TRANSPORTATION IMPACT STUDY

1235 3RD AVENUE EAST
CITY OF OWEN SOUND

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Rev. 0	May 2023	OPA and ZBA first submission to the City of Owen Sound and Grey County

1.0 Executive Summary

C.F. Crozier & Associates Inc. (Crozier) was retained by F.C. Entertainment & Hospitality Inc. to complete a Traffic Impact Study (TIS) for the proposed re-use of 1235 3rd Avenue East in the City of Owen Sound, Grey County.

The site consists of the historic courthouse, governor's residence, jail, and jail yard, which are envisioned to be re-purposed into event venues, dining & entertainment complex, with a shared workplace. The Site Plan prepared by Boldera Architects (April 20, 2023) proposes two full move accesses on 3rd Avenue East and another two accesses on 4th Avenue East. For the purposes of a conservative analysis, the modelling assumed one connection on 3rd Avenue East and one connection on 4th Avenue East, which shall be referred as Site Access 'A' and Site Access 'B', respectively.

The following intersections were assessed in the TIS:

- 3rd Avenue East/Grey County Road 15 and 12th Street East
- 3rd Avenue East/Grey County Road 15 and Highway 6
- 4th Avenue East and 12th Street East
- 4th Avenue East and Highway 6
- 2nd Avenue East and Highway 6
- 3rd Avenue East/Grey County Road 15 and 13th Street East

Intersection analysis of the 2023 existing traffic volumes indicates the following:

- The intersections of Highway 6 and 2nd Avenue East and 4th Avenue East are expected to operate with a LOS 'D' during the Friday p.m. peak period with a forecasted maximum control delay of 40.8 s (4th Avenue East and Highway 6) and maximum volume-to-capacity ratio of 0.95 (2nd Avenue East and Highway 6). The operations indicate these intersections have movements approaching capacity under existing conditions.
- The remaining intersections on the boundary road network operate with a LOS "B" or better in the Friday p.m. and Saturday peak hours.
    - The 95th percentile queues of all movements on the boundary road network can be accommodated within the existing storage lanes, with the exception of the southbound left-turn movement on 4th Avenue East at Highway 6 which can be accommodated within a portion of the taper..

Review of the City documents indicates that the capital works budget does not identify any improvements as part of the 5-year funding plan. Therefore, the suggested auxiliary turn-lanes in the Transportation Master Plan (TMP) were not accounted in the analysis of this report.

In the absence of the future timing settings prepared by the City of Owen Sound TMP, an optimization of splits and cycle length was applied to the signalized intersections. Intersection analysis of the 2028 future background traffic volumes indicates the following:

- The intersections Highway 6 and 2nd Avenue East and 4th Avenue East are expected to improve from LOS "D" to a LOS "C" during Friday p.m. and Saturday peak hours due to the signal timing optimization compared to 2023 existing conditions.
- The maximum control delay of 22.1 s and volume to capacity ratio of 0.92 (EBT) were forecasted for 2nd Avenue East and Highway 6 during the Friday p.m. peak hour. The operations indicate that the boundary road network is anticipated to operate acceptably.
- The 95th percentile queue of the southbound right-turn movement at 2nd Avenue East and

Highway 6 is forecasted to increase by 10.3 m compared to existing conditions and exceeds the available storage length by less than one vehicle during the Friday p.m. peak hour.

To estimate the trips generated by the event venues, a first principles approach was used based on the venue capacity. The remaining land uses were forecasted using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. The proposed re-use is expected to generate 345 and 356 external two-way trips in the Friday p.m. and Saturday peak hours, respectively.

As noted in future background conditions, in the absence of the future signal timing settings prepared as part of the City of Owen Sound TMP, an optimization of splits and cycle length was applied to the signalized corridor of Highway 6. Intersection analysis of the 2028 future total traffic volumes indicates the following:

- Re-optimization of signal timings improves the operations at the intersection of 2nd Avenue East and Highway 6 compared to the 2028 Future Background scenario.
- The southbound right movement at the intersection of 2nd Avenue East and Highway 6 is expected to continue to exceed the available storage, with the 95th percentile queue forecasted to increase by less than one vehicle.
- All other queueing is not expected to impede through movements.
- The proposed Site Accesses are expected to operate at a LOS "C" with a maximum control delay of 15.6 s and volume-to-capacity ratio of 0.16.
- The above metrics indicate that the study intersections are anticipated to continue operating acceptably under 2028 future total traffic volume conditions. Accordingly, the boundary road network can accommodate the site generated traffic.

There are no anticipated sight distance issues at the site accesses and vehicles can safely ingress and egress the site. The site accesses can be supported from a sight distance perspective.

Active transportation facilities including sidewalks, multi-use trails and transit stops are located in close proximity to the site. The sidewalks proposed throughout the site should be designed to meet the minimum requirements detailed in the Accessibility for Ontarians with Disabilities Act (AODA). This includes a minimum sidewalk width of 1.5 metres, and maximum running slope of 5%. Geometrics, pavement markings and signage will be confirmed through detailed design.

The analysis contained within this report was completed based on the Site Plan dated April 20, 2023. Any minor changes to the Site Plan will not affect the conclusions contained within this report.

It is concluded that the traffic generated by the proposed re-use can be supported by the boundary road network, and the Site Plan can be supported from a traffic operations perspective.

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2.0 Introduction

2.1 Background

C.F. Crozier & Associates Inc. (Crozier) was retained by F.C. Entertainment & Hospitality Inc. to complete a Transportation Impact Study (TIS) for the proposed re-use of 1235 3rd Avenue East (the Site) in the City of Owen Sound, Grey County.

2.2 Proposal

The historic courthouse, governor's residence, jail, and jail yard are envisioned to be re-purposed into event venues, dining & entertainment complex, with a shared workplace. A Site Plan prepared by Boldera Architects (April 20, 2023) proposes two full move accesses on 3rd Avenue East and another two access on 4th Avenue East. For the purposes of a conservative analysis, the modelling assumed one connection on 3rd Avenue East and 4th Avenue East, which shall be referred as Site Access 'A' and Site Access 'B', respectively.

Figure 1 illustrates the Site Plan.

2.3 Purpose and Scope

The purpose of a Transportation Impact Study is to assess the impacts of the proposed re-use on the boundary road network and to recommend warranted mitigation measures.

The study reviewed the following aspects of the re-use from a transportation engineering perspective:

- Existing, future background, and future total traffic operations at the study intersections.
- Forecasted trip generation.
- Sight distance at the proposed site accesses
- Transportation demand management opportunities

The Transportation Impact Study was conducted in accordance with the Terms of Reference confirmed with City of Owen Sound (the City) and Grey County (the County). **Appendix A** contains correspondence with City and County staff.

3.0 Existing Conditions

3.1 Existing Lands

The proposed Site covers an area of approximately 0.65 ha (6,434.26 m^2) and is currently zoned as institutional lands per the City's Zoning Map. It currently consists of the historic courthouse, governor's residence, jail, and jail yard.

Due to the skewed nature of the roadway, the directional orientation of the boundary road network is ambiguous. Accordingly, to provide clarity throughout the report 2nd Avenue East, 3rd Avenue East (Grey County Road 15) and 4th Avenue East are assumed to have a north-south orientation. Highway 6, 12th Street East, and 13th Street East are assumed to have an east-west orientation.

The site is bounded by residential properties to the north, 4th Avenue East to the east, 3rd Avenue East to the west, and a fire station to the south. The location of the site is reflected on the Site Location Plan included as **Figure 2**.

3.2 Key Intersections

The following key intersections within the study area have been analysed under existing, future background and future total traffic volume conditions. **Figure 3** illustrates the existing traffic controls and lane configurations at each intersection.

- 3rd Avenue East/Grey County Road 15 and 12th Street East
- 3rd Avenue East/Grey County Road 15 and Highway 6
- 4th Avenue East and 12th Street East
- 4th Avenue East and Highway 6
- 2nd Avenue East and Highway 6
- 3rd Avenue East/Grey County Road 15 and 13th Street East

3.3 Boundary Road Network

The boundary road network is described in **Table 1.** The information included below was obtained from the City of Owen Sound's Official Plan "Schedule C – Transportation", included in **Appendix B**.

Table 1: Boundary Road Network

Roadway	2nd Avenue East	3rd Avenue East/ Grey County Road 15	4th Avenue East	10th Street East/Highway 6	12th Street East	13th Street East
Direction	North-South	North-South	North-South	East-West	East-West	East-West
Classification	Local Road	Minor Arterial Road	Local	Provincial Highway & Connecting Link	Local	Local
Jurisdiction	City of Owen Sound	Grey County	City of Owen Sound	City of Owen Sound	City of Owen Sound	City of Owen Sound
Posted Speed Limit	40 km/h	50 km/h (Assumed)	50 km/h (Assumed)	50 km/h	50 km/h (Assumed)	50 km/h (Assumed)
Number of Lanes Per Direction	1	1	1	2	1	1

3.4 Traffic Data

The Friday p.m. and Saturday mid-day peak hours were assessed to coincide with the anticipated operational hours of the uses on the site. Turning movement counts were conducted by Spectrum Traffic Data Inc. (Spectrum) at the study intersections on Friday, December 9, 2022, from 3:00 p.m. – 7:00 p.m. and on Saturday, December 10, 2022, from 12:00 p.m. – 8:00 p.m. The turning movement count data is included in **Appendix C**.

Volumes on the boundary road network were found to have varying peak hours. As such, the volumes were balanced along the through movements of the boundary road network. **Figure 4** illustrates the 2022 existing traffic volumes. Peak hour factors (PHF) associated with the weekday p.m. and Saturday peak hours were calculated for each intersection within the study area based on the 2022 existing traffic volumes. **Table 2** outlines the PHFs as calculated and applied to the model for their respective intersections.

Table 2: Peak Hour Factors

Intersection	Peak Hour		Factor
Grey County Road 15 and 12th Street East	Friday PM	3:00– 4:00 p.m.	0.97
	Saturday	2:30 – 3:30 p.m.	0.95
Grey County Road 15 and Highway 6	Friday PM	4:15 – 5:15 p.m.	0.96
	Saturday	12:45 – 1:45 p.m.	0.99
4th Avenue East and 12th Street East	Friday PM	3:00 – 4:00 p.m.	0.82
	Saturday	1:45 – 2:45 p.m.	0.89
4th Avenue East and Highway 6	Friday PM	3:30 – 4:30 p.m.	0.97
	Saturday	12:45 – 1:45 p.m.	0.98
2nd Avenue East and Highway 6	Friday PM	4:15– 5:15 p.m.	0.96
	Saturday	12:00 – 1:00 p.m.	0.93
3rd Avenue East/ Grey County Road 15 and 13th Street East	Friday PM	3:00 – 4:00 p.m.	0.95
	Saturday	2:30 – 3:30 p.m.	0.94

For the intersections of the future site accesses, the Synchro Modelling Software default PHF of 0.92 was used.

3.5 Intersection Operations

The existing operations of the study intersections were analyzed based on the traffic volumes illustrated in **Figure 4**. **Table 3** outlines the 2022 traffic levels of service under existing conditions and geometric configurations. Level of Service (LOS) definitions are included in **Appendix D**. Detailed Capacity Analyses Worksheets are included in **Appendix E**.

Table 3: 2023 Existing Levels of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay[1]	Maximum v/c Ratio	95th %ile Queue> Storage
2nd Avenue East and Highway 6	Signal	P.M.	D	35.6 s	**0.93 (EBT)**	None
		SAT	C	26.7 s	**0.95 (EBT)**	None
3rd Avenue East and Highway 6	Signal	P.M.	B	13.5 s	**0.86 (EBT)**	None
		SAT	A	9.7 s	0.52 (EBT)	None
4th Avenue East and Highway 6	Signal	P.M.	D	40.8 s	**0.93 (WBT)**	None
		SAT	B	15.0 s	0.40 (EBT)	7.4 m > 5.0 m (SBL)
3rd Avenue East and 12th Street East	Stop	P.M.	B	12.7 s (EB)	0.08 (EB)	N/A
		SAT	B	12.0 s (EB)	0.08 (EB)	N/A
4th Avenue East and 12th Street East	Stop	P.M.	B	10.0 s (WB)	0.02 (WB)	N/A
		SAT	A	9.5 s (WB)	0.02 (WB)	N/A
3rd Avenue East and 13th Street East	Stop	P.M.	B	14.1 s (EB)	0.11 (EB)	N/A
		SAT	B	12.3 s (EB)	0.08 (EB)	N/A

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

As presented in **Table 3**, under existing traffic volume conditions, the Highway 6 intersections of 2nd Avenue East and 4th Avenue East operate with a LOS "D" during the Friday p.m. peak hour. The intersection of 4th Avenue East and Highway 6 operates with a maximum control delay of 40.8 s during p.m. peak hour. The intersection of 2nd Avenue East and Highway 6 operates with a LOS "C" and maximum volume-to-capacity ratio of 0.95 for the eastbound-through movement during Saturday peak hour. These operations indicate the two intersections have movements approaching capacity under existing conditions.

The remaining intersections on the boundary road network operate with a LOS "B" or better in the Friday p.m. and Saturday peak hours which indicate that there is capacity for an increase in traffic volumes.

The 95th percentile queues of all movements on the boundary road network can be accommodated within the existing storage lanes, with the exception of the southbound left-turn movement on 4th Avenue East at Highway 6 which can be accommodated within a portion of the taper.

4.0 Future Background Conditions

4.1 Horizon Years & Growth Rate

The horizon year 2028 was analyzed representing five years from the study date. This assumption was confirmed through the Terms of Reference. Grey County staff provided documentation relating to the County's Official Plan Amendment. The County undertook a Growth Management Study to forecast municipal growth to the year 2046. The findings of the study were integrated into OPA-11.

The forecasted annual population growth in the City of Owen Sound from 2021 to 2031 was reviewed to determine growth to the 2028 horizon. A growth rate of approximately 0.5% per year was determined. To be conservative, a growth rate of 1% per year has been applied to the boundary road network.

4.2 Future Roadway Improvements

The City of Owen Sound Transportation Master Plan (TMP) identified several roadway improvements based on traffic growth to the year 2026. It is noted that the TMP suggests two different improvements based on whether the existing increasing traffic pattern remains along 10th Street/Highway 6 or whether traffic has been diverted to better utilize reserve capacity on parallel streets such as 8th Street and 9th Street.

For the purposes of a conservative analysis, this report assumes that the existing traffic patterns remain along 10th Street/Highway 6. **Table 4** details the City of Owen Sound roadway improvements suggested to be completed by 2026 as per the City's TMP.

Table 4: City of Owen Sound TMP 2026 Roadway Improvements

Location	Road Improvement	Constrained by Available Space (Yes/No)
2nd Avenue East and Highway 6	Add a 90 m eastbound left turn lane and 15 m westbound left turn lane	Yes
3rd Avenue East and Highway 6	Add a 20 m eastbound left turn lane and 20 m westbound left turn lane	Yes

Further review indicates that the capital works budget does not identify these improvements as part of the 5-year funding plan. Therefore, the suggested auxiliary turn-lanes were not accounted for in the analysis of this report.

Section 4.7.1 of the City of Owen Sound TMP indicates that updated signal timings with a cycle length of 80 s were created for all peak periods to improve the operations of the 10th Street/Highway 6 corridor for future conditions. The updated signal timing plans were attached as Appendix F4 of the TMP but was not disclosed in the public document. In the absence of this signal timings in the TMP, an optimization of the splits and the cycle length was applied to the Highway 6 corridor.

The Grey County TMP also recommends the transfer of Grey County Road 15 to the City of Owen Sound as it was identified that it does not contribute to the overall connectivity of the County. **Appendix F** contains excerpts from the City of Owen Sound TMP.

4.3 Intersection Operations

The operations of the study intersections were analyzed based on the 2028 future background traffic volumes illustrated in **Figures 5** with the noted roadway improvements. The signal timings for 3rd Avenue East and Highway 6, 4th Avenue East and Highway 6 and 2nd Avenue East and Highway 6 were provided by City of Owen Sound staff for the existing conditions. As noted in Section 4.2, the signal timing splits, and cycle lengths were optimized to assess future background and future total conditions.

Table 5 outlines the 2028 future background traffic level of service. Level of Service definitions have been included in **Appendix D**. Detailed Capacity Analyses Worksheets are included in **Appendix E**.

Table 5: 2028 Future Background Levels of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay[1]	Maximum v/c Ratio	95th %ile Queue> Storage
2nd Avenue East and Highway 6	Signal	P.M.	C	22.1 s	**0.92 (EBT)**	30.9 m > 25.0 m (SBR)
		SAT	B	18.5 s	**0.89 (EBT)**	None
3rd Avenue East and Highway 6	Signal	P.M.	B	11.2 s	0.84 (EBT)	None
		SAT	B	13.2 s	0.77 (EBT)	None
4th Avenue East and Highway 6	Signal	P.M.	B	18.4 s	0.67 (WBT)	None
		SAT	C	21.8 s	0.72 (EBT/WBT)	None
3rd Avenue East and 12th Street East	Stop	P.M.	B	13.4 s (EB)	0.10 (EB)	N/A
		SAT	B	12.6 s (EB)	0.09 (EB)	N/A
4th Avenue East and 12th Street East	Stop	P.M.	B	10.2 s (WB)	0.02 (WB)	N/A
		SAT	A	9.6 s (WB)	0.02 (WB)	N/A
3rd Avenue East and 13th Street East	Stop	P.M.	C	15.1 s (EB)	0.13 (EB)	N/A
		SAT	B	12.9 s (EB)	0.09 (EB)	N/A

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

As presented in **Table 5**, under 2028 future background volume conditions, the study intersections are expected to improve to a LOS "C" or better in the Friday p.m. and Saturday peak hours due to the signal timing optimization compared to 2023 existing conditions. The maximum control delay of 22.1 s and volume-to-capacity ratio of 0.92 (EBT) are both forecasted for 2nd Avenue East and Highway 6 during the Friday p.m. peak hour. These operations are common during peak times in busy urban areas. These operations indicate that the boundary road network is operating acceptably.

The 95th percentile queue of the southbound right-turn movement at 2nd Avenue East and Highway 6 is forecasted to increase by 10.3 m compared to existing conditions and is anticipated to exceed the available storage length by approximately one vehicle during the Friday p.m. peak hour. It is noted that the effective storage of the southbound right-turn movement depends on whether vehicles are parked along the west side of 2nd Avenue. In instances where there is a vehicle parked in the first space, it is expected that vehicles queued beyond the storage would join the through lane, which is not expected to impact the delay of the southbound through movement, which currently operates at a LOS C with 20 seconds of delay and a volume-to-capacity ratio of 0.21.

5.0 Site Generated Traffic

5.1 Trip Generation

The re-use of the site will result in additional vehicles on the boundary road network that previously did not exist. The trip generation was forecasted using the fitted curve equations provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, where applicable. Per the Site Plan, the re-use is proposed to consist of event venues, a speakeasy, a restaurant, and office space. As previously stated, the Friday p.m. and Saturday peak hours were assessed given the nature of the proposed land uses.

The event venue land use does not conform to a specific Land Use Category (LUC) described in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition. Traffic data collected at event venues in the GTA with larger gross floor areas (GFA) then the proposed event venues were reviewed to assess anticipated weekday p.m. and Saturday peak hour trips. A first principles approach was also employed based on the planned venue capacity. An average vehicle occupancy rate of two-persons per vehicle was applied to the maximum venue occupancies of 242 in the exterior pavilion and 116 in the courtroom.

The first principles approach resulted in a higher trip generation. It is expected that event guests will arrive to and depart from the site outside of the typical roadway peak hours. Nevertheless, the first principles resulting peak trip generation of the event venue component was applied to the peak hours of the roadway to provide a conservative assessment. It was assumed that 25% of the inbound trips would also be outbound to account for drop-offs at the site. During the event it is assumed that departures would occur sporadically throughout the evening. **Table 6** summarizes the two different trip generation methodologies. **Appendix G** contains the proxy sites traffic data and peak hour calculation, and **Appendix H** contains the maximum capacity seating plans for the event venues.

Table 6: Proxy Sites vs First Principles Approach

Proxy Sites	Weekday P.M. Peak	Saturday Peak	First Principals Approach based on capacity (Max. occupancy/2)	179
Chateau Le Jardin Convention Centre	17 trips (March 2018)	13 trips (May 2016)		
Mississauga Convention Centre	12 trips (August 2014)	-		

In addition, LUC 975 "Drinking Place", LUC 931 "Fine Dining Restaurant", and LUC 712 "Small Office Building" were used to forecast trips generated by the associated uses. It was assumed that the office space would not generate any trips in the Saturday peak hour and that the speakeasy would have the same trips in the Saturday peak as the weekday p.m. peak hour.

The forecasted trip generation of the site is summarized in **Table 7** and ITE excerpts have been included as **Appendix I**.

Table 7: Site Trip Generation

Land Use	Peak Hour	Number of Trips		
		Inbound	Outbound	Total
Event Venues (358 maximum capacity)	Friday P.M.	179	45	224
	Saturday	179	45	224
LUC 975 "Drinking Place" (5,823 ft²)	Friday P.M.	44	22	66
	Saturday	44	22	66
LUC 931 "Fine Dining Restaurant" (6,178 ft²)	Friday P.M.	32	16	48
	Saturday	39	27	66
LUC 712 "Small Office Building" (3,423 ft²)	Friday P.M.	3	4	7
	Saturday	0	0	0
Total	**Friday P.M.**	**258**	**87**	**345**
	Saturday	**262**	**94**	**356**

5.2 Trip Distribution and Assignment

The trips generated by the site were distributed to the boundary road network based on the anticipated origin of visitors. The office space is expected to generate trips from local residential areas. Trips to the commercial destination uses would also originate from residential areas, but it is anticipated that more visitors external from Owen Sound would be expected, compared to the office use. However, similar distributions are expected on the boundary road network within the Study Area.

Limited parking is available at the rear of the building via 4th Avenue East while drop-off and pick-up at the front doors of the building are accessible via 3rd Avenue East. If was forecasted that 30% of visitors will access the parking on 4th Avenue, though it is acknowledged that some may exist and need to park elsewhere during the peak hour. The remaining 70% of visitors were assigned to 3rd Avenue East and are expected to disburse to other parking locations during the peak hour.

The following distribution was applied for both the Friday p.m. and the Saturday peak hours:

- 10% to/from the north
  - 7% via 3rd Avenue East
  - 3% via 4th Avenue East
- 20% to/from the south
  - 14% via 3rd Avenue East
  - 6% via 4th Avenue East
- 35% to/from the west on Highway 6
  - 25% via 3rd Avenue East
  - 10% via 4th Avenue East
- 35% to/from the east on Highway 6
  - 24% via 3rd Avenue East
  - 11% via 4th Avenue East

The combined trip distribution is illustrated in **Figure 6**. The event venue trip assignment is illustrated **Figure 7**. The restaurant and speakeasy trip assignments are illustrated in **Figure 8** and **Figure 9**, respectively. The office trip assign is illustrated in **Figure 10.**

6.0 Total Future Conditions

6.0 Basis of Assessment

The traffic impacts arising from the proposed re-use were assessed based on the site generated traffic being superimposed on the future background traffic volumes. The resulting 2028 total traffic volumes for the Friday p.m. and Saturday peak hours are illustrated in **Figure 11**.

6.1 Intersection Operations

The operations of the study intersections were analyzed based on the 2028 total traffic volumes illustrated in **Figure 11**.

As discussed in section 4.2, the City of Owen Sound is anticipated to update the signal timing setting for several intersections on the 10th Street/Highway 6 corridor which will improve operations. The updated signal timing settings were attached as part of Appendix F4 but were not disclosed in the public document. In the absence of the TMP signal timings, an optimization of the entire corridor was applied based on optimized splits and cycle lengths, based on the future total traffic volumes.

Table 8 outlines the respective horizon year future total traffic levels of service. Level of Service definitions have been included in **Appendix D** and detailed capacity analyses worksheets are included in **Appendix E.**

Table 8: 2028 Future Total Levels of Service

Intersection	Control	Peak Hour	Level of Service	Control Delay[1]	Maximum v/c Ratio	95th %ile Queue> Storage
2nd Avenue East and Highway 6	Signal	P.M.	C	21.0 s	**0.86 (EBT)**	36.4 m > 25.0 m (SBR)
		SAT	B	17.2 s	**0.86 (EBT)**	None
3rd Avenue East and Highway 6	Signal	P.M.	C	21.9 s	0.85 (EBT)	17.9m > 15.0 (NBL)
		SAT	B	11.0 s	0.82 (WBT)	None
4th Avenue East and Highway 6	Signal	P.M.	C	25.9 s	0.80 (WBT)	8.6 m > 5.0 m (SBL)
		SAT	C	22.4 s	0.78 (EBT)	8.9 m > 5.0 m (SBL)
3rd Avenue East and 12th Street East	Stop	P.M.	C	16.8 s (EB)	0.13 (EB)	N/A
		SAT	C	16.1 s (EB)	0.12 (EB)	N/A
4th Avenue East and 12th Street East	Stop	P.M.	B	11.0 s (WB)	0.03 (EB)	N/A
		SAT	B	10.3 s (WB)	0.03 (EB)	N/A
3rd Avenue East and 13th Street East	Stop	P.M.	C	15.6 s (EB)	0.13 (EB)	N/A
		SAT	B	13.2 s (EB)	0.09 (EB)	N/A
3rd Avenue East and Site Access 'A'	Stop	P.M.	C	15.6 s (WB)	0.16 (WB)	N/A
		SAT	B	14.0 s (WB)	0.15 (WB)	N/A
4th Avenue East and Site Access 'B'	Stop	P.M.	B	11.0 s (EB)	0.04 (EB)	N/A
		SAT	A	8.9 s (EB)	0.03 (EB)	N/A

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

The study intersections are anticipated to continue operating with a LOS "C" or better. Re-optimization of signal timings improves the operations at the intersection of 2nd Avenue East and Highway 6 compared to the 2028 Future Background scenario. The intersection is expected to remain operating with a v/c ratio greater than 0.85, however, as stated under future background conditions, these operations are common in busy urban areas. Additionally, the trip assignment for the re-use is considered a conservative approach assuming maximum capacity for event spaces arriving all within the peak hour.

As noted in the future background conditions, some movements are anticipated to operate with 95th percentile queues exceeding the available storage. The southbound right movement at the intersection of 2nd Avenue East and Highway 6 is expected to continue to exceed the available storage, with the 95th percentile queue forecasted to increase by less than one vehicle. All other 95th percentile queues noted are forecasted to exceed the available storage by less than one vehicle length and are therefore not expected to impede through movements.

The proposed site accesses are expected to operate at a LOS "C" or better with a maximum control delay of 15.6 s and volume-to-capacity ratio of 0.16.

The study intersections are anticipated to continue operating acceptably under 2028 future total traffic volume conditions. Accordingly, the boundary road network can accommodate the site generated traffic.

7.0 Sight Distance Assessment

A sight distance assessment was completed to demonstrate that the proposed accesses provide sufficient stopping and intersection sight distances on 4th Avenue East since the site access on 3rd Avenue East is already existing. The minimum stopping sight distance (SSD) and intersection sight distance (ISD) requirements were obtained from the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR). As noted previously 4th Avenue East has a speed limit of 50 km/h thus a design speed of 60 km/h was used.

Section 2.5 of the TAC GDGCR provides stopping sight distances for various design speeds on level roadways. For a design speed of 60 km/h, a stopping sight distance of 85 metres is required. Section 9.9 of the TAC GDGCR provides intersection sight distance for different intersection control types. For these accesses, the applicable cases include "Case B1 – Left turns from the minor road", and "Case B2 – Right turns from the minor road". Case B1 has a minimum sight distance requirement of 130 metres for 60 km/h design speed road. Case B2 has a minimum sight distance requirement of 110 metres. **Appendix J** contains relevant excerpts from TAC GDGCR.

Based on a desktop review, it was determined that the available sight distance exceeds the minimum sight distance requirements of 85 m for SSD, and 130 m and 110 m for ISD to the right and left, respectively. To the north, there 250 m available sight distance past the intersection at 13th Street East. To the south, there is 300 m+ sight distance is available all the way to Highway 6/10TH Street.

Accordingly, the proposed re-use can be supported from a sight distance perspective.

8.0 Transportation Study

8.1 Pedestrian Facilities

Current pedestrian facilities have been summarized in **Table 9.**

Table 9: Location and Types of Pedestrian Facilities

Roadway	Facility Type	Width	Side of Roadway	Surface Type
2nd Avenue East	Sidewalk	3.7 – 1.5 m	Both	Concrete
3rd Avenue East/ Grey County Road 15	Sidewalk	3.7 – 1.5 m	Both	Concrete
4th Avenue East	Sidewalk	1.5 m	Both	Concrete
10th Street East/Highway 6	Sidewalk	3.7 m	Both	Concrete
12th Street East	Sidewalk	1.5 m	Both	Concrete
13th Avenue East	Sidewalk	1.5 m	Both	Concrete

8.2 Municipal Transit Services

Owen Sound Transit operates four bus routes at 30 min headways between 6:30 a.m. to 6:00 p.m. Monday to Friday, and 9 a.m. to 4 p.m. on Saturdays. The Site is located approximately 500 m from the Owen Sound Transit Terminal where all local bus routes convene, these routes cover the entire City.

The bus stop for the East Bayshore and Core bus routes are located near the site. The East Bayshore has bus stops at 3rd Avenue East at 12th Street East and 13th Street East. The Core route has bus stops

at 10th Avenue East/Highway 6 and 3rd Avenue East and 4th Avenue East. Owen Sound Transit route maps have been attached as **Appendix B**.

8.3 Regional Transit Services

All Regional Transit services depart from the Owen Sound Transit terminal, located 6 minutes walking from the Site. Grey Transit Route 1 runs from Owen Sound south to Dundalk with Route 2 continuing from Dundalk to Orangeville. Grey Transit Routes 1 and 2 run twice in the morning and twice in the afternoon with slight adjustments to timings on the weekends. Grey Transit Routes 3 and 4 connect Owen Sound to the Town of the Blue Mountains and runs Wednesday to Sunday departing three times in the morning and three times in the afternoon. Route 5 connects Owen Sound to Wiarton and Sauble Beach; it runs Friday to Monday departing three times throughout the day.

It is noted that we would not expect patrons of the restaurants and event venues to rely on the regional transit services, however employees may choose to use the regional transit network to commute.

Grey Transit Route maps and schedules have been included as **Appendix K.**

8.4 Cycling Facilities, Routes, and Trails

Per Schedule D of the City's Official Plan,1st Avenue East and 4th Avenue East are identified as bicycle routes with shared on-road facilities. In addition to the bicycle routes, there is a recreational trail to the west of 1st Avenue East that runs north-south along the water.

Active Transportation will be supported through the improvement of the 2nd Avenue East corridor from 12th Street East to 18th Street East to a multiple use urban cross-section in accordance with the "Living Street" section of the City of Owen Sound Official Plan. In addition, cycling lanes are to be implemented on 2nd Avenue East and 3rd Avenue East to increase the cycling connectivity for the North-South directions as per the City of Owen Sound Official Plan. These details will be confirmed through detailed design and discussions with City staff. **Appendix B** contains the applicable excerpts of the City of Owen Sound Official Plan. **Appendix L** includes the Owen Sound Trails Brochure and excerpts from the Grey County Cycling and Trails Master Plan.

8.5 City, and County Multimodal Planning

The City of Owen Sound identified the importance of Transportation Demand Management and highlighted specific objectives in its Transportation Master Plan (2010) and the Official Plan (2017). Key objectives include transit improvements, paid parking, pedestrian facilities improvements, cycling support, and the promotion of working from home. Key future roadway improvements include the addition of on road cycling facilities to 4th Avenue East, and 3rd Avenue West.

Grey County supports Transportation Demand Management through their 2015 Transportation Master Plan which recommended the launch of their regional transit service and updating of the Paved Shoulder Policy.

8.6 AODA Compliance

Per the City's Accessibility Improvement Guidelines and AODA requirements it is recommended that the developer ensure the site meet standard while the city monitors and upgrades the existing roadway infrastructure such as sidewalks, streetlights, and traffic signals.

As indicated in the general requirements for exterior paths of travel the ground surface must be level and there must be adequate exterior lighting. Sidewalks should be a minimum of 1.5 m wide with a maximum running slope of 5% (1:20). It is noted that sidewalks can have slopes greater than 1:20, but it cannot be steeper than the slope of the adjacent roadway. These details will be confirmed through detailed design.

9.0 Conclusions

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

- Under existing traffic volume conditions, all study intersections are operating at a Level of Service (LOS) "D" or better during the Friday p.m. and Saturday mid-day peak hours.
    - The intersection of 4th Avenue East and Highway 6 is operating with a maximum control delay of 40.8 s.
    - The intersection of 2nd Avenue East and Highway 6 is operating with a maximum volume-to-capacity ratio of 0.95.
    - The 95th percentile queues of all movements on the boundary road network can be accommodated within the existing storage lanes, with the exception of the southbound left-turn movements on 4th Avenue East at Highway 6 which can be accommodated within a portion of the taper.

- A growth rate of 1% per year has been applied to the boundary road network.

- The City's capital works budget does not identify any capacity improvements as part of the 5-year funding plan. Therefore, the suggested auxiliary turn-lanes in the TMP were not accounted in the analysis of this report.

- The study intersections are expected to operate with a LOS "C" or better in the Friday p.m. and Saturday peak hours under 2028 future background traffic volume conditions.
    - The maximum control delay of 22.1 s and volume to capacity ratio of 0.92 (EBT), both forecasted for 2nd Avenue East and Highway 6 during the Friday p.m. peak hour, indicate that the boundary road network is anticipated to operate acceptably.
    - The 95th percentile queue of the southbound right-turn movement at 2nd Avenue East and Highway 6 is forecasted to increase by 10.3 m compared to existing conditions.

- The proposed re-use is expected to generate 345 and 356 two-way trips in the weekday Friday p.m. and Saturday peak hours, respectively.

- The study intersections are anticipated to continue operating with an LOS "C" or better in the Friday p.m. and Saturday peak hours under 2028 future total traffic volume conditions.
    - Re-optimization of signal timings improves the operations at the intersection of 2nd Avenue East and Highway 6 compared to the 2028 Future Background scenario.
    - The southbound right movement at the intersection of 2nd Avenue East and Highway 6 is expected to continue to exceed the available storage, with the 95th percentile queue forecasted to increase by less than one vehicle.
    - All other queueing is not expected to impede through movements.
    - The proposed Site Accesses are expected to operate at a LOS "C" with a maximum control delay of 15.6 s and volume-to-capacity ratio of 0.16.
    - The above metrics indicate that the study intersections are anticipated to continue operating acceptably under 2028 future total traffic volume conditions. Accordingly, the boundary road network can accommodate the site generated traffic.

- There are no sight distance issues anticipated at the site accesses and vehicles can safely ingress and egress the site. The site accesses can be supported from a sight distance perspective.

- Active transportation facilities including sidewalks, multi-use trails and transit stops are located in close proximity to the site.

- The sidewalks proposed throughout the site should be designed to meet the minimum requirements detailed in the Accessibility for Ontarians with Disabilities Act (AODA). Geometrics, pavement markings and signage will be confirmed through detailed design.

The analysis contained within this report was completed based on the Site Plan dated April 20, 2023. Any minor changes to the Site Plan will not affect the conclusions contained within this report.

It is concluded that the traffic generated by the proposed reuse can be supported by the boundary road network, and the Site Plan can be supported from a traffic operations perspective.

Prepared by,

C.F. CROZIER & ASSOCIATES INC.

Madeleine Ferguson, P.Eng.
Manager of Transportation

C.F. CROZIER & ASSOCIATES INC.

Kerianne Hagan, E.I.T
Engineering Intern, Transportation

MF/db,kh

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APPENDIX A

Terms of Reference

Diego Bustamante

From: Chris Webb <cwebb@owensound.ca>
Sent: December 1, 2022 4:06 PM
To: Kerianne Hagan
Cc: Jocelyn Wainwright; Dana Goetz; Sabine Robart
Subject: RE: 3rd Avenue East, Owen Sound - Terms of Reference

Categories: Filed to Sharepoint

Hi Kerianne,

The intersections identified, including the terms of reference and the additions requested by the County are acceptable.

We will be providing a consolidated response through Planning staff regarding on and off site parking.

Chris

From: Kerianne Hagan <khagan@cfcrozier.ca>
Sent: Thursday, December 1, 2022 3:35 PM
To: Chris Webb <cwebb@owensound.ca>
Cc: Jocelyn Wainwright <jwainwright@owensound.ca>
Subject: RE: 3rd Avenue East, Owen Sound - Terms of Reference

Good Afternoon Chris,

I am following up on the TOR below. If you require more time for a response, not a problem, I was just looking to confirm the study intersections, with the addition of Grey Road 15 and 13th Street East that the County requested.

We are hoping to get our traffic counters out ASAP before there is more snow and holiday impacts. If you could confirm the intersections, it would be greatly appreciated.

Thank you,
Kerianne

Kerianne Hagan, EIT | Engineering Intern
1 First Street, Suite 200 | Collingwood, ON L9Y 1A1
T: 705.446.3510

CROZIER
CONSULTING ENGINEERS

Crozier Connections:

Read our latest news and announcements here.

From: Kerianne Hagan
Sent: November 28, 2022 8:21 AM
To: Chris Webb <cwebb@owensound.ca>; jim.stevenson@grey.ca
Cc: Diego Bustamante <dbustamante@cfcrozier.ca>
Subject: 3rd Avenue East, Owen Sound - Terms of Reference

Good Morning Chris and Jim

I hope you are doing well. C.F. Crozier & Associates has been retained to prepare a Transportation Impact Study (TIS) and Parking Justification Study in support of an OPA/ZBA application for the proposed development located on 1235, 1239 3rd Avenue East, Owen Sound (the former courthouse and jail). A Site Plan Application will proceed in the future. The elements envisioned for this subdivision include the renovation of existing buildings for an event venue, including a restaurant, speakeasy and coworking spaces. We have attached the current site plan for your reference

Please advise if the Terms of Reference (TOR) outlined below are acceptable. If you are not the correct person for this correspondence, we would appreciate it if you could direct us to the appropriate contact.

The **Traffic Impact Study** will review the following items:

Study intersections

- 3rd Avenue East/Grey Road 15 at 12th Street East
- 3rd Avenue East/Grey Road 15 at Highway 6
- 4th Avenue East at 12th Street East
- 4th Avenue East at Highway 6
- 2nd Avenue East at Highway 6
- Proposed Site Access(es)

Analysis Periods and Scenarios

Analysis of the Friday p.m., and Saturday peak hours will be used to capture the peak hours associated with the proposed use. Analysis 5 years (2028) from the study date will be assumed.

A 2.0% annual growth rate will be utilized as to be consistent with previous studies completed in the City of Owen Sound.

Background Developments

Please advise if there are any background developments within the study area that should be considered.

Trip Generation

ITE Trip Generation 11th Edition will be used to calculate the expected trip generation for the development where available. A first principles approach will be used for any uses which data is not available, with explanation and justification provided for the approach.

Assignment of site generated traffic on the boundary road network will be based on existing travel patterns, expected catchment areas, and other study findings.

Road Characteristics

A number of elements will be reviewed including geometric road improvements to support the development, as well as sight distance and access spacing requirements at the proposed site accesses.

Transportation Study

A review of City's Official Plan, Transportation Master Plan, Accessibility for Ontarians with Disabilities Act, and the Trails Master Plan will be undertaken to address multi-modal opportunities for the development. The Transportation Study will be incorporated as part of the TIS.

The **Parking Justification Study** will be prepared under a separate cover and will review the following items:

By-Law Requirements

A review of the City of Own Sound's zoning By-law #2010-078 Section 5 to determine the required number of spaces in relation to the number provided on site.

ITE Parking Generation

ITE Parking Generation 5th Edition will be used to calculate the expected parking demand for the development where available. A first principles approach will be used for any uses which data is not available with explanation and justification provided for the approach.

A review of peak hours for the variety of uses will be undertaken to determine the combined peak hour of parking forecasted and the available supply

Off-Site Parking

A review of available on-street and off-street parking in the area will be undertaken. A municipal parking lot is available in the study area.
Additionally, it is our understanding that through communications with the City the provision for off-site parking may be acceptable. If there is an additional contact we should communicate with regarding parking, please let us know.

Transportation Demand Management

A review of TDM opportunities for the development will be undertaken.

We trust the above is acceptable. We ask that you provide us with any background developments that should be considered. We will reach out to the City and County for signal timing plans at our study intersections.

Should you have any questions or concerns, please feel free to contact me.

Best Regards,
Kerianne

Diego Bustamante

From: Jim Stevenson <Jim.Stevenson@grey.ca>
Sent: November 29, 2022 7:53 AM
To: Kerianne Hagan; Webb, Chris
Cc: Diego Bustamante; Matt Marck
Subject: RE: 3rd Avenue East, Owen Sound - Terms of Reference

Follow Up Flag: Follow up
Flag Status: Completed

Categories: Filed to Sharepoint

Kerianne

Please include the intersection of 3rd Avenue East/Grey Road 15 at 13th Street East. No further comments.

Jim Stevenson
Corridor Control Technologist
Phone: +1 519-372-0219 ext. 1285

Gr
Cou

From: Kerianne Hagan <khagan@cfcrozier.ca>
Sent: November 28, 2022 8:21 AM
To: Webb, Chris <cwebb@owensound.ca>; Jim Stevenson <jim.stevenson@grey.ca>
Cc: Diego Bustamante <dbustamante@cfcrozier.ca>
Subject: 3rd Avenue East, Owen Sound - Terms of Reference

[EXTERNAL EMAIL]

Good Morning Chris and Jim

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- 2nd Avenue East at Highway 6
- Proposed Site Access(es)

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A 2.0% annual growth rate will be utilized as to be consistent with previous studies completed in the City of Owen Sound.

Background Developments

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Should you have any questions or concerns, please feel free to contact me.

Best Regards,
Kerianne

Kerianne Hagan, EIT | Engineering Intern
1 First Street, Suite 200 | Collingwood, ON L9Y 1A1
T: 705.446.3510

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APPENDIX B

Owen Sound's Official Plan - Transportation




OWEN SOUND OFFICIAL PLAN

Adopted by the City of Owen Sound
June 28, 2021

Approved by the County of Grey
February 15, 2022

distinct street edges through appropriate landscaping or structures.

5.1.4.13 Parking areas are to be designed in accordance with the City's Multi-year Accessibility Plan and AODA requirements.

5.1.4.14 Parking and charging stations for electric vehicles is required in new development and redevelopment. The provision for future parking and charging stations is also encouraged and may be considered at the time of site plan review.

5.1.4.15 The City may consider reducing the required number of parking spaces needed for development or redevelopment where the following criteria have been justified:

a. Demonstration that the proposed use does not require the stated level of parking (e.g., affordable housing whereby car ownership would be low), or

b. An agreement has been registered on title to provide off-street parking.

5.1.5 Active Transportation

5.1.5.1 New developments will be designed to be walkable and bike friendly by including multi-use trails, sidewalks, and/or paved shoulders where appropriate to integrate with the overall complete transportation system.

5.1.5.2 The City shall promote sustainable, healthy, active living through well-connected and maintained streets, paths and trails that are able to safely accommodate different modes of transportation.

Pedestrian links and bicycle trails may be located on public road allowances, parks, City or government owned lands and rights-of-way acquired over or through privately held lands as indicated on Schedule 'D' – Active Transportation and Recreation Trails Master Plan. Consideration should be given to providing connections between pedestrian links/bicycle trails and residential streets and areas of open space, schools and public transit facilities.

5.1.5.3 The City shall maintain and regularly update Schedule 'D' – Active Transportation and Recreation Trails Plan to provide for paths and trails.

5.1.5.4 Accessibility for all people shall be considered in the design of pedestrian links and trails in accordance with the City's Multi-year

Accessibility Plan, Transit Accessibility Plan and AODA requirements.

5.1.5.5 The City shall work towards providing sidewalks and bicycle trails separated from the roadway on existing and proposed arterial roads and on abandoned rail corridors and within parks and open spaces as appropriate.

5.1.5.6 The City will encourage and facilitate where possible the use of cycling on local and collector roads.

5.1.5.7 The City shall provide for the development of continuous trail systems along the waterfront and along the Sydenham River to the inner and outer Harbour to ensure public access.

5.1.5.8 The City through a by-law may control direct snowmobile/ATV/equestrian access to specified city access points. Access points shall be identified, encouraged and regularly reviewed.

5.1.5.9 The City will support the integration of pedestrian and cycling facilities into existing and new development areas.

5.1.5.10 The City will support tourism and recreational developments that support active transportation.

5.1.5.11 The City will encourage new development to include accessible, age-friendly and transit supportive design elements such as:

a. A system of walkways (sidewalks, paved shoulders, and trails) and bicycle paths (paved shoulders and trails) linking the subdivision internally as well as externally to other walkways and bicycle paths, and to other public areas;

b. Design that includes living streets, active transportation, and safety.

5.1.6 Public Transit

5.1.6.1 Planning for new developments and built-up areas should include consideration for public transit which may include requirements for bus bays, elimination of street parking for bus stops, streets planned and designed to accommodate transit vehicles, installation of bus shelters subject to requirements in Transit Accessibility Plan. The City shall encourage greater population densities along and in the vicinity of transit routes.

5.1.6.2 All major development proposals and changes and additions to the road network will be evaluated with respect to their impact on existing or proposed transit services.

5.1.6.3 The City shall encourage the retention of the public transit system to provide a viable alternative to the use of the private vehicle.

5.1.6.4 The public transit system is to be inclusive of the needs of all people by:

a. Ensuring that transit facilities, routes and vehicles are accessible.

b. Modifying existing transit stops and shelters to become more accessible over time.

c. Ensuring transit stops and shelters have an accessible sidewalk that connects directly to the transit stop.

d. Ensuring that all transit stops and shelters consider the safe unloading and loading of passengers.

e. Supplementing the conventional transit system with specialized services.

f. Implementing recommendations from the City's Multi-year Accessibility Plan and Transit Accessibility Plan.

5.1.6.5 The City may undertake a transit study to determine transit routes and transit facility locations. The recommendations of this study provide a framework for consideration of planning applications and transportation planning.

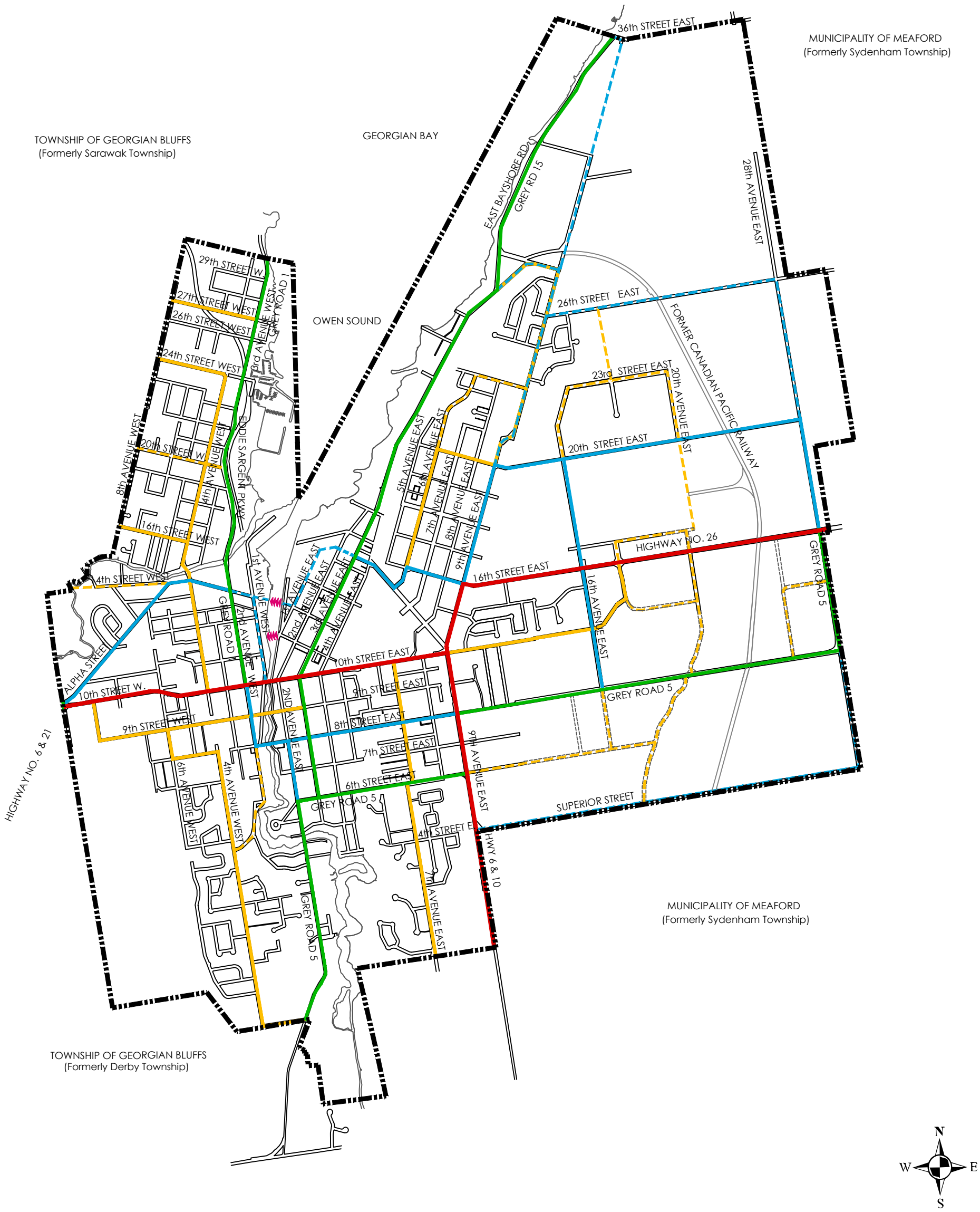
5.1.6.6 Through the review and approval of development applications the City may require the dedication of land or request financial resources for installation of transit infrastructure.

5.1.6.7 The City will cooperate with the County and adjacent municipalities in developing an integrated transit system.

5.1.7 Water Transportation

5.1.7.1 Owen Sound Harbour provides an important opportunity for goods movement, ferrying opportunities and recreational transportation.

5.1.7.2 The docking of ships, such as bulk freighters, related repair and service uses, loading, unloading and storage facilities and apparatus, navigational safety and training apparatus, sales and



Legend

- Major Arterial Road - Provincial Highway & Connecting Link
- Minor Arterial Road - County Highway
- Minor Arterial Road - City
- Future Arterial Road
- Collector Road
- Future Collector Road
- Local Road
- Planned Road
- Future Bridge Alignment
- City Limits

Schedule 'C'

Official Plan

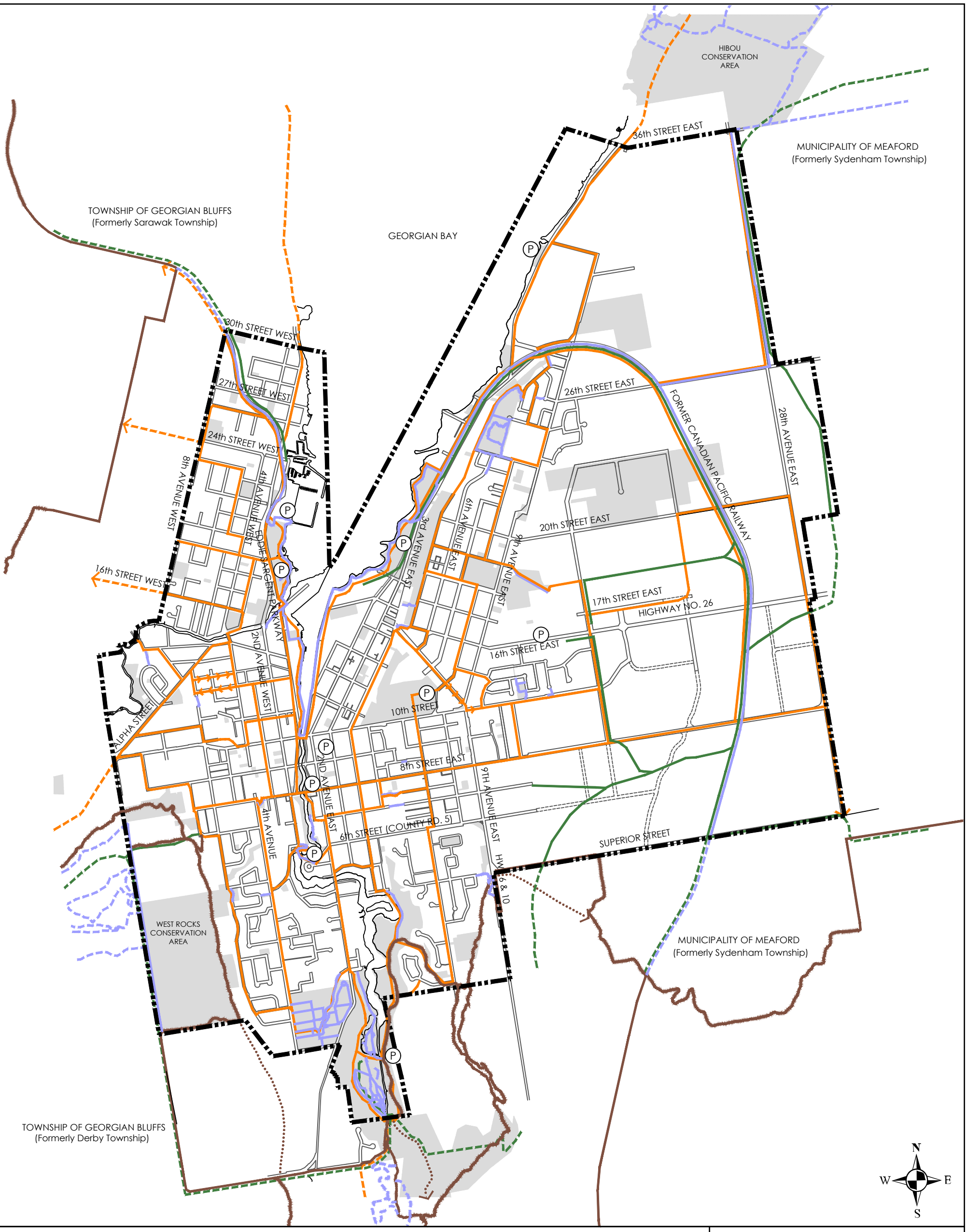
City of Owen Sound

Transportation Plan

owen sound
where you *want* to live

May 2021

1:28,000



Legend

- Existing Trails
- Existing Trails Outside of City Limits
- Bruce Trail
- Bruce Trail Preferred Future Route
- Bicycle Route
- Bicycle Route Outside of City Limits
- Snowmobile Trail
- Snowmobile Trail Outside of City Limits
- (P) Public Parking Lot
- City Limits
- Publicly-Owned Property (City of Owen Sound and Grey Sauble Conservation Authority)

Schedule 'D'

Official Plan

City of Owen Sound

Active Transportation Plan & Trails Master Plan

owen sound
where you *want* to live

May 2021

1:28,000

GREY COUNTY TRANSPORTATION MASTER PLAN

Final Draft Report

Project No. TR12-0311

C.C. Tatham & Associates Ltd.
Consulting Engineers

COLE ENGINEERING

SEPTEMBER 2014

COLE ENGINEERING GROUP LTD.

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F. 905.364.6162

4. Active Transportation

Active transportation refers to any form ofself-propelled, non-motorized mode of transportation that uses human energysuch as walking, cycling, in-line skating, jogging, skiing, etc. These modes contribute to sustainable transportation, help to promote a healthy lifestyle, reduce impact to the environment, and is recommended as a component of the overall transportation system for the Grey County TMP.

All-terrain vehicles (ATVs) and snowmobile are motorized, and thus not technically active transportation modes. However, in some cases, these modes share a network with cyclists, pedestrian and other active modes in Grey County. For this reason, the network of on-road and off-road trails for ATVs and snowmobiles and are included in this section of the report.

4.1. Benefits of Active Transportation

The benefits of walking, cycling and other non-motorized modes of transportation, provide the rationale for integrating active transportation into transportation systems. The development of active transportation strategies will help the County of Grey realize benefits that include:

- integrating healthy, physical activity into everyday travel fosters active lifestyles;
- reducing transportation costs;
- reducing traffic congestion and carbon dioxide (CO_2) emissions and conserving energy resources; and
- contributing to a more connected community.

The physical exercise gained from walking and cycling contributes to improved health and well-being. According to the World Health Organization (WHO), physical inactivity is the second highest health risk in developed countries and is associated with many tens of billions of dollars of healthcare costs.Active transportation can minimize the risk of coronary heart disease, strokes, diabetes and cancer. Research has indicated that active transportation can contribute to lower health care costs in the order of $100 to $400 per person[7].

The benefits of cycling and walking trails extend beyond the transportation system and healthy living impacts. Cycling and walking as tourism activities can represent part of the economic strategy for the County. The development of cycling routes and promotion of use of the trail system within GreyCounty are opportunities to draw tourism activity to the County.

4.2. Active Transportation Studies in Grey County

4.2.1. Youth Moving Safely With Active Transportation

Due to the large, rural nature of Grey Bruce, transportation is regularly identified as a major barrier for individuals of all ages[8]. The *Youth Moving Safely with Active Transportation Report* (2011) stated that

[7]Source: National Cooperative Highway Research Program Report 552

[8]Hanover/Walkerton Active Transportation Committee – Youth Moving Safely with Active Transportation (2011)

The trail system also provides pedestrian connections. The Active Transportation Plan recommended that the City of Owen Sound focus their efforts and funding towards the construction of missing pedestrian and cyclist links and providing a more connected network. The Plan also advised that the City proactively address pedestrian safety needs and establish a program of reviews of pedestrian crossings either through on-going traffic operations studies or annual corridor reviews.

The Plan recognized that in order to support cycling as a viable and competitive mode of travel, there is a need to develop continuous and direct routes to cycling destinations (primary corridors) within the City and to neighbouring municipalities. Primary cycling routesprovide opportunities for commuting along continuous corridors and provide connections to key municipal destinations including, but not limited to[20]:

- Downtown (e.g. City Hall, Farmers' Market, Public Library, Tom Thomson Art Gallery);
- shopping centres (e.g. Heritage Place Shopping Centre);
- major offices (e.g. County of Grey Administration Office in the south of Owen Sound);
- institutional uses (e.g. Georgian College, Grey Bruce Regional Health Centre); and
- community uses (e.g. Harry Lumley Bayshore Community Centre, Victoria Park).

According to the City of Owen Sound Transportation Master Plan (September 2010), the bicycle and pedestrian networks as identified in the Official Plan have not been fully developed and implemented[20]. Therefore, opportunities exist through the continuous development of the active transportation network to serve all communities within the City.

4.5. Relevant Guidelines for Active Transportation

4.5.1. Accessibility for Ontarians with Disabilities Act

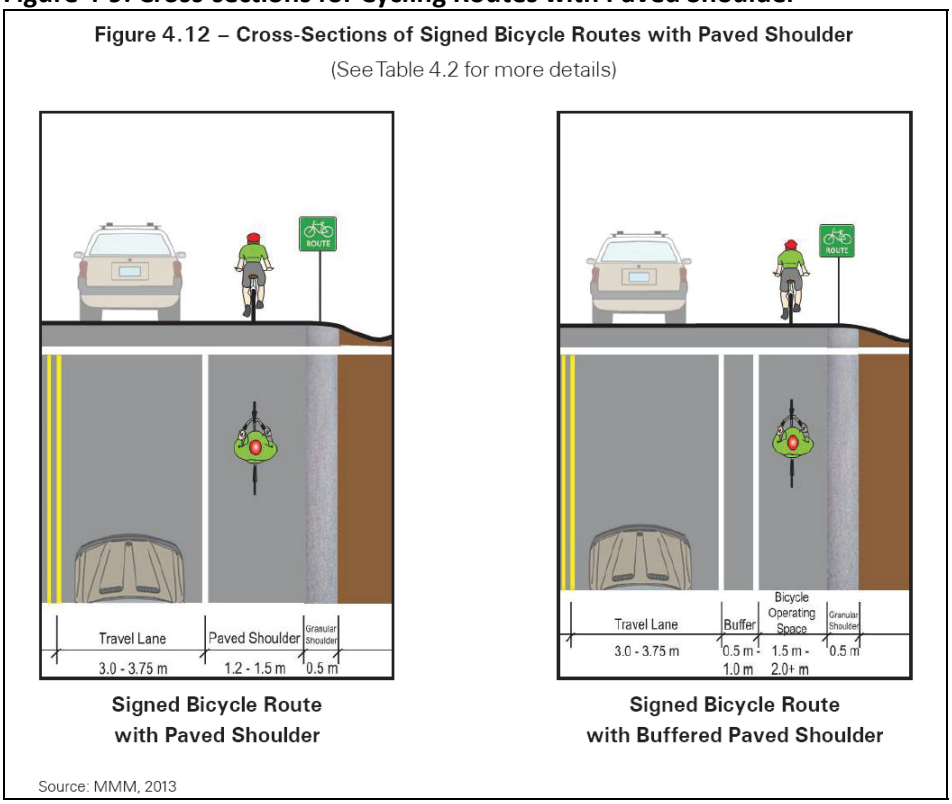
Technical requirements for recreational trails and travel paths for pedestrians are identified under the Accessibility for Ontarians with Disabilities Act (AODA) Design of Public Spaces Standards (Accessibility Standards for the Built Environment). These technical requirements include design considerations for trails and amenities and pedestrian travel paths (sidewalks, ramps, stairs, curb ramp). Requirements for minimum widths, minimum heights, maximum slopes, edge protection, protective barriers, signage, ramps, curb ramps, rest areas, and accessible pedestrian signals must be met for all new construction and major changes to existing of public spaces by 2016.

4.5.2. Ontario Traffic Manual Book 18: Cycling Facilities

The *Ontario Traffic Manual Book 18-CyclingFacilities (March 2014)* is a primary reference document cycling facilities in Ontario. OTM Book 18 sets out the legal requirements, standards, best practices, procedures, and guidelines for the justification, planning, design, timing and operation of bicycle facilities and control measures. It applies to all facilities within the road right-of-way including on-road and off-road facilities. OTM Book 18 promotes a uniform approach to cycling facilities across the province.

Relevant to Grey County are guidelines design considerations for bike routes on rural roads with paved shoulders such as the typical cross-sections shown in **Figure 4-9**.

Figure 4-9: Cross-sections for Cycling Routes with Paved Shoulder



Source: OTM Book 18, Figure 4.12

4.5.3. Paved Shoulder Policy

In a predominantly rural area, paved shoulders are the preferred facility type accommodating cycling connections between rural communities. OTM Book 18 provides guidance on design considerations for paved shoulder cycling facilities.

As noted in **Section4.3.1**, Grey County adopted a Paved Shoulder Policy in 2009 that identified the primary function of a paved shoulder to be in support of non-motorized travel including bicycles and pedestrians, while reducing maintenance costs. The following procedures constitute part of the County's Paved Shoulder Policy[21]:

- When constructing new highway surfaces during County construction and spot improvement projects, the shoulder next to the driving lanes shall be paved on roads functionally classified as rural arterials regardless of traffic volume.
- The paved shoulder width shall be 1.2 metres to 2.0 metres on newly constructed roads.
- The paved shoulder can be reduced to a minimum of 0.5 metres as a reasonable compromise where it is not possible to achieve 1.2 metre widths due to constraints.
- The thickness of shoulder paving shall be based on the usual design considerations appropriate to each situation.

[21] Grey County (2013): http://www.greycounty.ca/files/pagecontent/policy-roads-01-09-paved-shoul.pdf

- Shoulders may also be paved full width along County roads in suburban areas where closely spaced driveways and/or frequent turning movements cause excessive maintenance to gravelled shoulders.
- Shoulders should not be considered for paving where underground utilities and drainage structures require ongoing maintenance.
- When resurfacing existing County roads the same conditions shall apply providing the sub-base is structurally adequate and able to support the pavement.
- This policy does not apply to County roads within the limits of villages and towns or designated urban areas.
- Paved shoulders on shared boundary roads will require mutual agreement from each abutting County.
- All factors, financial and otherwise, will be considered on a per project basis for exceptions only; subject to a review and final approval by the Standing Committee.

In 2010, MTO constructed 66 kilometres of 1 metre wide paved shoulder on Highway 6 (from the Town of Tobermory to Mar) as part of the Provinces' Southern Highways Programs[22].

4.5.4. Signage and Wayfinding

Signs should communicate various kinds of information to the cyclist, and can include:
- destination signs (nearest, intermediate or end destinations);
- direction (directional arrows);
- distance (to destination);
- regulatory signs;
- warning signs; and
- information signs.

Information and guidance relating to signs for roads and trails in Ontario is provided in the Ontario Traffic Manual (OTM). OTM Book 18 provides standards, best practices and practical guidance on the planning, design and operation of cycling facilities in Ontario. Generally, wayfinding signs should be located at locations such as entrances/exits, intersections, and at regular intervals along the routes, in order to provide cyclists with relevant information at decision points.

4.6. Active Transportation Strategy Summary

To complement the County of Grey Recreational Trails Strategy, which provides policy direction for trail uses in the County Forests, it is recommended that the County adopt formal County-wide active transportation strategies that serve to encourage walking, cycling, and other sustainable modes of transportation. Planning for active transportation is important to connect communities and offer alternative, healthier modes of transportation.

The County will benefit from a formal Active Transportation Master Plan. Provision of active transportation infrastructure and facilities is the first step to achieving a more sustainable transportation network. Initiatives and strategies to encourage walking and cycling should be

[22] Complete Streets for Canada: http://www.completestreetsforcanada.ca/case_study/grey-and-bruce-counties

developed, and educational programs can be organized to inform residents and promote safety.The following initiatives are recommended for Grey County.

