07	5:08	5:10	-	-	-

Single fares

Collingwood and Wasaga Beach Transit

Adults:	$2.00
Seniors/Students:	$1.50
Children (5 & under):	Free
Collingwood/Blue Mountains link:	$2.00 (all riders)
Collingwood/Wasaga Beach link:	$2.00 (all riders)
Red Cross Para-Transit:	$2.00 (one-way)
Clearview Transit Adult/Student/Senior	$2.00

Monthly passes

All Transit Routes

Adult:	$40.00
Seniors/Students:	$30.00
Universal pass:	$120.00*

*(valid on Colltrans, Wasaga beach transit and Link bus)

Wasaga Beach Youth Pass	$5.00/mth

Operating Hours

Monday-Friday - WB Link & Colltrans	6:30am - 9:00pm
Monday-Friday - All other routes	7:00am - 9:00pm
Saturday	7:00am - 9:00pm
Sunday	9:00am - 9:00pm

Clearview Transit

Monday-Saturday	6:30am - 8:30pm
Sunday	8:30am - 5:30pm

Red Cross Para-Transit is also available within the Town of Collingwood. Hours are Monday - Friday 7:00am - 5:00pm. Please contact 705-721-3313 x5266 to apply for eligibility or to arrange for service.

Collingwood Accessible Shuttle Service
The Town of Collingwood together with Ace Cabs operates an accessible taxi service available 365 days a year 24 hours a day and can be contacted at 705-445-3300.

Wasaga Beach Route 1 West

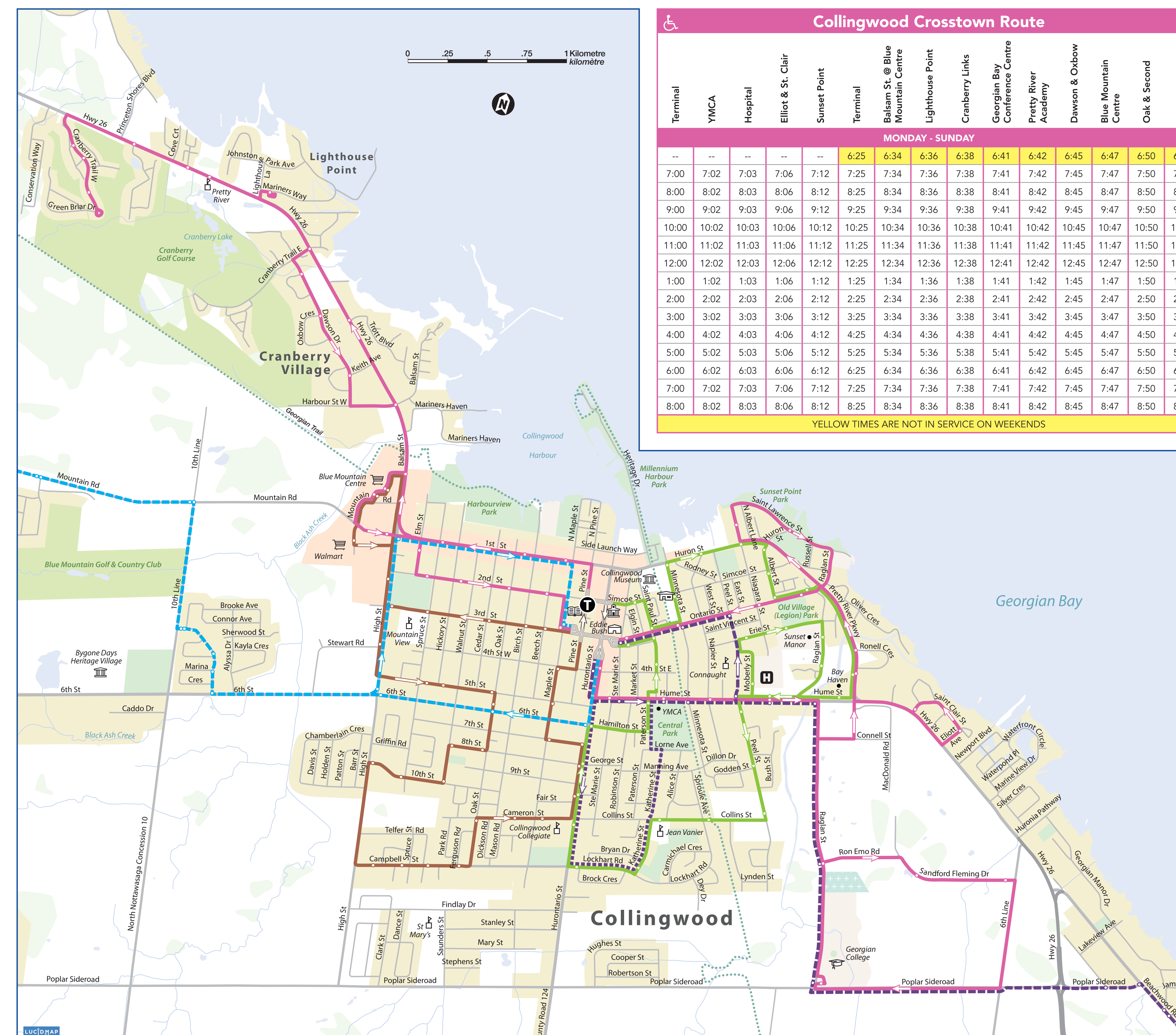
Archer Road	Deerbrook Drive	Wally Drive	Walmart Supercentre (Transfer)	Nancy Island Welcome Centre	18th Street	Riverbend Plaza	Macs Convenience Store	Knox Road West	Meadowlark Boulevard	Real Canadian Superstore (Transfer)	St. Noel Elementary School	Lyons Court
MONDAY - SUNDAY												
7:15	7:20	7:25	7:30	7:35	7:38	7:40	7:41	7:42	7:44	7:45	7:53	8:00
8:45	8:50	8:55	9:00	9:05	9:08	9:10	9:11	9:12	9:14	9:15	9:23	9:30
10:15	10:20	10:25	10:30	10:35	10:38	10:40	10:41	10:42	10:44	10:45	10:53	11:00
11:45	11:50	11:55	12:00	12:05	12:08	12:10	12:11	12:12	12:14	12:15	12:23	12:30
1:15	1:20	1:25	1:30	1:35	1:38	1:40	1:41	1:42	1:44	1:45	1:53	2:00
2:45	2:50	2:55	3:00	3:05	3:08	3:10	3:11	3:12	3:14	3:15	3:23	3:30
4:15	4:20	4:25	4:30	4:35	4:38	4:40	4:41	4:42	4:44	4:45	4:53	5:00
5:45	5:50	5:55	6:00	6:05	6:08	6:10	6:11	6:12	6:14	6:15	6:23	6:30
7:15	7:20	7:25	7:30	7:35	7:38	7:40	7:41	7:42	7:44	7:45	7:53	8:00

Wasaga Beach Route 1 East

Lyons Court	St. Noel Elementary School	Real Canadian Superstore (Transfer)	Meadowlark Boulevard	Sunnidale Road	Mac's Milk (Mosley Street)	Riverbend Plaza	18th Street	Nancy Island Welcome Centre	Walmart Supercentre (Transfer)	Mary Street	Archer Road
MONDAY - SUNDAY											
8:00	8:02	8:05	8:07	8:10	8:11	8:15	8:18	8:20	8:25	8:34	8:45
9:30	9:32	9:35	9:37	9:40	9:41	9:45	9:48	9:50	9:55	10:04	10:15
11:00	11:02	11:05	11:07	11:10	11:11	11:15	11:18	11:20	11:25	11:34	11:45
12:30	12:32	12:35	12:37	12:40	12:41	12:45	12:48	12:50	12:55	1:04	1:15
2:00	2:02	2:05	2:07	2:10	2:11	2:15	2:18	2:20	2:25	2:34	2:45
3:30	3:32	3:35	3:37	3:40	3:41	3:45	3:48	3:50	3:55	4:04	4:15
5:00	5:02	5:05	5:07	5:10	5:11	5:15	5:18	5:20	5:25	5:34	5:45
6:30	6:32	6:35	6:37	6:40	6:41	6:45	6:48	6:50	6:55	7:04	7:15
8:00	8:02	8:05	8:07	8:10	8:11	8:15	8:18	8:20	8:25	8:34	8:45

Legend

- Collingwood Crosstown Route
- Collingwood East Route
- Collingwood West Route
- Collingwood Wasaga Beach Link
- Collingwood Wasaga Beach Link 5-6pm
- Blue Mountain Transit Link
- Wasaga Beach Route 1
- Wasaga Beach Route 2
- Clearview Stayner Route
- Clearview Wasaga Beach Link
- Multiple Routes
- Transit Hub
- Bus Stops
- Arena
- Community Centre
- Hospital
- Library
- Municipal Building
- Museum
- Point of Interest
- School
- Shopping Centre



Collingwood Crosstown Route

Terminal	YMCA	Hospital	Elliot & St. Clair	Sunset Point	Terminal	Balsam St. @ Blue Mountain Centre	Lighthouse Point	Cranberry Links	Georgian Bay Conference Centre	Pretty River Academy	Dawson & Oxbow	Blue Mountain Centre	Oak & Second	Terminal
MONDAY - SUNDAY														
--	--	--	--	--	6:25	6:34	6:36	6:38	6:41	6:42	6:45	6:47	6:50	6:55
7:00	7:02	7:03	7:06	7:12	7:25	7:34	7:36	7:38	7:41	7:42	7:45	7:47	7:50	7:55
8:00	8:02	8:03	8:06	8:12	8:25	8:34	8:36	8:38	8:41	8:42	8:45	8:47	8:50	8:55
9:00	9:02	9:03	9:06	9:12	9:25	9:34	9:36	9:38	9:41	9:42	9:45	9:47	9:50	9:55
10:00	10:02	10:03	10:06	10:12	10:25	10:34	10:36	10:38	10:41	10:42	10:45	10:47	10:50	10:55
11:00	11:02	11:03	11:06	11:12	11:25	11:34	11:36	11:38	11:41	11:42	11:45	11:47	11:50	11:55
12:00	12:02	12:03	12:06	12:12	12:25	12:34	12:36	12:38	12:41	12:42	12:45	12:47	12:50	12:55
1:00	1:02	1:03	1:06	1:12	1:25	1:34	1:36	1:38	1:41	1:42	1:45	1:47	1:50	1:55
2:00	2:02	2:03	2:06	2:12	2:25	2:34	2:36	2:38	2:41	2:42	2:45	2:47	2:50	2:55
3:00	3:02	3:03	3:06	3:12	3:25	3:34	3:36	3:38	3:41	3:42	3:45	3:47	3:50	3:55
4:00	4:02	4:03	4:06	4:12	4:25	4:34	4:36	4:38	4:41	4:42	4:45	4:47	4:50	4:55
5:00	5:02	5:03	5:06	5:12	5:25	5:34	5:36	5:38	5:41	5:42	5:45	5:47	5:50	5:55
6:00	6:02	6:03	6:06	6:12	6:25	6:34	6:36	6:38	6:41	6:42	6:45	6:47	6:50	6:55
7:00	7:02	7:03	7:06	7:12	7:25	7:34	7:36	7:38	7:41	7:42	7:45	7:47	7:50	7:55
8:00	8:02	8:03	8:06	8:12	8:25	8:34	8:36	8:38	8:41	8:42	8:45	8:47	8:50	8:55
YELLOW TIMES ARE NOT IN SERVICE ON WEEKENDS														

SOUTH GEORGIAN BAY REGIONAL TRANSIT

RIDERS GUIDE

Effective January 2019

Blue Mountain - Clearview - Collingwood - Wasaga Beach

collingwood.ca/transit 705.446.1196

Wasaga Beach Route 2 West

Wasaga Stars Arena	Walmart Supercentre	Blueberry Trail	Lauderdale Boulevard	Riverbend Plaza	Rec Plex	Real Canadian Superstore (Transfer)	57th Street	Lorna Dune
MONDAY - SUNDAY								
6:55	7:05	7:08	7:11	7:14	7:18	7:20	7:22	7:25
7:55	8:05	8:08	8:11	8:14	8:18	8:20	8:22	8:25
8:55	9:05	9:08	9:11	9:14	9:18	9:20	9:22	9:25
9:55	10:05	10:08	10:11	10:14	10:18	10:20	10:22	10:25
10:55	11:05	11:08	11:11	11:14	11:18	11:20	11:22	11:25
11:55	12:05	12:08	12:11	12:14	12:18	12:20	12:22	12:25
12:55	1:05	1:08	1:11	1:14	1:18	1:20	1:22	1:25
1:55	2:05	2:08	2:11	2:14	2:18	2:20	2:22	2:25
2:55	3:05	3:08	3:11	3:14	3:18	3:20	3:22	3:25
3:55	4:05	4:08	4:11	4:14	4:18	4:20	4:22	4:25
4:55	5:05	5:08	5:11	5:14	5:18	5:20	5:22	5:25
5:55	6:05	6:08	6:11	6:14	6:18	6:20	6:22	6:25
6:55	7:05	7:08	7:11	7:14	7:18	7:20	7:22	7:25
7:55	8:05	8:08	8:11	8:14	8:18	8:20	8:22	8:25

Wasaga Beach Route 2 East

Lorna Dune	54th Street	Real Canadian Superstore (Transfer)	Rec Plex	Riverbend Plaza	Lauderdale Boulevard	Blueberry Trail	Foodland	Pioneer Gas Station
MONDAY - SUNDAY								
7:30	7:32	7:35	7:38	7:40	7:43	7:46	7:49	7:55
8:30	8:32	8:35	8:38	8:40	8:43	8:46	8:49	8:55
9:30	9:32	9:35	9:38	9:40	9:43	9:46	9:49	9:55
10:30	10:32	10:35	10:38	10:40	10:43	10:46	10:49	10:55
11:30	11:32	11:35	11:38	11:40	11:43	11:46	11:49	11:55
12:30	12:32	12:35	12:38	12:40	12:43	12:46	12:49	12:55
1:30	1:32	1:35	1:38	1:40	1:43	1:46	1:49	1:55
2:30	2:32	2:35	2:38	2:40	2:43	2:46	2:49	2:55
3:30	3:32	3:35	3:38	3:40	3:43	3:46	3:49	3:55
4:30	4:32	4:35	4:38	4:40	4:43	4:46	4:49	4:55
5:30	5:32	5:35	5:38	5:40	5:43	5:46	5:49	5:55
6:30	6:32	6:35	6:38	6:40	6:43	6:46	6:49	6:55
7:30	7:32	7:35	7:38	7:40	7:43	7:46	7:49	7:55
8:30	8:32	8:35	8:38	8:40	8:43	8:46	8:49	8:55

Collingwood West Route

Terminal	Blue Mountain Centre	Wal-Mart	Eighth & Oak	Tenth & High	Oak & Cameron	Collingwood Collegiate	Terminal
MONDAY - FRIDAY							
6:30	6:36	6:38	6:43	6:45	6:49	6:51	6:55
7:00	7:06	7:08	7:13	7:15	7:19	7:21	7:25
7:30	7:36	7:38	7:43	7:45	7:49	7:51	7:55
8:00	8:06	8:08	8:13	8:15	8:19	8:21	8:25
8:30	8:36	8:38	8:43	8:45	8:49	8:51	8:55
9:00	9:36	9:08	9:13	9:15	9:19	9:21	9:25
10:00	10:06	10:08	10:13	10:15	10:19	10:21	10:25
11:00	11:06	11:08	11:13	11:15	11:19	11:21	11:25
12:00	12:06	12:08	12:13	12:15	12:19	12:21	12:25
1:00	1:06	1:08	1:13	1:15	1:19	1:21	1:25
2:00	2:06	2:08	2:13	2:15	2:19	2:21	2:25
2:30	2:36	2:38	2:43	2:45	2:49	2:51	2:55
3:00	3:06	3:08	3:13	3:15	3:19	3:21	3:25
...and every 30 minutes to...							
6:00	6:06	6:08	6:13	6:15	6:19	6:21	6:25
7:00	7:06	7:08	7:13	7:15	7:19	7:21	7:25
8:00	8:06	8:08	8:13	8:15	8:19	8:21	8:25
SATURDAY							
6:30	6:36	6:38	6:43	6:45	6:49	6:51	6:55
7:00	7:06	7:08	7:13	7:15	7:19	7:21	7:25
...and every 30 minutes to...							
11:30	11:36	11:38	11:43	11:45	11:49	11:51	11:55
12:00	12:06	12:08	12:13	12:15	12:19	12:21	12:25
12:30	12:36	12:38	12:43	12:45	12:49	12:51	12:55
1:00	1:06	1:08	1:13	1:15	1:19	1:21	1:25
...and every 30 minutes to...							
6:00	6:06	6:08	6:13	6:15	6:19	6:21	6:25
7:00	7:06	7:08	7:13	7:15	7:19	7:21	7:25
8:00	8:06	8:08	8:13	8:15	8:19	8:21	8:25
SUNDAY							
7:00	7:06	7:08	7:13	7:15	7:19	7:21	7:25
8:00	8:06	8:08	8:13	8:15	8:19	8:21	8:25
...and every 60 minutes to...							
12:00	12:06	12:08	12:13	12:15	12:19	12:21	12:25
1:00	1:06	1:08	1:13	1:15	1:19	1:21	1:25
...and every 60 minutes to...							
7:00	7:06	7:08	7:13	7:15	7:19	7:21	7:25
8:00	8:06	8:08	8:13	8:15	8:19	8:21	8:25

Collingwood East Route

Terminal	Bay Haven	Sunset Manor	Hospital	Jean Vanier	Collingwood Collegiate	YMCA	Ontario & St. Marie	Terminal
MONDAY - FRIDAY								
6:30	6:36	6:38	6:41	6:44	6:47	6:50	6:52	6:55
7:00	7:06	7:08	7:11	7:14	7:17	7:20	7:22	7:25
7:30	7:36	7:38	7:41	7:44	7:47	7:50	7:52	7:55
8:00	8:06	8:08	8:11	8:14	8:17	8:20	8:22	8:25
8:30	8:36	8:38	8:41	8:44	8:47	8:50	8:52	8:55
9:30	9:36	9:38	9:41	9:44	9:47	9:50	9:52	9:55
10:30	10:36	10:38	10:41	10:44	10:47	10:50	10:52	10:55
11:30	11:36	11:38	11:41	11:44	11:47	11:50	11:52	11:55
12:30	12:36	12:38	12:41	12:44	12:47	12:50	12:52	12:55
1:30	1:36	1:38	1:41	1:44	1:47	1:50	1:52	1:55
2:30	2:36	2:38	2:41	2:44	2:47	2:50	2:52	2:55
3:00	3:06	3:08	3:11	3:14	3:17	3:20	3:22	3:25
...and every 30 minutes to...								
6:30	6:36	6:38	6:41	6:44	6:47	6:50	6:52	6:55
7:30	7:36	7:38	7:41	7:44	7:47	7:50	7:52	7:55
8:30	8:36	8:38	8:41	8:44	8:47	8:50	8:52	8:55
SATURDAY								
6:30	6:36	6:38	6:41	6:44	6:47	6:50	6:52	6:55
7:00	7:06	7:08	7:11	7:14	7:17	7:20	7:22	7:25
...and every 30 minutes to...								
11:30	11:36	11:38	11:41	11:44	11:47	11:50	11:52	11:55
12:00	12:06	12:08	12:11	12:14	12:17	12:20	12:22	12:25
12:30	12:36	12:38	12:41	12:44	12:47	12:50	12:52	12:55
1:00	1:06	1:08	1:11	1:14	1:17	1:20	1:22	1:25
...and every 30 minutes to...								
6:30	6:36	6:38	6:41	6:44	6:47	6:50	6:52	6:55
7:30	7:36	7:38	7:41	7:44	7:47	7:50	7:52	7:55
8:30	8:36	8:38	8:41	8:44	8:47	8:50	8:52	8:55
SUNDAY								
7:30	7:36	7:38	7:41	7:44	7:47	7:50	7:52	7:55
8:30	8:36	8:38	8:41	8:44	8:47	8:50	8:52	8:55
...and every 60 minutes to...								
12:30	12:36	12:38	12:41	12:44	12:47	12:50	12:52	12:55
1:30	1:36	1:38	1:41	1:44	1:47	1:50	1:52	1:55
...and every 60 minutes to...								
7:30	7:36	7:38	7:41	7:44	7:47	7:50	7:52	7:55
8:30	8:36	8:38	8:41	8:44	8:47	8:50	8:52	8:55

Main Terminal	BLNK-WST	7:00		8:00		9:00		10:00		11:00		12:00		13:00		14:00		15:00		16:00		17:00		18:00		19:00		20:00	
Sixth Street	BLNK-WST	7:05		8:05		9:05		10:05		11:05		12:05		13:05		14:05		15:05		16:05		17:05		18:05		19:05		20:05	
Oak Street	BLNK-WST	7:05		8:05		9:05		10:05		11:05		12:05		13:05		14:05		15:05		16:05		17:05		18:05		19:05		20:05	
High Street	BLNK-WST	7:06		8:06		9:06		10:06		11:06		12:06		13:06		14:06		15:06		16:06		17:06		18:06		19:06		20:06	
Highlands Crescent	BLNK-WST	7:08		8:08		9:08		10:08		11:08		12:08		13:08		14:08		15:08		16:08		17:08		18:08		19:08		20:08	
Connor	BLNK-WST	7:08		8:08		9:08		10:08		11:08		12:08		13:08		14:08		15:08		16:08		17:08		18:08		19:08		20:08	
Angora	BLNK-WST	7:09		8:09		9:09		10:09		11:09		12:09		13:09		14:09		15:09		16:09		17:09		18:09		19:09		20:09	
Mair Mills	BLNK-WST	7:11		8:11		9:11		10:11		11:11		12:11		13:11		14:11		15:11		16:11		17:11		18:11		19:11		20:11	
Gord Canning	BLNK-WST	7:15		8:15		9:15		10:15		11:15		12:15		13:15		14:15		15:15		16:15		17:15		18:15		19:15		20:15	
Village	BLNK-WST	7:18		8:18		9:18		10:18		11:18		12:18		13:18		14:18		15:18		16:18		17:18		18:18		19:18		20:18	
Blue Mnt Inn	BLNK-EST		7:22		8:22		9:22		10:22		11:22		12:22		13:22		14:22		15:22		16:22		17:22		18:22		19:22		20:22
Lakeshore	BLNK-EST		7:25		8:25		9:25		10:25		11:25		12:25		13:25		14:25		15:25		16:25		17:25		18:25		19:25		20:25
Timmons	BLNK-EST		7:29		8:29		9:29		10:29		11:29		12:29		13:29		14:29		15:29		16:29		17:29		18:29		19:29		20:29
Mair Mills	BLNK-EST		7:35		8:35		9:35		10:35		11:35		12:35		13:35		14:35		15:35		16:35		17:35		18:35		19:35		20:35
Angora	BLNK-EST		7:38		8:38		9:38		10:38		11:38		12:38		13:38		14:38		15:38		16:38		17:38		18:38		19:38		20:38
Connor Ave	BLNK-EST		7:39		8:39		9:39		10:39		11:39		12:39		13:39		14:39		15:39		16:39		17:39		18:39		19:39		20:39
Highlands Crescent	BLNK-EST		7:39		8:39		9:39		10:39		11:39		12:39		13:39		14:39		15:39		16:39		17:39		18:39		19:39		20:39
Marina	BLNK-EST		7:40		8:40		9:40		10:40		11:40		12:40		13:40		14:40		15:40		16:40		17:40		18:40		19:40		20:40
Georgian Meadows	BLNK-EST		7:40		8:40		9:40		10:40		11:40		12:40		13:40		14:40		15:40		16:40		17:40		18:40		19:40		20:40
High Street	BLNK-EST		7:42		8:42		9:42		10:42		11:42		12:42		13:42		14:42		15:42		16:42		17:42		18:42		19:42		20:42
First Street	BLNK-EST		7:44		8:44		9:44		10:44		11:44		12:44		13:44		14:44		15:44		16:44		17:44		18:44		19:44		20:44
Third	BLNK-EST		7:48		8:48		9:48		10:48		11:48		12:48		13:48		14:48		15:48		16:48		17:48		18:48		19:48		20:48
Main Terminal	BLNK-EST		7:50		8:50		9:50		10:50		11:50		12:50		13:50		14:50		15:50		16:50		17:50		18:50		19:50		20:50

Stop Number	Stop Name	Routes	RUN2A	RUN2B	RUN3A	RUN3B	RUN4A	RUN4B	RUN5A	RUN5B	RUN6A	RUN6B	RUN7A	RUN7B	RUN8A	RUN8B	RUN9A	RUN9B	RUN10A	RUN10B	RUN11A	RUN11B	RUN12A	RUN12B	RUN13A	RUN13B	RUN14A	RUN14B	RUN15A	RUN15B
100	Main Terminal			7:30		8:30		9:30		10:30		11:30		12:30		13:30		14:30		15:30		16:30		17:30		18:30		19:30		20:30
102	Rogers	CWST		7:32		8:32		9:32		10:32		11:32		12:32		13:32		14:32		15:32		16:32		17:32		18:32		19:32		20:32
104	Pizza Hut	CWST		7:32		8:32		9:32		10:32		11:32		12:32		13:32		14:32		15:32		16:32		17:32		18:32		19:32		20:32
106	Spruce Street	CWST		7:33		8:33		9:33		10:33		11:33		12:33		13:33		14:33		15:33		16:33		17:33		18:33		19:33		20:33
108	Harbour Centre	CWST		7:34		8:34		9:34		10:34		11:34		12:34		13:34		14:34		15:34		16:34		17:34		18:34		19:34		20:34
110	Harbourside Street	CWST		7:37		8:37		9:37		10:37		11:37		12:37		13:37		14:37		15:37		16:37		17:37		18:37		19:37		20:37
112	Trott Boulevard	CWST		7:38		8:38		9:38		10:38		11:38		12:38		13:38		14:38		15:38		16:38		17:38		18:38		19:38		20:38
114	Ruperts Landing	CWST		7:38		8:38		9:38		10:38		11:38		12:38		13:38		14:38		15:38		16:38		17:38		18:38		19:38		20:38
116	Lighthouse Point	CWST		7:40		8:40		9:40		10:40		11:40		12:40		13:40		14:40		15:40		16:40		17:40		18:40		19:40		20:40
118	Dockside Drive	CWST		7:41		8:41		9:41		10:41		11:41		12:41		13:41		14:41		15:41		16:41		17:41		18:41		19:41		20:41
120	Cranberry West	CWST		7:42		8:42		9:42		10:42		11:42		12:42		13:42		14:42		15:42		16:42		17:42		18:42		19:42		20:42
122	Cranberry Trail West	CWST		7:43		8:43		9:43		10:43		11:43		12:43		13:43		14:43		15:43		16:43		17:43		18:43		19:43		20:43
124	Barker Blvd	CWST		7:44		8:44		9:44		10:44		11:44		12:44		13:44		14:44		15:44		16:44		17:44		18:44		19:44		20:44
126	Georgian Bay Hotel	CWST		7:44		8:44		9:44		10:44		11:44		12:44		13:44		14:44		15:44		16:44		17:44		18:44		19:44		20:44
128	Pretty River Academy	CWST		7:45		8:45		9:45		10:45		11:45		12:45		13:45		14:45		15:45		16:45		17:45		18:45		19:45		20:45
130	Fairway	CWST		7:46		8:46		9:46		10:46		11:46		12:46		13:46		14:46		15:46		16:46		17:46		18:46		19:46		20:46
132	Oxbow	CWST		7:47		8:47		9:47		10:47		11:47		12:47		13:47		14:47		15:47		16:47		17:47		18:47		19:47		20:47
134	Keith Avenue	CWST		7:48		8:48		9:48		10:48		11:48		12:48		13:48		14:48		15:48		16:48		17:48		18:48		19:48		20:48
136	Montanas	CWST		7:50		8:50		9:50		10:50		11:50		12:50		13:50		14:50		15:50		16:50		17:50		18:50		19:50		20:50
138	Freshco	CWST		7:51		8:51		9:51		10:51		11:51		12:51		13:51		14:51		15:51		16:51		17:51		18:51		19:51		20:51
140	Metro	CWST		7:52		8:52		9:52		10:52		11:52		12:52		13:52		14:52		15:52		16:52		17:52		18:52		19:52		20:52
142	Elm Street	CWST		7:54		8:54		9:54		10:54		11:54		12:54		13:54		14:54		15:54		16:54		17:54		18:54		19:54		20:54
144	Spruce Street	CWST		7:54		8:54		9:54		10:54		11:54		12:54		13:54		14:54		15:54		16:54		17:54		18:54		19:54		20:54
146	Walnut Street	CWST		7:55		8:55		9:55		10:55		11:55		12:55		13:55		14:55		15:55		16:55		17:55		18:55		19:55		20:55
148	Oak Street	CWST		7:56		8:56		9:56		10:56		11:56		12:56		13:56		14:56		15:56		16:56		17:56		18:56		19:56		20:56
150	Beech Street	CWST		7:56		8:56		9:56		10:56		11:56		12:56		13:56		14:56		15:56		16:56		17:56		18:56		19:56		20:56
152	Maple Street	CWST		7:57		8:57		9:57		10:57		11:57		12:57		13:57		14:57		15:57		16:57		17:57		18:57		19:57		20:57
154	Main Terminal	CWST		7:58		8:58		9:58		10:58		11:58		12:58		13:58		14:58		15:58		16:58		17:58		18:58		19:58		20:58
200	Main Terminal	CEST	7:00		8:00		9:00		10:00		11:00		12:00		13:00		14:00		15:00		16:00		17:00		18:00		19:00		20:00	
202	TD Bank	CEST	7:02		8:02		9:02		10:02		11:02		12:02		13:02		14:02		15:02		16:02		17:02		18:02		19:02		20:02	
204	Fourth Street	CEST	7:03		8:03		9:03		10:03		11:03		12:03		13:03		14:03		15:03		16:03		17:03		18:03		19:03		20:03	
206	Ste. Marie Street	CEST	7:03		8:03		9:03		10:03		11:03		12:03		13:03		14:03		15:03		16:03		17:03		18:03		19:03		20:03	
208	YMCA	CEST	7:04		8:04		9:04		10:04		11:04		12:04		13:04		14:04		15:04		16:04		17:04		18:04		19:04		20:04	
210	Napier Street	CEST	7:05		8:05		9:05		10:05		11:05		12:05		13:05		14:05		15:05		16:05		17:05		18:05		19:05		20:05	
212	Hospital	CEST	7:05		8:05		9:05		10:05		11:05		12:05		13:05		14:05		15:05		16:05		17:05		18:05		19:05		20:05	
214	Raglan Street	CEST	7:06		8:06		9:06		10:06		11:06		12:06		13:06		14:06		15:06		16:06		17:06		18:06		19:06		20:06	
216	Sandford Fleming Drive	CEST	7:08		8:08		9:08		10:08		11:08		12:08		13:08		14:08		15:08		16:08		17:08		18:08		19:08		20:08	
218	Sixth Line	CEST	7:09		8:09		9:09		10:09		11:09		12:09		13:09		14:09		15:09		16:09		17:09		18:09		19:09		20:09	
220	Georgian College	CEST	7:12		8:12		9:12		10:12		11:12		12:12		13:12		14:12		15:12		16:12		17:12		18:12		19:12		20:12	
222	Elliot Avenue	CEST	7:16		8:16		9:16		10:16		11:16		12:16		13:16		14:16		15:16		16:16		17:16		18:16		19:16		20:16	
224	St.Clair Street	CEST	7:17		8:17		9:17		10:17		11:17		12:17		13:17		14:17		15:17		16:17		17:17		18:17		19:17		20:17	
226	Pretty River	CEST	7:17		8:17		9:17		10:17		11:17		12:17		13:17		14:17		15:17		16:17		17:17		18:17		19:17		20:17	
228	Ronell Crescent	CEST	7:18		8:18		9:18		10:18		11:18		12:18		13:18		14:18		15:18		16:18		17:18		18:18		19:18		20:18	
230	Niagara Street	CEST	7:20		8:20		9:20		10:20		11:20		12:20		13:20		14:20		15:20		16:20		17:20		18:20		19:20		20:20	
232	Sunset Point	CEST	7:21		8:21		9:21		10:21		11:21		12:21		13:21		14:21		15:21		16:21		17:21		18:21		19:21		20:21	
234	Legion	CEST	7:24		8:24		9:24		10:24		11:24		12:24		13:24		14:24		15:24		16:24		17:24		18:24		19:24		20:24	
236	Niagara Street	CEST	7:24		8:24		9:24		10:24		11:24		12:24		13:24		14:24		15:24		16:24		17:24		18:24		19:24		20:24	
238	Ontario Street	CEST	7:25		8:25		9:25		10:25		11:25		12:25		13:25		14:25		15:25		16:25		17:25		18:25		19:25		20:25	
240	Ste.Marie Street	CEST	7:26		8:26		9:26		10:26		11:26		12:26		13:26		14:26		15:26		16:26		17:26		18:26		19:26		20:26	
242	Main Terminal	CEST	7:28		8:28		9:28		10:28		11:28		12:28		13:28		14:28		15:28		16:28		17:28		18:28		19:28		20:28	

APPENDIX F

Traffic Data

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Turning Movement Count (2 . HURONTARIO ST & FINDLAY DR / TRACEY LN)