Develop policies through an **Active Transportation Master Plan**that:

- promote accessibility for all ages and abilities (e.g. ramps, pedestrian grade separations) through planning and design guidelines for new and retrofit infrastructure;
- promote enhanced pedestrian design features (e.g. street furniture, benches, streetscape features separating pedestrians from traffic) along pedestrian priority corridors;
- promote walk and cycle to school programs through outreach initiatives with school boards, teachers and parents;
- develop guidelines and policies for implementing supporting infrastructure such as parking lots at trailheads, rest stops, wayfinding signage, etc.;
- develop walkability guidelines for Grey and incorporates walkability audits into transportation and traffic studies;
- support changes to the Highway Traffic Act that permit cycling on the shoulder of a roadway; and
- include consultation and engagement with local municipalities, neighbouring municipalities/counties, Regional Tourism Organization 7 (RTO7) and active transportation stakeholders (i.e. cycling groups and recreational clubs/associations).

Develop a **connected network**in Grey County by:

- establishing a network of inter-connected routes including connections between municipal centres, links to adjacent counties and cycling “loop routes” to accommodate recreational cycling including cycling organizations and tourist cycling activities (desire lines identifying potential connections are shown in**Figure 4-10**);
- continuing to utilize paved shoulders on County roads together with ‘Share-the-road’ signage;
- accommodatingsidewalks and bicycle lanes within urban areas on County roads between key origins and destinations;
- permitting ATV and/or snowmobile use along or across strategic sections of County roads to provide a more connected network of trails
- continuing to provide paths and trails based on current policies and programs that comply with AODA requirements; and
- establishing secure bicycle parking and shower/change room facilities at County facilities.

Other initiatives Grey County could consider include:

- holding annual/monthly events to promote walking and cycling, and to raise awareness in partnership with others including municipalities and County Police; and
- assigning a staff member for the proactive implementation of selected initiatives.

> *b) promote the use of active transportation and transit in and between residential, employment (including commercial and industrial) and institutional uses and other areas:*
> *c) focus major employment, commercial and other travel-intensive land uses on sites which are well served by transit where this exists or is to be developed, or designing these to facilitate the establishment of transit in the future;*[23]

The Provincial Policy Statement promotes transit-supportive land use policies and development.As the PPS forms an overarching policy framework for the province, regional and local land-use policies should be informed by and reflect the initiatives contained therein. As such, Grey County should support transit-supportive development within County and its municipalities through Official Plan land-use policies that encourage intensification and guided growth in settlement areas. Consideration should also be given to including transit evaluation and transit initiatives as part of the development approval process.

5.2. Public Transit

5.2.1. Public Transit Service Options

A brief summary of typical public transit services is provided below. It is noted that the discussion on rural transit focuses on road transit (i.e. buses).

5.2.1.1 Conventional Transit Service (Fixed Route/Fixed Schedule)

The conventional, or traditional, transit service consists of a fixed route and a fixed schedule. The transit vehicle travels along a pre-determined route making scheduled stops at pre-determined locations. The conventional service is most commonly offered in urban locations where population densities are relatively high and the service route is easily accessible by the users.

5.2.1.2 eDemand Responsive Service

Demand responsive transit is a flexible service in that there is no fixed route or schedule. Rather, the route and schedule are dictated by the user demands for any given day. The user calls the provider in advance to request a pick-up at the user's location for transport to the desired destination. The provider, in turn, will organize a vehicle to respond to the request. Depending on the notice required by the provider to arrange the requested service (i.e. 24-hours vs 48-hours vs real-time), the provider may co-ordinate a number of pick-ups by a single vehicle (this, of course, is also dependent on the requested destinations). In terms of route, the demand responsive service is extremely flexible and is largely dictated by the pick-up and destination requests by the user. In terms of schedule, the degree of flexibility is determined by the notice period required by the provider. As the required notice period is decreased (i.e. approaches real time), flexibility increases for the user and the service becomes more reflective of a typical taxi service.

[23] *2014 Provincial Policy Statement,* Ministry of Municipal Affairs & Housing. Online: http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463 [Accessed May 2014]

5.2.1.3 Conventional/Demand Responsive Hybrid Service

This type of service combines certain attributes of the conventional transit service with those of the demand-responsive transit service. The following are typical examples of a hybrid service.

Route Deviation Service

The route deviation service follows a specific route at scheduled times and includes scheduled stops or unscheduled stops. Upon pre-arranged user request, the transit vehicle is permitted to deviate from the route to pick-up or drop-off a passenger (unscheduled stop); however, the vehicle must re-enter the fixed route at the same point at which the initial deviation occurred (thus ensuring that the fixed route is followed in its entirety). In considering that the service must maintain its scheduled stops on-time, the extent to which route deviation occurs is controlled through the definition of a deviation area (deviation beyond this area will result in a disruption to the overall schedule). The route deviation service allows users to access the service at the scheduled stops (as per conventional transit) or via a request in advance for a route deviation (as per demand responsive transit).

Point Deviation Service

This service establishes scheduled stops at scheduled times along a route (the stops are generally locations where user demand would be high such as a town centre, shopping mall or employment district) but does not specify the route to be followed between the scheduled stops. The actual route between the stops is dictated by user requests made in advance for pick-up and drop off at pre-scheduled stops (pre-scheduled in that they are requested and arranged in advance by the user but are not regular stops and do not appear on the published schedule). Although the route is flexible and allows for pre-scheduled stops, service to the scheduled stops must remain on-time, or remain within a determined window of time, as per the established schedule.

The route and point deviation services are best utilized in areas where trips of the typical user are not time sensitive. Thus, in the event of a deviation from the route, the user does not associate the deviation with poor service.

5.2.1.4 Other Services

Many-to-Few Service

The many-to-few (or many-to-one) service provides scheduled service to and from a handful of clustered destinations or a single destination (these destinations are usually high demand destinations). The user requests service in advance to and from one of the scheduled destinations. The routes are thus wholly determined by the provider given the user requests for any given day. The destinations are not flexible, which is typical of a conventional transit service, whereas the ability for a user to call to arrange pick-up is typical of a demand responsive service.

Jitney Service (Fixed Route/Flexible Schedule)

A jitney service runs on a fixed route with no schedule. This type of service runs on a high frequency and requires high demand. A park-and-ride facility offering transportation between a remote parking lot and a high demand destination/origin (i.e. airport) is a typical example of a jitney service. These services are not usually associated with public transit as they are often privately owned and operated.

increasing each year (ridership has increased from 5,228 in 2010/11 to 5,983 in 2011/12 and is projected to reach 7,011 in 2012/13).

5.4. GreyCounty Transit Strategy

5.4.1. Rural Population

The population of GreyCounty, as per the 2011 census data, is 92,568 (this includes the population of Owen Sound - reported at 21,688). The census data further reports that 49,563 residents, or 54% of the total population, are considered to live in a rural setting. If the population of Owen Sound is removed from consideration (and assuming that 100% of the Owen Sound population is considered as urban), the percentage of those residents in Grey County living in a rural setting increases to 70%. This is an important reality when considering the feasibility of a county wide public transportation offering, as conventional approaches are not necessarily appropriate in rural settings.

5.4.2. Transportation Disadvantaged

Ready access to transportation is not a benefit that is available to all members of the general population. The level of access available to any one person may be determined by a variety of factors such as geographical location (i.e. rural vs urban), income level or age. Residents of rural areas, such as GreyCounty, typically have far fewer transportation options available to them than do residents of urban areas. This can generally be attributed to the economies of scale that are associated with the greater population densities and development levels of urban areas (high density population/development are desirable characteristics with respect to public transit and other transportation offerings). As such, residents of rural areas tend to be far more dependent on the private automobile. Where alternatives modes to the car are not available or are not considered feasible (i.e. long distances will preclude non-motorized modes such as walking or cycling), those who do not have ready access to a private automobile are disadvantaged with respect to transportation. Segments of the population that may be vulnerable to experiencing transportation disadvantage include:

- low income households/individuals;
- single parent families;
- disabled individuals;
- seniors; and
- youth.

The intent of identifying the vulnerable segments of the population is to identify the potential user groups in GreyCounty that would realize the greatest benefit from a transit offering. A review of the 2011 census data for GreyCounty reveals the following:

- 21.1% of the population was 65 years of age or older;
- 18.8% of the population was 17 years of age or younger; and
- 12.5% of census families are single parent families.

With respect to the age demographic in GreyCounty, the Ontario Ministry of Finance projects that the percentage of the population 70 years of age or older will rise from 14.6% in 2012 to 27.4% in 203628. This dramatic increase is consistent with ongoing conversations about the aging population in Canada. It is inevitable that as the population ages, the number of individuals requiring transportation assistance will also increase for this demographic.

The 2011 census data related to household income had not been released at the time of publication; however, the 2006 data indicated that 7.8% of the economic families in GreyCounty were considered to be low income households[29].

5.4.3. Public Transit Demand

Before implementing a rural transit service, the demand for such must be identified in order to determine whether a transit service can be supported, and, if so, where the service should be located. Based on the origin-destination data gathered for this study, the greatest volumes of daily trips occur between Owen Sound and the Township of Georgian Bluffs (2,460 trips) and between Owen Sound and the Municipality of Meaford (1,095 trips). By no means do these volumes indicate that a transit service can be supported, rather they provide a starting point for further research into where the demand may exist. As the only City within the County (and a hub of essential services and employment), it is considered logical to focus on connecting Owen Sound with the surrounding municipalities. However, further study is required to determine where demand for public transit exists, and whether such is significant enough to warrant service.It is recommended that the County co-ordinate with the municipalities and with those organizations currently providing transit service within the County to determine demand levels and the location of such.Trip surveys should also be circulated to the public to gather further demand data.

It is further noted that any study into demand should also attempt to identify the predominant market or user type. Seniors, youths, stay at home parents and commuters all have very different transportation needs. The type of transit service provided must suit the needs of its primary target market.

5.4.4. Public Transit Opportunities

Acknowledging the need for the County to identify the demand and market for public transit, the following opportunities are recommended as possible options in establishing new, or enhancing existing, transit services within the County.

5.4.4.1 Local Transit Service

Introducing new local conventional transit services within GreyCounty is not recommended at this time. The population levels and densities in the existing population centres are not such that would support a

[28]Population by 5-yr age group, 2012-2036 – Reference scenario – Census divisions in Southwestern Ontario, Ontario Ministry of Finance, 2013.
[29]Your Community in Profile: Grey, Bruce, Huron, Perth. Ontario Trillium Foundation, 2008.

stand-alone service. A recent study completed for the Town of Bradford-West Gwillimbury identified a desired population threshold of 30,000 people for establishing a public transit service[30]. While public transit services have been introduced in municipalities with lower populations (Owen Sound, Collingwood, Midland), their respective populations far exceed the population levels of the individual urban centres/built-up areas within Grey County. Despite this reality, the County should begin laying the groundwork to ensure that future growth in the County occurs in a manner that would support local public transit initiatives in these population centres. In this respect the County should collaborate with the municipalities to develop transit supportive development strategies (i.e. intensification based land-use policies, identification of specific growth areas, transit-supportive design policies for future development, etc.).

In terms of existing local services within GreyCounty, Owen Sound provides the only scheduled public transit service. While there are examples of local public transit being expanded to include adjacent service areas (such expansion has occurred in Simcoe County between Collingwood and Wasaga Beach, with Collingwood expanding the Colltrans service into Wasaga Beach to provide a successful link between these communities, and expansion of the Barrie Transit service between Barrie and CFB Borden), expansion of the Owen Sound transit service is not considered realistic at this time. However, consideration should be given to minor scale route expansion that has the potential to increase ridership (i.e. providing service to the movie theatres on the Sunset Strip). The Barrie Transit extension connects the City of Barrie (a major urban centre) with CFB Borden (a major employer), thus providing a link between two high density nodes. The Colltrans expansion links Collingwood with Wasaga Beach, two service areas with respective populations in excess of 16,000 (for a total serviceable population of over 30,000). In addition, the population density along Collingwood-Wasaga Beach link is much higher than the municipalities surrounding Owen Sound. However, as Owen Sound is a major hub of essential services and employment, the County should initiate discussions with the City and the adjacent municipalities regarding the future potential role of Owen Sound Transit in connecting these municipalities with Owen Sound. Furthermore, the location of future development and designation of settlement areas within these municipalities (Georgian Bluffs, Meaford and Chatsworth) should consider the ability to connect to Owen Sound via public transit.

5.4.4.2 Inter-Municipal Transit

Inter-municipal connections within the County are recognized as an important element of the overall transit strategy for GreyCounty. Many of the primary settlement areas within GreyCounty do not have the essential services required by the general population. It is becoming more common for such services to be located in large urban settlements, such as Owen Sound. As such, access to these services can be expensive, as taxi services are often the only transportation option for those without access to a private automobile. Limited inter-municipal service is currently provided by Greyhound, a private bus operator. The existing service, however, is not an exclusive inter-municipal service but rather a segment of Greyhound's larger inter-city network. It is recommended that the County investigate the potential for private-public partnerships with private bus operators currently providing inter-city services in Ontario. While Greyhound is an obvious candidate to enter into such a partnership (given that Greyhound currently provides service in GreyCounty), it is recommended that the County define the scope of service to be offered and solicit proposals from several inter-city bus operators as part of the

[30] *County of Simcoe Transportation Master Plan,* Earth Tech Canada Inc, Markham, ON. July 2008

competitive tendering process. The service offering should focus on connecting the primary settlement areas in GreyCounty with Owen Sound. To determine the type of service to be provided, discussions are recommended with the municipalities, current transit service providers (including the operators of specialized services within the County) and the public in order to identify demand and need.

5.4.4.3 Inter-Regional Transit

The opportunity to introduce inter-regional public transit is limited for GreyCounty. While there is interest from the public in a connection to GO Transit services in Barrie (specifically the rail service which ultimately serves the GTA), such would be difficult to implement given the location of Grey County and the resulting travel distance and travel time. It is therefore recommended that the County concentrate on establishing inter-regional routes on a smaller scale, such as the Collingwood-Blue Mountain link that was launched as a 6-month pilot project in November 2013. The Town of Collingwood, in partnership with the Town of the Blue Mountains and Blue Mountain Resort, expanded the Colltrans service into the Town of the Blue Mountains and Craigleith (thus providing a link between Grey County and Simcoe County). This route provides benefits for both counties as synergies already exist between Collingwood and Blue Mountain.It is understood that the 6-month pilot project has been extended through to August 2014.

The County should also initiate discussions with Metrolinx regarding the extension of Go Transit bus services from Orangeville into Grey County. While it is acknowledged that the introduction of a Go Transit service is not likely, the County should attempt to establish Metrolinx's threshold requirements for providing such service so as to inform the County's development policies (i.e. development policy should support transit initiatives).

5.4.4.4 Alternative Service

It is recommended that the County explore the possibility of coordinating and supporting alternative transit services within the County. The TROUT model discussed in this study provides the framework for a rural service which should be further investigated by the County. Grey County should enter into discussions with the surrounding municipalities and the operators of specialized services within the County (such as the Grey County Social Services van, SMART, HCSS, the Georgian HandiVan, etc.) to establish whether the existing transit services can be expanded or enhanced. Rather than begin a public transit offering from scratch, it is considered prudent to coordinate the existing services in order to realize potential operating efficiencies. Given that GreyCounty is not a transit operator, it is necessary to include those organizations that do offer transportation services and leverage their expertise and existing services to increase mobility and accessibility within the County.

5.4.4.5 Rail Transit

Regardless of public desire for passenger rail service within the County, the lack of rail infrastructure and low population density makes the realization of such highly unlikely. Passenger rail services, as convenient and desirable as they are, are costly to provide. The provision of GO service north of Toronto to the City of Barrie was not re-introduced until 2007, despite a large serviceable population along the line (Barrie, Newmarket, Aurora, Bradford, etc.) and existing infrastructure. The costs to install new railway tracks in addition to the annual costs to operate a passenger service into GreyCounty are

All of the above questions are dependent upon funding which will also dictate the timing of implementing the recommendations. Some of the recommendations are dependent upon another, that is, implementing some of the recommendations may have a bearing on how other recommendations are implemented from a funding and timing perspective.

A draft Implementation Action Plan has been included in **Appendix G** which identifies a potential action plan for implementing the current recommendations contained in the Transportation Master Plan. This is subject to change based on what Council decides to implement and based on which recommendations Council wishes to implement first. The below draft Action Plan can be used by Council and staff as a guide for implementing the recommendations in the Transportation Master Plan.

A summary of the recommendations and draft Action Plan is provided in the following sections.

11.1. Active Transportation Strategy

11.1.1. Recommendations

The recommendations of the transportation master plan are intended to meet the Goal #1 of the plan, to "Create a vision for all modes of transportation in Grey County, with a particular focus on encouraging active transportation options (cycling, walking/running)." To this end, the County will benefit from a formal Active Transportation Master Plan. Provision of active transportation infrastructure and facilities is the first step to achieving a more sustainable transportation network. Initiatives and strategies to encourage walking and cycling should be developed, and educational programs can be organized to inform residents and promote safety.The following initiatives are recommended for Grey County.

Develop policies through an **Active Transportation Master Plan** that:

- promote accessibility for all ages and abilities (e.g. ramps, pedestrian grade separations) through planning and design guidelines for new and retrofit infrastructure;
- promote enhanced pedestrian design features (e.g. street furniture, benches, streetscape features separating pedestrians from traffic) along pedestrian priority corridors;
- promote walk and cycle to school programs through outreach initiatives with school boards, teachers and parents;
- develop guidelines and policies for implementing supporting infrastructure such as parking lots at trailheads, rest stops, wayfinding signage, etc.;
- develop walkability guidelines for Grey and incorporates walkability audits into transportation and traffic studies;
- support changes to the Highway Traffic Act that permit cycling on the shoulder of a roadway; and
- include consultation and engagement with local municipalities, neighbouring municipalities/counties, Regional Tourism Organization 7 (RTO7) and active transportation stakeholders (i.e. cycling groups and recreational clubs/associations).

Develop a **connected network**in Grey County by:

- establishing a network of inter-connected routes including connections between municipal centres, links to adjacent counties and cycling "loop routes" to accommodate recreational cycling including cycling organizations and tourist cycling activities;
- continuing to utilize paved shoulders on County roads together with 'Share-the-road' signage;

APPENDIX C

Traffic Data

Spectrum

Turning Movement Count
Location Name: 2ND AVE E & HWY 6
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (5 . 2ND AVE E & HWY 6)

Start Time	N Approach 2ND AVE E						E Approach 10TH ST E						S Approach 2ND AVE E						W Approach 10TH ST E						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		
12:00:00	44	18	8	0	6	70	8	150	13	0	12	171	13	28	5	0	4	46	11	173	25	0	7	209	496	
12:15:00	52	19	4	0	3	75	6	164	10	0	6	180	13	34	12	0	5	59	17	172	29	0	7	218	532	
12:30:00	44	15	5	0	8	64	5	148	7	0	14	160	10	25	6	0	10	41	16	165	27	0	7	208	473	
12:45:00	45	16	5	0	10	66	8	137	4	0	8	149	11	31	8	0	6	50	12	170	38	0	11	220	485	1986
13:00:00	33	18	2	0	3	53	5	161	5	0	9	171	8	17	8	0	6	33	9	193	33	0	8	235	492	1982
13:15:00	44	10	6	0	0	60	5	157	6	0	3	168	7	23	8	0	7	38	15	171	34	0	8	220	486	1936
13:30:00	37	20	3	0	5	60	8	155	7	0	13	170	12	33	6	0	3	51	11	180	28	0	6	219	500	1963
13:45:00	46	19	6	0	5	71	3	152	5	0	7	160	12	19	3	0	7	34	9	154	25	0	9	188	453	1931
14:00:00	44	20	6	0	9	70	8	137	5	0	16	150	10	22	5	0	6	37	11	165	32	0	10	208	465	1904
14:15:00	48	16	9	0	4	73	5	168	9	0	13	182	13	20	6	0	3	39	9	157	29	0	12	195	489	1907
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15:30:00	51	22	2	0	4	75	7	161	15	0	15	183	12	24	16	0	7	52	6	157	19	0	2	182	492	1919
15:45:00	36	11	6	0	8	53	5	174	2	0	6	181	10	11	7	0	1	28	9	163	35	0	0	207	469	1890
16:00:00	50	17	3	0	6	70	4	131	9	0	11	144	8	20	19	0	4	47	5	162	30	0	3	197	458	1871
16:15:00	44	8	5	0	14	57	9	155	5	0	14	169	10	20	8	0	3	38	11	152	29	0	4	192	456	1875
16:30:00	47	17	9	0	6	73	6	135	5	0	6	146	7	12	7	0	1	26	9	125	32	0	6	166	411	1794
16:45:00	54	13	12	0	3	79	5	137	10	0	2	152	6	17	9	0	2	32	11	134	39	0	6	184	447	1772
17:00:00	35	18	6	0	3	59	3	113	8	0	6	124	6	25	11	0	5	42	9	132	32	0	11	173	398	1712
17:15:00	25	10	5	0	3	40	7	150	5	0	4	162	6	14	5	0	2	25	13	128	25	0	5	166	393	1649
17:30:00	27	13	3	0	5	43	5	148	6	0	3	159	4	13	5	0	1	22	9	103	29	0	5	141	365	1603
17:45:00	26	8	4	0	5	38	8	133	6	0	7	147	3	11	3	0	0	17	7	123	42	0	3	172	374	1530
18:00:00	32	9	5	0	1	46	4	112	5	0	2	121	7	23	3	0	6	33	6	125	40	0	3	171	371	1503
18:15:00	23	5	8	0	6	36	5	113	7	0	6	125	7	14	6	0	1	27	4	111	47	0	4	162	350	1460
18:30:00	25	5	0	0	2	30	4	90	8	0	0	102	4	22	2	0	0	28	9	100	65	0	3	174	334	1429
18:45:00	17	9	3	0	5	29	6	98	9	0	1	113	7	19	4	0	0	30	12	117	74	0	1	203	375	1430
Grand Total	1099	411	147	0	146	1657	169	4032	205	0	206	4406	244	577	207	0	108	1028	285	4124	956	0	183	5365	**12456**	-
Approach%	66.3%	24.8%	8.9%	0%		-	3.8%	91.5%	4.7%	0%		-	23.7%	56.1%	20.1%	0%		-	5.3%	76.9%	17.8%	0%		-	**-**	-
Totals %	8.8%	3.3%	1.2%	0%		13.3%	1.4%	32.4%	1.6%	0%		35.4%	2%	4.6%	1.7%	0%		8.3%	2.3%	33.1%	7.7%	0%		43.1%	**-**	-
Heavy	3	3	1	0		-	2	36	0	0		-	0	1	0	0		-	0	30	4	0		-	**-**	-
Heavy %	0.3%	0.7%	0.7%	0%		-	1.2%	0.9%	0%	0%		-	0%	0.2%	0%	0%		-	0%	0.7%	0.4%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: 2ND AVE E & HWY 6
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

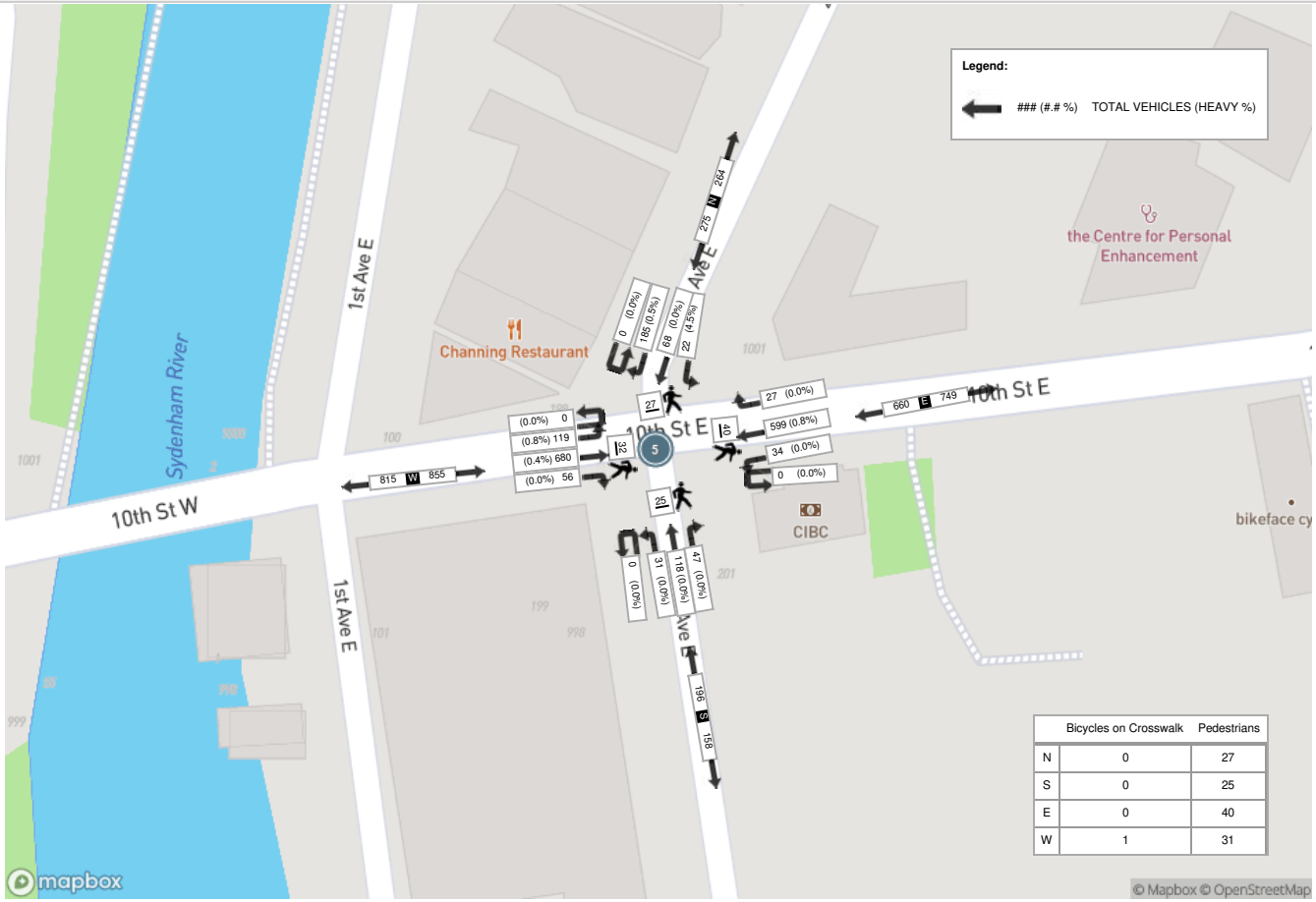
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 12:00 PM - 01:00 PM Weather: Clear Sky (-6.82 °C)

Start Time	N Approach 2ND AVE E						E Approach 10TH ST E						S Approach 2ND AVE E						W Approach 10TH ST E						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	
12:00:00	44	18	8	0	6	70	8	150	13	0	12	171	13	28	5	0	4	46	11	173	25	0	7	209	496
12:15:00	52	19	4	0	3	75	6	164	10	0	6	180	13	34	12	0	5	59	17	172	29	0	7	218	532
12:30:00	44	15	5	0	8	64	5	148	7	0	14	160	10	25	6	0	10	41	16	165	27	0	7	208	473
12:45:00	45	16	5	0	10	66	8	137	4	0	8	149	11	31	8	0	6	50	12	170	38	0	11	220	485
Grand Total	185	68	22	0	27	275	27	599	34	0	40	660	47	118	31	0	25	196	56	680	119	0	32	855	**1986**
Approach%	67.3%	24.7%	8%	0%		-	4.1%	90.8%	5.2%	0%		-	24%	60.2%	15.8%	0%		-	6.5%	79.5%	13.9%	0%		-	**-**
Totals %	9.3%	3.4%	1.1%	0%		13.8%	1.4%	30.2%	1.7%	0%		33.2%	2.4%	5.9%	1.6%	0%		9.9%	2.8%	34.2%	6%	0%		43.1%	**-**
PHF	0.89	0.89	0.69	0		0.92	0.84	0.91	0.65	0		0.92	0.9	0.87	0.65	0		0.83	0.82	0.98	0.78	0		0.97	**-**
Heavy	1	0	1	0		2	0	5	0	0		5	0	0	0	0		0	0	3	1	0		4	**-**
Heavy %	0.5%	0%	4.5%	0%		0.7%	0%	0.8%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0.4%	0.8%	0%		0.5%	**-**
Lights	184	67	21	0		272	27	594	34	0		655	47	118	31	0		196	56	677	118	0		851	**-**
Lights %	99.5%	98.5%	95.5%	0%		98.9%	100%	99.2%	100%	0%		99.2%	100%	100%	100%	0%		100%	100%	99.6%	99.2%	0%		99.5%	**-**
Single-Unit Trucks	1	0	1	0		2	0	3	0	0		3	0	0	0	0		0	0	1	1	0		2	**-**
Single-Unit Trucks %	0.5%	0%	4.5%	0%		0.7%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.1%	0.8%	0%		0.2%	**-**
Buses	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	0	2	0	0		2	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	**-**
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	1.5%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	27	-	-	-	-	-	40	-	-	-	-	-	25	-	-	-	-	-	31	-	**-**
Pedestrians%	-	-	-	-	21.8%		-	-	-	-	32.3%		-	-	-	-	20.2%		-	-	-	-	25%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0.8%		**-**

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

Peak Hour: 12:00 PM - 01:00 PM Weather: Clear Sky (-6.82 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	27
S	0	25
E	0	40
W	1	31

Spectrum

Turning Movement Count
Location Name: 3RD AVE E / GREY RD 15 & 13TH ST E
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (6 . 3RD AVE E / GREY RD 15 & 13TH ST E)

Start Time	N Approach 3RD AVE E						E Approach 13TH ST E						S Approach GREY RD 15						W Approach 13TH ST E						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	4	0	0	0	4	0	0	0	0	0	0	0	11	0	0	0	11	0	0	2	0	0	2	17	
06:15:00	0	5	0	0	0	5	1	0	1	0	0	2	0	16	0	0	0	16	0	0	3	0	0	3	26	
06:30:00	1	10	0	0	0	11	0	0	0	0	2	0	0	21	1	0	0	22	0	0	6	0	0	6	39	
06:45:00	1	15	0	0	0	16	0	0	0	0	0	0	0	29	3	0	0	32	1	0	3	0	0	4	52	134
07:00:00	2	31	1	0	0	34	0	0	1	0	3	1	0	35	0	0	2	35	1	0	0	0	0	1	71	188
07:15:00	1	15	0	0	0	16	1	0	0	0	1	1	1	22	0	0	0	23	0	0	6	0	0	6	46	208
07:30:00	2	24	0	0	1	26	0	1	0	0	4	1	1	19	2	0	0	22	0	2	2	0	0	4	53	222
07:45:00	6	29	1	0	0	36	2	1	0	0	0	3	0	21	2	0	0	23	0	0	9	0	0	9	71	241
08:00:00	1	18	0	0	0	19	1	0	0	0	0	1	0	32	4	0	0	36	0	0	5	0	2	5	61	231
08:15:00	4	45	0	0	1	49	0	1	0	0	0	1	0	46	1	0	3	47	1	0	4	0	4	5	102	287
08:30:00	4	39	0	0	0	43	0	5	1	0	1	6	1	70	4	0	1	75	0	0	5	0	0	5	129	363
08:45:00	5	62	2	0	1	69	1	3	0	0	0	4	0	75	1	0	0	76	3	1	10	0	0	14	163	455
09:00:00	3	42	0	0	0	45	0	1	0	0	1	1	0	44	1	0	0	45	2	0	7	0	1	9	100	494
09:15:00	4	37	0	0	1	41	0	2	0	0	1	2	0	38	0	0	0	38	1	0	5	0	1	6	87	479
09:30:00	2	36	0	0	0	38	1	2	1	0	1	4	0	33	0	0	0	33	0	0	6	0	1	6	81	431
09:45:00	4	35	0	0	0	39	1	1	0	0	0	2	0	38	0	0	0	38	1	2	5	0	2	8	87	355
BREAK																										
15:00:00	6	45	0	0	0	51	1	1	0	0	0	2	1	58	4	0	0	63	1	0	11	0	1	12	128	
15:15:00	9	65	0	0	4	74	2	5	0	0	7	7	1	49	2	0	2	52	3	3	4	0	2	10	143	
15:30:00	8	60	1	0	2	69	2	3	1	0	1	6	0	53	1	0	1	54	3	1	6	0	6	10	139	
15:45:00	3	64	0	0	0	67	1	2	1	0	0	4	1	48	1	0	0	50	0	2	11	0	1	13	134	544
16:00:00	4	63	1	0	0	68	0	2	2	0	2	4	2	35	1	0	0	38	2	0	11	0	0	13	123	539
16:15:00	8	49	0	0	4	57	4	1	0	0	5	5	0	50	1	0	6	51	1	2	11	0	4	14	127	523
16:30:00	8	48	1	0	0	57	0	1	0	0	2	1	2	61	0	0	1	63	1	0	9	0	3	10	131	515
16:45:00	8	46	0	0	1	54	3	2	0	0	1	5	1	44	0	0	1	45	2	0	7	0	1	9	113	494
17:00:00	9	53	0	0	1	62	2	3	1	0	3	6	2	69	2	0	0	73	1	1	8	0	2	10	151	522
17:15:00	10	46	0	0	1	56	0	1	0	0	1	1	0	43	0	0	1	43	2	0	5	0	1	7	107	502
17:30:00	6	46	1	0	0	53	0	1	0	0	0	1	0	37	0	0	0	37	2	2	3	0	0	7	98	469
17:45:00	4	45	0	0	1	49	0	1	0	0	3	1	0	41	0	0	2	41	2	0	4	0	2	6	97	453
18:00:00	5	37	1	0	3	43	1	0	1	0	0	2	0	36	3	0	0	39	1	0	3	0	10	4	88	390
18:15:00	10	35	0	0	2	45	0	0	0	0	3	0	1	38	0	0	0	39	1	0	2	0	3	3	87	370
18:30:00	7	40	0	0	0	47	0	1	0	0	0	1	0	28	3	0	0	31	0	1	2	0	0	3	82	354
18:45:00	5	25	0	0	0	30	0	0	1	0	0	1	2	24	1	0	1	27	0	0	2	0	1	2	60	317
Grand Total	150	1214	9	0	23	1373	24	41	11	0	42	76	16	1264	38	0	21	1318	32	17	177	0	48	226	**2993**	-
Approach%	10.9%	88.4%	0.7%	0%		-	31.6%	53.9%	14.5%	0%		-	1.2%	95.9%	2.9%	0%		-	14.2%	7.5%	78.3%	0%		-	**-**	-
Totals %	5%	40.6%	0.3%	0%		45.9%	0.8%	1.4%	0.4%	0%		2.5%	0.5%	42.2%	1.3%	0%		44%	1.1%	0.6%	5.9%	0%		7.6%	**-**	-
Heavy	2	39	0	0		-	0	0	0	0		-	1	77	1	0		-	0	0	2	0		-	**-**	-
Heavy %	1.3%	3.2%	0%	0%		-	0%	0%	0%	0%		-	6.3%	6.1%	2.6%	0%		-	0%	0%	1.1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: 3RD AVE E / GREY RD 15 & 13TH ST E
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Peak Hour: 08:15 AM - 09:15 AM Weather: Light Snow (-2.8 °C)

Start Time	N Approach 3RD AVE E						E Approach 13TH ST E						S Approach GREY RD 15						W Approach 13TH ST E						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	4	45	0	0	1	49	0	1	0	0	0	1	0	46	1	0	3	47	1	0	4	0	4	5	102
08:30:00	4	39	0	0	0	43	0	5	1	0	1	6	1	70	4	0	1	75	0	0	5	0	0	5	129
08:45:00	5	62	2	0	1	69	1	3	0	0	0	4	0	75	1	0	0	76	3	1	10	0	0	14	163
09:00:00	3	42	0	0	0	45	0	1	0	0	1	1	0	44	1	0	0	45	2	0	7	0	1	9	100
Grand Total	16	188	2	0	2	206	1	10	1	0	2	12	1	235	7	0	4	243	6	1	26	0	5	33	**494**
Approach%	7.8%	91.3%	1%	0%		-	8.3%	83.3%	8.3%	0%		-	0.4%	96.7%	2.9%	0%		-	18.2%	3%	78.8%	0%		-	**-**
Totals %	3.2%	38.1%	0.4%	0%		41.7%	0.2%	2%	0.2%	0%		2.4%	0.2%	47.6%	1.4%	0%		49.2%	1.2%	0.2%	5.3%	0%		6.7%	**-**
PHF	0.8	0.76	0.25	0		0.75	0.25	0.5	0.25	0		0.5	0.25	0.78	0.44	0		0.8	0.5	0.25	0.65	0		0.59	**-**
Heavy	0	14	0	0		14	0	0	0	0		0	0	28	0	0		28	0	0	0	0		0	**-**
Heavy %	0%	7.4%	0%	0%		6.8%	0%	0%	0%	0%		0%	0%	11.9%	0%	0%		11.5%	0%	0%	0%	0%		0%	**-**
Lights	16	174	2	0		192	1	10	1	0		12	1	206	7	0		214	6	1	26	0		33	**-**
Lights %	100%	92.6%	100%	0%		93.2%	100%	100%	100%	0%		100%	100%	87.7%	100%	0%		88.1%	100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	0	3	0	0		3	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	1.6%	0%	0%		1.5%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	**-**
Buses	0	11	0	0		11	0	0	0	0		0	0	27	0	0		27	0	0	0	0		0	**-**
Buses %	0%	5.9%	0%	0%		5.3%	0%	0%	0%	0%		0%	0%	11.5%	0%	0%		11.1%	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	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	5	-	**-**
Pedestrians%	-	-	-	-	15.4%		-	-	-	-	15.4%		-	-	-	-	30.8%		-	-	-	-	38.5%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: 3RD AVE E / GREY RD 15 & 13TH ST E
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (-3.72 °C)

Start Time	N Approach 3RD AVE E						E Approach 13TH ST E						S Approach GREY RD 15						W Approach 13TH ST E						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	
15:00:00	6	45	0	0	0	51	1	1	0	0	0	2	1	58	4	0	0	63	1	0	11	0	1	12	128
15:15:00	9	65	0	0	4	74	2	5	0	0	7	7	1	49	2	0	2	52	3	3	4	0	2	10	143
15:30:00	8	60	1	0	2	69	2	3	1	0	1	6	0	53	1	0	1	54	3	1	6	0	6	10	139
15:45:00	3	64	0	0	0	67	1	2	1	0	0	4	1	48	1	0	0	50	0	2	11	0	1	13	134
Grand Total	26	234	1	0	6	261	6	11	2	0	8	19	3	208	8	0	3	219	7	6	32	0	10	45	**544**
Approach%	10%	89.7%	0.4%	0%		-	31.6%	57.9%	10.5%	0%		-	1.4%	95%	3.7%	0%		-	15.6%	13.3%	71.1%	0%		-	**-**
Totals %	4.8%	43%	0.2%	0%		48%	1.1%	2%	0.4%	0%		3.5%	0.6%	38.2%	1.5%	0%		40.3%	1.3%	1.1%	5.9%	0%		8.3%	**-**
PHF	0.72	0.9	0.25	0		0.88	0.75	0.55	0.5	0		0.68	0.75	0.9	0.5	0		0.87	0.58	0.5	0.73	0		0.87	**-**
Heavy	0	8	0	0		8	0	0	0	0		0	1	18	0	0		19	0	0	1	0		1	**-**
Heavy %	0%	3.4%	0%	0%		3.1%	0%	0%	0%	0%		0%	33.3%	8.7%	0%	0%		8.7%	0%	0%	3.1%	0%		2.2%	**-**
Lights	26	225	1	0		252	6	11	2	0		19	2	190	8	0		200	7	6	31	0		44	**-**
Lights %	100%	96.2%	100%	0%		96.6%	100%	100%	100%	0%		100%	66.7%	91.3%	100%	0%		91.3%	100%	100%	96.9%	0%		97.8%	**-**
Single-Unit Trucks	0	1	0	0		1	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	2.9%	0%	0%		2.7%	0%	0%	0%	0%		0%	**-**
Buses	0	7	0	0		7	0	0	0	0		0	1	12	0	0		13	0	0	1	0		1	**-**
Buses %	0%	3%	0%	0%		2.7%	0%	0%	0%	0%		0%	33.3%	5.8%	0%	0%		5.9%	0%	0%	3.1%	0%		2.2%	**-**
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	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	6	-	-	-	-	-	8	-	-	-	-	-	3	-	-	-	-	-	9	-	**-**
Pedestrians%	-	-	-	-	22.2%		-	-	-	-	29.6%		-	-	-	-	11.1%		-	-	-	-	33.3%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	3.7%		**-**

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

Peak Hour: 08:15 AM - 09:15 AM **Weather: Light Snow (-2.8 °C)**

	Bicycles on Crosswalk	Pedestrians
N	0	2
S	0	4
E	0	2
W	0	5

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

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (-3.72 °C)

	Bicycles on Crosswalk	Pedestrians
N	0	6
S	0	3
E	0	8
W	1	9

Spectrum

Turning Movement Count
Location Name: 2ND AVE E & HWY 6
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (5 . 2ND AVE E & HWY 6)

Start Time	N Approach 2ND AVE E						E Approach 10TH ST E						S Approach 2ND AVE E						W Approach 10TH ST E						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	5	3	0	0	0	8	2	14	2	0	0	18	1	1	0	0	0	2	1	53	9	0	2	63	91	
06:15:00	7	1	1	0	0	9	1	21	2	0	3	24	4	4	1	0	1	9	2	67	6	0	0	75	117	
06:30:00	6	4	0	0	2	10	0	34	4	0	2	38	3	3	1	0	1	7	2	94	17	0	2	113	168	
06:45:00	11	1	1	0	2	13	3	36	4	0	0	43	3	6	1	0	1	10	0	106	27	0	4	133	199	575
07:00:00	19	3	1	0	0	23	1	71	5	0	0	77	10	7	2	0	2	19	1	84	23	0	1	108	227	711
07:15:00	20	3	2	0	2	25	1	84	4	0	3	89	3	7	3	0	1	13	4	118	36	0	3	158	285	879
07:30:00	31	7	2	0	0	40	3	96	5	0	1	104	2	12	4	0	0	18	1	146	30	0	4	177	339	1050
07:45:00	26	11	1	0	3	38	2	106	1	0	1	109	2	21	3	0	1	26	5	166	48	0	0	219	392	1243
08:00:00	33	3	0	0	2	36	2	100	5	0	2	107	6	14	5	0	0	25	2	144	46	0	2	192	360	1376
08:15:00	32	12	2	0	0	46	2	117	4	0	5	123	5	26	4	0	1	35	4	164	42	0	3	210	414	1505
08:30:00	51	13	4	0	7	68	8	119	4	0	4	131	7	39	2	0	0	48	8	183	53	0	4	244	491	1657
08:45:00	36	14	3	0	3	53	4	127	3	0	5	134	5	39	7	0	2	51	3	202	53	0	6	258	496	1761
09:00:00	28	8	4	0	3	40	1	84	13	0	2	98	5	31	5	0	2	41	6	124	45	0	6	175	354	1755
09:15:00	37	9	2	0	2	48	9	96	4	0	3	109	3	16	2	0	5	21	10	140	31	0	7	181	359	1700
09:30:00	32	8	5	0	0	45	3	96	3	0	5	102	9	17	6	0	3	32	7	128	29	0	7	164	343	1552
09:45:00	41	22	3	0	3	66	2	93	6	0	9	101	7	28	8	0	5	43	18	150	32	0	4	200	410	1466
BREAK																										
15:00:00	42	25	3	0	1	70	6	178	5	0	7	189	11	15	8	0	5	34	14	147	29	0	7	190	483	
15:15:00	50	16	2	0	4	68	9	192	5	0	10	206	9	27	12	0	3	48	13	159	27	0	6	199	521	
15:30:00	82	28	3	0	7	113	7	161	8	0	11	176	10	36	9	0	13	55	5	164	29	0	7	198	542	
15:45:00	59	13	5	0	1	77	7	170	12	0	3	189	4	27	12	0	4	43	13	151	33	0	5	197	506	2052
16:00:00	86	24	10	0	2	120	7	173	8	0	7	188	11	19	8	0	6	38	7	168	29	0	4	204	550	2119
16:15:00	53	25	5	0	2	83	7	180	7	0	5	194	8	20	10	0	6	38	6	177	29	0	5	212	527	2125
16:30:00	78	37	5	0	3	120	3	150	14	0	9	167	9	35	6	0	3	50	12	165	33	0	7	210	547	2130
16:45:00	68	28	4	0	5	100	5	184	7	0	5	196	7	21	5	0	2	33	6	178	31	0	2	215	544	2168
17:00:00	59	29	7	0	1	95	4	171	12	0	5	187	6	26	20	0	4	52	9	183	42	0	7	234	568	2186
17:15:00	51	23	7	0	2	81	8	173	5	0	5	186	6	12	4	0	3	22	13	170	37	0	5	220	509	2168
17:30:00	41	18	7	0	5	66	4	142	9	0	2	155	7	21	8	0	7	36	14	158	23	0	5	195	452	2073
17:45:00	35	12	3	0	5	50	4	141	10	0	6	155	10	13	8	0	7	31	9	145	35	0	7	189	425	1954
18:00:00	40	13	6	0	4	59	2	164	9	0	5	175	3	15	7	0	0	25	8	135	30	0	6	173	432	1818
18:15:00	38	8	5	0	5	51	8	136	7	0	6	151	7	5	5	0	2	17	10	135	23	0	5	168	387	1696
18:30:00	27	9	4	0	0	40	4	133	3	0	7	140	9	14	10	0	1	33	7	107	23	0	2	137	350	1594
18:45:00	35	15	3	0	2	53	5	137	9	0	0	151	10	5	6	0	7	21	13	99	30	0	5	142	367	1536
Grand Total	1259	445	110	0	78	1814	134	3879	199	0	138	4212	202	582	192	0	98	976	233	4510	1010	0	140	5753	**12755**	-
Approach%	69.4%	24.5%	6.1%	0%		-	3.2%	92.1%	4.7%	0%		-	20.7%	59.6%	19.7%	0%		-	4.1%	78.4%	17.6%	0%		-	-	-
Totals %	9.9%	3.5%	0.9%	0%		14.2%	1.1%	30.4%	1.6%	0%		33%	1.6%	4.6%	1.5%	0%		7.7%	1.8%	35.4%	7.9%	0%		45.1%	-	-
Heavy	18	3	2	0		-	2	162	1	0		-	1	6	2	0		-	2	154	15	0		-	-	-
Heavy %	1.4%	0.7%	1.8%	0%		-	1.5%	4.2%	0.5%	0%		-	0.5%	1%	1%	0%		-	0.9%	3.4%	1.5%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: 2ND AVE E & HWY 6
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Peak Hour: 08:00 AM - 09:00 AM Weather: Light Snow (-2.8 °C)

Start Time	N Approach 2ND AVE E						E Approach 10TH ST E						S Approach 2ND AVE E						W Approach 10TH ST E						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	
08:00:00	33	3	0	0	2	36	2	100	5	0	2	107	6	14	5	0	0	25	2	144	46	0	2	192	360
08:15:00	32	12	2	0	0	46	2	117	4	0	5	123	5	26	4	0	1	35	4	164	42	0	3	210	414
08:30:00	51	13	4	0	7	68	8	119	4	0	4	131	7	39	2	0	0	48	8	183	53	0	4	244	491
08:45:00	36	14	3	0	3	53	4	127	3	0	5	134	5	39	7	0	2	51	3	202	53	0	6	258	496
Grand Total	152	42	9	0	12	203	16	463	16	0	16	495	23	118	18	0	3	159	17	693	194	0	15	904	**1761**
Approach%	74.9%	20.7%	4.4%	0%		-	3.2%	93.5%	3.2%	0%		-	14.5%	74.2%	11.3%	0%		-	1.9%	76.7%	21.5%	0%		-	**-**
Totals %	8.6%	2.4%	0.5%	0%		11.5%	0.9%	26.3%	0.9%	0%		28.1%	1.3%	6.7%	1%	0%		9%	1%	39.4%	11%	0%		51.3%	**-**
PHF	0.75	0.75	0.56	0		0.75	0.5	0.91	0.8	0		0.92	0.82	0.76	0.64	0		0.78	0.53	0.86	0.92	0		0.88	**-**
Heavy	3	0	0	0		3	0	41	0	0		41	1	2	1	0		4	0	41	3	0		44	**-**
Heavy %	2%	0%	0%	0%		1.5%	0%	8.9%	0%	0%		8.3%	4.3%	1.7%	5.6%	0%		2.5%	0%	5.9%	1.5%	0%		4.9%	**-**
Lights	149	41	9	0		199	16	422	16	0		454	22	116	17	0		155	17	652	191	0		860	**-**
Lights %	98%	97.6%	100%	0%		98%	100%	91.1%	100%	0%		91.7%	95.7%	98.3%	94.4%	0%		97.5%	100%	94.1%	98.5%	0%		95.1%	**-**
Single-Unit Trucks	0	0	0	0		0	0	11	0	0		11	1	1	0	0		2	0	10	2	0		12	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	2.4%	0%	0%		2.2%	4.3%	0.8%	0%	0%		1.3%	0%	1.4%	1%	0%		1.3%	**-**
Buses	3	0	0	0		3	0	27	0	0		27	0	1	1	0		2	0	27	1	0		28	**-**
Buses %	2%	0%	0%	0%		1.5%	0%	5.8%	0%	0%		5.5%	0%	0.8%	5.6%	0%		1.3%	0%	3.9%	0.5%	0%		3.1%	**-**
Articulated Trucks	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	4	0	0		4	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.4%	**-**
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	2.4%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	12	-	-	-	-	-	16	-	-	-	-	-	3	-	-	-	-	-	15	-	**-**
Pedestrians%	-	-	-	-	26.1%		-	-	-	-	34.8%		-	-	-	-	6.5%		-	-	-	-	32.6%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

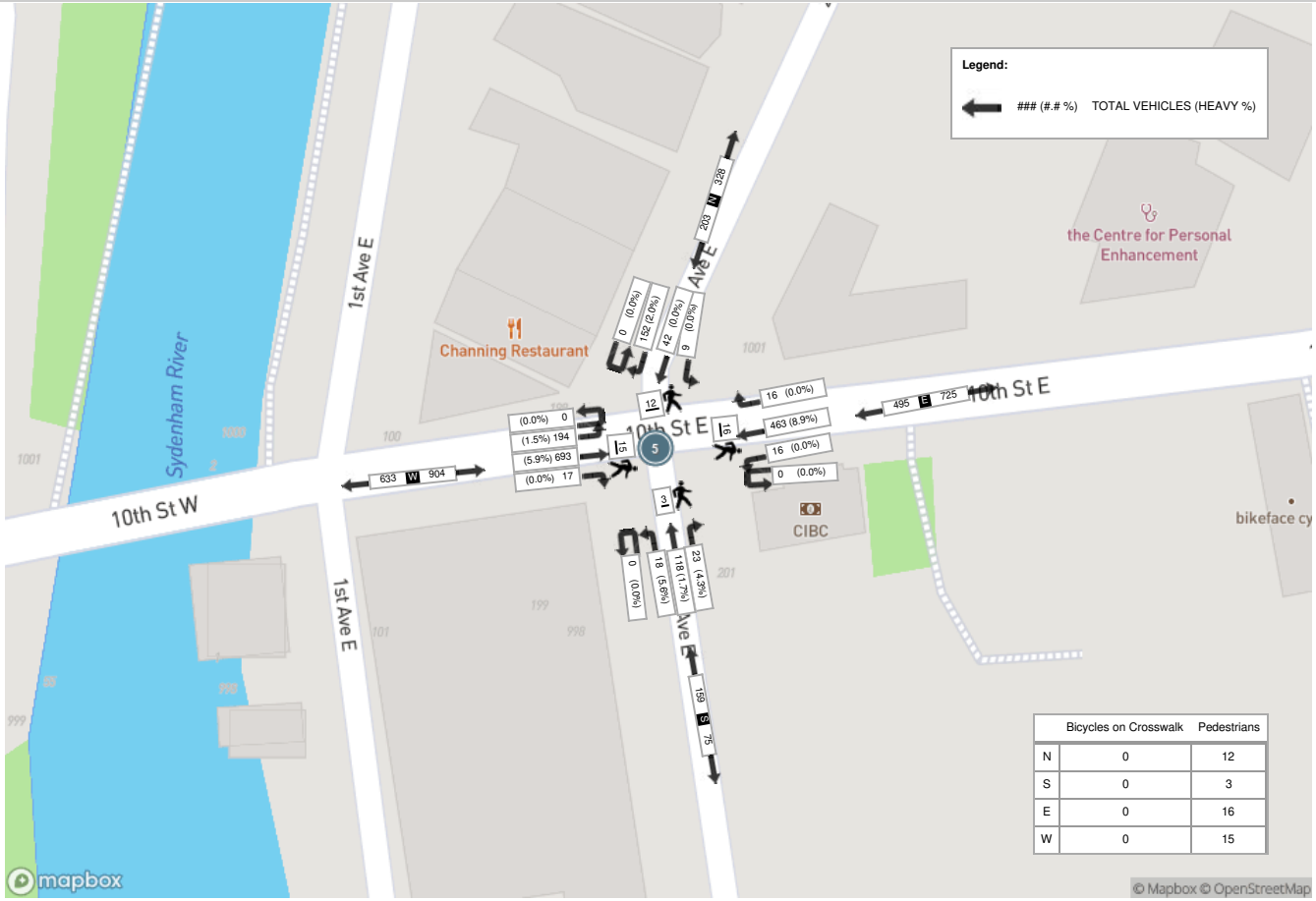
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (-3.72 °C)

Start Time	N Approach 2ND AVE E						E Approach 10TH ST E						S Approach 2ND AVE E						W Approach 10TH ST E						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	
16:15:00	53	25	5	0	2	83	7	180	7	0	5	194	8	20	10	0	6	38	6	177	29	0	5	212	527
16:30:00	78	37	5	0	3	120	3	150	14	0	9	167	9	35	6	0	3	50	12	165	33	0	7	210	547
16:45:00	68	28	4	0	5	100	5	184	7	0	5	196	7	21	5	0	2	33	6	178	31	0	2	215	544
17:00:00	59	29	7	0	1	95	4	171	12	0	5	187	6	26	20	0	4	52	9	183	42	0	7	234	568
Grand Total	258	119	21	0	11	398	19	685	40	0	24	744	30	102	41	0	15	173	33	703	135	0	21	871	**2186**
Approach%	64.8%	29.9%	5.3%	0%		-	2.6%	92.1%	5.4%	0%		-	17.3%	59%	23.7%	0%		-	3.8%	80.7%	15.5%	0%		-	**-**
Totals %	11.8%	5.4%	1%	0%		18.2%	0.9%	31.3%	1.8%	0%		34%	1.4%	4.7%	1.9%	0%		7.9%	1.5%	32.2%	6.2%	0%		39.8%	**-**
PHF	0.83	0.8	0.75	0		0.83	0.68	0.93	0.71	0		0.95	0.83	0.73	0.51	0		0.83	0.69	0.96	0.8	0		0.93	**-**
Heavy	1	0	0	0		1	0	8	0	0		8	0	0	0	0		0	0	17	3	0		20	**-**
Heavy %	0.4%	0%	0%	0%		0.3%	0%	1.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	2.4%	2.2%	0%		2.3%	**-**
Lights	257	118	21	0		396	19	677	40	0		736	30	101	41	0		172	33	685	132	0		850	**-**
Lights %	99.6%	99.2%	100%	0%		99.5%	100%	98.8%	100%	0%		98.9%	100%	99%	100%	0%		99.4%	100%	97.4%	97.8%	0%		97.6%	**-**
Single-Unit Trucks	1	0	0	0		1	0	4	0	0		4	0	0	0	0		0	0	9	3	0		12	**-**
Single-Unit Trucks %	0.4%	0%	0%	0%		0.3%	0%	0.6%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	1.3%	2.2%	0%		1.4%	**-**
Buses	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	8	0	0		8	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		0.9%	**-**
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.1%	0%	0%		0.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	0	1	0	0		1	**-**
Bicycles on Road %	0%	0.8%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	1%	0%	0%		0.6%	0%	0.1%	0%	0%		0.1%	**-**
Pedestrians	-	-	-	-	11	-	-	-	-	-	24	-	-	-	-	-	14	-	-	-	-	-	21	-	**-**
Pedestrians%	-	-	-	-	15.5%		-	-	-	-	33.8%		-	-	-	-	19.7%		-	-	-	-	29.6%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	1.4%		-	-	-	-	0%		**-**

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

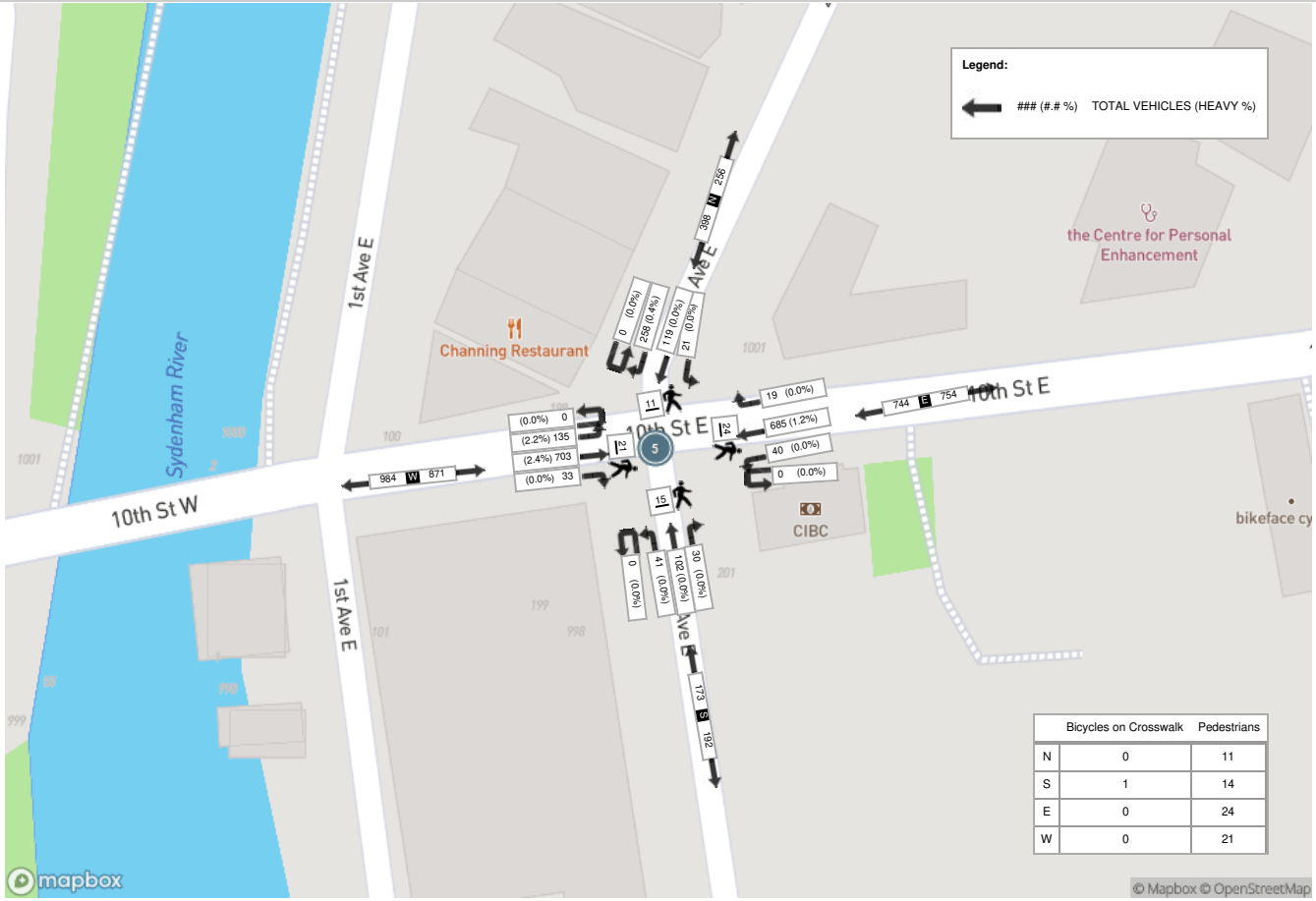
Peak Hour: 08:00 AM - 09:00 AM **Weather: Light Snow (-2.8 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	12
S	0	3
E	0	16
W	0	15

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

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (-3.72 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	11
S	1	14
E	0	24
W	0	21

Spectrum

Turning Movement Count
Location Name: 4TH AVE E & 12TH ST E
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (3 . 4TH AVE E & 12TH ST E)

Start Time	N Approach 4TH AVE E						E Approach EAST DRIVEWAY						S Approach 4TH AVE E						W Approach 12TH ST E						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	1	2	0	0	0	3	0	0	0	0	0	0	1	1	1	0	0	3	0	0	0	0	0	0	6	
06:15:00	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	1	2	
06:30:00	1	1	0	0	0	2	1	0	0	0	1	1	0	2	0	0	0	2	0	0	1	0	0	1	6	
06:45:00	0	1	0	0	0	1	0	1	0	0	1	1	0	5	2	0	0	7	0	0	0	0	0	0	9	23
07:00:00	0	6	0	0	0	6	1	0	0	0	0	1	0	4	0	0	0	4	1	0	1	0	0	2	13	30
07:15:00	0	3	0	0	0	3	2	0	1	0	0	3	0	6	0	0	0	6	3	0	0	0	0	3	15	43
07:30:00	0	4	0	0	0	4	0	0	0	0	0	0	0	5	5	0	1	10	1	0	2	0	2	3	17	54
07:45:00	0	7	0	0	0	7	0	0	2	0	2	2	0	9	4	0	0	13	1	0	0	0	1	1	23	68
08:00:00	0	6	0	0	0	6	0	1	1	0	0	2	0	9	3	0	0	12	1	1	1	0	1	3	23	78
08:15:00	2	5	0	0	0	7	6	2	1	0	0	9	0	12	4	0	1	16	0	0	0	0	1	0	32	95
08:30:00	0	10	0	0	0	10	0	0	3	0	1	3	0	19	2	0	0	21	3	0	0	0	1	3	37	115
08:45:00	1	12	0	0	0	13	0	0	0	0	0	0	1	13	1	0	0	15	1	0	1	0	0	2	30	122
09:00:00	1	8	0	0	0	9	0	2	1	0	1	3	0	10	2	0	0	12	1	0	0	0	1	1	25	124
09:15:00	1	9	0	0	0	10	0	0	0	0	1	0	0	8	2	0	0	10	2	0	2	0	0	4	24	116
09:30:00	0	12	0	0	0	12	2	1	2	0	2	5	0	7	1	0	0	8	1	1	1	0	2	3	28	107
09:45:00	0	11	1	0	0	12	0	0	1	0	0	1	0	15	4	0	0	19	2	0	0	0	1	2	34	111
BREAK																										
15:00:00	3	16	1	0	1	20	1	0	2	0	3	3	0	11	6	0	1	17	4	0	0	0	1	4	44	
15:15:00	3	13	0	0	1	16	0	1	0	0	6	1	0	12	1	0	1	13	1	0	2	0	3	3	33	
15:30:00	1	16	2	0	1	19	0	3	0	0	3	3	0	20	1	0	0	21	2	0	2	0	3	4	47	
15:45:00	0	14	3	0	0	17	0	1	1	0	0	2	0	7	1	0	1	8	1	0	2	0	3	3	30	154
16:00:00	3	8	0	0	0	11	0	0	0	0	0	0	1	13	1	0	0	15	2	0	2	0	1	4	30	140
16:15:00	1	13	1	0	0	15	2	2	1	0	0	5	0	8	1	0	0	9	1	0	1	0	0	2	31	138
16:30:00	2	10	1	0	0	13	2	0	1	0	1	3	2	14	3	0	0	19	0	0	2	0	1	2	37	128
16:45:00	2	6	1	0	0	9	2	1	1	0	1	4	1	17	5	0	0	23	2	1	0	0	0	3	39	137
17:00:00	1	7	2	0	0	10	0	0	1	0	3	1	2	11	3	0	1	16	4	0	1	0	0	5	32	139
17:15:00	3	5	1	0	0	9	0	0	1	0	1	1	0	17	1	1	0	19	3	0	2	0	0	5	34	142
17:30:00	1	9	3	0	0	13	0	3	1	0	0	4	1	5	1	0	0	7	1	1	2	0	0	4	28	133
17:45:00	3	6	0	0	0	9	0	0	1	0	1	1	2	5	2	0	1	9	0	1	2	0	0	3	22	116
18:00:00	2	3	1	0	0	6	1	1	2	0	2	4	1	8	3	0	0	12	2	0	0	0	0	2	24	108
18:15:00	2	5	0	0	0	7	1	1	0	0	2	2	1	10	2	0	0	13	1	1	0	0	1	2	24	98
18:30:00	0	3	1	0	1	4	0	2	0	0	3	2	0	10	3	0	1	13	1	1	0	0	1	2	21	91
18:45:00	3	9	1	0	0	13	1	1	0	0	1	2	1	8	0	0	1	9	0	1	1	0	2	2	26	95
Grand Total	37	240	19	0	4	296	23	23	24	0	37	70	14	301	65	1	9	381	43	8	28	0	26	79	**826**	-
Approach%	12.5%	81.1%	6.4%	0%		-	32.9%	32.9%	34.3%	0%		-	3.7%	79%	17.1%	0.3%		-	54.4%	10.1%	35.4%	0%		-	**-**	-
Totals %	4.5%	29.1%	2.3%	0%		35.8%	2.8%	2.8%	2.9%	0%		8.5%	1.7%	36.4%	7.9%	0.1%		46.1%	5.2%	1%	3.4%	0%		9.6%	**-**	-
Heavy	2	2	0	0		-	0	0	0	0		-	0	5	5	0		-	2	0	2	0		-	**-**	-
Heavy %	5.4%	0.8%	0%	0%		-	0%	0%	0%	0%		-	0%	1.7%	7.7%	0%		-	4.7%	0%	7.1%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

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

Peak Hour: 08:15 AM - 09:15 AM Weather: Light Snow (-2.8 °C)

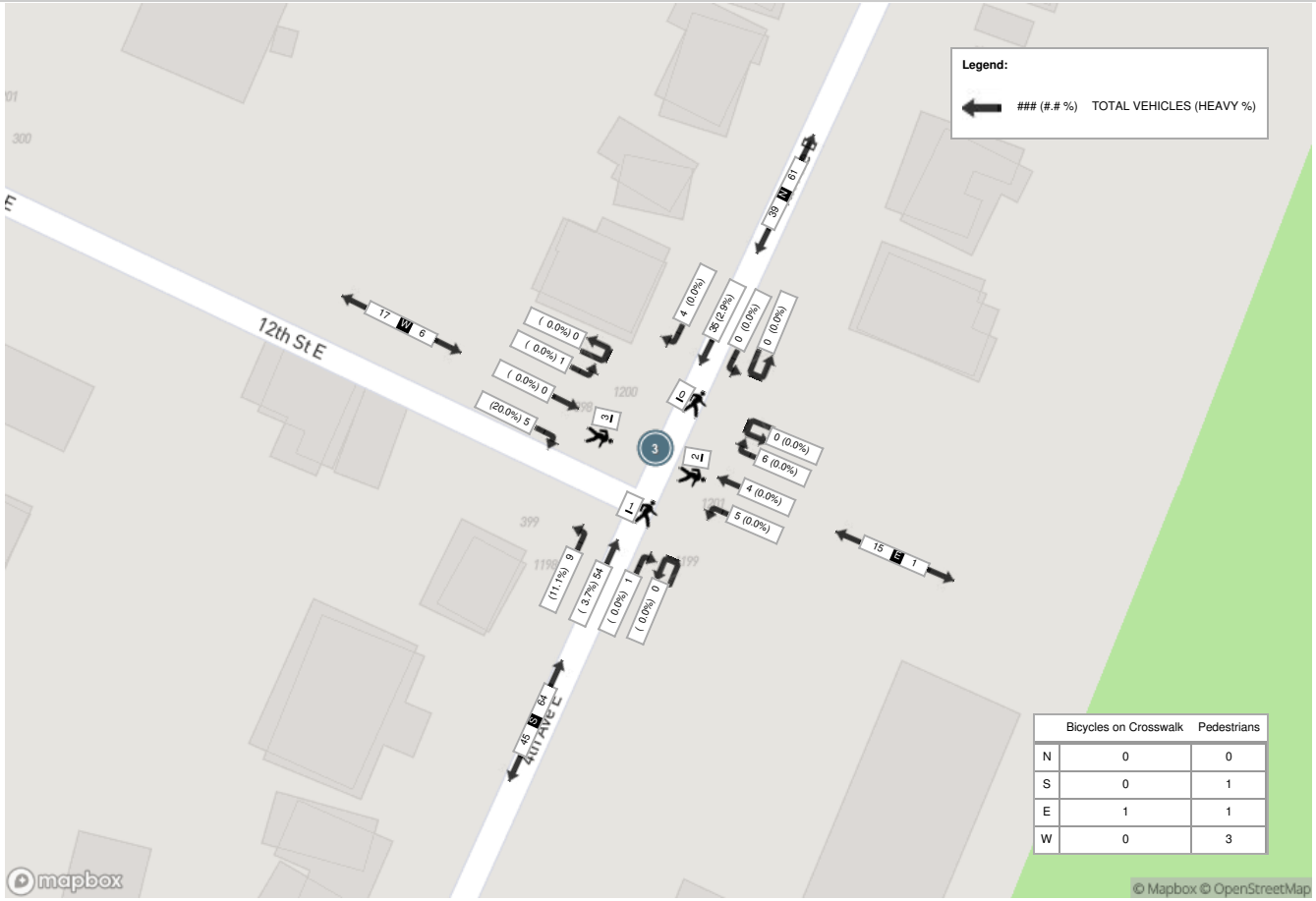
Start Time	N Approach 4TH AVE E						E Approach EAST DRIVEWAY						S Approach 4TH AVE E						W Approach 12TH ST E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	2	5	0	0	0	7	6	2	1	0	0	9	0	12	4	0	1	16	0	0	0	0	1	0	32
08:30:00	0	10	0	0	0	10	0	0	3	0	1	3	0	19	2	0	0	21	3	0	0	0	1	3	37
08:45:00	1	12	0	0	0	13	0	0	0	0	0	0	1	13	1	0	0	15	1	0	1	0	0	2	30
09:00:00	1	8	0	0	0	9	0	2	1	0	1	3	0	10	2	0	0	12	1	0	0	0	1	1	25
Grand Total	4	35	0	0	0	39	6	4	5	0	2	15	1	54	9	0	1	64	5	0	1	0	3	6	**124**
Approach%	10.3%	89.7%	0%	0%		-	40%	26.7%	33.3%	0%		-	1.6%	84.4%	14.1%	0%		-	83.3%	0%	16.7%	0%		-	**-**
Totals %	3.2%	28.2%	0%	0%		31.5%	4.8%	3.2%	4%	0%		12.1%	0.8%	43.5%	7.3%	0%		51.6%	4%	0%	0.8%	0%		4.8%	**-**
PHF	0.5	0.73	0	0		0.75	0.25	0.5	0.42	0		0.42	0.25	0.71	0.56	0		0.76	0.42	0	0.25	0		0.5	**-**
Heavy	0	1	0	0		1	0	0	0	0		0	0	2	1	0		3	1	0	0	0		1	**-**
Heavy %	0%	2.9%	0%	0%		2.6%	0%	0%	0%	0%		0%	0%	3.7%	11.1%	0%		4.7%	20%	0%	0%	0%		16.7%	**-**
Lights	4	34	0	0		38	6	4	5	0		15	1	51	8	0		60	4	0	1	0		5	**-**
Lights %	100%	97.1%	0%	0%		97.4%	100%	100%	100%	0%		100%	100%	94.4%	88.9%	0%		93.8%	80%	0%	100%	0%		83.3%	**-**
Single-Unit Trucks	0	1	0	0		1	0	0	0	0		0	0	0	1	0		1	1	0	0	0		1	**-**
Single-Unit Trucks %	0%	2.9%	0%	0%		2.6%	0%	0%	0%	0%		0%	0%	0%	11.1%	0%		1.6%	20%	0%	0%	0%		16.7%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	3.7%	0%	0%		3.1%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	1.9%	0%	0%		1.6%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	3	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	16.7%		-	-	-	-	16.7%		-	-	-	-	50%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	16.7%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (-3.72 °C)

Start Time	N Approach 4TH AVE E						E Approach EAST DRIVEWAY						S Approach 4TH AVE E						W Approach 12TH ST E						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	
15:00:00	3	16	1	0	1	20	1	0	2	0	3	3	0	11	6	0	1	17	4	0	0	0	1	4	44
15:15:00	3	13	0	0	1	16	0	1	0	0	6	1	0	12	1	0	1	13	1	0	2	0	3	3	33
15:30:00	1	16	2	0	1	19	0	3	0	0	3	3	0	20	1	0	0	21	2	0	2	0	3	4	47
15:45:00	0	14	3	0	0	17	0	1	1	0	0	2	0	7	1	0	1	8	1	0	2	0	3	3	30
Grand Total	7	59	6	0	3	72	1	5	3	0	12	9	0	50	9	0	3	59	8	0	6	0	10	14	**154**
Approach%	9.7%	81.9%	8.3%	0%		-	11.1%	55.6%	33.3%	0%		-	0%	84.7%	15.3%	0%		-	57.1%	0%	42.9%	0%		-	**-**
Totals %	4.5%	38.3%	3.9%	0%		46.8%	0.6%	3.2%	1.9%	0%		5.8%	0%	32.5%	5.8%	0%		38.3%	5.2%	0%	3.9%	0%		9.1%	**-**
PHF	0.58	0.92	0.5	0		0.9	0.25	0.42	0.38	0		0.75	0	0.63	0.38	0		0.7	0.5	0	0.75	0		0.88	**-**
Heavy	1	1	0	0		2	0	0	0	0		0	0	2	1	0		3	0	0	2	0		2	**-**
Heavy %	14.3%	1.7%	0%	0%		2.8%	0%	0%	0%	0%		0%	0%	4%	11.1%	0%		5.1%	0%	0%	33.3%	0%		14.3%	**-**
Lights	6	58	6	0		70	1	5	3	0		9	0	48	8	0		56	8	0	4	0		12	**-**
Lights %	85.7%	98.3%	100%	0%		97.2%	100%	100%	100%	0%		100%	0%	96%	88.9%	0%		94.9%	100%	0%	66.7%	0%		85.7%	**-**
Single-Unit Trucks	1	1	0	0		2	0	0	0	0		0	0	1	1	0		2	0	0	2	0		2	**-**
Single-Unit Trucks %	14.3%	1.7%	0%	0%		2.8%	0%	0%	0%	0%		0%	0%	2%	11.1%	0%		3.4%	0%	0%	33.3%	0%		14.3%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	2%	0%	0%		1.7%	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	-	-	-	-	3	-	-	-	-	-	12	-	-	-	-	-	3	-	-	-	-	-	10	-	**-**
Pedestrians%	-	-	-	-	10.7%		-	-	-	-	42.9%		-	-	-	-	10.7%		-	-	-	-	35.7%		**-**
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

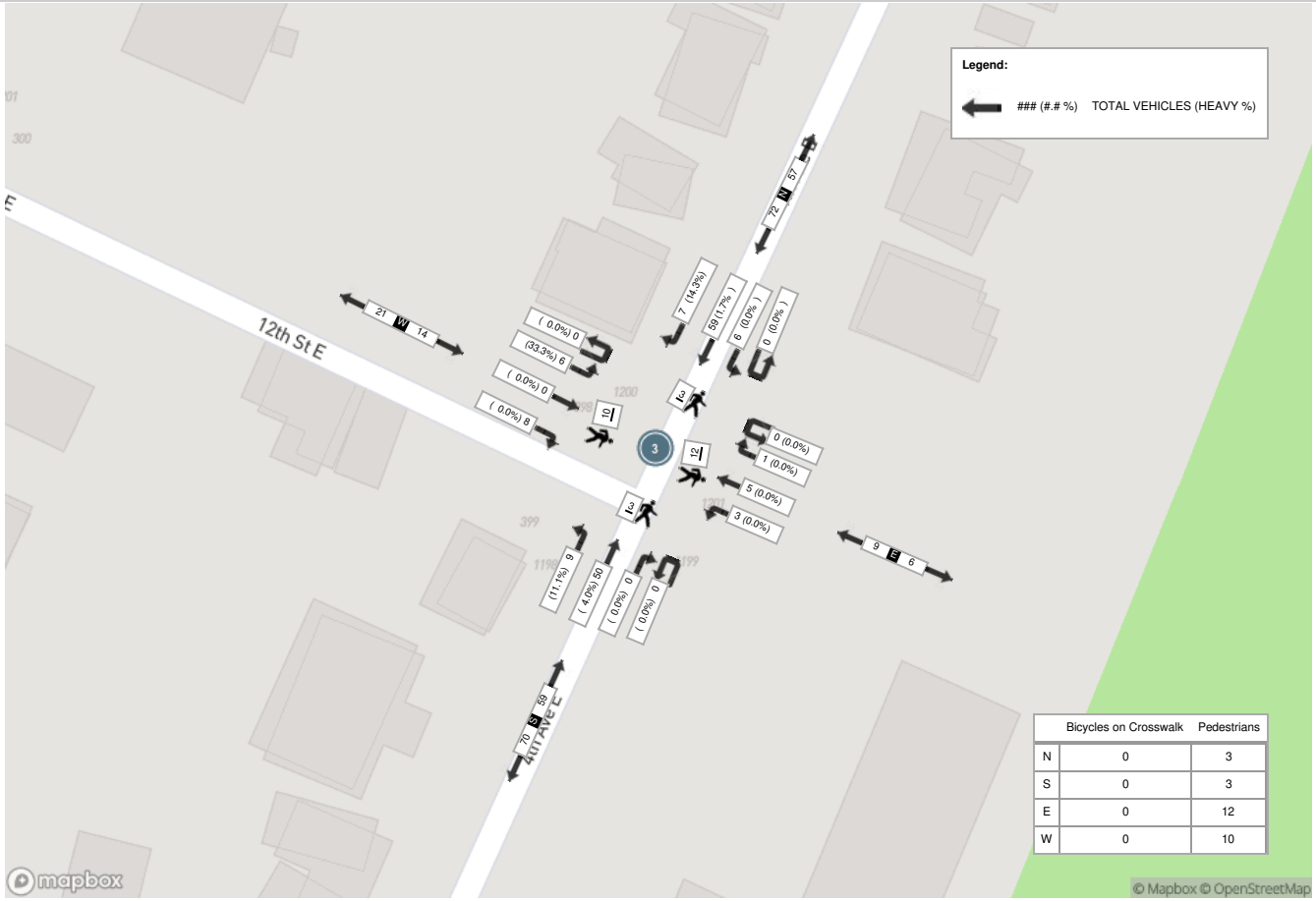
Peak Hour: 08:15 AM - 09:15 AM **Weather: Light Snow (-2.8 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	1
E	1	1
W	0	3

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

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (-3.72 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	3
S	0	3
E	0	12
W	0	10

Spectrum

Turning Movement Count
Location Name: 4TH AVE E & 12TH ST E
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (3 . 4TH AVE E & 12TH ST E)

Start Time	N Approach 4TH AVE E						E Approach EAST DRIVEWAY						S Approach 4TH AVE E						W Approach 12TH ST E						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		
12:00:00	3	5	0	0	0	8	0	0	1	0	0	1	1	11	2	0	0	14	1	1	2	0	0	4	27	
12:15:00	1	7	1	0	0	9	0	3	2	0	0	5	0	12	1	0	1	13	1	0	2	0	1	3	30	
12:30:00	1	5	1	0	0	7	2	0	1	0	0	3	0	12	1	0	2	13	2	1	1	0	1	4	27	
12:45:00	1	4	1	0	0	6	0	4	1	0	0	5	0	15	0	0	0	15	4	0	1	0	0	5	31	115
13:00:00	0	5	0	0	0	5	1	1	0	0	1	2	0	4	3	0	0	7	0	0	1	0	2	1	15	103
13:15:00	0	8	1	0	0	9	0	0	0	0	3	0	2	5	1	0	0	8	0	1	2	0	1	3	20	93
13:30:00	0	9	0	0	0	9	1	1	0	0	1	2	1	8	3	0	0	12	2	1	1	0	0	4	27	93
13:45:00	1	9	3	0	0	13	2	2	0	0	0	4	1	14	3	0	4	18	0	0	1	0	1	1	36	98
14:00:00	4	6	2	0	1	12	1	0	0	0	0	1	2	8	1	0	0	11	2	0	3	0	0	5	29	112
14:15:00	2	9	2	0	0	13	0	1	0	0	0	1	1	7	0	0	1	8	3	0	3	0	0	6	28	120
14:30:00	1	10	1	0	0	12	2	1	4	0	0	7	0	11	1	0	0	12	1	0	3	0	0	4	35	128
14:45:00	0	6	0	0	0	6	0	0	0	1	1	1	0	7	4	0	0	11	1	0	1	0	1	2	20	112
15:00:00	3	8	0	0	0	11	1	0	1	0	2	2	1	6	3	0	0	10	0	0	0	0	0	0	23	106
15:15:00	0	13	0	0	0	13	0	0	0	0	0	0	2	12	2	0	0	16	1	0	2	0	0	3	32	110
15:30:00	2	7	3	0	1	12	2	0	2	0	0	4	2	7	1	0	0	10	1	0	2	0	0	3	29	104
15:45:00	1	6	0	0	0	7	0	1	0	0	0	1	2	7	3	0	0	12	0	2	0	0	0	2	22	106
16:00:00	2	5	1	0	0	8	0	0	0	0	1	0	0	9	2	0	0	11	1	0	0	0	0	1	20	103
16:15:00	0	6	1	0	2	7	1	1	0	0	4	2	0	16	1	0	2	17	0	0	1	0	2	1	27	98
16:30:00	1	7	0	0	0	8	2	1	0	0	0	3	0	11	1	0	0	12	0	0	0	0	3	0	23	92
16:45:00	2	8	0	0	0	10	0	1	0	0	1	1	0	10	0	0	0	10	0	0	1	0	1	1	22	92
17:00:00	0	7	2	0	0	9	0	1	0	0	2	1	0	10	0	0	0	10	2	0	3	0	1	5	25	97
17:15:00	0	8	2	0	0	10	0	0	1	0	1	1	0	5	6	0	0	11	0	0	1	0	4	1	23	93
17:30:00	1	10	1	0	2	12	0	0	0	0	2	0	1	7	2	0	1	10	2	0	1	0	0	3	25	95
17:45:00	3	9	0	0	0	12	2	0	0	0	0	2	0	7	1	0	1	8	1	0	2	0	0	3	25	98
18:00:00	1	5	0	0	0	6	2	0	0	0	0	2	0	3	0	0	0	3	3	0	2	0	0	5	16	89
18:15:00	1	4	2	0	0	7	0	1	0	0	0	1	0	8	0	0	0	8	1	0	1	0	2	2	18	84
18:30:00	0	6	0	0	0	6	1	0	1	0	0	2	0	8	2	0	0	10	1	1	1	0	1	3	21	80
18:45:00	4	9	0	0	0	13	0	0	0	0	0	0	0	8	3	0	0	11	0	0	0	0	0	0	24	79
Grand Total	35	201	24	0	6	260	20	19	14	1	19	54	16	248	47	0	12	311	30	7	38	0	21	75	**700**	-
Approach%	13.5%	77.3%	9.2%	0%		-	37%	35.2%	25.9%	1.9%		-	5.1%	79.7%	15.1%	0%		-	40%	9.3%	50.7%	0%		-	**-**	-
Totals %	5%	28.7%	3.4%	0%		37.1%	2.9%	2.7%	2%	0.1%		7.7%	2.3%	35.4%	6.7%	0%		44.4%	4.3%	1%	5.4%	0%		10.7%	**-**	-
Heavy	3	2	0	0		-	0	1	0	0		-	0	4	5	0		-	2	1	2	0		-	**-**	-
Heavy %	8.6%	1%	0%	0%		-	0%	5.3%	0%	0%		-	0%	1.6%	10.6%	0%		-	6.7%	14.3%	5.3%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: 4TH AVE E & 12TH ST E
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

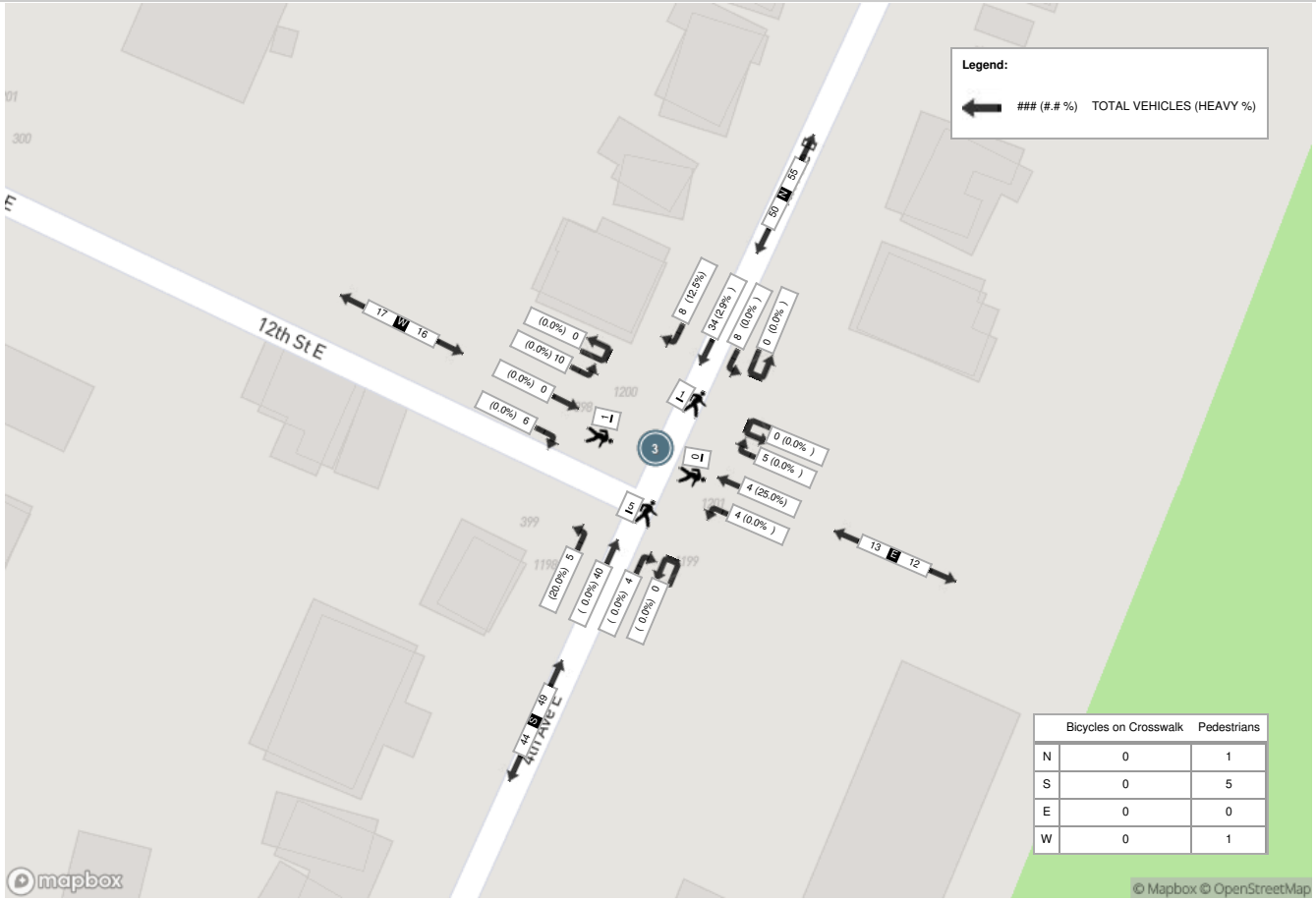
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 01:45 PM - 02:45 PM Weather: Clear Sky (-6.82 °C)

Start Time	N Approach 4TH AVE E						E Approach EAST DRIVEWAY						S Approach 4TH AVE E						W Approach 12TH ST E						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	
13:45:00	1	9	3	0	0	13	2	2	0	0	0	4	1	14	3	0	4	18	0	0	1	0	1	1	36
14:00:00	4	6	2	0	1	12	1	0	0	0	0	1	2	8	1	0	0	11	2	0	3	0	0	5	29
14:15:00	2	9	2	0	0	13	0	1	0	0	0	1	1	7	0	0	1	8	3	0	3	0	0	6	28
14:30:00	1	10	1	0	0	12	2	1	4	0	0	7	0	11	1	0	0	12	1	0	3	0	0	4	35
Grand Total	8	34	8	0	1	50	5	4	4	0	0	13	4	40	5	0	5	49	6	0	10	0	1	16	**128**
Approach%	16%	68%	16%	0%		-	38.5%	30.8%	30.8%	0%		-	8.2%	81.6%	10.2%	0%		-	37.5%	0%	62.5%	0%		-	**-**
Totals %	6.3%	26.6%	6.3%	0%		39.1%	3.9%	3.1%	3.1%	0%		10.2%	3.1%	31.3%	3.9%	0%		38.3%	4.7%	0%	7.8%	0%		12.5%	**-**
PHF	0.5	0.85	0.67	0		0.96	0.63	0.5	0.25	0		0.46	0.5	0.71	0.42	0		0.68	0.5	0	0.83	0		0.67	**-**
Heavy	1	1	0	0		2	0	1	0	0		1	0	0	1	0		1	0	0	0	0		0	**-**
Heavy %	12.5%	2.9%	0%	0%		4%	0%	25%	0%	0%		7.7%	0%	0%	20%	0%		2%	0%	0%	0%	0%		0%	**-**
Lights	7	32	8	0		47	5	3	4	0		12	4	40	4	0		48	6	0	10	0		16	**-**
Lights %	87.5%	94.1%	100%	0%		94%	100%	75%	100%	0%		92.3%	100%	100%	80%	0%		98%	100%	0%	100%	0%		100%	**-**
Single-Unit Trucks	1	1	0	0		2	0	1	0	0		1	0	0	1	0		1	0	0	0	0		0	**-**
Single-Unit Trucks %	12.5%	2.9%	0%	0%		4%	0%	25%	0%	0%		7.7%	0%	0%	20%	0%		2%	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%	**-**
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	**-**
Bicycles on Road %	0%	2.9%	0%	0%		2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	14.3%		-	-	-	-	0%		-	-	-	-	71.4%		-	-	-	-	14.3%		**-**
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: 01:45 PM - 02:45 PM Weather: Clear Sky (-6.82 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	1
S	0	5
E	0	0
W	0	1

Spectrum

Turning Movement Count
Location Name: 3RD AVE E / GREY RD 15 & 13TH ST E
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (6 . 3RD AVE E / GREY RD 15 & 13TH ST E)

Start Time	N Approach 3RD AVE E						E Approach 13TH ST E						S Approach GREY RD 15						W Approach 13TH ST E						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		
12:00:00	4	37	1	0	0	42	3	0	0	0	0	3	0	41	0	0	0	41	0	0	3	0	1	3	89	
12:15:00	5	40	0	0	0	45	0	2	1	0	0	3	1	42	2	0	0	45	0	0	4	0	0	4	97	
12:30:00	8	38	0	0	0	46	0	0	0	0	0	0	1	39	0	0	0	40	0	0	3	0	7	3	89	
12:45:00	8	46	0	0	0	54	1	0	1	0	1	2	0	62	2	0	0	64	1	0	8	0	2	9	129	404
13:00:00	6	42	2	0	0	50	0	1	0	0	2	1	0	40	0	0	1	40	0	3	6	0	3	9	100	415
13:15:00	3	41	1	0	0	45	1	1	1	0	1	3	1	38	0	0	0	39	0	0	4	0	3	4	91	409
13:30:00	5	53	0	0	1	58	0	2	1	0	0	3	1	39	0	0	0	40	0	2	6	0	3	8	109	429
13:45:00	13	52	0	0	0	65	2	0	0	0	0	2	0	33	0	0	0	33	0	2	4	0	0	6	106	406
14:00:00	9	49	0	0	0	58	0	4	1	0	1	5	0	48	2	0	0	50	0	0	10	0	0	10	123	429
14:15:00	4	47	1	0	0	52	0	0	0	0	0	0	1	30	1	0	3	32	4	5	4	0	6	13	97	435
14:30:00	9	49	0	0	0	58	1	1	0	0	1	2	1	37	1	0	3	39	1	0	6	0	0	7	106	432
14:45:00	11	49	1	0	0	61	1	1	0	0	3	2	0	52	0	0	0	52	0	0	6	0	5	6	121	447
15:00:00	9	41	0	0	0	50	2	0	1	0	3	3	0	54	1	0	0	55	3	0	5	0	0	8	116	440
15:15:00	4	53	0	0	0	57	1	0	2	0	1	3	1	32	1	0	0	34	2	2	14	0	0	18	112	455
15:30:00	6	44	0	0	0	50	0	0	1	0	1	1	0	35	0	0	0	35	0	0	4	0	2	4	90	439
15:45:00	13	42	0	0	0	55	1	0	1	0	2	2	1	19	3	0	1	23	1	1	7	0	0	9	89	407
16:00:00	7	44	1	0	0	52	0	1	0	0	1	1	0	34	1	0	0	35	1	1	6	0	1	8	96	387
16:15:00	9	42	0	0	0	51	1	0	1	0	0	2	1	37	1	0	0	39	0	1	8	0	0	9	101	376
16:30:00	3	42	0	0	4	45	0	0	0	0	4	0	1	29	2	0	1	32	0	0	4	0	0	4	81	367
16:45:00	10	46	1	0	1	57	0	1	2	0	0	3	0	29	1	0	1	30	1	0	5	0	3	6	96	374
17:00:00	5	43	0	0	0	48	0	2	1	0	5	3	1	33	0	0	1	34	2	1	7	0	3	10	95	373
17:15:00	9	31	0	0	2	40	0	1	2	0	4	3	1	28	0	0	0	29	0	0	6	0	2	6	78	350
17:30:00	8	35	0	0	0	43	0	0	1	0	0	1	0	26	0	0	0	26	1	1	4	0	0	6	76	345
17:45:00	4	36	0	0	3	40	2	0	1	0	1	3	1	26	1	0	0	28	0	1	2	0	3	3	74	323
18:00:00	6	30	0	0	0	36	0	0	0	0	3	0	1	27	1	0	0	29	0	1	2	0	5	3	68	296
18:15:00	5	35	0	0	0	40	2	0	0	0	1	2	0	44	0	0	1	44	1	0	2	0	5	3	89	307
18:30:00	4	28	0	0	2	32	2	2	2	0	4	6	0	50	1	0	0	51	0	0	3	0	2	3	92	323
18:45:00	1	26	0	0	0	27	1	1	0	0	1	2	0	75	0	0	0	75	1	2	0	0	0	3	107	356
Grand Total	188	1161	8	0	13	1357	21	20	20	0	40	61	14	1079	21	0	12	1114	19	23	143	0	56	185	**2717**	-
Approach%	13.9%	85.6%	0.6%	0%		-	34.4%	32.8%	32.8%	0%		-	1.3%	96.9%	1.9%	0%		-	10.3%	12.4%	77.3%	0%		-	**-**	-
Totals %	6.9%	42.7%	0.3%	0%		49.9%	0.8%	0.7%	0.7%	0%		2.2%	0.5%	39.7%	0.8%	0%		41%	0.7%	0.8%	5.3%	0%		6.8%	**-**	-
Heavy	0	6	1	0		-	0	0	0	0		-	0	16	0	0		-	0	0	0	0		-	**-**	-
Heavy %	0%	0.5%	12.5%	0%		-	0%	0%	0%	0%		-	0%	1.5%	0%	0%		-	0%	0%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

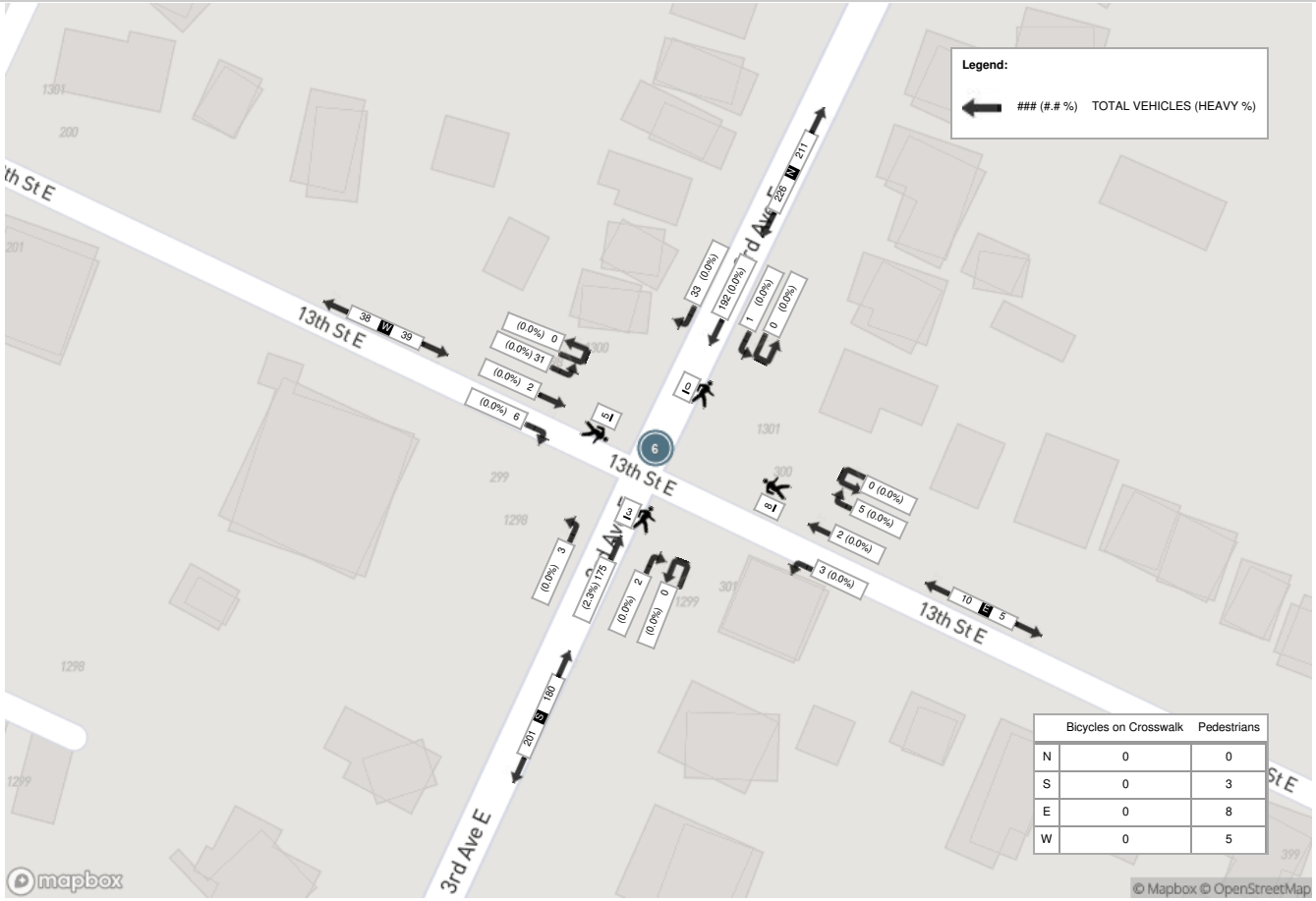
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 02:30 PM - 03:30 PM Weather: Clear Sky (-6.82 °C)

Start Time	N Approach 3RD AVE E						E Approach 13TH ST E						S Approach GREY RD 15						W Approach 13TH ST E						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	
14:30:00	9	49	0	0	0	58	1	1	0	0	1	2	1	37	1	0	3	39	1	0	6	0	0	7	106
14:45:00	11	49	1	0	0	61	1	1	0	0	3	2	0	52	0	0	0	52	0	0	6	0	5	6	121
15:00:00	9	41	0	0	0	50	2	0	1	0	3	3	0	54	1	0	0	55	3	0	5	0	0	8	116
15:15:00	4	53	0	0	0	57	1	0	2	0	1	3	1	32	1	0	0	34	2	2	14	0	0	18	112
Grand Total	33	192	1	0	0	226	5	2	3	0	8	10	2	175	3	0	3	180	6	2	31	0	5	39	**455**
Approach%	14.6%	85%	0.4%	0%		-	50%	20%	30%	0%		-	1.1%	97.2%	1.7%	0%		-	15.4%	5.1%	79.5%	0%		-	**-**
Totals %	7.3%	42.2%	0.2%	0%		49.7%	1.1%	0.4%	0.7%	0%		2.2%	0.4%	38.5%	0.7%	0%		39.6%	1.3%	0.4%	6.8%	0%		8.6%	**-**
PHF	0.75	0.91	0.25	0		0.93	0.63	0.5	0.38	0		0.83	0.5	0.81	0.75	0		0.82	0.5	0.25	0.55	0		0.54	**-**
Heavy	0	0	0	0		0	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	**-**
Heavy %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	2.3%	0%	0%		2.2%	0%	0%	0%	0%		0%	**-**
Lights	33	192	1	0		226	5	2	3	0		10	2	170	3	0		175	6	2	31	0		39	**-**
Lights %	100%	100%	100%	0%		100%	100%	100%	100%	0%		100%	100%	97.1%	100%	0%		97.2%	100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1.1%	0%	0%	0%	0%		0%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1.1%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	0	-	-	-	-	-	8	-	-	-	-	-	3	-	-	-	-	-	5	-	**-**
Pedestrians%	-	-	-	-	0%		-	-	-	-	50%		-	-	-	-	18.8%		-	-	-	-	31.3%		**-**
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: 02:30 PM - 03:30 PM **Weather: Clear Sky (-6.82 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	0
S	0	3
E	0	8
W	0	5

Spectrum

Turning Movement Count
Location Name: 4TH AVE E & HWY 6
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (4 . 4TH AVE E & HWY 6)

Start Time	N Approach 4TH AVE E						E Approach HWY 6						S Approach 4TH AVE E						W Approach HWY 6						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		
12:00:00	2	5	3	0	0	10	3	158	3	0	0	164	9	6	1	0	4	16	0	185	4	0	0	189	379	
12:15:00	6	6	4	0	0	16	10	153	6	0	0	169	15	6	0	0	0	21	1	162	8	0	0	171	377	
12:30:00	2	3	4	0	3	9	4	142	4	0	3	150	9	1	1	0	3	11	1	175	6	0	1	182	352	
12:45:00	2	2	5	0	2	9	5	140	9	0	0	154	12	7	3	0	4	22	0	180	6	0	0	186	371	1479
13:00:00	2	3	3	0	0	8	6	132	12	0	0	150	14	3	1	0	5	18	1	197	3	0	2	201	377	1477
13:15:00	5	6	0	0	3	11	6	162	7	0	3	175	20	4	0	0	1	24	2	166	5	0	4	173	383	1483
13:30:00	2	6	10	0	3	18	9	136	7	0	5	152	9	1	1	0	3	11	3	176	4	0	2	183	364	1495
13:45:00	7	4	2	0	1	13	5	151	9	0	3	165	9	5	2	0	8	16	2	159	8	0	1	169	363	1487
14:00:00	2	4	2	0	0	8	14	127	7	0	0	148	9	10	1	0	0	20	3	174	0	0	0	177	353	1463
14:15:00	4	7	6	0	0	17	4	155	7	0	0	166	10	3	0	0	3	13	1	172	3	0	2	176	372	1452
14:30:00	2	11	4	0	3	17	6	139	5	0	0	150	3	7	0	0	5	10	2	143	7	0	1	152	329	1417
14:45:00	4	3	4	0	0	11	5	155	7	0	3	167	4	3	1	0	6	8	0	139	8	0	0	147	333	1387
15:00:00	3	5	2	0	1	10	4	135	8	0	0	147	4	6	4	0	0	14	1	156	4	0	0	161	332	1366
15:15:00	6	10	4	0	0	20	8	148	7	0	0	163	15	6	3	0	0	24	5	159	5	0	0	169	376	1370
15:30:00	5	4	2	0	1	11	6	161	14	0	0	181	5	5	1	0	2	11	3	157	2	0	1	162	365	1406
15:45:00	1	2	4	0	0	7	7	143	5	0	0	155	3	5	3	0	3	11	6	155	3	0	1	164	337	1410
16:00:00	3	4	2	0	1	9	6	132	5	0	0	143	7	5	0	0	0	12	2	151	3	0	1	156	320	1398
16:15:00	4	1	4	0	2	9	5	116	6	0	1	127	3	5	0	0	3	8	2	146	9	0	1	157	301	1323
16:30:00	5	2	5	0	1	12	4	113	10	0	2	127	6	8	0	0	1	14	2	126	6	0	4	134	287	1245
16:45:00	4	4	3	0	1	11	3	117	8	0	2	128	6	8	2	0	1	16	2	130	4	0	3	136	291	1199
17:00:00	3	4	2	0	0	9	5	95	7	0	0	107	2	4	2	0	0	8	3	134	3	0	1	140	264	1143
17:15:00	6	5	2	0	0	13	6	140	3	0	0	149	6	6	3	0	1	15	1	124	3	0	1	128	305	1147
17:30:00	6	5	3	0	1	14	8	129	2	0	1	139	5	3	1	0	0	9	1	90	6	0	1	97	259	1119
17:45:00	4	3	4	0	1	11	5	126	4	0	1	135	3	5	1	0	3	9	1	119	2	0	2	122	277	1105
18:00:00	6	3	3	0	1	12	1	108	7	0	0	116	8	3	0	0	0	11	1	105	3	0	1	109	248	1089
18:15:00	3	3	1	0	0	7	5	102	7	0	0	114	1	5	2	0	0	8	7	101	1	0	0	109	238	1022
18:30:00	5	3	0	0	2	8	3	87	4	0	0	94	2	5	0	0	1	7	1	88	2	0	4	91	200	963
18:45:00	5	4	0	0	0	9	8	103	8	0	0	119	5	1	0	0	0	6	2	72	3	0	0	77	211	897
Grand Total	109	122	88	0	27	319	161	3705	188	0	24	4054	204	136	33	0	57	373	56	4041	121	0	34	4218	**8964**	-
Approach%	34.2%	38.2%	27.6%	0%		-	4%	91.4%	4.6%	0%		-	54.7%	36.5%	8.8%	0%		-	1.3%	95.8%	2.9%	0%		-	-	-
Totals %	1.2%	1.4%	1%	0%		3.6%	1.8%	41.3%	2.1%	0%		45.2%	2.3%	1.5%	0.4%	0%		4.2%	0.6%	45.1%	1.3%	0%		47.1%	-	-
Heavy	1	1	0	0		-	5	24	0	0		-	0	3	0	0		-	0	19	0	0		-	-	-
Heavy %	0.9%	0.8%	0%	0%		-	3.1%	0.6%	0%	0%		-	0%	2.2%	0%	0%		-	0%	0.5%	0%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: 4TH AVE E & HWY 6
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

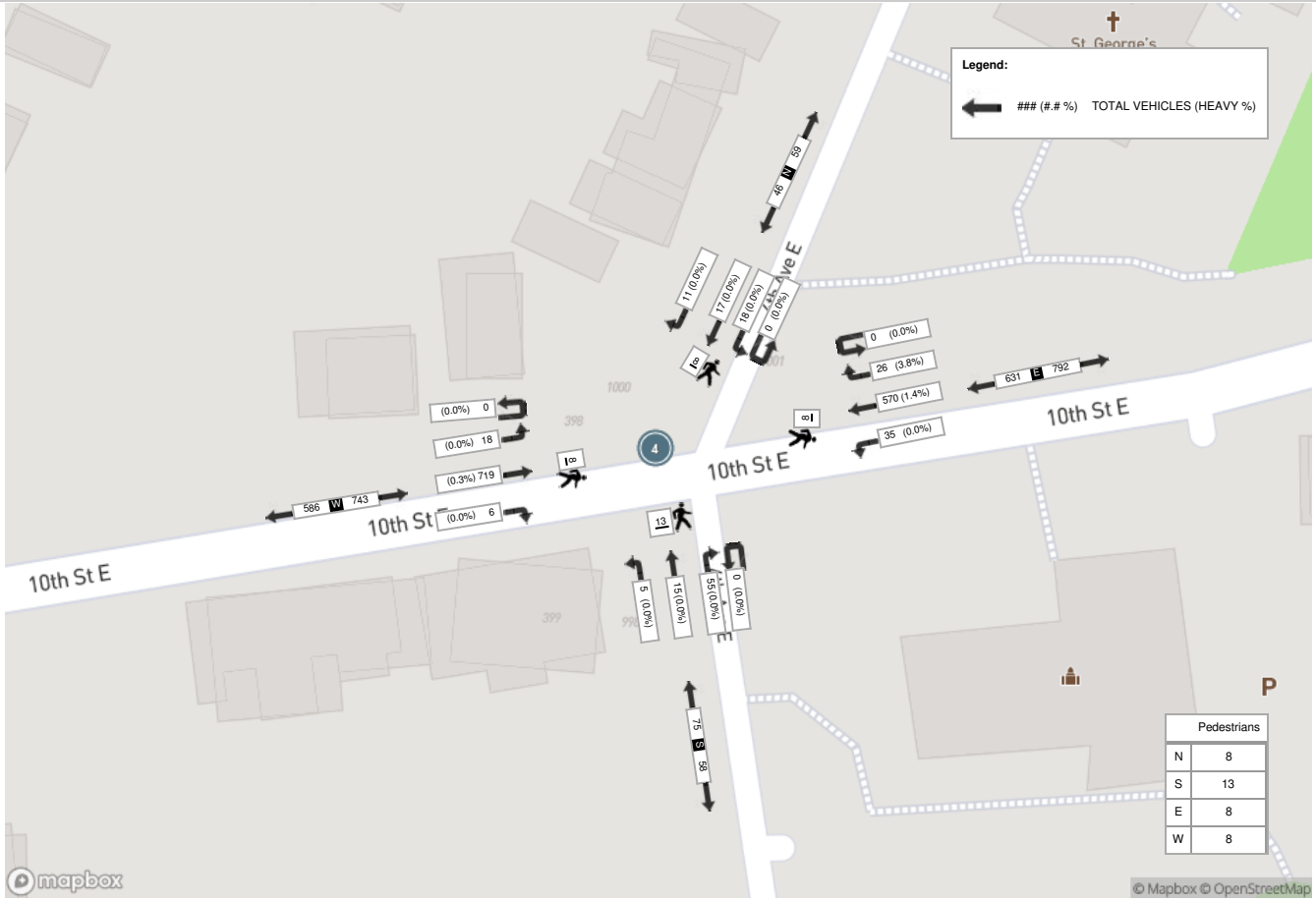
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 12:45 PM - 01:45 PM Weather: Clear Sky (-6.82 °C)

Start Time	N Approach 4TH AVE E						E Approach HWY 6						S Approach 4TH AVE E						W Approach HWY 6						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	
12:45:00	2	2	5	0	2	9	5	140	9	0	0	154	12	7	3	0	4	22	0	180	6	0	0	186	371
13:00:00	2	3	3	0	0	8	6	132	12	0	0	150	14	3	1	0	5	18	1	197	3	0	2	201	377
13:15:00	5	6	0	0	3	11	6	162	7	0	3	175	20	4	0	0	1	24	2	166	5	0	4	173	383
13:30:00	2	6	10	0	3	18	9	136	7	0	5	152	9	1	1	0	3	11	3	176	4	0	2	183	364
Grand Total	11	17	18	0	8	46	26	570	35	0	8	631	55	15	5	0	13	75	6	719	18	0	8	743	**1495**
Approach%	23.9%	37%	39.1%	0%		-	4.1%	90.3%	5.5%	0%		-	73.3%	20%	6.7%	0%		-	0.8%	96.8%	2.4%	0%		-	**-**
Totals %	0.7%	1.1%	1.2%	0%		3.1%	1.7%	38.1%	2.3%	0%		42.2%	3.7%	1%	0.3%	0%		5%	0.4%	48.1%	1.2%	0%		49.7%	**-**
PHF	0.55	0.71	0.45	0		0.64	0.72	0.88	0.73	0		0.9	0.69	0.54	0.42	0		0.78	0.5	0.91	0.75	0		0.92	**-**
Heavy	0	0	0	0		0	1	8	0	0		9	0	0	0	0		0	0	2	0	0		2	**-**
Heavy %	0%	0%	0%	0%		0%	3.8%	1.4%	0%	0%		1.4%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	**-**
Lights	11	17	18	0		46	25	562	35	0		622	55	15	5	0		75	6	717	18	0		741	**-**
Lights %	100%	100%	100%	0%		100%	96.2%	98.6%	100%	0%		98.6%	100%	100%	100%	0%		100%	100%	99.7%	100%	0%		99.7%	**-**
Single-Unit Trucks	0	0	0	0		0	1	4	0	0		5	0	0	0	0		0	0	2	0	0		2	**-**
Single-Unit Trucks %	0%	0%	0%	0%		0%	3.8%	0.7%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	**-**
Buses	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	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	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	8	-	-	-	-	-	8	-	-	-	-	-	13	-	-	-	-	-	8	-	**-**
Pedestrians%	-	-	-	-	21.6%		-	-	-	-	21.6%		-	-	-	-	35.1%		-	-	-	-	21.6%		**-**

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

Peak Hour: 12:45 PM - 01:45 PM **Weather: Clear Sky (-6.82 °C)**



Spectrum

Turning Movement Count
Location Name: GREY RD 15 & 12TH ST
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (1 . GREY RD 15 & 12TH ST)

Start Time	N Approach GREY RD 15						E Approach 12TH ST						S Approach GREY RD 15						W Approach 12TH 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	0	5	0	0	1	5	0	1	1	0	1	2	1	11	0	0	0	12	1	0	0	0	0	1	20	
06:15:00	0	6	0	0	0	6	0	0	0	0	0	0	0	16	2	0	0	18	0	0	0	0	0	0	24	
06:30:00	0	10	0	0	0	10	0	1	0	0	2	1	0	20	0	0	0	20	0	0	3	0	0	3	34	
06:45:00	0	14	1	0	0	15	0	1	0	0	1	1	0	28	1	0	0	29	1	1	3	0	0	5	50	128
07:00:00	2	29	2	0	0	33	0	0	0	0	0	0	1	31	2	0	1	34	0	0	4	0	1	4	71	179
07:15:00	1	15	1	0	0	17	1	0	0	0	0	1	1	19	2	0	1	22	1	1	4	0	0	6	46	201
07:30:00	0	25	0	0	0	25	0	6	1	0	2	7	2	21	0	0	0	23	0	3	1	0	0	4	59	226
07:45:00	1	27	0	0	0	28	1	3	0	0	1	4	2	20	2	0	0	24	2	2	3	0	0	7	63	239
08:00:00	2	17	1	0	0	20	1	3	1	0	0	5	0	29	4	0	4	33	1	2	7	0	2	10	68	236
08:15:00	2	42	0	0	0	44	3	6	0	0	9	9	0	42	1	0	0	43	1	1	3	0	1	5	101	291
08:30:00	3	36	2	0	0	41	0	1	1	0	4	2	1	71	0	0	0	72	0	1	5	0	0	6	121	353
08:45:00	3	61	1	0	2	65	0	0	1	0	0	1	1	68	3	0	0	72	3	0	8	0	0	11	149	439
09:00:00	3	39	0	0	0	42	2	2	0	0	1	4	0	32	2	0	0	34	2	0	8	0	3	10	90	461
09:15:00	4	33	1	0	0	38	1	1	0	0	1	2	2	28	0	0	1	30	2	2	8	0	1	12	82	442
09:30:00	3	32	0	0	0	35	1	2	0	0	1	3	1	26	1	0	0	28	2	3	7	0	1	12	78	399
09:45:00	2	34	1	0	0	37	1	4	0	0	1	5	0	31	3	0	3	34	0	1	5	0	4	6	82	332
BREAK																										
15:00:00	4	46	1	0	0	51	4	2	1	0	0	7	3	57	1	0	0	61	2	1	4	0	0	7	126	
15:15:00	4	64	0	0	0	68	1	4	0	0	1	5	0	48	0	0	1	48	6	2	3	0	3	11	132	
15:30:00	10	54	1	0	4	65	0	4	1	0	7	5	0	45	3	0	1	48	2	1	9	0	5	12	130	
15:45:00	5	61	0	0	0	66	1	2	1	0	0	4	1	41	4	0	3	46	2	3	5	0	0	10	126	514
16:00:00	6	59	1	0	1	66	0	3	0	0	1	3	1	30	2	0	0	33	0	1	7	0	1	8	110	498
16:15:00	9	40	0	0	0	49	0	4	1	0	1	5	2	43	4	0	0	49	2	1	8	0	2	11	114	480
16:30:00	8	44	1	0	0	53	2	5	2	0	1	9	0	49	4	0	2	53	0	1	13	0	2	14	129	479
16:45:00	3	46	0	0	0	49	0	4	0	0	1	4	2	36	3	0	0	41	5	1	9	0	1	15	109	462
17:00:00	4	50	0	0	0	54	1	6	0	0	2	7	1	63	0	0	0	64	5	3	10	0	1	18	143	495
17:15:00	6	36	4	0	0	46	0	6	1	0	1	7	1	39	3	0	0	43	4	1	2	0	2	7	103	484
17:30:00	2	47	0	0	0	49	0	3	2	0	0	5	2	32	1	0	0	35	1	3	5	0	2	9	98	453
17:45:00	1	45	0	0	0	46	1	2	1	0	0	4	2	34	3	0	0	39	3	0	4	0	2	7	96	440
18:00:00	4	33	1	0	0	38	1	4	2	0	2	7	1	32	1	0	0	34	1	1	6	0	2	8	87	384
18:15:00	2	33	1	0	3	36	1	2	2	0	0	5	0	36	0	0	0	36	3	1	2	0	1	6	83	364
18:30:00	5	33	1	0	0	39	0	2	2	0	0	4	0	28	1	0	1	29	3	0	1	0	0	4	76	342
18:45:00	2	24	0	0	0	26	0	3	0	0	0	3	1	23	1	0	1	25	0	1	2	0	1	3	57	303
Grand Total	101	1140	21	0	11	1262	23	87	21	0	41	131	29	1129	54	0	19	1212	55	38	159	0	38	252	**2857**	-
Approach%	8%	90.3%	1.7%	0%		-	17.6%	66.4%	16%	0%		-	2.4%	93.2%	4.5%	0%		-	21.8%	15.1%	63.1%	0%		-	-	-
Totals %	3.5%	39.9%	0.7%	0%		44.2%	0.8%	3%	0.7%	0%		4.6%	1%	39.5%	1.9%	0%		42.4%	1.9%	1.3%	5.6%	0%		8.8%	-	-
Heavy	1	44	1	0		-	1	1	0	0		-	0	76	1	0		-	1	2	1	0		-	-	-
Heavy %	1%	3.9%	4.8%	0%		-	4.3%	1.1%	0%	0%		-	0%	6.7%	1.9%	0%		-	1.8%	5.3%	0.6%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: GREY RD 15 & 12TH ST
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Peak Hour: 08:15 AM - 09:15 AM Weather: Light Snow (-2.8 °C)

Start Time	N Approach GREY RD 15						E Approach 12TH ST						S Approach GREY RD 15						W Approach 12TH 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	2	42	0	0	0	44	3	6	0	0	9	9	0	42	1	0	0	43	1	1	3	0	1	5	101
08:30:00	3	36	2	0	0	41	0	1	1	0	4	2	1	71	0	0	0	72	0	1	5	0	0	6	121
08:45:00	3	61	1	0	2	65	0	0	1	0	0	1	1	68	3	0	0	72	3	0	8	0	0	11	149
09:00:00	3	39	0	0	0	42	2	2	0	0	1	4	0	32	2	0	0	34	2	0	8	0	3	10	90
Grand Total	11	178	3	0	2	192	5	9	2	0	14	16	2	213	6	0	0	221	6	2	24	0	4	32	**461**
Approach%	5.7%	92.7%	1.6%	0%		-	31.3%	56.3%	12.5%	0%		-	0.9%	96.4%	2.7%	0%		-	18.8%	6.3%	75%	0%		-	**-**
Totals %	2.4%	38.6%	0.7%	0%		41.6%	1.1%	2%	0.4%	0%		3.5%	0.4%	46.2%	1.3%	0%		47.9%	1.3%	0.4%	5.2%	0%		6.9%	**-**
PHF	0.92	0.73	0.38	0		0.74	0.42	0.38	0.5	0		0.44	0.5	0.75	0.5	0		0.77	0.5	0.5	0.75	0		0.73	**-**
Heavy	0	14	1	0		15	0	0	0	0		0	0	28	0	0		28	1	0	0	0		1	**-**
Heavy %	0%	7.9%	33.3%	0%		7.8%	0%	0%	0%	0%		0%	0%	13.1%	0%	0%		12.7%	16.7%	0%	0%	0%		3.1%	**-**
Lights	11	164	2	0		177	5	9	2	0		16	2	184	6	0		192	5	2	24	0		31	**-**
Lights %	100%	92.1%	66.7%	0%		92.2%	100%	100%	100%	0%		100%	100%	86.4%	100%	0%		86.9%	83.3%	100%	100%	0%		96.9%	**-**
Single-Unit Trucks	0	3	1	0		4	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	1.7%	33.3%	0%		2.1%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	**-**
Buses	0	11	0	0		11	0	0	0	0		0	0	27	0	0		27	1	0	0	0		1	**-**
Buses %	0%	6.2%	0%	0%		5.7%	0%	0%	0%	0%		0%	0%	12.7%	0%	0%		12.2%	16.7%	0%	0%	0%		3.1%	**-**
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	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	2	-	-	-	-	-	14	-	-	-	-	-	0	-	-	-	-	-	4	-	**-**
Pedestrians%	-	-	-	-	10%		-	-	-	-	70%		-	-	-	-	0%		-	-	-	-	20%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

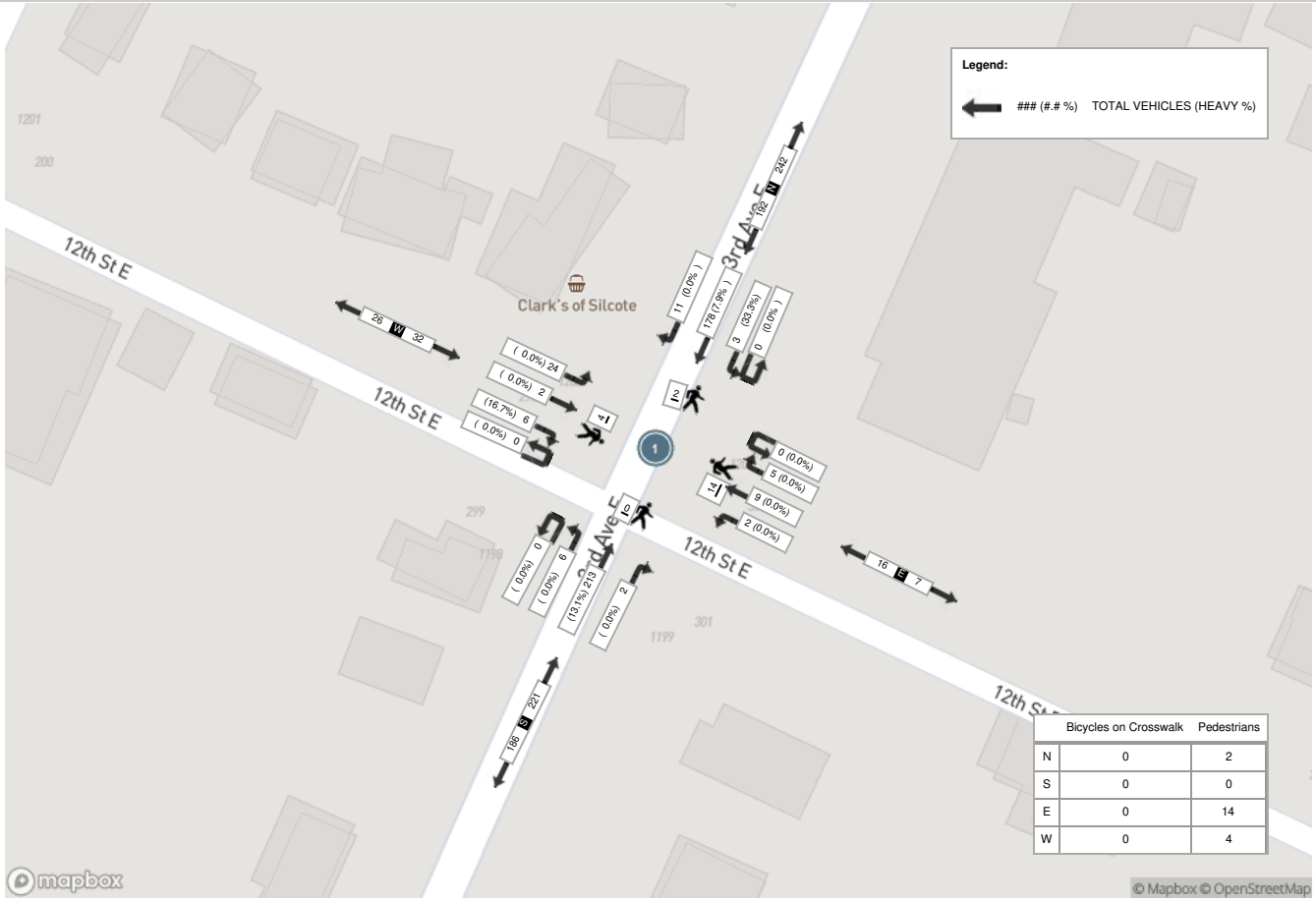
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (-3.72 °C)

Start Time	N Approach GREY RD 15						E Approach 12TH ST						S Approach GREY RD 15						W Approach 12TH 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	
15:00:00	4	46	1	0	0	51	4	2	1	0	0	7	3	57	1	0	0	61	2	1	4	0	0	7	126
15:15:00	4	64	0	0	0	68	1	4	0	0	1	5	0	48	0	0	1	48	6	2	3	0	3	11	132
15:30:00	10	54	1	0	4	65	0	4	1	0	7	5	0	45	3	0	1	48	2	1	9	0	5	12	130
15:45:00	5	61	0	0	0	66	1	2	1	0	0	4	1	41	4	0	3	46	2	3	5	0	0	10	126
Grand Total	23	225	2	0	4	250	6	12	3	0	8	21	4	191	8	0	5	203	12	7	21	0	8	40	**514**
Approach%	9.2%	90%	0.8%	0%		-	28.6%	57.1%	14.3%	0%		-	2%	94.1%	3.9%	0%		-	30%	17.5%	52.5%	0%		-	**-**
Totals %	4.5%	43.8%	0.4%	0%		48.6%	1.2%	2.3%	0.6%	0%		4.1%	0.8%	37.2%	1.6%	0%		39.5%	2.3%	1.4%	4.1%	0%		7.8%	**-**
PHF	0.58	0.88	0.5	0		0.92	0.38	0.75	0.75	0		0.75	0.33	0.84	0.5	0		0.83	0.5	0.58	0.58	0		0.83	**-**
Heavy	0	9	0	0		9	0	0	0	0		0	0	19	1	0		20	0	1	0	0		1	**-**
Heavy %	0%	4%	0%	0%		3.6%	0%	0%	0%	0%		0%	0%	9.9%	12.5%	0%		9.9%	0%	14.3%	0%	0%		2.5%	**-**
Lights	23	215	2	0		240	6	12	3	0		21	4	171	7	0		182	12	6	21	0		39	**-**
Lights %	100%	95.6%	100%	0%		96%	100%	100%	100%	0%		100%	100%	89.5%	87.5%	0%		89.7%	100%	85.7%	100%	0%		97.5%	**-**
Single-Unit Trucks	0	2	0	0		2	0	0	0	0		0	0	6	1	0		7	0	1	0	0		1	**-**
Single-Unit Trucks %	0%	0.9%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	3.1%	12.5%	0%		3.4%	0%	14.3%	0%	0%		2.5%	**-**
Buses	0	7	0	0		7	0	0	0	0		0	0	13	0	0		13	0	0	0	0		0	**-**
Buses %	0%	3.1%	0%	0%		2.8%	0%	0%	0%	0%		0%	0%	6.8%	0%	0%		6.4%	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	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.5%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	4	-	-	-	-	-	8	-	-	-	-	-	5	-	-	-	-	-	8	-	**-**
Pedestrians%	-	-	-	-	16%		-	-	-	-	32%		-	-	-	-	20%		-	-	-	-	32%		**-**
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

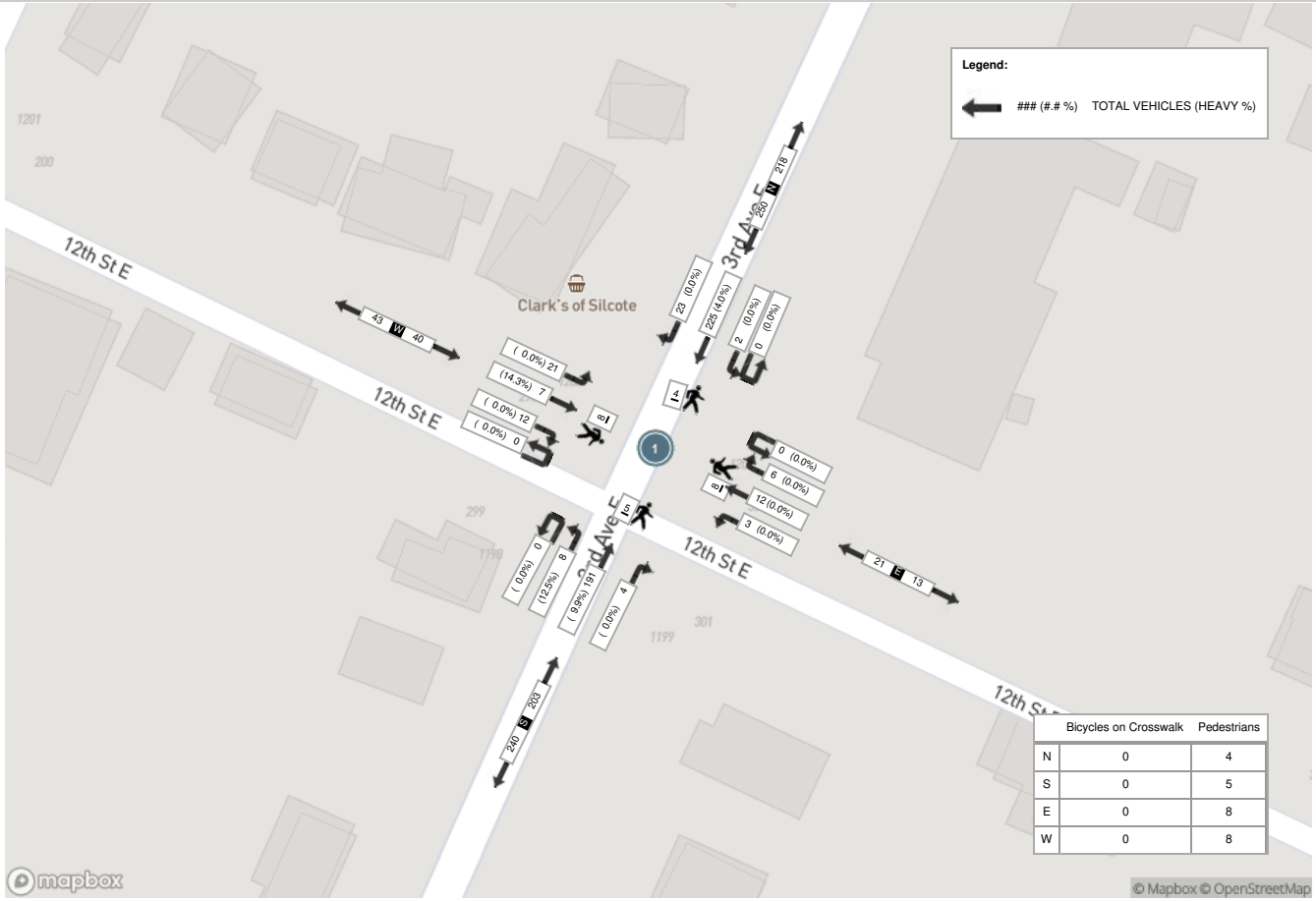
Peak Hour: 08:15 AM - 09:15 AM **Weather: Light Snow (-2.8 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	2
S	0	0
E	0	14
W	0	4