Start Time	N Approach HURONTARIO ST						E Approach TRACEY LN						S Approach HURONTARIO ST						W Approach FINDLAY DR						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	19	1	0	0	20	0	0	1	0	0	1	0	13	0	0	0	13	0	0	2	0	0	2	36	
06:15:00	1	25	0	0	0	26	1	0	1	0	0	2	0	19	2	0	0	21	0	0	0	0	4	0	49	
06:30:00	1	19	1	0	2	21	2	0	1	0	0	3	2	23	0	0	0	25	1	0	2	0	1	3	52	
06:45:00	0	31	2	0	0	33	2	1	2	0	0	5	1	35	1	0	0	37	1	0	3	0	0	4	79	216
07:00:00	0	45	1	0	0	46	1	0	1	0	1	2	0	31	0	0	0	31	2	0	6	0	3	8	87	267
07:15:00	5	33	1	0	0	39	1	0	2	0	0	3	2	35	3	0	0	40	3	1	6	0	2	10	92	310
07:30:00	2	47	1	0	0	50	1	0	1	0	0	2	3	52	0	0	0	55	3	0	9	0	4	12	119	377
07:45:00	2	43	2	0	0	47	3	1	2	0	1	6	1	66	0	0	0	67	3	0	6	0	2	9	129	427
08:00:00	1	52	4	0	0	57	1	2	0	0	0	3	2	63	0	0	1	65	4	1	6	0	0	11	136	476
08:15:00	3	62	0	0	0	65	7	0	0	0	0	7	4	81	1	0	0	86	2	1	8	0	1	11	169	553
08:30:00	7	66	2	1	0	76	4	2	2	0	0	8	1	83	2	0	0	86	2	0	13	0	0	15	185	619
08:45:00	6	52	7	0	0	65	4	1	0	0	0	5	5	93	3	0	0	101	3	0	11	0	0	14	185	675
09:00:00	3	53	12	0	0	68	9	0	5	0	0	14	2	67	2	0	0	71	4	1	5	0	2	10	163	702
09:15:00	12	51	5	0	0	68	5	1	0	0	0	6	5	60	1	0	0	66	1	2	9	0	1	12	152	685
09:30:00	4	61	4	0	0	69	2	2	2	0	0	6	3	47	2	0	0	52	3	2	3	0	0	8	135	635
09:45:00	6	57	0	0	0	63	6	3	0	0	0	9	0	68	0	0	0	68	1	1	8	0	0	10	150	600
BREAK																										
15:00:00	9	97	3	0	0	109	6	1	2	0	0	9	0	88	1	0	0	89	1	1	4	0	8	6	213	
15:15:00	10	89	4	0	1	103	6	1	2	0	0	9	5	82	0	0	0	87	3	1	10	0	2	14	213	
15:30:00	11	101	3	0	0	115	4	1	0	0	2	5	3	75	1	0	0	79	2	2	10	0	0	14	213	
15:45:00	12	94	6	0	0	112	7	2	1	0	0	10	6	67	4	0	0	77	5	3	13	0	2	21	220	859
16:00:00	12	95	2	0	0	109	13	3	4	0	0	20	1	95	3	0	1	99	3	0	7	0	0	10	238	884
16:15:00	17	98	6	0	0	121	7	0	2	0	1	9	0	67	0	0	1	67	5	2	9	0	1	16	213	884
16:30:00	18	107	2	0	1	127	4	0	1	0	0	5	2	94	2	0	0	98	3	0	8	0	1	11	241	912
16:45:00	11	99	5	0	0	115	10	1	1	0	0	12	0	72	6	0	0	78	2	4	5	0	4	11	216	908
17:00:00	15	107	7	0	2	129	3	1	0	0	0	4	2	77	3	0	0	82	2	3	4	0	1	9	224	894
17:15:00	17	95	7	0	0	119	2	1	0	0	0	3	1	84	3	0	0	88	0	2	11	0	1	13	223	904
17:30:00	15	100	3	0	1	118	7	2	0	0	1	9	1	77	1	0	0	79	6	1	11	0	5	18	224	887
17:45:00	9	66	4	0	0	79	5	0	1	0	1	6	1	75	0	0	0	76	4	2	10	0	0	16	177	848
18:00:00	9	73	6	0	0	88	3	2	1	0	1	6	0	59	3	0	0	62	1	2	7	0	0	10	166	790
18:15:00	6	49	2	0	0	57	2	0	0	0	1	2	0	66	2	0	1	68	3	2	7	0	2	12	139	706
18:30:00	12	64	1	0	0	77	7	2	3	0	3	12	0	65	5	0	3	70	0	3	8	0	0	11	170	652
18:45:00	7	55	6	0	0	68	2	2	0	0	3	4	1	57	3	0	4	61	2	1	10	0	5	13	146	621
Grand Total	243	2105	110	1	7	2459	137	32	38	0	15	207	54	2036	54	0	11	2144	75	38	231	0	52	344	**5154**	-
Approach%	9.9%	85.6%	4.5%	0%		-	66.2%	15.5%	18.4%	0%		-	2.5%	95%	2.5%	0%		-	21.8%	11%	67.2%	0%		-	**-**	-
Totals %	4.7%	40.8%	2.1%	0%		47.7%	2.7%	0.6%	0.7%	0%		4%	1%	39.5%	1%	0%		41.6%	1.5%	0.7%	4.5%	0%		6.7%	**-**	-
Heavy	1	35	3	0		-	1	1	2	0		-	1	48	1	0		-	1	0	0	0		-	**-**	-
Heavy %	0.4%	1.7%	2.7%	0%		-	0.7%	3.1%	5.3%	0%		-	1.9%	2.4%	1.9%	0%		-	1.3%	0%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: HURONTARIO ST & FINDLAY DR / TRACEY LN
Date: Tue, Jul 27, 2021 Deployment Lead: Theo Daglis

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 08:15 AM - 09:15 AM Weather: Broken Clouds (16.33 °C)

Start Time	N Approach HURONTARIO ST						E Approach TRACEY LN						S Approach HURONTARIO ST						W Approach FINDLAY DR						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	3	62	0	0	0	65	7	0	0	0	0	7	4	81	1	0	0	86	2	1	8	0	1	11	169
08:30:00	7	66	2	1	0	76	4	2	2	0	0	8	1	83	2	0	0	86	2	0	13	0	0	15	185
08:45:00	6	52	7	0	0	65	4	1	0	0	0	5	5	93	3	0	0	101	3	0	11	0	0	14	185
09:00:00	3	53	12	0	0	68	9	0	5	0	0	14	2	67	2	0	0	71	4	1	5	0	2	10	163
Grand Total	19	233	21	1	0	274	24	3	7	0	0	34	12	324	8	0	0	344	11	2	37	0	3	50	**702**
Approach%	6.9%	85%	7.7%	0.4%		-	70.6%	8.8%	20.6%	0%		-	3.5%	94.2%	2.3%	0%		-	22%	4%	74%	0%		-	**-**
Totals %	2.7%	33.2%	3%	0.1%		39%	3.4%	0.4%	1%	0%		4.8%	1.7%	46.2%	1.1%	0%		49%	1.6%	0.3%	5.3%	0%		7.1%	**-**
PHF	0.68	0.88	0.44	0.25		0.9	0.67	0.38	0.35	0		0.61	0.6	0.87	0.67	0		0.85	0.69	0.5	0.71	0		0.83	**-**
Heavy	0	5	2	0		7	0	0	0	0		0	0	7	0	0		7	0	0	0	0		0	**-**
Heavy %	0%	2.1%	9.5%	0%		2.6%	0%	0%	0%	0%		0%	0%	2.2%	0%	0%		2%	0%	0%	0%	0%		0%	**-**
Lights	19	228	19	1		267	24	3	7	0		34	12	317	8	0		337	11	2	37	0		50	**-**
Lights %	100%	97.9%	90.5%	100%		97.4%	100%	100%	100%	0%		100%	100%	97.8%	100%	0%		98%	100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	0	3	2	0		5	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	1.3%	9.5%	0%		1.8%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.9%	0%	0%	0%	0%		0%	**-**
Buses	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	1	0	0		1	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	**-**
Articulated Trucks %	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	1.2%	0%	0%		1.2%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	66.7%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	33.3%		**-**

Spectrum

Turning Movement Count
Location Name: HURONTARIO ST & FINDLAY DR / TRACEY LN
Date: Tue, Jul 27, 2021 Deployment Lead: Theo Daglis

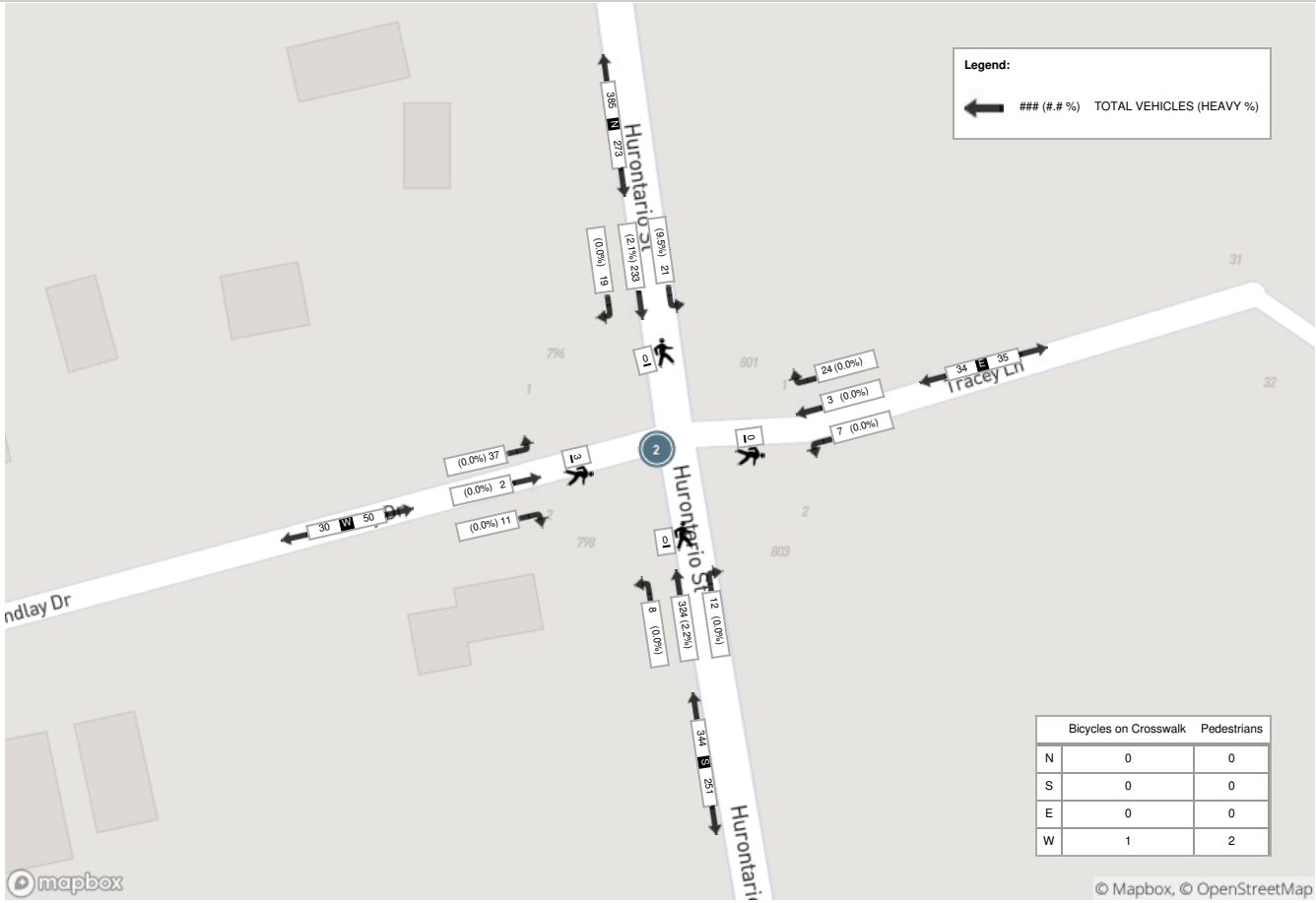
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 03:45 PM - 04:45 PM Weather: Clear Sky (22.35 °C)

Start Time	N Approach HURONTARIO ST						E Approach TRACEY LN						S Approach HURONTARIO ST						W Approach FINDLAY DR						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
15:45:00	12	94	6	0	0	112	7	2	1	0	0	10	6	67	4	0	0	77	5	3	13	0	2	21	220
16:00:00	12	95	2	0	0	109	13	3	4	0	0	20	1	95	3	0	1	99	3	0	7	0	0	10	238
16:15:00	17	98	6	0	0	121	7	0	2	0	1	9	0	67	0	0	1	67	5	2	9	0	1	16	213
16:30:00	18	107	2	0	1	127	4	0	1	0	0	5	2	94	2	0	0	98	3	0	8	0	1	11	241
Grand Total	59	394	16	0	1	469	31	5	8	0	1	44	9	323	9	0	2	341	16	5	37	0	4	58	**912**
Approach%	12.6%	84%	3.4%	0%		-	70.5%	11.4%	18.2%	0%		-	2.6%	94.7%	2.6%	0%		-	27.6%	8.6%	63.8%	0%		-	**-**
Totals %	6.5%	43.2%	1.8%	0%		51.4%	3.4%	0.5%	0.9%	0%		4.8%	1%	35.4%	1%	0%		37.4%	1.8%	0.5%	4.1%	0%		6.4%	**-**
PHF	0.82	0.92	0.67	0		0.92	0.6	0.42	0.5	0		0.55	0.38	0.85	0.56	0		0.86	0.8	0.42	0.71	0		0.69	**-**
Heavy	0	13	1	0		14	1	0	0	0		1	0	4	0	0		4	0	0	0	0		0	**-**
Heavy %	0%	3.3%	6.3%	0%		3%	3.2%	0%	0%	0%		2.3%	0%	1.2%	0%	0%		1.2%	0%	0%	0%	0%		0%	**-**
Lights	59	381	15	0		455	30	4	8	0		42	9	319	9	0		337	16	5	37	0		58	**-**
Lights %	100%	96.7%	93.8%	0%		97%	96.8%	80%	100%	0%		95.5%	100%	98.8%	100%	0%		98.8%	100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	0	11	1	0		12	1	0	0	0		1	0	3	0	0		3	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	2.8%	6.3%	0%		2.6%	3.2%	0%	0%	0%		2.3%	0%	0.9%	0%	0%		0.9%	0%	0%	0%	0%		0%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Articulated Trucks %	0%	0.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	20%	0%	0%		2.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	12.5%		-	-	-	-	25%		-	-	-	-	25%		**-**
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	**-**
Bicycles on Crosswalk%	-	-	-	-	12.5%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	25%		**-**

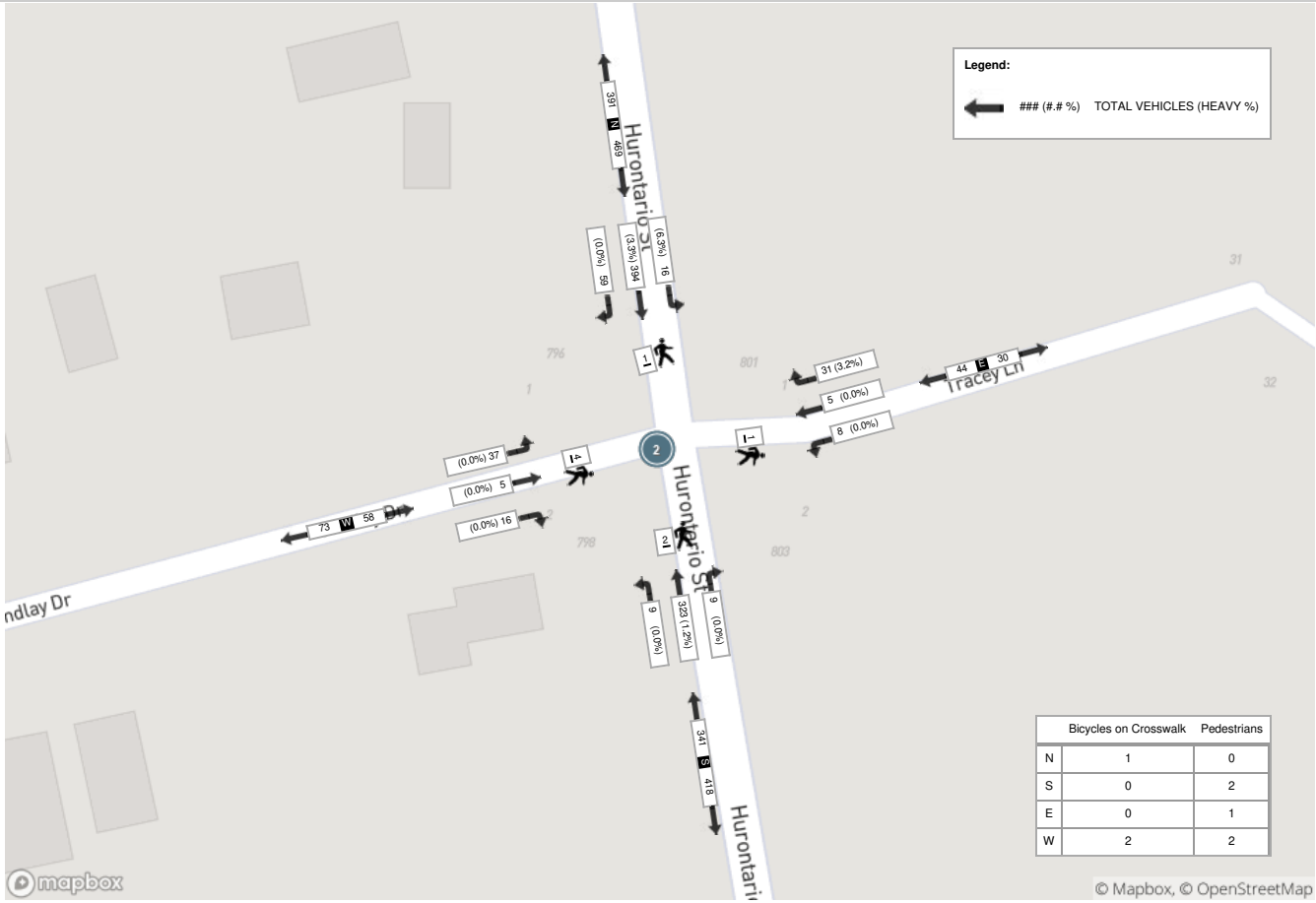
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 08:15 AM - 09:15 AM **Weather: Broken Clouds (16.33 °C)**



Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 03:45 PM - 04:45 PM Weather: Clear Sky (22.35 °C)



	Bicycles on Crosswalk	Pedestrians
N	1	0
S	0	2
E	0	1
W	2	2

Spectrum

Turning Movement Count
Location Name: PEEL ST & COLLINS ST
Date: Tue, Jul 27, 2021 Deployment Lead: Theo Daglis

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Turning Movement Count (1 . PEEL ST & COLLINS ST)

Start Time	N Approach PEEL ST						E Approach COLLINS ST						S Approach PEEL ST						W Approach COLLINS ST						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	2	1	1	0	0	4	0	0	0	0	0	0	0	2	0	0	0	2	0	1	0	0	0	1	7	
06:15:00	2	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	4	7	
06:30:00	2	0	0	0	0	2	0	0	0	0	0	0	0	1	2	0	0	3	0	2	10	0	1	12	17	
06:45:00	2	0	2	0	1	4	0	0	0	0	0	0	0	3	0	0	0	3	3	2	6	0	0	11	18	49
07:00:00	0	1	1	1	0	3	0	0	0	0	0	0	0	2	2	0	0	4	0	3	8	0	0	11	18	60
07:15:00	3	0	1	0	0	4	0	0	0	0	0	0	0	5	1	0	0	6	0	1	10	1	0	12	22	75
07:30:00	10	3	1	0	0	14	3	0	0	0	0	3	0	4	0	0	0	4	0	0	9	0	1	9	30	88
07:45:00	9	2	2	0	0	13	0	1	0	0	0	1	0	3	0	0	0	3	1	0	8	1	2	10	27	97
08:00:00	4	1	1	0	0	6	0	2	0	0	0	2	0	4	0	0	0	4	0	1	11	0	0	12	24	103
08:15:00	8	3	0	0	0	11	1	0	0	0	0	1	0	4	2	0	0	6	0	3	12	0	1	15	33	114
08:30:00	9	3	0	0	0	12	2	0	0	0	0	2	0	1	3	0	0	4	1	1	11	0	0	13	31	115
08:45:00	6	3	1	0	0	10	1	1	1	0	0	3	0	7	1	0	0	8	5	2	11	0	0	18	39	127
09:00:00	9	2	0	0	0	11	1	0	0	0	0	1	0	8	1	0	0	9	2	0	8	0	0	10	31	134
09:15:00	1	2	0	0	0	3	0	0	0	0	0	0	0	3	4	0	0	7	0	1	10	0	0	11	21	122
09:30:00	6	0	2	0	0	8	1	2	0	0	0	3	0	1	2	0	0	3	1	1	4	0	1	6	20	111
09:45:00	7	1	2	0	0	10	3	3	0	0	0	6	0	6	1	0	0	7	1	4	4	0	3	9	32	104
BREAK																										
15:00:00	13	9	1	0	0	23	5	1	0	0	0	6	0	5	4	0	1	9	3	0	12	0	2	15	53	
15:15:00	10	6	2	1	0	19	3	0	0	0	0	3	0	4	1	0	0	5	1	1	7	0	0	9	36	
15:30:00	13	7	0	0	0	20	2	0	0	0	0	2	0	4	4	0	0	8	1	1	8	0	0	10	40	
15:45:00	17	7	0	0	0	24	1	4	0	0	0	5	0	3	3	0	0	6	8	1	8	0	3	17	52	181
16:00:00	8	8	1	0	0	17	1	2	0	0	0	3	0	1	2	0	1	3	2	0	12	0	3	14	37	165
16:15:00	18	4	0	0	0	22	1	2	0	0	0	3	0	5	3	0	0	8	4	0	14	0	1	18	51	180
16:30:00	15	7	1	0	0	23	2	1	0	0	0	3	0	1	3	0	0	4	2	0	15	0	0	17	47	187
16:45:00	10	8	1	0	0	19	3	0	0	0	2	3	0	4	1	0	0	5	7	0	12	1	3	20	47	182
17:00:00	17	7	0	0	0	24	0	0	0	0	0	0	0	6	3	0	0	9	6	1	3	0	6	10	43	188
17:15:00	18	9	1	0	0	28	1	2	0	0	0	3	0	3	6	0	0	9	2	1	16	0	2	19	59	196
17:30:00	10	4	2	0	0	16	1	0	0	0	0	1	0	5	2	0	0	7	2	1	14	0	0	17	41	190
17:45:00	7	4	1	0	0	12	0	0	0	0	0	0	0	3	6	0	1	9	4	0	14	0	2	18	39	182
18:00:00	8	4	0	0	1	12	0	0	0	0	1	0	0	3	3	0	2	6	0	1	6	0	1	7	25	164
18:15:00	4	2	0	0	0	6	0	2	0	0	0	2	0	2	3	0	2	5	1	1	7	0	2	9	22	127
18:30:00	12	2	1	0	0	15	0	0	0	0	0	0	0	1	2	0	0	3	5	2	4	0	2	11	29	115
18:45:00	3	4	1	0	0	8	3	2	0	0	0	5	0	2	1	0	0	3	2	1	8	0	0	11	27	103
Grand Total	263	114	27	2	2	406	35	25	1	0	3	61	0	106	66	0	7	172	64	33	286	3	38	386	**1025**	-
Approach%	64.8%	28.1%	6.7%	0.5%		-	57.4%	41%	1.6%	0%		-	0%	61.6%	38.4%	0%		-	16.6%	8.5%	74.1%	0.8%		-	**-**	-
Totals %	25.7%	11.1%	2.6%	0.2%		39.6%	3.4%	2.4%	0.1%	0%		6%	0%	10.3%	6.4%	0%		16.8%	6.2%	3.2%	27.9%	0.3%		37.7%	**-**	-
Heavy	9	3	1	2		-	1	0	0	0		-	0	0	0	0		-	0	0	2	0		-	**-**	-
Heavy %	3.4%	2.6%	3.7%	100%		-	2.9%	0%	0%	0%		-	0%	0%	0%	0%		-	0%	0%	0.7%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 08:15 AM - 09:15 AM Weather: Broken Clouds (16.33 °C)

Start Time	N Approach PEEL ST						E Approach COLLINS ST						S Approach PEEL ST						W Approach COLLINS ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	8	3	0	0	0	11	1	0	0	0	0	1	0	4	2	0	0	6	0	3	12	0	1	15	33
08:30:00	9	3	0	0	0	12	2	0	0	0	0	2	0	1	3	0	0	4	1	1	11	0	0	13	31
08:45:00	6	3	1	0	0	10	1	1	1	0	0	3	0	7	1	0	0	8	5	2	11	0	0	18	39
09:00:00	9	2	0	0	0	11	1	0	0	0	0	1	0	8	1	0	0	9	2	0	8	0	0	10	31
Grand Total	32	11	1	0	0	44	5	1	1	0	0	7	0	20	7	0	0	27	8	6	42	0	1	56	**134**
Approach%	72.7%	25%	2.3%	0%		-	71.4%	14.3%	14.3%	0%		-	0%	74.1%	25.9%	0%		-	14.3%	10.7%	75%	0%		-	**-**
Totals %	23.9%	8.2%	0.7%	0%		32.8%	3.7%	0.7%	0.7%	0%		5.2%	0%	14.9%	5.2%	0%		20.1%	6%	4.5%	31.3%	0%		41.8%	**-**
PHF	0.89	0.92	0.25	0		0.92	0.63	0.25	0.25	0		0.58	0	0.63	0.58	0		0.75	0.4	0.5	0.88	0		0.78	**-**
Heavy	2	2	0	0		4	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Heavy %	6.3%	18.2%	0%	0%		9.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Lights	29	9	1	0		39	5	1	1	0		7	0	20	7	0		27	8	6	42	0		56	**-**
Lights %	90.6%	81.8%	100%	0%		88.6%	100%	100%	100%	0%		100%	0%	100%	100%	0%		100%	100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	1	1	0	0		2	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	3.1%	9.1%	0%	0%		4.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	1	1	0	0		2	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	3.1%	9.1%	0%	0%		4.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	3.1%	0%	0%	0%		2.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	100%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: PEEL ST & COLLINS ST
Date: Tue, Jul 27, 2021 Deployment Lead: Theo Daglis

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (22.35 °C)

Start Time	N Approach PEEL ST						E Approach COLLINS ST						S Approach PEEL ST						W Approach COLLINS ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	15	7	1	0	0	23	2	1	0	0	0	3	0	1	3	0	0	4	2	0	15	0	0	17	47
16:45:00	10	8	1	0	0	19	3	0	0	0	2	3	0	4	1	0	0	5	7	0	12	1	3	20	47
17:00:00	17	7	0	0	0	24	0	0	0	0	0	0	0	6	3	0	0	9	6	1	3	0	6	10	43
17:15:00	18	9	1	0	0	28	1	2	0	0	0	3	0	3	6	0	0	9	2	1	16	0	2	19	59
Grand Total	60	31	3	0	0	94	6	3	0	0	2	9	0	14	13	0	0	27	17	2	46	1	11	66	**196**
Approach%	63.8%	33%	3.2%	0%		-	66.7%	33.3%	0%	0%		-	0%	51.9%	48.1%	0%		-	25.8%	3%	69.7%	1.5%		-	**-**
Totals %	30.6%	15.8%	1.5%	0%		48%	3.1%	1.5%	0%	0%		4.6%	0%	7.1%	6.6%	0%		13.8%	8.7%	1%	23.5%	0.5%		33.7%	**-**
PHF	0.83	0.86	0.75	0		0.84	0.5	0.38	0	0		0.75	0	0.58	0.54	0		0.75	0.61	0.5	0.72	0.25		0.83	**-**
Heavy	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Heavy %	1.7%	0%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Lights	57	28	3	0		88	6	3	0	0		9	0	14	11	0		25	17	2	45	1		65	**-**
Lights %	95%	90.3%	100%	0%		93.6%	100%	100%	0%	0%		100%	0%	100%	84.6%	0%		92.6%	100%	100%	97.8%	100%		98.5%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Buses	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	1.7%	0%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	2	3	0	0		5	0	0	0	0		0	0	0	2	0		2	0	0	1	0		1	**-**
Bicycles on Road %	3.3%	9.7%	0%	0%		5.3%	0%	0%	0%	0%		0%	0%	0%	15.4%	0%		7.4%	0%	0%	2.2%	0%		1.5%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	11	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	15.4%		-	-	-	-	0%		-	-	-	-	84.6%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 08:15 AM - 09:15 AM **Weather: Broken Clouds (16.33 °C)**

	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	0
E	0	0
W	0	1

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (22.35 °C)

	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	0
E	0	2
W	0	11

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Turning Movement Count (3 . PORTLAND ST & POPLAR SIDEROAD)

Start Time	N Approach PORTLAND ST					E Approach POPLAR SIDEROAD					W Approach POPLAR SIDEROAD					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	3	3	0	0	6	2	12	0	0	14	24	0	0	0	24	44	
06:15:00	2	4	0	0	6	0	32	0	0	32	24	0	0	0	24	62	
06:30:00	1	4	0	0	5	1	47	0	0	48	32	0	0	0	32	85	
06:45:00	6	6	0	0	12	5	47	0	0	52	58	2	0	0	60	124	315
07:00:00	3	3	0	0	6	3	45	0	0	48	66	4	0	0	70	124	395
07:15:00	3	2	0	0	5	10	66	0	0	76	71	2	0	0	73	154	487
07:30:00	1	4	0	0	5	3	76	0	0	79	77	3	0	0	80	164	566
07:45:00	4	6	0	0	10	2	68	0	0	70	73	2	0	0	75	155	597
08:00:00	3	8	0	0	11	4	63	0	0	67	93	4	0	0	97	175	648
08:15:00	6	8	0	0	14	3	97	0	0	100	78	4	0	0	82	196	690
08:30:00	8	7	0	0	15	5	89	0	0	94	76	5	0	0	81	190	716
08:45:00	2	11	0	0	13	6	82	0	0	88	96	3	0	0	99	200	761
09:00:00	2	4	0	0	6	6	66	0	0	72	85	6	0	0	91	169	755
09:15:00	5	9	0	0	14	8	63	0	0	71	75	4	0	0	79	164	723
09:30:00	7	8	0	0	15	5	60	0	0	65	74	2	0	0	76	156	689
09:45:00	8	5	0	0	13	5	64	0	0	69	85	1	0	0	86	168	657
BREAK																	
15:00:00	5	9	0	0	14	11	75	0	0	86	105	2	0	0	107	207	
15:15:00	8	6	0	0	14	5	91	0	0	96	105	7	0	0	112	222	
15:30:00	10	5	0	1	15	7	80	0	0	87	110	8	0	0	118	220	
15:45:00	7	6	0	0	13	9	82	0	0	91	109	6	0	0	115	219	868
16:00:00	4	12	0	1	16	5	93	0	0	98	101	5	0	0	106	220	881
16:15:00	5	4	0	0	9	8	92	0	0	100	111	4	0	0	115	224	883
16:30:00	2	5	0	0	7	20	106	0	0	126	109	4	0	0	113	246	909
16:45:00	6	5	0	0	11	9	95	0	0	104	115	4	0	0	119	234	924
17:00:00	9	9	0	0	18	15	113	0	0	128	137	5	0	0	142	288	992
17:15:00	9	6	0	0	15	11	95	0	0	106	124	10	0	0	134	255	1023
17:30:00	5	7	0	0	12	4	79	0	0	83	91	5	0	0	96	191	968
17:45:00	4	8	0	0	12	9	87	0	0	96	75	4	0	0	79	187	921
18:00:00	4	11	0	0	15	8	76	0	0	84	58	6	0	0	64	163	796
18:15:00	4	4	0	0	8	4	60	0	0	64	64	4	0	0	68	140	681
18:30:00	1	6	0	0	7	6	57	0	0	63	57	6	0	0	63	133	623
18:45:00	3	3	0	0	6	8	50	0	0	58	62	5	0	0	67	131	567

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Grand Total	150	198	0	2	348	207	2308	0	0	2515	2620	127	0	0	2747	**5610**	-
Approach%	43.1%	56.9%	0%		-	8.2%	91.8%	0%		-	95.4%	4.6%	0%		-	**-**	-
Totals %	2.7%	3.5%	0%		6.2%	3.7%	41.1%	0%		44.8%	46.7%	2.3%	0%		49%	**-**	-
Heavy	4	3	0		-	2	168	0		-	161	4	0		-	**-**	-
Heavy %	2.7%	1.5%	0%		-	1%	7.3%	0%		-	6.1%	3.1%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (16.33 °C)

Start Time	N Approach PORTLAND ST					E Approach POPLAR SIDEROAD					W Approach POPLAR SIDEROAD					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	3	8	0	0	11	4	63	0	0	67	93	4	0	0	97	175
08:15:00	6	8	0	0	14	3	97	0	0	100	78	4	0	0	82	196
08:30:00	8	7	0	0	15	5	89	0	0	94	76	5	0	0	81	190
08:45:00	2	11	0	0	13	6	82	0	0	88	96	3	0	0	99	200
Grand Total	19	34	0	0	53	18	331	0	0	349	343	16	0	0	359	**761**
Approach%	35.8%	64.2%	0%		-	5.2%	94.8%	0%		-	95.5%	4.5%	0%		-	**-**
Totals %	2.5%	4.5%	0%		7%	2.4%	43.5%	0%		45.9%	45.1%	2.1%	0%		47.2%	**-**
PHF	0.59	0.77	0		0.88	0.75	0.85	0		0.87	0.89	0.8	0		0.91	**-**
Heavy	1	1	0		2	0	37	0		37	29	2	0		31	**-**
Heavy %	5.3%	2.9%	0%		3.8%	0%	11.2%	0%		10.6%	8.5%	12.5%	0%		8.6%	**-**
Lights	18	31	0		49	18	294	0		312	314	14	0		328	**-**
Lights %	94.7%	91.2%	0%		92.5%	100%	88.8%	0%		89.4%	91.5%	87.5%	0%		91.4%	**-**
Single-Unit Trucks	1	1	0		2	0	27	0		27	20	2	0		22	**-**
Single-Unit Trucks %	5.3%	2.9%	0%		3.8%	0%	8.2%	0%		7.7%	5.8%	12.5%	0%		6.1%	**-**
Buses	0	0	0		0	0	0	0		0	1	0	0		1	**-**
Buses %	0%	0%	0%		0%	0%	0%	0%		0%	0.3%	0%	0%		0.3%	**-**
Articulated Trucks	0	0	0		0	0	10	0		10	8	0	0		8	**-**
Articulated Trucks %	0%	0%	0%		0%	0%	3%	0%		2.9%	2.3%	0%	0%		2.2%	**-**
Bicycles on Road	0	2	0		2	0	0	0		0	0	0	0		0	**-**
Bicycles on Road %	0%	5.9%	0%		3.8%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

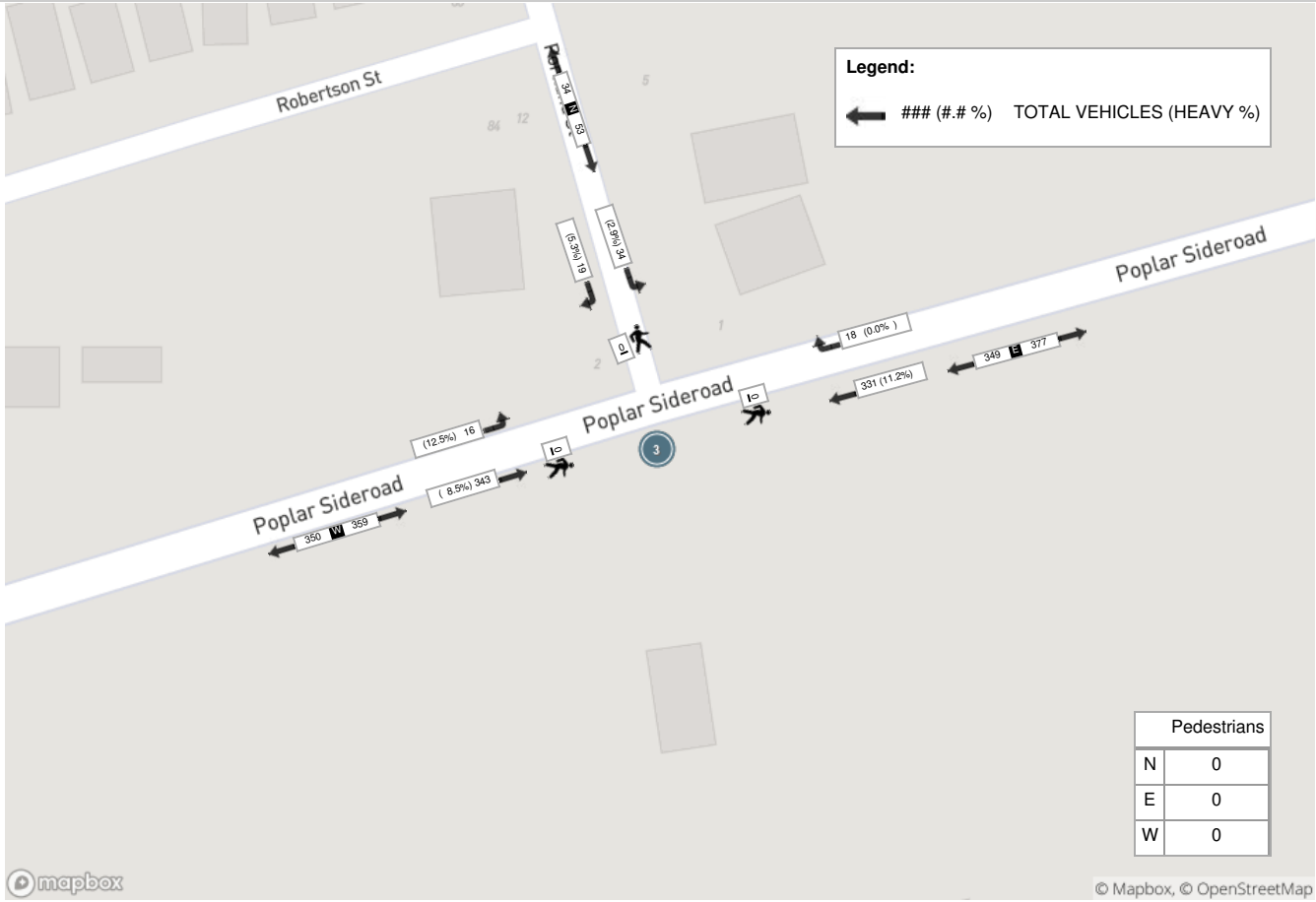
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (22.35 °C)