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

Peak Hour: 03:00 PM - 04:00 PM Weather: Overcast Clouds (-3.72 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	4
S	0	5
E	0	8
W	0	8

Spectrum

Turning Movement Count
Location Name: 4TH AVE E & HWY 6
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (4 . 4TH AVE E & HWY 6)

Start Time	N Approach 4TH AVE E						E Approach HWY 6						S Approach 4TH AVE E						W Approach HWY 6						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	1	2	1	0	0	4	1	16	1	0	0	18	1	0	0	0	0	1	2	36	0	0	0	38	61	
06:15:00	0	0	2	0	0	2	1	22	3	0	0	26	3	0	0	0	1	3	1	61	0	0	1	62	93	
06:30:00	1	0	3	0	0	4	1	26	0	0	1	27	1	0	0	0	0	1	1	81	0	0	0	82	114	
06:45:00	2	0	1	0	0	3	6	37	1	0	0	44	8	2	0	0	1	10	3	84	4	0	1	91	148	416
07:00:00	1	1	2	0	1	4	0	64	4	0	0	68	2	4	0	0	0	6	1	74	1	0	0	76	154	509
07:15:00	3	3	5	0	1	11	5	70	3	0	0	78	2	3	0	0	1	5	1	105	1	0	1	107	201	617
07:30:00	2	2	3	0	1	7	6	80	1	0	1	87	10	2	2	0	0	14	2	107	3	0	1	112	220	723
07:45:00	4	8	4	0	1	16	6	90	7	0	1	103	9	4	1	0	1	14	3	171	7	0	1	181	314	889
08:00:00	3	9	0	0	0	12	4	98	6	0	2	108	12	7	1	0	0	20	3	126	2	0	0	131	271	1006
08:15:00	5	6	1	0	0	12	9	97	14	0	0	120	10	7	4	0	1	21	2	123	8	0	2	133	286	1091
08:30:00	3	9	2	0	2	14	8	97	12	0	1	117	11	8	1	0	0	20	2	150	9	0	0	161	312	1183
08:45:00	3	8	2	0	4	13	9	105	13	0	0	127	22	9	2	0	1	33	3	175	2	0	0	180	353	1222
09:00:00	2	8	2	0	0	12	4	79	7	0	0	90	8	5	1	0	1	14	1	124	7	0	1	132	248	1199
09:15:00	2	6	2	0	1	10	8	86	5	0	0	99	6	3	6	0	1	15	1	117	3	0	0	121	245	1158
09:30:00	4	4	7	0	0	15	5	83	10	0	2	98	8	1	0	0	2	9	0	124	4	0	0	128	250	1096
09:45:00	2	6	5	0	0	13	13	95	14	0	2	122	7	8	2	0	2	17	2	148	2	0	0	152	304	1047
BREAK																										
15:00:00	6	10	3	0	0	19	12	153	12	0	2	177	13	6	2	0	1	21	2	134	4	0	0	140	357	
15:15:00	6	12	3	0	4	21	15	157	14	0	3	186	20	9	2	0	5	31	2	149	4	0	2	155	393	
15:30:00	7	9	3	0	5	19	9	148	10	0	2	167	22	11	7	0	5	40	2	168	7	0	6	177	403	
15:45:00	7	10	3	0	0	20	6	136	18	0	3	160	19	9	3	0	1	31	4	161	2	0	1	167	378	1531
16:00:00	3	7	5	0	2	15	8	150	11	0	1	169	14	12	2	0	2	28	3	170	6	0	0	179	391	1565
16:15:00	2	10	4	0	1	16	12	171	10	0	0	193	17	6	2	0	2	25	0	168	6	0	2	174	408	1580
16:30:00	1	10	2	0	0	13	8	142	9	0	1	159	16	10	5	0	5	31	4	157	7	0	1	168	371	1548
16:45:00	4	4	4	0	2	12	11	167	11	0	0	189	9	8	0	0	5	17	1	156	12	0	1	169	387	1557
17:00:00	1	12	6	0	0	19	9	156	10	0	1	175	21	12	0	0	3	33	2	174	5	0	0	181	408	1574
17:15:00	6	4	3	0	0	13	6	146	2	0	1	154	21	12	3	0	1	36	3	164	6	0	0	173	376	1542
17:30:00	3	8	2	0	0	13	6	131	10	0	0	147	16	2	1	0	0	19	1	152	4	0	0	157	336	1507
17:45:00	6	6	1	0	0	13	5	109	4	0	0	118	8	1	1	0	1	10	1	137	3	0	2	141	282	1402
18:00:00	3	5	5	0	1	13	4	142	8	0	1	154	5	7	0	0	0	12	4	118	2	0	0	124	303	1297
18:15:00	1	3	1	0	0	5	4	115	8	0	1	127	12	5	2	0	3	19	3	117	3	0	0	123	274	1195
18:30:00	2	3	2	0	2	7	4	118	7	0	2	129	1	7	1	0	0	9	3	105	3	0	0	111	256	1115
18:45:00	3	7	1	0	0	11	5	122	7	0	0	134	6	2	1	0	0	9	1	95	5	0	2	101	255	1088
Grand Total	99	192	90	0	28	381	210	3408	252	0	28	3870	340	182	52	0	46	574	64	4131	132	0	25	4327	**9152**	-
Approach%	26%	50.4%	23.6%	0%		-	5.4%	88.1%	6.5%	0%		-	59.2%	31.7%	9.1%	0%		-	1.5%	95.5%	3.1%	0%		-	-	-
Totals %	1.1%	2.1%	1%	0%		4.2%	2.3%	37.2%	2.8%	0%		42.3%	3.7%	2%	0.6%	0%		6.3%	0.7%	45.1%	1.4%	0%		47.3%	-	-
Heavy	0	3	0	0		-	7	144	7	0		-	4	2	0	0		-	0	109	2	0		-	-	-
Heavy %	0%	1.6%	0%	0%		-	3.3%	4.2%	2.8%	0%		-	1.2%	1.1%	0%	0%		-	0%	2.6%	1.5%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: 4TH AVE E & HWY 6
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

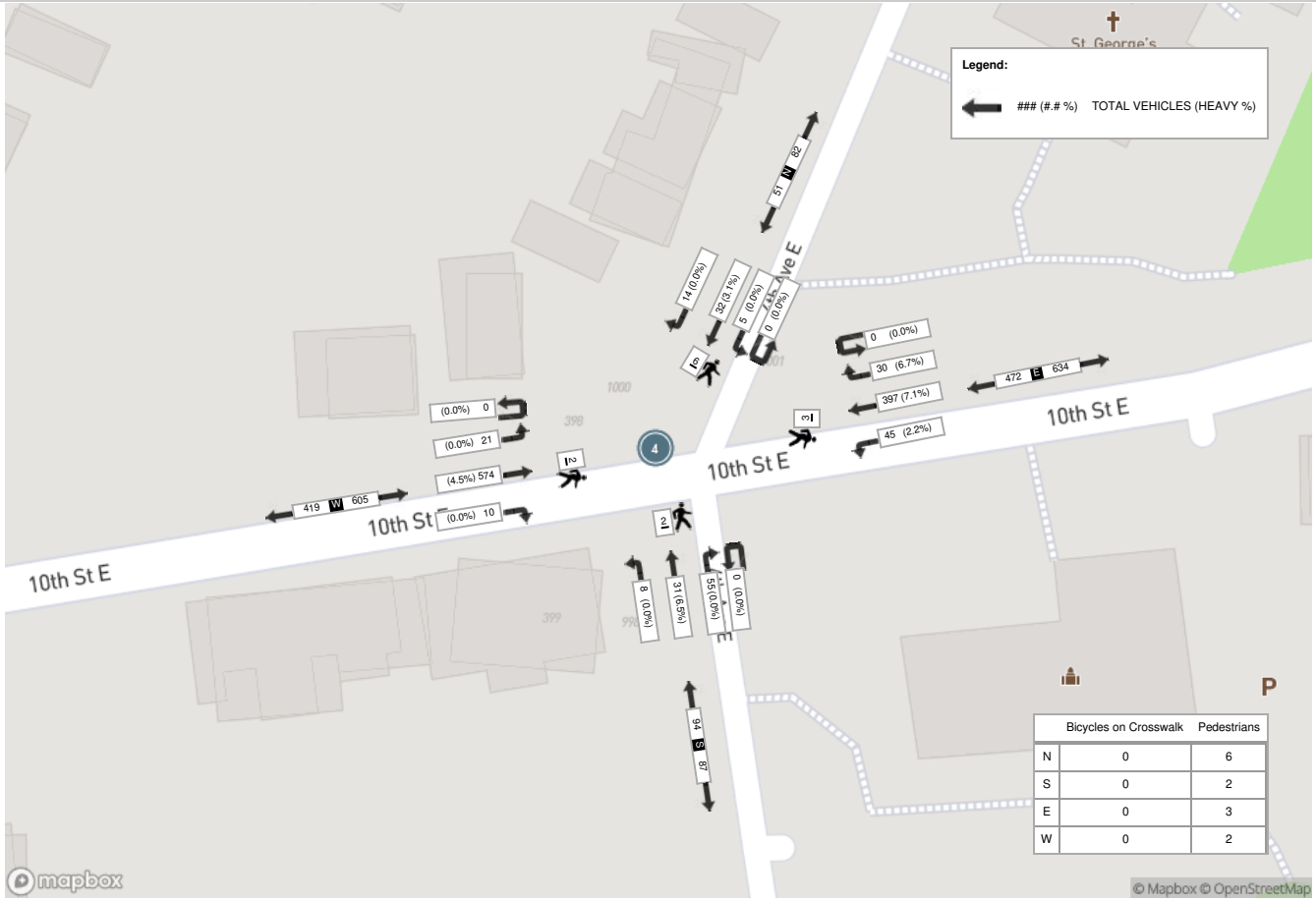
Peak Hour: 08:00 AM - 09:00 AM Weather: Light Snow (-2.8 °C)

Start Time	N Approach 4TH AVE E						E Approach HWY 6						S Approach 4TH AVE E						W Approach HWY 6						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	
08:00:00	3	9	0	0	0	12	4	98	6	0	2	108	12	7	1	0	0	20	3	126	2	0	0	131	271
08:15:00	5	6	1	0	0	12	9	97	14	0	0	120	10	7	4	0	1	21	2	123	8	0	2	133	286
08:30:00	3	9	2	0	2	14	8	97	12	0	1	117	11	8	1	0	0	20	2	150	9	0	0	161	312
08:45:00	3	8	2	0	4	13	9	105	13	0	0	127	22	9	2	0	1	33	3	175	2	0	0	180	353
Grand Total	14	32	5	0	6	51	30	397	45	0	3	472	55	31	8	0	2	94	10	574	21	0	2	605	**1222**
Approach%	27.5%	62.7%	9.8%	0%		-	6.4%	84.1%	9.5%	0%		-	58.5%	33%	8.5%	0%		-	1.7%	94.9%	3.5%	0%		-	**-**
Totals %	1.1%	2.6%	0.4%	0%		4.2%	2.5%	32.5%	3.7%	0%		38.6%	4.5%	2.5%	0.7%	0%		7.7%	0.8%	47%	1.7%	0%		49.5%	**-**
PHF	0.7	0.89	0.63	0		0.91	0.83	0.95	0.8	0		0.93	0.63	0.86	0.5	0		0.71	0.83	0.82	0.58	0		0.84	**-**
Heavy	0	1	0	0		1	2	28	1	0		31	0	2	0	0		2	0	26	0	0		26	**-**
Heavy %	0%	3.1%	0%	0%		2%	6.7%	7.1%	2.2%	0%		6.6%	0%	6.5%	0%	0%		2.1%	0%	4.5%	0%	0%		4.3%	**-**
Lights	14	31	5	0		50	28	368	44	0		440	55	28	8	0		91	10	548	21	0		579	**-**
Lights %	100%	96.9%	100%	0%		98%	93.3%	92.7%	97.8%	0%		93.2%	100%	90.3%	100%	0%		96.8%	100%	95.5%	100%	0%		95.7%	**-**
Single-Unit Trucks	0	1	0	0		1	1	8	0	0		9	0	0	0	0		0	0	10	0	0		10	**-**
Single-Unit Trucks %	0%	3.1%	0%	0%		2%	3.3%	2%	0%	0%		1.9%	0%	0%	0%	0%		0%	0%	1.7%	0%	0%		1.7%	**-**
Buses	0	0	0	0		0	1	17	1	0		19	0	2	0	0		2	0	12	0	0		12	**-**
Buses %	0%	0%	0%	0%		0%	3.3%	4.3%	2.2%	0%		4%	0%	6.5%	0%	0%		2.1%	0%	2.1%	0%	0%		2%	**-**
Articulated Trucks	0	0	0	0		0	0	3	0	0		3	0	0	0	0		0	0	4	0	0		4	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.8%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.7%	**-**
Bicycles on Road	0	0	0	0		0	0	1	0	0		1	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	0%	3.2%	0%	0%		1.1%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	6	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	46.2%		-	-	-	-	23.1%		-	-	-	-	15.4%		-	-	-	-	15.4%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 03:30 PM - 04:30 PM Weather: Overcast Clouds (-3.72 °C)

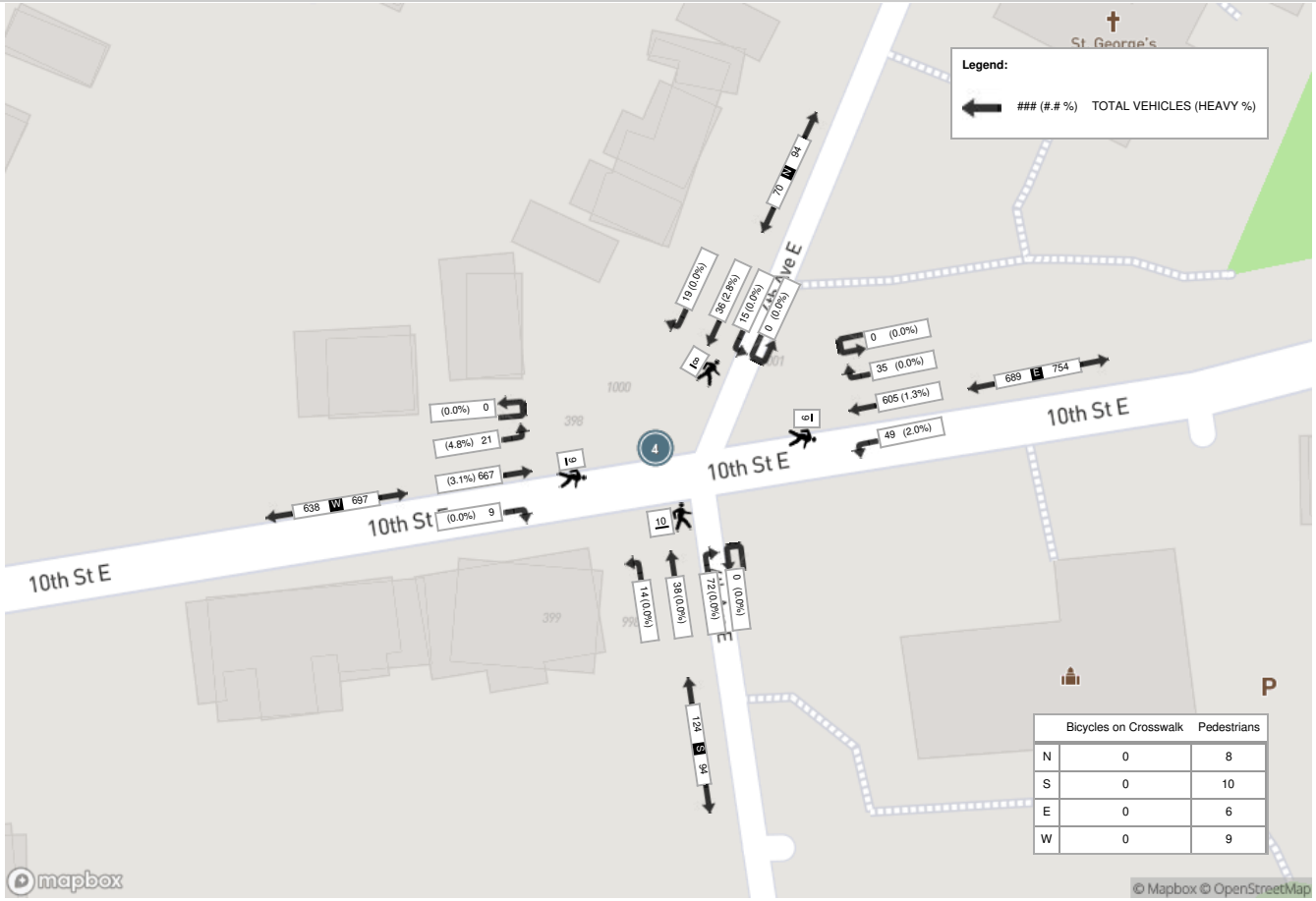
Start Time	N Approach 4TH AVE E						E Approach HWY 6						S Approach 4TH AVE E						W Approach HWY 6						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
15:30:00	7	9	3	0	5	19	9	148	10	0	2	167	22	11	7	0	5	40	2	168	7	0	6	177	403
15:45:00	7	10	3	0	0	20	6	136	18	0	3	160	19	9	3	0	1	31	4	161	2	0	1	167	378
16:00:00	3	7	5	0	2	15	8	150	11	0	1	169	14	12	2	0	2	28	3	170	6	0	0	179	391
16:15:00	2	10	4	0	1	16	12	171	10	0	0	193	17	6	2	0	2	25	0	168	6	0	2	174	408
Grand Total	19	36	15	0	8	70	35	605	49	0	6	689	72	38	14	0	10	124	9	667	21	0	9	697	**1580**
Approach%	27.1%	51.4%	21.4%	0%		-	5.1%	87.8%	7.1%	0%		-	58.1%	30.6%	11.3%	0%		-	1.3%	95.7%	3%	0%		-	**-**
Totals %	1.2%	2.3%	0.9%	0%		4.4%	2.2%	38.3%	3.1%	0%		43.6%	4.6%	2.4%	0.9%	0%		7.8%	0.6%	42.2%	1.3%	0%		44.1%	**-**
PHF	0.68	0.9	0.75	0		0.88	0.73	0.88	0.68	0		0.89	0.82	0.79	0.5	0		0.78	0.56	0.98	0.75	0		0.97	**-**
Heavy	0	1	0	0		1	0	8	1	0		9	0	0	0	0		0	0	21	1	0		22	**-**
Heavy %	0%	2.8%	0%	0%		1.4%	0%	1.3%	2%	0%		1.3%	0%	0%	0%	0%		0%	0%	3.1%	4.8%	0%		3.2%	**-**
Lights	19	35	15	0		69	35	597	48	0		680	72	38	14	0		124	9	646	20	0		675	**-**
Lights %	100%	97.2%	100%	0%		98.6%	100%	98.7%	98%	0%		98.7%	100%	100%	100%	0%		100%	100%	96.9%	95.2%	0%		96.8%	**-**
Single-Unit Trucks	0	1	0	0		1	0	4	0	0		4	0	0	0	0		0	0	14	1	0		15	**-**
Single-Unit Trucks %	0%	2.8%	0%	0%		1.4%	0%	0.7%	0%	0%		0.6%	0%	0%	0%	0%		0%	0%	2.1%	4.8%	0%		2.2%	**-**
Buses	0	0	0	0		0	0	4	1	0		5	0	0	0	0		0	0	4	0	0		4	**-**
Buses %	0%	0%	0%	0%		0%	0%	0.7%	2%	0%		0.7%	0%	0%	0%	0%		0%	0%	0.6%	0%	0%		0.6%	**-**
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	3	0	0		3	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.4%	0%	0%		0.4%	**-**
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	-	-	-	-	8	-	-	-	-	-	6	-	-	-	-	-	10	-	-	-	-	-	9	-	**-**
Pedestrians%	-	-	-	-	24.2%		-	-	-	-	18.2%		-	-	-	-	30.3%		-	-	-	-	27.3%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 08:00 AM - 09:00 AM **Weather: Light Snow (-2.8 °C)**



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

Peak Hour: 03:30 PM - 04:30 PM Weather: Overcast Clouds (-3.72 °C)



Spectrum

Turning Movement Count
Location Name: GREY RD 15 & HWY 6
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (2 . GREY RD 15 & HWY 6)

Start Time	N Approach 3RD AVE E						E Approach 10TH ST E						S Approach 3RD AVE E						W Approach 10TH ST E						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	4	2	1	0	0	7	4	9	2	0	1	15	1	2	2	0	0	5	1	36	11	0	0	48	75	
06:15:00	2	4	2	0	0	8	5	16	1	0	0	22	1	7	1	0	0	9	2	59	10	0	2	71	110	
06:30:00	8	5	0	0	3	13	1	27	0	0	0	28	1	7	0	0	1	8	4	84	7	0	4	95	144	
06:45:00	9	3	1	0	1	13	4	32	2	0	0	38	3	16	2	0	0	21	2	86	19	0	2	107	179	508
07:00:00	15	15	4	0	1	34	5	52	2	0	0	59	5	11	1	0	1	17	4	66	17	0	0	87	197	630
07:15:00	13	8	3	0	1	24	5	73	1	0	2	79	3	13	1	0	1	17	6	103	10	0	2	119	239	759
07:30:00	23	6	4	0	2	33	2	75	5	0	0	82	3	9	3	0	0	15	8	121	17	0	0	146	276	891
07:45:00	18	10	4	0	2	32	4	90	2	0	2	96	7	14	3	0	2	24	10	158	8	0	3	176	328	1040
08:00:00	15	5	4	0	1	24	8	86	6	0	0	100	5	17	5	0	0	27	7	126	15	0	2	148	299	1142
08:15:00	23	13	4	0	1	40	6	92	2	0	1	100	5	25	6	0	1	36	12	124	23	0	8	159	335	1238
08:30:00	20	23	3	0	8	46	6	94	4	0	0	104	5	30	8	0	0	43	7	155	34	0	5	196	389	1351
08:45:00	26	31	3	0	1	60	3	99	4	0	1	106	11	36	10	0	3	57	13	166	37	0	1	216	439	1462
09:00:00	24	26	1	0	2	51	8	66	4	0	2	78	14	16	6	0	2	36	7	115	13	0	3	135	300	1463
09:15:00	21	15	1	0	1	37	3	85	6	0	0	94	4	19	7	0	2	30	10	121	12	0	2	143	304	1432
09:30:00	17	20	6	0	1	43	7	80	2	0	2	89	7	16	3	0	1	26	10	126	7	0	6	143	301	1344
09:45:00	15	19	5	0	1	39	8	87	5	0	1	100	6	26	3	0	2	35	19	126	12	0	6	157	331	1236
BREAK																										
15:00:00	26	23	7	0	2	56	10	146	4	0	0	160	19	34	7	0	4	60	12	115	21	0	2	148	424	
15:15:00	33	27	5	0	2	65	7	160	6	0	0	173	15	27	7	0	3	49	13	135	21	0	3	169	456	
15:30:00	31	29	5	0	5	65	0	144	6	0	5	150	20	40	10	0	8	70	8	153	15	0	11	176	461	
15:45:00	42	26	7	0	2	75	10	133	9	0	5	152	23	25	9	0	0	57	12	136	10	0	0	158	442	1783
16:00:00	35	33	4	0	4	72	1	141	4	0	2	146	13	22	10	0	2	45	13	158	13	0	6	184	447	1806
16:15:00	21	18	3	0	3	42	8	158	12	0	1	178	11	30	6	0	2	47	15	157	17	0	2	189	456	1806
16:30:00	29	22	8	0	0	59	6	127	9	0	3	142	14	30	16	0	7	60	11	147	16	0	4	174	435	1780
16:45:00	25	23	3	0	3	51	8	158	5	0	0	171	9	24	11	0	5	44	8	156	25	0	4	189	455	1793
17:00:00	32	28	9	0	4	69	8	137	6	0	2	151	13	33	15	0	3	61	12	158	25	0	4	195	476	1822
17:15:00	26	12	7	0	1	45	2	145	16	0	1	163	16	20	10	0	1	46	14	151	19	0	1	184	438	1804
17:30:00	23	26	2	0	0	51	6	116	4	0	3	126	12	22	17	0	2	51	10	145	11	0	1	166	394	1763
17:45:00	34	19	3	0	1	56	6	99	9	0	0	114	9	20	8	0	3	37	14	126	22	0	4	162	369	1677
18:00:00	30	15	5	0	2	50	1	135	6	0	0	142	5	17	10	0	1	32	11	113	15	0	3	139	363	1564
18:15:00	24	12	7	0	3	43	4	106	8	1	0	119	7	13	17	0	5	37	15	109	24	0	4	148	347	1473
18:30:00	25	20	3	0	1	48	5	105	6	0	0	116	17	12	10	0	1	39	10	90	16	0	1	116	319	1398
18:45:00	16	10	4	0	1	30	5	119	4	0	0	128	8	9	11	0	0	28	16	89	8	0	4	113	299	1328
Grand Total	705	548	128	0	60	1381	166	3192	162	1	34	3521	292	642	235	0	63	1169	316	3910	530	0	100	4756	**10827**	-
Approach%	51%	39.7%	9.3%	0%		-	4.7%	90.7%	4.6%	0%		-	25%	54.9%	20.1%	0%		-	6.6%	82.2%	11.1%	0%		-	-	-
Totals %	6.5%	5.1%	1.2%	0%		12.8%	1.5%	29.5%	1.5%	0%		32.5%	2.7%	5.9%	2.2%	0%		10.8%	2.9%	36.1%	4.9%	0%		43.9%	-	-
Heavy	45	42	6	0		-	20	117	9	0		-	5	48	1	0		-	4	95	52	0		-	-	-
Heavy %	6.4%	7.7%	4.7%	0%		-	12%	3.7%	5.6%	0%		-	1.7%	7.5%	0.4%	0%		-	1.3%	2.4%	9.8%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: GREY RD 15 & HWY 6
Date: Fri, Jan 13, 2023 Deployment Lead: Peter Ilias

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

Peak Hour: 08:15 AM - 09:15 AM Weather: Light Snow (-2.8 °C)

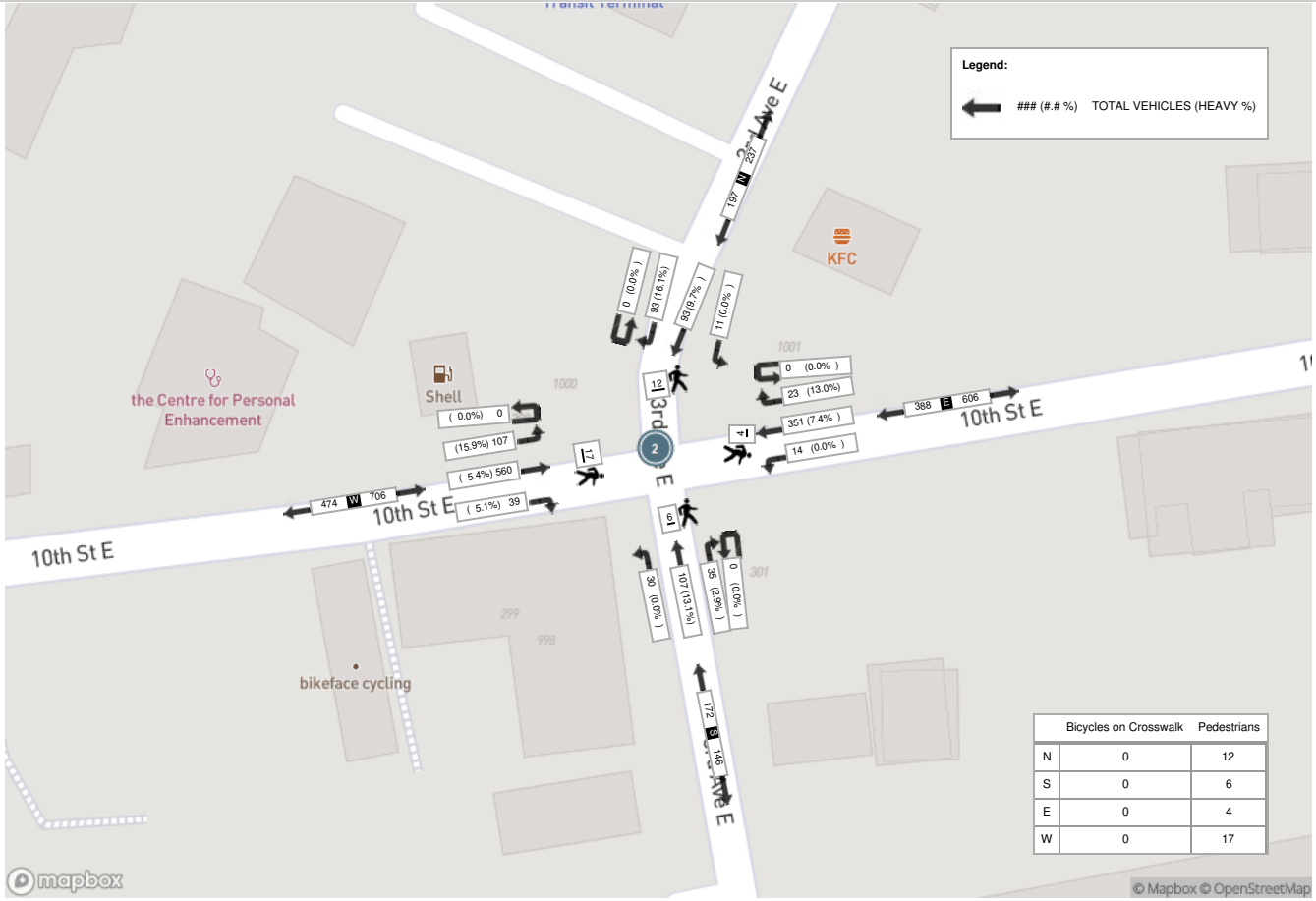
Start Time	N Approach 3RD AVE E						E Approach 10TH ST E						S Approach 3RD AVE E						W Approach 10TH ST E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:15:00	23	13	4	0	1	40	6	92	2	0	1	100	5	25	6	0	1	36	12	124	23	0	8	159	335
08:30:00	20	23	3	0	8	46	6	94	4	0	0	104	5	30	8	0	0	43	7	155	34	0	5	196	389
08:45:00	26	31	3	0	1	60	3	99	4	0	1	106	11	36	10	0	3	57	13	166	37	0	1	216	439
09:00:00	24	26	1	0	2	51	8	66	4	0	2	78	14	16	6	0	2	36	7	115	13	0	3	135	300
Grand Total	93	93	11	0	12	197	23	351	14	0	4	388	35	107	30	0	6	172	39	560	107	0	17	706	**1463**
Approach%	47.2%	47.2%	5.6%	0%		-	5.9%	90.5%	3.6%	0%		-	20.3%	62.2%	17.4%	0%		-	5.5%	79.3%	15.2%	0%		-	**-**
Totals %	6.4%	6.4%	0.8%	0%		13.5%	1.6%	24%	1%	0%		26.5%	2.4%	7.3%	2.1%	0%		11.8%	2.7%	38.3%	7.3%	0%		48.3%	**-**
PHF	0.89	0.75	0.69	0		0.82	0.72	0.89	0.88	0		0.92	0.63	0.74	0.75	0		0.75	0.75	0.84	0.72	0		0.82	**-**
Heavy	15	9	0	0		24	3	26	0	0		29	1	14	0	0		15	2	30	17	0		49	**-**
Heavy %	16.1%	9.7%	0%	0%		12.2%	13%	7.4%	0%	0%		7.5%	2.9%	13.1%	0%	0%		8.7%	5.1%	5.4%	15.9%	0%		6.9%	**-**
Lights	78	84	11	0		173	20	325	14	0		359	34	92	30	0		156	37	530	90	0		657	**-**
Lights %	83.9%	90.3%	100%	0%		87.8%	87%	92.6%	100%	0%		92.5%	97.1%	86%	100%	0%		90.7%	94.9%	94.6%	84.1%	0%		93.1%	**-**
Single-Unit Trucks	4	0	0	0		4	0	9	0	0		9	0	1	0	0		1	1	12	0	0		13	**-**
Single-Unit Trucks %	4.3%	0%	0%	0%		2%	0%	2.6%	0%	0%		2.3%	0%	0.9%	0%	0%		0.6%	2.6%	2.1%	0%	0%		1.8%	**-**
Buses	10	9	0	0		19	2	13	0	0		15	1	13	0	0		14	1	13	17	0		31	**-**
Buses %	10.8%	9.7%	0%	0%		9.6%	8.7%	3.7%	0%	0%		3.9%	2.9%	12.1%	0%	0%		8.1%	2.6%	2.3%	15.9%	0%		4.4%	**-**
Articulated Trucks	1	0	0	0		1	1	4	0	0		5	0	0	0	0		0	0	5	0	0		5	**-**
Articulated Trucks %	1.1%	0%	0%	0%		0.5%	4.3%	1.1%	0%	0%		1.3%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.7%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.6%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	12	-	-	-	-	-	4	-	-	-	-	-	6	-	-	-	-	-	17	-	**-**
Pedestrians%	-	-	-	-	30.8%		-	-	-	-	10.3%		-	-	-	-	15.4%		-	-	-	-	43.6%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (-3.72 °C)

Start Time	N Approach 3RD AVE E						E Approach 10TH ST E						S Approach 3RD AVE E						W Approach 10TH ST E						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	
16:15:00	21	18	3	0	3	42	8	158	12	0	1	178	11	30	6	0	2	47	15	157	17	0	2	189	456
16:30:00	29	22	8	0	0	59	6	127	9	0	3	142	14	30	16	0	7	60	11	147	16	0	4	174	435
16:45:00	25	23	3	0	3	51	8	158	5	0	0	171	9	24	11	0	5	44	8	156	25	0	4	189	455
17:00:00	32	28	9	0	4	69	8	137	6	0	2	151	13	33	15	0	3	61	12	158	25	0	4	195	476
Grand Total	107	91	23	0	10	221	30	580	32	0	6	642	47	117	48	0	17	212	46	618	83	0	14	747	**1822**
Approach%	48.4%	41.2%	10.4%	0%		-	4.7%	90.3%	5%	0%		-	22.2%	55.2%	22.6%	0%		-	6.2%	82.7%	11.1%	0%		-	**-**
Totals %	5.9%	5%	1.3%	0%		12.1%	1.6%	31.8%	1.8%	0%		35.2%	2.6%	6.4%	2.6%	0%		11.6%	2.5%	33.9%	4.6%	0%		41%	**-**
PHF	0.84	0.81	0.64	0		0.8	0.94	0.92	0.67	0		0.9	0.84	0.89	0.75	0		0.87	0.77	0.98	0.83	0		0.96	**-**
Heavy	3	4	0	0		7	2	5	3	0		10	1	6	0	0		7	0	11	6	0		17	**-**
Heavy %	2.8%	4.4%	0%	0%		3.2%	6.7%	0.9%	9.4%	0%		1.6%	2.1%	5.1%	0%	0%		3.3%	0%	1.8%	7.2%	0%		2.3%	**-**
Lights	104	86	23	0		213	28	575	29	0		632	46	110	48	0		204	46	607	77	0		730	**-**
Lights %	97.2%	94.5%	100%	0%		96.4%	93.3%	99.1%	90.6%	0%		98.4%	97.9%	94%	100%	0%		96.2%	100%	98.2%	92.8%	0%		97.7%	**-**
Single-Unit Trucks	1	0	0	0		1	0	3	2	0		5	1	1	0	0		2	0	6	2	0		8	**-**
Single-Unit Trucks %	0.9%	0%	0%	0%		0.5%	0%	0.5%	6.3%	0%		0.8%	2.1%	0.9%	0%	0%		0.9%	0%	1%	2.4%	0%		1.1%	**-**
Buses	2	4	0	0		6	2	1	1	0		4	0	5	0	0		5	0	4	4	0		8	**-**
Buses %	1.9%	4.4%	0%	0%		2.7%	6.7%	0.2%	3.1%	0%		0.6%	0%	4.3%	0%	0%		2.4%	0%	0.6%	4.8%	0%		1.1%	**-**
Articulated Trucks	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.2%	0%	0%		0.1%	**-**
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	1.1%	0%	0%		0.5%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.5%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	10	-	-	-	-	-	5	-	-	-	-	-	15	-	-	-	-	-	14	-	**-**
Pedestrians%	-	-	-	-	21.3%		-	-	-	-	10.6%		-	-	-	-	31.9%		-	-	-	-	29.8%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	2.1%		-	-	-	-	4.3%		-	-	-	-	0%		**-**

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

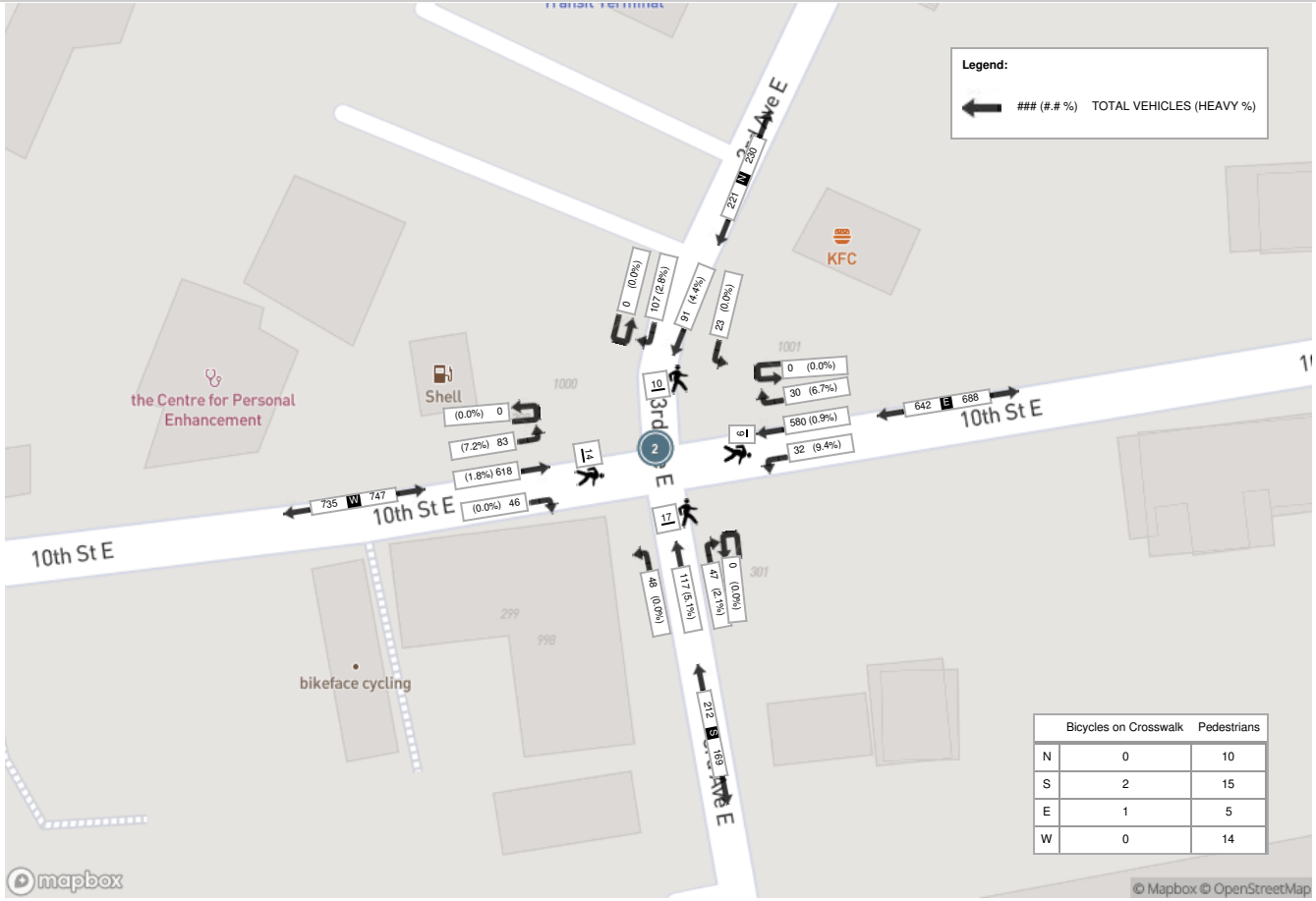
Peak Hour: 08:15 AM - 09:15 AM **Weather: Light Snow (-2.8 °C)**



	Bicycles on Crosswalk	Pedestrians
N	0	12
S	0	6
E	0	4
W	0	17

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

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (-3.72 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	10
S	2	15
E	1	5
W	0	14

Spectrum

Turning Movement Count
Location Name: GREY RD 15 & HWY 6
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (2 . GREY RD 15 & HWY 6)

Start Time	N Approach 3RD AVE E						E Approach 10TH ST E						S Approach 3RD AVE E						W Approach 10TH ST E						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		
12:00:00	25	7	8	0	3	40	7	137	13	0	6	157	15	24	7	0	8	46	11	166	16	0	2	193	436	
12:15:00	26	20	3	0	3	49	5	150	12	0	4	167	19	21	8	0	2	48	17	156	16	0	8	189	453	
12:30:00	22	12	0	0	3	34	6	126	9	0	0	141	19	23	6	0	2	48	12	163	4	0	7	179	402	
12:45:00	18	31	7	0	2	56	6	131	7	0	4	144	13	27	7	0	6	47	8	160	17	0	5	185	432	1723
13:00:00	23	20	6	0	4	49	9	124	2	0	1	135	17	18	9	0	6	44	13	179	11	0	3	203	431	1718
13:15:00	23	14	6	0	4	43	8	151	8	0	5	167	13	20	10	0	4	43	13	161	8	0	7	182	435	1700
13:30:00	28	21	7	0	2	56	7	117	9	0	6	133	17	20	9	0	1	46	22	163	10	0	3	195	430	1728
13:45:00	28	25	7	0	0	60	11	129	12	0	2	152	14	20	1	0	7	35	18	144	11	0	7	173	420	1716
14:00:00	25	16	7	0	2	48	6	119	9	0	1	134	19	23	10	0	0	52	8	155	15	0	3	178	412	1697
14:15:00	19	27	6	0	1	52	9	140	10	0	1	159	16	17	10	0	1	43	9	151	13	0	2	173	427	1689
14:30:00	24	22	8	0	7	54	5	131	5	0	8	141	6	22	9	0	2	37	11	137	6	0	11	154	386	1645
14:45:00	29	18	3	0	0	50	9	141	7	0	0	157	14	26	15	0	3	55	5	132	15	0	15	152	414	1639
15:00:00	23	18	3	0	3	44	5	131	7	0	3	143	13	21	11	0	0	45	7	146	16	0	7	169	401	1628
15:15:00	29	16	11	0	1	56	3	159	6	0	0	168	11	23	5	0	0	39	11	145	11	0	6	167	430	1631
15:30:00	32	15	3	0	3	50	6	146	7	0	3	159	12	11	5	0	2	28	9	146	14	0	4	169	406	1651
15:45:00	29	9	6	0	3	44	5	140	7	0	0	152	5	13	9	0	2	27	10	153	8	0	5	171	394	1631
16:00:00	21	23	1	0	2	45	3	108	7	0	1	118	8	16	9	0	0	33	7	148	20	0	2	175	371	1601
16:15:00	37	14	5	0	7	56	8	116	7	0	6	131	17	15	9	0	4	41	13	135	16	0	6	164	392	1563
16:30:00	33	14	7	0	2	54	4	94	5	0	1	103	7	12	12	0	3	31	6	120	13	0	1	139	327	1484
16:45:00	25	10	5	0	2	40	3	112	8	0	0	123	11	11	11	0	2	33	15	119	15	0	4	149	345	1435
17:00:00	26	14	6	0	1	46	5	87	6	0	3	98	14	19	10	0	0	43	11	121	14	0	2	146	333	1397
17:15:00	17	14	3	0	0	34	3	141	14	0	2	158	10	11	6	0	0	27	12	114	12	0	1	138	357	1362
17:30:00	25	14	3	0	0	42	5	115	6	0	1	126	7	9	10	0	2	26	11	90	13	0	1	114	308	1343
17:45:00	26	12	5	0	1	43	3	116	14	0	1	133	12	5	6	0	1	23	8	104	16	0	1	128	327	1325
18:00:00	20	12	2	0	2	34	4	91	12	0	0	107	9	12	11	0	0	32	18	96	16	0	0	130	303	1295
18:15:00	21	9	7	0	3	37	4	91	12	0	0	107	9	24	8	0	0	41	7	93	19	0	3	119	304	1242
18:30:00	16	16	5	0	1	37	7	73	9	0	0	89	10	26	9	0	0	45	10	76	23	0	5	109	280	1214
18:45:00	15	11	2	0	0	28	14	88	8	0	3	110	3	32	7	0	0	42	19	70	32	0	0	121	301	1188
Grand Total	685	454	142	0	62	1281	170	3404	238	0	62	3812	340	521	239	0	58	1100	321	3743	400	0	121	4464	**10657**	-
Approach%	53.5%	35.4%	11.1%	0%		-	4.5%	89.3%	6.2%	0%		-	30.9%	47.4%	21.7%	0%		-	7.2%	83.8%	9%	0%		-	-	-
Totals %	6.4%	4.3%	1.3%	0%		12%	1.6%	31.9%	2.2%	0%		35.8%	3.2%	4.9%	2.2%	0%		10.3%	3%	35.1%	3.8%	0%		41.9%	-	-
Heavy	16	18	5	0		-	12	16	0	0		-	0	18	1	0		-	1	13	13	0		-	-	-
Heavy %	2.3%	4%	3.5%	0%		-	7.1%	0.5%	0%	0%		-	0%	3.5%	0.4%	0%		-	0.3%	0.3%	3.3%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Spectrum

Turning Movement Count
Location Name: GREY RD 15 & HWY 6
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

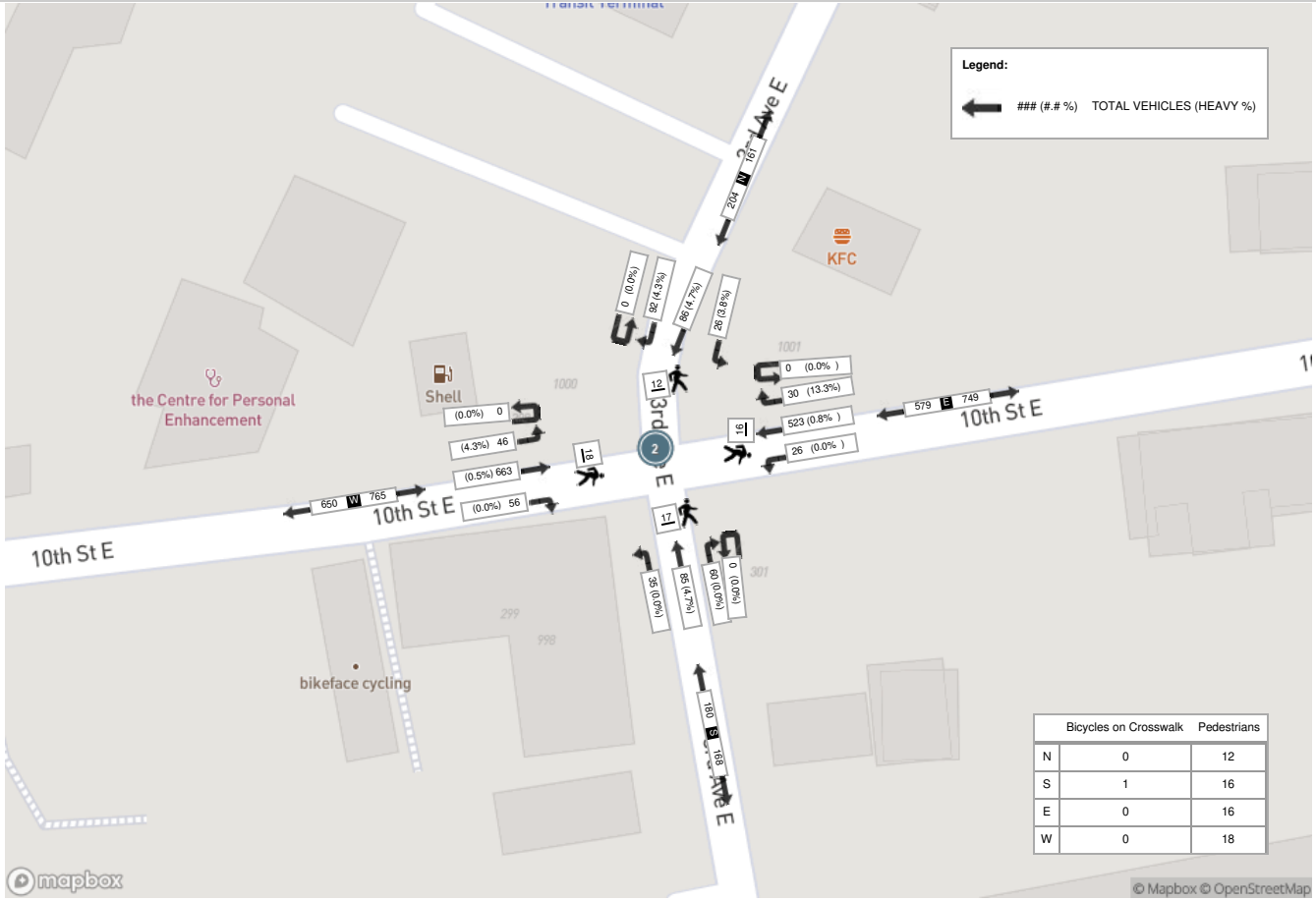
Crozier & Associates
SUITE 301 40 HURON STREET
COLLINGWOOD ONTARIO, L9Y 4R3
CANADA

Peak Hour: 12:45 PM - 01:45 PM Weather: Clear Sky (-6.82 °C)

Start Time	N Approach 3RD AVE E						E Approach 10TH ST E						S Approach 3RD AVE E						W Approach 10TH ST E						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	
12:45:00	18	31	7	0	2	56	6	131	7	0	4	144	13	27	7	0	6	47	8	160	17	0	5	185	432
13:00:00	23	20	6	0	4	49	9	124	2	0	1	135	17	18	9	0	6	44	13	179	11	0	3	203	431
13:15:00	23	14	6	0	4	43	8	151	8	0	5	167	13	20	10	0	4	43	13	161	8	0	7	182	435
13:30:00	28	21	7	0	2	56	7	117	9	0	6	133	17	20	9	0	1	46	22	163	10	0	3	195	430
Grand Total	92	86	26	0	12	204	30	523	26	0	16	579	60	85	35	0	17	180	56	663	46	0	18	765	**1728**
Approach%	45.1%	42.2%	12.7%	0%		-	5.2%	90.3%	4.5%	0%		-	33.3%	47.2%	19.4%	0%		-	7.3%	86.7%	6%	0%		-	**-**
Totals %	5.3%	5%	1.5%	0%		11.8%	1.7%	30.3%	1.5%	0%		33.5%	3.5%	4.9%	2%	0%		10.4%	3.2%	38.4%	2.7%	0%		44.3%	**-**
PHF	0.82	0.69	0.93	0		0.91	0.83	0.87	0.72	0		0.87	0.88	0.79	0.88	0		0.96	0.64	0.93	0.68	0		0.94	**-**
Heavy	4	4	1	0		9	4	4	0	0		8	0	4	0	0		4	0	3	2	0		5	**-**
Heavy %	4.3%	4.7%	3.8%	0%		4.4%	13.3%	0.8%	0%	0%		1.4%	0%	4.7%	0%	0%		2.2%	0%	0.5%	4.3%	0%		0.7%	**-**
Lights	88	80	25	0		193	26	519	26	0		571	60	80	35	0		175	56	660	44	0		760	**-**
Lights %	95.7%	93%	96.2%	0%		94.6%	86.7%	99.2%	100%	0%		98.6%	100%	94.1%	100%	0%		97.2%	100%	99.5%	95.7%	0%		99.3%	**-**
Single-Unit Trucks	1	0	1	0		2	0	4	0	0		4	0	0	0	0		0	0	3	0	0		3	**-**
Single-Unit Trucks %	1.1%	0%	3.8%	0%		1%	0%	0.8%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	0.5%	0%	0%		0.4%	**-**
Buses	3	4	0	0		7	3	0	0	0		3	0	4	0	0		4	0	0	2	0		2	**-**
Buses %	3.3%	4.7%	0%	0%		3.4%	10%	0%	0%	0%		0.5%	0%	4.7%	0%	0%		2.2%	0%	0%	4.3%	0%		0.3%	**-**
Articulated Trucks	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	0	0	0	0		0	**-**
Articulated Trucks %	0%	0%	0%	0%		0%	3.3%	0%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	2.3%	0%	0%		1%	0%	0%	0%	0%		0%	0%	1.2%	0%	0%		0.6%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	12	-	-	-	-	-	16	-	-	-	-	-	16	-	-	-	-	-	18	-	**-**
Pedestrians%	-	-	-	-	19%		-	-	-	-	25.4%		-	-	-	-	25.4%		-	-	-	-	28.6%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	1.6%		-	-	-	-	0%		**-**

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

Peak Hour: 12:45 PM - 01:45 PM **Weather: Clear Sky (-6.82 °C)**



Spectrum

Turning Movement Count
Location Name: GREY RD 15 & 12TH ST
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

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

Turning Movement Count (1 . GREY RD 15 & 12TH ST)

Start Time	N Approach GREY RD 15						E Approach 12TH ST						S Approach GREY RD 15						W Approach 12TH 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		
12:00:00	5	34	0	0	0	39	2	2	1	0	0	5	0	35	3	0	1	38	0	3	6	0	4	9	91	
12:15:00	2	41	0	0	0	43	1	3	1	0	1	5	0	38	0	0	0	38	1	1	5	0	5	7	93	
12:30:00	6	32	0	0	2	38	0	0	1	0	0	1	2	32	1	0	2	35	3	1	10	0	1	14	88	
12:45:00	1	46	0	0	0	47	1	0	1	0	1	2	2	53	0	0	3	55	1	1	11	0	2	13	117	389
13:00:00	3	36	0	0	1	39	1	1	0	0	0	2	1	31	2	0	0	34	2	0	7	0	2	9	84	382
13:15:00	7	36	1	0	0	44	1	0	0	0	0	1	0	30	1	0	0	31	0	0	5	0	6	5	81	370
13:30:00	5	48	2	0	2	55	1	1	1	0	0	3	1	33	1	0	0	35	1	1	7	0	1	9	102	384
13:45:00	3	53	1	0	0	57	4	2	0	0	0	6	1	27	1	0	2	29	2	2	7	0	0	11	103	370
14:00:00	5	45	1	0	1	51	1	1	0	0	0	2	0	41	1	0	3	42	3	1	6	0	3	10	105	391
14:15:00	2	45	2	0	0	49	1	0	2	0	0	3	0	24	1	0	0	25	0	3	4	0	6	7	84	394
14:30:00	4	46	0	0	2	50	1	1	1	0	2	3	3	34	1	0	0	38	0	1	8	0	3	9	100	392
14:45:00	1	45	1	0	3	47	2	2	1	0	2	5	0	39	0	0	0	39	1	1	11	0	4	13	104	393
15:00:00	0	40	5	0	0	45	1	3	2	0	1	6	0	47	2	0	0	49	3	0	4	0	1	7	107	395
15:15:00	1	54	1	0	0	56	1	1	1	0	1	3	2	24	0	0	0	26	1	0	8	0	0	9	94	405
15:30:00	0	41	3	0	0	44	0	2	0	0	0	2	1	30	0	0	1	31	3	3	6	0	4	12	89	394
15:45:00	1	38	7	0	0	46	1	3	2	0	1	6	0	19	1	0	2	20	1	1	4	0	2	6	78	368
16:00:00	1	39	4	0	1	44	0	2	1	0	1	3	0	30	1	0	0	31	0	0	5	0	1	5	83	344
16:15:00	1	43	2	0	3	46	0	2	2	0	2	4	0	32	1	0	2	33	1	1	6	0	3	8	91	341
16:30:00	0	43	0	0	2	43	0	4	0	0	4	4	0	25	1	0	0	26	1	1	7	0	1	9	82	334
16:45:00	1	40	6	0	1	47	0	2	0	0	0	2	0	26	3	0	0	29	2	2	4	0	4	8	86	342
17:00:00	2	40	4	0	0	46	0	0	0	0	1	0	2	29	4	0	1	35	3	2	7	0	2	12	93	352
17:15:00	0	30	2	0	0	32	1	6	0	0	2	7	0	20	0	0	0	20	0	1	5	0	0	6	65	326
17:30:00	0	36	0	0	2	36	2	1	1	0	2	4	1	19	0	0	1	20	0	1	6	0	0	7	67	311
17:45:00	0	31	5	0	0	36	1	2	1	0	1	4	0	21	0	0	1	21	2	3	5	0	2	10	71	296
18:00:00	1	28	1	0	1	30	0	0	0	0	0	0	3	27	0	0	0	30	1	1	3	0	1	5	65	268
18:15:00	1	35	0	0	0	36	0	1	2	0	0	3	1	40	2	0	0	43	1	0	3	0	1	4	86	289
18:30:00	1	27	1	0	0	29	0	1	0	0	1	1	2	45	1	0	2	48	1	0	6	0	1	7	85	307
18:45:00	3	24	0	0	0	27	3	3	0	0	0	6	0	70	1	0	0	71	0	0	1	0	1	1	105	341
Grand Total	57	1096	49	0	21	1202	26	46	21	0	23	93	22	921	29	0	21	972	34	31	167	0	61	232	**2499**	-
Approach%	4.7%	91.2%	4.1%	0%		-	28%	49.5%	22.6%	0%		-	2.3%	94.8%	3%	0%		-	14.7%	13.4%	72%	0%		-	**-**	-
Totals %	2.3%	43.9%	2%	0%		48.1%	1%	1.8%	0.8%	0%		3.7%	0.9%	36.9%	1.2%	0%		38.9%	1.4%	1.2%	6.7%	0%		9.3%	**-**	-
Heavy	3	13	2	0		-	4	0	2	0		-	1	17	0	0		-	0	0	0	0		-	**-**	-
Heavy %	5.3%	1.2%	4.1%	0%		-	15.4%	0%	9.5%	0%		-	4.5%	1.8%	0%	0%		-	0%	0%	0%	0%		-	**-**	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: GREY RD 15 & 12TH ST
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

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

Peak Hour: 02:30 PM - 03:30 PM Weather: Clear Sky (-6.82 °C)

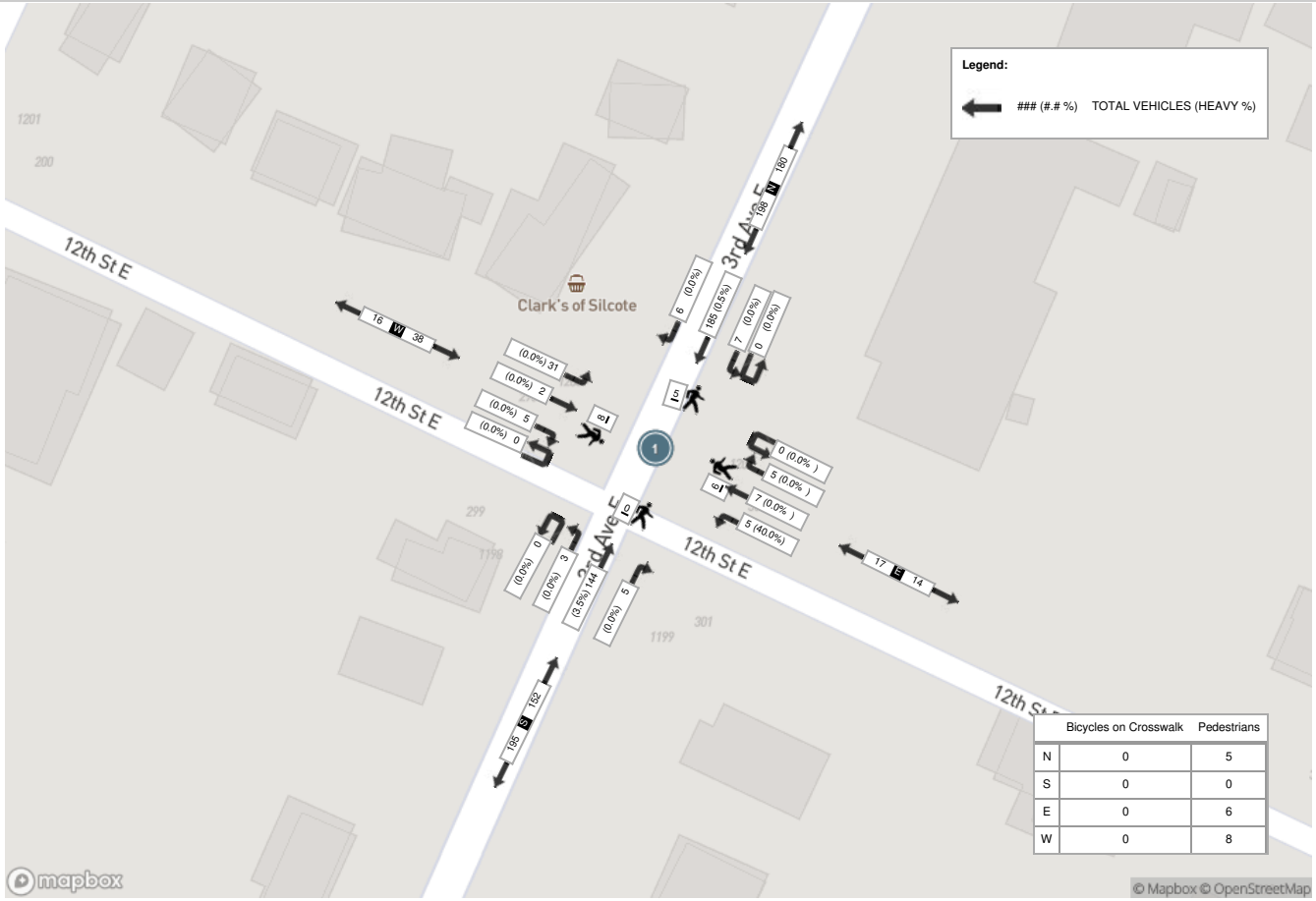
Start Time	N Approach GREY RD 15						E Approach 12TH ST						S Approach GREY RD 15						W Approach 12TH ST						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
14:30:00	4	46	0	0	2	50	1	1	1	0	2	3	3	34	1	0	0	38	0	1	8	0	3	9	100
14:45:00	1	45	1	0	3	47	2	2	1	0	2	5	0	39	0	0	0	39	1	1	11	0	4	13	104
15:00:00	0	40	5	0	0	45	1	3	2	0	1	6	0	47	2	0	0	49	3	0	4	0	1	7	107
15:15:00	1	54	1	0	0	56	1	1	1	0	1	3	2	24	0	0	0	26	1	0	8	0	0	9	94
Grand Total	6	185	7	0	5	198	5	7	5	0	6	17	5	144	3	0	0	152	5	2	31	0	8	38	**405**
Approach%	3%	93.4%	3.5%	0%		-	29.4%	41.2%	29.4%	0%		-	3.3%	94.7%	2%	0%		-	13.2%	5.3%	81.6%	0%		-	**-**
Totals %	1.5%	45.7%	1.7%	0%		48.9%	1.2%	1.7%	1.2%	0%		4.2%	1.2%	35.6%	0.7%	0%		37.5%	1.2%	0.5%	7.7%	0%		9.4%	**-**
PHF	0.38	0.86	0.35	0		0.88	0.63	0.58	0.63	0		0.71	0.42	0.77	0.38	0		0.78	0.42	0.5	0.7	0		0.73	**-**
Heavy	0	1	0	0		1	0	0	2	0		2	0	5	0	0		5	0	0	0	0		0	**-**
Heavy %	0%	0.5%	0%	0%		0.5%	0%	0%	40%	0%		11.8%	0%	3.5%	0%	0%		3.3%	0%	0%	0%	0%		0%	**-**
Lights	6	184	7	0		197	5	7	3	0		15	5	138	3	0		146	5	2	31	0		38	**-**
Lights %	100%	99.5%	100%	0%		99.5%	100%	100%	60%	0%		88.2%	100%	95.8%	100%	0%		96.1%	100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	0	1	0	0		1	0	0	2	0		2	0	3	0	0		3	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	0.5%	0%	0%		0.5%	0%	0%	40%	0%		11.8%	0%	2.1%	0%	0%		2%	0%	0%	0%	0%		0%	**-**
Buses	0	0	0	0		0	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	**-**
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	1.4%	0%	0%		1.3%	0%	0%	0%	0%		0%	**-**
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	**-**
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.7%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	5	-	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	8	-	**-**
Pedestrians%	-	-	-	-	26.3%		-	-	-	-	31.6%		-	-	-	-	0%		-	-	-	-	42.1%		**-**
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	**-**
Bicycles on Crosswalk%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		**-**

Spectrum

Turning Movement Count
Location Name: GREY RD 15 & 12TH ST
Date: Sat, Jan 14, 2023 Deployment Lead: Peter Ilias

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

Peak Hour: 02:30 PM - 03:30 PM Weather: Clear Sky (-6.82 °C)



	Bicycles on Crosswalk	Pedestrians
N	0	5
S	0	0
E	0	6
W	0	8

APPENDIX D

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

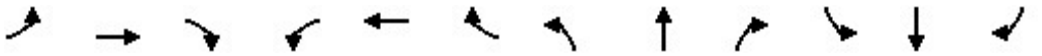
Signalized Intersections

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.

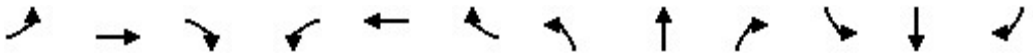
Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX E

Detailed Capacity Analysis



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	705	33	40	685	19	41	102	30	21	119	258
Future Volume (vph)	135	705	33	40	685	19	41	102	30	21	119	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	20.0		0.0	20.0		25.0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			10.0		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98	0.99		0.97		0.96
Frt		0.994			0.996			0.966				0.850
Flt Protected		0.992			0.997		0.950			0.950		
Satd. Flow (prot)	0	3485	0	0	3548	0	1805	1817	0	1805	1900	1615
Flt Permitted		0.570			0.837		0.677			0.669		
Satd. Flow (perm)	0	2000	0	0	2977	0	1256	1817	0	1239	1900	1551
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4			11				238
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.0			137.0			188.2			151.7	
Travel Time (s)		12.0			9.9			13.6			10.9	
Confl. Peds. (#/hr)	11		15	15		11	21		24	24		21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	141	734	34	42	714	20	43	106	31	22	124	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	909	0	0	776	0	43	137	0	22	124	269
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

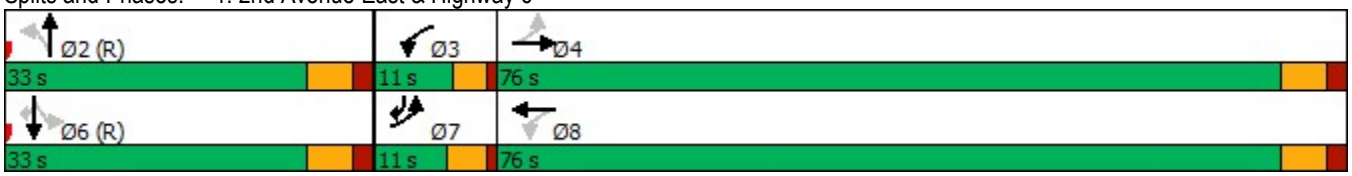


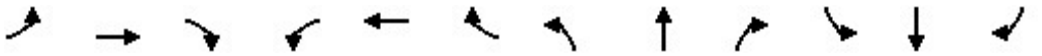
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	30.0		5.0	30.0		27.0	27.0		27.0	27.0	5.0
Minimum Split (s)	11.0	36.0		11.0	36.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	11.0	76.0		11.0	76.0		33.0	33.0		33.0	33.0	11.0
Total Split (%)	9.2%	63.3%		9.2%	63.3%		27.5%	27.5%		27.5%	27.5%	9.2%
Maximum Green (s)	6.5	70.0		7.0	70.0		27.0	27.0		27.0	27.0	6.5
Yellow Time (s)	3.5	4.0		3.0	4.0		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	4.5
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		10.0			10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)		15.0			19.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)		55.3			45.1		52.7	52.7		52.7	52.7	59.9
Actuated g/C Ratio		0.46			0.38		0.44	0.44		0.44	0.44	0.50
v/c Ratio		0.93			0.69		0.08	0.17		0.04	0.15	0.30
Control Delay		44.5			41.0		24.6	22.4		24.5	23.9	4.6
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		44.5			41.0		24.6	22.4		24.5	23.9	4.6
LOS		D			D		C	C		C	C	A
Approach Delay		44.5			41.0			22.9			11.4	
Approach LOS		D			D			C			B	
Queue Length 50th (m)		82.0			63.0		6.2	18.8		3.1	18.5	3.6
Queue Length 95th (m)		82.0			62.5		16.3	38.5		10.0	37.2	20.6
Internal Link Dist (m)		142.0			113.0			164.2			127.7	
Turn Bay Length (m)							20.0			20.0		25.0
Base Capacity (vph)		1220			1738		551	804		544	834	905
Starvation Cap Reductn		0			52		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.75			0.46		0.08	0.17		0.04	0.15	0.30

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 72 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 35.6	Intersection LOS: D

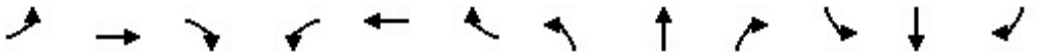
Intersection Capacity Utilization 87.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: 2nd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	627	46	32	583	30	48	117	47	23	91	126
Future Volume (vph)	83	627	46	32	583	30	48	117	47	23	91	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	0.0		35.0
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98	0.99			1.00	0.97
Frt		0.991			0.993			0.957				0.850
Flt Protected		0.995			0.998		0.950				0.990	
Satd. Flow (prot)	0	3491	0	0	3545	0	1805	1736	0	0	1823	1583
Flt Permitted		0.680			0.834		0.681				0.928	
Satd. Flow (perm)	0	2384	0	0	2960	0	1272	1736	0	0	1706	1533
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			7			16				131
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			165.6			160.8			431.4	
Travel Time (s)		9.9			11.9			11.6			31.1	
Confl. Peds. (#/hr)	10		17	17		10	14		6	6		14
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	1%	0%	9%	0%	6%	0%	5%	2%	0%	4%	2%
Adj. Flow (vph)	86	653	48	33	607	31	50	122	49	24	95	131
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	787	0	0	671	0	50	171	0	0	119	131
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

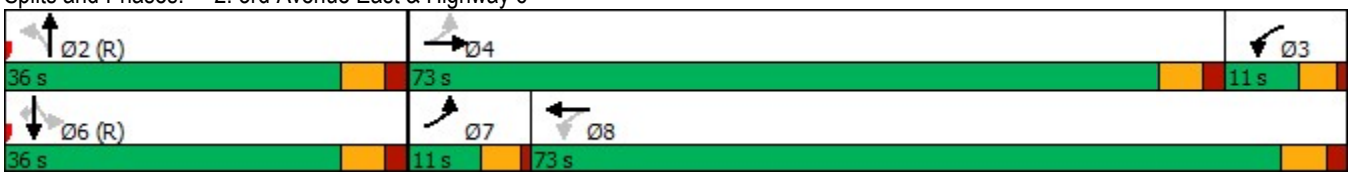


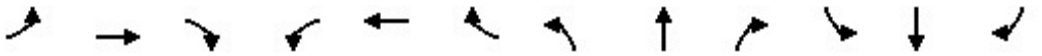
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	25.0		5.0	25.0		25.0	25.0		25.0	25.0	25.0
Minimum Split (s)	11.0	31.0		11.0	31.0		31.0	31.0		31.0	31.0	31.0
Total Split (s)	11.0	73.0		11.0	73.0		36.0	36.0		36.0	36.0	36.0
Total Split (%)	9.2%	60.8%		9.2%	60.8%		30.0%	30.0%		30.0%	30.0%	30.0%
Maximum Green (s)	6.5	67.0		6.5	67.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)		6.0			6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lead	Lead		Lag	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		10.0			10.0		10.0	10.0		10.0	10.0	10.0
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)		46.0			46.0		62.0	62.0			62.0	62.0
Actuated g/C Ratio		0.38			0.38		0.52	0.52			0.52	0.52
v/c Ratio		0.86			0.59		0.08	0.19			0.14	0.15
Control Delay		17.3			9.1		18.1	16.6			17.8	3.8
Queue Delay		0.1			0.0		0.0	0.0			0.0	0.0
Total Delay		17.4			9.1		18.1	16.6			17.8	3.8
LOS		B			A		B	B			B	A
Approach Delay		17.4			9.1			16.9			10.5	
Approach LOS		B			A			B			B	
Queue Length 50th (m)		60.9			9.0		6.1	19.8			14.9	0.0
Queue Length 95th (m)		64.1			7.4		15.7	40.0			30.8	11.8
Internal Link Dist (m)		113.0			141.6			136.8			407.4	
Turn Bay Length (m)							15.0					35.0
Base Capacity (vph)		1335			1655		657	905			881	855
Starvation Cap Reductn		47			0		0	0			0	0
Spillback Cap Reductn		0			0		0	0			0	0
Storage Cap Reductn		0			0		0	0			0	0
Reduced v/c Ratio		0.61			0.41		0.08	0.19			0.14	0.15

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 88 (73%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 13.5	Intersection LOS: B

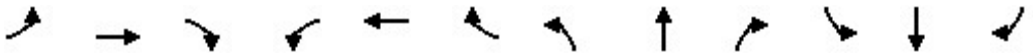
Intersection Capacity Utilization 81.8% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: 3rd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	667	9	49	612	35	14	38	72	15	38	19
Future Volume (vph)	21	667	9	49	612	35	14	38	72	15	38	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	10.0		0.0	5.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99	0.99		0.99	0.99	
Frt		0.998			0.992			0.902			0.949	
Flt Protected		0.998			0.996		0.950			0.950		
Satd. Flow (prot)	0	3489	0	0	3525	0	1805	1692	0	1805	1765	0
Flt Permitted		0.866			0.704		0.719			0.684		
Satd. Flow (perm)	0	3027	0	0	2490	0	1351	1692	0	1291	1765	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			8			74			20	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.6			291.5			153.7			342.7	
Travel Time (s)		11.9			21.0			11.1			24.7	
Confl. Peds. (#/hr)	8		10	10		8	9		6	6		9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	3%	0%	2%	1%	0%	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	22	688	9	51	631	36	14	39	74	15	39	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	719	0	0	718	0	14	113	0	15	59	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

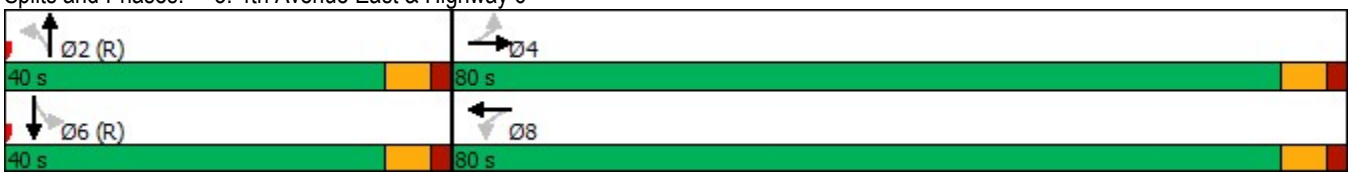


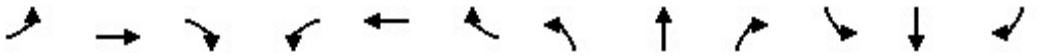
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0		27.0	27.0		27.0	27.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		33.0	33.0		33.0	33.0	
Total Split (s)	80.0	80.0		80.0	80.0		40.0	40.0		40.0	40.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	74.0	74.0		74.0	74.0		34.0	34.0		34.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		37.0			37.0		71.0	71.0		71.0	71.0	
Actuated g/C Ratio		0.31			0.31		0.59	0.59		0.59	0.59	
v/c Ratio		0.77			0.93		0.02	0.11		0.02	0.06	
Control Delay		32.4			58.6		12.1	5.4		12.1	8.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		32.4			58.6		12.1	5.4		12.1	8.7	
LOS		C			E		B	A		B	A	
Approach Delay		32.4			58.6			6.1			9.4	
Approach LOS		C			E			A			A	
Queue Length 50th (m)		43.8			92.4		1.3	3.6		1.4	3.6	
Queue Length 95th (m)		42.8			104.9		5.1	14.0		5.3	11.5	
Internal Link Dist (m)		141.6			267.5			129.7			318.7	
Turn Bay Length (m)							10.0			5.0		
Base Capacity (vph)		1867			1538		799	1031		763	1052	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.39			0.47		0.02	0.11		0.02	0.06	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 86 (72%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 40.8	Intersection LOS: D

Intersection Capacity Utilization 88.1% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: 4th Avenue East & Highway 6

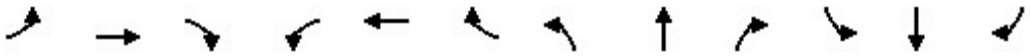




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	8	12	3	12	6	8	218	4	2	225	23
Future Volume (Veh/h)	21	8	12	3	12	6	8	218	4	2	225	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	22	8	12	3	12	6	8	225	4	2	232	24
Pedestrians		8			8			5			5	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	516	509	257	520	519	240	264			237		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	516	509	257	520	519	240	264			237		
tC, single (s)	7.1	6.6	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	95	98	98	99	97	99	99			100		
cM capacity (veh/h)	447	441	778	444	454	795	1236			1333		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	21	237	258
Volume Left	22	3	8	2
Volume Right	12	6	4	24
cSH	508	516	1236	1333
Volume to Capacity	0.08	0.04	0.01	0.00
Queue Length 95th (m)	2.2	1.0	0.2	0.0
Control Delay (s)	12.7	12.3	0.3	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	12.7	12.3	0.3	0.1
Approach LOS	B	B		

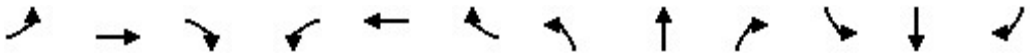
Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	31.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	8	1	5	3	9	85	0	6	59	7
Future Volume (Veh/h)	6	0	8	1	5	3	9	85	0	6	59	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	7	0	10	1	6	4	11	104	0	7	72	9
Pedestrians		10			12			3			3	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								343				
pX, platoon unblocked												
vC, conflicting volume	236	238	90	242	243	119	91			116		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236	238	90	242	243	119	91			116		
tC, single (s)	7.4	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	99	100	99	100	99	100	99			100		
cM capacity (veh/h)	628	646	963	684	642	926	1437			1470		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	11	115	88
Volume Left	7	1	11	7
Volume Right	10	4	0	9
cSH	790	727	1437	1470
Volume to Capacity	0.02	0.02	0.01	0.00
Queue Length 95th (m)	0.5	0.4	0.2	0.1
Control Delay (s)	9.7	10.0	0.8	0.6
Lane LOS	A	B	A	A
Approach Delay (s)	9.7	10.0	0.8	0.6
Approach LOS	A	B		

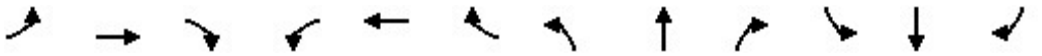
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	19.9%	ICU Level of Service	A	
Analysis Period (min)	15			



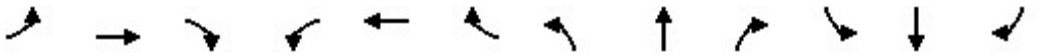
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	6	7	2	11	6	8	234	3	1	241	26
Future Volume (Veh/h)	32	6	7	2	11	6	8	234	3	1	241	26
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	34	6	7	2	12	6	8	246	3	1	254	27
Pedestrians		10			10			6			6	
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		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	561	554	284	559	566	264	291			259		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	561	554	284	559	566	264	291			259		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	99	99	100	97	99	99			100		
cM capacity (veh/h)	411	433	750	420	426	770	1272			1306		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	47	20	257	282
Volume Left	34	2	8	1
Volume Right	7	6	3	27
cSH	444	491	1272	1306
Volume to Capacity	0.11	0.04	0.01	0.00
Queue Length 95th (m)	2.8	1.0	0.2	0.0
Control Delay (s)	14.1	12.6	0.3	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	14.1	12.6	0.3	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	34.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	696	56	34	599	27	31	118	47	22	68	185
Future Volume (vph)	119	696	56	34	599	27	31	118	47	22	68	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	20.0		0.0	20.0		25.0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			10.0		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00		0.97	0.99		0.97		0.96
Frt		0.990			0.994			0.957				0.850
Flt Protected		0.993			0.997		0.950			0.950		
Satd. Flow (prot)	0	3534	0	0	3569	0	1805	1792	0	1736	1900	1615
Flt Permitted		0.607			0.851		0.709			0.645		
Satd. Flow (perm)	0	2156	0	0	3044	0	1308	1792	0	1142	1900	1545
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			7			23				187
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.0			137.0			188.2			151.7	
Travel Time (s)		12.0			9.9			13.6			10.9	
Confl. Peds. (#/hr)	27		25	25		27	32		40	40		32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	128	748	60	37	644	29	33	127	51	24	73	199
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	936	0	0	710	0	33	178	0	24	73	199
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	4.0	25.0		4.5	29.0		27.0	27.0		27.0	27.0	4.0
Minimum Split (s)	8.0	31.0		9.5	35.0		33.0	33.0		33.0	33.0	8.0
Total Split (s)	8.0	47.5		9.5	49.0		33.0	33.0		33.0	33.0	8.0
Total Split (%)	8.9%	52.8%		10.6%	54.4%		36.7%	36.7%		36.7%	36.7%	8.9%
Maximum Green (s)	4.0	41.5		4.5	43.0		27.0	27.0		27.0	27.0	4.0
Yellow Time (s)	3.0	4.0		3.5	4.0		4.0	4.0		4.0	4.0	3.0
All-Red Time (s)	1.0	2.0		1.5	2.0		2.0	2.0		2.0	2.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		10.0			10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)		15.0			19.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)		39.6			31.6		38.4	38.4		38.4	38.4	44.4
Actuated g/C Ratio		0.44			0.35		0.43	0.43		0.43	0.43	0.49
v/c Ratio		0.95			0.66		0.06	0.23		0.05	0.09	0.23
Control Delay		43.1			16.3		16.9	15.8		16.9	16.9	3.0
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		43.1			16.3		16.9	15.8		16.9	16.9	3.0
LOS		D			B		B	B		B	B	A
Approach Delay		43.1			16.3			16.0			7.6	
Approach LOS		D			B			B			A	
Queue Length 50th (m)		66.5			19.8		3.4	16.9		2.5	7.6	1.0
Queue Length 95th (m)		#85.6			22.6		9.9	33.9		8.0	17.4	11.8
Internal Link Dist (m)		142.0			113.0			164.2			127.7	
Turn Bay Length (m)							20.0			20.0		25.0
Base Capacity (vph)		1040			1458		558	778		487	811	860
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.90			0.49		0.06	0.23		0.05	0.09	0.23

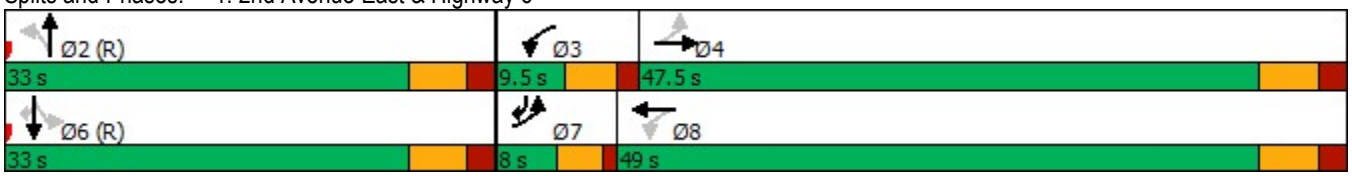
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 26.7		Intersection LOS: C	

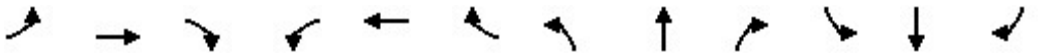
Intersection Capacity Utilization 86.3% ICU Level of Service E

Analysis Period (min) 15

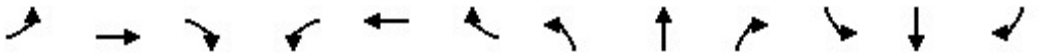
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 2nd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	663	56	26	533	30	35	85	60	26	86	92
Future Volume (vph)	46	663	56	26	533	30	35	85	60	26	86	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	0.0		35.0
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98	0.99			1.00	0.97
Frt		0.989			0.992			0.938				0.850
Flt Protected		0.997			0.998		0.950				0.989	
Satd. Flow (prot)	0	3538	0	0	3543	0	1805	1721	0	0	1811	1553
Flt Permitted		0.879			0.897		0.684				0.920	
Satd. Flow (perm)	0	3118	0	0	3183	0	1279	1721	0	0	1680	1506
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			7			40				93
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			165.6			160.8			431.4	
Travel Time (s)		9.9			11.9			11.6			31.1	
Confl. Peds. (#/hr)	12		17	17		12	18		16	16		18
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	0%	0%	0%	0%	13%	0%	4%	0%	3%	4%	4%
Adj. Flow (vph)	46	670	57	26	538	30	35	86	61	26	87	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	773	0	0	594	0	35	147	0	0	113	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	25.0		5.0	25.0		26.0	26.0		5.0	26.0	26.0
Minimum Split (s)	9.5	31.0		9.5	31.0		32.0	32.0		9.5	32.0	32.0
Total Split (s)	9.5	39.0		9.5	39.0		32.0	32.0		9.5	41.5	41.5
Total Split (%)	10.6%	43.3%		10.6%	43.3%		35.6%	35.6%		10.6%	46.1%	46.1%
Maximum Green (s)	5.0	33.0		5.0	33.0		26.0	26.0		5.0	35.5	35.5
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		3.5	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)		6.0			6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)		10.0			10.0		10.0	10.0			10.0	10.0
Flash Dont Walk (s)		15.0			15.0		16.0	16.0			16.0	16.0
Pedestrian Calls (#/hr)		0			0		0	0			0	0
Act Effct Green (s)		42.5			42.5		35.5	35.5			35.5	35.5
Actuated g/C Ratio		0.47			0.47		0.39	0.39			0.39	0.39
v/c Ratio		0.52			0.39		0.07	0.21			0.17	0.14
Control Delay		10.0			7.1		17.6	13.9			18.6	4.5
Queue Delay		0.0			0.0		0.0	0.0			0.0	0.0
Total Delay		10.0			7.1		17.6	13.9			18.6	4.5
LOS		A			A		B	B			B	A
Approach Delay		10.0			7.1			14.6			12.3	
Approach LOS		A			A			B			B	
Queue Length 50th (m)		17.6			36.7		3.9	12.3			13.1	0.0
Queue Length 95th (m)		m29.4			50.6		10.1	25.3			24.8	9.3
Internal Link Dist (m)		113.0			141.6			136.8			407.4	
Turn Bay Length (m)							15.0					35.0
Base Capacity (vph)		1478			1506		504	703			662	650
Starvation Cap Reductn		0			0		0	0			0	0
Spillback Cap Reductn		0			0		0	0			0	0
Storage Cap Reductn		0			0		0	0			0	0
Reduced v/c Ratio		0.52			0.39		0.07	0.21			0.17	0.14

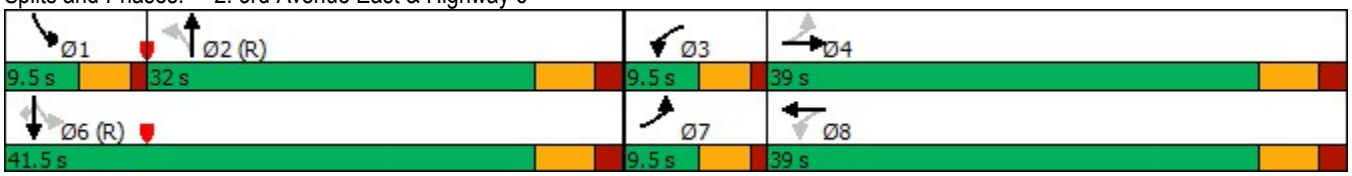
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 9.7		Intersection LOS: A	

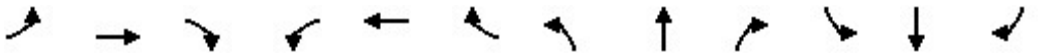
Intersection Capacity Utilization 84.6% ICU Level of Service E

Analysis Period (min) 15

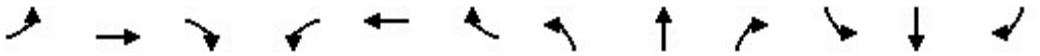
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 3rd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	725	6	35	573	26	5	15	55	18	17	11
Future Volume (vph)	18	725	6	35	573	26	5	15	55	18	17	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	10.0		0.0	5.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99	0.98		0.99	0.99	
Frt		0.999			0.994			0.882			0.941	
Flt Protected		0.999			0.997		0.950			0.950		
Satd. Flow (prot)	0	3602	0	0	3537	0	1805	1650	0	1805	1774	0
Flt Permitted		0.933			0.877		0.739			0.711		
Satd. Flow (perm)	0	3364	0	0	3110	0	1393	1650	0	1341	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			8			56			11	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.6			291.5			153.7			342.7	
Travel Time (s)		11.9			21.0			11.1			24.7	
Confl. Peds. (#/hr)	8		13	13		8	8		8	8		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	1%	3%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	18	740	6	36	585	27	5	15	56	18	17	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	764	0	0	648	0	5	71	0	18	28	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

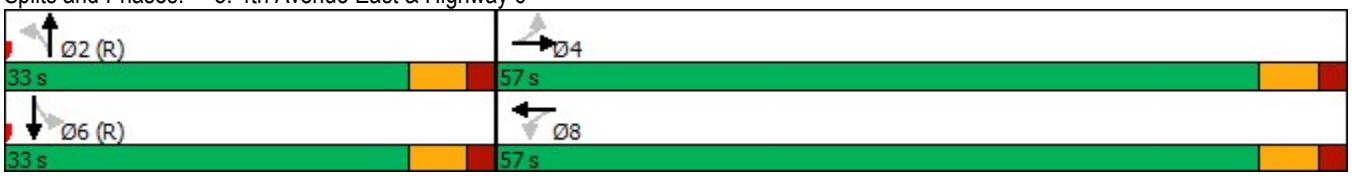


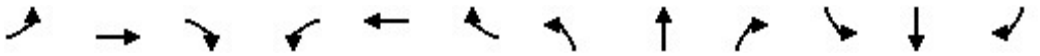
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	56.0	56.0		56.0	56.0		33.0	33.0		33.0	33.0	
Total Split (s)	57.0	57.0		57.0	57.0		33.0	33.0		33.0	33.0	
Total Split (%)	63.3%	63.3%		63.3%	63.3%		36.7%	36.7%		36.7%	36.7%	
Maximum Green (s)	51.0	51.0		51.0	51.0		27.0	27.0		27.0	27.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	15.0	15.0		15.0	15.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		51.0			51.0		27.0	27.0		27.0	27.0	
Actuated g/C Ratio		0.57			0.57		0.30	0.30		0.30	0.30	
v/c Ratio		0.40			0.37		0.01	0.13		0.04	0.05	
Control Delay		18.3			11.3		22.4	9.6		22.9	16.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		18.3			11.3		22.4	9.6		22.9	16.5	
LOS		B			B		C	A		C	B	
Approach Delay		18.3			11.3			10.5			19.0	
Approach LOS		B			B			B			B	
Queue Length 50th (m)		49.0			31.1		0.7	1.9		2.3	2.2	
Queue Length 95th (m)		54.2			42.6		3.2	11.6		7.4	8.4	
Internal Link Dist (m)		141.6			267.5			129.7			318.7	
Turn Bay Length (m)							10.0			5.0		
Base Capacity (vph)		1906			1765		417	534		402	539	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.40			0.37		0.01	0.13		0.04	0.05	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 67 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.40	
Intersection Signal Delay: 15.0	Intersection LOS: B

Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: 4th Avenue East & Highway 6

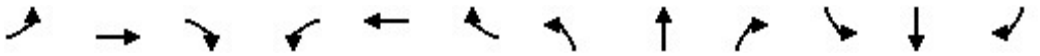




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	4	5	5	7	5	3	153	5	7	194	6
Future Volume (Veh/h)	31	4	5	5	7	5	3	153	5	7	194	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	33	4	5	5	7	5	3	161	5	7	204	6
Pedestrians		8			8			5			5	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	412	409	220	410	410	176	218			174		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	412	409	220	410	410	176	218			174		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	99	99	99	99	99	100			100		
cM capacity (veh/h)	531	524	816	534	524	862	1354			1405		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	17	169	217
Volume Left	33	5	3	7
Volume Right	5	5	5	6
cSH	553	596	1354	1405
Volume to Capacity	0.08	0.03	0.00	0.00
Queue Length 95th (m)	2.0	0.7	0.1	0.1
Control Delay (s)	12.0	11.2	0.2	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	12.0	11.2	0.2	0.3
Approach LOS	B	B		

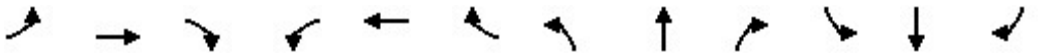
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	26.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	0	6	5	4	4	5	50	4	8	36	8
Future Volume (Veh/h)	10	0	6	5	4	4	5	50	4	8	36	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	11	0	7	6	4	4	6	56	4	9	40	9
Pedestrians		1			1			5			5	
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								None			None	
Median storage veh)												
Upstream signal (m)								343				
pX, platoon unblocked												
vC, conflicting volume	144	136	50	146	139	64	50			61		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	144	136	50	146	139	64	50			61		
tC, single (s)	7.1	6.5	6.2	7.1	6.8	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.2	3.3	2.4			2.2		
p0 queue free %	99	100	99	99	99	100	100			99		
cM capacity (veh/h)	811	749	1018	811	703	1001	1447			1554		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	14	66	58
Volume Left	11	6	6	9
Volume Right	7	4	4	9
cSH	881	820	1447	1554
Volume to Capacity	0.02	0.02	0.00	0.01
Queue Length 95th (m)	0.5	0.4	0.1	0.1
Control Delay (s)	9.2	9.5	0.7	1.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.2	9.5	0.7	1.2
Approach LOS	A	A		

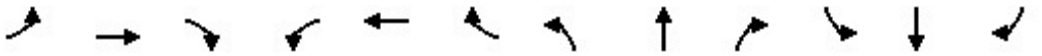
Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	16.4%	ICU Level of Service	A	
Analysis Period (min)	15			



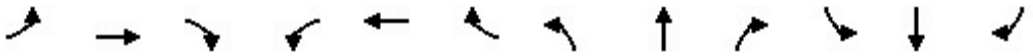
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	2	6	3	2	5	3	184	2	1	198	33
Future Volume (Veh/h)	31	2	6	3	2	5	3	184	2	1	198	33
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	33	2	6	3	2	5	3	196	2	1	211	35
Pedestrians		8			8			3			3	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	450	450	240	452	467	208	254			206		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	450	450	240	452	467	208	254			206		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	100	99	99	100	99	100			100		
cM capacity (veh/h)	507	499	797	505	488	830	1314			1368		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	41	10	201	247
Volume Left	33	3	3	1
Volume Right	6	5	2	35
cSH	535	623	1314	1368
Volume to Capacity	0.08	0.02	0.00	0.00
Queue Length 95th (m)	2.0	0.4	0.1	0.0
Control Delay (s)	12.3	10.9	0.1	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	12.3	10.9	0.1	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	25.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	778	36	44	756	21	45	113	33	23	131	285
Future Volume (vph)	149	778	36	44	756	21	45	113	33	23	131	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	20.0		0.0	20.0		25.0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			10.0		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98	0.99		0.98		0.97
Frt		0.994			0.996			0.966				0.850
Flt Protected		0.992			0.997		0.950			0.950		
Satd. Flow (prot)	0	3487	0	0	3549	0	1805	1822	0	1805	1900	1615
Flt Permitted		0.561			0.833		0.670			0.660		
Satd. Flow (perm)	0	1971	0	0	2964	0	1253	1822	0	1232	1900	1566
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			4			20				123
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.0			137.0			188.2			158.7	
Travel Time (s)		12.0			9.9			13.6			11.4	
Confl. Peds. (#/hr)	11		15	15		11	21		24	24		21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	155	810	38	46	788	22	47	118	34	24	136	297
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1003	0	0	856	0	47	152	0	24	136	297
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

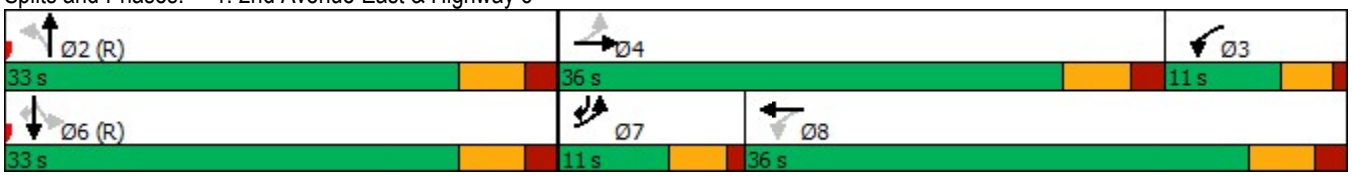


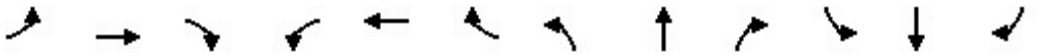
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	30.0		5.0	30.0		27.0	27.0		27.0	27.0	5.0
Minimum Split (s)	11.0	36.0		11.0	36.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	11.0	36.0		11.0	36.0		33.0	33.0		33.0	33.0	11.0
Total Split (%)	13.8%	45.0%		13.8%	45.0%		41.3%	41.3%		41.3%	41.3%	13.8%
Maximum Green (s)	6.5	30.0		7.0	30.0		27.0	27.0		27.0	27.0	6.5
Yellow Time (s)	3.5	4.0		3.0	4.0		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	4.5
Lead/Lag	Lead	Lead		Lag	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		10.0			10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)		15.0			19.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)		40.6			30.0		27.4	27.4		27.4	27.4	35.0
Actuated g/C Ratio		0.51			0.38		0.34	0.34		0.34	0.34	0.44
v/c Ratio		0.92			0.77		0.11	0.24		0.06	0.21	0.39
Control Delay		32.1			16.3		19.1	17.6		18.4	19.8	8.8
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		32.1			16.3		19.1	17.6		18.4	19.8	8.8
LOS		C			B		B	B		B	B	A
Approach Delay		32.1			16.3			18.0			12.6	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		54.7			19.0		5.1	14.7		2.5	15.1	15.0
Queue Length 95th (m)		#87.4			50.4		12.7	28.8		7.8	28.6	30.9
Internal Link Dist (m)		142.0			113.0			164.2			134.7	
Turn Bay Length (m)							20.0			20.0		25.0
Base Capacity (vph)		1088			1115		429	638		422	651	766
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.92			0.77		0.11	0.24		0.06	0.21	0.39

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 10 (13%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 22.1	Intersection LOS: C

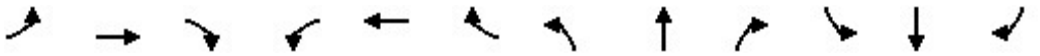
Intersection Capacity Utilization 104.4% ICU Level of Service G
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 2nd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	692	51	35	644	33	53	129	52	25	100	139
Future Volume (vph)	92	692	51	35	644	33	53	129	52	25	100	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	0.0		35.0
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99	0.99			1.00	0.97
Frt		0.991			0.993			0.957				0.850
Flt Protected		0.995			0.998		0.950				0.990	
Satd. Flow (prot)	0	3494	0	0	3546	0	1805	1737	0	0	1823	1583
Flt Permitted		0.703			0.871		0.674				0.925	
Satd. Flow (perm)	0	2467	0	0	3094	0	1266	1737	0	0	1702	1543
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			7			26				184
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			165.6			160.8			431.4	
Travel Time (s)		9.9			11.9			11.6			31.1	
Confl. Peds. (#/hr)	10		17	17		10	14		6	6		14
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	1%	0%	9%	0%	6%	0%	5%	2%	0%	4%	2%
Adj. Flow (vph)	96	721	53	36	671	34	55	134	54	26	104	145
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	870	0	0	741	0	55	188	0	0	130	145
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	25.0		5.0	25.0		25.0	25.0		25.0	25.0	25.0
Minimum Split (s)	11.0	31.0		11.0	31.0		31.0	31.0		31.0	31.0	31.0
Total Split (s)	11.0	38.0		11.0	38.0		31.0	31.0		31.0	31.0	31.0
Total Split (%)	13.8%	47.5%		13.8%	47.5%		38.8%	38.8%		38.8%	38.8%	38.8%
Maximum Green (s)	6.5	32.0		6.5	32.0		25.0	25.0		25.0	25.0	25.0
Yellow Time (s)	3.5	4.0		3.5	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	1.0	2.0		1.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)		6.0			6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		10.0			10.0		10.0	10.0		10.0	10.0	10.0
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	15.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)		33.5			33.5		34.5	34.5			34.5	34.5
Actuated g/C Ratio		0.42			0.42		0.43	0.43			0.43	0.43
v/c Ratio		0.84			0.57		0.10	0.25			0.18	0.19
Control Delay		14.4			6.7		17.3	15.5			17.2	2.3
Queue Delay		0.0			0.0		0.0	0.0			0.0	0.0
Total Delay		14.4			6.7		17.3	15.5			17.2	2.3
LOS		B			A		B	B			B	A
Approach Delay		14.4			6.7			15.9			9.4	
Approach LOS		B			A			B			A	
Queue Length 50th (m)		22.8			10.2		5.0	15.7			12.4	0.0
Queue Length 95th (m)		m14.4			4.8		14.6	35.7			28.5	7.4
Internal Link Dist (m)		113.0			141.6			136.8			407.4	
Turn Bay Length (m)							15.0					35.0
Base Capacity (vph)		1100			1376		545	763			733	770
Starvation Cap Reductn		0			0		0	0			0	0
Spillback Cap Reductn		0			0		0	0			0	0
Storage Cap Reductn		0			0		0	0			0	0
Reduced v/c Ratio		0.79			0.54		0.10	0.25			0.18	0.19

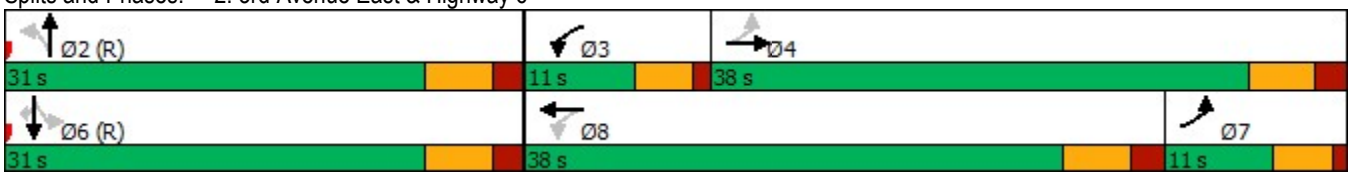
Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 16 (20%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 11.2	Intersection LOS: B

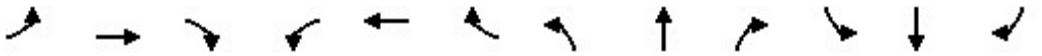
Intersection Capacity Utilization 86.2% ICU Level of Service E

Analysis Period (min) 15

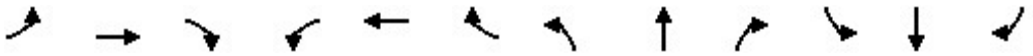
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 3rd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	736	10	54	676	39	15	42	79	17	42	21
Future Volume (vph)	23	736	10	54	676	39	15	42	79	17	42	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	10.0		0.0	5.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99	0.99		1.00	0.99	
Frt		0.998			0.992			0.902			0.949	
Flt Protected		0.998			0.996		0.950			0.950		
Satd. Flow (prot)	0	3490	0	0	3526	0	1805	1695	0	1805	1768	0
Flt Permitted		0.913			0.805		0.715			0.677		
Satd. Flow (perm)	0	3192	0	0	2849	0	1349	1695	0	1281	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9			81			22	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.6			291.5			153.7			342.7	
Travel Time (s)		11.9			21.0			11.1			24.7	
Confl. Peds. (#/hr)	8		10	10		8	9		6	6		9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	3%	0%	2%	1%	0%	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	24	759	10	56	697	40	15	43	81	18	43	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	793	0	0	793	0	15	124	0	18	65	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

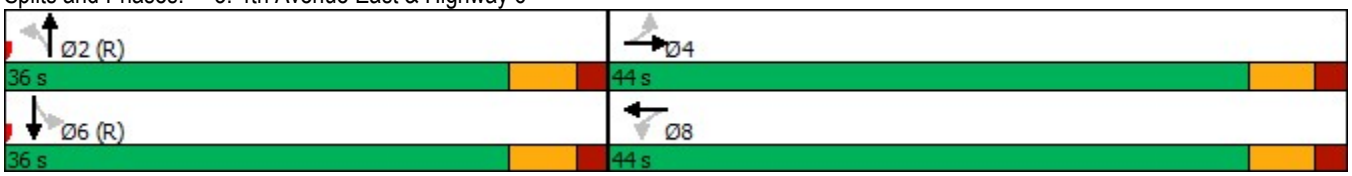


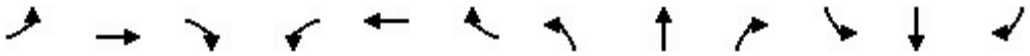
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	33.0	33.0		33.0	33.0		27.0	27.0		27.0	27.0	
Minimum Split (s)	39.0	39.0		39.0	39.0		33.0	33.0		33.0	33.0	
Total Split (s)	44.0	44.0		44.0	44.0		36.0	36.0		36.0	36.0	
Total Split (%)	55.0%	55.0%		55.0%	55.0%		45.0%	45.0%		45.0%	45.0%	
Maximum Green (s)	38.0	38.0		38.0	38.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Flash Dont Walk (s)	23.0	23.0		23.0	23.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		33.2			33.2		34.8	34.8		34.8	34.8	
Actuated g/C Ratio		0.42			0.42		0.44	0.44		0.44	0.44	
v/c Ratio		0.60			0.67		0.03	0.16		0.03	0.08	
Control Delay		17.6			22.1		13.3	6.4		13.4	10.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		17.6			22.1		13.3	6.4		13.4	10.1	
LOS		B			C		B	A		B	B	
Approach Delay		17.6			22.1			7.2			10.8	
Approach LOS		B			C			A			B	
Queue Length 50th (m)		30.4			52.0		1.3	3.8		1.6	3.8	
Queue Length 95th (m)		49.3			70.8		4.8	13.7		5.5	11.1	
Internal Link Dist (m)		141.6			267.5			129.7			318.7	
Turn Bay Length (m)							10.0			5.0		
Base Capacity (vph)		1517			1358		587	783		557	781	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.52			0.58		0.03	0.16		0.03	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 8 (10%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 18.4		Intersection LOS: B	

Intersection Capacity Utilization 92.5% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: 4th Avenue East & Highway 6

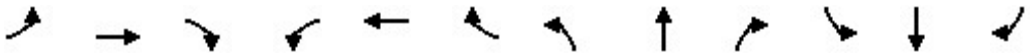




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	9	13	3	13	7	9	241	4	2	248	25
Future Volume (Veh/h)	23	9	13	3	13	7	9	241	4	2	248	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	24	9	13	3	13	7	9	248	4	2	256	26
Pedestrians		8			8			5			5	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	568	559	282	572	570	263	290			260		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	568	559	282	572	570	263	290			260		
tC, single (s)	7.1	6.6	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	94	98	98	99	97	99	99			100		
cM capacity (veh/h)	411	412	753	408	424	772	1209			1307		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	46	23	261	284
Volume Left	24	3	9	2
Volume Right	13	7	4	26
cSH	472	489	1209	1307
Volume to Capacity	0.10	0.05	0.01	0.00
Queue Length 95th (m)	2.6	1.2	0.2	0.0
Control Delay (s)	13.4	12.7	0.3	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	13.4	12.7	0.3	0.1
Approach LOS	B	B		

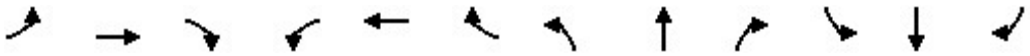
Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	33.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	9	1	6	3	10	94	0	7	65	8
Future Volume (Veh/h)	7	0	9	1	6	3	10	94	0	7	65	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	9	0	11	1	7	4	12	115	0	9	79	10
Pedestrians		10			12			3			3	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								343				
pX, platoon unblocked												
vC, conflicting volume	262	263	97	267	268	130	99			127		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	262	263	97	267	268	130	99			127		
tC, single (s)	7.4	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	99	100	99	100	99	100	99			99		
cM capacity (veh/h)	602	625	954	657	621	914	1427			1457		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	12	127	98
Volume Left	9	1	12	9
Volume Right	11	4	0	10
cSH	755	698	1427	1457
Volume to Capacity	0.03	0.02	0.01	0.01
Queue Length 95th (m)	0.7	0.4	0.2	0.1
Control Delay (s)	9.9	10.2	0.8	0.7
Lane LOS	A	B	A	A
Approach Delay (s)	9.9	10.2	0.8	0.7
Approach LOS	A	B		

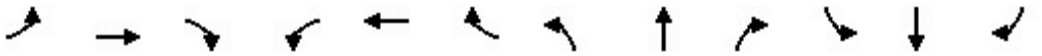
Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	20.3%	ICU Level of Service	A	
Analysis Period (min)	15			



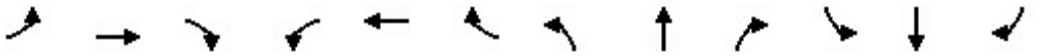
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	7	8	2	12	7	9	258	3	1	266	29
Future Volume (Veh/h)	35	7	8	2	12	7	9	258	3	1	266	29
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	37	7	8	2	13	7	9	272	3	1	280	31
Pedestrians		10			10			6			6	
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		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	618	610	312	616	624	290	321			285		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	618	610	312	616	624	290	321			285		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	98	99	99	97	99	99			100		
cM capacity (veh/h)	374	402	724	383	394	744	1240			1278		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	22	284	312
Volume Left	37	2	9	1
Volume Right	8	7	3	31
cSH	408	462	1240	1278
Volume to Capacity	0.13	0.05	0.01	0.00
Queue Length 95th (m)	3.5	1.2	0.2	0.0
Control Delay (s)	15.1	13.2	0.3	0.0
Lane LOS	C	B	A	A
Approach Delay (s)	15.1	13.2	0.3	0.0
Approach LOS	C	B		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	36.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	768	62	38	661	30	34	130	52	24	75	204
Future Volume (vph)	131	768	62	38	661	30	34	130	52	24	75	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	20.0		0.0	20.0		25.0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			10.0		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00		0.96	0.98		0.96		0.95
Frt		0.990			0.994			0.957				0.850
Flt Protected		0.993			0.997		0.950			0.950		
Satd. Flow (prot)	0	3532	0	0	3566	0	1805	1785	0	1736	1900	1615
Flt Permitted		0.604			0.850		0.704			0.603		
Satd. Flow (perm)	0	2144	0	0	3038	0	1287	1785	0	1061	1900	1528
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			8			24				168
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.0			137.0			188.2			158.7	
Travel Time (s)		12.0			9.9			13.6			11.4	
Confl. Peds. (#/hr)	27		25	25		27	32		40	40		32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	141	826	67	41	711	32	37	140	56	26	81	219
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1034	0	0	784	0	37	196	0	26	81	219
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	3.5	5.0		5.0	5.0		5.0	5.0		5.0	5.0	3.5
Minimum Split (s)	8.0	22.5		9.5	22.5		22.5	22.5		22.5	22.5	8.0
Total Split (s)	9.0	47.0		9.5	47.5		23.5	23.5		23.5	23.5	9.0
Total Split (%)	11.3%	58.8%		11.9%	59.4%		29.4%	29.4%		29.4%	29.4%	11.3%
Maximum Green (s)	4.5	42.5		5.0	43.0		19.0	19.0		19.0	19.0	4.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag	Lead	Lead		Lag	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)		40.2			31.2		30.8	30.8		30.8	30.8	35.3
Actuated g/C Ratio		0.50			0.39		0.38	0.38		0.38	0.38	0.44
v/c Ratio		0.89			0.66		0.07	0.28		0.06	0.11	0.28
Control Delay		27.3			11.4		17.6	17.0		17.6	17.6	4.8
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		27.3			11.4		17.6	17.0		17.6	17.6	4.8
LOS		C			B		B	B		B	B	A
Approach Delay		27.3			11.4			17.1			9.0	
Approach LOS		C			B			B			A	
Queue Length 50th (m)		53.6			13.0		3.8	19.1		2.7	8.5	4.2
Queue Length 95th (m)		#74.3			31.8		10.3	35.3		8.1	17.9	16.0
Internal Link Dist (m)		142.0			113.0			164.2			134.7	
Turn Bay Length (m)							20.0			20.0		25.0
Base Capacity (vph)		1223			1636		495	701		407	730	772
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.85			0.48		0.07	0.28		0.06	0.11	0.28

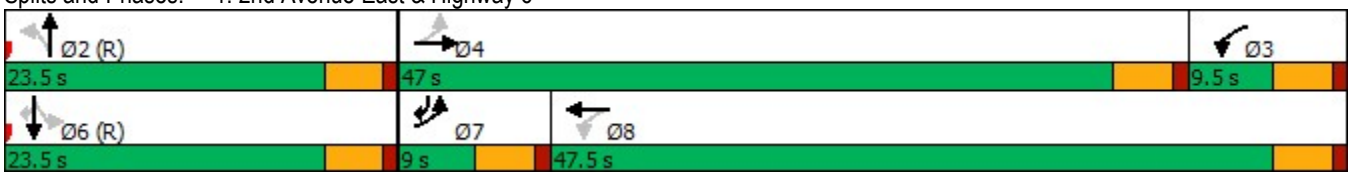
Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 2 (3%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 18.5	Intersection LOS: B

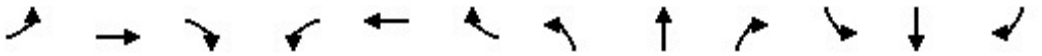
Intersection Capacity Utilization 78.8% ICU Level of Service D

Analysis Period (min) 15

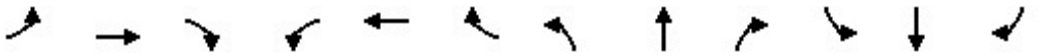
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: 2nd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	732	62	29	588	33	39	94	66	29	95	102
Future Volume (vph)	51	732	62	29	588	33	39	94	66	29	95	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	0.0		35.0
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.98	0.99			1.00	0.96
Frt		0.989			0.992			0.938				0.850
Flt Protected		0.997			0.998		0.950				0.989	
Satd. Flow (prot)	0	3536	0	0	3542	0	1805	1718	0	0	1811	1553
Flt Permitted		0.856			0.869		0.677				0.925	
Satd. Flow (perm)	0	3034	0	0	3084	0	1260	1718	0	0	1687	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			8			43				143
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			165.6			160.8			431.4	
Travel Time (s)		9.9			11.9			11.6			31.1	
Confl. Peds. (#/hr)	12		17	17		12	18		16	16		18
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	0%	0%	0%	0%	13%	0%	4%	0%	3%	4%	4%
Adj. Flow (vph)	52	739	63	29	594	33	39	95	67	29	96	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	854	0	0	656	0	39	162	0	0	125	103
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		9.5	22.5	22.5
Total Split (s)	9.5	35.0		9.5	35.0		26.0	26.0		9.5	35.5	35.5
Total Split (%)	11.9%	43.8%		11.9%	43.8%		32.5%	32.5%		11.9%	44.4%	44.4%
Maximum Green (s)	5.0	30.5		5.0	30.5		21.5	21.5		5.0	31.0	31.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lead	Lead		Lag		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0			0	0
Act Effct Green (s)		29.2			29.2		41.8	41.8			41.8	41.8
Actuated g/C Ratio		0.36			0.36		0.52	0.52			0.52	0.52
v/c Ratio		0.77			0.58		0.06	0.18			0.14	0.12
Control Delay		18.6			9.3		12.0	9.3			12.1	1.5
Queue Delay		0.0			0.0		0.0	0.0			0.0	0.0
Total Delay		18.6			9.3		12.0	9.3			12.1	1.5
LOS		B			A		B	A			B	A
Approach Delay		18.6			9.3			9.8			7.3	
Approach LOS		B			A			A			A	
Queue Length 50th (m)		29.6			8.5		2.9	9.2			9.7	0.0
Queue Length 95th (m)		m30.8			11.2		9.2	23.1			22.5	4.6
Internal Link Dist (m)		113.0			141.6			136.8			407.4	
Turn Bay Length (m)							15.0					35.0
Base Capacity (vph)		1224			1242		658	918			881	851
Starvation Cap Reductn		0			0		0	0			0	0
Spillback Cap Reductn		0			0		0	0			0	0
Storage Cap Reductn		0			0		0	0			0	0
Reduced v/c Ratio		0.70			0.53		0.06	0.18			0.14	0.12

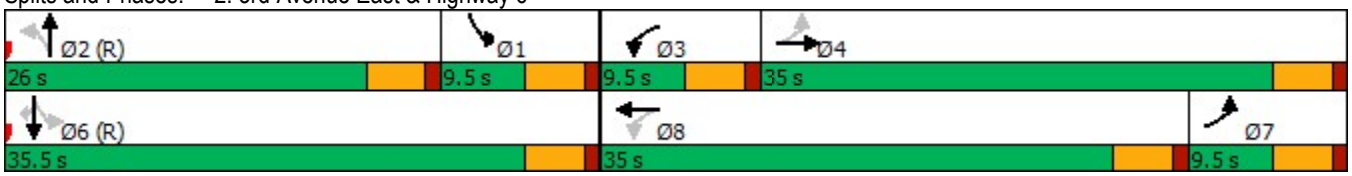
Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 74 (93%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 13.2	Intersection LOS: B

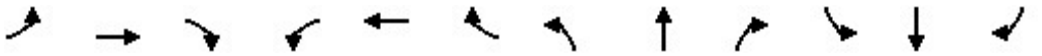
Intersection Capacity Utilization 83.5% ICU Level of Service E

Analysis Period (min) 15

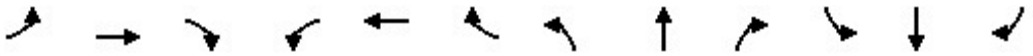
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 3rd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	800	7	39	633	29	6	17	61	20	19	12
Future Volume (vph)	20	800	7	39	633	29	6	17	61	20	19	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	10.0		0.0	5.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99	0.98		0.99	0.99	
Frt		0.999			0.994			0.882			0.942	
Flt Protected		0.999			0.997		0.950			0.950		
Satd. Flow (prot)	0	3601	0	0	3536	0	1805	1646	0	1805	1774	0
Flt Permitted		0.929			0.800		0.737			0.706		
Satd. Flow (perm)	0	3349	0	0	2836	0	1386	1646	0	1329	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9			62			12	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.6			291.5			153.7			342.7	
Travel Time (s)		11.9			21.0			11.1			24.7	
Confl. Peds. (#/hr)	8		13	13		8	8		8	8		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	1%	3%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	20	816	7	40	646	30	6	17	62	20	19	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	843	0	0	716	0	6	79	0	20	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

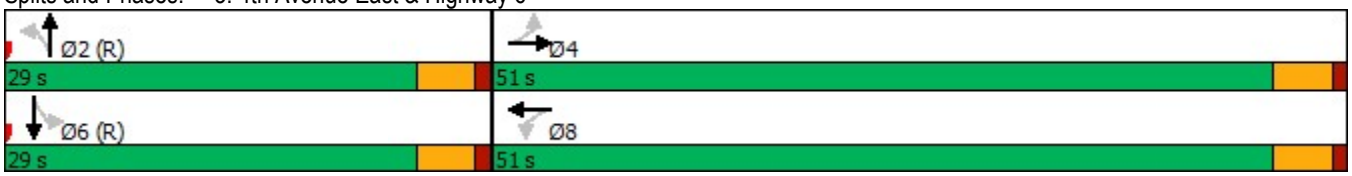


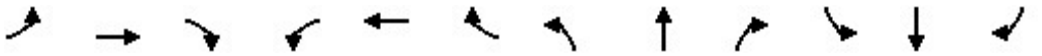
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	51.0	51.0		51.0	51.0		29.0	29.0		29.0	29.0	
Total Split (%)	63.8%	63.8%		63.8%	63.8%		36.3%	36.3%		36.3%	36.3%	
Maximum Green (s)	46.5	46.5		46.5	46.5		24.5	24.5		24.5	24.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		27.9			27.9		43.1	43.1		43.1	43.1	
Actuated g/C Ratio		0.35			0.35		0.54	0.54		0.54	0.54	
v/c Ratio		0.72			0.72		0.01	0.09		0.03	0.03	
Control Delay		20.6			26.2		11.3	4.9		11.2	8.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		20.6			26.2		11.3	4.9		11.2	8.3	
LOS		C			C		B	A		B	A	
Approach Delay		20.6			26.2			5.3			9.5	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		31.4			51.1		0.4	1.2		1.4	1.3	
Queue Length 95th (m)		34.2			60.1		2.6	8.8		5.5	6.3	
Internal Link Dist (m)		141.6			267.5			129.7			318.7	
Turn Bay Length (m)							10.0			5.0		
Base Capacity (vph)		1947			1652		746	914		715	960	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.43			0.43		0.01	0.09		0.03	0.03	

Intersection Summary	
Area Type:	Other
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 21.8	Intersection LOS: C

Intersection Capacity Utilization 68.8% ICU Level of Service C
Analysis Period (min) 15

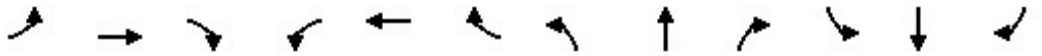
Splits and Phases: 3: 4th Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	4	6	6	8	6	3	169	6	8	214	7
Future Volume (vph)	34	4	6	6	8	6	3	169	6	8	214	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.982			0.959			0.996			0.996	
Flt Protected		0.962			0.985			0.999			0.998	
Satd. Flow (prot)	0	1795	0	0	1795	0	0	1838	0	0	1889	0
Flt Permitted		0.962			0.985			0.999			0.998	
Satd. Flow (perm)	0	1795	0	0	1795	0	0	1838	0	0	1889	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		190.3			131.6			431.4			0.0	
Travel Time (s)		13.7			9.5			31.1			0.0	
Confl. Peds. (#/hr)	5					5	8		6	6		8
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%
Adj. Flow (vph)	36	4	6	6	8	6	3	178	6	8	225	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	20	0	0	187	0	0	240	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

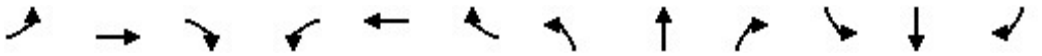
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	4	6	6	8	6	3	169	6	8	214	7
Future Volume (Veh/h)	34	4	6	6	8	6	3	169	6	8	214	7
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)	36	4	6	6	8	6	3	178	6	8	225	7
Pedestrians		8			8			5			5	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	454	450	242	452	451	194	240			192		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	454	450	242	452	451	194	240			192		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	93	99	99	99	98	99	100			99		
cM capacity (veh/h)	496	496	794	500	496	843	1330			1384		

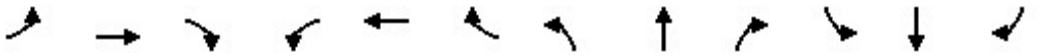
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	46	20	187	240
Volume Left	36	6	3	8
Volume Right	6	6	6	7
cSH	521	568	1330	1384
Volume to Capacity	0.09	0.04	0.00	0.01
Queue Length 95th (m)	2.3	0.9	0.1	0.1
Control Delay (s)	12.6	11.6	0.1	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	12.6	11.6	0.1	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	28.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	0	7	6	4	4	6	55	4	9	40	9
Future Volume (vph)	11	0	7	6	4	4	6	55	4	9	40	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.946			0.964			0.993			0.979	
Flt Protected		0.971			0.977			0.995			0.992	
Satd. Flow (prot)	0	1745	0	0	1678	0	0	1842	0	0	1787	0
Flt Permitted		0.971			0.977			0.995			0.992	
Satd. Flow (perm)	0	1745	0	0	1678	0	0	1842	0	0	1787	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		131.6			83.8			342.7			197.4	
Travel Time (s)		9.5			6.0			24.7			14.2	
Confl. Peds. (#/hr)	1		5	5		1	1					1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	25%	0%	20%	0%	0%	0%	2%	12%
Adj. Flow (vph)	12	0	8	7	4	4	7	62	4	10	45	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	15	0	0	73	0	0	65	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	100		100	25		100	100		15
Sign Control		Stop			Stop			Free			Free	

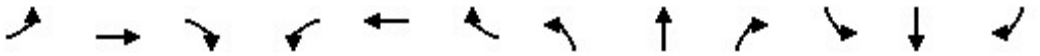
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 16.8%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	7	6	4	4	6	55	4	9	40	9
Future Volume (Veh/h)	11	0	7	6	4	4	6	55	4	9	40	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	12	0	8	7	4	4	7	62	4	10	45	10
Pedestrians		1			1			5			5	
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								None			None	
Median storage veh)												
Upstream signal (m)								343				
pX, platoon unblocked												
vC, conflicting volume	160	152	56	162	155	70	56			67		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	160	152	56	162	155	70	56			67		
tC, single (s)	7.1	6.5	6.2	7.1	6.8	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.2	3.3	2.4			2.2		
p0 queue free %	98	100	99	99	99	100	100			99		
cM capacity (veh/h)	791	734	1011	789	688	993	1440			1546		

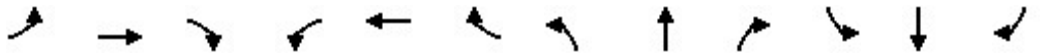
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	15	73	65
Volume Left	12	7	7	10
Volume Right	8	4	4	10
cSH	867	802	1440	1546
Volume to Capacity	0.02	0.02	0.00	0.01
Queue Length 95th (m)	0.6	0.5	0.1	0.2
Control Delay (s)	9.3	9.6	0.8	1.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.6	0.8	1.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	16.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	2	7	3	2	6	3	203	2	1	219	36
Future Volume (vph)	34	2	7	3	2	6	3	203	2	1	219	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.979			0.926			0.999			0.981	
Flt Protected		0.962			0.987			0.999				
Satd. Flow (prot)	0	1789	0	0	1737	0	0	1860	0	0	1864	0
Flt Permitted		0.962			0.987			0.999				
Satd. Flow (perm)	0	1789	0	0	1737	0	0	1860	0	0	1864	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		99.4			102.3			218.3			144.2	
Travel Time (s)		7.2			7.4			15.7			10.4	
Confl. Peds. (#/hr)			3	3			5		8	8		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	36	2	7	3	2	6	3	216	2	1	233	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	0	0	11	0	0	221	0	0	272	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

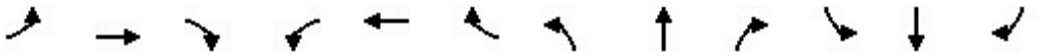
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.7%		ICU Level of Service A	
Analysis Period (min) 15			



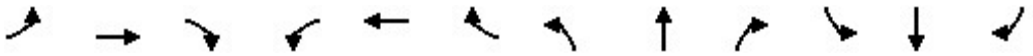
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	2	7	3	2	6	3	203	2	1	219	36
Future Volume (Veh/h)	34	2	7	3	2	6	3	203	2	1	219	36
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	36	2	7	3	2	6	3	216	2	1	233	38
Pedestrians		8			8			3			3	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	495	494	263	496	512	228	279			226		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	495	494	263	496	512	228	279			226		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	99	99	100	99	100			100		
cM capacity (veh/h)	473	471	773	471	461	809	1287			1345		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	45	11	221	272
Volume Left	36	3	3	1
Volume Right	7	6	2	38
cSH	503	607	1287	1345
Volume to Capacity	0.09	0.02	0.00	0.00
Queue Length 95th (m)	2.3	0.4	0.1	0.0
Control Delay (s)	12.9	11.0	0.1	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	12.9	11.0	0.1	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	27.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	868	36	44	786	21	45	113	33	23	131	285
Future Volume (vph)	149	868	36	44	786	21	45	113	33	23	131	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	20.0		0.0	20.0		25.0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			10.0		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.97	0.99		0.97		0.96
Frt		0.995			0.996			0.966				0.850
Flt Protected		0.993			0.997		0.950			0.950		
Satd. Flow (prot)	0	3492	0	0	3548	0	1805	1816	0	1805	1900	1615
Flt Permitted		0.581			0.834		0.660			0.636		
Satd. Flow (perm)	0	2042	0	0	2967	0	1223	1816	0	1175	1900	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			4			14				143
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.0			137.0			188.2			158.7	
Travel Time (s)		12.0			9.9			13.6			11.4	
Confl. Peds. (#/hr)	11		15	15		11	21		24	24		21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	155	904	38	46	819	22	47	118	34	24	136	297
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1097	0	0	887	0	47	152	0	24	136	297
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

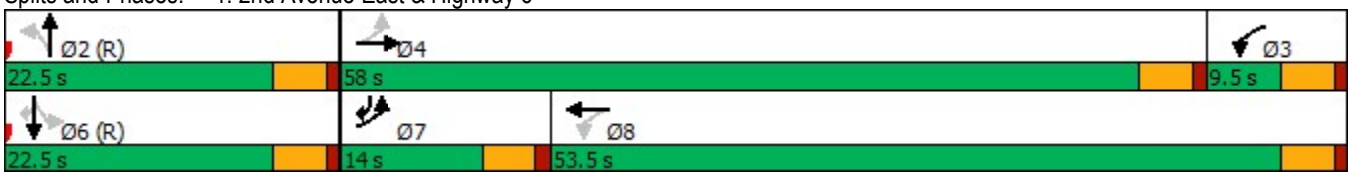


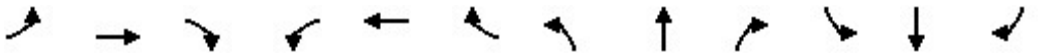
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	3.5	5.0		5.0	5.0		5.0	5.0		5.0	5.0	3.5
Minimum Split (s)	8.0	22.5		9.5	22.5		22.5	22.5		22.5	22.5	8.0
Total Split (s)	14.0	58.0		9.5	53.5		22.5	22.5		22.5	22.5	14.0
Total Split (%)	15.6%	64.4%		10.6%	59.4%		25.0%	25.0%		25.0%	25.0%	15.6%
Maximum Green (s)	9.5	53.5		5.0	49.0		18.0	18.0		18.0	18.0	9.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag	Lead	Lead		Lag	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)		51.7			41.1		29.3	29.3		29.3	29.3	35.4
Actuated g/C Ratio		0.57			0.46		0.33	0.33		0.33	0.33	0.39
v/c Ratio		0.86			0.65		0.12	0.25		0.06	0.22	0.43
Control Delay		22.6			21.3		23.6	22.4		22.9	24.2	11.0
Queue Delay		0.0			0.2		0.0	0.0		0.0	0.0	0.0
Total Delay		22.6			21.5		23.6	22.4		22.9	24.2	11.0
LOS		C			C		C	C		C	C	B
Approach Delay		22.6			21.5			22.7			15.5	
Approach LOS		C			C			C			B	
Queue Length 50th (m)		56.7			60.4		6.2	18.8		3.1	18.4	17.4
Queue Length 95th (m)		73.2			82.0		14.6	34.5		9.1	33.1	36.6
Internal Link Dist (m)		142.0			113.0			164.2			134.7	
Turn Bay Length (m)							20.0			20.0		25.0
Base Capacity (vph)		1313			1617		398	601		383	619	755
Starvation Cap Reductn		0			196		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.84			0.62		0.12	0.25		0.06	0.22	0.39