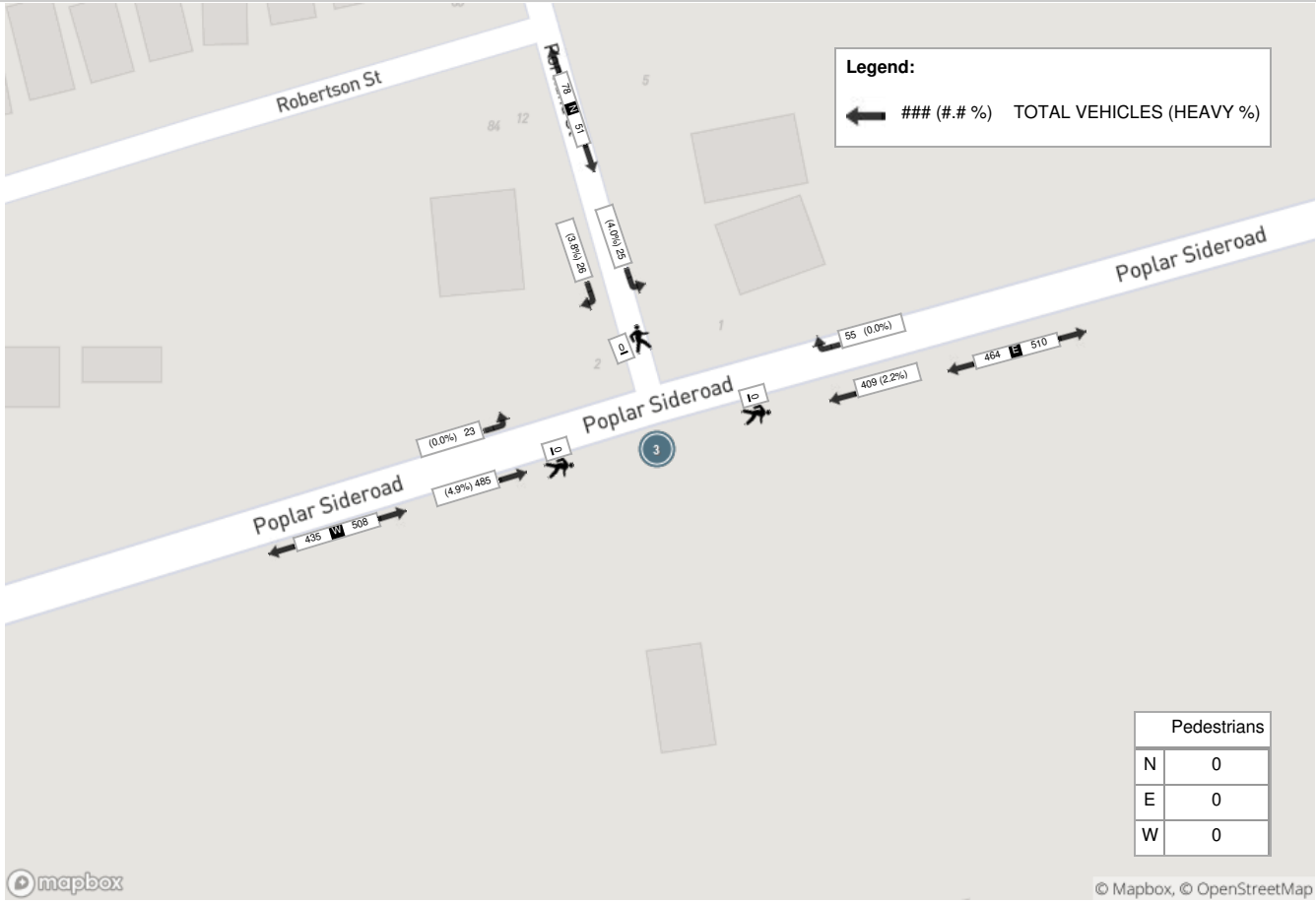
Start Time	N Approach PORTLAND ST					E Approach POPLAR SIDEROAD					W Approach POPLAR SIDEROAD					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	2	5	0	0	7	20	106	0	0	126	109	4	0	0	113	246
16:45:00	6	5	0	0	11	9	95	0	0	104	115	4	0	0	119	234
17:00:00	9	9	0	0	18	15	113	0	0	128	137	5	0	0	142	288
17:15:00	9	6	0	0	15	11	95	0	0	106	124	10	0	0	134	255
Grand Total	26	25	0	0	51	55	409	0	0	464	485	23	0	0	508	**1023**
Approach%	51%	49%	0%		-	11.9%	88.1%	0%		-	95.5%	4.5%	0%		-	**-**
Totals %	2.5%	2.4%	0%		5%	5.4%	40%	0%		45.4%	47.4%	2.2%	0%		49.7%	**-**
PHF	0.72	0.69	0		0.71	0.69	0.9	0		0.91	0.89	0.58	0		0.89	**-**
Heavy	1	1	0		2	0	9	0		9	24	0	0		24	**-**
Heavy %	3.8%	4%	0%		3.9%	0%	2.2%	0%		1.9%	4.9%	0%	0%		4.7%	**-**
Lights	25	24	0		49	53	399	0		452	461	23	0		484	**-**
Lights %	96.2%	96%	0%		96.1%	96.4%	97.6%	0%		97.4%	95.1%	100%	0%		95.3%	**-**
Single-Unit Trucks	1	1	0		2	0	6	0		6	21	0	0		21	**-**
Single-Unit Trucks %	3.8%	4%	0%		3.9%	0%	1.5%	0%		1.3%	4.3%	0%	0%		4.1%	**-**
Buses	0	0	0		0	0	0	0		0	0	0	0		0	**-**
Buses %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0		0	0	3	0		3	3	0	0		3	**-**
Articulated Trucks %	0%	0%	0%		0%	0%	0.7%	0%		0.6%	0.6%	0%	0%		0.6%	**-**
Bicycles on Road	0	0	0		0	2	1	0		3	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%		0%	3.6%	0.2%	0%		0.6%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (16.33 °C)



Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (22.35 °C)



APPENDIX G

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

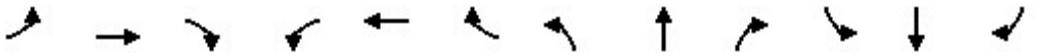
Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
B	> 10 and ≤ 20	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
C	> 20 and ≤ 35	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	> 35 and ≤ 55	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	> 55 and ≤ 80	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	> 80	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX H

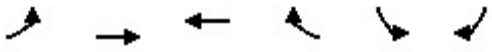
Detailed Capacity Analysis Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	2	1	7	3	24	8	324	12	21	233	19
Future Volume (Veh/h)	37	2	1	7	3	24	8	324	12	21	233	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	2	1	7	3	25	8	341	13	22	245	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	672	659	245	654	672	348	265			354		
vC1, stage 1 conf vol	289	289		364	364							
vC2, stage 2 conf vol	384	370		291	309							
vCu, unblocked vol	672	659	245	654	672	348	265			354		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	93	100	100	99	99	96	99			98		
cM capacity (veh/h)	527	529	799	560	532	700	1311			1162		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	42	35	8	354	22	245	20
Volume Left	39	7	8	0	22	0	0
Volume Right	1	25	0	13	0	0	20
cSH	532	650	1311	1700	1162	1700	1700
Volume to Capacity	0.08	0.05	0.01	0.21	0.02	0.14	0.01
Queue Length 95th (m)	2.0	1.4	0.1	0.0	0.5	0.0	0.0
Control Delay (s)	12.3	10.9	7.8	0.0	8.2	0.0	0.0
Lane LOS	B	B	A		A		
Approach Delay (s)	12.3	10.9	0.2		0.6		
Approach LOS	B	B					

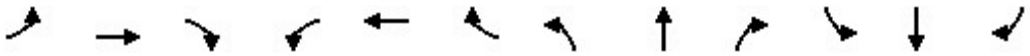
Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	343	331	18	34	19
Future Volume (Veh/h)	16	343	331	18	34	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	361	348	19	36	20
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	367				743	348
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	367				743	348
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	99				90	97
cM capacity (veh/h)	1133				375	688

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	17	361	348	19	56
Volume Left	17	0	0	0	36
Volume Right	0	0	0	19	20
cSH	1133	1700	1700	1700	448
Volume to Capacity	0.01	0.21	0.20	0.01	0.12
Queue Length 95th (m)	0.4	0.0	0.0	0.0	3.4
Control Delay (s)	8.2	0.0	0.0	0.0	14.2
Lane LOS	A				B
Approach Delay (s)	0.4		0.0		14.2
Approach LOS					B

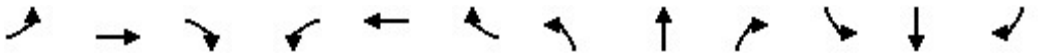
Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	28.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	42	6	8	1	1	5	7	20	0	1	11	32
Future Volume (vph)	42	6	8	1	1	5	7	20	0	1	11	32
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	49	7	9	1	1	6	8	23	0	1	13	37

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	65	8	31	51
Volume Left (vph)	49	1	8	1
Volume Right (vph)	9	6	0	37
Hadj (s)	0.07	-0.42	0.05	-0.28
Departure Headway (s)	4.1	3.7	4.2	3.8
Degree Utilization, x	0.07	0.01	0.04	0.05
Capacity (veh/h)	847	941	838	922
Control Delay (s)	7.5	6.7	7.3	7.0
Approach Delay (s)	7.5	6.7	7.3	7.0
Approach LOS	A	A	A	A

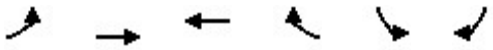
Intersection Summary				
Delay		7.3		
Level of Service		A		
Intersection Capacity Utilization		21.5%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	5	16	8	5	31	9	323	9	16	394	59
Future Volume (Veh/h)	37	5	16	8	5	31	9	323	9	16	394	59
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	5	17	8	5	33	9	340	9	17	415	62
Pedestrians		4			1			2			1	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	848	821	421	834	878	346	481			350		
vC1, stage 1 conf vol	453	453		364	364							
vC2, stage 2 conf vol	394	368		470	515							
vCu, unblocked vol	848	821	421	834	878	346	481			350		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.5	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.6	2.2			2.3		
p0 queue free %	92	99	97	98	99	95	99			99		
cM capacity (veh/h)	460	477	634	468	455	634	1088			1186		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	61	46	9	349	17	415	62
Volume Left	39	8	9	0	17	0	0
Volume Right	17	33	0	9	0	0	62
cSH	500	574	1088	1700	1186	1700	1700
Volume to Capacity	0.12	0.08	0.01	0.21	0.01	0.24	0.04
Queue Length 95th (m)	3.3	2.1	0.2	0.0	0.3	0.0	0.0
Control Delay (s)	13.2	11.8	8.3	0.0	8.1	0.0	0.0
Lane LOS	B	B	A		A		
Approach Delay (s)	13.2	11.8	0.2		0.3		
Approach LOS	B	B					

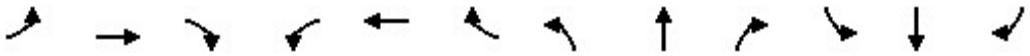
Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	36.8%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	485	409	55	25	26
Future Volume (Veh/h)	23	485	409	55	25	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	24	511	431	58	26	27
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	489				990	431
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	489				990	431
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				90	96
cM capacity (veh/h)	1085				265	622

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	24	511	431	58	53
Volume Left	24	0	0	0	26
Volume Right	0	0	0	58	27
cSH	1085	1700	1700	1700	374
Volume to Capacity	0.02	0.30	0.25	0.03	0.14
Queue Length 95th (m)	0.5	0.0	0.0	0.0	3.9
Control Delay (s)	8.4	0.0	0.0	0.0	16.2
Lane LOS	A				C
Approach Delay (s)	0.4		0.0		16.2
Approach LOS					C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	35.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	46	2	17	0	3	6	13	14	0	3	31	60
Future Volume (vph)	46	2	17	0	3	6	13	14	0	3	31	60
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	55	2	20	0	4	7	16	17	0	4	37	72

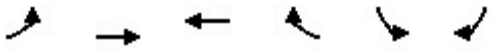
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	77	11	33	113
Volume Left (vph)	55	0	16	4
Volume Right (vph)	20	7	0	72
Hadj (s)	-0.01	-0.38	0.10	-0.35
Departure Headway (s)	4.2	3.9	4.3	3.8
Degree Utilization, x	0.09	0.01	0.04	0.12
Capacity (veh/h)	827	881	808	928
Control Delay (s)	7.6	6.9	7.5	7.3
Approach Delay (s)	7.6	6.9	7.5	7.3
Approach LOS	A	A	A	A

Intersection Summary				
Delay		7.4		
Level of Service		A		
Intersection Capacity Utilization		25.4%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	2	1	10	3	80	8	369	13	39	251	19
Future Volume (Veh/h)	38	2	1	10	3	80	8	369	13	39	251	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	2	1	11	3	84	8	388	14	41	264	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	836	764	264	759	777	395	284			402		
vC1, stage 1 conf vol	346	346		411	411							
vC2, stage 2 conf vol	490	418		348	366							
vCu, unblocked vol	836	764	264	759	777	395	284			402		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	90	100	100	98	99	87	99			96		
cM capacity (veh/h)	407	480	780	510	490	659	1290			1115		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	43	98	8	402	41	264	20
Volume Left	40	11	8	0	41	0	0
Volume Right	1	84	0	14	0	0	20
cSH	414	631	1290	1700	1115	1700	1700
Volume to Capacity	0.10	0.16	0.01	0.24	0.04	0.16	0.01
Queue Length 95th (m)	2.8	4.4	0.1	0.0	0.9	0.0	0.0
Control Delay (s)	14.7	11.7	7.8	0.0	8.4	0.0	0.0
Lane LOS	B	B	A		A		
Approach Delay (s)	14.7	11.7	0.2		1.1		
Approach LOS	B	B					

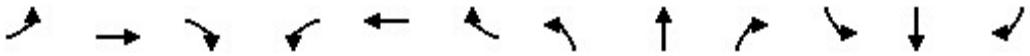
Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	42.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	387	372	36	90	84
Future Volume (Veh/h)	41	387	372	36	90	84
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	43	407	392	38	95	88
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	430				885	392
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	430				885	392
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	96				68	86
cM capacity (veh/h)	1073				302	650

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	43	407	392	38	183
Volume Left	43	0	0	0	95
Volume Right	0	0	0	38	88
cSH	1073	1700	1700	1700	406
Volume to Capacity	0.04	0.24	0.23	0.02	0.45
Queue Length 95th (m)	1.0	0.0	0.0	0.0	18.2
Control Delay (s)	8.5	0.0	0.0	0.0	20.9
Lane LOS	A				C
Approach Delay (s)	0.8		0.0		20.9
Approach LOS					C

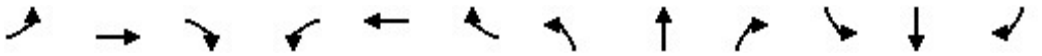
Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	45	7	10	25	5	10	13	29	8	3	15	37
Future Volume (vph)	45	7	10	25	5	10	13	29	8	3	15	37
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	52	8	12	29	6	12	15	34	9	3	17	43

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	72	47	58	63
Volume Left (vph)	52	29	15	3
Volume Right (vph)	12	12	9	43
Hadj (s)	0.04	-0.03	-0.04	-0.25
Departure Headway (s)	4.2	4.2	4.2	4.0
Degree Utilization, x	0.08	0.05	0.07	0.07
Capacity (veh/h)	818	826	826	874
Control Delay (s)	7.6	7.4	7.5	7.3
Approach Delay (s)	7.6	7.4	7.5	7.3
Approach LOS	A	A	A	A

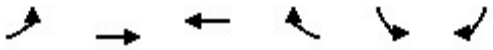
Intersection Summary				
Delay	7.5			
Level of Service	A			
Intersection Capacity Utilization	18.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	5	16	10	5	69	9	354	12	79	435	60
Future Volume (Veh/h)	38	5	16	10	5	69	9	354	12	79	435	60
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	5	17	11	5	73	9	373	13	83	458	63
Pedestrians		4			1			2			1	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1096	1033	464	1044	1090	382	525			387		
vC1, stage 1 conf vol	628	628		398	398							
vC2, stage 2 conf vol	468	405		646	691							
vCu, unblocked vol	1096	1033	464	1044	1090	382	525			387		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.5	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.6	2.2			2.3		
p0 queue free %	88	99	97	97	99	88	99			93		
cM capacity (veh/h)	329	377	599	365	366	605	1048			1149		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	62	89	9	386	83	458	63
Volume Left	40	11	9	0	83	0	0
Volume Right	17	73	0	13	0	0	63
cSH	380	541	1048	1700	1149	1700	1700
Volume to Capacity	0.16	0.16	0.01	0.23	0.07	0.27	0.04
Queue Length 95th (m)	4.6	4.7	0.2	0.0	1.9	0.0	0.0
Control Delay (s)	16.3	13.0	8.5	0.0	8.4	0.0	0.0
Lane LOS	C	B	A		A		
Approach Delay (s)	16.3	13.0	0.2		1.2		
Approach LOS	C	B					

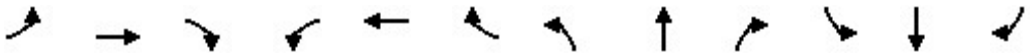
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	94	534	485	116	63	78
Future Volume (Veh/h)	94	534	485	116	63	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	99	562	511	122	66	82
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	633				1271	511
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	633				1271	511
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				60	85
cM capacity (veh/h)	960				165	561

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	99	562	511	122	148
Volume Left	99	0	0	0	66
Volume Right	0	0	0	122	82
cSH	960	1700	1700	1700	270
Volume to Capacity	0.10	0.33	0.30	0.07	0.55
Queue Length 95th (m)	2.8	0.0	0.0	0.0	24.2
Control Delay (s)	9.2	0.0	0.0	0.0	33.3
Lane LOS	A				D
Approach Delay (s)	1.4		0.0		33.3
Approach LOS					D

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	53	6	23	15	6	9	17	24	23	8	44	66
Future Volume (vph)	53	6	23	15	6	9	17	24	23	8	44	66
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	64	7	28	18	7	11	20	29	28	10	53	80

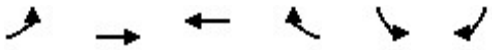
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	99	36	77	143
Volume Left (vph)	64	18	20	10
Volume Right (vph)	28	11	28	80
Hadj (s)	-0.04	-0.08	-0.17	-0.30
Departure Headway (s)	4.4	4.4	4.2	4.0
Degree Utilization, x	0.12	0.04	0.09	0.16
Capacity (veh/h)	782	762	819	869
Control Delay (s)	8.0	7.6	7.6	7.7
Approach Delay (s)	8.0	7.6	7.6	7.7
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.8			
Level of Service	A			
Intersection Capacity Utilization	22.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	2	1	10	3	85	8	369	13	41	251	19
Future Volume (Veh/h)	38	2	1	10	3	85	8	369	13	41	251	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	2	1	11	3	89	8	388	14	43	264	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	844	768	264	763	781	395	284			402		
vC1, stage 1 conf vol	350	350		411	411							
vC2, stage 2 conf vol	494	418		352	370							
vCu, unblocked vol	844	768	264	763	781	395	284			402		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	90	100	100	98	99	86	99			96		
cM capacity (veh/h)	399	478	780	508	488	659	1290			1115		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	43	103	8	402	43	264	20
Volume Left	40	11	8	0	43	0	0
Volume Right	1	89	0	14	0	0	20
cSH	407	632	1290	1700	1115	1700	1700
Volume to Capacity	0.11	0.16	0.01	0.24	0.04	0.16	0.01
Queue Length 95th (m)	2.8	4.6	0.1	0.0	1.0	0.0	0.0
Control Delay (s)	14.9	11.8	7.8	0.0	8.4	0.0	0.0
Lane LOS	B	B	A		A		
Approach Delay (s)	14.9	11.8	0.2		1.1		
Approach LOS	B	B					

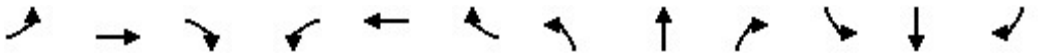
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	42.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	387	372	40	103	94
Future Volume (Veh/h)	44	387	372	40	103	94
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	46	407	392	42	108	99
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	434				891	392
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434				891	392
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	96				64	85
cM capacity (veh/h)	1069				298	650

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	46	407	392	42	207
Volume Left	46	0	0	0	108
Volume Right	0	0	0	42	99
cSH	1069	1700	1700	1700	402
Volume to Capacity	0.04	0.24	0.23	0.02	0.51
Queue Length 95th (m)	1.1	0.0	0.0	0.0	22.8
Control Delay (s)	8.5	0.0	0.0	0.0	23.0
Lane LOS	A				C
Approach Delay (s)	0.9		0.0		23.0
Approach LOS					C

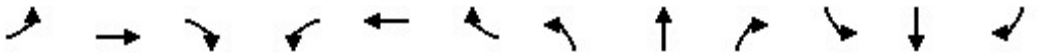
Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	45	7	13	25	5	10	23	42	8	3	19	37
Future Volume (vph)	45	7	13	25	5	10	23	42	8	3	19	37
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	52	8	15	29	6	12	27	49	9	3	22	43

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	75	47	85	68
Volume Left (vph)	52	29	27	3
Volume Right (vph)	15	12	9	43
Hadj (s)	0.02	-0.03	0.00	-0.21
Departure Headway (s)	4.3	4.3	4.2	4.1
Degree Utilization, x	0.09	0.06	0.10	0.08
Capacity (veh/h)	803	804	815	854
Control Delay (s)	7.7	7.5	7.7	7.4
Approach Delay (s)	7.7	7.5	7.7	7.4
Approach LOS	A	A	A	A

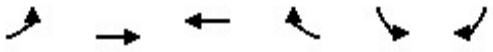
Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	21.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	5	16	10	5	72	9	354	12	84	435	60
Future Volume (Veh/h)	38	5	16	10	5	72	9	354	12	84	435	60
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	40	5	17	11	5	76	9	373	13	88	458	63
Pedestrians		4			1			2			1	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1108	1043	464	1054	1100	382	525			387		
vC1, stage 1 conf vol	638	638		398	398							
vC2, stage 2 conf vol	470	405		656	701							
vCu, unblocked vol	1108	1043	464	1054	1100	382	525			387		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.5	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.6	2.2			2.3		
p0 queue free %	88	99	97	97	99	87	99			92		
cM capacity (veh/h)	322	372	599	359	361	605	1048			1149		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	62	92	9	386	88	458	63
Volume Left	40	11	9	0	88	0	0
Volume Right	17	76	0	13	0	0	63
cSH	373	541	1048	1700	1149	1700	1700
Volume to Capacity	0.17	0.17	0.01	0.23	0.08	0.27	0.04
Queue Length 95th (m)	4.7	4.9	0.2	0.0	2.0	0.0	0.0
Control Delay (s)	16.6	13.0	8.5	0.0	8.4	0.0	0.0
Lane LOS	C	B	A		A		
Approach Delay (s)	16.6	13.0	0.2		1.2		
Approach LOS	C	B					

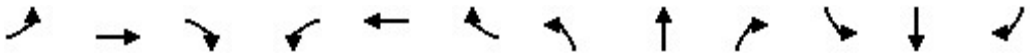
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	104	534	485	129	71	84
Future Volume (Veh/h)	104	534	485	129	71	84
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	109	562	511	136	75	88
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	647				1291	511
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	647				1291	511
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				53	84
cM capacity (veh/h)	948				158	561

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	109	562	511	136	163
Volume Left	109	0	0	0	75
Volume Right	0	0	0	136	88
cSH	948	1700	1700	1700	258
Volume to Capacity	0.11	0.33	0.30	0.08	0.63
Queue Length 95th (m)	3.1	0.0	0.0	0.0	31.0
Control Delay (s)	9.3	0.0	0.0	0.0	40.2
Lane LOS	A				E
Approach Delay (s)	1.5		0.0		40.2
Approach LOS					E

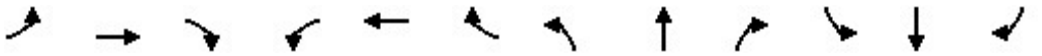
Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	53	6	34	15	6	9	23	31	23	8	56	66
Future Volume (vph)	53	6	34	15	6	9	23	31	23	8	56	66
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	64	7	41	18	7	11	28	37	28	10	67	80

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	112	36	93	157
Volume Left (vph)	64	18	28	10
Volume Right (vph)	41	11	28	80
Hadj (s)	-0.11	-0.08	-0.12	-0.28
Departure Headway (s)	4.4	4.5	4.3	4.1
Degree Utilization, x	0.14	0.04	0.11	0.18
Capacity (veh/h)	767	742	799	850
Control Delay (s)	8.1	7.7	7.8	7.9
Approach Delay (s)	8.1	7.7	7.8	7.9
Approach LOS	A	A	A	A

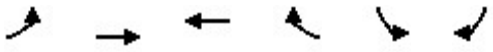
Intersection Summary				
Delay	7.9			
Level of Service	A			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	2	1	10	3	81	8	377	13	40	256	20
Future Volume (Veh/h)	39	2	1	10	3	81	8	377	13	40	256	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	2	1	11	3	85	8	397	14	42	269	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	852	780	269	775	794	404	290			411		
vC1, stage 1 conf vol	353	353		420	420							
vC2, stage 2 conf vol	500	427		355	374							
vCu, unblocked vol	852	780	269	775	794	404	290			411		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	90	100	100	98	99	87	99			96		
cM capacity (veh/h)	399	474	775	503	484	651	1283			1106		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	44	99	8	411	42	269	21
Volume Left	41	11	8	0	42	0	0
Volume Right	1	85	0	14	0	0	21
cSH	406	624	1283	1700	1106	1700	1700
Volume to Capacity	0.11	0.16	0.01	0.24	0.04	0.16	0.01
Queue Length 95th (m)	2.9	4.5	0.2	0.0	0.9	0.0	0.0
Control Delay (s)	14.9	11.9	7.8	0.0	8.4	0.0	0.0
Lane LOS	B	B	A		A		
Approach Delay (s)	14.9	11.9	0.1		1.1		
Approach LOS	B	B					

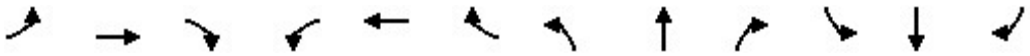
Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	43.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	42	396	380	37	90	85
Future Volume (Veh/h)	42	396	380	37	90	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	44	417	400	39	95	89
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	439				905	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	439				905	400
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	96				68	86
cM capacity (veh/h)	1065				293	643

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	44	417	400	39	184
Volume Left	44	0	0	0	95
Volume Right	0	0	0	39	89
cSH	1065	1700	1700	1700	398
Volume to Capacity	0.04	0.25	0.24	0.02	0.46
Queue Length 95th (m)	1.0	0.0	0.0	0.0	19.0
Control Delay (s)	8.5	0.0	0.0	0.0	21.6
Lane LOS	A				C
Approach Delay (s)	0.8		0.0		21.6
Approach LOS					C

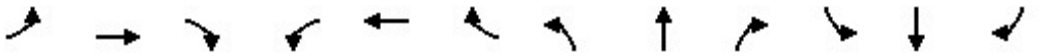
Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	46	7	10	25	5	10	13	30	8	3	15	38
Future Volume (vph)	46	7	10	25	5	10	13	30	8	3	15	38
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	53	8	12	29	6	12	15	35	9	3	17	44

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	73	47	59	64
Volume Left (vph)	53	29	15	3
Volume Right (vph)	12	12	9	44
Hadj (s)	0.05	-0.03	-0.04	-0.25
Departure Headway (s)	4.3	4.2	4.2	4.0
Degree Utilization, x	0.09	0.05	0.07	0.07
Capacity (veh/h)	817	825	825	874
Control Delay (s)	7.7	7.5	7.5	7.3
Approach Delay (s)	7.7	7.5	7.5	7.3
Approach LOS	A	A	A	A

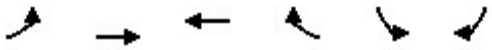
Intersection Summary				
Delay		7.5		
Level of Service		A		
Intersection Capacity Utilization		18.3%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	5	17	10	5	70	9	362	12	80	445	61
Future Volume (Veh/h)	39	5	17	10	5	70	9	362	12	80	445	61
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	5	18	11	5	74	9	381	13	84	468	64
Pedestrians		4			1			2			1	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1116	1053	474	1065	1110	390	536			395		
vC1, stage 1 conf vol	640	640		406	406							
vC2, stage 2 conf vol	476	413		658	704							
vCu, unblocked vol	1116	1053	474	1065	1110	390	536			395		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.5	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.6	2.2			2.3		
p0 queue free %	87	99	97	97	99	88	99			93		
cM capacity (veh/h)	322	371	592	357	360	599	1039			1141		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	64	90	9	394	84	468	64
Volume Left	41	11	9	0	84	0	0
Volume Right	18	74	0	13	0	0	64
cSH	374	535	1039	1700	1141	1700	1700
Volume to Capacity	0.17	0.17	0.01	0.23	0.07	0.28	0.04
Queue Length 95th (m)	4.9	4.8	0.2	0.0	1.9	0.0	0.0
Control Delay (s)	16.6	13.1	8.5	0.0	8.4	0.0	0.0
Lane LOS	C	B	A		A		
Approach Delay (s)	16.6	13.1	0.2		1.1		
Approach LOS	C	B					

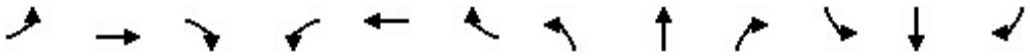
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	47.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	95	547	496	117	64	79
Future Volume (Veh/h)	95	547	496	117	64	79
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	100	576	522	123	67	83
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	645				1298	522
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	645				1298	522
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				58	85
cM capacity (veh/h)	950				158	553

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	100	576	522	123	150
Volume Left	100	0	0	0	67
Volume Right	0	0	0	123	83
cSH	950	1700	1700	1700	261
Volume to Capacity	0.11	0.34	0.31	0.07	0.57
Queue Length 95th (m)	2.8	0.0	0.0	0.0	26.2
Control Delay (s)	9.2	0.0	0.0	0.0	35.8
Lane LOS	A				E
Approach Delay (s)	1.4		0.0		35.8
Approach LOS					E

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	54	6	24	15	6	9	18	25	23	8	45	67
Future Volume (vph)	54	6	24	15	6	9	18	25	23	8	45	67
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	65	7	29	18	7	11	22	30	28	10	54	81

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	101	36	80	145
Volume Left (vph)	65	18	22	10
Volume Right (vph)	29	11	28	81
Hadj (s)	-0.04	-0.08	-0.15	-0.30
Departure Headway (s)	4.4	4.4	4.2	4.0
Degree Utilization, x	0.12	0.04	0.09	0.16
Capacity (veh/h)	780	759	815	867
Control Delay (s)	8.0	7.6	7.6	7.8
Approach Delay (s)	8.0	7.6	7.6	7.8
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.8			
Level of Service	A			
Intersection Capacity Utilization	22.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Findlay Drive/Tracey Lane & Hurontario Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T
Maximum Queue (m)	16.2	25.8	9.3	5.9	21.6	20.4
Average Queue (m)	5.5	10.3	0.5	0.0	4.2	0.6
95th Queue (m)	11.7	16.7	3.9	1.2	12.9	5.9
Link Distance (m)	325.4	289.0		256.8		270.3
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)			10.0		10.0	
Storage Blk Time (%)			0	0	2	0
Queuing Penalty (veh)			1	0	4	0

Intersection: 2: Poplar Sideroad & Portland Street

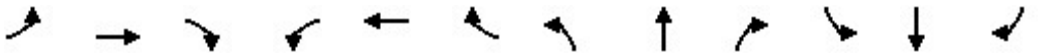
Movement	EB	WB	SB
Directions Served	L	T	LR
Maximum Queue (m)	22.7	1.3	57.0
Average Queue (m)	4.4	0.0	17.5
95th Queue (m)	13.4	0.4	34.1
Link Distance (m)		240.0	219.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	105.0		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Peel Street & Collins Street/Riverside Entrance

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	16.5	16.2	17.8	23.1
Average Queue (m)	8.3	6.9	8.8	9.1
95th Queue (m)	13.5	13.5	13.9	16.9
Link Distance (m)	210.8	190.4	155.2	141.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

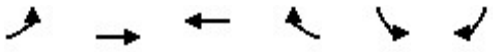
Network wide Queuing Penalty: 5



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	2	1	10	3	86	8	377	13	42	256	20
Future Volume (Veh/h)	39	2	1	10	3	86	8	377	13	42	256	20
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	2	1	11	3	91	8	397	14	44	269	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	862	784	269	779	798	404	290			411		
vC1, stage 1 conf vol	357	357		420	420							
vC2, stage 2 conf vol	506	427		359	378							
vCu, unblocked vol	862	784	269	779	798	404	290			411		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	89	100	100	98	99	86	99			96		
cM capacity (veh/h)	390	472	775	501	482	651	1283			1106		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	44	105	8	411	44	269	21
Volume Left	41	11	8	0	44	0	0
Volume Right	1	91	0	14	0	0	21
cSH	398	625	1283	1700	1106	1700	1700
Volume to Capacity	0.11	0.17	0.01	0.24	0.04	0.16	0.01
Queue Length 95th (m)	3.0	4.8	0.2	0.0	1.0	0.0	0.0
Control Delay (s)	15.2	11.9	7.8	0.0	8.4	0.0	0.0
Lane LOS	C	B	A		A		
Approach Delay (s)	15.2	11.9	0.1		1.1		
Approach LOS	C	B					

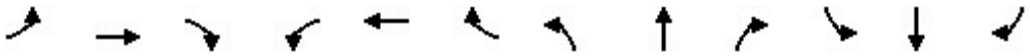
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	43.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	396	380	41	103	95
Future Volume (Veh/h)	45	396	380	41	103	95
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	47	417	400	43	108	100
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	443				911	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	443				911	400
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	96				63	84
cM capacity (veh/h)	1061				290	643

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	47	417	400	43	208
Volume Left	47	0	0	0	108
Volume Right	0	0	0	43	100
cSH	1061	1700	1700	1700	394
Volume to Capacity	0.04	0.25	0.24	0.03	0.53
Queue Length 95th (m)	1.1	0.0	0.0	0.0	23.8
Control Delay (s)	8.5	0.0	0.0	0.0	23.9
Lane LOS	A				C
Approach Delay (s)	0.9		0.0		23.9
Approach LOS					C

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	46	7	13	25	5	10	23	43	8	3	19	38
Future Volume (vph)	46	7	13	25	5	10	23	43	8	3	19	38
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	53	8	15	29	6	12	27	50	9	3	22	44

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	76	47	86	69
Volume Left (vph)	53	29	27	3
Volume Right (vph)	15	12	9	44
Hadj (s)	0.02	-0.03	0.00	-0.21
Departure Headway (s)	4.3	4.3	4.2	4.1
Degree Utilization, x	0.09	0.06	0.10	0.08
Capacity (veh/h)	801	802	814	854
Control Delay (s)	7.7	7.5	7.7	7.4
Approach Delay (s)	7.7	7.5	7.7	7.4
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	21.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection: 1: Findlay Drive/Tracey Lane & Hurontario Street

Movement	EB	WB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	TR	L	T	R
Maximum Queue (m)	23.2	34.1	9.3	9.3	20.1	35.0	3.2
Average Queue (m)	7.4	13.9	1.1	0.1	6.0	1.2	0.0
95th Queue (m)	14.4	24.5	5.9	2.1	14.2	9.7	0.9
Link Distance (m)	325.4	289.0		256.8		270.3	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)			10.0		10.0		10.0
Storage Blk Time (%)			0	0	3	0	0
Queuing Penalty (veh)			2	0	13	0	0

Intersection: 2: Poplar Sideroad & Portland Street

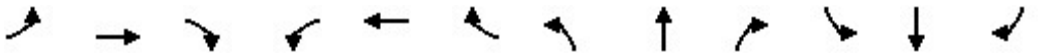
Movement	EB	WB	WB	SB
Directions Served	L	T	R	LR
Maximum Queue (m)	22.2	1.3	6.7	46.6
Average Queue (m)	8.1	0.0	0.2	14.6
95th Queue (m)	15.9	0.5	1.9	28.6
Link Distance (m)		240.0		219.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	105.0		20.0	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Peel Street & Collins Street/Riverside Entrance

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	18.5	14.6	16.4	20.4
Average Queue (m)	9.0	5.7	8.4	9.9
95th Queue (m)	14.0	12.9	13.3	15.1
Link Distance (m)	210.8	190.4	155.2	141.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

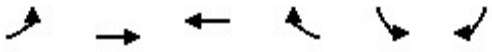
Network wide Queuing Penalty: 15



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	5	17	10	5	73	9	362	12	85	445	61
Future Volume (Veh/h)	39	5	17	10	5	73	9	362	12	85	445	61
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	5	18	11	5	77	9	381	13	89	468	64
Pedestrians		4			1			2			1	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1130	1063	474	1075	1120	390	536			395		
vC1, stage 1 conf vol	650	650		406	406							
vC2, stage 2 conf vol	480	413		668	714							
vCu, unblocked vol	1130	1063	474	1075	1120	390	536			395		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.5	4.1			4.2		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.6	2.2			2.3		
p0 queue free %	87	99	97	97	99	87	99			92		
cM capacity (veh/h)	315	366	592	352	355	599	1039			1141		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	64	93	9	394	89	468	64
Volume Left	41	11	9	0	89	0	0
Volume Right	18	77	0	13	0	0	64
cSH	367	535	1039	1700	1141	1700	1700
Volume to Capacity	0.17	0.17	0.01	0.23	0.08	0.28	0.04
Queue Length 95th (m)	5.0	5.0	0.2	0.0	2.0	0.0	0.0
Control Delay (s)	16.9	13.1	8.5	0.0	8.4	0.0	0.0
Lane LOS	C	B	A		A		
Approach Delay (s)	16.9	13.1	0.2		1.2		
Approach LOS	C	B					

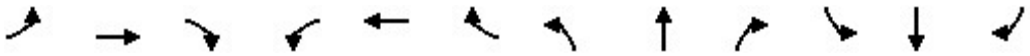
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	47.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	105	547	496	130	72	85
Future Volume (Veh/h)	105	547	496	130	72	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	111	576	522	137	76	89
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	659				1320	522
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	659				1320	522
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	88				50	84
cM capacity (veh/h)	939				151	553

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	111	576	522	137	165
Volume Left	111	0	0	0	76
Volume Right	0	0	0	137	89
cSH	939	1700	1700	1700	248
Volume to Capacity	0.12	0.34	0.31	0.08	0.66
Queue Length 95th (m)	3.2	0.0	0.0	0.0	33.8
Control Delay (s)	9.3	0.0	0.0	0.0	44.1
Lane LOS	A				E
Approach Delay (s)	1.5		0.0		44.1
Approach LOS					E

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	54	6	35	15	6	9	24	32	23	8	57	67
Future Volume (vph)	54	6	35	15	6	9	24	32	23	8	57	67
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	65	7	42	18	7	11	29	39	28	10	69	81

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	114	36	96	160
Volume Left (vph)	65	18	29	10
Volume Right (vph)	42	11	28	81
Hadj (s)	-0.11	-0.08	-0.11	-0.27
Departure Headway (s)	4.4	4.5	4.3	4.1
Degree Utilization, x	0.14	0.05	0.11	0.18
Capacity (veh/h)	765	738	796	838
Control Delay (s)	8.1	7.7	7.9	8.0
Approach Delay (s)	8.1	7.7	7.9	8.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	26.2%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX I

Background Development Information

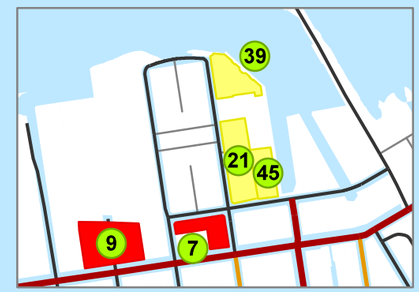
Development Activity

Town of Collingwood

1:30,000

	MIXED RESIDENTIAL/COMMERCIAL
1	THE REGENT (12 Units)
2	GEORGIAN BAY HOTEL
3	MONACO (127 Units)
	COMMERCIAL
4	LIVING WATERS
5	SLEEP COUNTRY
6	REGIONAL COMMERICIAL DISTRICT
7	65 FIRST STREET
8	PARKBRIDGE
9	175 FIRST STREET
10	JASPER
	INDUSTRIAL
11	VAN DOLDERS
12	HOLIDAY INN EXPRESS
13	MEDIBUDZ
14	100 MOUNTAIN ROAD
15	GEORGIAN BAY BIO MED
16	TIN SHACK
17	ACE CABS
18	365 RAGLAN STREET

	RESIDENTIAL	SINGLE/SEMI UNITS	MULTI UNITS
19	BLUE FAIRWAY PHASES I,II,III	0	262
20	PRETTY RIVER PHASE II	0	178
21	SHIPYARDS CONDO E	0	28
22	BALMORAL BLOCK 1	54	39
23	HARHAY	0	154
24	655 HURONTARIO STREET APARTMENTS	0	32
25	LINKSVIEW	Unit type N/A	Combined Total 591
26	MAIR MILLS VILLAGES (PANORAMA)	127	192
27	RED MAPLE	131	147
28	BRIDGEWATER AT GEORGIAN BAY	75	249
29	HUNTINGWOOD	92	62
30	TRAILS OF COLLINGWOOD	66	189
31	RIVERSIDE TOWNHOMES	0	57
32	EDEN OAK MCNABB	256	120
33	SUMMITVIEW	233	173
34	HARMONY LIVING	0	78
35	TANGLEWOOD	0	314
36	PRETTY RIVER VILLAGE	57	205
37	580 590 SIXTH STREET	0	106
38	PRETTY RIVER RESIDENCE (DEMAC)	0	36
39	SHIPYARDS HARBOUR FRONT COLLECTION	0	13
40	BLACKMOOR GATES	31	0
41	PANORAMA NORTH	122	807
42	RIVERSIDE MID-RISE	0	156
43	WATERSTONE	0	68
44	WYLDEWOOD CREEK	0	168
45	SIDELAUNCH II	0	11
46	MOUNTAIN CROFT PHASE 6	68	0



Legend

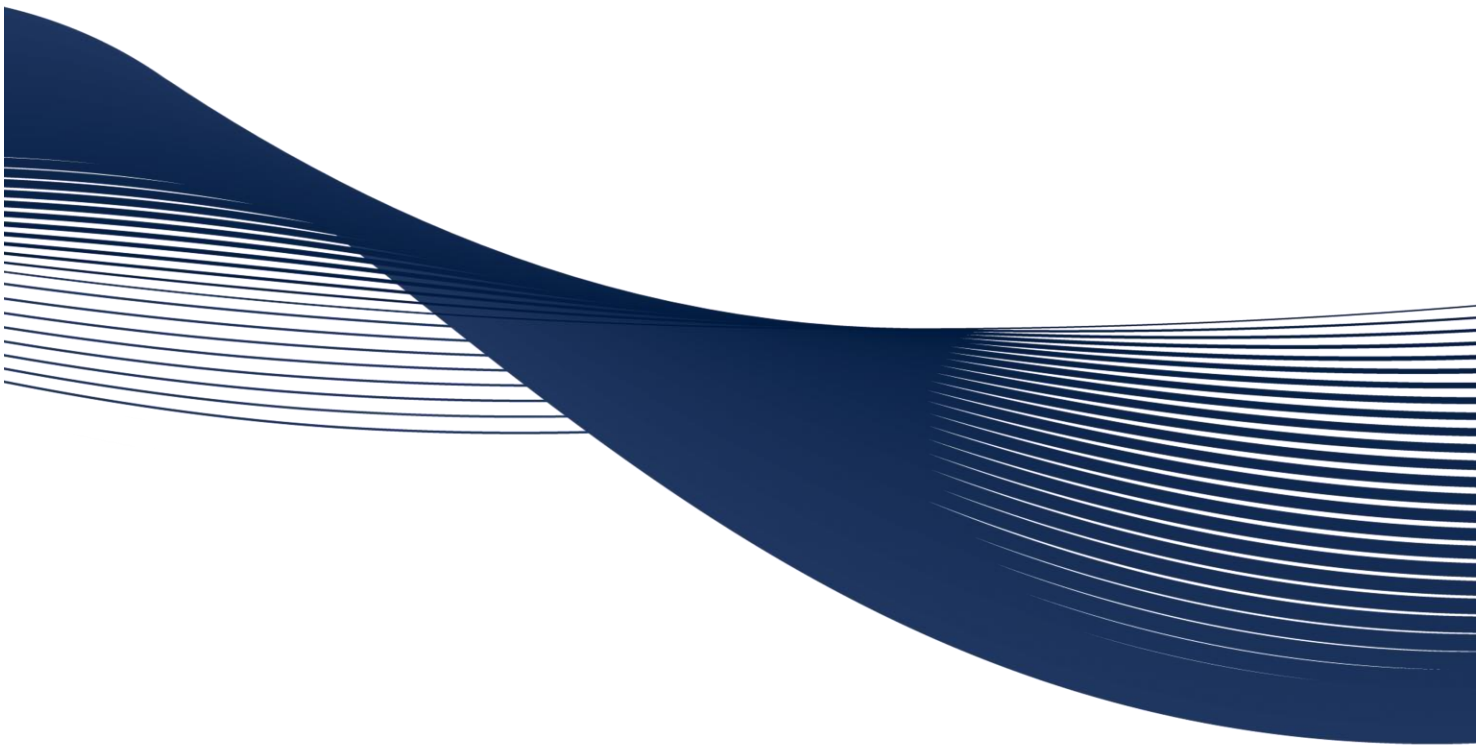
- Arterial Road
- Collector Road
- Local Road
- Local Road (Future)
- Private/Condo Road
- Residential
- Mixed Residential/Commercial
- Commercial
- Industrial
- Community Services

EDEN OAK HOMES (MCNABB) INC.

TRAFFIC IMPACT STUDY UPDATE

Eden Oak Homes – Proposed Residential Development, Town of Collingwood

Project No.: TR15-0863



DECEMBER 2018

COLE ENGINEERING GROUP LTD.

HEAD OFFICE
70 Valleywood Drive
Markham, ON CANADA L3R 4T5
T. 905.940.6161 | 416.987.6161
F. 905.940.2064 | www.ColeEngineering.ca

GTA WEST OFFICE
151 Superior Boulevard, Units 1 & 2
Mississauga, ON CANADA L5T 12L1
T. 905.364.6161
F. 905.364.6162

December 19, 2018
Reference No. TR15-0863

Mr. Romas Kartavicius
Eden Oak Homes (McNabb) Inc.
1443 Hurontario Street
Mississauga, ON L5G 3H5

Dear Mr. Kartaviciuis:

Re: Traffic Impact Study Update
Eden Oak Homes – Proposed Residential Development
Town of Collingwood

Cole Engineering Group Ltd. (COLE) is pleased to submit this updated Traffic Impact Study (TIS) for the above-noted development. This report documents our findings and conclusions regarding the traffic impacts for the proposed development to be located in the northeast quadrant of the intersection of Hurontario Street and Tracey Lane, in the Town of Collingwood (the "Town") within Simcoe County (the "County").

The update includes re-aligning the unsignalized intersections of Findlay Drive and Tracey Lane with Hurontario Street to create one (1) four-legged intersection as the development of the proposed development (Eden Oak) proceeds. This report also addresses the comments received from the Town dated January 18, 2017, and July 11, 2017, including the comments from C.C. Tatham and Associates Ltd., second submission comments and COLE's responses are provided in **Appendix J**. This update confirms the storage length requirement on Tracey Lane in the interim condition.

This traffic impact study details the existing and future traffic conditions, the expected impact on the adjacent roadways and recommends mitigation measures where applicable.

Should you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

COLE ENGINEERING GROUP LTD.

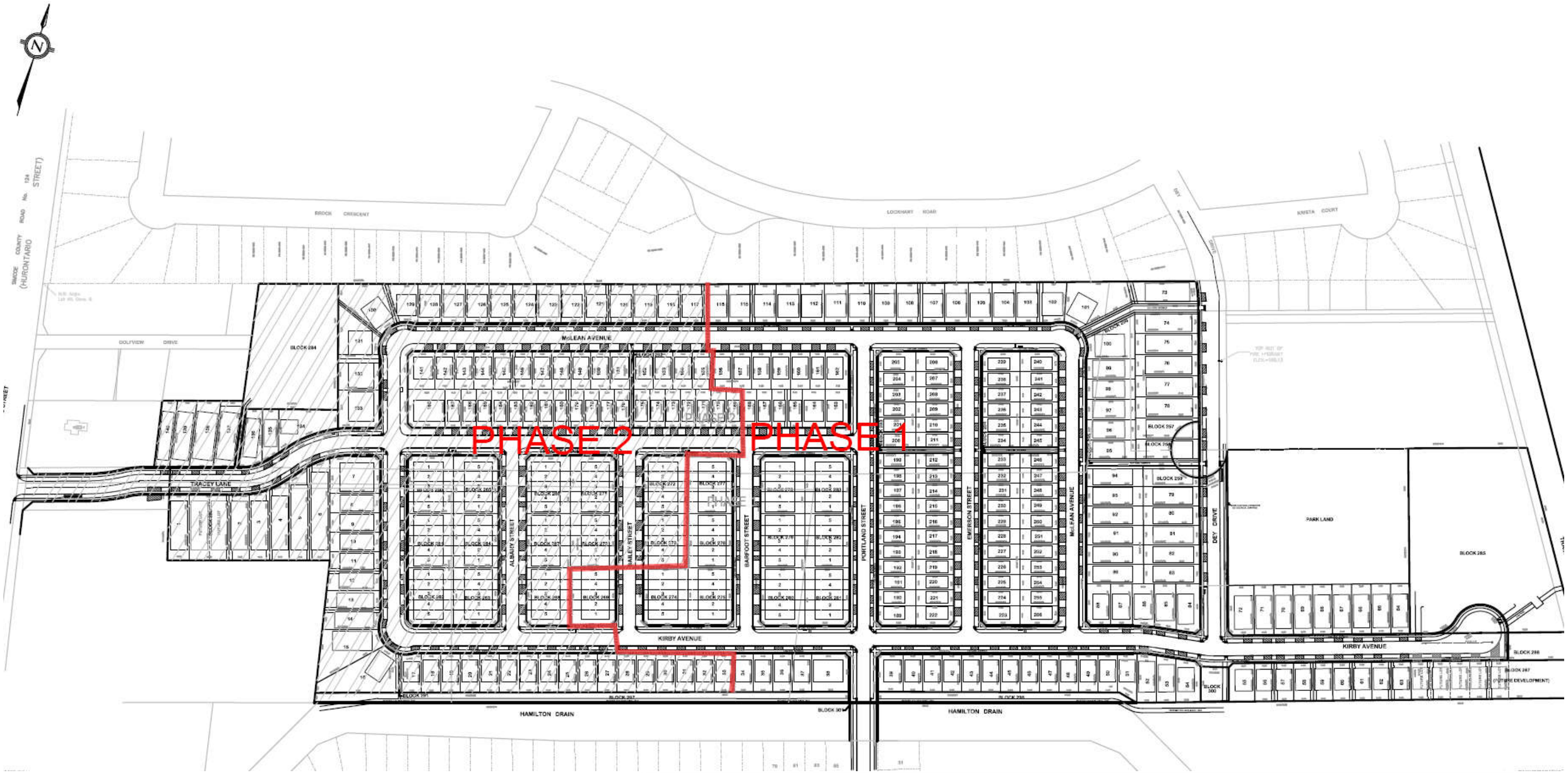
Rao N. Marthi, B. Eng., MCIP, RPP
Project Manager
Urban Development (Traffic)

RM

COLE ENGINEERING GROUP LTD.

HEAD OFFICE
70 Valleywood Drive
Markham, ON CANADA L3R 4T5

T. 905.940.6161 | 416.987.6161 **F.** 905.940.2064
www.ColeEngineering.ca



EDEN OAK (MCNABB) INC.

TOWN OF COLLINGWOOD

GENERAL PLAN

CONDELAND ENGINEERING LTD.
Consulting Engineers and Project Managers
350 CREDITSTONE ROAD, UNIT 200
CONCORD, ON., L4K 3Z2
PHONE: (905) 695-2096
FAX: (905) 695-2099

SCALE:	N.T.S.	JOB NO.	15-010
DESIGN:	R.P.D; S.N.	APPROVED: R.P.D.	DWG. 1
DRAWN:	A.G. / V.B.;	DATE: APRIL 2017	

Figure 1-2
Proposed Phasing Plan

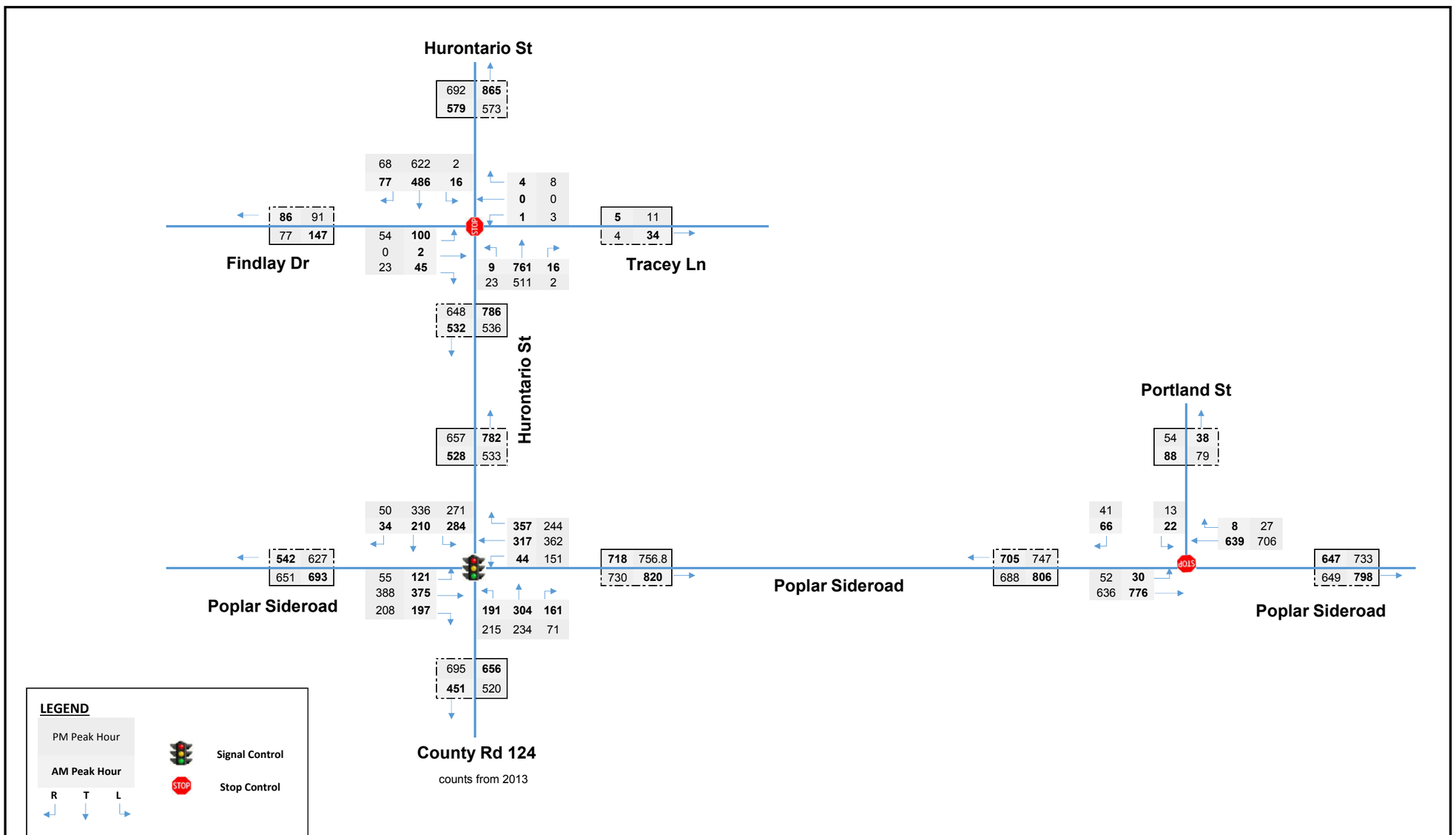


Figure 3-6 Future (2036) Background Traffic Volumes
Eden Oak Homes - Proposed Residential Subdivision
Town of Collingwood
December 2018

4 Site Traffic

The proposed residential development will be constructed in two (2) phases, involving two (2) horizon years of 2021 and 2026. According to the development proposal, Phase I and Phase II are to be completed by 2021 and 2026 respectively. Each phase will include the following:

- Phase I: 171 single family units and 55 townhouse units; and,
- Phase II: 100 single family units and 65 townhouse units.

4.1 Trip Generation

Trip generation for the residential development was undertaken using information contained in *the Trip Generation, 9th Edition, published by the Institute of Transportation Engineers (ITE)* for Single Family Detached Housing land use (land use code 210) and Low-Rise Residential Condominium / Townhouse land use (land use code 231). The detailed trip generation calculations are documented in **Appendix G** and summarized in **Table 4-1** and **Table 4-2**.

Table 4-1 Site Trip Generation-Phase I

Land use	Unit	Parameter	AM Peak Hour			PM Peak Hour		
			In	Out	2-way	In	Out	2-way
Phase I (2021)								
Single-Family Detached Housing (210)	171	*Gross Trips*	*32*	*97*	*129*	*108*	*63*	*171*
		Rate (trips/unit)	*0.19*	*0.56*	*0.75*	*0.63*	*0.37*	*1.00*
		Non-auto Reduction (5%)	*2*	*4*	*6*	*5*	*4*	*9*
		Net Trips	***30***	***93***	***123***	***103***	***59***	***162***
		Revised Rates	*0.18*	*0.54*	*0.72*	*0.60*	*0.35*	*0.95*
Low-Rise Residential Condominium / Townhouse (231)	55	*Gross Trips*	*9*	*28*	*37*	*25*	*18*	*43*
		Rate (trips/unit)	*0.16*	*0.51*	*0.67*	*0.45*	*0.33*	*0.78*
		Non-auto Reduction (5%)	*0*	*2*	*2*	*1*	*1*	*2*
		Net Trips	***9***	***26***	***35***	***24***	***17***	***41***
		Revised Rates	*0.16*	*0.48*	*0.64*	*0.44*	*0.31*	*0.75*
Total (Phase I)			***39***	***119***	***158***	***127***	***76***	***203***

Table 4-2 Site Trip Generation-Phase II

Land use	Unit	Parameter	AM Peak Hour			PM Peak Hour		
			In	Out	2-way	In	Out	2-way
Phase II (2026)								
Single-Family Detached Housing (210)	100	*Gross Trips*	*20*	*60*	*80*	*66*	*39*	*105*
		Rate (trips/unit)	*0.20*	*0.60*	*0.80*	*0.66*	*0.39*	*1.05*
		Non-auto Reduction (5%)	*1*	*3*	*4*	*3*	*2*	*5*
		Net Trips	***19***	***57***	***76***	***63***	***37***	***100***
		Revised Rates	*0.19*	*0.57*	*0.76*	*0.63*	*0.37*	*1.00*
Low-Rise Residential Condominium / Townhouse (231)	65	*Gross Trips*	*11*	*33*	*44*	*30*	*21*	*51*
		Rate (trips/unit)	*0.17*	*0.51*	*0.68*	*0.46*	*0.32*	*0.78*
		Non-auto Reduction (5%)	*1*	*1*	*2*	*2*	*1*	*3*
		Net Trips	***10***	***32***	***42***	***28***	***20***	***48***
		Revised Rates	*0.15*	*0.5*	*0.65*	*0.43*	*0.31*	*0.74*
Total (Phase II)			***29***	***89***	***118***	***91***	***57***	***148***

According to information presented above, in Phase I, the proposed development is expected to generate 158 two way (39 inbound and 119 outbound) trips during the morning peak hour, and 203 two-way (127 inbound and 76 outbound) trips during the afternoon peak hour in 2021. In Phase II, in addition to the trips generated in Phase I, this development is expected to generate 118 two-way (29 inbound and 89 outbound) trips during the morning peak hour, and 148 two-way (91 inbound and 57 outbound) trips during the afternoon peak hour.

4.2 Non-Auto Modal Split

The Transportation Tomorrow Survey (TTS) was consulted to determine by which mode of transportation people living in the area (TTS zones 8567 (subject site zone), 8568 and 8605) use to travel to work during the morning peak period. The modes of transportation utilized in the study area are summarized in **Table 4-3** below. The detailed TTS analysis is documented in **Appendix G.**

Table 4-3 TTS Mode Split Data

TTS Zones	Walk	Other	Auto Passenger	Transit excluding GO	Cycle	Auto Driver	Total
8567	80	37	**337**	21	46	**2293**	2814
8568	0	0	**164**	43	14	**1161**	1382
8605	50	0	**49**	0	0	**401**	500
Total	130	37	**550**	64	60	**3855**	4696
Percent	3%	1%	**12%**	1%	1%	**82%**	100%

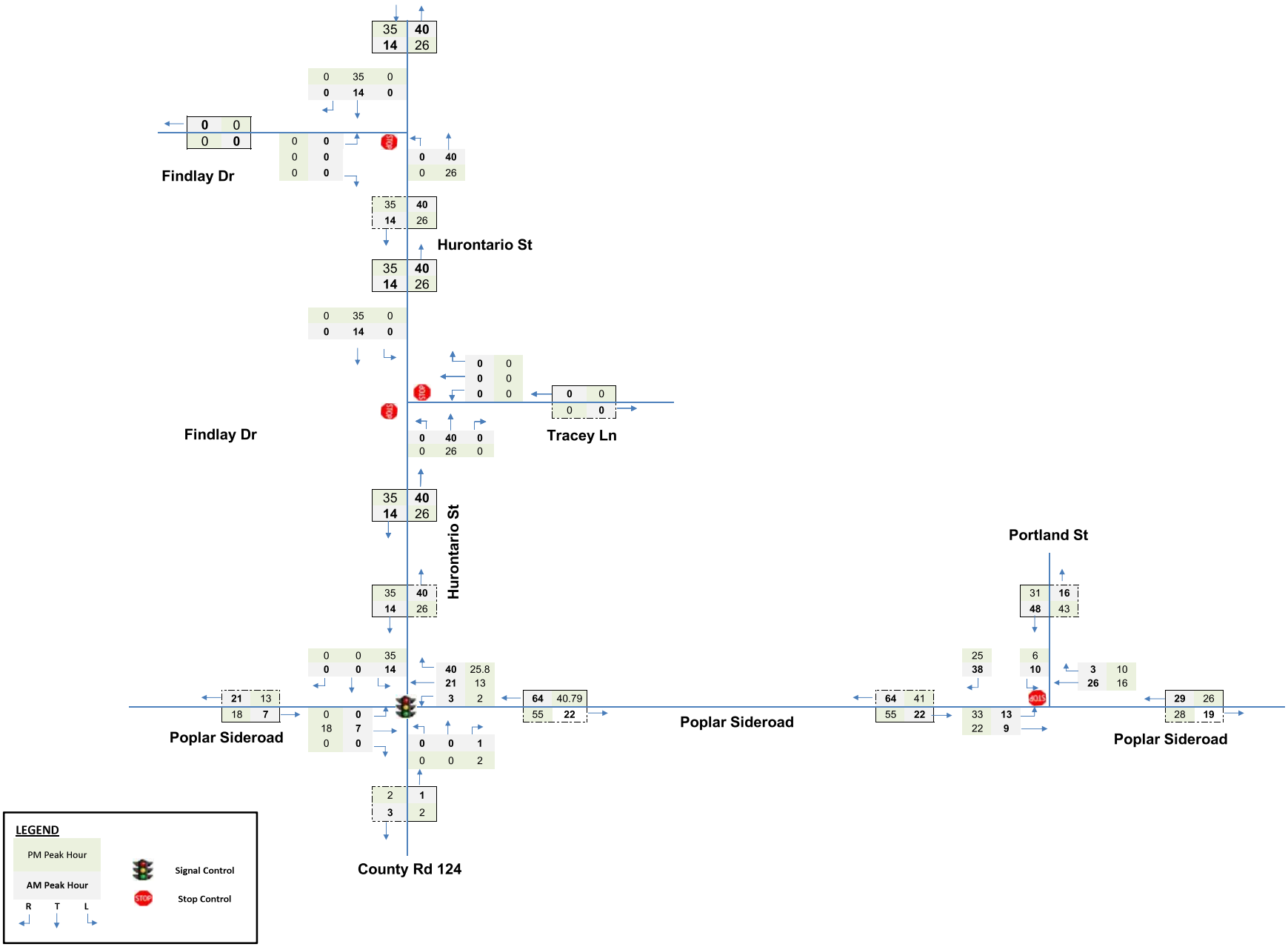
Based on the TTS results, approximately 95% of work trips are made by an automobile, either a driver or passenger, which results in a non-auto mode of 5%. This is reflected in the “Non-auto Reduction” rate of 5% used in **Table 4-1** and **Table 4-2** to determine new auto trips generated by the proposed development.

4.3 Trip Distribution and Assignment

The trip distribution for the proposed development is based on the TTS results and traffic patterns extracted from the existing traffic flows. The detailed trip distribution calculations are provided in **Appendix G** and summarized in **Table 4-4** below, and the assignment of site trips is illustrated in **Figure 4-1** for the 2021 horizon year and **Figure 4-2** for the 2026 horizon year. **Figure 4-3** represents the re-assignment of the trips generated by Phase I once Phase II is completed for the 2026 horizon year.

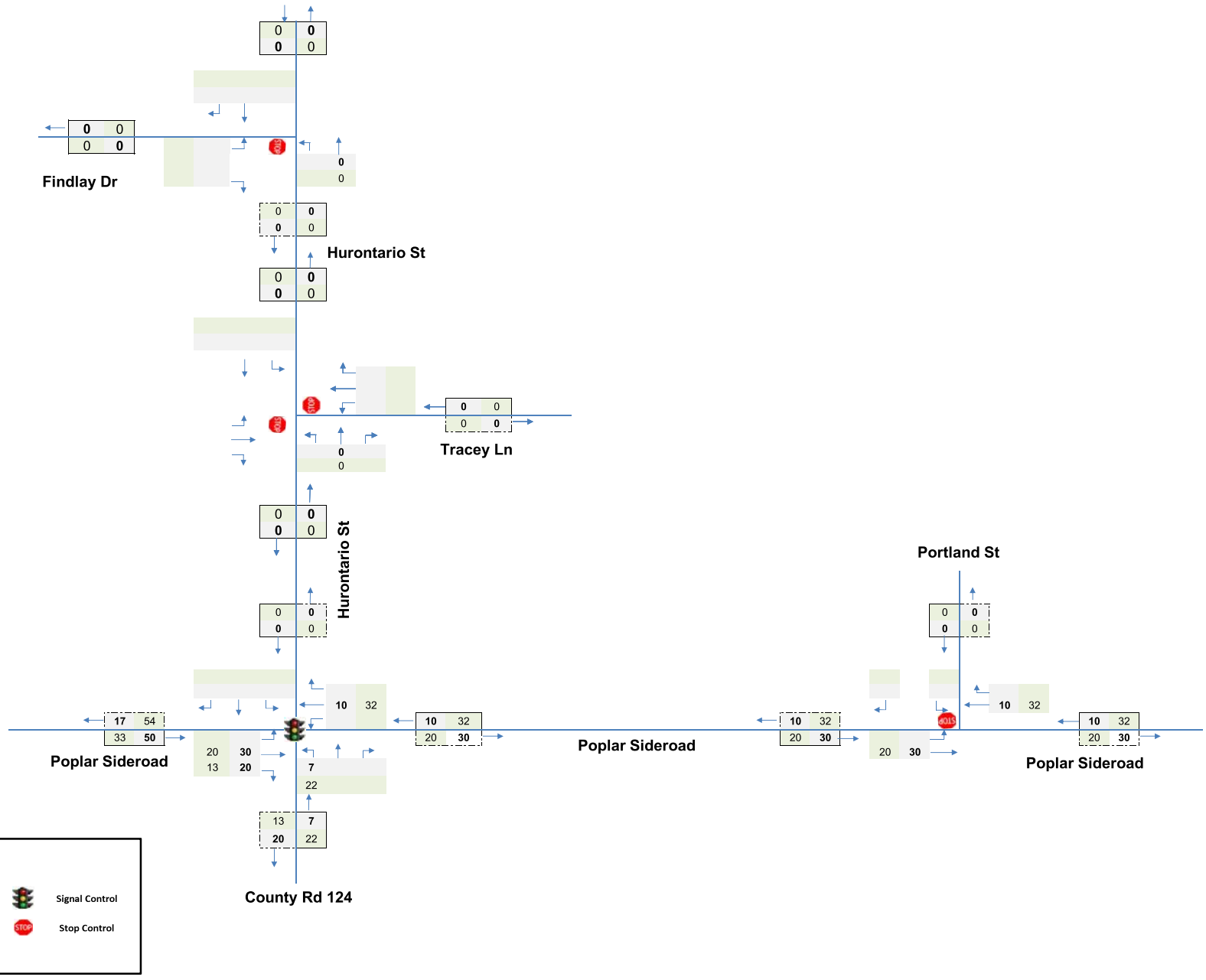
Table 4-4 Site Trip Distribution

Direction	Via	Proportions – AM and PM	
		Inbound	Outbound
North	County Road 124	51%	51%
South	County Road 124	3%	3%
West	Poplar Sideroad	20%	20%
East	Poplar Sideroad	26%	26%



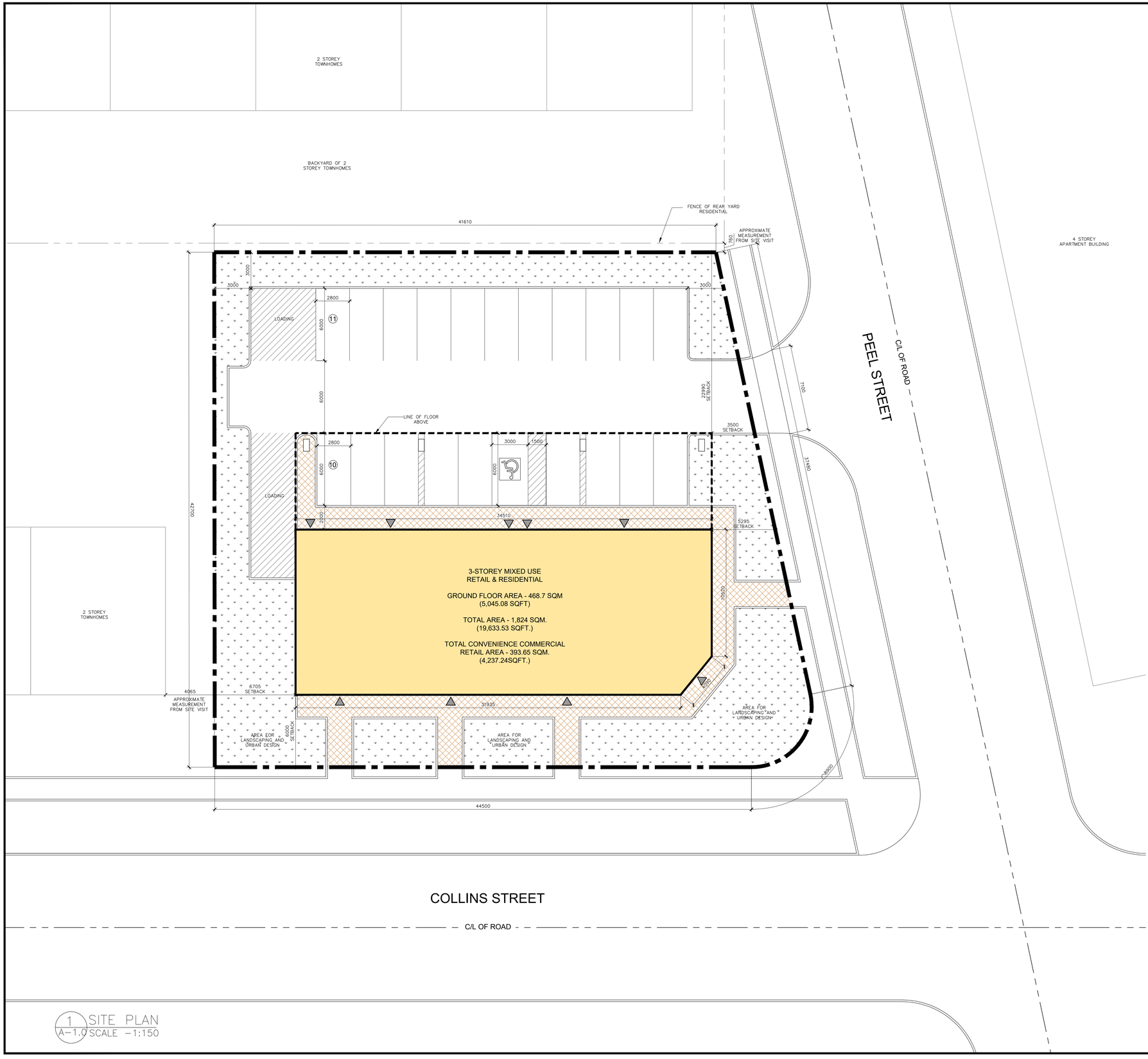
Assignment of Background Development Total Trips - Pretty River Estates Phase 2
Eden Oak Homes - Proposed Residential Subdivision
Town of Collingwood
April 2017

COLE ENGINEERING
Experience Enhancing Excellence

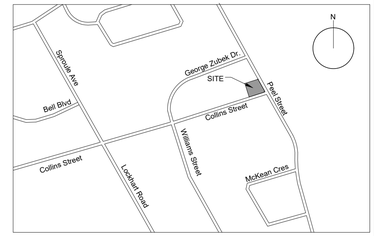


Assignment of Background Development Total Trips (2025)-Charleston Homes Residential Development
Eden Oak Homes - Proposed Residential Subdivision
Town of Collingwood
April 2017

COLE ENGINEERING
Experience Enhancing Excellence



1 SITE PLAN
A-1.0 SCALE -1:150



KEY PLAN
SCALE -NTS

PROJECT STATISTICS		
ADDRESS:-225 COLLINS STREET, COLLINGWOOD ON.		
ZONING-C6	REQUIRED	PROVIDED
LOT(SITE) AREA (m^2)	850 SQM	1961.52 SQM. 0.49 ACRE
LOT FRONTAGE	20 M	44.5 M.
BUILDING COVERAGE	40 %	23.89 %
RETAIL AREA (m^2)		393.65 SQM. (4,237.24SQFT.)
GROUND FLOOR AREA (m^2)		468.7 SQM (5,045.08 SQFT)
TOTAL RESIDENTIAL AREA (m^2)		1355.3 SQM. (15069.46 SQFT)
TOTAL GFA (m^2)		1936.6 SQM. (20845.36 SQFT.)
LANDSCAPE AREA	20 %	781 SQM. 39.8 %)
PAVED AREA		712 SQM
MAXIMUM HEIGHT (M)	12 M	11.6 M

BUILDING SETBACK		
	REQUIRED	PROVIDED
FRONT YARD (SOUTH)	6.0 M.	6.0 M.
REAR YARD (NORTH)	7.5 M.	22.9 M.
EXTERIOR SIDE YARD (EAST)	6.0 M.	5.29 M.
INTERIOR SIDE YARD (WEST)	3.0 M.	6.7 M.