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 88 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 21.0	Intersection LOS: C

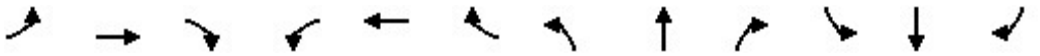
Intersection Capacity Utilization 87.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: 2nd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	717	51	35	652	95	53	164	52	46	111	161
Future Volume (vph)	157	717	51	35	652	95	53	164	52	46	111	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	0.0		35.0
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99		0.98	0.99			1.00	0.97
Frt		0.992			0.982			0.964				0.850
Flt Protected		0.992			0.998		0.950				0.986	
Satd. Flow (prot)	0	3471	0	0	3478	0	1805	1747	0	0	1822	1583
Flt Permitted		0.613			0.871		0.624				0.864	
Satd. Flow (perm)	0	2142	0	0	3036	0	1163	1747	0	0	1594	1528
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			22			14				168
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			165.6			160.8			431.4	
Travel Time (s)		9.9			11.9			11.6			31.1	
Confl. Peds. (#/hr)	10		17	17		10	14		6	6		14
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	1%	0%	9%	0%	6%	0%	5%	2%	0%	4%	2%
Adj. Flow (vph)	164	747	53	36	679	99	55	171	54	48	116	168
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	964	0	0	814	0	55	225	0	0	164	168
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

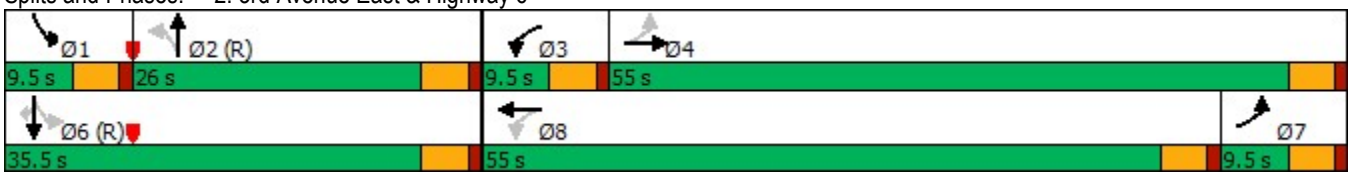


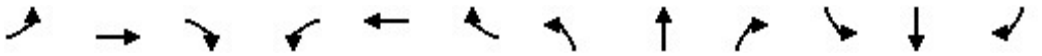
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		9.5	22.5	22.5
Total Split (s)	9.5	55.0		9.5	55.0		26.0	26.0		9.5	35.5	35.5
Total Split (%)	9.5%	55.0%		9.5%	55.0%		26.0%	26.0%		9.5%	35.5%	35.5%
Maximum Green (s)	5.0	50.5		5.0	50.5		21.5	21.5		5.0	31.0	31.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0			0	0
Act Effct Green (s)		52.9			52.9		38.1	38.1			38.1	38.1
Actuated g/C Ratio		0.53			0.53		0.38	0.38			0.38	0.38
v/c Ratio		0.85			0.50		0.12	0.33			0.27	0.25
Control Delay		27.4			15.2		24.4	24.3			25.2	5.1
Queue Delay		1.8			0.0		0.0	0.0			0.0	0.0
Total Delay		29.2			15.2		24.4	24.3			25.2	5.1
LOS		C			B		C	C			C	A
Approach Delay		29.2			15.2			24.3			15.0	
Approach LOS		C			B			C			B	
Queue Length 50th (m)		80.0			49.6		7.4	30.8			23.4	0.0
Queue Length 95th (m)		96.7			56.6		17.9	55.6			43.7	14.7
Internal Link Dist (m)		113.0			141.6			136.8			407.4	
Turn Bay Length (m)							15.0					35.0
Base Capacity (vph)		1180			1678		442	673			607	685
Starvation Cap Reductn		99			0		0	0			0	0
Spillback Cap Reductn		0			0		0	0			0	0
Storage Cap Reductn		0			0		0	0			0	0
Reduced v/c Ratio		0.89			0.49		0.12	0.33			0.27	0.25

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 21.9	Intersection LOS: C

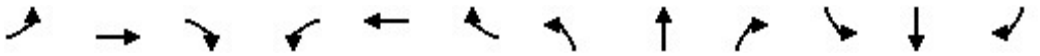
Intersection Capacity Utilization 93.3% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: 3rd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	757	10	54	738	69	15	58	79	27	47	29
Future Volume (vph)	48	757	10	54	738	69	15	58	79	27	47	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	10.0		0.0	5.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99	0.99		0.99	0.99	
Frt		0.998			0.988			0.914			0.942	
Flt Protected		0.997			0.997		0.950			0.950		
Satd. Flow (prot)	0	3485	0	0	3510	0	1805	1716	0	1805	1751	0
Flt Permitted		0.783			0.777		0.706			0.667		
Satd. Flow (perm)	0	2736	0	0	2735	0	1325	1716	0	1258	1751	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			19			75			30	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.6			291.5			153.7			342.7	
Travel Time (s)		11.9			21.0			11.1			24.7	
Confl. Peds. (#/hr)	8		10	10		8	9		6	6		9
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	3%	0%	2%	1%	0%	0%	0%	0%	0%	2%	0%
Adj. Flow (vph)	49	780	10	56	761	71	15	60	81	28	48	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	839	0	0	888	0	15	141	0	28	78	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

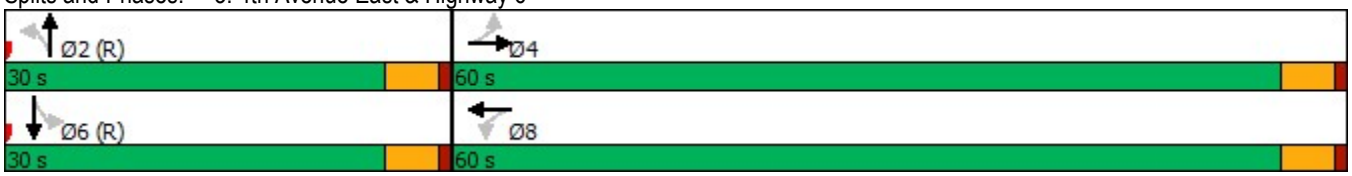


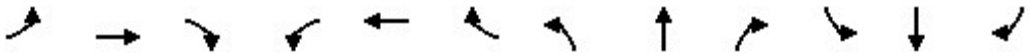
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	60.0	60.0		60.0	60.0		30.0	30.0		30.0	30.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	55.5	55.5		55.5	55.5		25.5	25.5		25.5	25.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		36.0			36.0		45.0	45.0		45.0	45.0	
Actuated g/C Ratio		0.40			0.40		0.50	0.50		0.50	0.50	
v/c Ratio		0.77			0.80		0.02	0.16		0.04	0.09	
Control Delay		27.8			28.9		14.9	8.1		14.9	10.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		27.8			28.9		14.9	8.1		14.9	10.3	
LOS		C			C		B	A		B	B	
Approach Delay		27.8			28.9			8.8			11.5	
Approach LOS		C			C			A			B	
Queue Length 50th (m)		67.9			72.2		1.3	5.9		2.5	4.3	
Queue Length 95th (m)		74.2			78.8		5.6	19.5		8.6	14.2	
Internal Link Dist (m)		141.6			267.5			129.7			318.7	
Turn Bay Length (m)							10.0			5.0		
Base Capacity (vph)		1687			1693		662	895		629	890	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.50			0.52		0.02	0.16		0.04	0.09	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 88 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 25.9	Intersection LOS: C

Intersection Capacity Utilization 80.6% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: 4th Avenue East & Highway 6

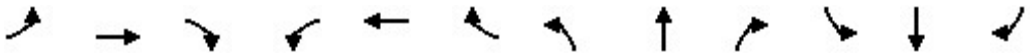




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	9	13	3	13	7	9	403	4	2	302	25
Future Volume (Veh/h)	23	9	13	3	13	7	9	403	4	2	302	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	24	9	13	3	13	7	9	415	4	2	311	26
Pedestrians		8			8			5			5	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	790	781	337	794	792	430	345			427		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	790	781	337	794	792	430	345			427		
tC, single (s)	7.1	6.6	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	92	97	98	99	96	99	99			100		
cM capacity (veh/h)	289	306	702	288	317	623	1153			1136		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	46	23	428	339
Volume Left	24	3	9	2
Volume Right	13	7	4	26
cSH	351	367	1153	1136
Volume to Capacity	0.13	0.06	0.01	0.00
Queue Length 95th (m)	3.6	1.6	0.2	0.0
Control Delay (s)	16.8	15.5	0.3	0.1
Lane LOS	C	C	A	A
Approach Delay (s)	16.8	15.5	0.3	0.1
Approach LOS	C	C		

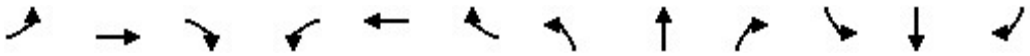
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	42.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	9	1	6	3	10	164	0	7	88	8
Future Volume (Veh/h)	7	0	9	1	6	3	10	164	0	7	88	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	9	0	11	1	7	4	12	200	0	9	107	10
Pedestrians		10			12			3			3	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								343				
pX, platoon unblocked												
vC, conflicting volume	374	376	125	380	381	215	127			212		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	374	376	125	380	381	215	127			212		
tC, single (s)	7.4	6.5	6.2	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.8	4.0	3.3	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	98	100	99	100	99	100	99			99		
cM capacity (veh/h)	503	540	921	553	536	820	1394			1357		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	12	212	126
Volume Left	9	1	12	9
Volume Right	11	4	0	10
cSH	671	608	1394	1357
Volume to Capacity	0.03	0.02	0.01	0.01
Queue Length 95th (m)	0.7	0.5	0.2	0.2
Control Delay (s)	10.5	11.0	0.5	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	10.5	11.0	0.5	0.6
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	23.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	7	8	2	12	7	9	264	3	1	284	29
Future Volume (Veh/h)	35	7	8	2	12	7	9	264	3	1	284	29
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)	37	7	8	2	13	7	9	278	3	1	299	31
Pedestrians		10			10			6			6	
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		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	644	636	330	642	650	296	340			291		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	644	636	330	642	650	296	340			291		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	98	99	99	97	99	99			100		
cM capacity (veh/h)	359	389	706	368	381	739	1220			1272		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	22	290	331
Volume Left	37	2	9	1
Volume Right	8	7	3	31
cSH	393	449	1220	1272
Volume to Capacity	0.13	0.05	0.01	0.00
Queue Length 95th (m)	3.6	1.2	0.2	0.0
Control Delay (s)	15.6	13.4	0.3	0.0
Lane LOS	C	B	A	A
Approach Delay (s)	15.6	13.4	0.3	0.0
Approach LOS	C	B		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	37.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	6	270	162	18	276
Future Volume (Veh/h)	54	6	270	162	18	276
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	7	293	176	20	300
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	721	381			469	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	721	381			469	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	99			98	
cM capacity (veh/h)	387	666			1093	

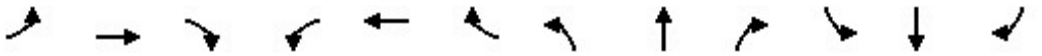
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	66	469	320
Volume Left	59	0	20
Volume Right	7	176	0
cSH	405	1700	1093
Volume to Capacity	0.16	0.28	0.02
Queue Length 95th (m)	4.6	0.0	0.4
Control Delay (s)	15.6	0.0	0.7
Lane LOS	C		A
Approach Delay (s)	15.6	0.0	0.7
Approach LOS	C		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

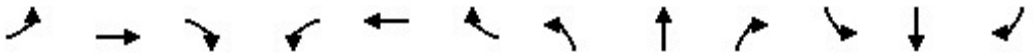
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	2	70	102	79	7
Future Volume (Veh/h)	23	2	70	102	79	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	2	76	111	86	8
Pedestrians						
Lane Width (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	353	90	94			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	353	90	94			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	95			
cM capacity (veh/h)	612	968	1500			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	27	187	94
Volume Left	25	76	0
Volume Right	2	0	8
cSH	629	1500	1700
Volume to Capacity	0.04	0.05	0.06
Queue Length 95th (m)	1.1	1.3	0.0
Control Delay (s)	11.0	3.3	0.0
Lane LOS	B	A	
Approach Delay (s)	11.0	3.3	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	860	62	38	694	30	34	130	52	24	75	204
Future Volume (vph)	131	860	62	38	694	30	34	130	52	24	75	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	20.0		0.0	20.0		25.0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			10.0		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00		0.96	0.98		0.96		0.94
Frt		0.991			0.994			0.957				0.850
Flt Protected		0.994			0.998		0.950			0.950		
Satd. Flow (prot)	0	3539	0	0	3569	0	1805	1782	0	1736	1900	1615
Flt Permitted		0.620			0.840		0.704			0.576		
Satd. Flow (perm)	0	2203	0	0	3002	0	1280	1782	0	1010	1900	1520
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			8			20				184
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.0			137.0			188.2			158.7	
Travel Time (s)		12.0			9.9			13.6			11.4	
Confl. Peds. (#/hr)	27		25	25		27	32		40	40		32
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	141	925	67	41	746	32	37	140	56	26	81	219
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1133	0	0	819	0	37	196	0	26	81	219
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

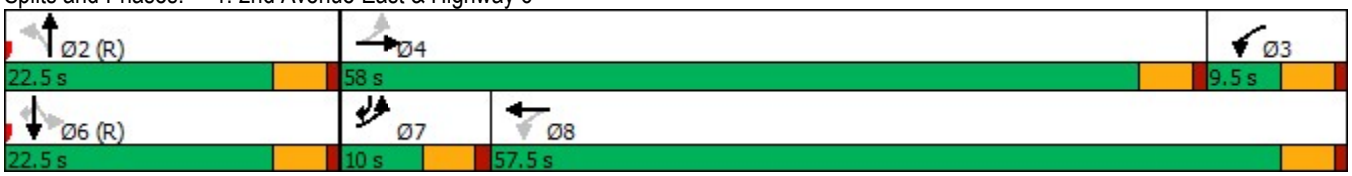


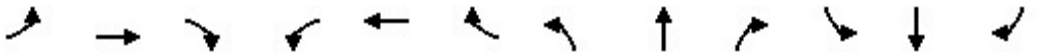
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	3.5	5.0		5.0	5.0		5.0	5.0		5.0	5.0	3.5
Minimum Split (s)	8.0	22.5		9.5	22.5		22.5	22.5		22.5	22.5	8.0
Total Split (s)	10.0	58.0		9.5	57.5		22.5	22.5		22.5	22.5	10.0
Total Split (%)	11.1%	64.4%		10.6%	63.9%		25.0%	25.0%		25.0%	25.0%	11.1%
Maximum Green (s)	5.5	53.5		5.0	53.0		18.0	18.0		18.0	18.0	5.5
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	4.5
Lead/Lag	Lead	Lead		Lag	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)		50.6			40.6		30.4	30.4		30.4	30.4	35.9
Actuated g/C Ratio		0.56			0.45		0.34	0.34		0.34	0.34	0.40
v/c Ratio		0.86			0.60		0.09	0.32		0.08	0.13	0.30
Control Delay		22.3			10.8		22.9	22.7		23.0	22.9	5.3
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		22.3			10.9		22.9	22.7		23.0	22.9	5.3
LOS		C			B		C	C		C	C	A
Approach Delay		22.3			10.9			22.7			11.1	
Approach LOS		C			B			C			B	
Queue Length 50th (m)		59.8			17.7		4.7	24.3		3.3	10.5	3.7
Queue Length 95th (m)		75.7			35.4		12.2	43.5		9.6	21.7	17.4
Internal Link Dist (m)		142.0			113.0			164.2			134.7	
Turn Bay Length (m)							20.0			20.0		25.0
Base Capacity (vph)		1396			1771		432	615		341	641	722
Starvation Cap Reductn		0			57		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.81			0.48		0.09	0.32		0.08	0.13	0.30

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 88 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 17.2	Intersection LOS: B

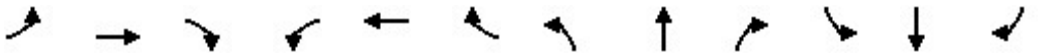
Intersection Capacity Utilization 82.2% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: 2nd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	758	62	29	597	96	39	130	66	51	108	126
Future Volume (vph)	117	758	62	29	597	96	39	130	66	51	108	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	15.0		0.0	0.0		35.0
Storage Lanes	0		0	0		0	1		0	0		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			0.99		0.98	0.99			1.00	0.96
Frt		0.990			0.980			0.949				0.850
Flt Protected		0.994			0.998		0.950				0.984	
Satd. Flow (prot)	0	3520	0	0	3448	0	1805	1735	0	0	1803	1553
Flt Permitted		0.691			0.889		0.646				0.862	
Satd. Flow (perm)	0	2444	0	0	3071	0	1201	1735	0	0	1573	1493
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			26			26				127
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		137.0			165.6			160.8			431.4	
Travel Time (s)		9.9			11.9			11.6			31.1	
Confl. Peds. (#/hr)	12		17	17		12	18		16	16		18
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	0%	0%	0%	0%	13%	0%	4%	0%	3%	4%	4%
Adj. Flow (vph)	118	766	63	29	603	97	39	131	67	52	109	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	947	0	0	729	0	39	198	0	0	161	127
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

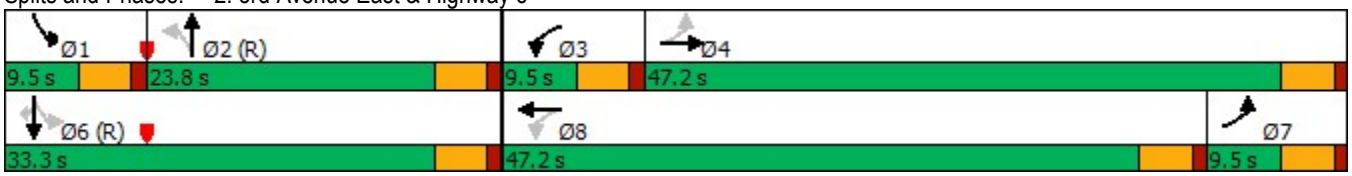


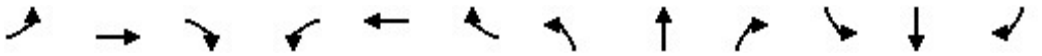
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	22.5		9.5	22.5		22.5	22.5		9.5	22.5	22.5
Total Split (s)	9.5	47.2		9.5	47.2		23.8	23.8		9.5	33.3	33.3
Total Split (%)	10.6%	52.4%		10.6%	52.4%		26.4%	26.4%		10.6%	37.0%	37.0%
Maximum Green (s)	5.0	42.7		5.0	42.7		19.3	19.3		5.0	28.8	28.8
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0			7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0		11.0	11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0			0	0
Act Effct Green (s)		42.2			42.2		38.8	38.8			38.8	38.8
Actuated g/C Ratio		0.47			0.47		0.43	0.43			0.43	0.43
v/c Ratio		0.82			0.50		0.08	0.26			0.24	0.18
Control Delay		13.3			4.7		19.1	17.4			19.8	4.7
Queue Delay		0.2			0.0		0.0	0.0			0.0	0.0
Total Delay		13.5			4.7		19.1	17.4			19.8	4.7
LOS		B			A		B	B			B	A
Approach Delay		13.5			4.7			17.7			13.2	
Approach LOS		B			A			B			B	
Queue Length 50th (m)		22.7			6.2		4.1	19.4			18.2	0.0
Queue Length 95th (m)		21.5			8.0		12.4	41.7			38.6	12.1
Internal Link Dist (m)		113.0			141.6			136.8			407.4	
Turn Bay Length (m)							15.0					35.0
Base Capacity (vph)		1235			1558		517	762			678	716
Starvation Cap Reductn		36			0		0	0			0	0
Spillback Cap Reductn		0			0		0	0			0	0
Storage Cap Reductn		0			0		0	0			0	0
Reduced v/c Ratio		0.79			0.47		0.08	0.26			0.24	0.18

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 2 (2%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 11.0	Intersection LOS: B

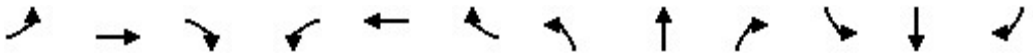
Intersection Capacity Utilization 92.0% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: 3rd Avenue East & Highway 6





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	822	7	39	696	58	6	33	61	30	25	21
Future Volume (vph)	46	822	7	39	696	58	6	33	61	30	25	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	10.0		0.0	5.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00		0.99	0.98		0.99	0.99	
Frt		0.999			0.989			0.903			0.933	
Flt Protected		0.997			0.998		0.950			0.950		
Satd. Flow (prot)	0	3594	0	0	3514	0	1805	1689	0	1805	1754	0
Flt Permitted		0.817			0.810		0.726			0.695		
Satd. Flow (perm)	0	2944	0	0	2851	0	1364	1689	0	1307	1754	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			17			62			21	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		165.6			291.5			153.7			342.7	
Travel Time (s)		11.9			21.0			11.1			24.7	
Confl. Peds. (#/hr)	8		13	13		8	8		8	8		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	1%	3%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	47	839	7	40	710	59	6	34	62	31	26	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	893	0	0	809	0	6	96	0	31	47	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

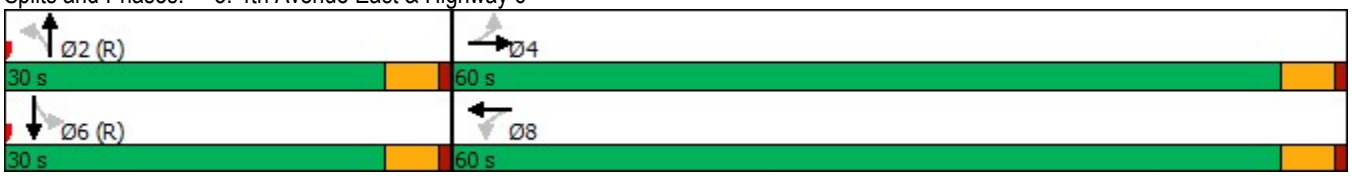


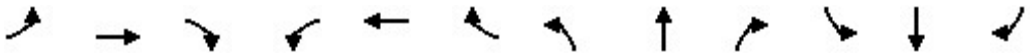
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	60.0	60.0		60.0	60.0		30.0	30.0		30.0	30.0	
Total Split (%)	66.7%	66.7%		66.7%	66.7%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	55.5	55.5		55.5	55.5		25.5	25.5		25.5	25.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		34.9			34.9		46.1	46.1		46.1	46.1	
Actuated g/C Ratio		0.39			0.39		0.51	0.51		0.51	0.51	
v/c Ratio		0.78			0.73		0.01	0.11		0.05	0.05	
Control Delay		21.4			26.4		14.2	6.8		14.0	9.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		21.4			26.4		14.2	6.8		14.0	9.5	
LOS		C			C		B	A		B	A	
Approach Delay		21.4			26.4			7.2			11.3	
Approach LOS		C			C			A			B	
Queue Length 50th (m)		36.6			63.5		0.5	2.9		2.7	2.2	
Queue Length 95th (m)		43.8			70.4		3.0	13.0		8.9	9.3	
Internal Link Dist (m)		141.6			267.5			129.7			318.7	
Turn Bay Length (m)							10.0			5.0		
Base Capacity (vph)		1816			1764		698	895		669	908	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.49			0.46		0.01	0.11		0.05	0.05	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 88 (98%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 22.4	Intersection LOS: C

Intersection Capacity Utilization 72.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 3: 4th Avenue East & Highway 6

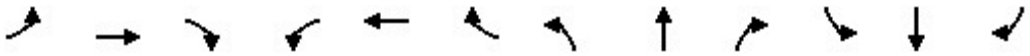




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	4	6	6	8	6	3	335	6	8	273	7
Future Volume (Veh/h)	34	4	6	6	8	6	3	335	6	8	273	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	36	4	6	6	8	6	3	353	6	8	287	7
Pedestrians		8			8			5			5	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	692	688	304	690	688	369	302			367		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	692	688	304	690	688	369	302			367		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	99	99	98	98	99	100			99		
cM capacity (veh/h)	342	364	733	347	363	674	1262			1195		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	46	20	362	302
Volume Left	36	6	3	8
Volume Right	6	6	6	7
cSH	370	415	1262	1195
Volume to Capacity	0.12	0.05	0.00	0.01
Queue Length 95th (m)	3.4	1.2	0.1	0.2
Control Delay (s)	16.1	14.1	0.1	0.3
Lane LOS	C	B	A	A
Approach Delay (s)	16.1	14.1	0.1	0.3
Approach LOS	C	B		

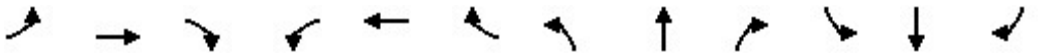
Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	32.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	7	6	4	4	6	126	4	9	65	9
Future Volume (Veh/h)	11	0	7	6	4	4	6	126	4	9	65	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	12	0	8	7	4	4	7	142	4	10	73	10
Pedestrians		1			1			5			5	
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								None			None	
Median storage veh)												
Upstream signal (m)								343				
pX, platoon unblocked												
vC, conflicting volume	268	260	84	270	263	150	84			147		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	268	260	84	270	263	150	84			147		
tC, single (s)	7.1	6.5	6.2	7.1	6.8	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.2	3.3	2.4			2.2		
p0 queue free %	98	100	99	99	99	100	100			99		
cM capacity (veh/h)	672	639	976	671	597	897	1405			1446		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	15	153	93
Volume Left	12	7	7	10
Volume Right	8	4	4	10
cSH	767	694	1405	1446
Volume to Capacity	0.03	0.02	0.00	0.01
Queue Length 95th (m)	0.6	0.5	0.1	0.2
Control Delay (s)	9.8	10.3	0.4	0.9
Lane LOS	A	B	A	A
Approach Delay (s)	9.8	10.3	0.4	0.9
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	19.6%	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)	34	2	7	3	2	6	3	210	2	1	237	36
Future Volume (Veh/h)	34	2	7	3	2	6	3	210	2	1	237	36
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	36	2	7	3	2	6	3	223	2	1	252	38
Pedestrians		8			8			3			3	
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		1			1			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	521	520	282	522	538	235	298			233		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	521	520	282	522	538	235	298			233		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	100	99	99	100	99	100			100		
cM capacity (veh/h)	454	456	755	453	445	802	1266			1337		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	45	11	228	291
Volume Left	36	3	3	1
Volume Right	7	6	2	38
cSH	484	591	1266	1337
Volume to Capacity	0.09	0.02	0.00	0.00
Queue Length 95th (m)	2.4	0.5	0.1	0.0
Control Delay (s)	13.2	11.2	0.1	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	13.2	11.2	0.1	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	28.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	59	7	209	166	18	229
Future Volume (Veh/h)	59	7	209	166	18	229
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	8	227	180	20	249
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	606	317			407	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	606	317			407	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	99			98	
cM capacity (veh/h)	452	724			1152	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	72	407	269
Volume Left	64	0	20
Volume Right	8	180	0
cSH	472	1700	1152
Volume to Capacity	0.15	0.24	0.02
Queue Length 95th (m)	4.3	0.0	0.4
Control Delay (s)	14.0	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	14.0	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay		1.6	
Intersection Capacity Utilization		37.3%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	25	71	72	57	7
Future Volume (Veh/h)	3	25	71	72	57	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	27	77	78	62	8
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	298	66	70			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	298	66	70			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	95			
cM capacity (veh/h)	658	998	1531			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	30	155	70
Volume Left	3	77	0
Volume Right	27	0	8
cSH	949	1531	1700
Volume to Capacity	0.03	0.05	0.04
Queue Length 95th (m)	0.8	1.3	0.0
Control Delay (s)	8.9	3.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	3.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX F

City of Owen Sound TMP Excerpts

September 2010

City of Owen Sound

Transportation Master Plan

Project #5454

HDR | iTRANS

Table 4.15: 9th Avenue East at 8th Street East Operations with Northbound Right Turn Lane

Intersection & Movement	Weekday AM Peak Hour		Weekday Mid-day Peak Hour		Weekday PM Peak Hour	
	LOS	v / c	LOS	v / c	LOS	v / c
9th Avenue East at 8th Street East						
Overall	C		C		D	
Eastbound left	B	0.15	C	0.21	C	0.35
Eastbound through and right	E	0.95	D	0.78	D	0.67
Westbound left	D	0.77	E	0.90	F	1.02
Westbound through and right	C	0.65	D	0.65	D	0.83
Northbound left	B	0.08	B	0.08	B	0.08
Northbound through	D	0.74	C	0.43	C	0.61
Northbound right	A	0.50	A	0.31	A	0.32
Southbound left	B	0.59	A	0.22	B	0.28
Southbound through and right	B	0.25	B	0.23	B	0.31

With the inclusion of an exclusive northbound right turn lane, the overall intersection operations will improve to a level of service 'C' from a level of service 'D' during the weekday AM peak hour. There are no changes to the overall intersection operations during the weekday mid-peak and PM peak hours. The re-designation of the northbound curb side lane from a shared through-right movement to an exclusive right turn movement will reduce the northbound through capacity resulting in a higher volume to capacity ratio for the northbound through movement during all weekday peak periods. The southbound left turn movement results show a lower volume to capacity ratio for all peak periods as well. Volumes to capacity ratios at all remaining turning movements are unchanged.
It is recommended that a northbound right turn lane be provided as it will enhance the overall intersection operation. Optimizing the signal timing plans for this intersection will further improve operations and is reported in more detail in **Section 4.7.2**.

4.7 Signal Timing and Level of Service Issues

In the spirit of creating a sustainable transportation master plan an analyses of three key arterial road sections were assessed in detail to determine if greater efficiencies could be achieved making use of the existing infrastructure. The goal of this section is to review the signal timing and level of service at intersections along three main corridors in the City of Owen Sound. The intent of the review is to identify a number of improvements to the signal timing plans at each signalized intersection along each of the respective corridors to optimize the signal timing plans and facilitate the movement of through traffic by reducing the overall delay to motorists. The three corridors are: 10th Street between 3rd Avenue West and 4th Avenue East, 9th Avenue East between 6th Street East and 16th Street East, and 16th Street East from 9th Avenue East to 18th Street East. These three corridors in effect constitute the prime corridor for localized and through traffic in the City of Owen Sound.

4.7.1 10th Street Corridor

The existing signal timing plans along the 10th Street corridor have a cycle length of 120 seconds and are coordinated. The Synchro analyses show that during the PM peak hour, there are no through bands, and during the AM peak hour, only the eastbound traffic has a through band of 37 seconds. The existing traffic operations on the 10th Street Corridor using the current signal timing plans are summarized in **Table 4.16.**

Table 4.16: 10th Street Corridor Existing Signal Timing Operations

Intersection & Movement	Weekday AM Peak Hour		Weekday Mid-day Peak Hour		Weekday PM Peak Hour	
	LOS	v / c	LOS	v / c	LOS	v / c
10th Street West at 3rd Avenue West						
Overall	**B**		**A**		**B**	
Eastbound left, through, and right	A	0.34	A	0.31	A	0.34
Westbound left, through, and right	A	0.23	A	0.31	A	0.37
Northbound left, through, and right	E	0.57	E	0.50	E	0.63
Southbound left, through, and right	D	0.48	D	0.26	D	0.29
10th Street West at 2nd Avenue West						
Overall	**C**		**B**		**C**	
Eastbound left, through, and right	C	0.38	A	0.38	A	0.34
Westbound left, through, and right	B	0.30	A	0.42	A	0.50
Northbound left	C	0.24	D	0.43	D	0.57
Northbound through and right	D	0.32	D	0.60	E	0.78
Southbound left	C	0.38	D	0.39	D	0.58
Southbound through and right	E	0.78	E	0.73	E	0.72
10th Street West at 1st Avenue West						
Overall	**C**		**B**		**B**	
Eastbound left, through, and right	A	0.37	A	0.34	A	0.33
Westbound left and through	B	0.23	A	0.31	B	0.38
Westbound right	A	0.21	A	0.33	A	0.49
Northbound left	D	0.11	D	0.15	D	0.13
Northbound through	E	0.46	E	0.57	E	0.65
Northbound right	B	0.16	C	0.24	C	0.20
Southbound left	F	1.01	F	0.92	E	0.83
Southbound through and right	C	0.21	C	0.15	C	0.17
10th Street West at 2nd Avenue East						
Overall	**C**		**D**		**D**	
Eastbound left, through, and right	B	0.50	C	0.48	B	0.55
Westbound left, through, and right	D	0.71	D	0.77	E	0.80
Northbound left	D	0.24	E	0.48	D	0.39
Northbound through and right	E	0.66	E	0.70	E	0.71
Southbound left	D	0.11	D	0.14	D	0.29
Southbound through	D	0.21	D	0.50	D	0.45
Southbound right	B	0.43	B	0.51	B	0.67
10th Street West at 3rd Avenue East						

Intersection & Movement	Weekday AM Peak Hour		Weekday Mid-day Peak Hour		Weekday PM Peak Hour	
	LOS	v / c	LOS	v / c	LOS	v / c
Overall	**B**		**B**		**C**	
Eastbound left, through, and right	A	0.38	A	0.42	B	0.44
Westbound left, through, and right	A	0.19	B	0.26	B	0.31
Northbound left	D	0.20	C	0.35	C	0.32
Northbound through and right	D	0.51	D	0.52	D	0.57
Southbound left	E	0.64	E	0.71	E	0.73
Southbound through and right	B	0.29	B	0.30	B	0.33
10th Street West at 4th Avenue East						
Overall	**A**		**A**		**B**	
Eastbound left, through, and right	A	0.23	C	0.26	A	0.28
Westbound left, through, and right	A	0.19	D	0.20	A	0.26
Northbound left	D	0.07	B	0.06	D	0.07
Northbound through and right	D	0.39	B	0.56	D	0.65
Southbound left	D	0.09	A	0.19	E	0.33
Southbound through and right	D	0.32	B	0.34	D	0.46

To improve traffic operations, a set of updated traffic signal timing plans were created. The updated signal timing plans have a cycle length of 80 seconds for all peak periods and are coordinated. The updated signal timing details are provided in **Appendix F4.**

The existing 10th Street corridor operations with the proposed updated signal timing plans are summarized in **Table 4.17**. It is evident comparing **Table 4.16** and **Table 4.17** that the operations for all intersections are improved.

Table 4.17: 10th Street Corridor Updated Signal Timing Operations

Intersection & Movement	Weekday AM Peak Hour		Weekday Mid-day Peak Hour		Weekday PM Peak Hour	
	LOS	v / c	LOS	v / c	LOS	v / c
10th Street West at 3rd Avenue West						
Overall	**A**		**A**		**A**	
Eastbound left, through, and right	A	0.35	A	0.34	A	0.35
Westbound left, through, and right	A	0.24	A	0.34	A	0.39
Northbound left, through, and right	D	0.45	C	0.37	D	0.51
Southbound left, through, and right	C	0.39	C	0.20	C	0.24
10th Street West at 2nd Avenue West						
Overall	**B**		**B**		**B**	
Eastbound left, through, and right	B	0.44	A	0.44	A	0.41
Westbound left, through, and right	A	0.35	A	0.48	A	0.60
Northbound left	B	0.18	C	0.33	C	0.44
Northbound through and right	C	0.31	C	0.51	D	0.69
Southbound left	B	0.38	C	0.33	C	0.44
Southbound through and right	D	0.71	D	0.62	D	0.64
10th Street West at 1st Avenue West						

6. TRANSPORTATION NEEDS

6.1 Road Capacity Needs

6.1.1 Existing Conditions

Under existing conditions, no major road capacity improvements are seen as necessary. However, signal timing improvements can be implemented to address intersection needs at the following locations:

Location	Improvement Opportunity
16th Street at Heritage Place Driveway	Signal Timing Optimization
9th Avenue East at 8th Street East	Signal Timing Optimization
3rd Avenue East at 15th Street East	Traffic Signal Installation
9th Avenue East at 10th Street East	Signal Modification (Split)
3rd Avenue East at 15th Street East	Signal Installation

6.1.2 2016 Conditions

By the year 2016, there are a number of intersections that are expected to have volumes that will meet the warrants for traffic control signals. Traffic volumes and traffic conditions on 10th Street indicate that vehicle queues may exceed available storage capacity for turning movements. Potential improvements that may address these needs require capital investment and may be constrained by property requirements. Improvements that may be considered further to address these needs are summarized below:

Location	Improvement Opportunity
10th Street at 2nd Avenue West	Add a 15m WBR lane
10th Street at 2nd Avenue East	*Add a 63m EBL lane*
10th Street at 7th Avenue East	Traffic Signal Installation
10th Street at 9th Avenue East	Modify EB lanes from a left turn lane, a shared through / left turn lane, and a right turn lane to a left turn lane, a separate through lane, and a through / right turn lane.
16th Street at 6th Avenue East	Traffic Signal Installation
9th Avenue East at 20th Street East	Traffic Signal Installation
3rd Avenue East at 15th Street East	Traffic Signal Installation

Notes: the italicized texts indicate that the improvements required are constrained by the available spaces

6.1.3 2026 Conditions

By 2026, it is anticipated that volumes will exceed capacity on 9th Avenue, 10th Street and on 16th Street at a number of intersections. Improvements that could address these needs during a typical weekday and under peak summer conditions include either new road capacity (major widening or new corridor) or intersection improvements summarized below:

Location	Improvement Opportunity	
	Typical Weekday	With Summer Factor
10th Street at 9th Avenue West		Add a 20m WBR lane
10th Street at 3rdAvenue West		Add a 15m EBR lane
10th Street at 2nd Avenue West	Add a 40m WBR lane, add a northbound through lane and taper back to 1 lane	Add a WB through lane and an EB through lane, add a northbound through lane and taper back to 1 lane, add an additional SBL lane to make it a dual left
10th Street at 1st Avenue West		*Add an additional EB through lane*
10th Street at 1st Avenue East		*Add an additional WB through lane*
10th Street at 2nd Avenue East	*Add a 90m EBL lane and 15m WBL lane*	*Add a 90m EBL lane and 15m WBL lane, and one WB through lane*
10th Street at 3rd Avenue East	*Add a 20m EBL lane and 20m WBL lane*	*Add a 30m EBL lane and 20m WBL lane*
10th Street at 9th Avenue East	Modify EB Lane from left, left and through shared, and right to Left, through, and through and right shared.	Add a 15m SBL lane, a 20m WBL lane, one EB through lane and two WB through lanes, an additional EBL to make a dual left
16th Street at 6th Avenue East	Traffic Signal Installation	Traffic Signal Installation
16th Street at 9th Avenue East	Add a 50m NBR lane	Add a 50m NBR lane, change WBR to WB through lane, add an additional EB through lane
16th Street at Heritage Place Driveway	Add a 75m EBL lane	Add a 75m EBL lane
16th Street at 16th Avenue East	N/A	Add a 30m EBR lane
9th Avenue East at 20th Street East	Traffic signal installation, add a 55m WBL lane, a 45m NBL lane	Traffic signal installation, add a 55m WBL lane, a 45m NBL lane
9th Avenue East at 8th Street East	Add a 30m NBR lane	Add a 30m NBR lane and an additional EB through lane

Notes: the italicized texts indicate that the improvements required are constrained by the available spaces

If traffic patterns were to divert to better utilize reserve capacity on streets parallel to 10th Street (eg. 8th Street and 9th Street), then the operational needs on 10th Street would be less significant. If traffic were rerouted to 8th Street and 9th Street, intersection improvement opportunities to address needs on a typical weekday with traffic worth considering further are noted below:

2026 Total Traffic Improvement Requirements with Downtown Area traffic transferred from 10th St to 9th and 8th St.

Location	Improvements	
	With Traffic Diversion	Without Traffic Diversion
10th Street at 9th Avenue West		
10th Street at 3rdAvenue West		
10th Street at 2nd Avenue West	Add a 70m WBR lane	Add a 40m WBR lane, add a northbound through lane and taper back to 1 lane
10th Street at 1st Avenue West		
10th Street at 1st Avenue East		
10th Street at 2nd Avenue East	*Prohibit EBL traffic during peak hours	*Add a 90m EBL lane and 15m WBL lane*
10th Street at 3rd Avenue East		*Add a 20m EBL lane and 20m WBL lane*
10th Street at 4th Avenue East	Add a 40m NBR and 52m WBL	
10th Street at 7th Avenue East	Traffic Signal Installation	Traffic Signal Installation
10th Street at 9th Avenue East	Modify EB Lane from left, left and through shared, and right to Left, through, and through and right shared.	Modify EB Lane from left, left and through shared, and right to Left, through, and through and right shared.
16th Street at 9th Avenue East	Add a 50m NBR lane	Add a 50m NBR lane
16th Street at Heritage Place Driveway	Add a 75m EBL lane	Add a 75m EBL lane
16th Street at 16th Avenue East		N/A
9th Avenue East at 20th Street East	Traffic signal installation, add a 55m WBL lane, a 45m NBL lane	Traffic signal installation, add a 55m WBL lane, a 45m NBL lane
9th Avenue East at 8th Street East	Add a 30m NBR lane	Add a 30m NBR lane
3rd Avenue East at 15th Street East	Traffic Signal Installation	Traffic Signal Installation

*Notes: 1. *EBL traffic can be redistributed to 1st Avenue E eastbound right turn, 2nd Avenue E eastbound right turn, 2nd Avenue E northbound through, 3rd Avenue E northbound through, 4th Avenue E northbound through*
2. The italicized texts indicate that the improvements required are constrained by the available spaces

6.2 Active Transportation Modes

The bicycle and pedestrian networks as identified in City of Owen Sound Official Plan have not been fully developed and implemented. Opportunities for implementation need to be developed.

6.3 Problem Statement

Based on traffic forecasts and a detailed analysis of existing and future conditions, the key transportation challenges for Owen Sound are summarized below:

- Owen Sound functions as a regional centre for Grey and Bruce Counties, and is therefore affected by overall growth in the Region. The majority of traffic in the study area has origins and destinations to Owen Sound. This reliance on the Owen Sound transportation network will continue to increase as the City and adjacent municipalities in Grey and Bruce Counties experience modest growth.
- Approximately 15% to 25% of traffic (depending on the route and principal direction) in Owen Sound is through traffic originating and/or destined to other municipalities in the County and Province. As the general population in Ontario and abroad grows, and tourist and recreational pursuits continue to grow, through traffic will further increase pressures on the City road network.
- As with the arterial road network, the collector road network lacks mid-block, continuous east-west and north-south connections due to the natural environmental and cultural environment heritage of the area. This lack of connectivity puts pressures on the few through connections present in the City to facilitate longer distance travel. It also increases the propensity for traffic to find alternative routes on roadways that are not designed or intended to accommodate modest to heavy volumes of traffic.
- Transportation requirements are closely related to economic activity. In economic terms, however, transportation is a “diseconomy” factor, meaning that the increase in cost of the transport of goods and services is directly related to increases in the cost of purchasing goods and services, and is subsequently passed on the consumers. Increases in traffic congestion and delays will negatively affect the City’ economic well-being and competitiveness.

Considering all the above, the assessment of existing and future conditions concludes that the provision of additional intersection capacity at select intersections is required in addition to the need for additional capacity on 10th Street through the Downtown.

There also needs to be a greater emphasis or reliance on other modes of travel. Enhanced public transit, improved walking and cycling facilities, and transportation substitutes such as communication technologies, will be required to meet the accessibility and mobility needs of the City’s residents and businesses.

7. TRANSPORTATION ALTERNATIVES

7.1 Identification of Transportation Planning Alternatives

Following the requirements of Phases 1 and 2 of the Environmental Assessment process, the project team identified and evaluated three long-term, alternative transportation planning strategies, plus a Do-Nothing scenario. The transportation planning alternatives were evaluated for 2026 travel demands, against a set of Evaluation Criteria to gauge their ability to address the challenges identified in the Problem Statement.

Do Nothing

The "Do Nothing" scenario reflects the current condition of the roadway network carried over to the 2026 horizon year without any capacity improvements. Except for the 10th Street extension, there are no planned expansions or additions to the arterial road network or Provincial highway system.

The 10th Street extension has been included in all alternatives as it was as already planned and programmed to be in service by 2011.

The alternative transportation strategies and Do-Nothing scenario are summarized in **Table 7.1**. The essential principles of the three alternative transportation planning strategies are summarized below.

Alternative 1 – Maximize Use of Existing Infrastructure

Alternative 1, illustrated in **Exhibit 7.1**, does not propose any significant infrastructure improvements, rather the intent of this alternative is to maximize the use of existing infrastructure and direct through traffic from routes that have capacity deficiencies onto alternative routes that have significant reserve capacity. The primary transportation issue that needs to be resolved to the extent possible is to reduce the amount of through traffic using 10th Street through the Downtown area across the Sydenham River.

Through traffic that normally travels along the corridors of 10th Street and 16th Street East will be redistributed onto the alternate routes by use of either static or dynamic signage. The alternate routes include an outer alternate route and inner alternate routes.

8.5 Transportation Demand Management

Transportation Demand Management (TDM) Programs are being developed in several progressive municipalities and are intended to encourage greater reductions in automobile travel through coordination of alternative modes. For example, transit improvements, pedestrian improvements, and parking policies can have far greater travel impacts and consumer benefits when implemented as a coordinated program.

TDM Programs are typically established by local governments and are spearheaded by the department responsible for transportation services to the community. The program should be ongoing so it provides continual support and encouragement, and responds to future opportunities and changes in individual's travel needs and preferences.

A well managed and properly supported TDM Program can affect a relatively significant portion of total travel. Most programs result in reductions between 10% and 30%. As the City of Owen Sound is a small and relatively isolated community the effects of TDM will be limited. The attainment of a 10% reduction in travel as a result of TDM measures should be considered a great success for Owen Sound.

A TDM program forms part of the overall TMP strategy. The following are the recommendations for TDM measures in Owen Sound.

- Reviewing and modifying transit, cycling and pedestrian-related Official Plan policies to acknowledge their important role in City wide travel demand management.
- Reviewing and modifying site design guidelines, traffic impact study requirements and site plan approval process to encourage applicants to adopt TDM initiatives.
- Development of TDM supportive parking policy such as paid parking, shared parking and other parking management strategies.
- Development of Park and Ride lots located at the edges of the City to encourage transit usages as well as carpooling initiatives.
- Reviewing alternative work schedules at larger employment centres to encourage flexi-time, compressed work week, and staggered shifts to encourage peak travel to/from these employment areas to occur at different times of the days instead of one set time in the morning and one set time in the afternoon.
- Encourage the use of tele-commuting as a substitute of physical travel.
- Encourage the citizens of Owen Sound to be active and have a positive attitude toward reducing car use and relying on alternative forms transportation through promotional efforts.
- A staff position be created to support and manage all pedestrian, cycling, transit and TDM initiatives undertaken by the City to ensure compliance with the various polices and measures being recommended as part of the Transportation Master Plan.

8.4.1 Pedestrian Network

We recommend that the City of Owen Sound should focus their efforts and funding towards the construction of missing links and providing connectivity for the sidewalk network. The feasibility of establishing pedestrian levels of service related to standards for the requirement of sidewalks on one or both sides of the street needs further assessment of the feasibility and cost implications. The ultimate plan for the development of the pedestrian environment will be the gradual completion of the planned pedestrian network shown in **Exhibit 4.8.**

8.4.2 Pedestrian Crossings

The implementation and operation of pedestrian crossings in the City of Owen Sound will need to comply with the legislative context of the Ontario Traffic Act, have regard for best practices in pedestrian accommodation and meet the needs of the City of Owen Sound.

The Highway Traffic Act indicates that when a pedestrian is about to step from the boulevard onto the roadway there are fundamentally two different forms of pedestrian crossing. The crossing may be either / or:

- A controlled crossing where vehicles must yield to pedestrians.
- An uncontrolled crossing where pedestrians must yield to vehicles.

Either form of crossing may be appropriate given the range of pedestrian demand. There is generally a higher degree of concern for pedestrian safety at unprotected crossing points. However, both forms of crossing must be designed to maximize safety. The standard practice for traffic control in Ontario is defined by the ***Ontario Traffic Manuals (OTM)***, **Book 12** for traffic signals and **Book 5** for regulatory signs (including stop signs); and is defined by the ***2006 School Crossing Guard Guide*** document for school crossing guards. The manuals are designed to be used as a guideline by traffic practitioners.
The manuals incorporate current best practices in the Province of Ontario and have recommended thresholds for the implementation of the following protected crossings:

- Traffic control signals at intersections and mid-block
- Pedestrian crossovers (PXOs)
- Intersection pedestrian signals (IPS)
- All-way stop signs
- School crossing guards and school patrollers

A non-protected crossing is a location where there is measurable pedestrian crossing activity, but has no designation or traffic control measures to protect the movement. An unprotected crossing may or may not have warning signage. Some jurisdictions supplement non-protected crossings to improve safety. These additional roadway features either increase driver or pedestrian awareness, or simplify the crossing process.

These features may include:

- Refuge islands and centre medians
- Bulb Outs (Curb Extensions)
- Textured pavement or high-visibility markings

- Standard warning signage or specialize pedestrian signage (e.g. Wait for Gap)
- Above ground Flashing Beacons or in-pavement flashers
- Special Message Signs

The Ontario Traffic Manual Book 15 – Pedestrian Crossings is currently under development. It will provide the framework for implementation of crossing features from which each municipality can develop local policies for features it chooses to implement and the thresholds under which they are warranted.

The City of Owen Sound can proactively monitor the safety of operations at pedestrian crossings to identify hazards and plan mitigation, establish policies that are consistent with accepted engineering practice and sensitive to the local environment, and implement improvements that are consistent with the policies / practices or their underlying principles. Practices should avoid ambiguity that may lead to confusion and misinterpretation of traffic control devices.

From the review of current practices, risk and research into operational characteristics of crossings, the following points have been considered in the development of the pedestrian crossing policy:

- There are operational concerns with PXOs related to the dilemma zone and clearance requirements and there is a trend toward the use of IPS' and a trend away from PXOs amongst Ontario municipalities surveyed. PXO's are not recommended for Owen Sound.
- The implementation of controlled pedestrian crossings (traffic control signals, intersection pedestrian signals and midblock signals) based on OTM warrants and prioritized and implemented through an on-going capital program is a proactive and defensible method of addressing pedestrian needs.
- Given that there is limited statistical research into the operations of IPS', the City of Owen Sound should consider driver workload turning from side streets and potential for vehicle-pedestrian conflicts at any new IPS locations.
- The marking of mid-block uncontrolled crossings with pavement markings are not recommended as they may lead unaware pedestrians or drivers to believe that the crossing is a controlled for pedestrians or lead to inconsistent driver or pedestrian behaviour.
- At mid-block locations, where the adjacent land uses such as high pedestrian generators and trails create high mid-block crossing demand, signage can contribute to driver awareness and pedestrian caution without making the rules of right of way ambiguous for drivers and pedestrians.
- If implementing protected crossing features (IPS') to supplement traffic control signals, they should be done in sufficient quantity such that pedestrians and drivers are familiar with their operation (They may be set up as a pilot project at several (3) potential locations that are in close proximity within a unique localized area.)

It is recommended that the City of Owen Sound proactively address pedestrian safety needs and establish a program of reviews of pedestrian crossings either through on-going traffic operations studies or annual corridor reviews. It is recommended that pedestrian crossing features be implemented where warranted, where environmental conditions are consistent

with other geometric and design requirements, and when funds are available within the City's capital programming process.

It is recommended that the City of Owen Sound reassess its pedestrian crossing policy with regard to recommended pedestrian features upon completion of OTM Book 15.Compliance with pedestrian crossing practices is recommended for review regular review including identifying and programming the necessary roadway and traffic control modifications for implementation.

8.4.3 Bicycle Network

The benefits of cycling as an activity and mode of travel are well documented. The development of an active transportation strategy for the City of Owen Sound provides focus and direction in increasing bicycle use and realizing benefits that include:

- Integrating healthy, physical activity into everyday travel, fostering active lifestyles;
- Reducing transportation costs;
- Reducing traffic congestion and carbon dioxide emissions;
- Conserving energy resources; and
- Contributing to a more connected community.

The physical exercise gained from cycling is generally linked with increased health and well-being. Cycling and walking contribute to reduced obesity and can reduce the risk of coronary heart disease, strokes, diabetes and helps manage blood pressure and stress. Walking and cycling can contribute to lower health care costs in the order of $100 to $400 per person (Source: National Cooperative Highway Research Program Report 552).

Cycling is a cost effective mode of travel. The cost and maintenance of bicycle ownership is substantially less than a motor vehicle. The annual cost of operating a motor vehicle, including fuel, insurance, maintenance and parking, is between approximately $8,000 and $15,000 (Source: Canadian Automobile Association Driving Costs, 2008).

Cycling can be developed and promoted as a viable means of transportation in Owen Sound, helping to address traffic congestion. Opportunities exist through the development of a commuter cycling grid, allowing bicycling to compete with other modes for longer distance commuter travel.

It is broadly recognized that changes in world climate due to Greenhouse Gases (GHG) would influence the functioning of many ecosystems and their member species. Travel accomplished by biking and other active modes that do not generate GHG emissions can be encouraged through the establishment, design, and maintenance of trails and bicycle lanes.

Cycling friendly neighbourhoods can improve the liveability of streets, increasing public presence for safety and security and contributing to the sense of place and belonging. The development of a bicycle network including on-road routes is part of the transportation strategy of the Transportation Master Plan.

8.4.3.1 Network Strategy

In order to support cycling as a competitive mode of travel, there is a need to develop continuous and direct routes to cycling destinations (primary corridors) within the City and to neighbouring municipalities. The public has indicated that a key factor affecting their decision to consider cycling to work is the need for safe and direct routes. The public had indicated a need for well marked cycling "routes, paths, roads" and that there is a need for "more bike friendly designs of streets".

Primary corridors (trails or arterial and collector roads) provide connections to commercial and employment centres along corridors that are attractive to both recreational and commuter cyclists. Institutional uses, downtown commercial and open space represent key destination areas. Corridors that link these destinations are potential primary corridor, as are links to the industrial areas within the harbor and the eastern portion of the City.

Primary cycling routes are identified in the Official Plan Trail Master Plan. They provide opportunities for commuting along continuous corridors and provide connections key municipal destinations. Key destinations served by the planned routes are identified below.

- Downtown (eg. City Hall, Farmers' Market, Public Library, Tom Thomson Art Gallery)
- Shopping centres (eg. Heritage Place Shopping Centre)
- Offices such as Grey County
- Institutional uses (including Georgian College, Grey Bruce Regional Health Centre)
- Community uses (eg. Harry Lumley Bayshore Community Centre, Victoria Park)

Secondary cycling routes provide access to community or neighbourhood origins or destinations. The majority of cycling trips in most Ontario Municipalities are short distance trips, the majority of recorded trips are less than 2 kilometres. Typically, the majority of cycling trips are to destinations for leisure purposes within the neighbourhood. Increasing the frequency of shorter community based trips can be encouraged through the provision of new cycling routes within neighbourhoods. This component of the network represents a high potential for increasing cycling activity for all ages and contributes to creating a culture of cycling for future generations.

Secondary cycling routes supplement primary routes. They are the local and collector connections within the neighborhoods. Secondary connections can help to reduce traffic congestion and improve traffic safety around school zones and promote active, healthy living. It is recommended that additional routes be considered in conjunction with the school boards in developing cycle to school / walk to school programs. Objectives include:

- Safe connections to the primary and off-road multi-use trail routes;
- Opportunity to provide a parallel alternative routes to primary routes;
- Provide connections to neighbourhood destinations such as schools; and,
- Promote healthy and active living within communities by providing cycling opportunities.

Implementation of these routes is subject to further detailed assessment of feasibility and the determination of any local safety issues or impacts to operations such as street parking.

8.4.3.2 Parking and Amenities

The provision of bicycle parking and amenities is essential to support the development of cycling as a practical active transportation choice. The fear of bicycle vandalism and theft is common reason given for not riding a bicycle. Bicycle parking, storage and shower / changing rooms and rest areas with benches (collectively called end-of-trip facilities) are important ways to provide convenience and security for cyclists at cycling destinations.

It is recommended that the City of Owen Sound incorporate provisions for bicycle parking within the Zoning By-law. Bicycle parking definitions should also provide guidance on what is not considered as acceptable to qualify as bicycle parking (e.g. storage for an apartment not be within a dwelling unit, on a balcony or in a storage locker). In addition to quantity, minimum space dimensions, definitions of long term and short term parking and the requirement for shower / change facilities should be included within the Zoning By-law.

8.4.3.3 Cycling Network Implementation

An implementation strategy for cycling in Owen Sound is based on the recommendations of this Cycling Plan. To ensure that the Active Transportation Master Plan forms part of the Transportation Master Plan remains valid, a review and update of the plan will occur approximately every five years.

Implementation of these recommendations is projected over a 20 year planning horizon and will include timing, anticipated costing, and life-cycle opportunities of existing road infrastructure. It is recognized that the rate of implementation of the cycling network and the supporting policies and programs will be dependant upon the degree and rate of funding allocated through the City capital programs and external funding sources.

Short, medium and long-range targets for implementation of bicycle routes will be established. The first priorities will include routes that meet one or more of the following criteria:

- Develop a spine network of major north / south and east / west routes;
- Recognize the Downtown as the primary activity centre and destination;
- Connect to other key City destinations;
- Provide cycling route connectivity in cycling routes; and
- Achieve feasible low cost “early wins” to demonstrate successes.

Cycling functional reviews are recommended for each corridor to develop a design consistent with the design guidelines in this document, confirm that traffic and parking impacts are acceptable and ensure that the public is informed and have an opportunity to provide input. Prior to the reconstruction of any roadway identified in the cycling plan noted below, it is recommended that a cycling functional review be implemented.

North-South Route
6th Avenue West (1st Street W. to 7th Street W to Alpha Street)
2nd Avenue West (6th Street to 8th Street)
1st Avenue West – Eddie Sargent Pkwy (8th Street W to 22nd Street W)
West Waterfront (10th Street W to 22nd Street W)
East Waterfront – 3rd Avenue East (10th Street E to 36th Street E)
2nd Avenue East (Harrison Park to 7th Street E)
4th Avenue East –15th Street East- 5th Avenue East (Harrison Park to 28th Street E)
5th Avenue East (7th Street East to 10th Street East)
7th Avenue East (City Boundary to 10th Street)
8th Avenue East (15th Street East to 23rd Street East)
16th Avenue East (8th Street E to 17th Street E)
Former CP Railway (8th Street E to 28th Street E)
28th Avenue East (Superior Street to 20th Street E)
East-West Route
6th Street – Superior Street (Sydenham River to 28th Avenue E)
8th Street West (2nd Avenue W to 28th Avenue E)
11th Street West (Alpha Street to 1st Avenue W)
Alpha Street (West boundary to 4th Street West)
16th Street West (3rd Street W to 8th Street W)
15th Street East – 10th Street East (4th Avenue E to Georgian College)
20th Street East – 17th Street East (Heritage Place to 28th Avenue)

To support the network development, it is recommended that the City implement the following:

- Establish a signage (wayfinding) for corridors as the cycling network as route development
- Incorporate bicycle parking requirements for major developments within the zoning by-law
- Establish bicycle parking including covered bicycle parking a key multimodal transfer points and bicycle racks at key community destinations and throughout the downtown

An Active Transportation Plan that the City can implement is attached to the TMP Report in **Appendix H**.

APPENDIX G

Proxy Sites Traffic Data and Peak Hour Calculation

Saturday May 28, 2016

Le Jardin	SBR	NBL	EBL	EBR	SUM		
16:00:00	0	0	0	0	0		
16:15:00	2	3	1	2	8		
16:30:00	4	8	2	6	20		
16:45:00	7	20	2	3	32		
17:00:00	9	35	3	3	50		
17:15:00	9	24	4	2	39	141	29.0
17:30:00	3	9	2	4	18		
17:45:00	5	9	1	5	20		
18:00:00	2	23	1	3	29		
18:15:00	6	17	0	1	24		
18:30:00	9	28	1	6	44		
18:45:00	9	18	1	2	30		
19:00:00	7	12	2	3	24		
19:00:24	0	0	0	0	0		
	0	0	0	0	0		
19:30:00	0	2	0	0	2		
19:45:00	5	6	2	2	15		
20:00:00	2	4	1	1	8		
20:15:00	0	7	0	3	10		
20:30:00	1	3	1	2	7		
20:45:00	1	2	1	3	7		
21:00:00	1	4	3	2	10		
21:15:00	2	0	2	3	7		
21:30:00	4	3	0	6	13		
21:45:00	1	0	2	5	8		
22:00:00	2	1	4	9	16		
22:15:00	0	0	0	0	0		
22:15:13	0	0	0	0	0		

Thursday March 1, 2018	4855				
Le Jardin	IN	OUT	Total		
8:15-9:15	40	6	46		
15:30-16:30	32	51	83	17.1	

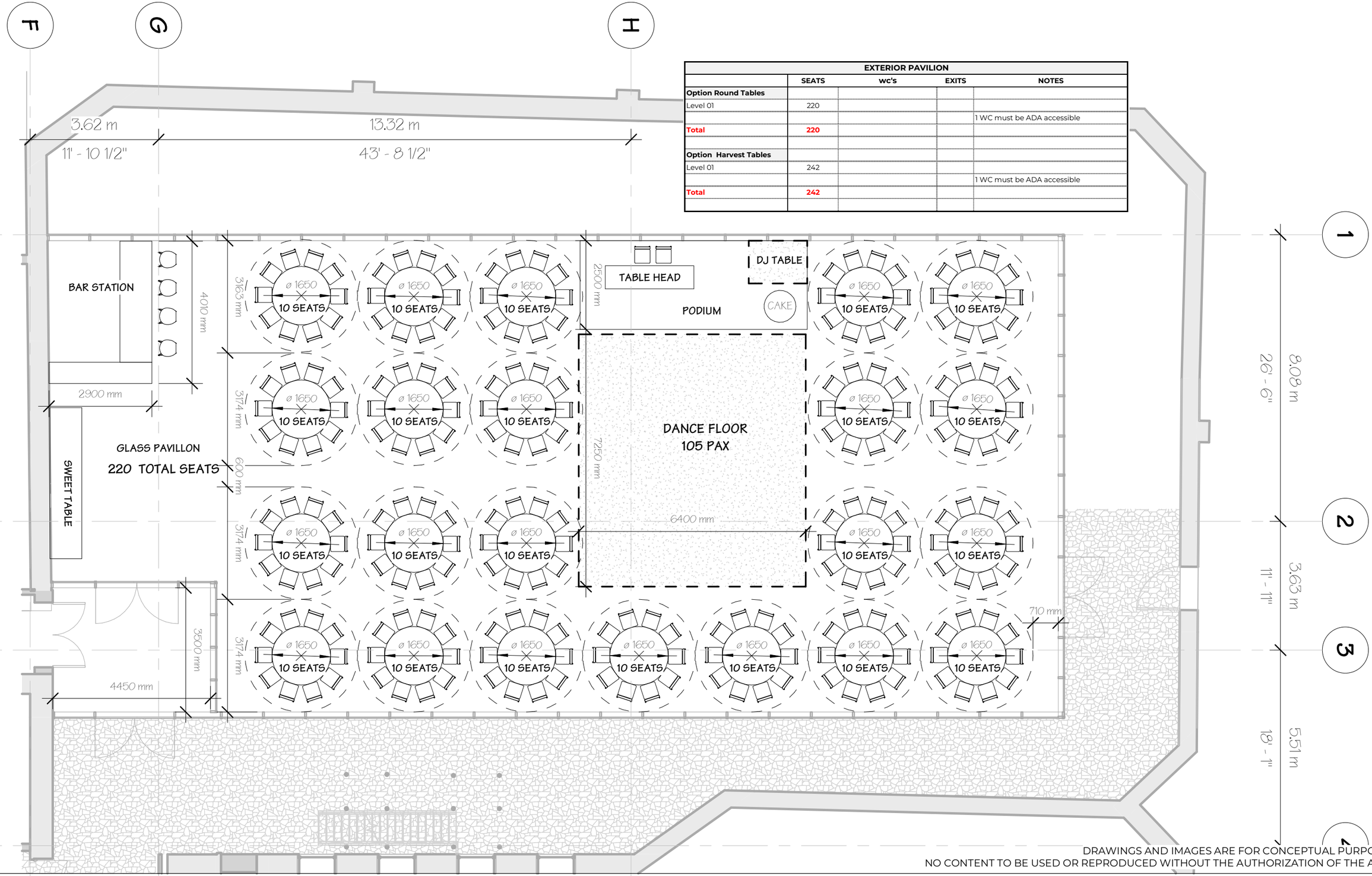
Friday Aug 22, 2014	2,369m2	12.2					
Missisauga Convention Centre	SBL	NBR		WBL	WBR	SUM	
6:45:00	0	0		0	0	0	
7:00:00	0	1		0	0	1	
7:15:00	0	0		0	0	0	
7:30:00	0	0		0	0	0	
7:45:00	0	0		0	0	0	
8:00:00	0	0		0	0	0	
8:15:00	1	0		0	0	1	
8:30:00	0	1		0	1	2	
8:45:00	0	1		0	1	2	
9:00:00	1	5		2	0	8	
9:15:00	0	13		0	0	13	
9:30:00	0	4		2	0	6	29
9:45:00	0	0		0	0	0	
10:00:00	0	3		2	0	5	
						0	
16:00:00	0	1		0	0	1	
16:15:00	0	0		0	0	0	
16:30:00	0	2		1	0	3	
16:45:00	0	1		7	0	8	
17:00:00	0	3		4	0	7	
17:15:00	0	0		3	1	4	
17:30:00	0	1		1	0	2	
17:45:00	0	3		1	0	4	
18:00:00	0	2		1	0	3	
18:15:00	0	1		1	0	2	
18:30:00	0	1		1	0	2	

18:45:00	0	2	3	0	5
19:00:00	0	6	5	1	12
19:15:00	0	0	0	0	0

APPENDIX H

Seating Plans

EXTERIOR PAVILION				
	SEATS	wc's	EXITS	NOTES
Option Round Tables				
Level 01	220			
				1 WC must be ADA accessible
Total	**220**			
Option Harvest Tables				
Level 01	242			
				1 WC must be ADA accessible
Total	**242**			



ERS ARCHITECTS

Royal Rose Court

1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - EXT VENUE OPT 1

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-005

EXTERIOR PAVILION				
	SEATS	wc's	EXITS	NOTES
Option Round Tables				
Level 01	220			
				1 WC must be ADA accessible
Total	**220**			
Option Harvest Tables				
Level 01	242			
				1 WC must be ADA accessible
Total	**242**			

F
G
H
1
2
3
4

3.62 m
11' - 10 1/2"
13.32 m
43' - 8 1/2"
8.08 m
26' - 6"
3.63 m
11' - 11"

BAR STATION
2400 mm
3800 mm
SWEET TABLE
GLASS PAVILLON
242 TOTAL SEATS
16 SEATS
16 SEATS
16 SEATS
16 SEATS
1995 mm
605 mm
1995 mm
605 mm
1995 mm
605 mm
1995 mm
901 mm
7232 mm
900 mm
3552 mm
3500 mm
4450 mm
24 SEATS
24 SEATS
12 SEATS
12 SEATS
2844 mm
HEAD TABLE
DJ TABLE
CAKE
PODIUM
DANCE FLOOR
112 PAX
7400 mm
6350 mm
18 SEATS
24 SEATS
24 SEATS
12 SEATS
12 SEATS
901 mm
7232 mm
900 mm
3552 mm
5407 mm
700 mm
1995 mm
600 mm
1995 mm
1352 mm
5432 mm
1085 mm
1995 mm
605 mm
1995 mm
560 mm

ERS ARCHITECTS

Royal Rose Court

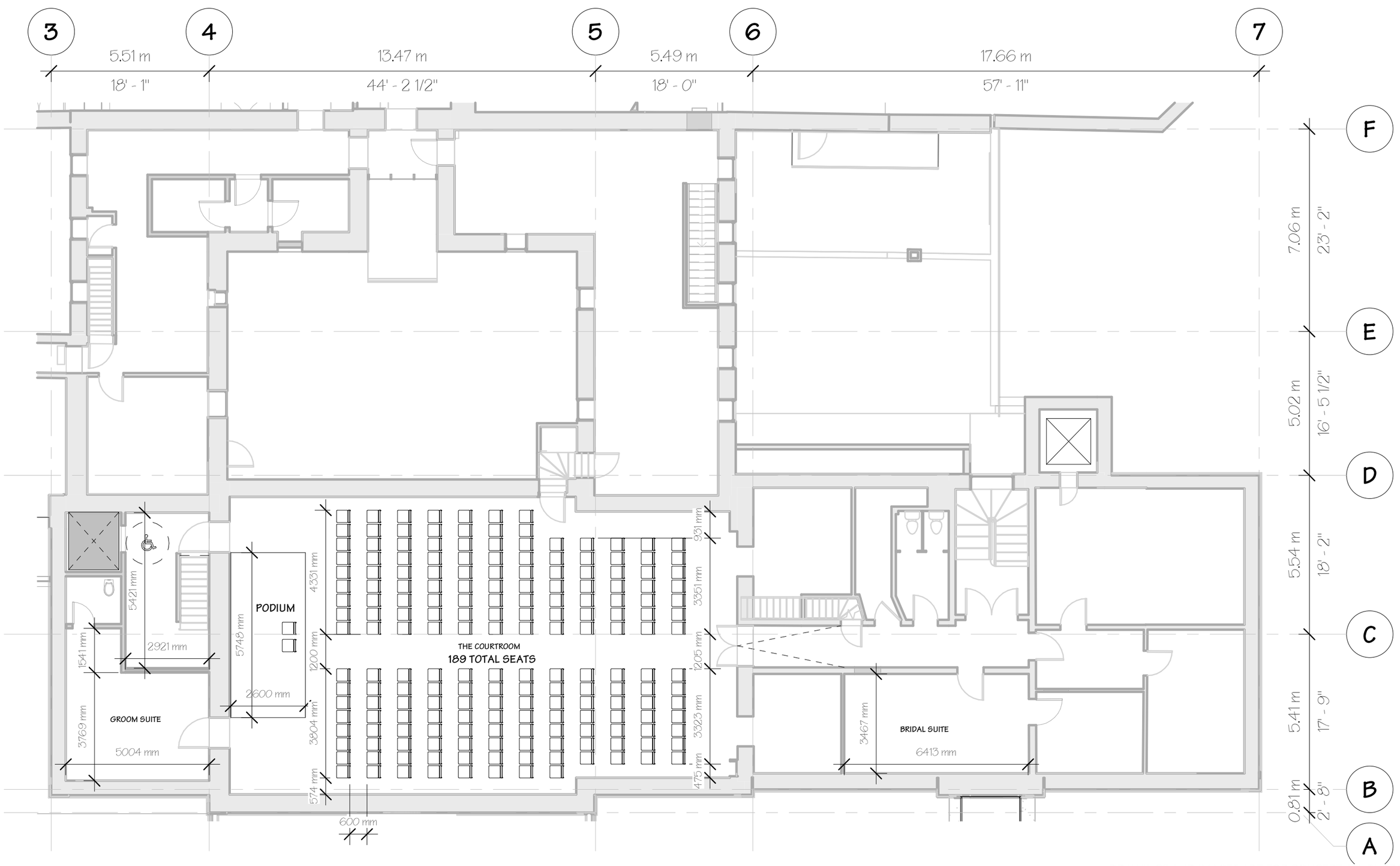
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - EXT VENUE OPT 2

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-005B



ERS ARCHITECTS

Royal Rose Court

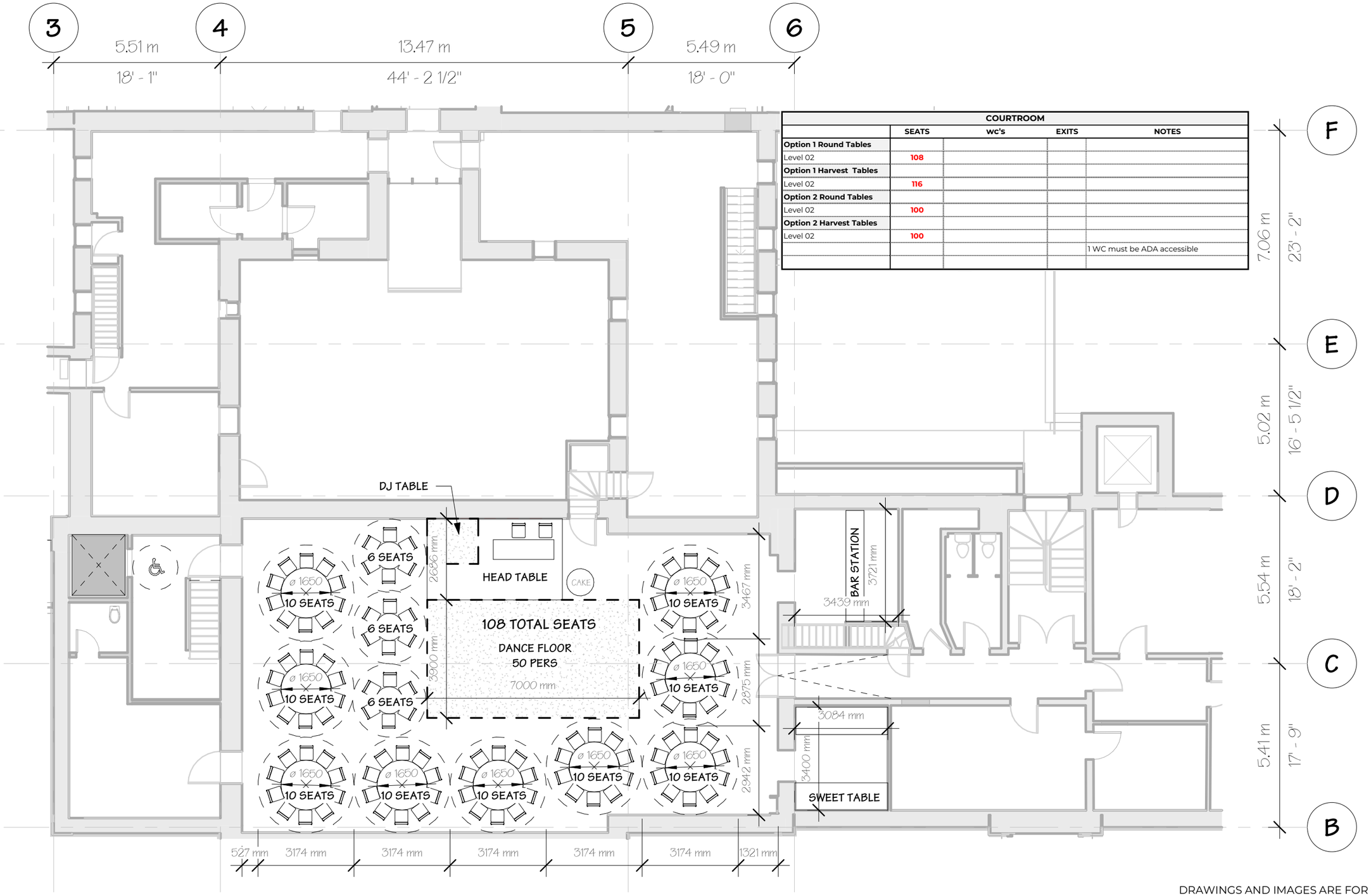
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - COURTROOM CEREMONY ARRANGEMENT

Project #	22.0056.00
Scale	1 : 125
Date	12/12/22

SK-006



COURTROOM				
	SEATS	wc's	EXITS	NOTES
Option 1 Round Tables				
Level 02	108			
Option 1 Harvest Tables				
Level 02	116			
Option 2 Round Tables				
Level 02	100			
Option 2 Harvest Tables				
Level 02	100			
				1 WC must be ADA accessible

ERS ARCHITECTS

Royal Rose Court

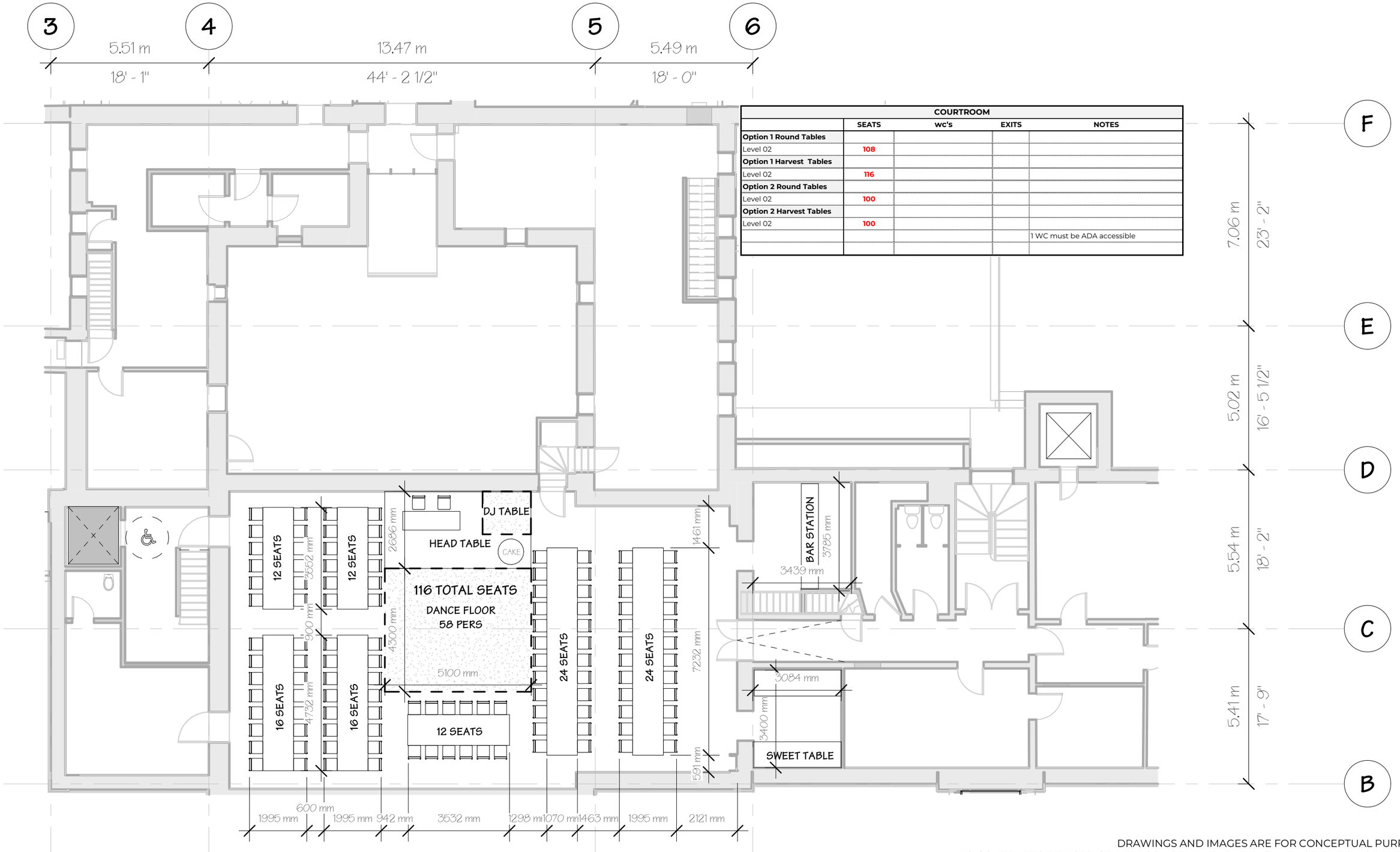
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - COURTROOM OPT 1
Copy 1

Project #	22.0056.00
Scale	1 : 125
Date	12/12/22

SK-007



COURTROOM				
	SEATS	wc's	EXITS	NOTES
Option 1 Round Tables				
Level 02	108			
Option 1 Harvest Tables				
Level 02	116			
Option 2 Round Tables				
Level 02	100			
Option 2 Harvest Tables				
Level 02	100			
				1 WC must be ADA accessible

ERS ARCHITECTS

Royal Rose Court

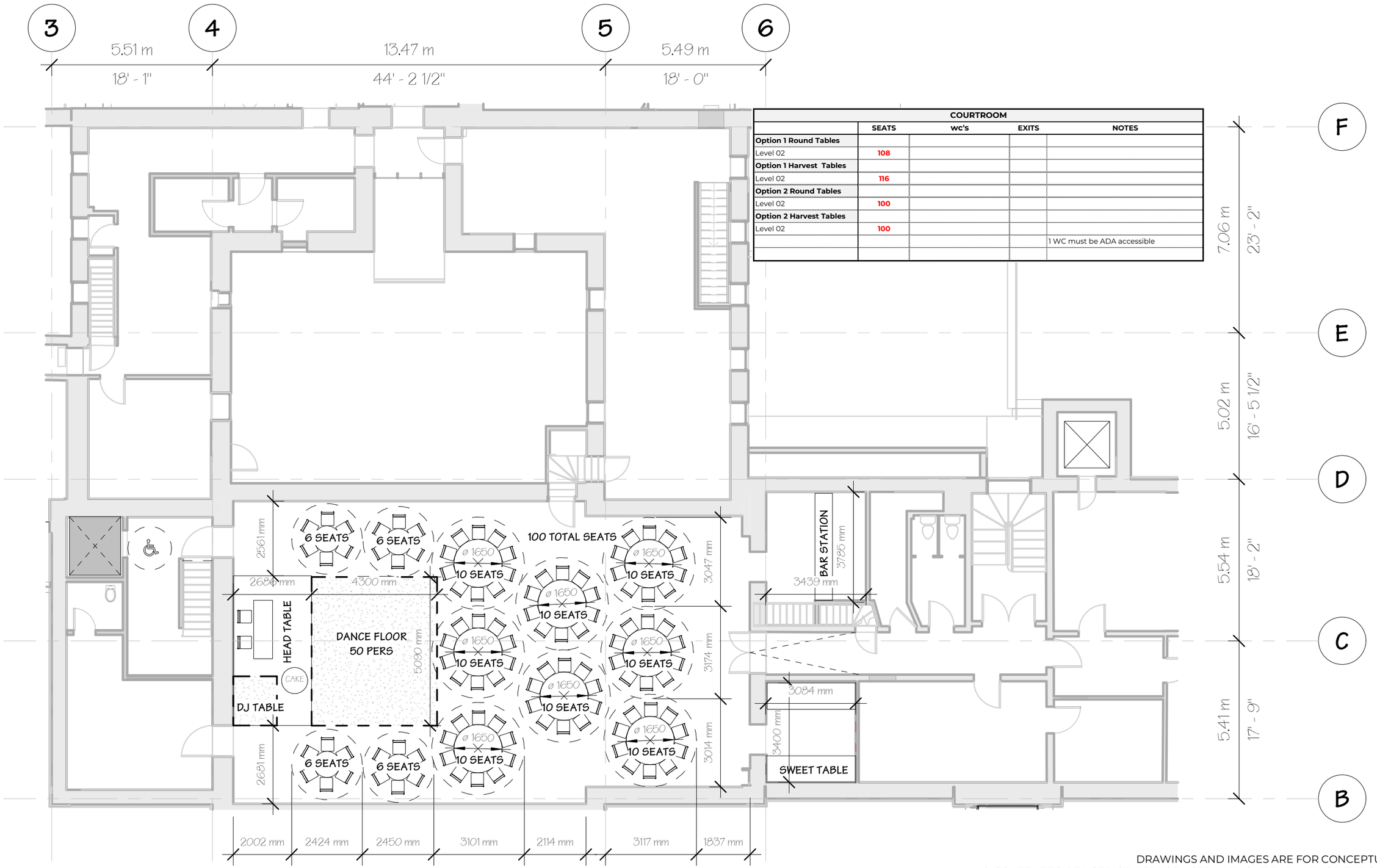
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - COURTROOM OPT 2

Project #	22.0056.00
Scale	1 : 125
Date	12/12/22

SK-007B



COURTROOM				
	SEATS	wc's	EXITS	NOTES
Option 1 Round Tables				
Level 02	108			
Option 1 Harvest Tables				
Level 02	116			
Option 2 Round Tables				
Level 02	100			
Option 2 Harvest Tables				
Level 02	100			
				1 WC must be ADA accessible

ERS ARCHITECTS

Royal Rose Court

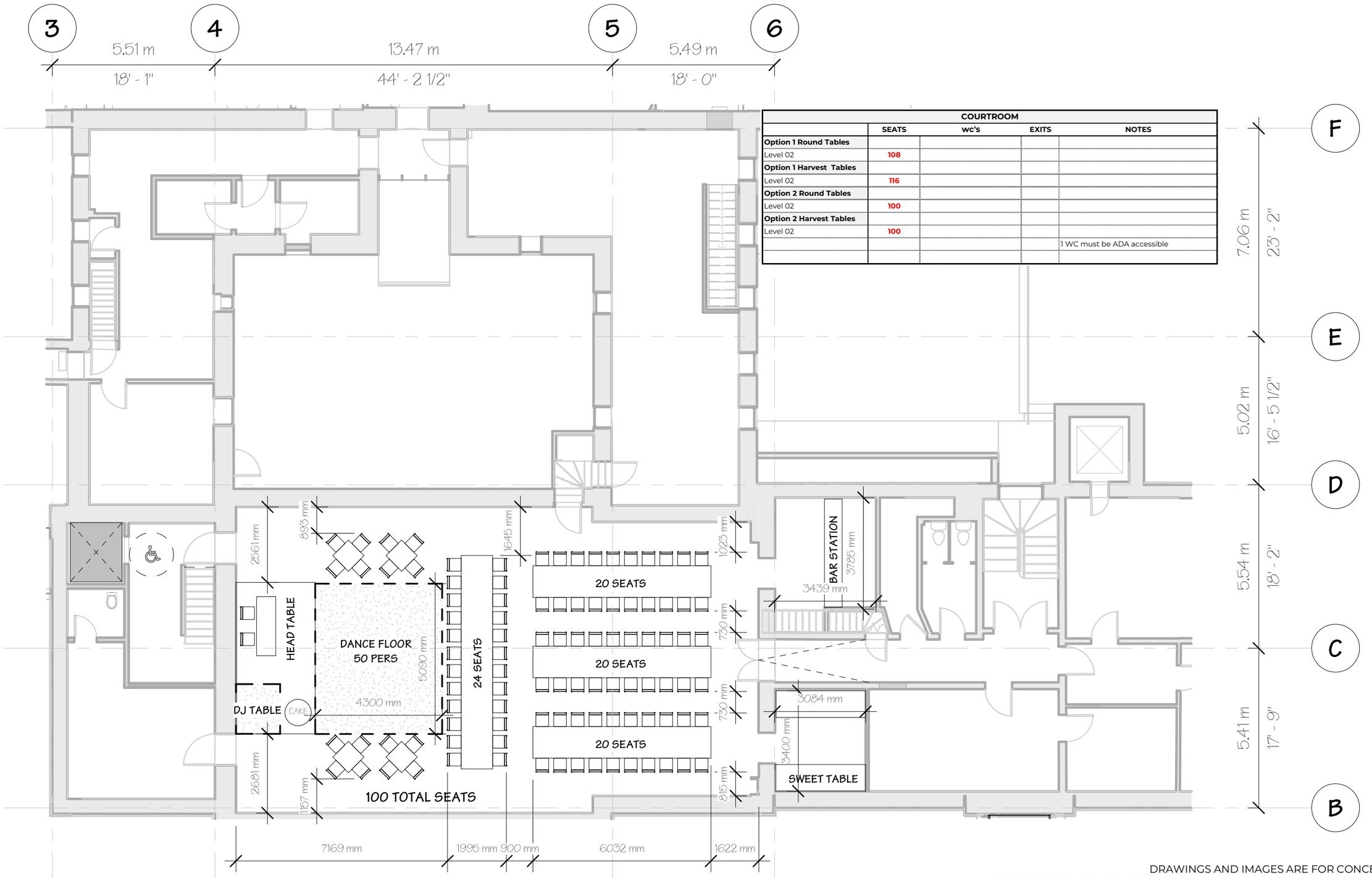
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - COURTROOM OPT 1

Project #	22.0056.00
Scale	1 : 125
Date	12/12/22

SK-007C



COURTROOM				
	SEATS	wc's	EXITS	NOTES
Option 1 Round Tables				
Level 02	108			
Option 1 Harvest Tables				
Level 02	116			
Option 2 Round Tables				
Level 02	100			
Option 2 Harvest Tables				
Level 02	100			
				1 WC must be ADA accessible

ERS ARCHITECTS

Royal Rose Court

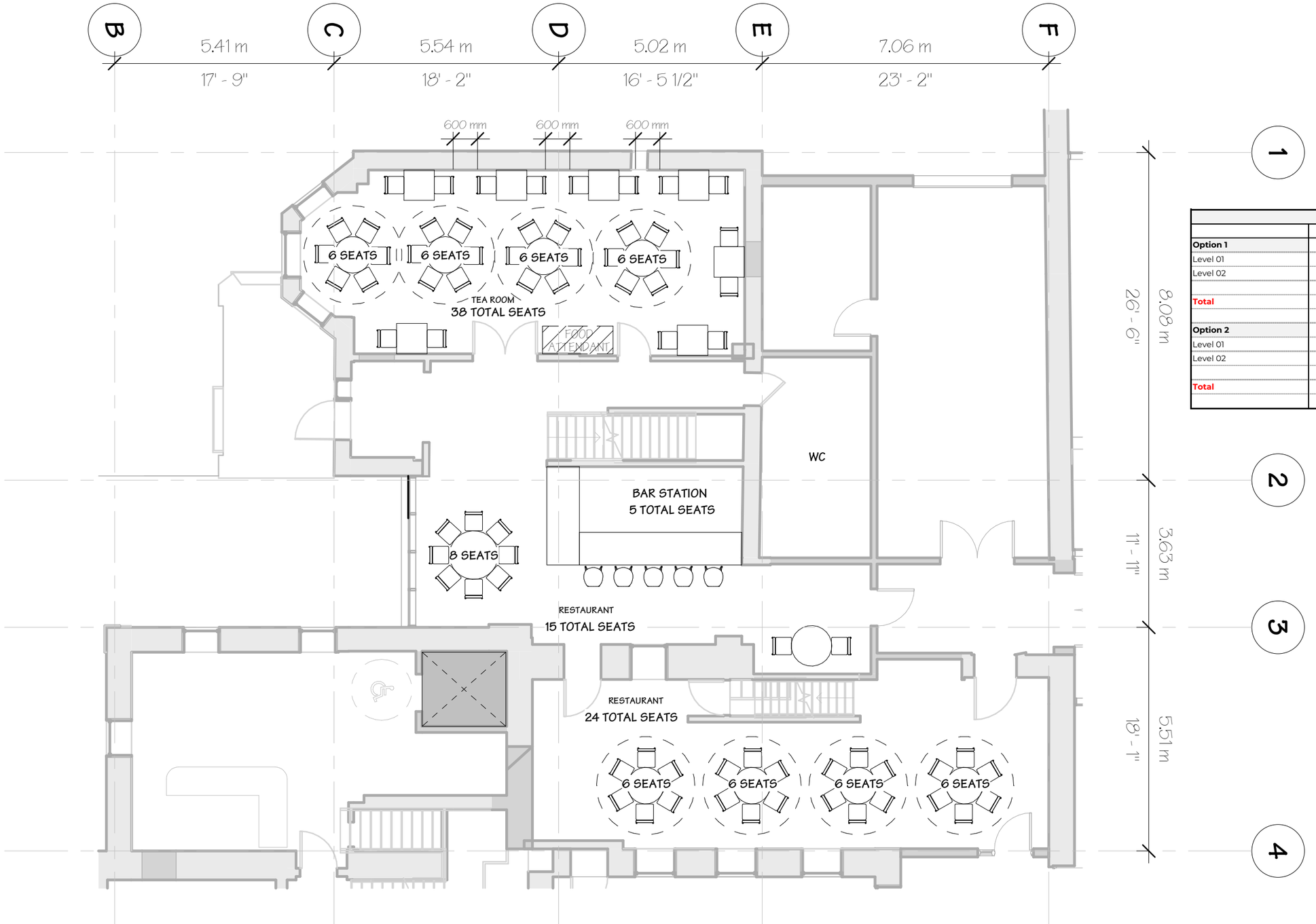
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - COURTROOM OPT 1

Project #	22.0056.00
Scale	1 : 125
Date	12/12/22

SK-007D



RESTAURANT / TEA HOUSE				
	SEATS	wc's	EXITS	NOTES
Option 1				
Level 01	77	1	3	
Level 02	84	2		
				1 WC must be ADA accessible
Total	**161**	**3**		
Option 2				
Level 01	84	1	3	
Level 02	88	2		
				1 WC must be ADA accessible
Total	**172**	**3**		

ERS ARCHITECTS

Royal Rose Court

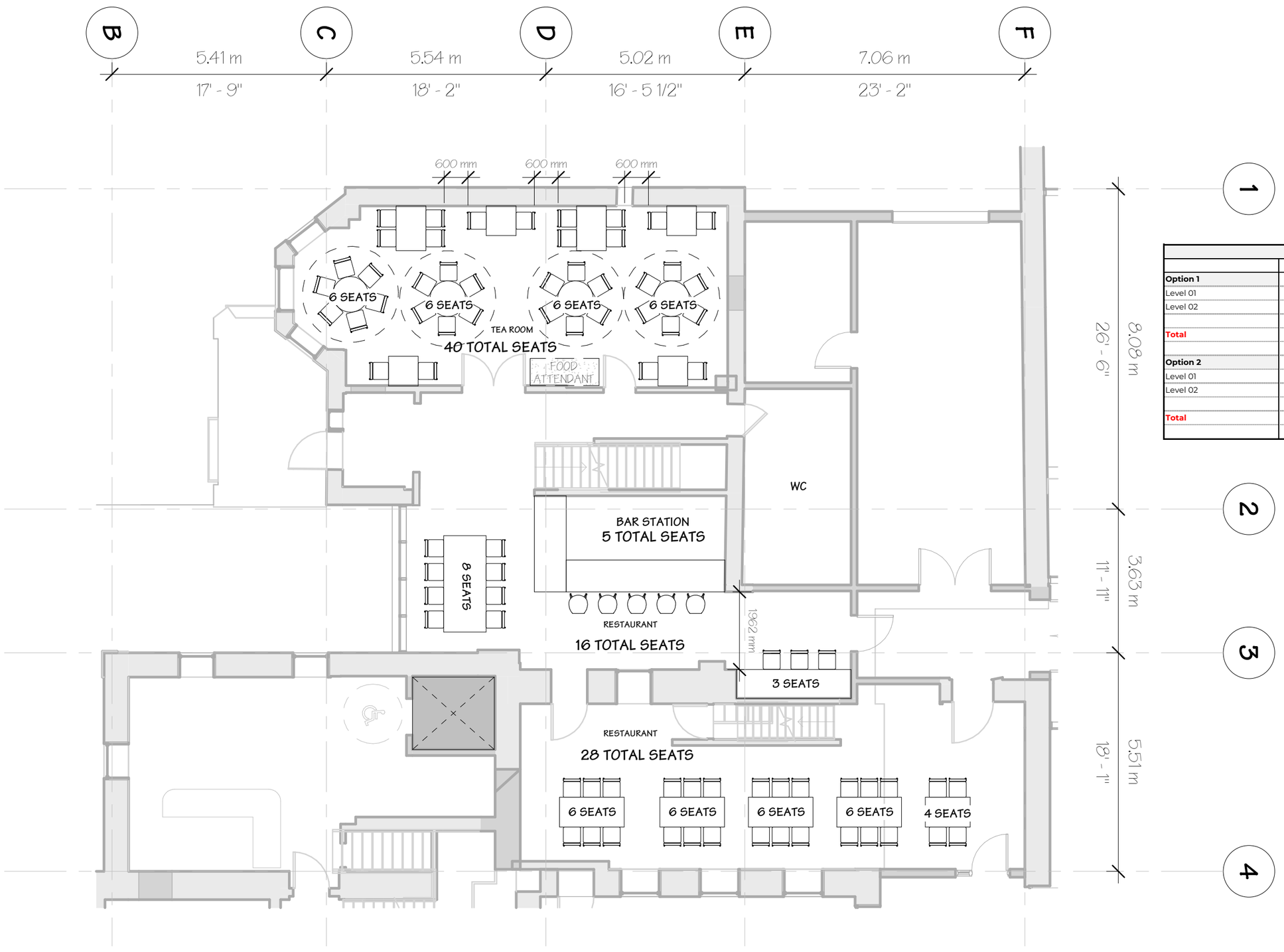
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - RESTAURANT OPTION 1

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-008



RESTAURANT / TEA HOUSE				
	SEATS	wc's	EXITS	NOTES
Option 1				
Level 01	77	1	3	
Level 02	84	2		
				1 WC must be ADA accessible
Total	**161**	**3**		
Option 2				
Level 01	84	1	3	
Level 02	88	2		
				1 WC must be ADA accessible
Total	**172**	**3**		

ERS ARCHITECTS

Royal Rose Court

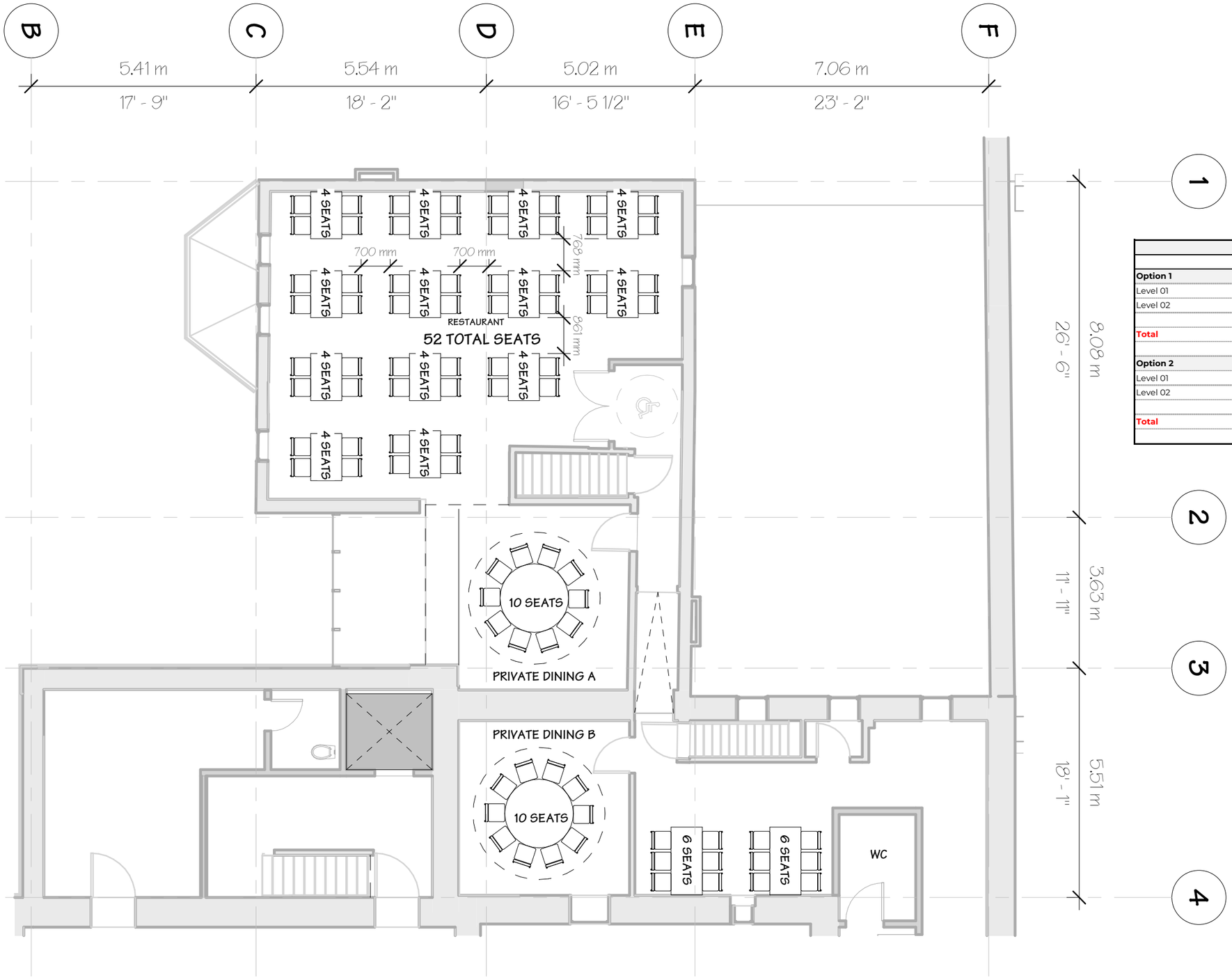
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - RESTAURANT OPTION 2

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-009



RESTAURANT / TEA HOUSE				
	SEATS	wc's	EXITS	NOTES
Option 1				
Level 01	77	1	3	
Level 02	84	2		
				1 WC must be ADA accessible
Total	**161**	**3**		
Option 2				
Level 01	84	1	3	
Level 02	88	2		
				1 WC must be ADA accessible
Total	**172**	**3**		

ERS ARCHITECTS

1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

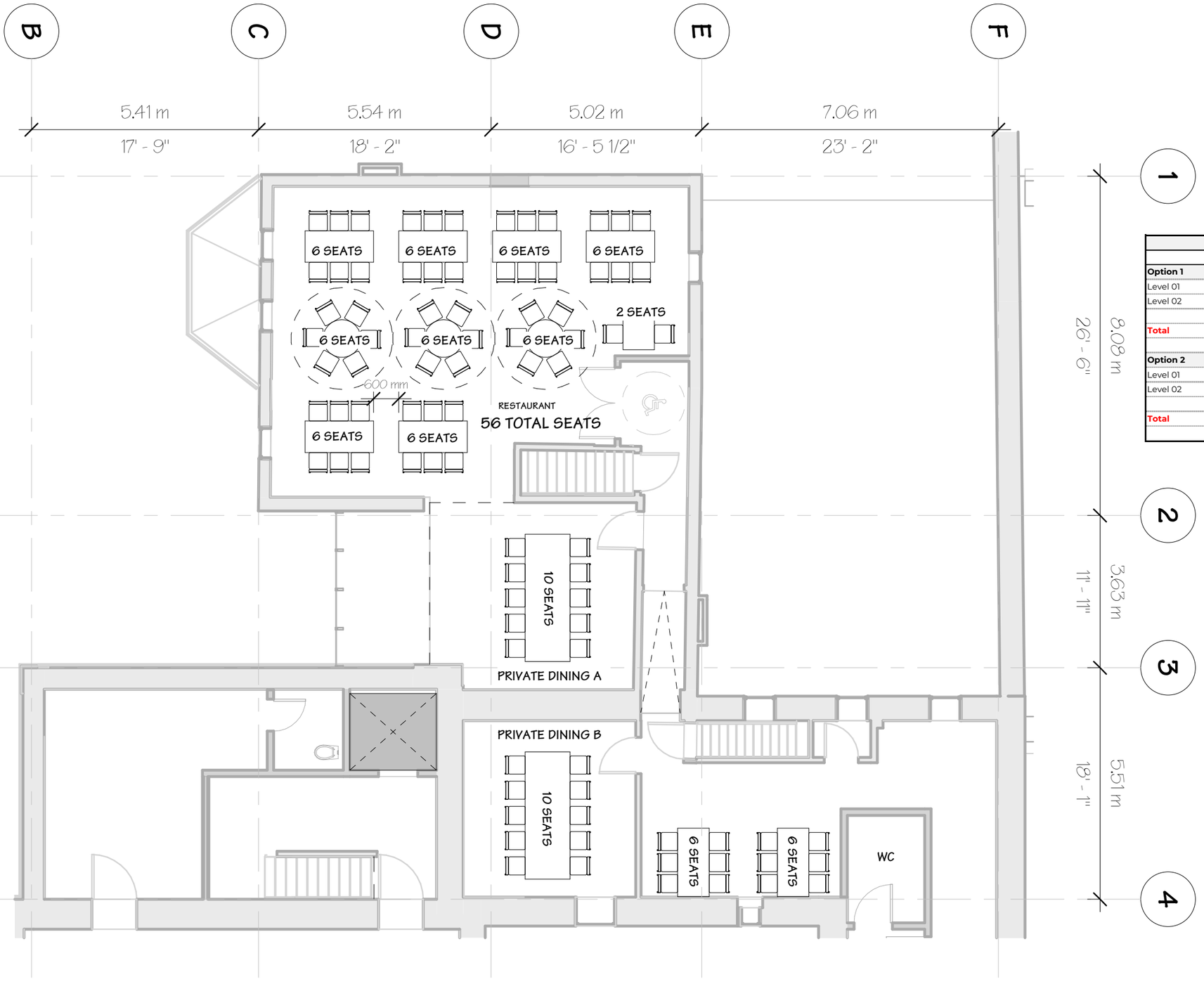
Royal Rose Court

FC Entertainment & Hospitality Inc.

LEVEL 02 - PROPOSED SEATING PLAN - RESTAURANT OPTION 1

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-010



RESTAURANT / TEA HOUSE				
	SEATS	wc's	EXITS	NOTES
Option 1				
Level 01	77	1	3	
Level 02	84	2		
				1 WC must be ADA accessible
Total	**161**	**3**		
Option 2				
Level 01	84	1	3	
Level 02	88	2		
				1 WC must be ADA accessible
Total	**172**	**3**		

ERS ARCHITECTS

Royal Rose Court

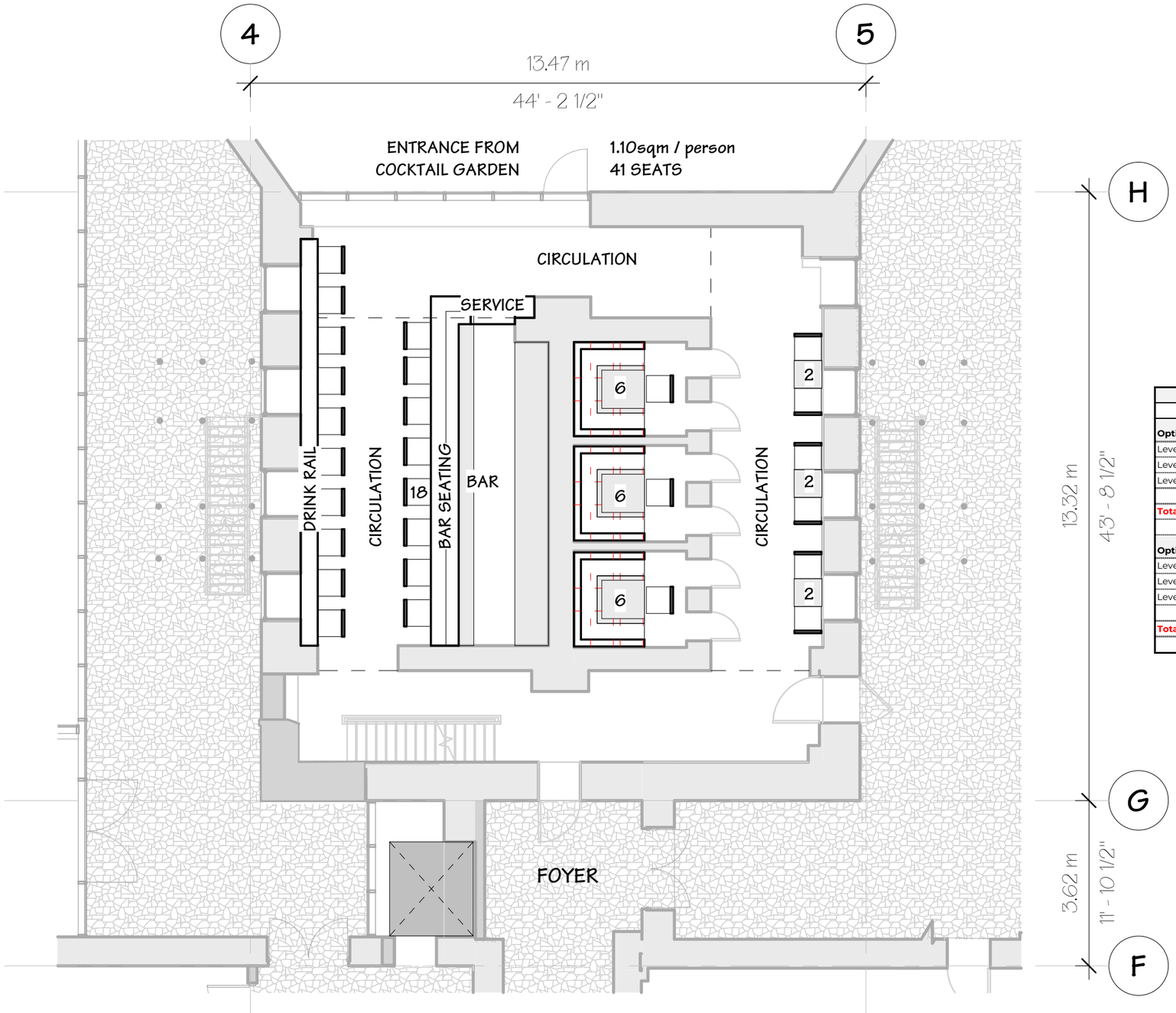
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 02 - PROPOSED SEATING PLAN - RESTAURANT OPTION 2

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-010b



SPEAKEASY				
	SEATS	WC's	EXITS	NOTES
Option 1		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	44	1	2	
Level 03	42	2	2	
				1 WC must be ADA accessible
Total	**127**	**3**		
Option 2		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	38	1	2	
Level 03	36	2	2	
				1 WC must be ADA accessible
Total	**115**	**3**		

ERS ARCHITECTS

Royal Rose Court

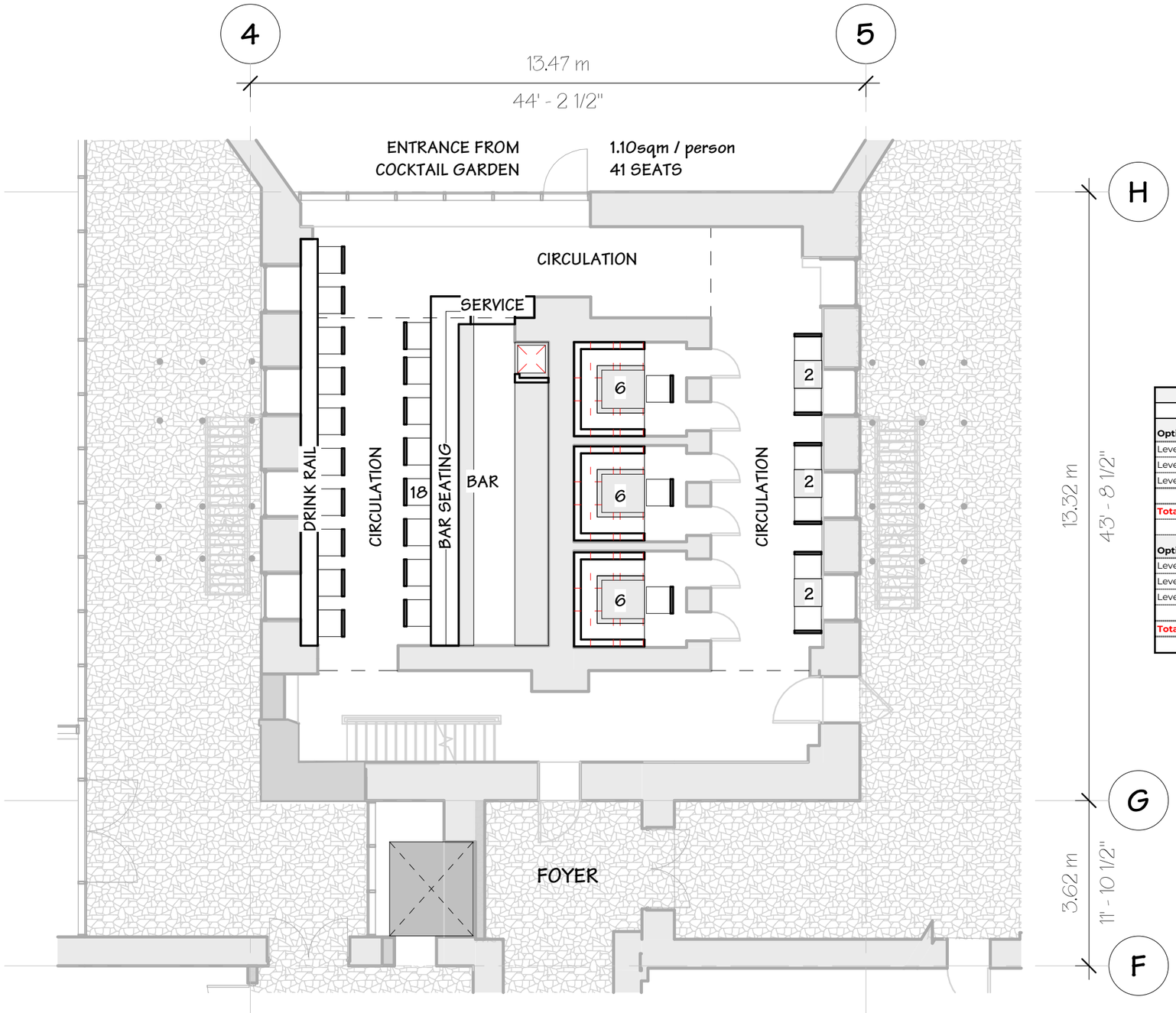
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - SPEAK EASY

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-011



SPEAKEASY				
	SEATS	WC's	EXITS	NOTES
Option 1		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	44	1	2	
Level 03	42	2	2	
				1 WC must be ADA accessible
Total	**127**	**3**		
Option 2		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	38	1	2	
Level 03	36	2	2	
				1 WC must be ADA accessible
Total	**115**	**3**		

ERS ARCHITECTS

Royal Rose Court

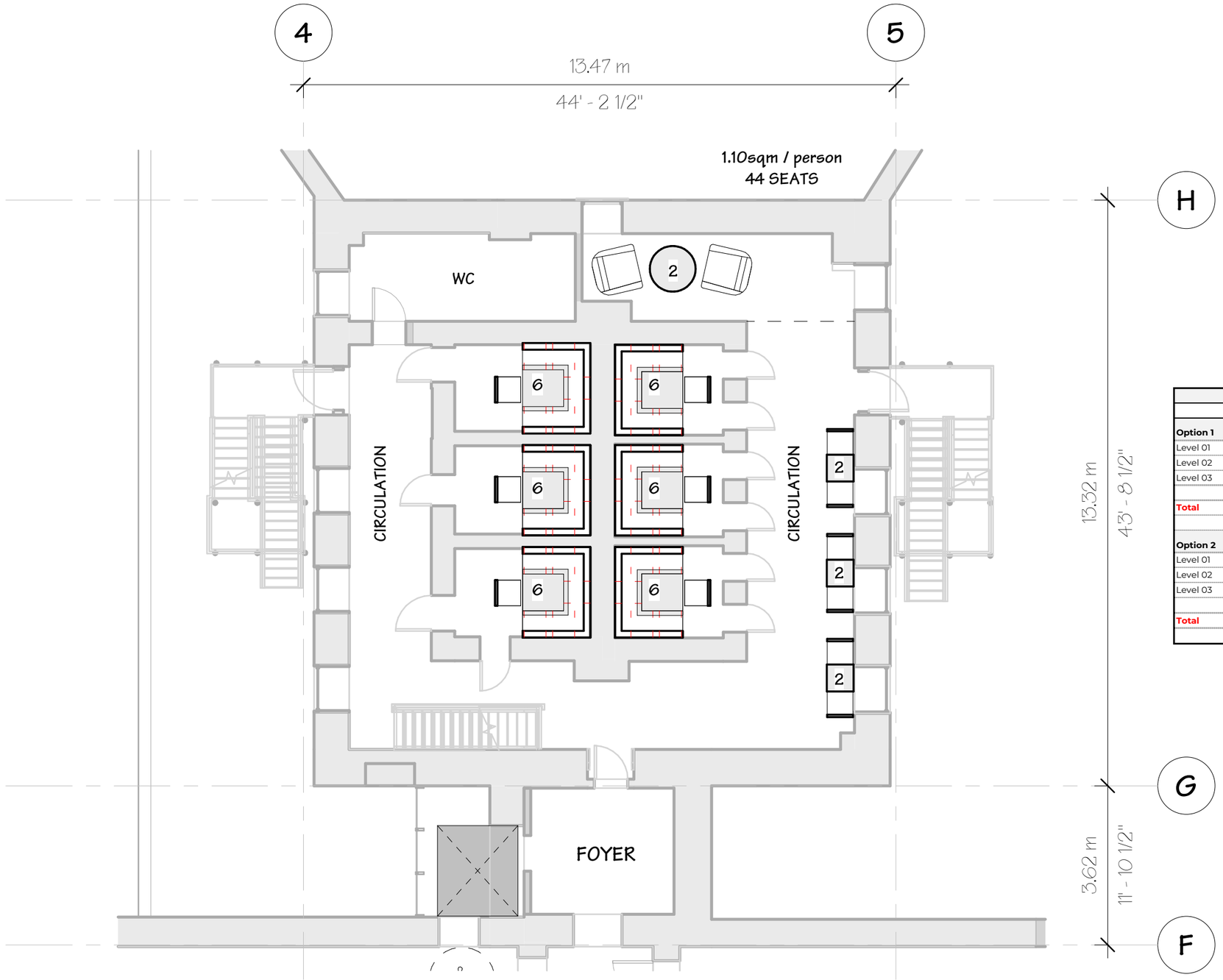
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 01 - PROPOSED SEATING PLAN - SPEAK EASY

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-011b



SPEAKEASY				
	SEATS	WC's	EXITS	NOTES
Option 1		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	44	1	2	
Level 03	42	2	2	
				1 WC must be ADA accessible
Total	**127**	**3**		
Option 2		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	38	1	2	
Level 03	36	2	2	
				1 WC must be ADA accessible
Total	**115**	**3**		

ERS ARCHITECTS

Royal Rose Court

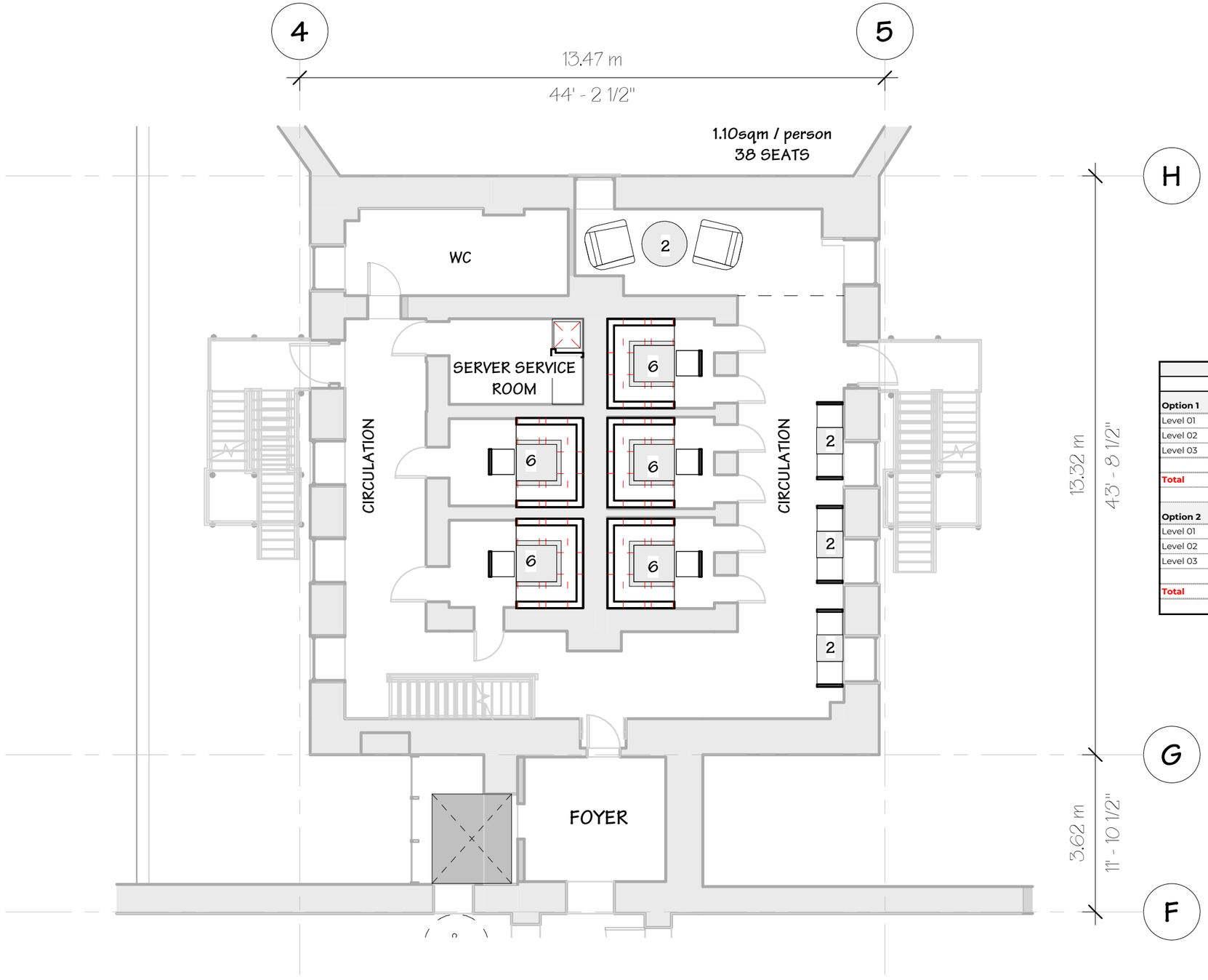
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 02 - PROPOSED
SEATING PLAN - SPEAK EASY

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-012



SPEAKEASY				
	SEATS	WC's	EXITS	NOTES
Option 1		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	44	1	2	
Level 03	42	2	2	
				1 WC must be ADA accessible
Total	**127**	**3**		
Option 2		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	38	1	2	
Level 03	36	2	2	
				1 WC must be ADA accessible
Total	**115**	**3**		

ERS ARCHITECTS

Royal Rose Court

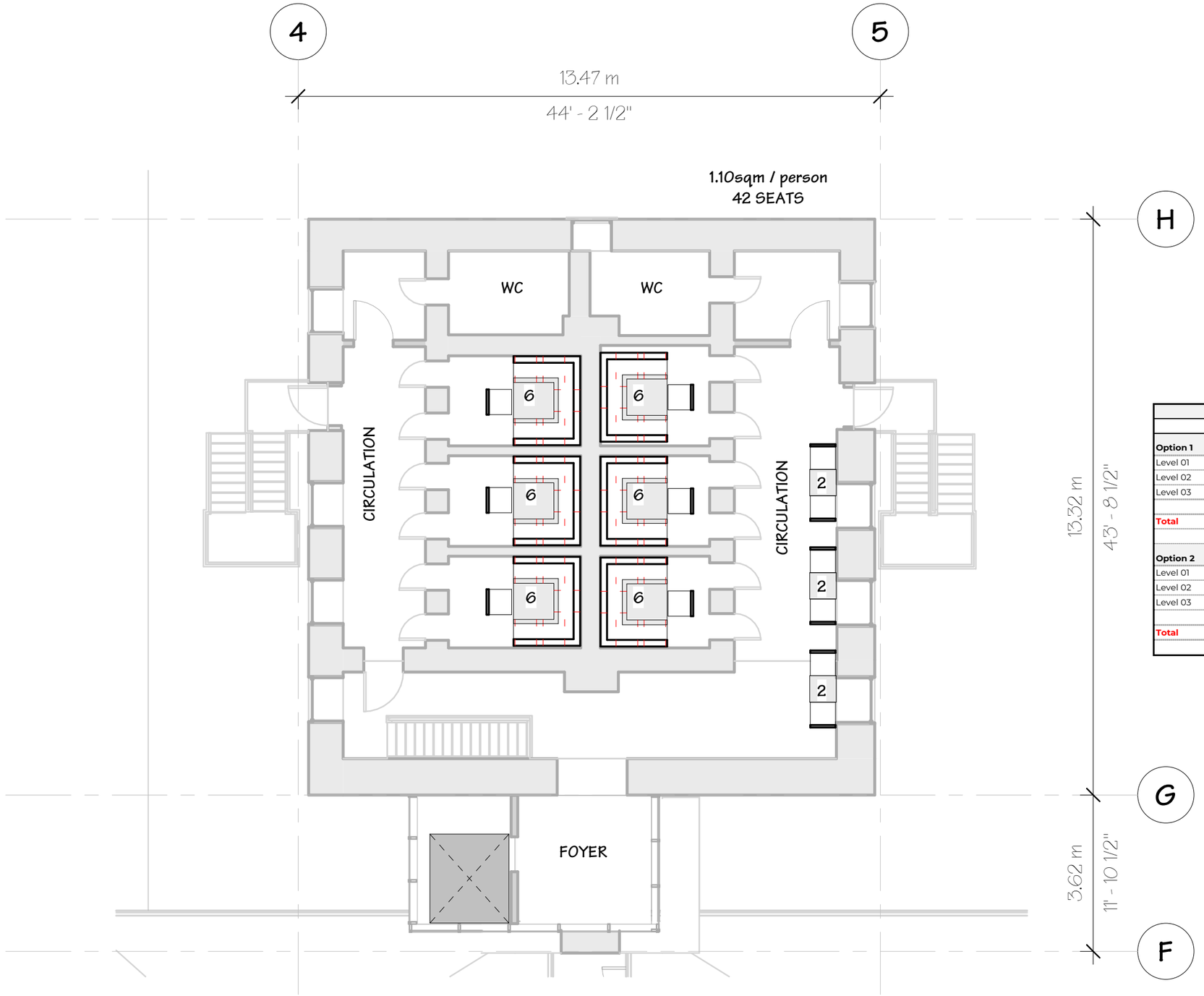
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 02 - PROPOSED SEATING PLAN - SPEAK EASY - Opt B

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-012b



SPEAKEASY				
	SEATS	**WC's**	**EXITS**	**NOTES**
Option 1		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	44	1	2	
Level 03	42	2	2	
				1 WC must be ADA accessible
Total	**127**	**3**		
Option 2		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	38	1	2	
Level 03	36	2	2	
				1 WC must be ADA accessible
Total	**115**	**3**		

ERS ARCHITECTS

Royal Rose Court

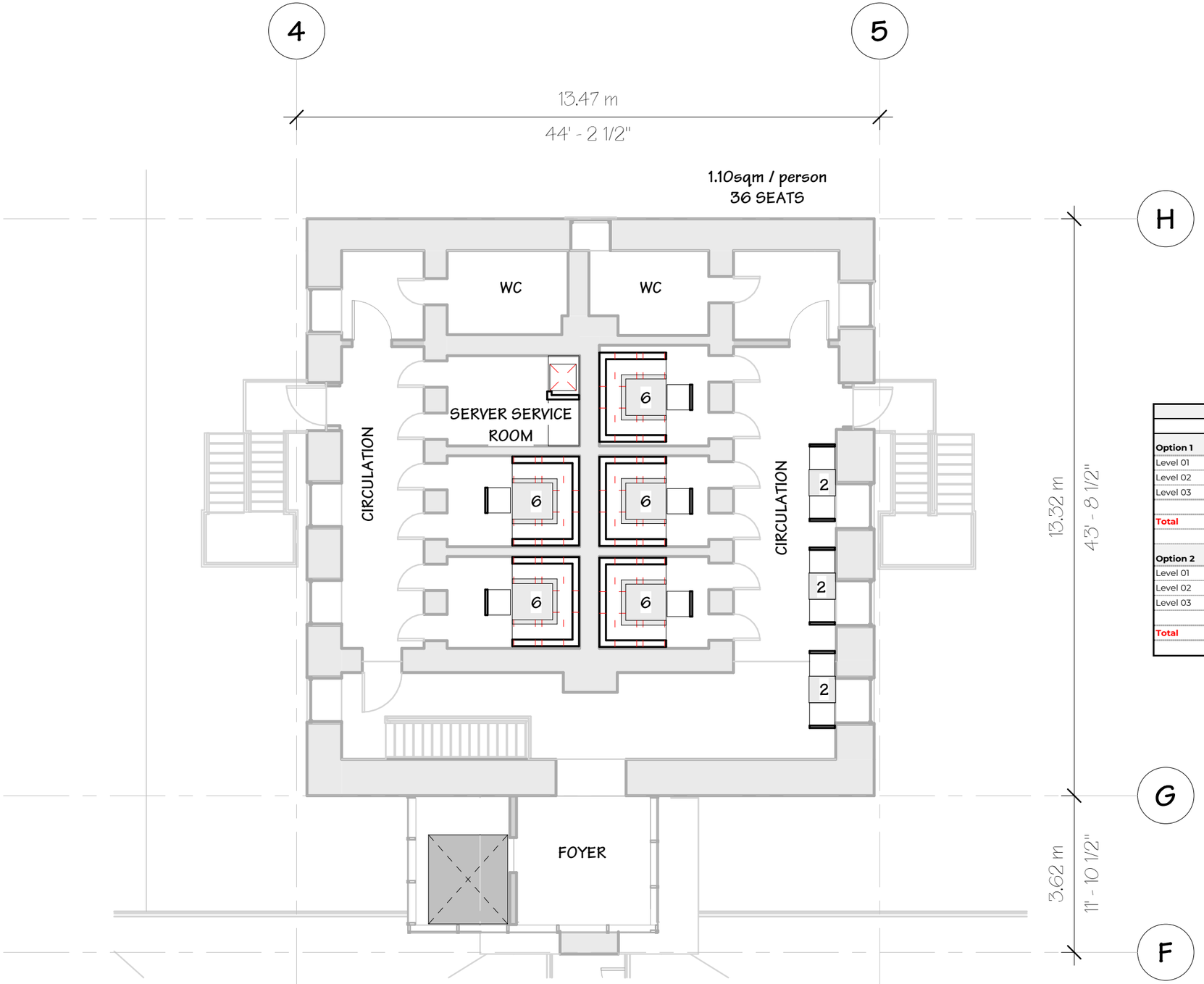
1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 03 - PROPOSED
SEATING PLAN - SPEAK EASY

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-013



SPEAKEASY				
	SEATS	**WC's**	**EXITS**	**NOTES**
Option 1		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	44	1	2	
Level 03	42	2	2	
				1 WC must be ADA accessible
Total	**127**	**3**		
Option 2		**Require 6 WC's for ea. or unisex layout**		
Level 01	41		2	
Level 02	38	1	2	
Level 03	36	2	2	
				1 WC must be ADA accessible
Total	**115**	**3**		

ERS ARCHITECTS

Royal Rose Court

1235-1259 3rd Avenue East
Owen Sound, ON N4K 2L6

FC Entertainment & Hospitality Inc.