PARKING CALCULATION		
	REQUIRED	PROVIDED
RETAIL - 452 SQM (3/100SQM)	11	11
RESIDENCE - 10 UNITS (1/UNIT)	10	10
ACCESSIBLE	01	01
TOTAL	21	21 (INCL. 1 HC)

LEGEND
- NEW BUILDING
- LANDSCAPE
- SIDEWALK
- PAINTED LINE
- HANDICAP PARKING
- MAN ENTRANCE
- OVERHEAD DOOR
- BARRIER CURB
- BARRIER FREE CURB

n Architecture Inc
PRINCIPAL: NITIN MALHOTRA, ARCHITECT.
9120 Leslie Street, Suite-208
Richmond Hill, Ontario. L4B 3J9
T : 4 1 6 . 3 0 3 . 4 8 2 1
E: info@narchitecture.com
www.narchitecture.com

N (GEOMETRIC NORTH)
PROJECT NORTH

27th MAY 2021
SUBMITTED FOR PRE CONSULTATION
NOT FOR CONSTRUCTION
PRELIMINARY CONCEPT ONLY
MUNICIPAL APPROVAL REQUIRED

No.	Date	Version	Dwn.
1	MAY 27, 2021	SUBMITTED FOR PRE -CON	NG

PROJECT:

RETAIL AND RESIDENTIAL DEVELOPMENT AT 225 COLLINS STREET, COLLINGWOOD, ON.

DRAWING TITLE:

SITE PLAN

DRAWN BY: NG	DATE: 10 MARCH 2021
CHECKED BY: NM	SCALE: AS NOTED
PROJECT NO.: 21-27	DRAWING NO.: A-1.0

GROSS FLOOR AREA		
DESCRIPTION	SQM	SQFT
RETAIL AREA	393.65	4237.24
TOTAL GROUND FLOOR AREA	468.7	5,045.08
TOTAL SECOND FLOOR AREA	612.16	6,589.29
TOTAL THIRD FLOOR AREA	744.78	8,016.81
TOTAL RESIDENTIAL AREA	1,356.94	14,606.10
TOTAL BUILDING AREA	1936.6	20845.36

1 GROSS FLOOR AREA
A–1.1 SCALE – NTS

RETAIL UNIT STATISTICS		
UNIT	SQM	SQFT
RETAIL UNIT 1	87.96	946.80
RETAIL UNIT 2	106.74	1148.94
RETAIL UNIT 3	102.26	1100.72
RETAIL UNIT 4	96.69	1040.77

2 RETAIL GROSS FLOOR AREA
A–1.1 SCALE – NTS

RESIDENTIAL UNIT STATISTICS		
UNIT	SQM	SQFT
RESIDENTIAL UNIT 1	104.86	1128.71
RESIDENTIAL UNIT 2	123.88	1333.44
RESIDENTIAL UNIT 3	123.88	1333.44
RESIDENTIAL UNIT 4	104.86	1128.71
RESIDENTIAL UNIT 5	126.30	1359.49
RESIDENTIAL UNIT 6	100.77	1084.68
RESIDENTIAL UNIT 7	123.88	1333.44
RESIDENTIAL UNIT 8	123.88	1333.44
RESIDENTIAL UNIT 9	104.86	1128.71
RESIDENTIAL UNIT 10	126.30	1359.49

3 RESIDENTIAL GROSS FLOOR AREA
A–1.1 SCALE – NTS

n Architecture Inc
PRINCIPAL: NITIN MALHOTRA, ARCHITECT.
9120 Leslie Street, Suite-208
Richmond Hill, Ontario. L4B 3J9
T : 4 1 6 . 3 0 3 . 4 8 2 1
E: info@narchitecture.com
www.narchitecture.com

27th MAY 2021
SUBMITTED FOR PRE CONSULTATION
NOT FOR CONSTRUCTION
PRELIMINARY CONCEPT ONLY
MUNICIPAL APPROVAL REQUIRED

No.	Date	Version	Dwn.
1	MAY 27, 2021	SUBMITTED FOR PRE -CON	NG

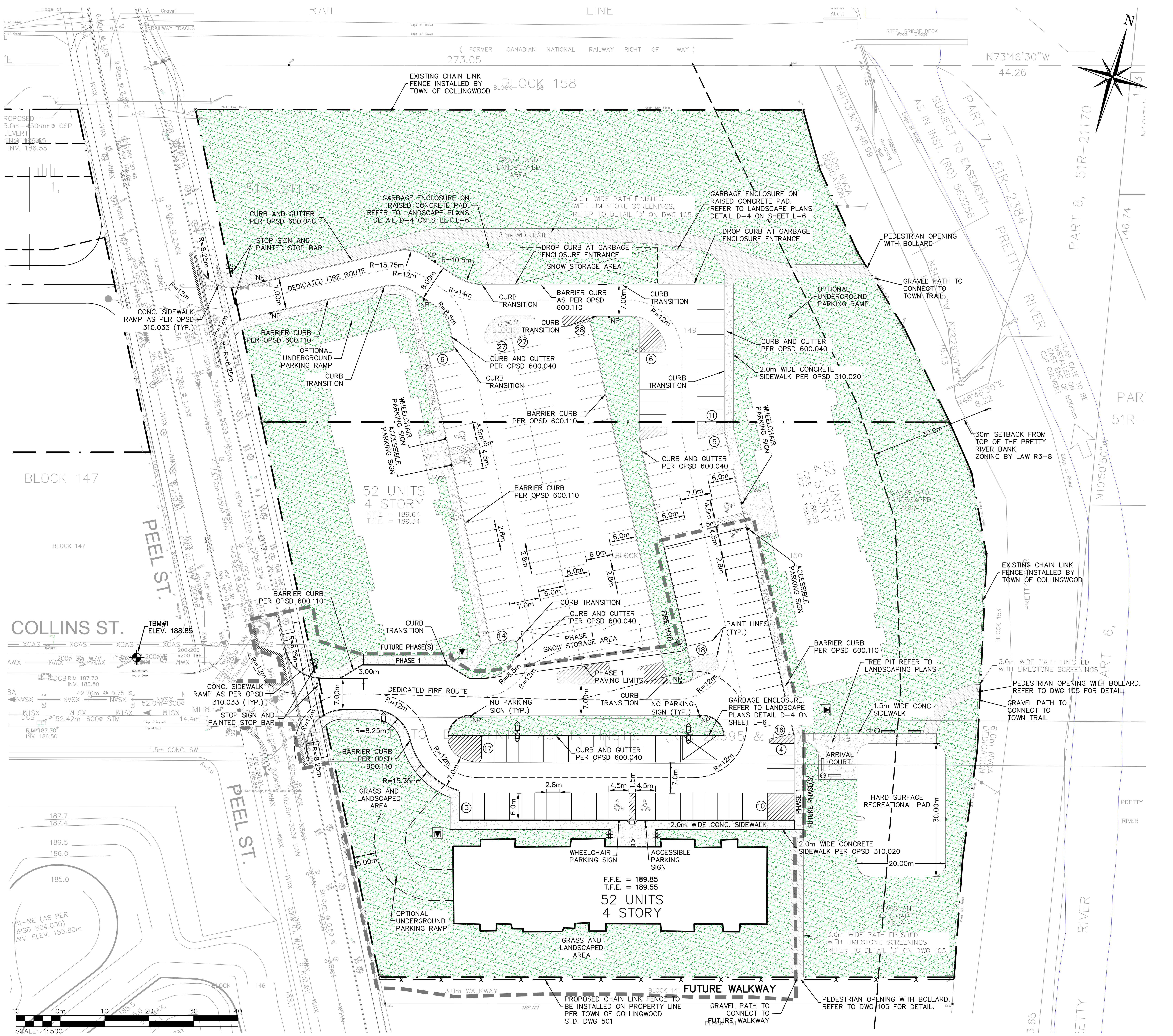
PROJECT:

RETAIL AND RESIDENTIAL DEVELOPMENT AT 225 COLLINS STREET, COLLINGWOOD, ON.

DRAWING TITLE:

BUILDING STATISTICS

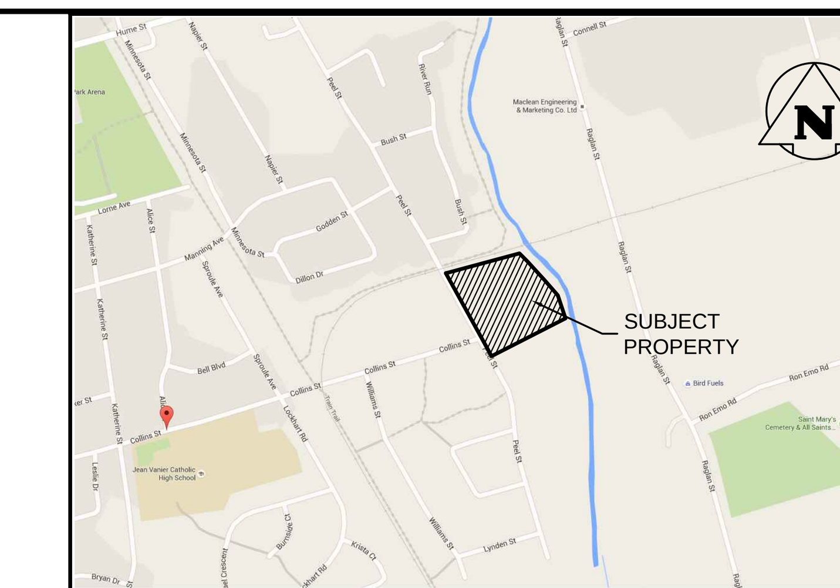
DRAWN BY: NG	DATE: 10 MARCH 2021
CHECKED BY: NM	SCALE: AS NOTED
PROJECT NO.: **21-27**	DRAWING NO.: **A-1.1**



NO PARKING Sign

Rb-51 30 cm x 30 cm

Font N/A
Colour Interdictory Symbol – Red Reflective
Legend & Border – Black
Background – White Reflective



KEY PLAN
SCALE: N.T.S.

LEGEND

- PROPERTY LINE
- EXISTING CHAIN LINK FENCE
- PROPOSED CHAIN LINK FENCE
- PR. PHASING LIMIT
- BIKE STAND
- BENCH
- GARBAGE RECEPTACLE
- LIGHT STANDARD
- PROPOSED TRANSFORMER AND GROUNDING GRID (EXACT LOCATION TO BE DETERMINED)

PHASE 1Site Statistics- ZONING R3-8

	Required	Provided
Lot Area	Nil	28514m²
Lot Frontage	30m	199.7m
Lot Coverage	40% (max)	4.6%
Landscaped Area	40% (min)	52.4%
Building Setbacks:	Front yard - 7.5m	15.0m
	External Side Yard - 7.5m Block 158	164.3m
	Interior Side Yard - 7.5m Block 141	10.3m
	Rear yard - 7.5m Pretty River	42.9m
Maximum Height	15.0m	15.0m
Parking*	1.25 stall per unit - 65 stalls	70 stalls
Handicapped Parking**	2% of total required parking spaces - 2 stalls	2 stalls

* Parking stalls shall be 2.8m x 6.0m = 18.0m^2
** Handicapped stalls shall be 4.5m x 6.0m
***Bicycle spaces = 6

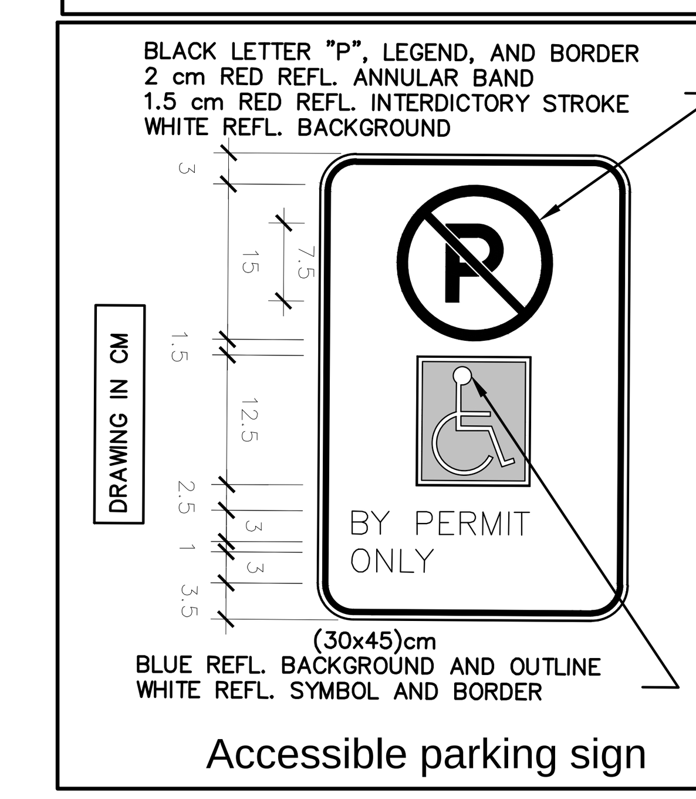
All signage to be lawfully erected and maintained in accordance to the Town Sign By-Law.

FULL BUILD Site Statistics- ZONING R3-8

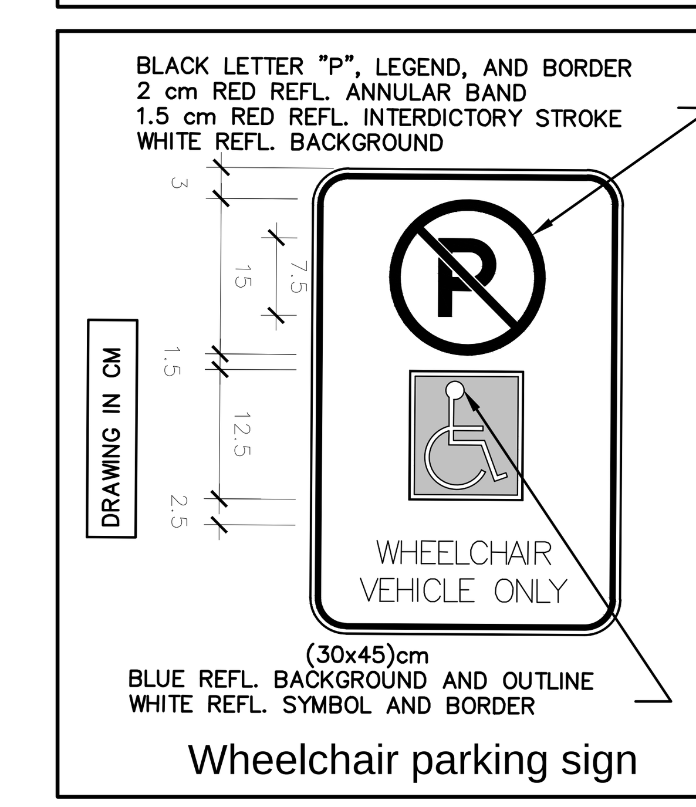
	Required	Provided
Lot Area	Nil	28514m²
Lot Frontage	30m	199.7m
Lot Coverage	40% (max)	14.0%
Landscaped Area	40% (min)	52.4%
Building Setbacks:	Front yard - 7.5m	18.9m
	External Side Yard - 7.5m Block 158	30.0m
	Interior Side Yard - 7.5m Block 141	10.3m
	Rear yard - 7.5m Pretty River	28.0m (Max)
Maximum Height	15.0m	15.0m
Parking*	1.25 stall per unit - 195 stalls	202 stalls
Handicapped Parking**	2% of total required parking spaces - 4 stalls	6 stalls

* Parking stalls shall be 2.8m x 6.0m = 18.0m^2
** Handicapped stalls shall be 4.5m x 6.0m
***Bicycle spaces = 20

All signage to be lawfully erected and maintained in accordance to the Town Sign By-Law.



Accessible parking sign



Wheelchair parking sign

Town Approval

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TEMPORARY BENCHMARKS

TBM#1 ELEV 188.85m
TOP NUT OF FIRE HYDRANT LOCATED AT THE NORTHWEST CORNER OF PEEL STREET AND COLLINS STREET.

TOPOGRAPHIC SURVEY COMPLETED BY ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S. ON MAY 18 2016.

Town

No.	ISSUE	DATE: MM/DD/YYYY
1	ISSUED FOR FIRST SUBMISSION	05/16/2016
2	ISSUED FOR SECOND SUBMISSION	08/08/2016
3	ISSUED FOR SITE PLAN APPROVAL	11/16/2016
4	REVISED PER TOWN COMMENTS	12/12/2016
5	ISSUED FOR APPROVAL	01/09/2017

Engineer

LICENSED PROFESSIONAL ENGINEER K. A. MORRIS Jan. 9/17 PROVINCE OF ONTARIO

Engineer

Project

RIVERSIDE
TOWN OF COLLINGWOOD
MIDRISE DEVELOPMENT

Drawing

SITE PLAN

CROZIER & ASSOCIATES Consulting Engineers

THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446 3510 T
705 446 3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn By	J.K.	Design By	J.K./B.R.	Project	183–4083
Check By	K.M.	Check By	J.P.	Scale 1:500	Drawing 101

APPENDIX J

ITE Trip Generation Manual, 10th Edition Excerpts

Land Use: 210
Single-Family Detached Housing

Description

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

Additional Data

The number of vehicles and residents had a high correlation with average weekday vehicle trip ends. The use of these variables was limited, however, because the number of vehicles and residents was often difficult to obtain or predict. The number of dwelling units was generally used as the independent variable of choice because it was usually readily available, easy to project, and had a high correlation with average weekday vehicle trip ends.

This land use included data from a wide variety of units with different sizes, price ranges, locations, and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Single-family detached units had the highest trip generation rate per dwelling unit of all residential uses because they were the largest units in size and had more residents and more vehicles per unit than other residential land uses; they were generally located farther away from shopping centers, employment areas, and other trip attractors than other residential land uses; and they generally had fewer alternative modes of transportation available because they were typically not as concentrated as other residential land uses.

Time-of-day distribution data for this land use are presented in Appendix A. For the six general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:00 and 5:00 p.m., respectively. For the two sites with Saturday data, the overall highest vehicle volume was counted between 3:00 and 4:00 p.m. For the one site with Sunday data, the overall highest vehicle volume was counted between 10:15 and 11:15 a.m.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Connecticut, Delaware, Illinois, Indiana, Maryland, Minnesota, Montana, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, and Virginia.

Source Numbers

100, 105, 114, 126, 157, 167, 177, 197, 207, 211, 217, 267, 275, 293, 300, 319, 320, 356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 903, 925, 936

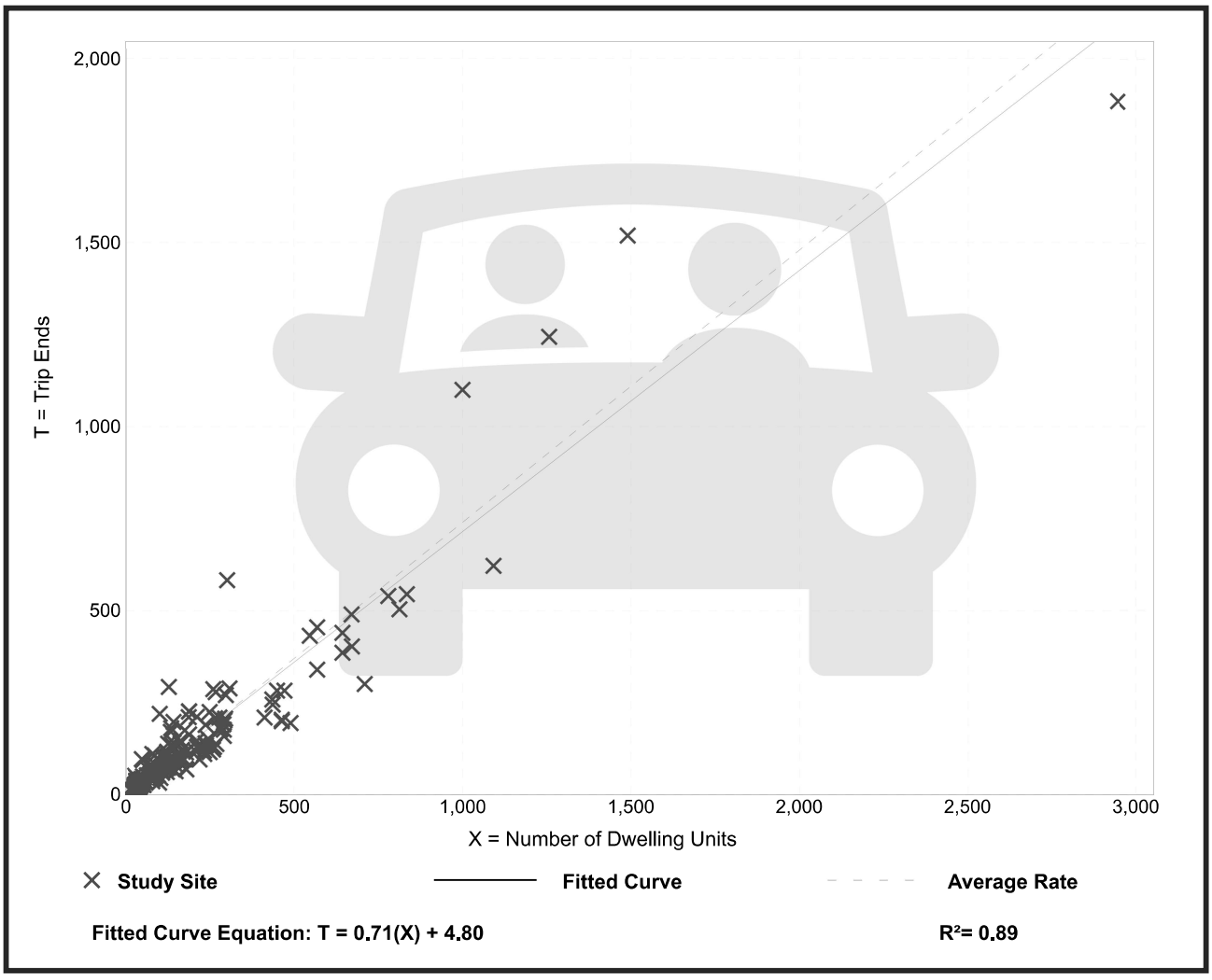
Single-Family Detached Housing
(210)

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: 173
Avg. Num. of Dwelling Units: 219
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



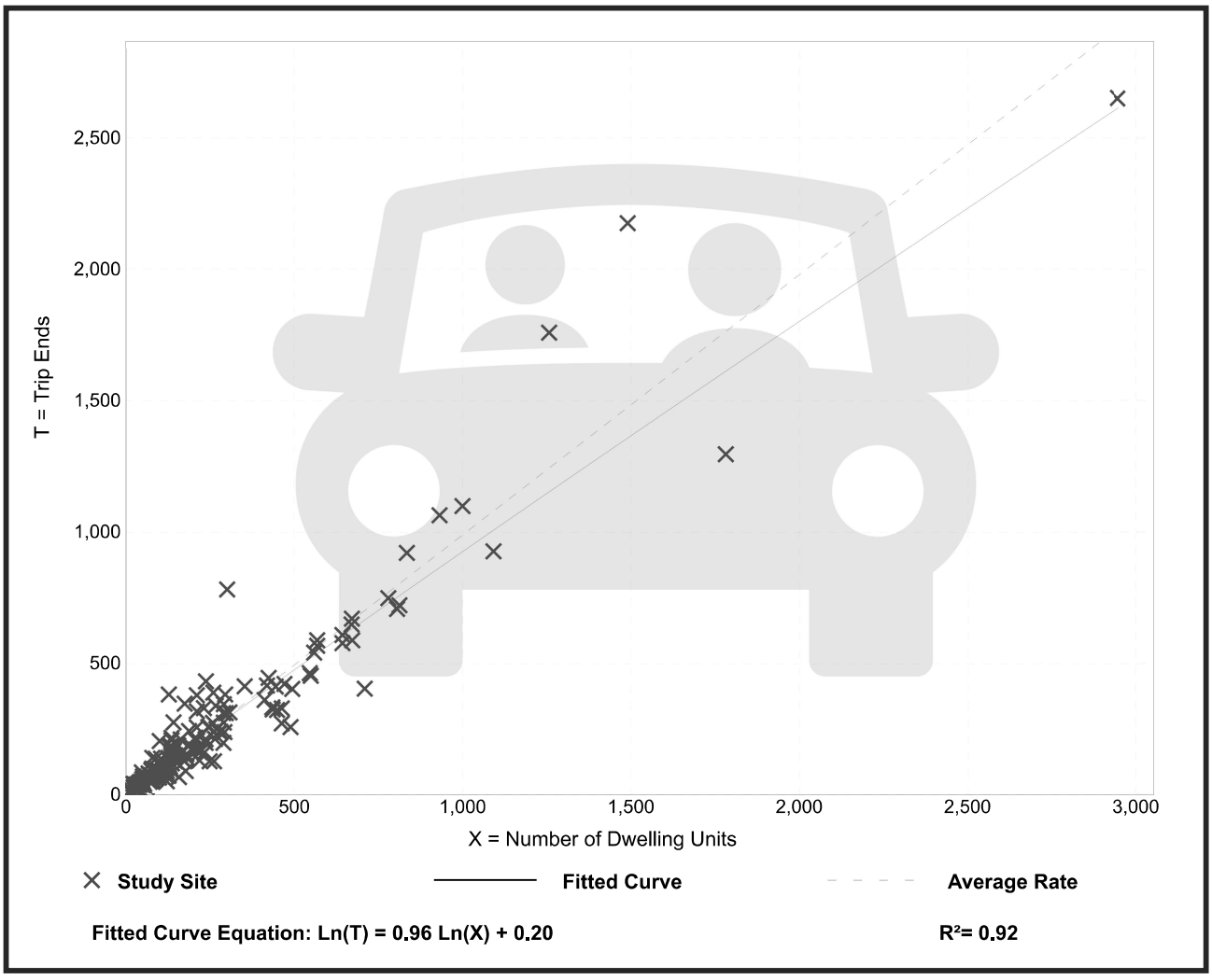
Single-Family Detached Housing
(210)

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: 190
Avg. Num. of Dwelling Units: 242
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors). Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), and off-campus student apartment (Land Use 225) are related land uses.

Additional Data

In prior editions of *Trip Generation Manual*, the low-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of vehicle trip data found no clear differences in trip making patterns between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

This land use included data from a wide variety of units with different sizes, price ranges, locations, and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:45 and 5:45 p.m., respectively. For the one site with Saturday data, the overall highest vehicle volume was counted between 9:45 and 10:45 a.m. For the one site with Sunday data, the overall highest vehicle volume was counted between 11:45 a.m. and 12:45 p.m.

For the one dense multi-use urban site with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:00 and 8:00 a.m. and 6:15 and 7:15 p.m., respectively.

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

The average numbers of person trips per vehicle trip at the five general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.13 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.21 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, District of Columbia, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Minnesota, New Jersey, New York, Ontario, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, and Washington.

It is expected that the number of bedrooms and number of residents are likely correlated to the number of trips generated by a residential site. Many of the studies included in this land use did not indicate the total number of bedrooms. To assist in the future analysis of this land use, it is important that this information be collected and included in trip generation data submissions.

Source Numbers

168, 187, 188, 204, 211, 300, 305, 306, 319, 320, 321, 357, 390, 412, 418, 525, 530, 571, 579, 583, 864, 868, 869, 870, 896, 903, 918, 946, 947, 948, 951

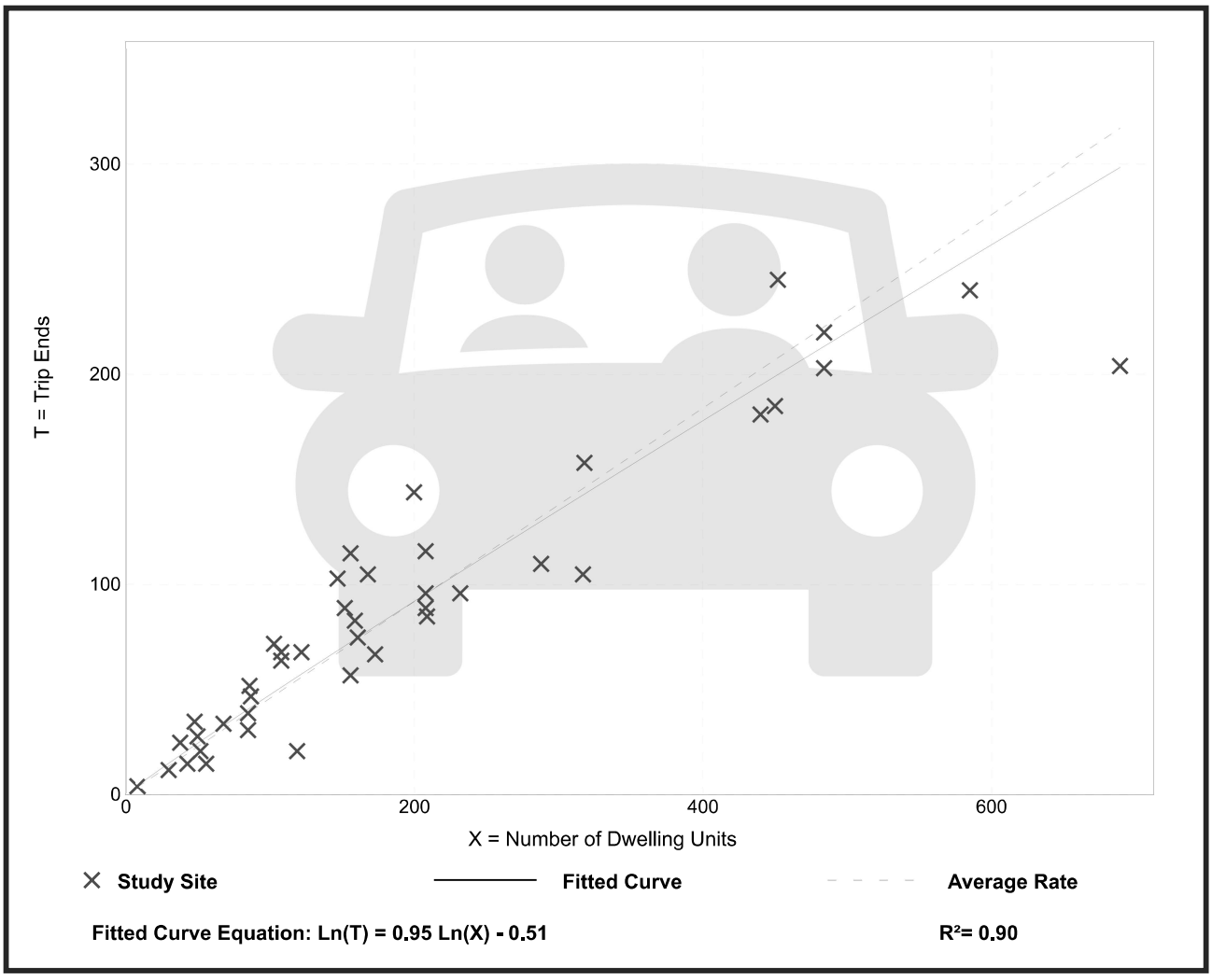
Multifamily Housing (Low-Rise)
(220)

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



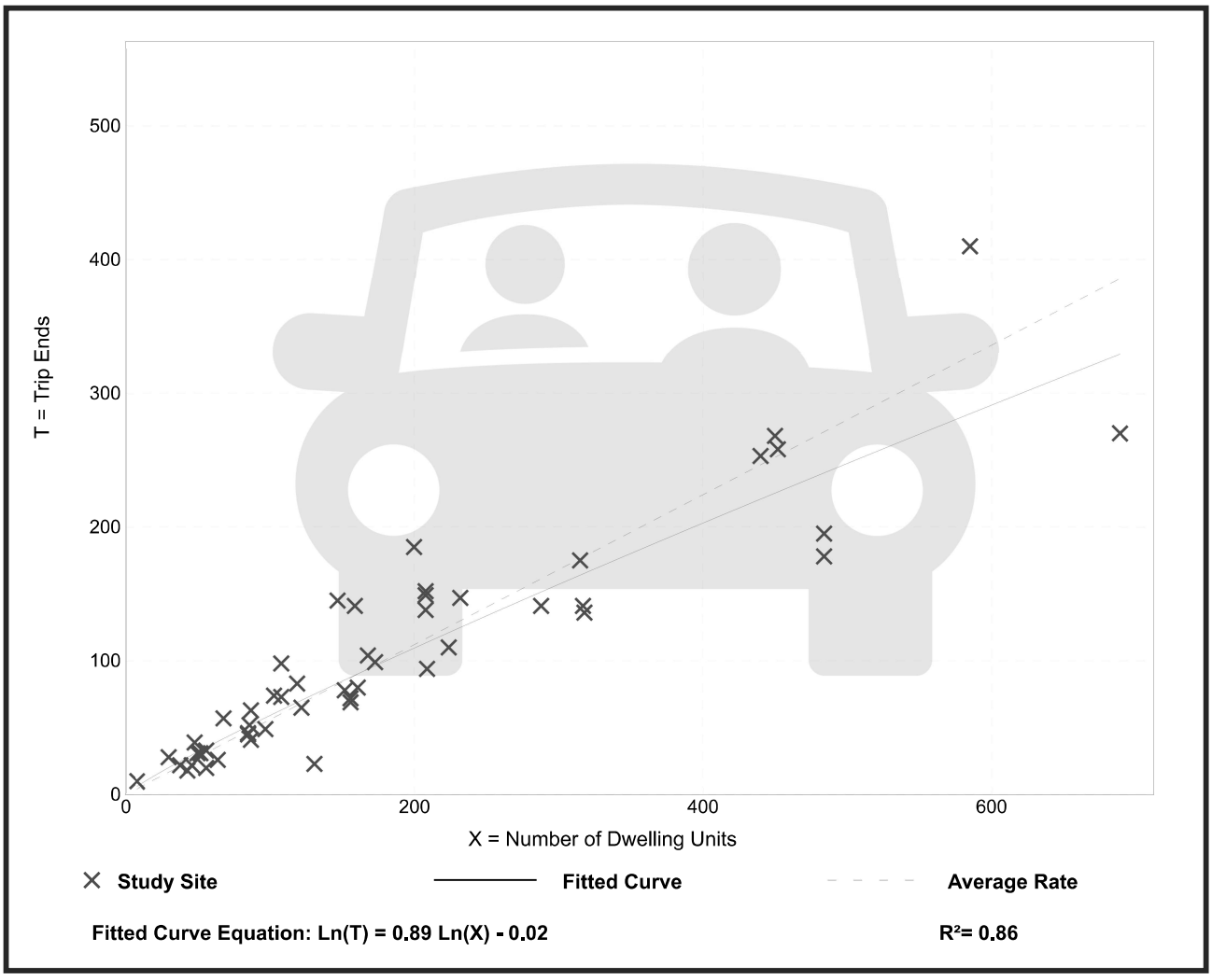
Multifamily Housing (Low-Rise)
(220)

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



Land Use: 221
Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors). Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), off-campus student apartment (Land Use 225), and mid-rise residential with 1st-floor commercial (Land Use 231) are related land uses.

Additional Data

In prior editions of *Trip Generation Manual*, the mid-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of vehicle trip data found no clear differences in trip making patterns between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

For the six sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.46 residents per occupied dwelling unit.

For the five sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 95.7 percent of the total dwelling units were occupied.

Time-of-day distribution data for this land use are presented in Appendix A. For the eight general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:00 and 8:00 a.m. and 4:45 and 5:45 p.m., respectively.

For the four dense multi-use urban sites with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:15 and 5:15 p.m., respectively. For the three center city core sites with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 6:45 and 7:45 a.m. and 5:00 and 6:00 p.m., respectively.

For the six sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.46 residents per occupied dwelling unit.

For the five sites for which data were provided for both occupied dwelling units and total dwelling units, an average of 95.7 percent of the units were occupied.

The average numbers of person trips per vehicle trip at the five center city core sites at which both person trip and vehicle trip data were collected were as follows:

- 1.84 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.94 during Weekday, AM Peak Hour of Generator
- 2.07 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.59 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 32 dense multi-use urban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.90 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.90 during Weekday, AM Peak Hour of Generator
- 2.00 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.08 during Weekday, PM Peak Hour of Generator

The average numbers of person trips per vehicle trip at the 13 general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.56 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.88 during Weekday, AM Peak Hour of Generator
- 1.70 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 2.07 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), British Columbia (CAN), California, Delaware, District of Columbia, Florida, Georgia, Illinois, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, Ontario, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Virginia, and Wisconsin.

Source Numbers

168, 188, 204, 305, 306, 321, 357, 390, 436, 525, 530, 579, 638, 818, 857, 866, 901, 904, 910, 912, 918, 934, 936, 939, 944, 947, 948, 949, 959, 963, 964, 966, 967, 969, 970

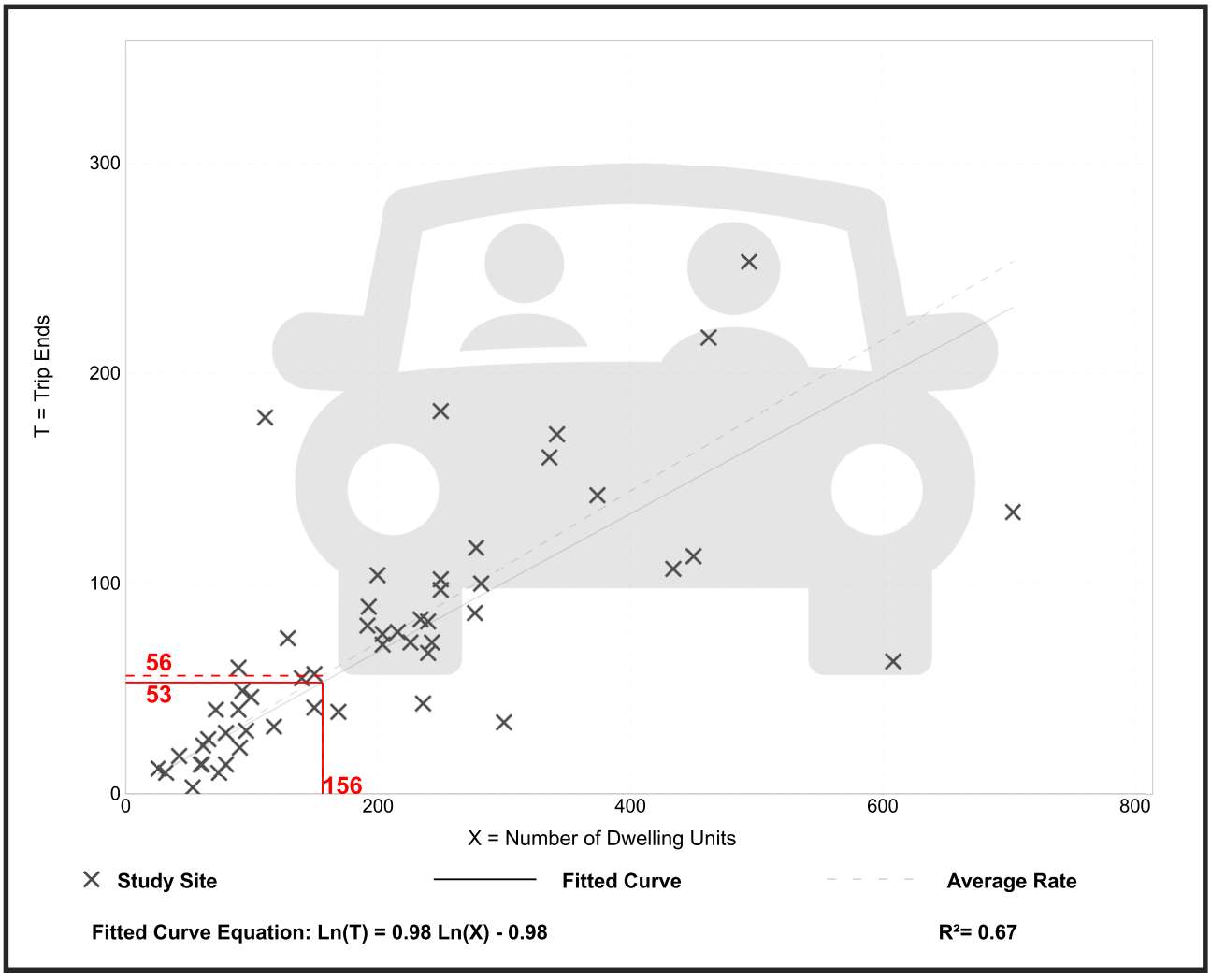
Multifamily Housing (Mid-Rise)
(221)

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:	53
Avg. Num. of Dwelling Units:	207
Directional Distribution:	26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

Data Plot and Equation



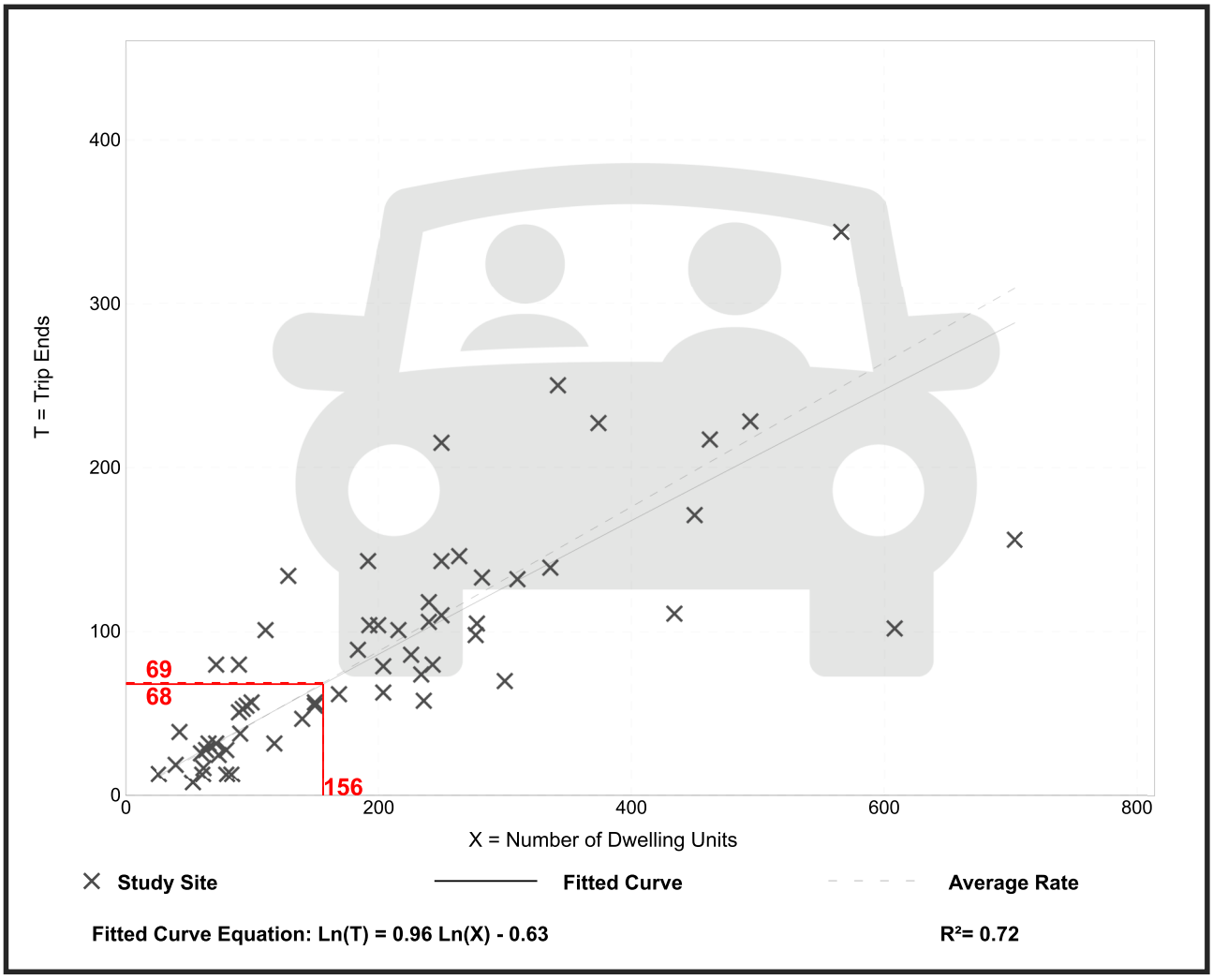
Multifamily Housing (Mid-Rise)
(221)

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:	60
Avg. Num. of Dwelling Units:	208
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

Data Plot and Equation



Land Use: 820
Shopping Center

Description

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands. Factory outlet center (Land Use 823) is a related use.

Additional Data

Shopping centers, including neighborhood centers, community centers, regional centers, and super regional centers, were surveyed for this land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs, and recreational facilities (for example, ice skating rinks or indoor miniature golf courses).

Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied included peripheral buildings, it can be assumed that some of the data show their effect.

The vehicle trips generated at a shopping center are based upon the total GLA of the center. In cases of smaller centers without an enclosed mall or peripheral buildings, the GLA could be the same as the gross floor area of the building.

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 12:15 and 1:15 p.m., respectively.

The average numbers of person trips per vehicle trip at the 27 general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.31 during Weekday, AM Peak Hour of Generator
- 1.43 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.46 during Weekday, PM Peak Hour of Generator

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), British Columbia (CAN), California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, and Wisconsin.

Source Numbers

105, 110, 154, 156, 159, 186, 190, 198, 199, 202, 204, 211, 213, 239, 251, 259, 260, 269, 294, 295, 299, 300, 301, 304, 305, 307, 308, 309, 310, 311, 314, 315, 316, 317, 319, 358, 365, 376, 385, 390, 400, 404, 414, 420, 423, 428, 437, 440, 442, 444, 446, 507, 562, 580, 598, 629, 658, 702, 715, 728, 868, 870, 871, 880, 899, 908, 912, 915, 926, 936, 944, 946, 960, 961, 962, 973, 974, 978

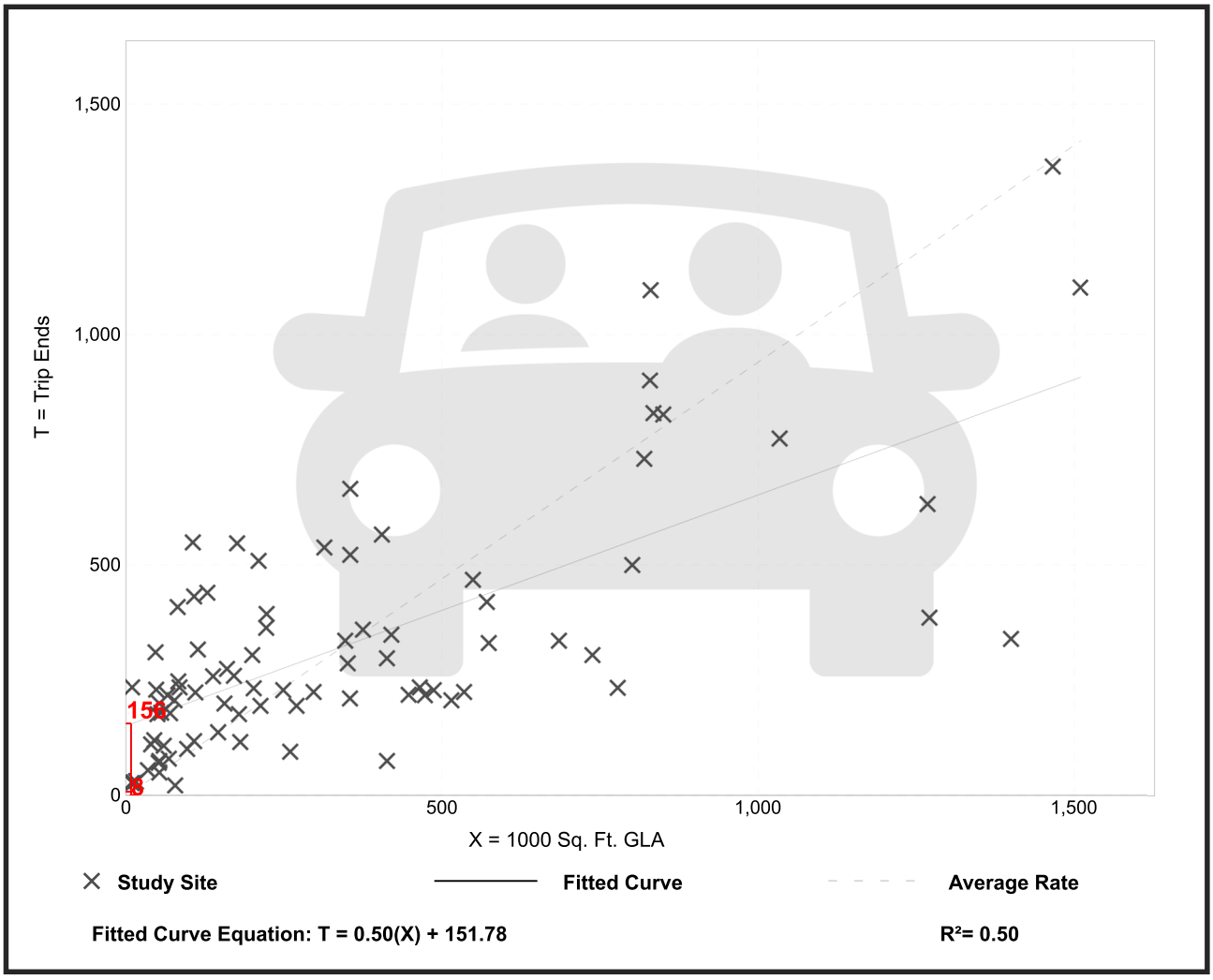
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
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: 84
Avg. 1000 Sq. Ft. GLA: 351
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



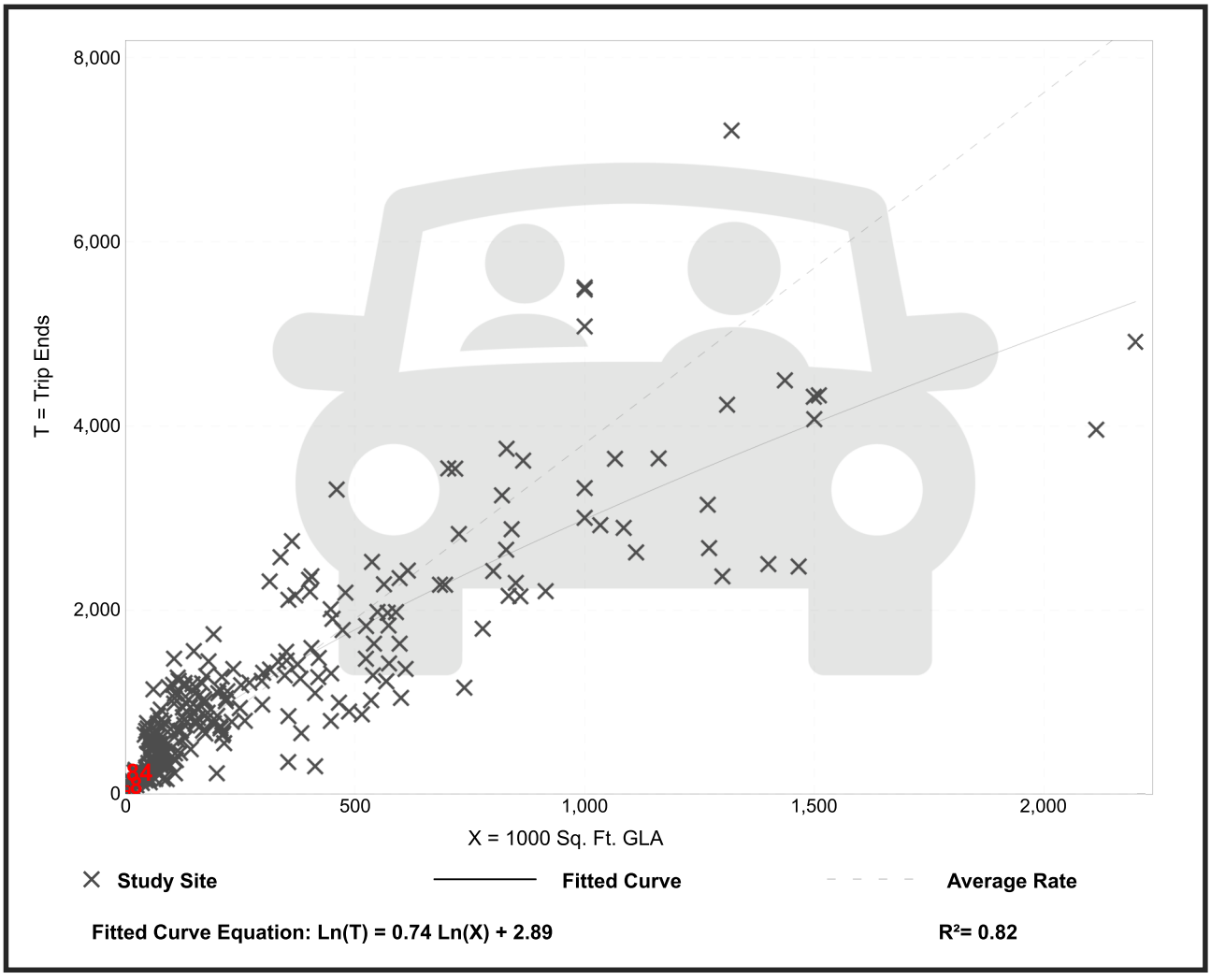
Shopping Center
(820)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
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: 261
Avg. 1000 Sq. Ft. GLA: 327
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

Data Plot and Equation



APPENDIX K

OTM Book 12 Signal Justification #1-3 Worksheet

Input Data Sheet

Analysis Sheet | Results Sheet | Proposed Collision

GO TO Justification:

What are the intersecting roadways? Hurontario St. and Tracey Lane

What is the direction of the Main Road street? North-South

When was the data collected? 2029

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 1

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 4

d.- What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	3	105	3	7	0	2	8	103	2	7	1	18	2
8:00	3	214	7	28	1	11	10	185	9	9	1	22	0
9:00	6	372	13	40	2	11	26	255	18	3	5	57	1
12:00	5	282	11	26	6	9	42	244	26	10	6	79	0
13:00	6	350	19	39	7	12	85	430	43	6	5	54	1
16:00	11	368	4	31	6	14	80	451	60	10	4	80	3
17:00	7	351	7	38	8	13	112	416	58	1	4	40	3
18:00	13	277	1	34	8	6	80	272	35	5	6	33	8
Total	**54**	**2,319**	**65**	**243**	**38**	**78**	**443**	**2,356**	**251**	**51**	**32**	**383**	**18**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Factored 8 hour pedestrian volume	20,005		25		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									4,610
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,005		25		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									4,610
Net 8 Hour Volume of Delayed Pedestrians									12

Analysis Sheet

Input Sheet | Results Sheet | Proposed Collision

GO TO Justification:

Intersection: Hurontario St. and Tracey Lane Count Date: 2029

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW ☐	RESTR. FLOW ☑	FREE FLOW ☐	RESTR. FLOW ☐	7:00	8:00	9:00	12:00	13:00	16:00	17:00	18:00		
1A	480	720	600	900	259	500	808	746	1,056	1,119	1,055	770		
	COMPLIANCE %				36	69	100	100	100	100	100	100	705	88
1B	120	170	120	170	35	72	118	136	123	145	104	92		
	COMPLIANCE %				21	42	69	80	72	85	61	54	485	61

Restricted Flow Signal Justification 1:

Both 1A and 1B 100% Fullfilled each of 8 hours — Yes ☐ No ☑

Lesser of 1A or 1B at least 80% fulfilled each of 8 hours — Yes ☐ No ☑

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW ☐	RESTR. FLOW ☑	FREE FLOW ☐	RESTR. FLOW ☐	7:00	8:00	9:00	12:00	13:00	16:00	17:00	18:00		
2A	480	720	600	900	224	428	690	610	933	974	951	678		
	COMPLIANCE %				31	59	96	85	100	100	100	94	665	83
2B	50	75	50	75	17	38	49	42	53	50	50	55		
	COMPLIANCE %				23	51	65	56	71	67	67	73	472	59

Restricted Flow Signal Justification 2:

Both 2A and 2B 100% Fullfilled each of 8 hours — Yes ☐ No ☑

Lesser of 2A or 2B at least 80% fulfilled each of 8 hours — Yes ☐ No ☑

Justification 3: Combination

Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More	
Justification 1	Minimun Vehicular Volume	YES ☐	NO ☑	YES ☐	NO ☑
Justification 2	Delay Cross Traffic	YES ☐	NO ☑		NOT JUSTIFIED

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision

Intersection: Hurontario St. and Tracey Lane

Count Date: 2029

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	88	%	☐	☑
	B	Crossing Volume	61	%		
2. Delay to Cross Traffic	A	Main Road	83	%	☐	☑
	B	Crossing Road	59	%		
3. Combination	A	Justificaton 1	61	%	☐	☑
	B	Justification 2	59	%		

Input Data Sheet

Analysis Sheet | Results Sheet | Proposed Collision

GO TO Justification:

What are the intersecting roadways? Portland St. and Poplar Sideroad

What is the direction of the Main Road street? East-West

When was the data collected? 2029

Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road? 1

b.- Number of lanes on the Minor Road? 1

c.- How many approaches? 3

d.- What is the operating environment? Urban Population >= 10,000 AND Speed < 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Eastbound Approach			Minor Northbound Approach			Main Westbound Approach			Minor Southbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	6	159	0	0	0	0	0	158	18	52	0	60	0
8:00	31	331	0	0	0	0	0	293	41	45	0	55	0
9:00	45	396	0	0	0	0	0	380	41	103	0	95	0
10:00	37	368	0	0	0	0	0	290	55	79	0	110	0
13:00	105	484	0	0	0	0	0	398	76	75	0	98	0
16:00	78	492	0	0	0	0	0	468	99	75	0	56	0
17:00	110	482	0	0	0	0	0	454	92	86	0	88	0
18:00	96	272	0	0	0	0	0	295	61	69	0	39	0
Total	**508**	**2,984**	**0**	**0**	**0**	**0**	**0**	**2,736**	**483**	**584**	**0**	**601**	**0**

Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

* Include only collisions that are susceptable to correction through the installation of traffic signal control

Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Factored 8 hour pedestrian volume	20,005		25		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									4,610
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	10,000	5	10	5	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	10	10	1	6	2	4	0	0	
Factored volume of total pedestrians	20,005		25		0		0		
Factored volume of delayed pedestrians	30		8		8		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									4,610
Net 8 Hour Volume of Delayed Pedestrians									12

Analysis Sheet

Input Sheet | Results Sheet | Proposed Collision

GO TO Justification:

Intersection: Portland St. and Poplar Sideroad Count Date: 2029

Justification 1: Minimum Vehicle Volumes

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	13:00	16:00	17:00	18:00		
1A	480	720	600	900	453	796	1,060	939	1,236	1,268	1,312	832		
	COMPLIANCE %				63	100	100	100	100	100	100	100	763	95
1B	180	255	180	255	112	100	198	189	173	131	174	108		
	COMPLIANCE %				44	39	78	74	68	51	68	42	465	58
Restricted Flow Signal Justification 1:					Both 1A and 1B 100% Fullfilled each of 8 hours — Yes ☐ No ☐									
					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours — Yes ☐ No ☑									

Justification 2: Delay to Cross Traffic

Restricted Flow Urban Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	13:00	16:00	17:00	18:00		
2A	480	720	600	900	341	696	862	750	1,063	1,137	1,138	724		
	COMPLIANCE %				47	97	100	100	100	100	100	100	744	93
2B	50	75	50	75	52	45	103	79	75	75	86	69		
	COMPLIANCE %				69	60	100	100	100	100	100	92	721	90
Restricted Flow Signal Justification 2:					Both 2A and 2B 100% Fullfilled each of 8 hours — Yes ☐ No ☑									
					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours — Yes ☑ No ☐									

Justification 3: Combination

Combination Justification 1 and 2

	Justification Satisfied 80% or More			Two Justifications Satisfied 80% or More	
Justification 1	Minimun Vehicular Volume	YES ☐	NO ☑	YES ☐	NO ☑
Justification 2	Delay Cross Traffic	YES ☐	NO ☐		NOT JUSTIFIED

Results Sheet

Input Sheet | Analysis Sheet | Proposed Collision

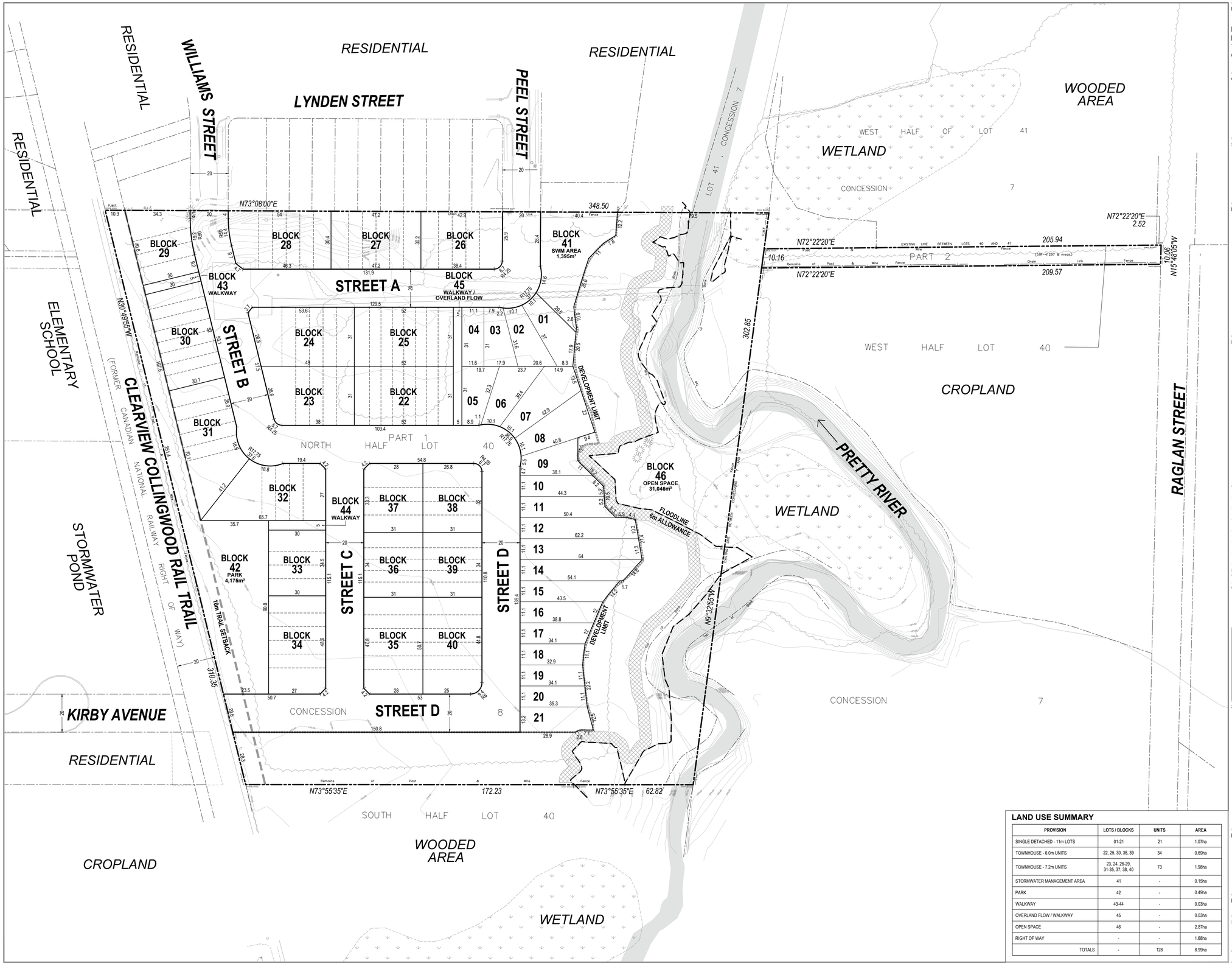
Intersection: Portland St. and Poplar Sideroad

Count Date: 2029

Summary Results

Justification			Compliance		Signal Justified? YES	Signal Justified? NO
1. Minimum Vehicular Volume	A	Total Volume	95	%	☐	☑
	B	Crossing Volume	58	%		
2. Delay to Cross Traffic	A	Main Road	93	%	☐	☑
	B	Crossing Road	90	%		
3. Combination	A	Justificaton 1	58	%	☐	☑
	B	Justification 2	90	%		

List of Figures



LEGAL DESCRIPTION

PART OF LOT 40,
IN CONCESSION SEVEN AND EIGHT
TOWNSHIP OF NOTTAWASAGA
COUNTY OF SIMCOE

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

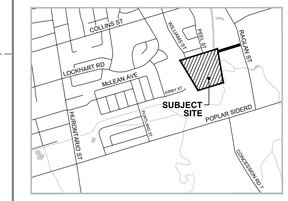
DATE: _____ _____
XXXXXXXXXXXXX - PRESIDENT
XXXXXXXXXXXXXX

SURVEYOR'S CERTIFICATE

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

DATE: _____ _____
XXXXXXXXXXXXX - O.L.S.
XXXXXXXXXXXXXX

KEY PLAN



Subject Site

NORTH

SCALE
0 0.25 0.5 0.75 1km

LEGEND

- PROJECT BOUNDARY LINE
- RIGHT OF WAY LINE
- BLOCK LINE
- LOT LINE
- UNIT LINE
- LOT FRONTAGE
- PARCEL FABRIC

REVISION No.	DATE	ISSUED / REVISION	BY

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT R.S.O. 1990 C.P.13 AS AMENDED

A. AS SHOWN	**E.** AS SHOWN	**J.** AS SHOWN
B. AS SHOWN	**F.** AS SHOWN	**K.** FULL MUNICIPAL SERVICES
C. AS SHOWN	**G.** AS SHOWN	**L.** AS SHOWN
D. 21 SINGLE DETACHED & 107 TOWNHOUSE UNITS	**H.** MUNICIPAL WATER SUPPLY	
	I. SOIL?	

PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE
MHBC PLANNING
113 COLLIER STREET
BARRIE, ON, L4M 1H2
P: 705 728 0045 F: 705 728 2010
WWW.MHBCPLAN.COM

LAND USE SUMMARY

PROVISION	LOTS / BLOCKS	UNITS	AREA
SINGLE DETACHED - 11m LOTS	01-21	21	1.07ha
TOWNHOUSE - 6.0m UNITS	22, 25, 30, 36, 39	34	0.69ha
TOWNHOUSE - 7.2m UNITS	23, 24, 26-29, 31-35, 37, 38, 40	73	1.98ha
STORMWATER MANAGEMENT AREA	41	-	0.15ha
PARK	42	-	0.49ha
WALKWAY	43-44	-	0.03ha
OVERLAND FLOW / WALKWAY	45	-	0.03ha
OPEN SPACE	46	-	2.87ha
RIGHT OF WAY	-	-	1.68ha
TOTALS	-	128	8.99ha

STAMP

DATE	OCT. 8, 2021
FILE No.	Y537R
SCALE	1:900 (ARCH D)
DRAWN BY	M.M.
CHECKED BY	K.C.
OTHER	

PROJECT

452 RAGLAN STREET
EDEN OAK INC.
1443 HURONTARIO STREET
MISSISSAUGA, ONTARIO
L5G 3H5

NORTH

FILE NAME
DRAFT PLAN OF SUBDIVISION

DWG No.
1 of 1

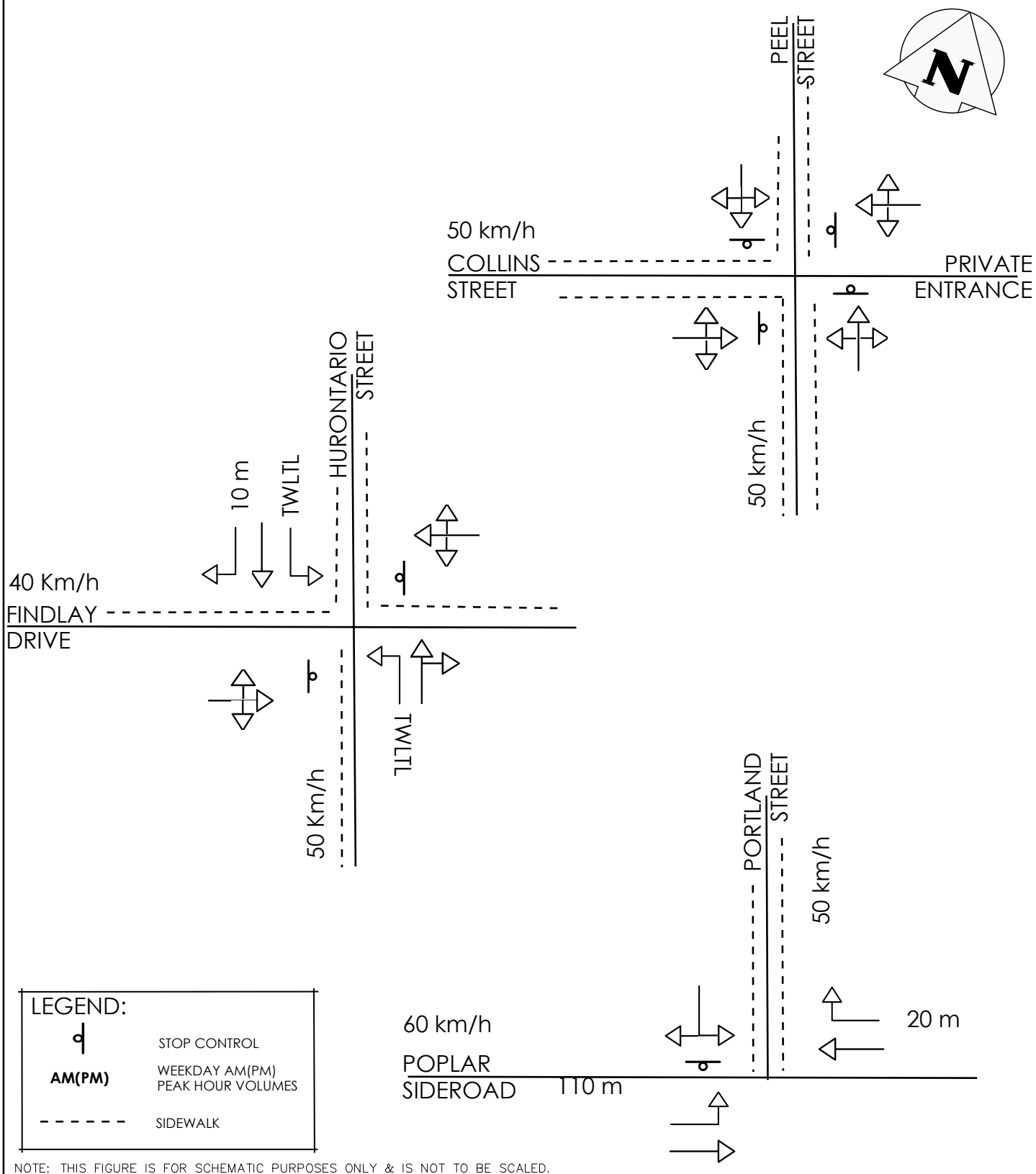
SCALE BAR

0 4 8 12 16 20 30 40 60 80m

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

N:\Collingwood\Eden Oak - 452 Raglan St, Collingwood - Y537R\Drawings\Draft Plan\CAD\Y537R - Draft Plan - 2021-10-08.dwg

FIG. 1



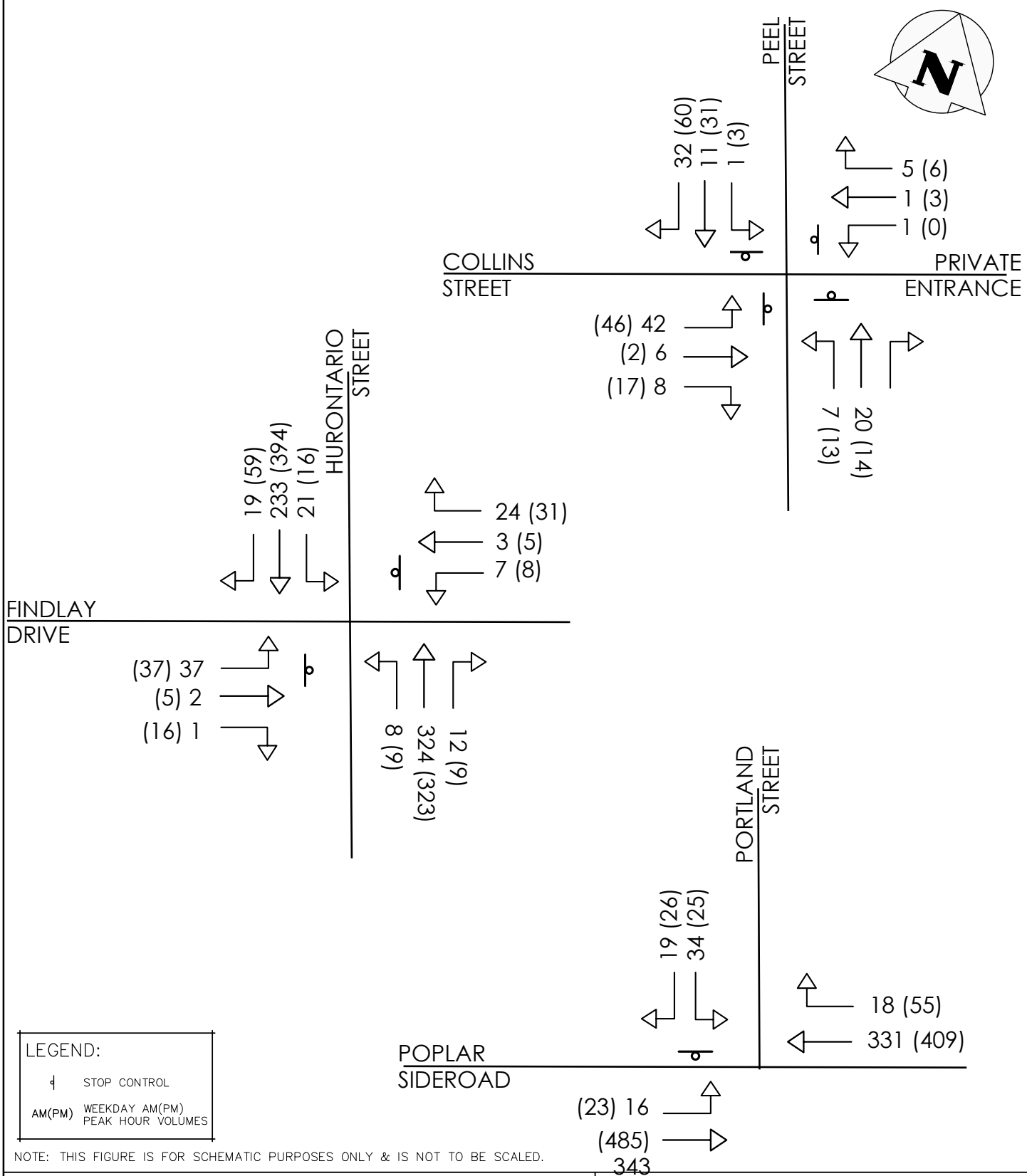
NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

IndigO2
Town of Collingwood, Simcoe County

Existing Traffic Controls

CROZIER CONSULTING ENGINEERS
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 3



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Existing Traffic Volumes

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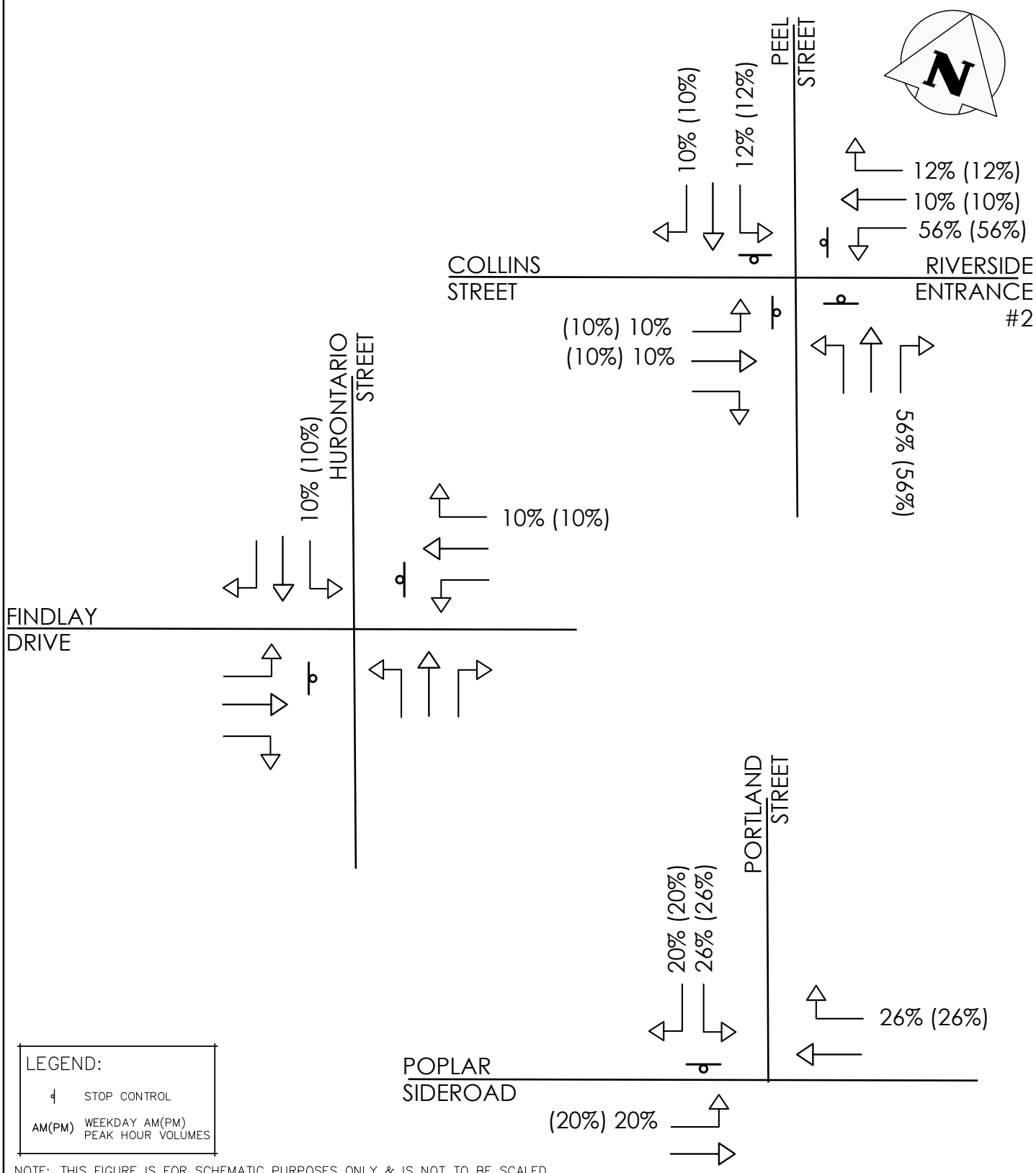
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 4



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Riverside Mid-rise Trip Distribution

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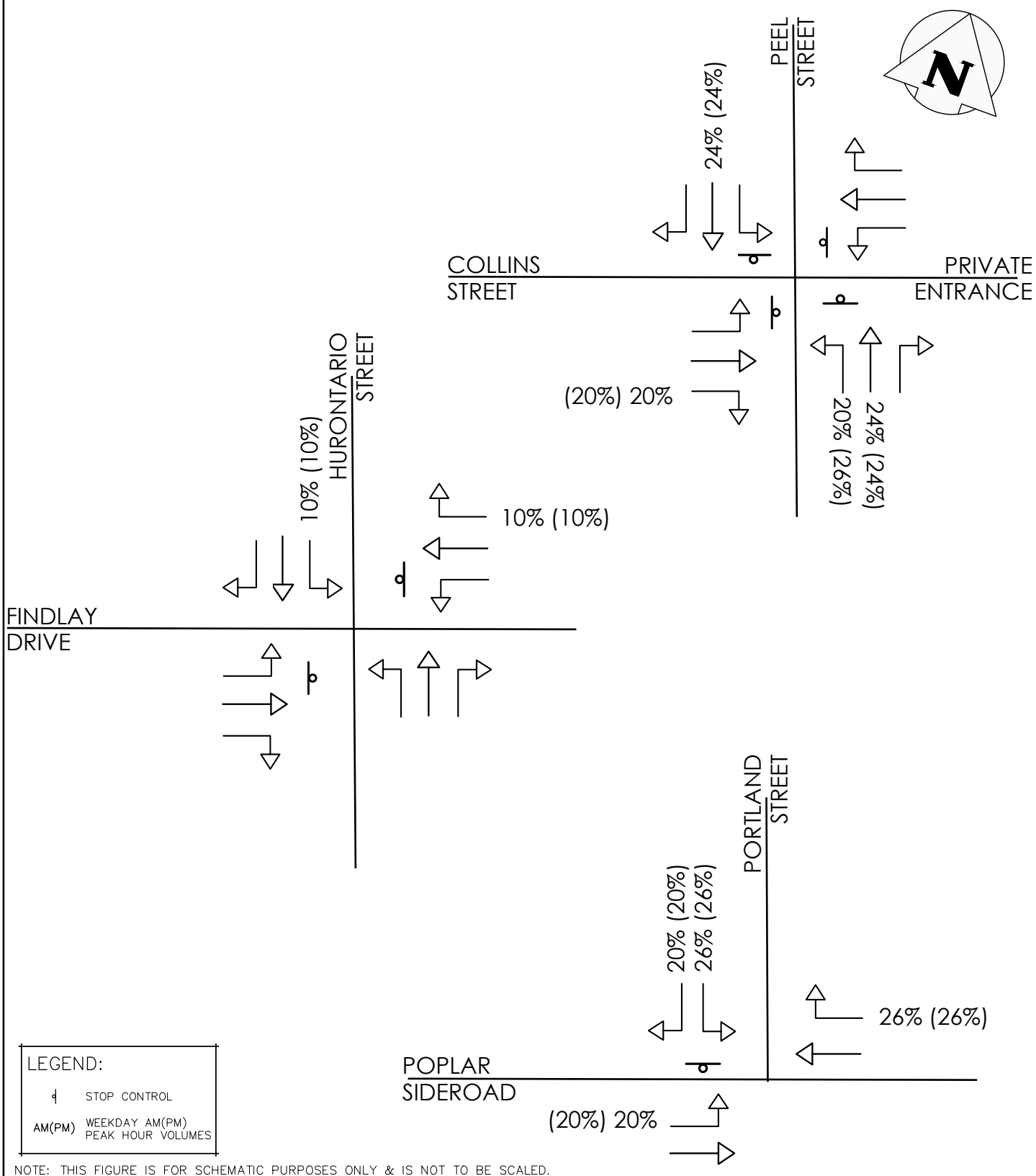
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 5



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Harmony Living Trip Distribution

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Drawn	Design	Project No.	
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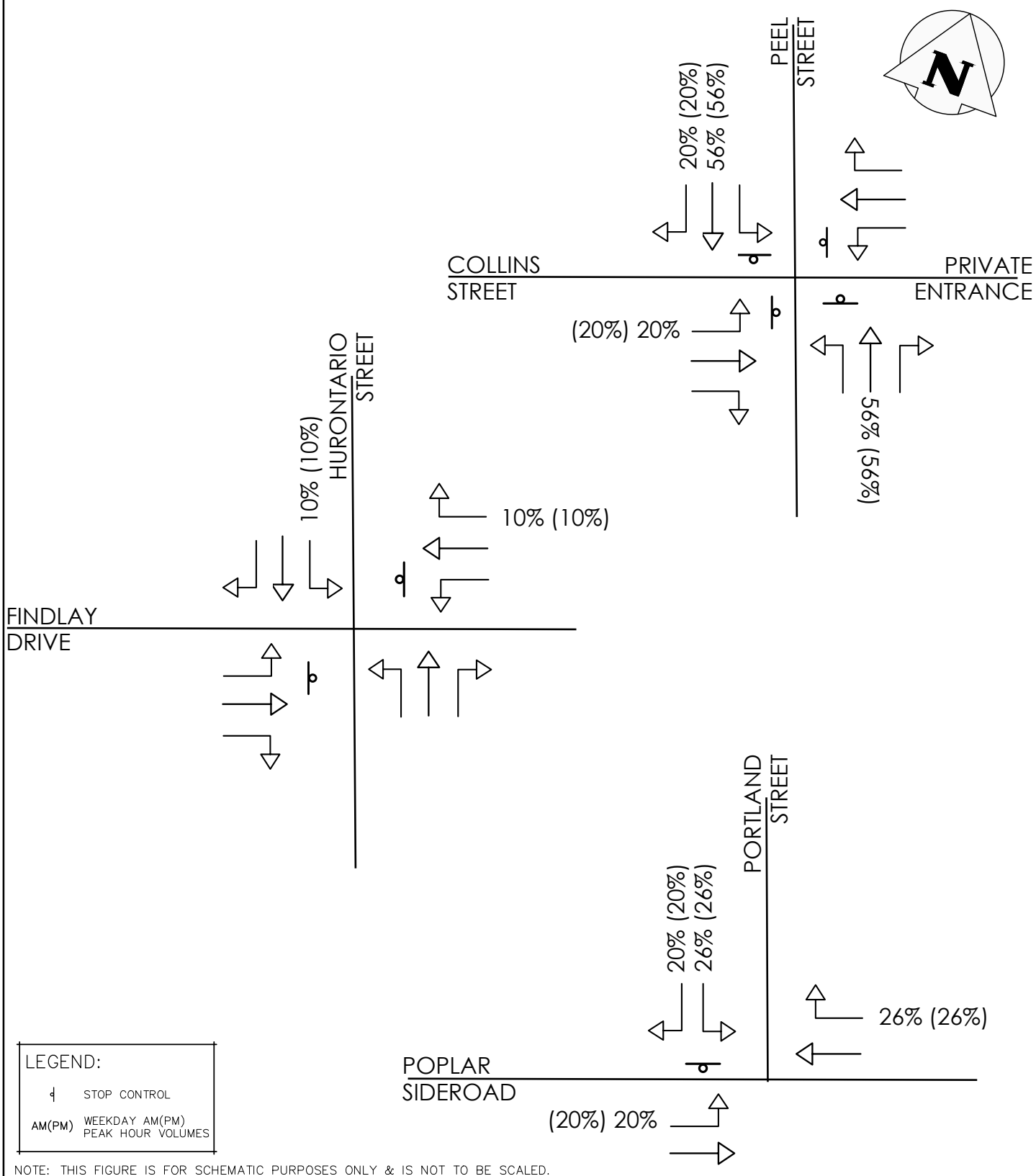
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 6



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Stuart West Trip Distribution

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Drawn	Design	Project No.	
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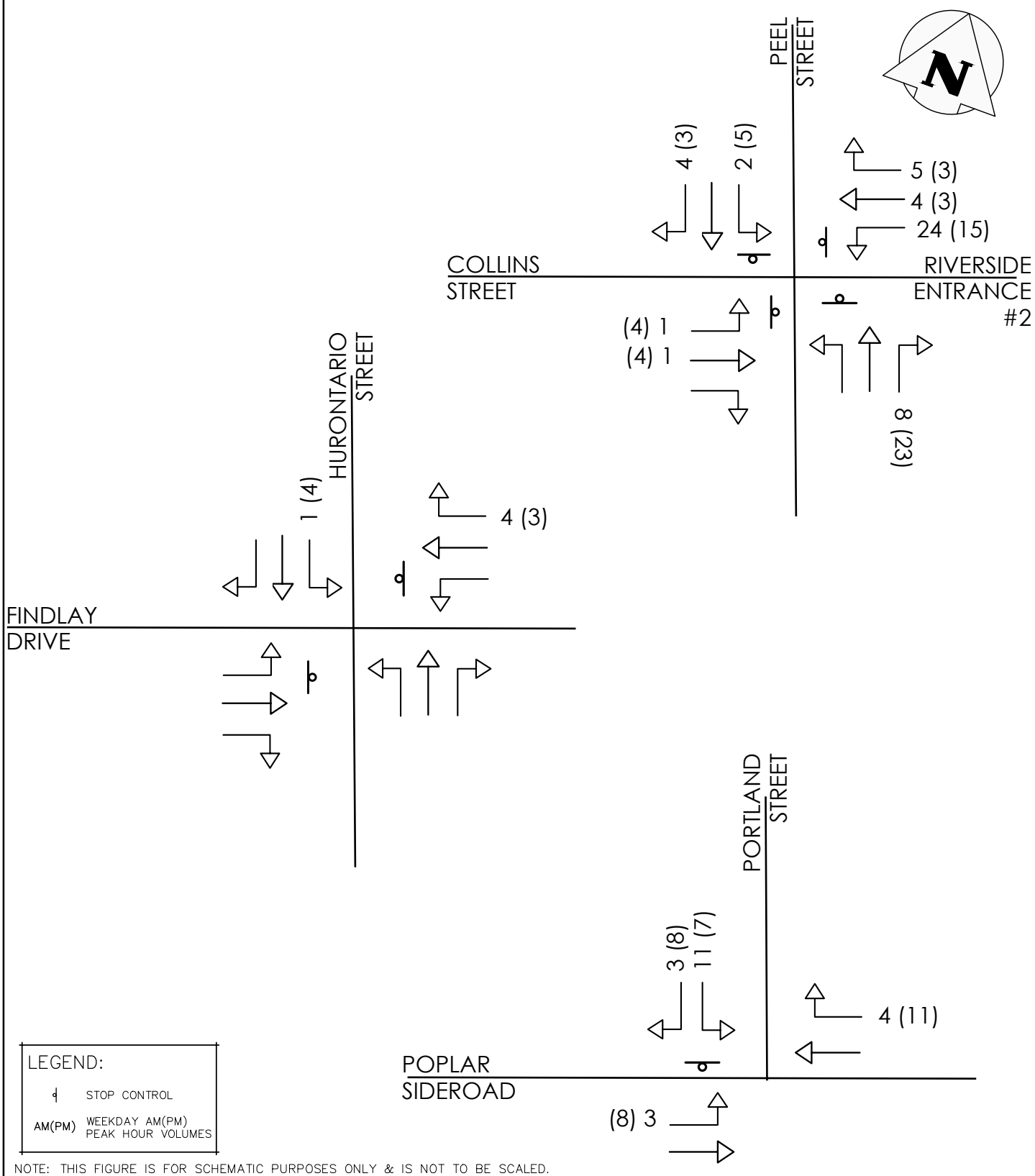
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 7



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Riverside Mid-rise Trip Assignment

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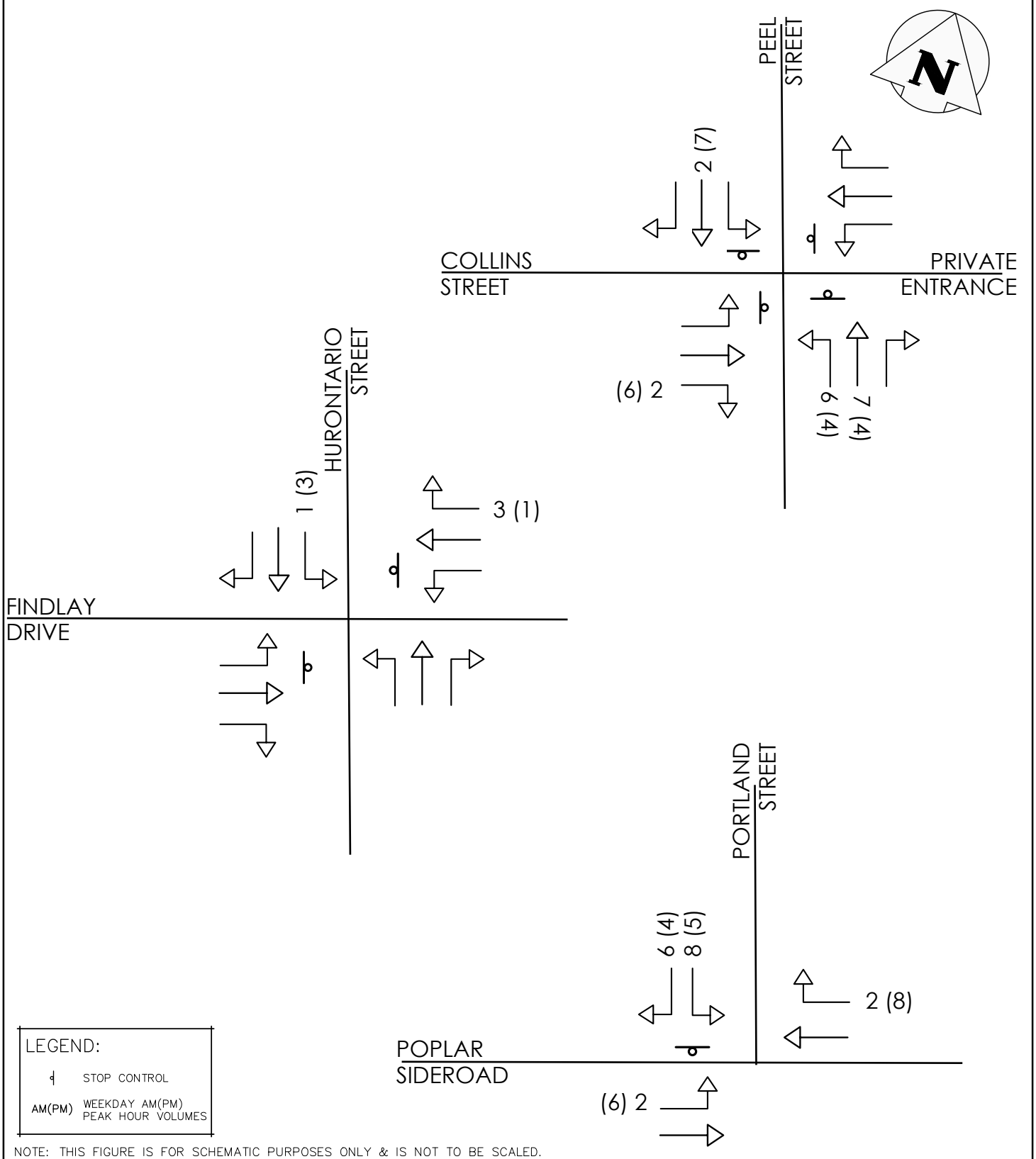
Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 8



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Harmony Living Trip Assigment

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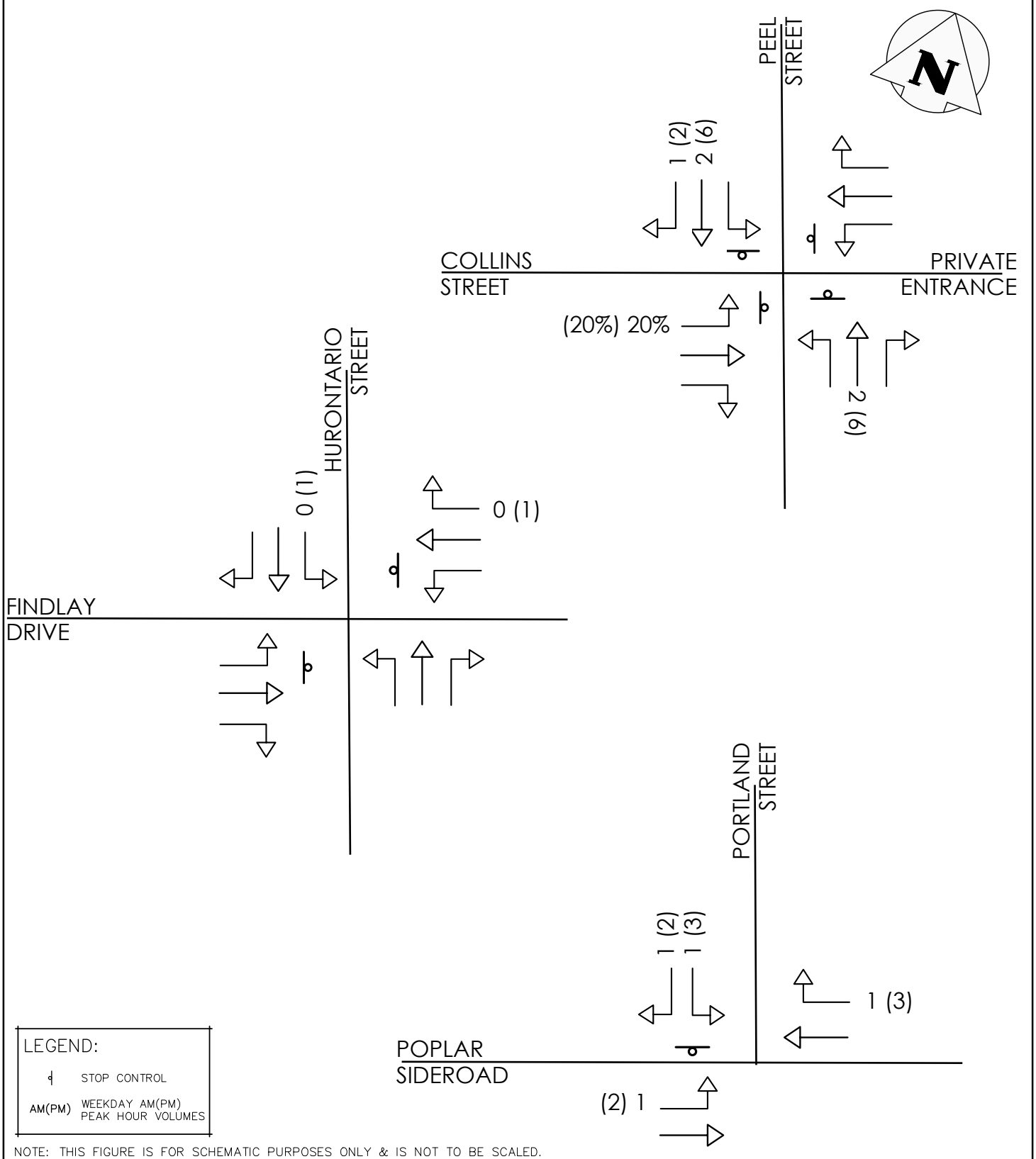
Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 9



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Stuart West Trip Assignment

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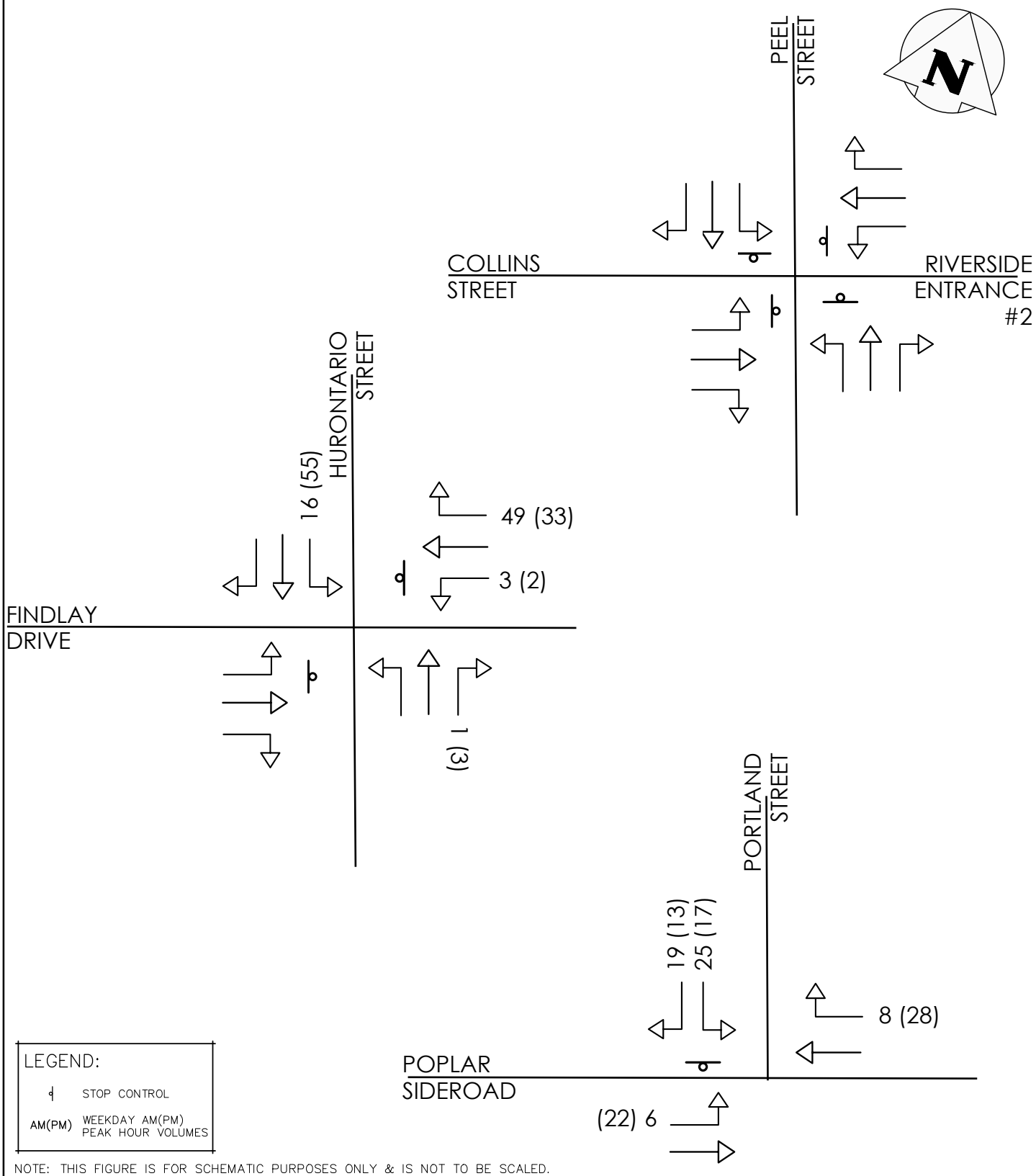
Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 10



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Eden Oak Trip Assignment

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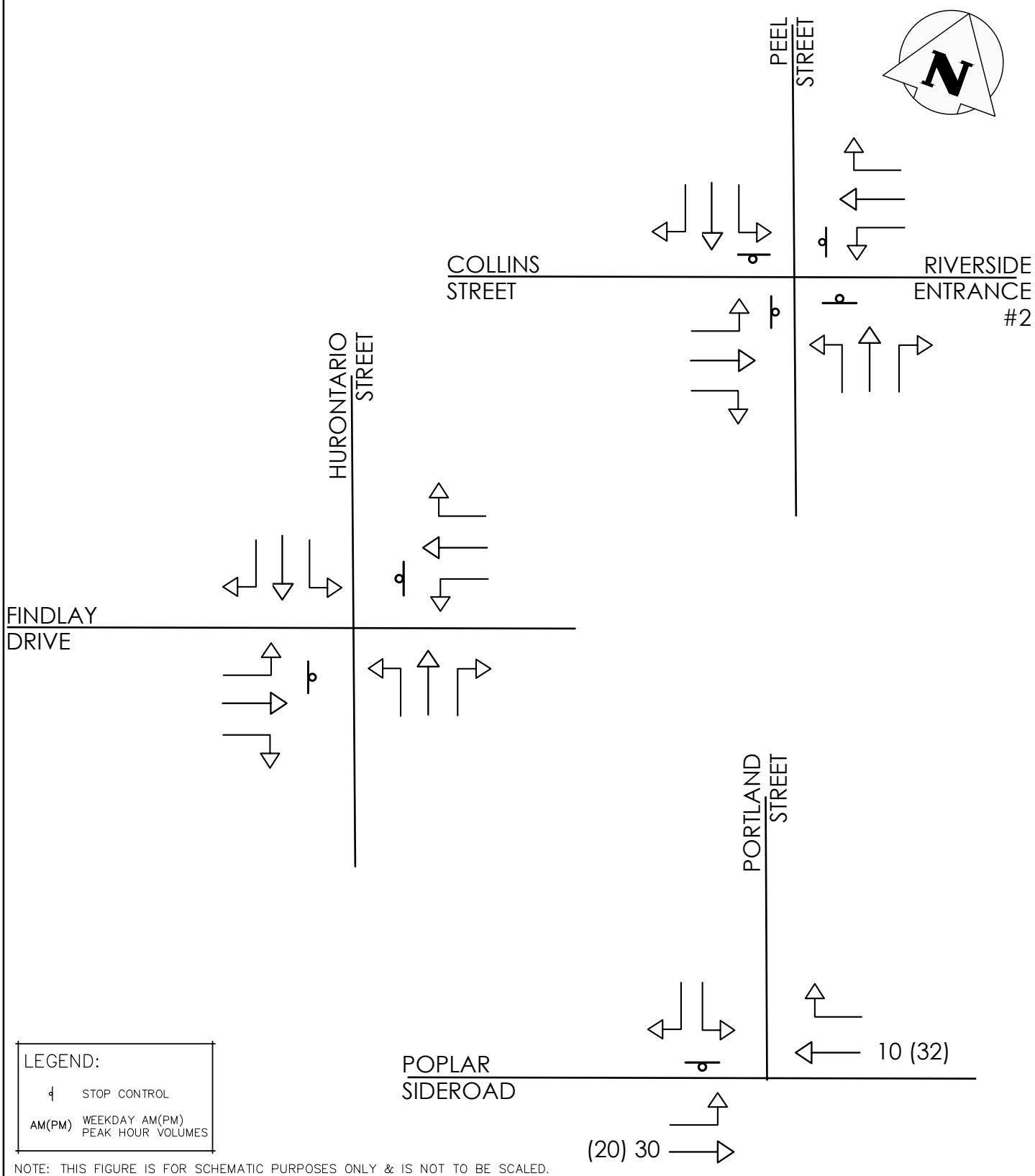
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 11



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Town of Collingwood, Simcoe County

Charleston Homes Trip Assignment

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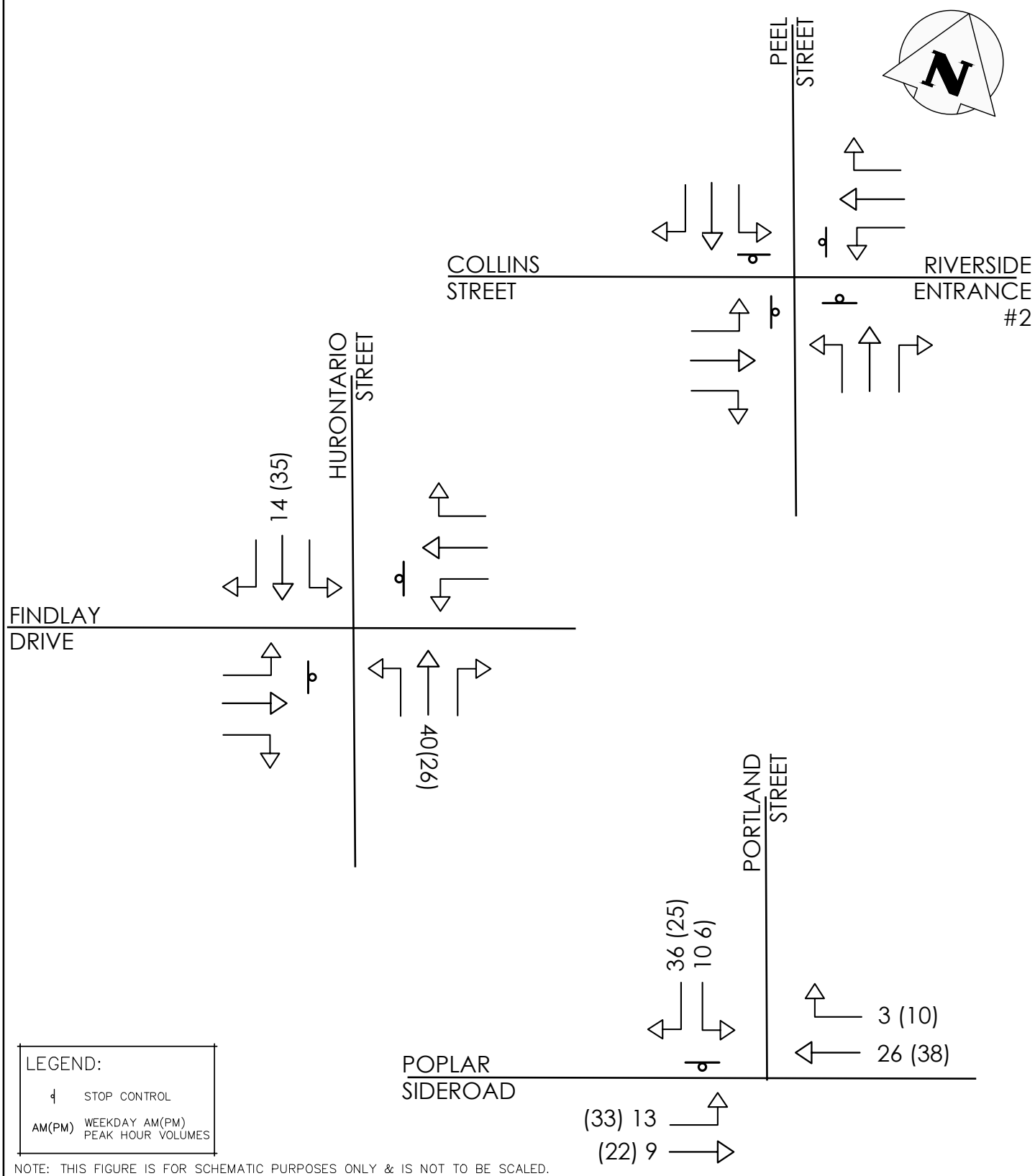
Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 12



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

IndigO2
Town of Collingwood, Simcoe County

Pretty River Phase #2 Trip Assignment

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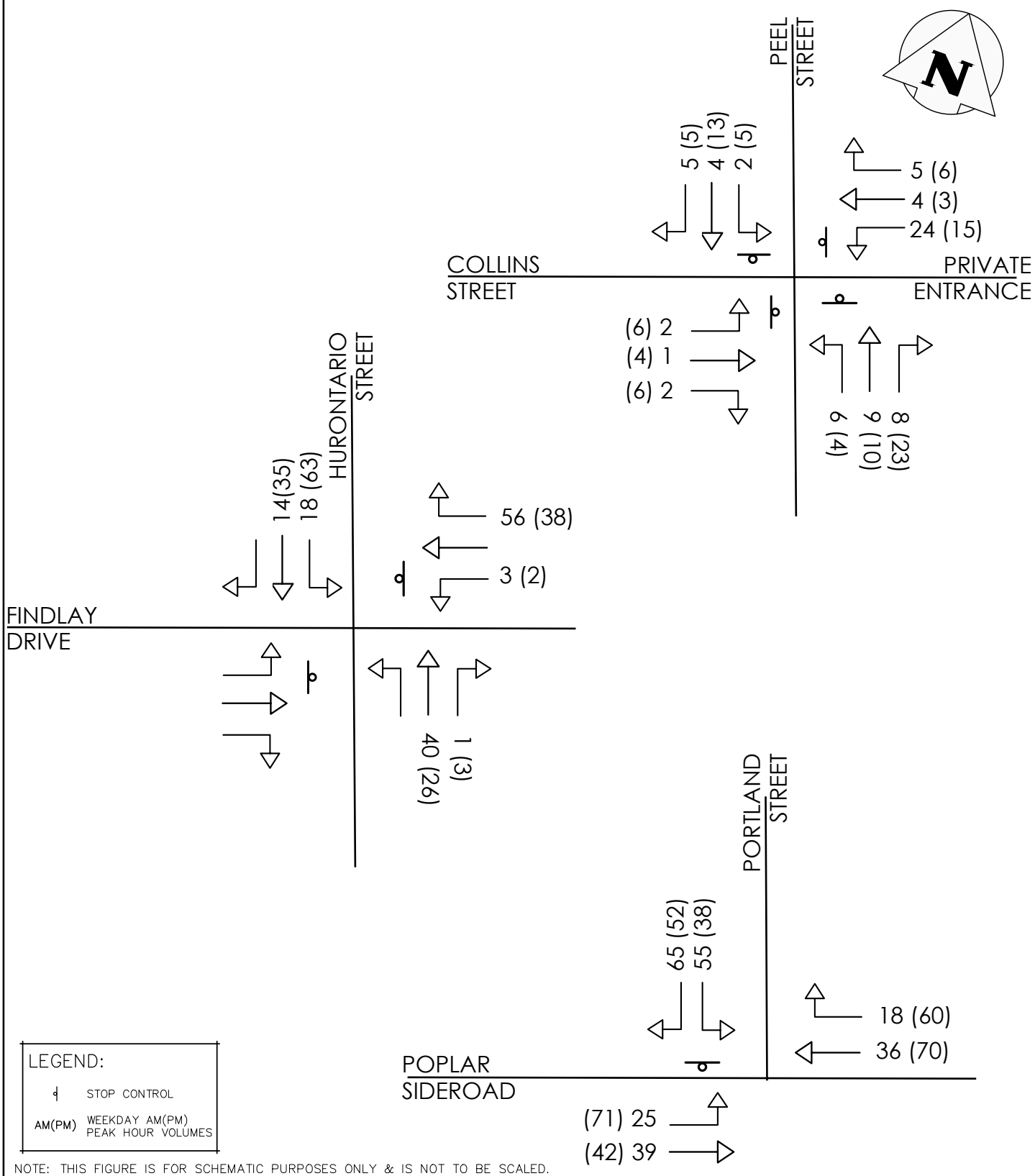
Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 13



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

IndigO2
Town of Collingwood, Simcoe County

Total Background Trip Assignment

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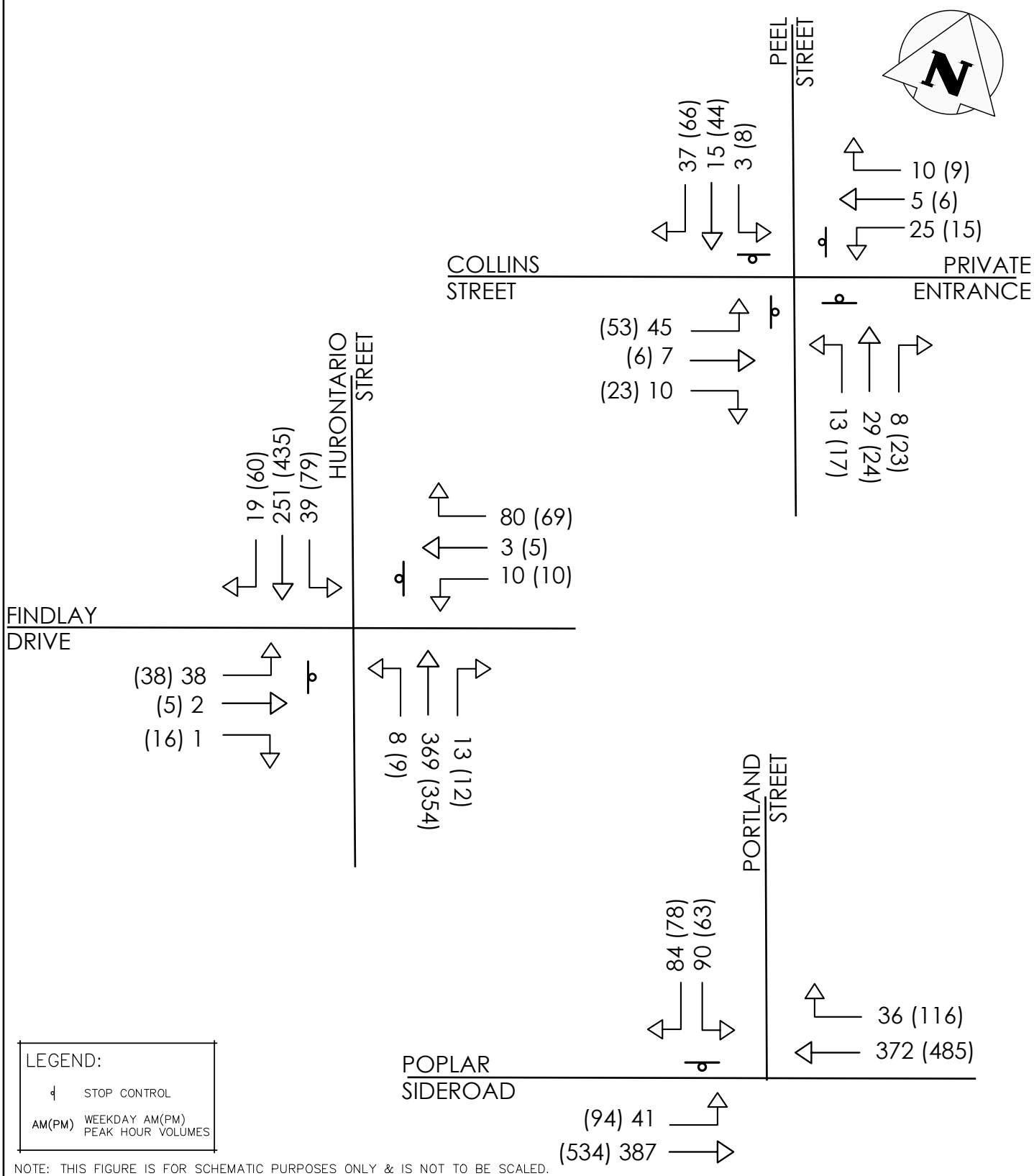
Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/29	M.F.	N.T.S	FIG. 14



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

IndigO2
Town of Collingwood, Simcoe County

2024 Future Background Traffic Volumes

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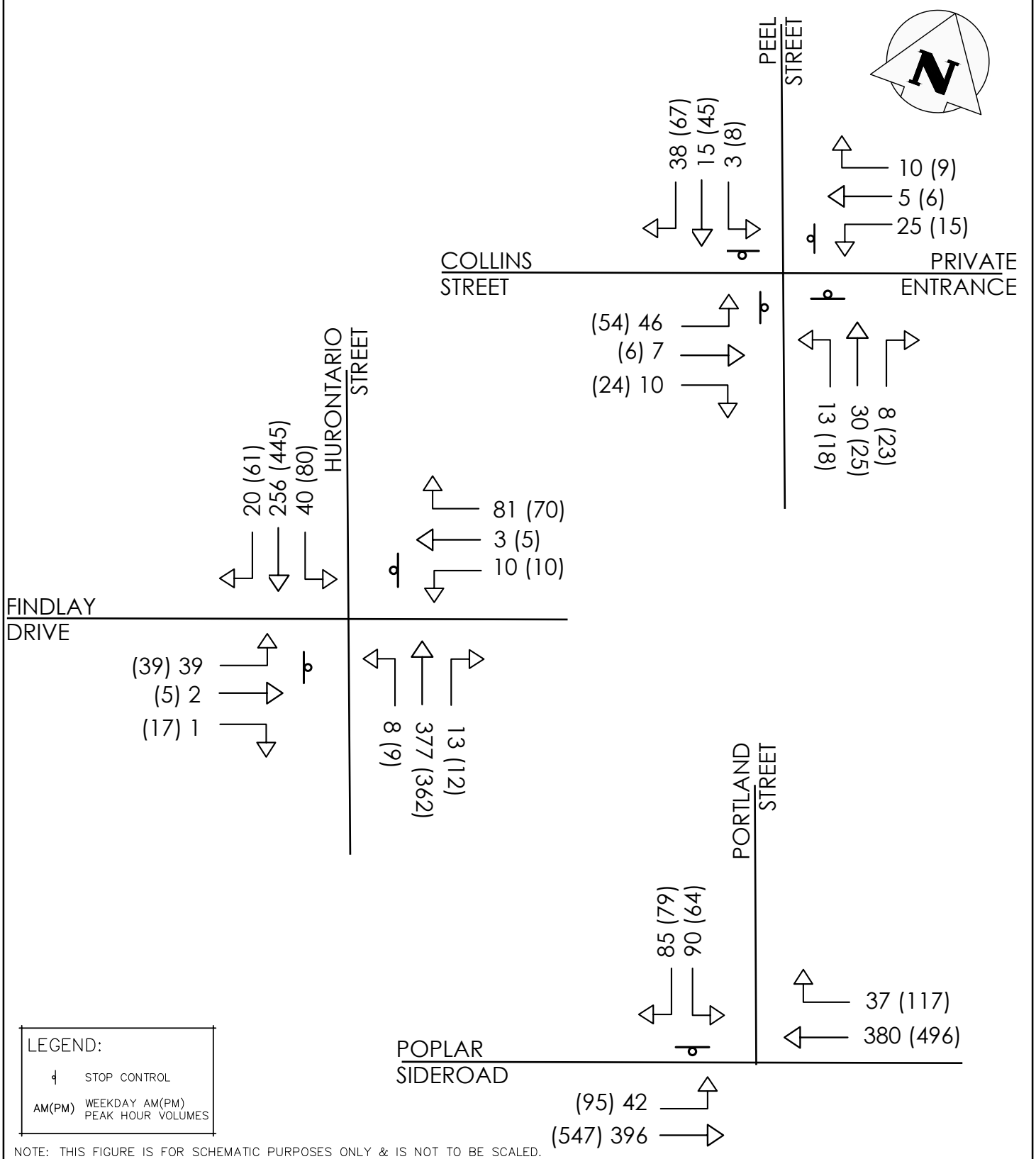
Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/30	M.F.	N.T.S	FIG. 15



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

IndigO2
Town of Collingwood, Simcoe County

2029 Future Background Traffic Volumes

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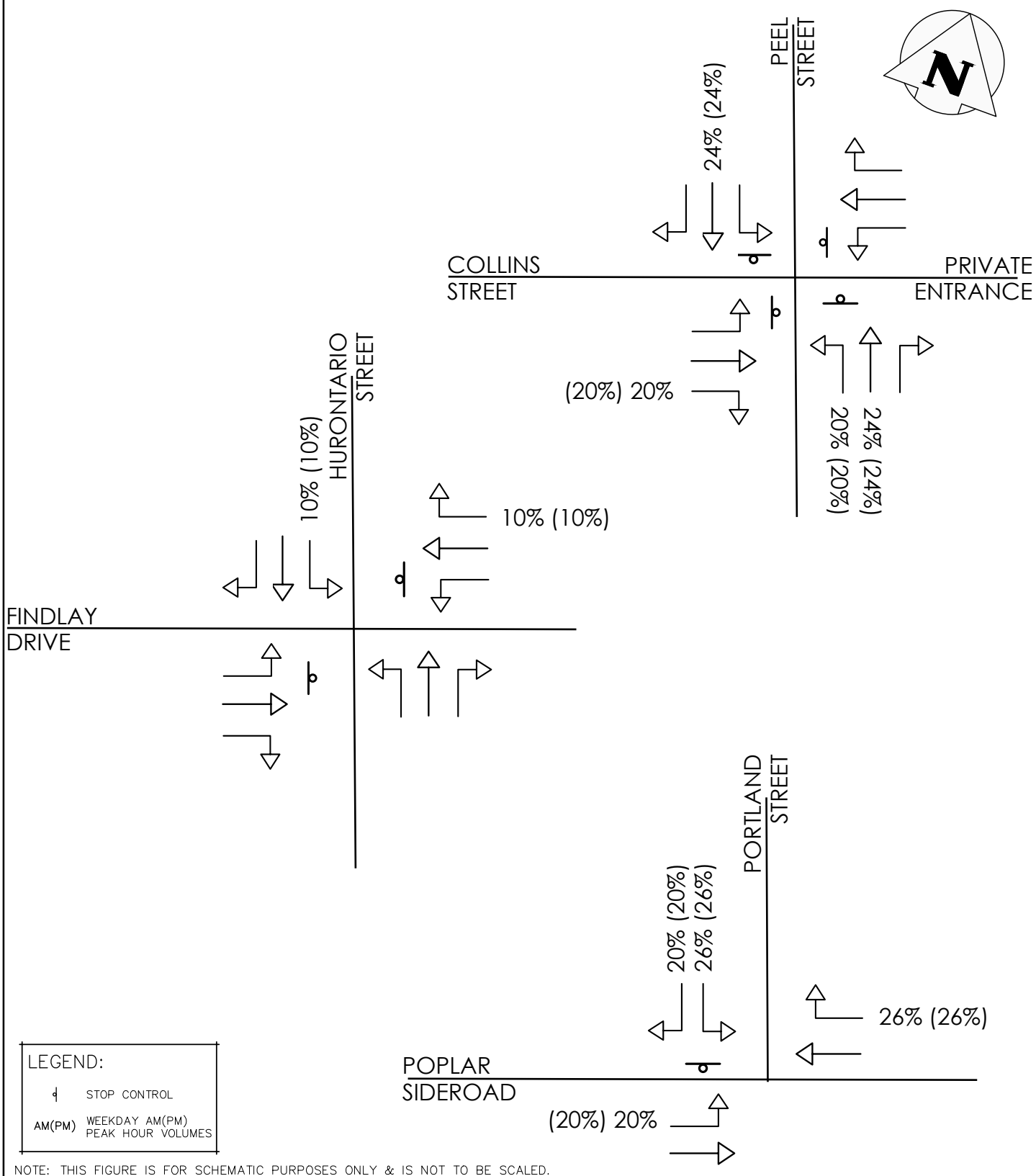
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/30	M.F.	N.T.S	FIG. 16



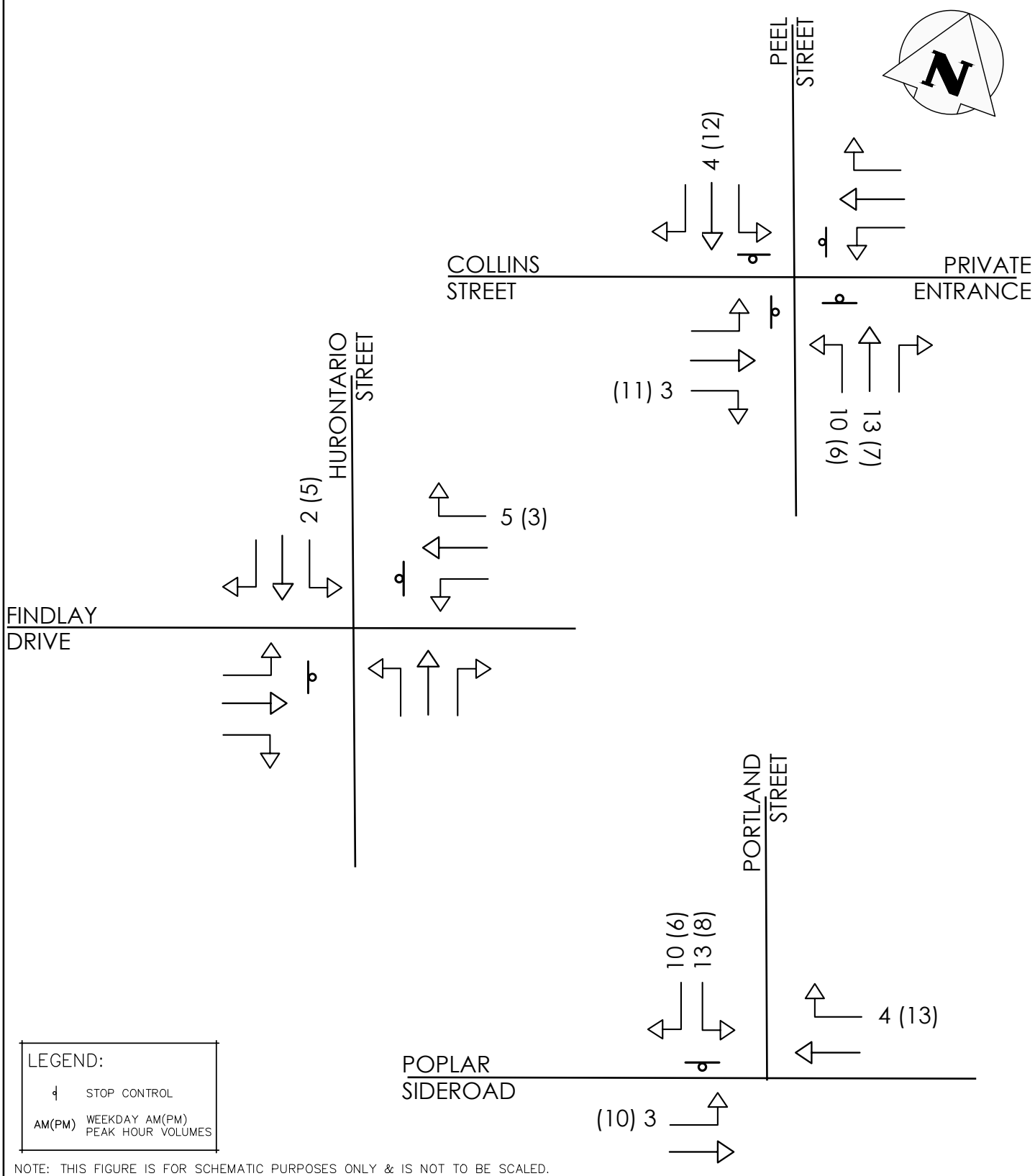
NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

IndigO2
Town of Collingwood, Simcoe County

Site Trip Distribution

CROZIER CONSULTING ENGINEERS
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/30	M.F.	N.T.S	FIG. 17



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

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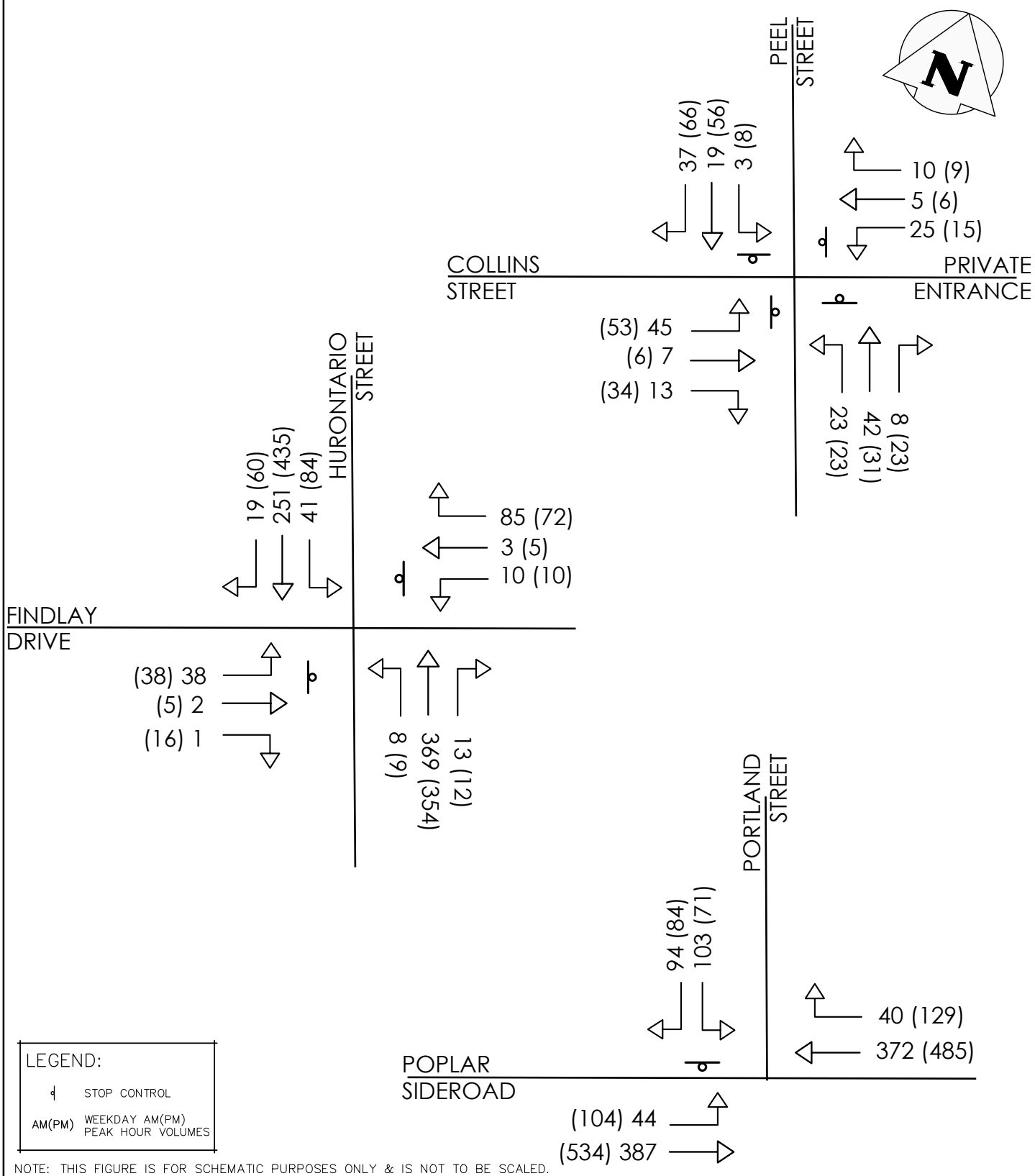
Site Trip Assignment

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/30	M.F.	N.T.S	FIG. 18



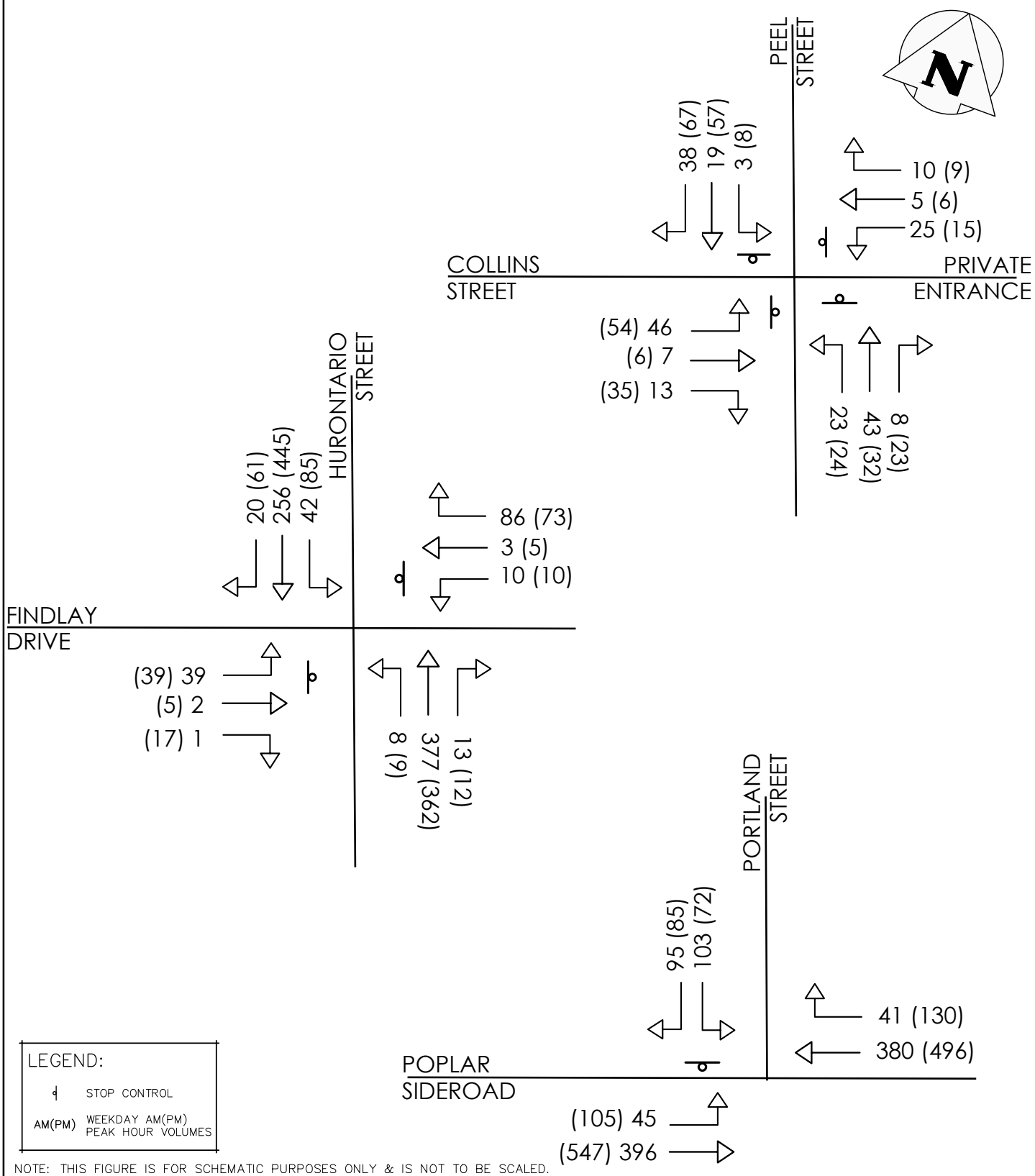
NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

IndigO2
Town of Collingwood, Simcoe County

2024 Future Total Traffic Volumes

CROZIER CONSULTING ENGINEERS
The HarbourEdge Building,
40 Huron Street, Suite 301,
Collingwood, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
www.cfcrozier.ca
info@cfcrozier.ca

Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/30	M.F.	N.T.S	FIG. 19



NOTE: THIS FIGURE IS FOR SCHEMATIC PURPOSES ONLY & IS NOT TO BE SCALED.

IndigO2
Town of Collingwood, Simcoe County

2029 Future Total Traffic Volumes

CROZIER CONSULTING ENGINEERS
THE HARBOUREDGE BUILDING,
40 HURON STREET, SUITE 301,
COLLINGWOOD, ON L9Y 4R3
705 446-3510 T
705 446-3520 F
WWW.CFCROZIER.CA
INFO@CFCROZIER.CA

Drawn	Design	Project No.	
E.H.	E.H.	0200-5833	
Date	Check	Scale	Dwg.
2021/09/30	M.F.	N.T.S	FIG. 20