LEVEL 03 - PROPOSED SEATING PLAN - SPEAK EASY - Opt B

Project #	22.0056.00
Scale	1 : 100
Date	12/12/22

SK-013b

APPENDIX I

ITE 11th Edition Trip Generation

Land Use: 712
Small Office Building

Description

A small office building is the same as a general office building (Land Use 710) but with less than or equal to 10,000 square feet of gross floor area. The building typically houses a single tenant. It is a location where affairs of a business, commercial or industrial organization, or professional person or firm are conducted. General office building (Land Use 710) is a related use.

Additional Data

Attorney office, mortgage company, financial advisor, insurance agency, home health care provider, and real estate company are examples of tenants included in the small office building database. The diversity of employer types results in a wide range in employee density in the database. Densities range from a high of 1,300 to a low of 240 square feet per employee with an overall average of nearly 600 square feet per employee (a value much larger than the average observed in a general office building study sites).

In addition to the significant difference in employee density, small office buildings tend to be dominated by a single tenant (or very few) that are more service-oriented than a typical general office building. The result is more frequent and regular visitors and higher trip generation rates.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s and the 2010s in Alberta (CAN), California, Texas, and Wisconsin.

Source Numbers

418, 890, 891, 959, 976

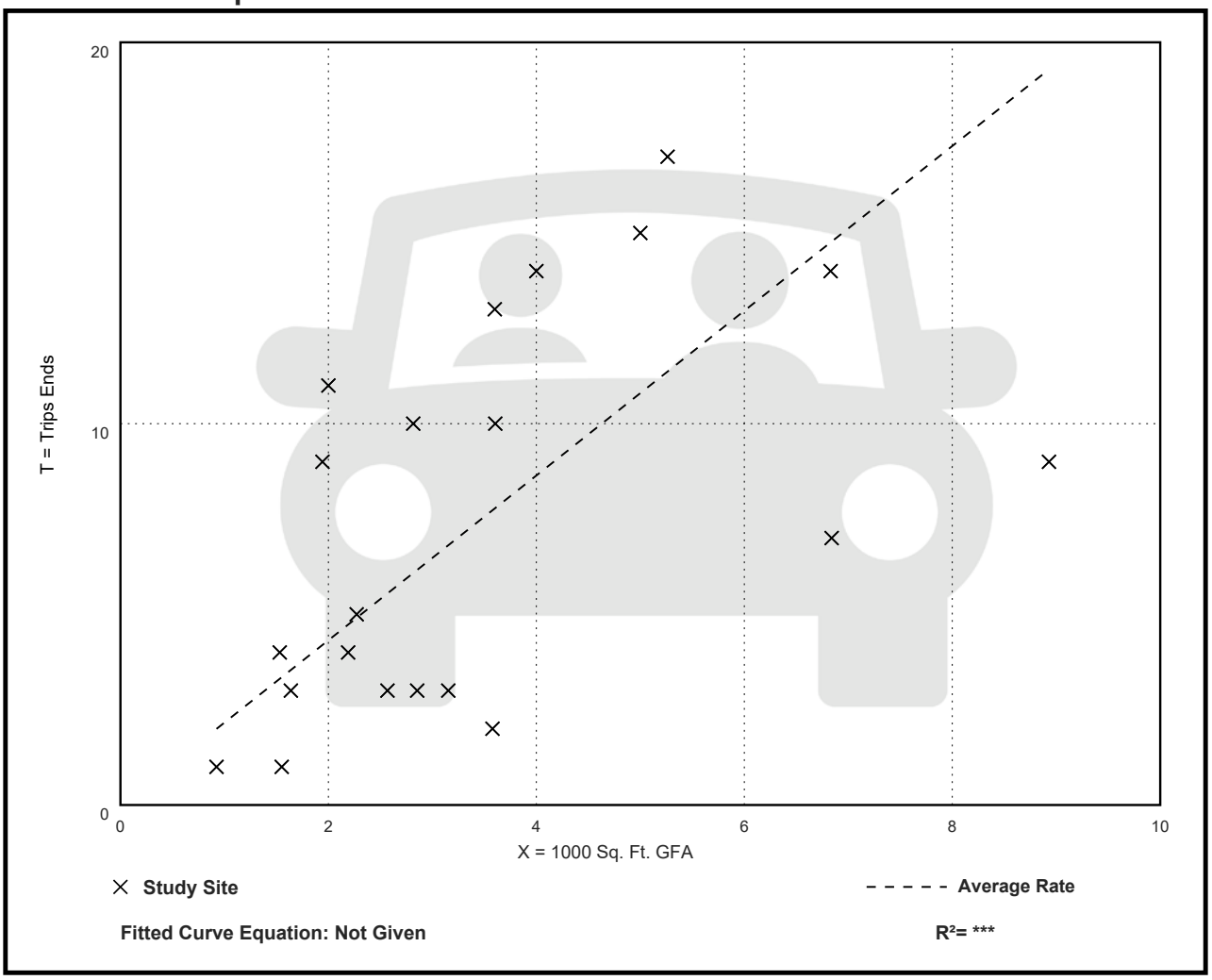
Small Office Building
(712)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
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: 21
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 34% entering, 66% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.16	0.56 - 5.50	1.26

Data Plot and Equation



Land Use: 931
Fine Dining Restaurant

Description

A fine dining restaurant is a full-service eating establishment with a typical duration of stay of at least 1 hour. A fine dining restaurant generally does not serve breakfast; some do not serve lunch; all serve dinner. This type of restaurant often requests and sometimes requires a reservation and is generally not part of a chain. A patron commonly waits to be seated, is served by wait staff, orders from a menu and pays after the meal. Some of the study sites have lounge or bar facilities (serving alcoholic beverages), but meal service is the primary draw to the restaurant. Fast casual restaurant (Land Use 930) and high-turnover (sit-down) restaurant (Land Use 932) are related uses.

Additional Data

If the fine dining restaurant has outdoor seating, its area is not included in the overall gross floor area. For a restaurant that has significant outdoor seating, the number of seats may be more reliable than GFA as an independent variable on which to establish a trip generation rate.

The sites were surveyed in the 1980s, the 1990s, and the 2010s in Alberta (CAN), California, Colorado, Florida, Indiana, Kentucky, New Jersey, and Utah.

Source Numbers

126, 260, 291, 301, 338, 339, 368, 437, 440, 976, 1053

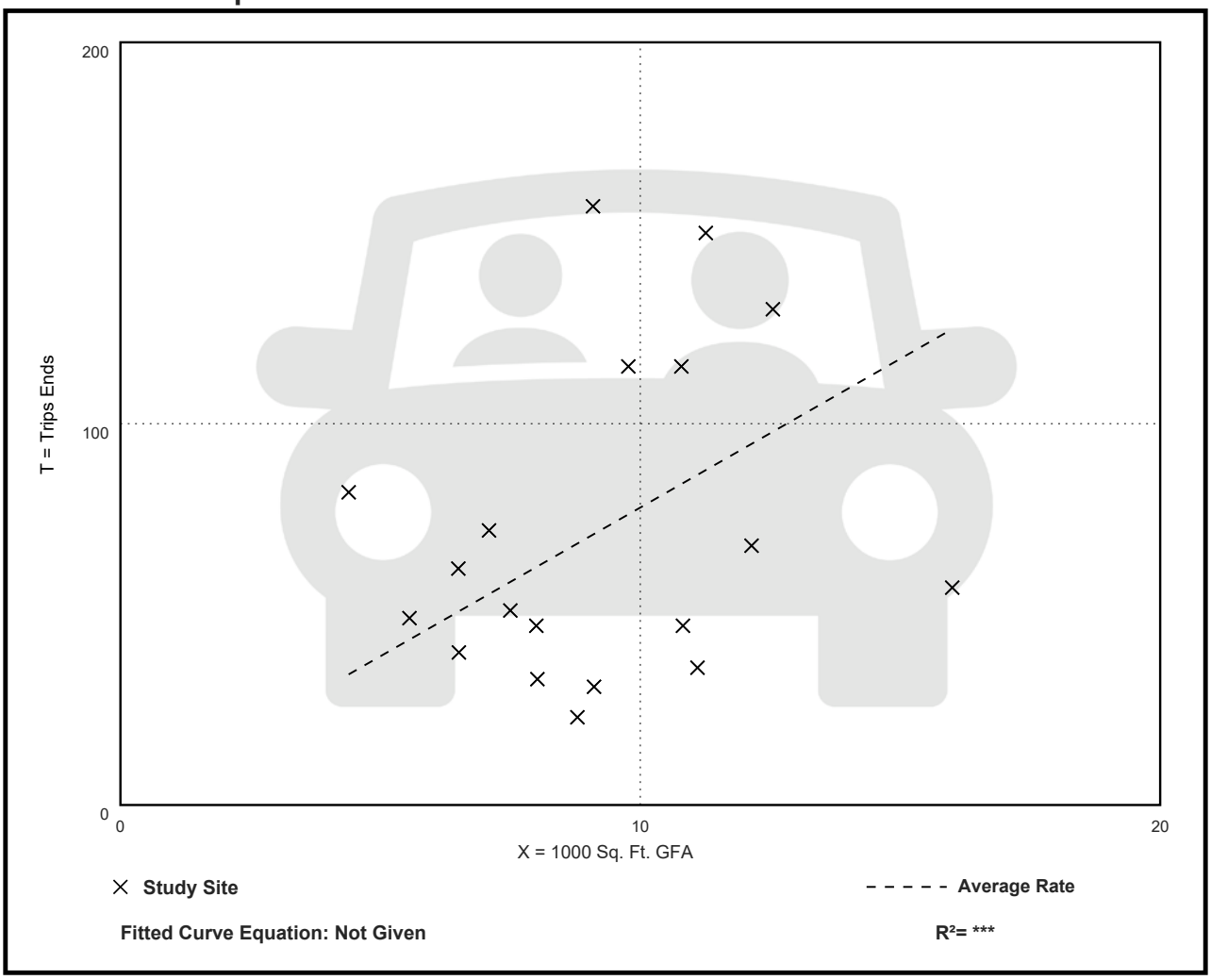
Fine Dining Restaurant
(931)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
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: 19
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



Fine Dining Restaurant
(931)

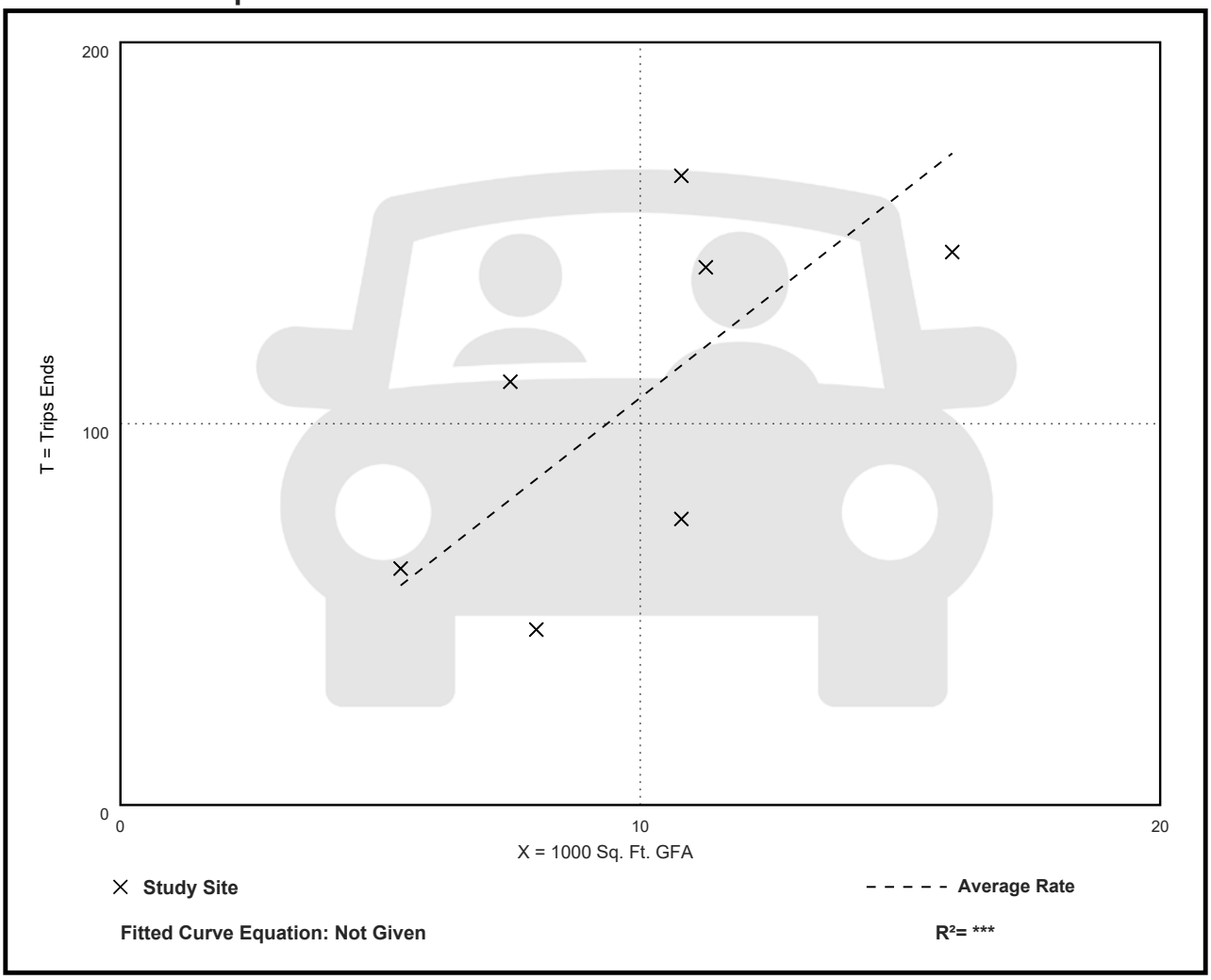
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: 59% entering, 41% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
10.68	5.75 - 15.29	3.62

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ***

Land Use: 975
Drinking Place

Description

A drinking place contains a bar, where alcoholic beverages and food are sold, and possibly some type of entertainment, such as music, television screens, video games, or pool tables. Establishments that specialize in serving food but also have bars are not included in this land use.

Additional Data

All data for this land use were collected on Mondays through Thursdays.

The sites were surveyed in the 1980s, the 1990s, and the 2010s in Colorado, Florida, Oregon, Pennsylvania, and South Dakota.

Source Numbers

291, 358, 583, 1020, 1053

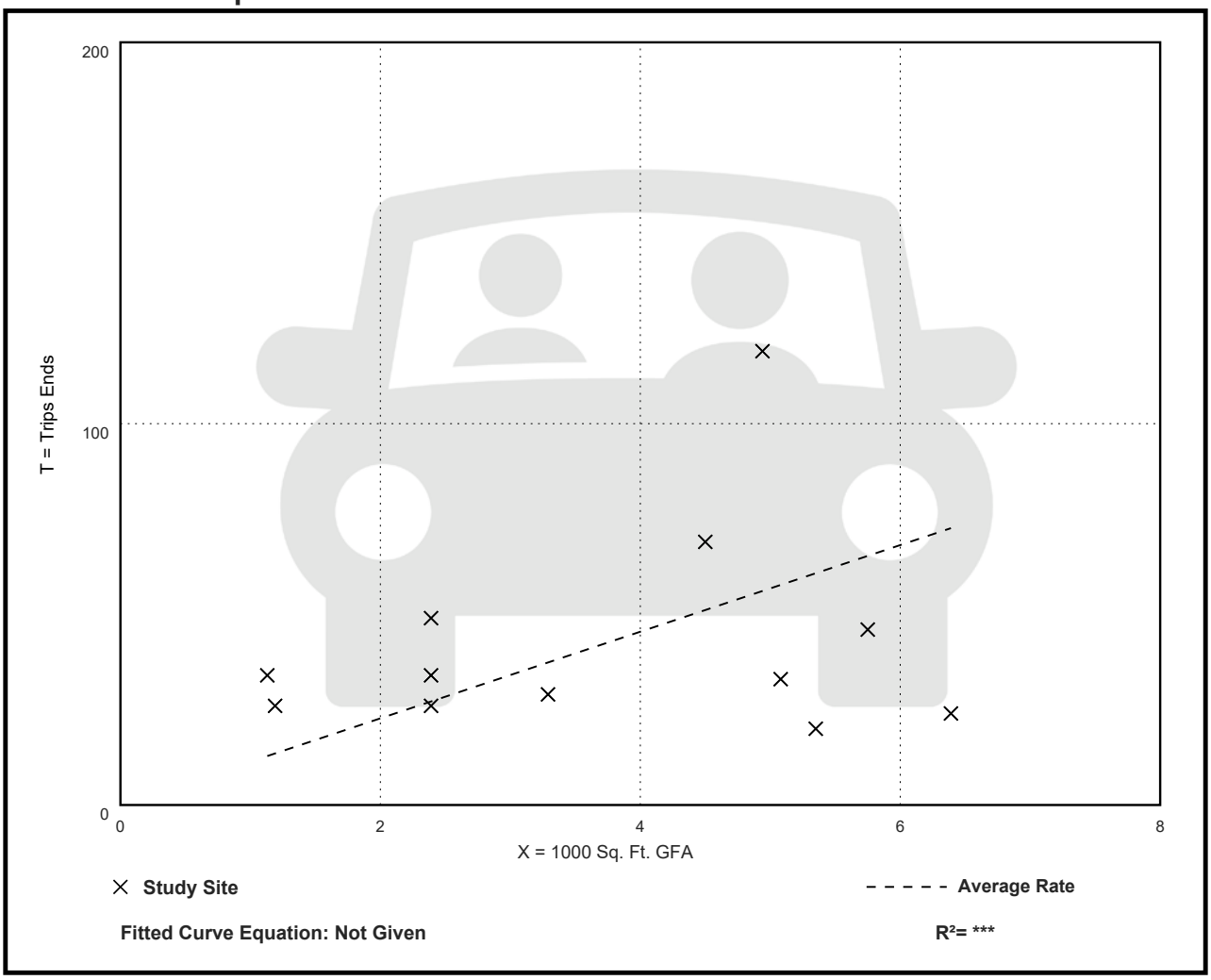
Drinking Place
(975)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
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: 12
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 66% entering, 34% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.36	3.74 - 30.09	7.81

Data Plot and Equation



APPENDIX J

TAC GDGCR Sight Distance

Stopping sight distance is the sum of the distance travelled during the perception and reaction time and the braking distance.

$$SSD = 0.278Vt + 0.039 \frac{V^2}{a} \quad (2.5.2)$$

Where:

SSD = Stopping sight distance (m)
t = Brake reaction time, 2.5 s
V = Design speed (km/h)
a = Deceleration rate (m/s^2)

Table 2.5.2 gives the minimum stopping sight distances on level grade, on wet pavement, for a range of design speeds. These values are used for vertical curve design, intersection geometry and the placement of traffic control devices. The stopping sight distances quoted in **Table 2.5.2** may need to be increased for a variety of reasons related to grade and vehicle type as noted below.

Table 2.5.2: Stopping Sight Distance on level roadways for Automobiles[54]

Design speed (km/h)	Brake reaction distance (m)	Braking distance on level (m)	Stopping sight distance	
			Calculated (m)	Design (m)
20	13.9	4.6	18.5	20
30	20.9	10.3	31.2	35
40	27.8	18.4	46.2	50
50	34.8	28.7	63.5	65
60	41.7	41.3	83.0	85
70	48.7	56.2	104.9	105
80	55.6	73.4	129.0	130
90	62.6	92.9	155.5	160
100	69.5	114.7	184.2	185
110	76.5	138.8	215.3	220
120	83.4	165.2	248.6	250
130	90.4	193.8	284.2	285

Note: Brake reaction distance predicated on a time of 2.5 s; deceleration rate of 3.4 m/s^2 used to determine calculated sight distance.

Table 9.9.3: Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck (WB 19 and WB 20)	11.5
Longer truck	To be established by road authority

Notes: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.2 s for each percent grade for left turns.
- Some road authorities use higher values for certain specialized vehicles (e.g., Alberta uses 22 s for very long log trucks).

The intersection sight distance along the major road (distance b in **Figure 9.9.2**) is determined by:

$$ISD = 0.278\ V_{major}\ t_g \qquad (9.9.1)$$

Where:

ISD = intersection sight distance (length of the leg of sight triangle along the major road) (m)
V_{major} = design speed of the major road (km/h)
t_g = time gap for minor road vehicle to enter the major road (s)

For example, a passenger car turning left onto a two-lane major road should be provided sight distance equivalent to a time gap of 7.5 s in major-road traffic. If the design speed of the major road is 100 km/h, this corresponds to a sight distance of 0.278(100)(7.5) = 208.5 or 210 m, rounded for design.

A passenger car turning left onto a four-lane undivided roadway will need to cross two near lanes, rather than one. This increases the recommended gap in major-road traffic from 7.5 to 8.0 s. The corresponding value of sight distance for this example would be 223 m. If the minor-road approach to such an intersection is located on a 4% upgrade, then the time gap selected for intersection sight distance design for left turns should be increased from 8.0 to 8.8 s, equivalent to an increase of 0.2 s for each percent grade.

The design values for intersection sight distance for passenger cars are shown in **Table 9.9.4**. **Figure 9.9.4** includes design values, based on the time gaps for the design vehicles included in **Table 9.9.3**.

No adjustment of the recommended sight distance values for the major-road grade is generally needed because both the major- and minor-road vehicle will be on the same grade when departing from the intersection. However, if the minor-road design vehicle is a heavy truck and the intersection is located near a sag vertical curve with grades over 3%, then an adjustment to extend the recommended sight distance based on the major-road grade should be considered.

Table 9.9.4: Design Intersection Sight Distance – Case B1, Left Turn From Stop

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	41.7	45
30	35	62.6	65
40	50	83.4	85
50	65	104.3	105
60	85	125.1	130
70	105	146.0	150
80	130	166.8	170
90	160	187.7	190
100	185	208.5	210
110	220	229.4	230
120	250	250.2	255
130	285	271.1	275

Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

Sight distance design for left turns at divided-highway intersections should consider multiple design vehicles and median width. If the design vehicle used to determine sight distance for a divided-highway intersection is larger than a passenger car, then sight distance for left turns will need to be checked for that selected design vehicle and for smaller design vehicles as well. If the divided-highway median is wide enough to store the design vehicle with a clearance to the through lanes of approximately 1 m at both ends of the vehicle, no separate analysis for the departure sight triangle for left turns is needed on the minor-road approach for the near roadway to the left. In most cases, the departure sight triangle for right turns (case B2) will provide sufficient sight distance for a passenger car to cross the near roadway to reach the median. Possible exceptions are addressed in the discussion of case B3.

The time gaps in **Table 9.9.3** can be decreased by 1.0 s for right-turn maneuvers without undue interference with major-road traffic. These adjusted time gaps for the right turn from the minor road are shown in **Table 9.9.5**. Design values based on these adjusted time gaps are shown in **Table 9.9.6** for passenger cars. **Figure 9.9.5** includes the design values for the design vehicles for each of the time gaps in **Table 9.9.5**.

Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Design Vehicle	Time Gap (t_g)(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20)	10.5

Note: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.1 s for each percent grade for left turns.

Table 9.9.6: Design Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	36.1	40
30	35	54.2	55
40	50	72.3	75
50	65	90.4	95
60	85	108.4	110
70	105	126.5	130
80	130	144.6	145
90	160	162.6	165
100	185	180.7	185
110	220	198.8	200
120	250	216.8	220
130	285	234.9	235

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane highway with no median and with grades of 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

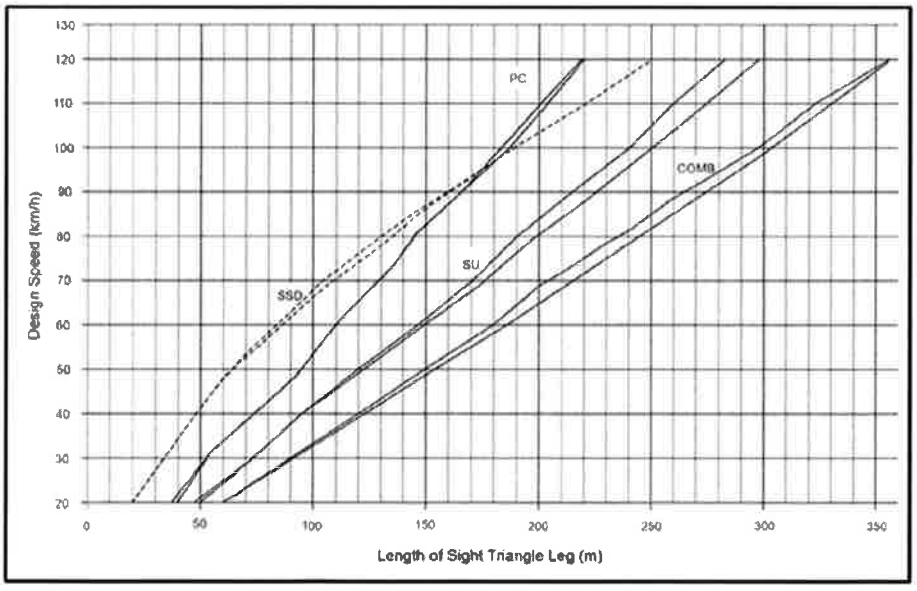
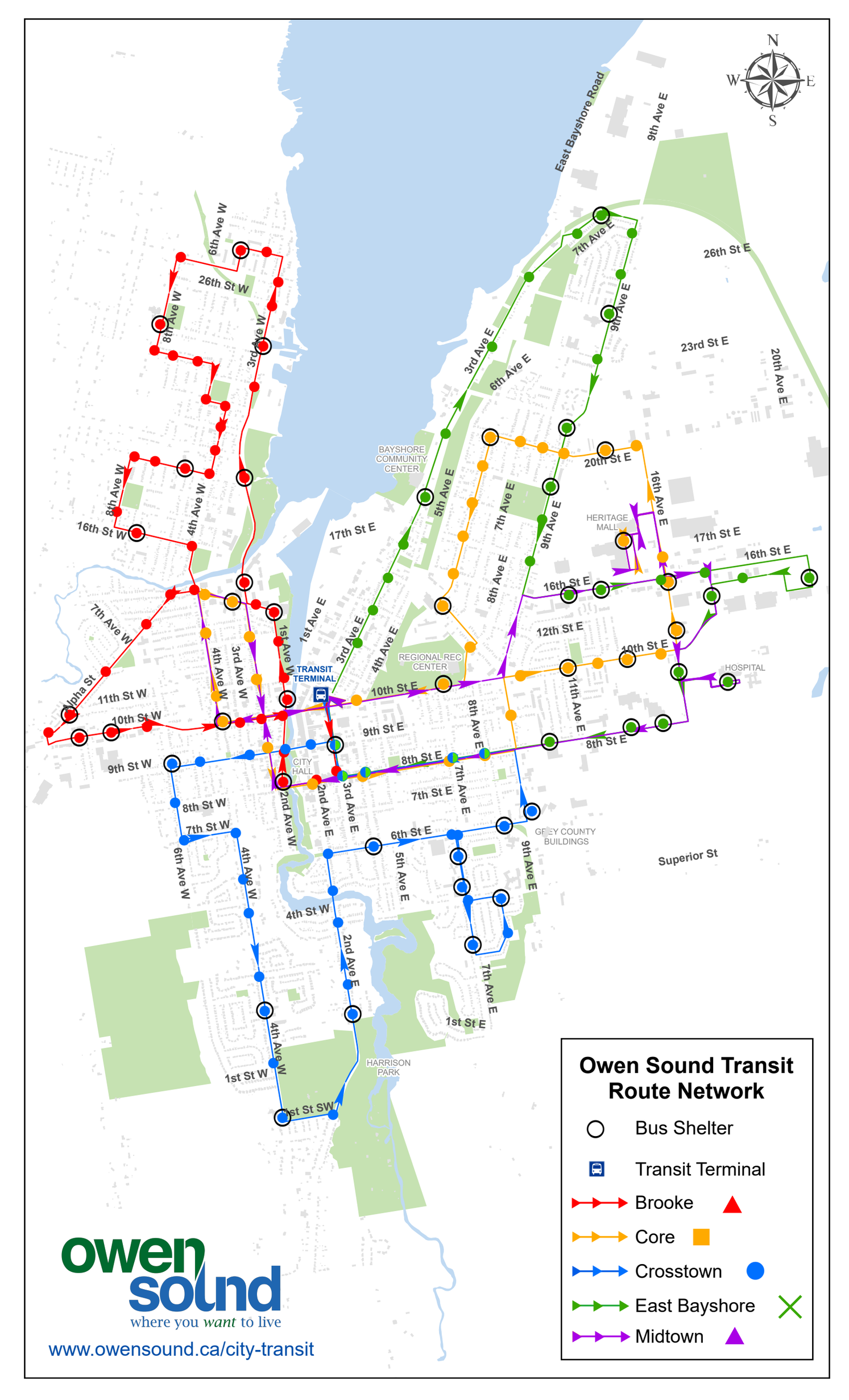


Figure 9.9.5: Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver (Calculated and Design Values Plotted)

APPENDIX K

Owen Sound and Grey Transit Route Maps/Schedules


N
W
E
S
East Bayshore Road
9th Ave E
26th St E
23rd St E
20th Ave E
7th Ave E
3rd Ave E
6th Ave E
9th Ave E
20th St E
16th Ave E
17th St E
16th St E
12th St E
10th St E
11th Ave E
8th Ave E
8th St E
7th St E
6th St E
5th Ave E
4th Ave E
3rd Ave E
2nd Ave E
1st Ave E
1st St E
BAYSHORE COMMUNITY CENTER
HERITAGE MALL
REGIONAL REC CENTER
HOSPITAL
TRANSIT TERMINAL
CITY HALL
GREY COUNTY BUILDINGS
Superior St
HARRISON PARK
6th Ave W
26th St W
8th Ave W
3rd Ave W
16th St W
4th Ave W
7th Ave W
Alpha St
11th St W
10th St W
9th St W
8th St W
7th St W
6th Ave W
4th Ave W
3rd Ave W
2nd Ave W
1st Ave W
4th St W
1st St W
1st St SW
Owen Sound Transit Route Network
Bus Shelter
Transit Terminal
Brooke
Core
Crosstown
East Bayshore
Midtown
owen sound
where you want to live
www.owensound.ca/city-transit

Grey Transit Route - Schedules

ROUTE 1 SOUTHBOUND
(Owen Sound to Dundalk)

Monday - Friday

Owen Sound Transit Terminal 1020 3rd Ave E, Owen Sound	**Departure** **6:45 AM**	**Departure** **10:44 AM**	**Departure** **5:47 PM**
Stone Tree 318085 Hwy 6-10, Owen Sound	**6:54 AM**	**10:53 AM**	**5:56 PM**
Chatsworth Arena 5Toronto St., Chatsworth	**7:08 AM**	**11:07 AM**	**6:10 PM**
King Edward Park 75 Walker St, Markdale	**7:32 AM**	**11:31 AM**	**6:34 PM**
Trail Parking Lot Main St West, @ Scotland St, Markdale	**7:39 AM**	**11:38 AM**	**6:41 PM**
Grey Gables 206 Toronto St S, Markdale	**7:46 AM**	**11:45 AM**	**6:48 PM**
Huron Bay Co-Operative 774794 ON-10, Flesherton	**7:54 AM**	**11:53 AM**	**6:56 PM**
Flesherton Arena 103 ON-10, Flesherton	**8:05 AM**	**12:04 PM**	**7:07 PM**
Dundalk Arena 550 Main St E, Dundalk	**Arrival** **8:19 AM**	**Arrival** **12:18 PM**	**Arrival** **7:21 PM**

ROUTE 1 NORTHBOUND
(Dundalk to Owen Sound)

Monday - Friday

Dundalk Arena 550 Main St E, Dundalk	**Departure** **8:34 AM**	**Departure** **12:22 PM**	**Departure** **7:25 PM**
Flesherton Arena 103 ON-10, Flesherton	**8:52 AM**	**12:40 PM**	**7:43 PM**
Huron Bay Co-Operative 774794 ON-10, Flesherton	**9:03 AM**	**12:51 PM**	**7:54 PM**
Grey Gables 206 Toronto St S, Markdale	**9:11 AM**	**12:59 PM**	**8:02 PM**
Trail Parking Lot Main St West, @ Scotland St, Markdale	**9:18 AM**	**1:06 PM**	**8:09 PM**
King Edward Park 75 Walker St, Markdale	**9:25 AM**	**1:13 PM**	**8:16 PM**
Chatsworth Arena 5 Toronto St., Chatsworth	**9:49 AM**	**1:37 PM**	**8:40 PM**
Stone Tree 318085 Hwy 6-10, Owen Sound	**10:03 AM**	**1:51 PM**	**8:54 PM**
Owen Sound Transit Terminal 1020 3rd Ave E, Owen Sound	**Arrival** **10:08 AM**	**Arrival** **1:56 PM**	**Arrival** **8:59 PM**

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ROUTE 2 SOUTHBOUND
(Dundalk to Orangeville)

Monday - Friday

Dundalk Arena 550 Main St E, **Dundalk**	**Departure** **6:30 AM**	**Departure** **8:34 AM**	**Departure** **12:22 PM**	**Departure** **5:21 PM**
Fiddle Park Ln @ GreenwoodCrescent, Shelburne	**6:49 AM**	**8:53 AM**	**12:41 PM**	**5:40 PM**
Victoria St.@ Red Front Store Ln. Shelburne	**6:56 AM**	**9:00 AM**	**12:48 PM**	**5:47 PM**
Hansen Blvd. @ First St. (Orangeville Mall & GO Bus) Orangeville	**7:22 AM**	**9:26 AM**	**1:14 PM**	**6:13 PM**
Broadway & Fourth Street (TransitTransfer Station) Orangeville	**Arrival** **7:28 AM**	**Arrival** **9:32 AM**	**Arrival** **1:20 PM**	**Arrival** **6:19 PM**

ROUTE 2 SOUTHBOUND – WEEKEND SERVICE
(Dundalk to Orangeville)

Saturday & Sunday
(July 10 to December 12, 2021)

Owen Sound Transit Terminal 1020 3rd Ave. E., Owen Sound	**Departure** **7:00 AM**			
Dundalk Arena 550 Main St E, Dundalk	**7:56 AM**	**Departure** **10:40 AM**	**Departure** **2:02 PM**	**Departure** **4:46 PM**
Col Phillips Dr. & Armstrong Rd. Shelburne	**8:13 AM**	**10:57 AM**	**2:19 PM**	**5:03 PM**
Fiddle Park Ln @ Greenwood Crescent, Shelburne	**8:20 AM**	**11:04 AM**	**2:26 PM**	**5:10 PM**
Victoria St.@ Red Front Store Ln. Shelburne	**8:25 AM**	**11:09 AM**	**2:31 PM**	**5:15 PM**
Simon Street @ School Road Shelburne	**8:32 AM**	**11:16 AM**	**2:38 PM**	**5:22 PM**
Hansen Blvd. @ First St. (Orangeville Mall & GO Bus) Orangeville	**8:54 AM**	**11:38 AM**	**3:00 PM**	**5:44 PM**
Broadway & Fourth Street (TransitTransfer Station) Orangeville	**Arrival** **9:00 AM**	**Arrival** **11:44 AM**	**Arrival** **3:06 PM**	**Arrival** **5:50 PM**

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Grey Transit Route

ROUTE 2 NORTHBOUND
(Orangeville to Dundalk)

Monday - Friday

Broadway & Fourth Street (TransitTransfer Station) Orangeville	Departure 7:32 AM	Departure 9:36 AM	Departure 1:24 PM	Departure 6:23 PM
Hansen Blvd. @ First St. (Orangeville Mall & GO Bus) Orangeville	7:42 AM	9:46 AM	1:34 PM	6:33 PM
Victoria St. @ Red Front Store Ln. Shelburne	8:08 AM	10:12 AM	2:00 PM	6:59 PM
Fiddle Park Ln @ Greenwood Crescent Shelburne	8:15 AM	10:19 AM	2:07 PM	7:06 PM
Dundalk Arena 550 Main St. E., Dundalk	Arrival 8:30 AM	Arrival 10:34 AM	Arrival 2:22 PM	Arrival 7:21 PM

ROUTE 2 NORTHBOUND – WEEKEND SERVICE
(Dundalk to Orangeville)

Saturday & Sunday
(July 10 to December 12, 2021)

Broadway & Fourth Street (TransitTransfer Station) Orangeville	Departure 9:02 AM	Departure 11:46 AM	Departure 3:08 PM	Departure 5:52 PM
Hansen Blvd. @ First St. (Orangeville Mall & GO Bus) Orangeville	9:10 AM	11:54 AM	3:16 PM	6:03 PM
Simon Street @ School Road Shelburne	9:32 AM	12:16 PM	3:38 PM	6:25 PM
Victoria St.@ Red Front Store Ln. Shelburne	9:39 AM	12:23 PM	3:45 PM	6:32 PM
Fiddle Park Ln @ Greenwood Crescent, Shelburne	9:44 AM	12:28 PM	3:50 PM	6:37 PM
Col Phillips Dr. & Armstrong Rd. Shelburne	9:51 AM	12:35 PM	3:57 PM	6:44 PM
Dundalk Arena 550 Main St E, Dundalk	Arrival 10:06 AM	Arrival 12:50 PM	Arrival 4:12 PM	Departure 7:01 PM
Owen Sound Transit Terminal 1020 3rd Ave. E., Owen Sound				Arrival 7:55 PM

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ROUTE 3 EASTBOUND
(Meaford to Owen Sound)

Wednesday - Sunday

Owen Sound Transit Terminal 1020 3rd Ave. E., Owen Sound	**Departure 6:30 AM**	**Departure 8:06 AM**	**Departure 9:39 AM**	**Departure 11:21 AM**	**Departure 4:30 PM**	**Departure 6:06 PM**
Woodford Community Center 107 Woodford Cres, Owen Sound	**express (no stop)**	**8:27 AM**	**10:00 AM**	**express (no stop)**	**express (no stop)**	**6:27 PM**
Don Bumstead & Family Medical Clinic 206106, ON-26 Meaford	**express (no stop)**	**8:39 AM**	**10:12 AM**	**express (no stop)**	**express (no stop)**	**6:39 PM**
N Sykes St. @ Nelson St W. Meaford	**Arrival 7:00 AM**	**Arrival 8:42 AM**	**Arrival 10:15 AM**	**Arrival 11:51 AM**	**Arrival 5:00 PM**	**Arrival 6:42 PM**

ROUTE 3 WESTBOUND
(Meaford to Owen Sound)

Wednesday - Sunday

N Sykes St. @ Nelson St W, Meaford	**Departure 8:46 AM**	**Departure 10:28 AM**	**Departure 11:55 AM**	**No Stop**	**Departure 6:46 PM**
Don Bumstead & Family Medical Centre 206106, ON-26, Meaford	**8:53 AM**	**10:35 AM**	**12:02 PM**	**No Stop**	**6:53 PM**
Smart Centres Bus Stop 16th St E @ 18th Ave E, Owen Sound	**9:16 AM**	**10:58 AM**	**12:25 PM**	**Pick Up Only 4:15 PM**	**7:16 PM**
Grey Bruce Health Services Owen Sound Hospital 1800 8th St E, Owen Sound	**9:23 AM**	**11:05 AM**	**12:32 PM**	**Pick Up Only 4:18 PM**	**7:23 PM**
Georgian College 8th St. E., Owen Sound	**9:30 AM**	**11:12 AM**	**12:39 PM**	**Pick Up Only 4:21 PM**	**7:30 PM**
Owen Sound Transit Terminal 1020 3rd Ave. E., Owen Sound	**Arrival 9:35 AM**	**Arrival 11:17 AM**	**Arrival 12:44 PM**	**Arrival 4:26 PM**	**Arrival 7:35 PM**

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ROUTE 4 EASTBOUND
(Meaford to Town of the Blue Mountains)

Wednesday - Sunday

Downtown Meaford N Sykes St. @ Nelson St W, Meaford	**Departure** **7:04 AM**	**Departure** **8:46 AM**	**Departure** **5:04 PM**	**Departure** **6:46 PM**
Masse's Independent 206497 ON-26, Meaford	**7:11 AM**	**8:53 AM**	**5:11 PM**	**6:53 PM**
Thornbury Foodland 105 Arthur St W, Thornbury	**7:21 AM**	**9:03 AM**	**5:21 PM**	**7:03 PM**
Town of Blue Mountains Municipal Office 32 Mill St, The Blue Mountains	**7:27 AM**	**9:09 AM**	**5:27 PM**	**7:09 PM**
Blue Mountain Community Health Centre 78 King St E, Thornbury	**7:34 AM**	**9:16 AM**	**5:34 PM**	**7:16 PM**
Blue Mountain Village 156 Jozo Weider Blvd.	**Arrival** **7:51 AM**	**Arrival** **9:33 AM**	**Arrival** **5:51 PM**	**Arrival** **7:33 PM**

ROUTE 4 WESTBOUND
(Town of the Blue Mountains to Meaford)

Wednesday - Sunday

Blue Mountain Village 156 Jozo Weider Blvd.	**Departure** **7:55 AM**	**Departure** **9:37 AM**	**Departure** **5:55 PM**	**Departure** **7:37 PM**
Blue Mountain Community Health Centre 78 King St E, Thornbury	**8:16 AM**	**9:58 AM**	**6:16 PM**	**7:58 PM**
Town of Blue Mountains Municipal Office 32 Mill St, The Blue Mountains	**8:23 AM**	**10:05 AM**	**6:23 PM**	**8:05 PM**
Thornbury Foodland 105 Arthur St W, Thornbury	**8:29 AM**	**10:11 AM**	**6:29 PM**	**8:11 PM**
Masse's Independent 206497 ON-26, Meaford	**8:39 AM**	**10:21 AM**	**6:39 PM**	**8:21 PM**
Downtown Meaford N Sykes St. @ Nelson St W, Meaford	**Arrival** **8:42 AM**	**Arrival** **10:24 AM**	**Arrival** **6:42 PM**	**8:28 PM**
Owen Sound Transit Terminal 1020 3rd Ave. E., Owen Sound				**Arrival** **8:58 PM**

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ROUTE 5 NORTHBOUND
(Owen Sound to Wiarton to Sauble Beach)

Friday – Monday
(May 21 to September 6, 2021 *Including Holiday Mondays*)

Owen Sound Transit Terminal 1020 3rd Ave E, Owen Sound	**Departure** **7:17 AM**	**Departure** **12:17 PM**	**Departure** **8:17 PM**
Bergen's No Frills 1020 10th St W, Owen Sound	**7:27 AM**	**12:27 PM**	**8:27 PM**
Shallow Lake & District Community Centre 550 Princess St, Shallow Lake	**7:41 AM**	**12:41 PM**	**8:41 PM**
South Bruce Peninsula Visitor Centre 50 ON-6, Hepworth	**7:47 AM**	**12:47 PM**	**8:47 PM**
Wiarton Foodland 425 Berford St, Wiarton	**7:59 AM**	**12:59 PM**	**express** **(no stop)**
Downtown Wiarton Louisa St, @ George St, Wiarton	**8:07 AM**	**1:07 PM**	**express** **(no stop)**
Sauble Beach 104 2nd Ave N, Sauble Beach	**Arrival** **8:31 AM**	**Arrival** **1:31 PM**	**Arrival** **9:02 PM**

ROUTE 5 SOUTHBOUND
(Sauble Beach to Wiarton to Owen Sound)

Friday – Monday
(May 21 to September 6, 2021 *Including Holiday Mondays*)

Sauble Beach 104 2nd Ave N, Sauble Beach	**Departure** **8:33 AM**	**Departure** **1:33 PM**	**Departure** **9:04 PM**
Downtown Wiarton Louisa St, @ George St, Wiarton	**express** **(no stop)**	**1:59 PM**	**9:30 PM**
Wiarton Foodland 425 Berford St, Wiarton	**express** **(no stop)**	**2:07 PM**	**9:38 PM**
South Bruce Peninsula Visitor Centre 50 ON-6, Hepworth	**8:45 AM**	**2:19 PM**	**9:50 PM**
Shallow Lake & District Community Centre 550 Princess St, Shallow Lake	**8:51 AM**	**2:25 PM**	**9:56 PM**
Bergen's No Frills 1020 10th St W, Owen Sound	**9:05 AM**	**2:39 PM**	**10:10 PM**
Owen Sound Transit Terminal 1020 3rd Ave E, Owen Sound	**Arrival** **9:13 AM**	**Arrival** **2:47 PM**	**Arrival** **10:18 PM**

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Grey Transit Route

ROUTE 6 WESTBOUND
(Flesherton / Durham - Walkerton)

Monday and Friday

Flesherton Arena 103 ON-10, Flesherton	**Departure** **8:05 AM**	**Departure** **12:41 PM**	**Departure** **5:04 PM**
Durham Credit Union 118 Queen St S, Durham	**8:29 AM**	**1:05 PM**	**5:25 PM**
Hanover Municipal Office 341 10th St, Hanover	**8:50 AM**	**1:26 PM**	**5:46 PM**
Downtown Walkerton 306 Scott St, Walkerton	**Arrival** **9:03 AM**	**Arrival** **1:39 PM**	**Arrival** **5:59 PM**

ROUTE 6 EASTBOUND
(Walkerton - Durham / Flesherton)

Monday and Friday

Downtown Walkerton 306 Scott St, Walkerton	**Departure** **7:03 AM**	**Departure** **9:07 AM**	**Departure** **1:43 PM**	**Departure** **6:03 PM**
Hanover Municipal Office 341 10th St, Hanover	**7:20 AM**	**9:24 AM**	**2:00 PM**	**6:20 PM**
Durham Credit Union 118 Queen St S, Durham	**7:41 AM**	**9:45 AM**	**2:21 PM**	**6:41 PM**
Flesherton Arena 103 ON-10, Flesherton	**Arrival** **8:01 AM**	**Arrival** **10:05 AM**	**Arrival** **2:41 PM**	**Arrival** **7:01 PM**

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GTR

The Grey't Way To Travel

Route 5

6

Highway 6

Owen Sound to Wiarton to Sauble Beach

Adult (18+): $3.00
Adult (55+) and student (6-17): $2.50
Children 5 and under: Free
Operating: Friday to Monday

Telephone Number: 226-910-1001
Website: www.grey.ca/gtr

GTR

The Grey't Way To Travel

Route 1 & 2

Highway 10

Owen Sound to Orangeville

Adult (18+): $5.00
Adult (55+) and student (6-17): $4.50
Children 5 and under: Free

Operating:
Monday to Friday

Telephone Number: 226-910-1001
Website: www.grey.ca/gtr

GTR

The Grey't Way To Travel

Route 3 & 4

Highway 26

Owen Sound to The Blue Mountains

Adult (18+): $5.00
Adult (55+) and student (6-17): $4.50
Children 5 and under: Free

Operating:
Wednesday to Sunday

Telephone Number: 226-910-1001
Website: www.grey.ca/gtr

APPENDIX L

Owen Sound Trails Brochure and Grey County Cycling Map

Grey County
Colour It Your Way

Grey County
Cycling and Trails Master Plan

Draft October 2020

In addition to Maps 1a and 1b, the County's cycling loops were reviewed to understand roads and trails that are already promoted by the County as desirable routes for cyclists. These cycling loops are illustrated on the County's map of bike routes (here). Though most of these cycling loops do not have a formal facility, they were used as a starting point of the network development process. The County's cycling loops are organized into three categories – easy, moderate and advanced – and typically include a series of roads and / or trails that take advantage of the surrounding landscapes and views. **Figure 9** illustrates the County's cycling loops.

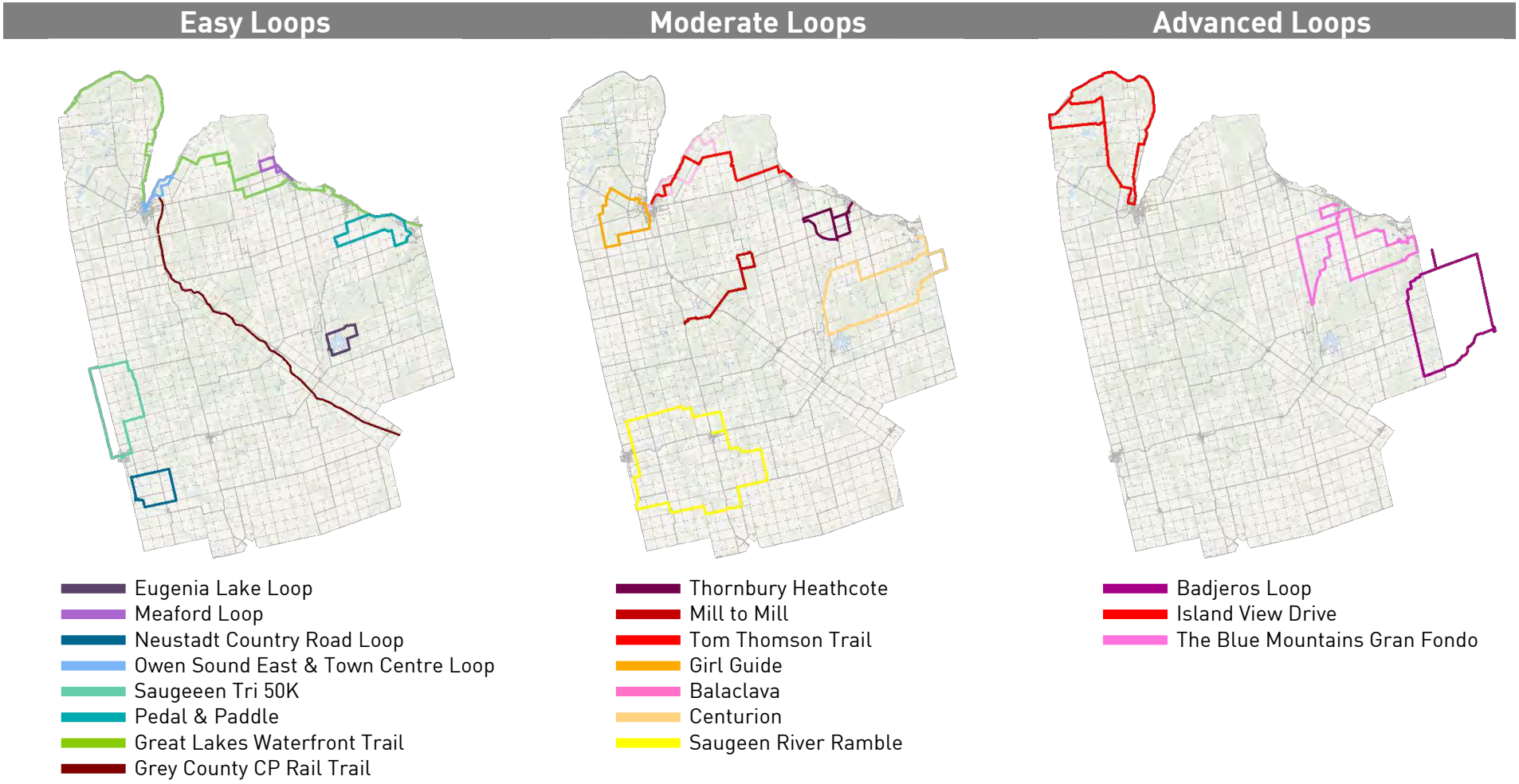


Figure 9 - Overview of Grey County's Cycling Loops

FEATURED HIKE
HARRISON PARK

(HIGHLIGHTED ON THE MAP)

Distance: 2.5km **Difficulty:** Easy

The Harrison Park loop is a beautiful walk through hardwood forest and open parkland on wide, hard-packed trails following the Sydenham River. It's accessible in all seasons and a popular place to snowshoe or cross-country ski in winter. The loop begins at the trail head and kiosk just east of the park entrance off 2nd Avenue East. It follows the river south to the Freedom Trail, commemorating the first black settlers of Owen Sound, the most northern "station" on the Underground Railway. Stop to view the Black History Cairn, and the interpretive plaques around it.

The trail continues south towards Harrison Park Inn, crossing the bridge near the duck pond to the east of it. Here, you will see blue blazes marking the Bruce Side Trail. Follow the trail south and across another bridge leading into the campground. Continue west past the pool to the Weaver's Creek Boardwalk and discover one of Owen Sound's treasured waterfalls, just beyond the boundary of Harrison Park. Be mindful that this is on private property. Quiet roads will take you back to the playgrounds and Harrison Park Inn, where you can fuel up with a meal or snack. The trails will lead you back to your starting point.

NINE BENDS

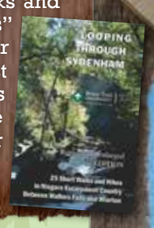
Distance: 0.5km
Difficulty: Moderate to Difficult

The Nine Bends Trail is one of many paths in Owen Sound that offer pedestrians a short-cut through the escarpment from one street to another. The Nine Bends is a steep, windy path that connects 1st Street West near Harrison Park to the Greenwood Cemetery.

THE BRUCE TRAIL

Distance: 45 km **Difficulty:** Various

The Bruce Trail is the longest and oldest footpath in Canada, stretching 886 kilometres from Niagara Falls to Tobermory along the Niagara Escarpment – a recognized world biosphere reserve. The trail forms a ribbon around Owen Sound, linking the Centennial Tower, Harrison Park, Inglis Falls, the West Rocks and Jones Falls. Look for white painted "blazes" on trees along the Bruce Trail to mark your path. Blue blazes denote a side trail. Most of the trails with white blazes are for hikers only. Bruce Trail guides are available at the Owen Sound Visitor Information Centre or from www.brucetrail.org.



FEATURED HIKE
PALISADES LOOP

(HIGHLIGHTED ON THE MAP)

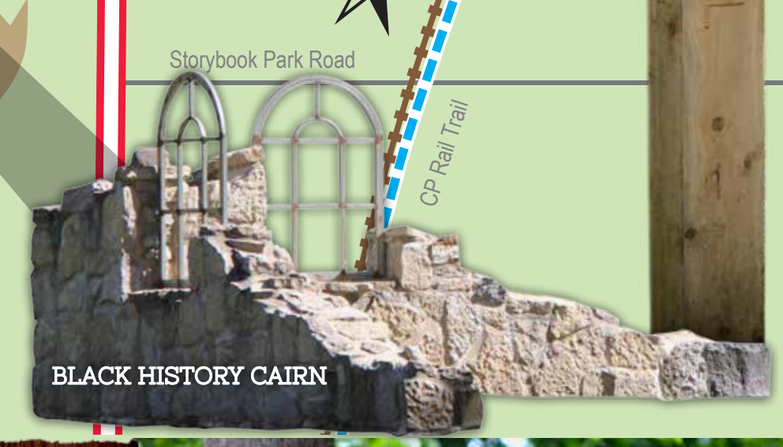
Distance: 1.8km
Difficulty: Moderate to Difficult

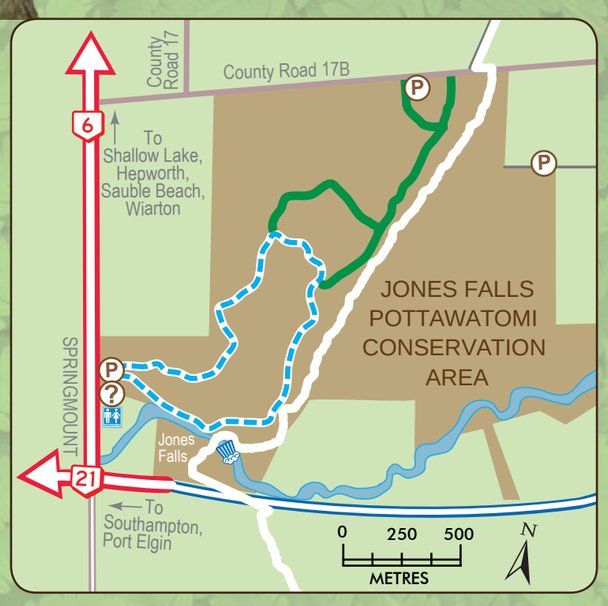
The Palisades loop of the Bruce Trail offers a rare chance to hike the lower talus of the Niagara Escarpment, hugging cliff walls that slope down to the Owen Sound valley below. The trail is rugged in areas, but showcases a spectacular range of flora, fauna and rock formations.

Access the trail from the south end of 7th Avenue East where the pavement ends. From the trail head on the east side of the street, walk a short 75 metres and turn right onto the Palisades Side Trail, marked with blue blazes. The trail climbs to an intersection with the Bruce Trail; turn left to complete a shorter loop back to the trail head, or continue on the Palisades Side Trail south, where it meets the main, trail again. Turn left to continue the Palisades loop, heading uphill over rocky terrain to a spectacular canyon with cliffs towering over you on both sides. You can reach the summit of the escarpment – the Raven's Nest – by taking a short side trail to the lookout.

Back on the main trail heading north keep your eyes open for an unmarked, narrow opening in the cliff face on your right. It leads to the "Devil's Playhouse," an enclave with rock "benches" and an overhang serving as a roof -- one of nature's many wonders on this loop.

The trail continues north to the Harrison Park Side Trail on your left; follow the blue blazes back to the trail head.





JONES FALLS
CONSERVATION AREA

Distance: 6 km of looped trails
Difficulty: Varied

The Pottawatomi River cascades 12 metres over the escarpment at Jones Falls, just west of Owen Sound. The trail cuts through large clusters of White Trillium in the spring and leads to a wonderful view of the surrounding lowlands. Cross the bridge for the best views, but watch your footing on the rocky terrain. Parking available at the Grey-Bruce Visitor Centre on Highway 6.

HIBOU
CONSERVATION AREA

Distance: 4.5 km of looped trails
Difficulty: Easy

The Hibou Conservation Area sports a natural, sandy beach and 4.5 kilometres of gentle, flat trails and boardwalks. Enjoy the 1.2-km Point Loop on the waterfront or the Main Trail, on the other side of the road. Park at the trail head on County Road 15 a short drive east of Owen Sound. Also accessible by bike via the Tom Thomson Trail. Open year-round, with snowshoeing and cross-country skiing in winter. Nominal parking fee in peak season.

INDIAN FALLS
CONSERVATION AREA

Distance: .7 km **Difficulty:** Challenging

The 20-minute hike along Indian Creek is vigorous, with steep hills and rocky terrain, but you are rewarded with sheer beauty when you reach Indian Falls, a 15-metre bridal veil falls at the end. The horseshoe-shaped waterfall is similar in formation to Niagara Falls. Parking available at the trail head off County Road 1 north of Owen Sound. Trail not maintained in winter.

RAIL TRAILS

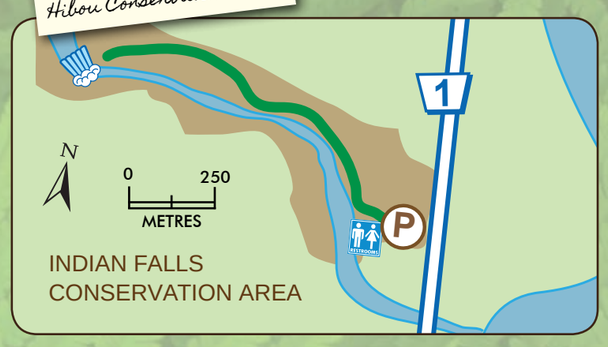
Distance: Various **Difficulty:** Moderate

The Georgian Bluffs Trail and the CP Rail Trail are two former railway trails open to the public. The hard-packed dirt and gravel trails are used primarily by off-road cyclists and snowmobilers. Access the Georgian Bluffs Trail from County Road 1 just north of the Georgian Shores Marina, where it continues 16 kilometres through scenic farmland to Park Head. The CP Rail Trail is 77 kilometres long, with coarse gravel in the southern sections.

INGLIS FALLS
CONSERVATION AREA

Distance: 7.4km of looped trails
Difficulty: Varied - Easy to Difficult

Severals trails fan out from Inglis Falls, the most popular waterfall in the region, with linkages to Harrison Park, West Rocks, Jones Falls and the city's Centennial Tower. The Bruce Trail is the main artery with side trails offering shorter, looped hikes within the Inglis Falls Conservation Area. Features include more than 20 species of ferns, bird watching, glacial potholes and an expansive view of the Owen Sound valley and harbour. Salmon and trout spawn in the Sydenham River below. Open year-round for hiking, snowshoeing and cross-country skiing with a nominal parking fee. Access off Inglis Falls Road, north of Country Road 18.



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OWEN SOUND TRAILS NETWORK

LEGEND

- Trail Kiosk
- Washrooms
- Parking
- Campground
- Boat Launch
- Parks & Recreational Land
- Grey Sauble Conservation Land
- Grey County Forests Land
- Waterfall
- Lookout Point
- Salmon Tour Viewing
- Paddle Access
- Skateboard Park
- Visitor Information
- Bridge

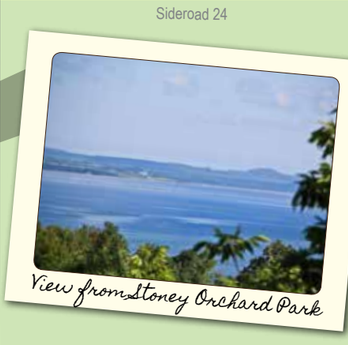
TRAILS

- Bruce Trail
- Bruce Side Trail
- Grey Sauble Conservation Trails
- Rail Trail
- City of Owen Sound Trails
- Catwalks & Connector Paths
- Derby Forest Trails
- Tom Thomson Trail
- Featured Cycling Route
- Featured Hiking Routes

OWEN SOUND TRAILS link to key attractions throughout and near the city, such as the Centennial Lookout Tower, Black History Cairn, Weavers Creek Falls, Inglis Falls and Jones Falls Conservation Areas, Harrison Park and Greenwood Cemetery, the burial ground of three Victoria Cross winners and many of the city's luminaries. The very short trails on the maps show pedestrian links between city streets, the so-called "catwalks" of Owen Sound that offer short-cuts through the rocky escarpment. Whatever your mode of transport, enjoy and respect our public trails.


Indian Falls


Waterfront Trail


View from Stoney Orchard Park

WATERFRONT TRAIL

Distance: 3km Difficulty: Easy

Explore Owen Sound's harbour along this 3-kilometre trail that stretches from Kelso Beach Park to the city's East Boat Launch, with historic interpretive plaques along the way. The trail passes by the Visitor Information Centre, the Owen Sound Marine & Rail Museum and the Harry Lumley Bayshore Community Centre, gardens, playground and beach. Cyclists can continue along the Tom Thomson Trail to the east or the Georgian Bluffs Rail Trail beyond Kelso Beach Park to the west. Kelso Beach has a playground and splash pad for youngsters. The Waterfront Trail is not maintained in winter.

STONEY ORCHARD PARK

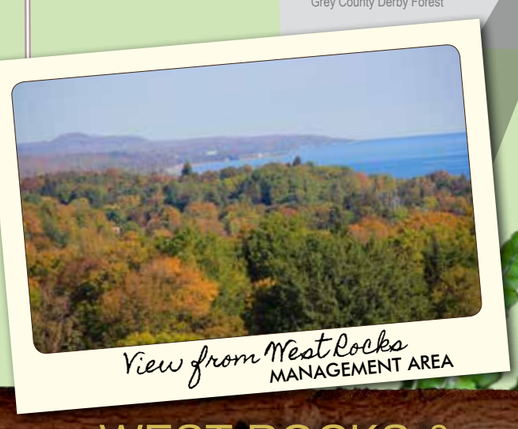
Distance: 2km looped trails Difficulty: Easy

Stoney Orchard Park offers access to kilometres of flat, wide stone dust trails accessible to all recreational users. Along the western edge, marvel at the cliff-top views of Georgian Bay below. The trail system links with quiet city streets and paths to offer access to a number of other areas, including the Kiwanis Soccer Complex, the Tom Thomson Trail, the Harbourfront Trail, Heritage Place Mall, the Julie McArthur Regional Recreation Centre and downtown Owen Sound. Parking available off 23rd Ave. East near Ecole St. Dominique Savio. Open all seasons.

TOM THOMSON TRAIL

Distance: 43.4 km Difficulty: Easy to Challenging

Named after the iconic Canadian painter Tom Thomson, this recreational cycling trail leads from Owen Sound to Leith, the small village that Thomson called home during his childhood years, and the place he is now buried. The Hibou Conservation Area and trails are just south of the village. The Tom Thomson Trail continues on to Meaford, where it connects with the Georgian Trail to Collingwood.


View from West Rocks MANAGEMENT AREA

WEST ROCKS & DERBY FOREST TRAILS

Distance: 13km **Difficulty:** Moderate

The West Rocks trail system consists of the Bruce Trail, offering spectacular views of the City and beyond from the western bluffs, and the Derby Forest trails that loop behind the main trail and are often used by off-road cyclists. A feature of the West Rocks trail is the former limestone quarry that provided the foundation of many historic homes in Owen Sound. You can access the West Rocks Trails on foot at 7th Street West and 7th Avenue West.

CATWALKS & PATHS

The City of Owen Sound lies in a river valley carved deep into the Niagara Escarpment, which is hilly itself, and that presents challenges in terms of getting around. The solution: pedestrian "catwalks" or paths linking streets to one another. Owen Sound has many of these short-cuts, some iron stairways (maintenance-free in winter), and some paved pathways. Most are steep and not for the faint of heart.

FEATURED CYCLE ROUTE

(HIGHLIGHTED ON THE MAP)

Distance: 21km

Difficulty:
Moderate to challenging

There are numerous cycling routes in and around Owen Sound, for both road riders and those who prefer to hit the trail. Here is a route that incorporates both roads and trails, urban and rural scenery, forest paths and harbour views. The Keeling Side Trail near Inglis Falls is rugged and not suitable for road bikes. The route can be started at any point, but keep in mind there are steep hills heading south along the Nine Bends Trail and south on Inglis Falls Road towards the falls. The CP Rail Trail from Rockford to Owen Sound Harbour has a nice downhill grade. Parking and washrooms are available at Inglis Falls and the Bayshore Community Centre.

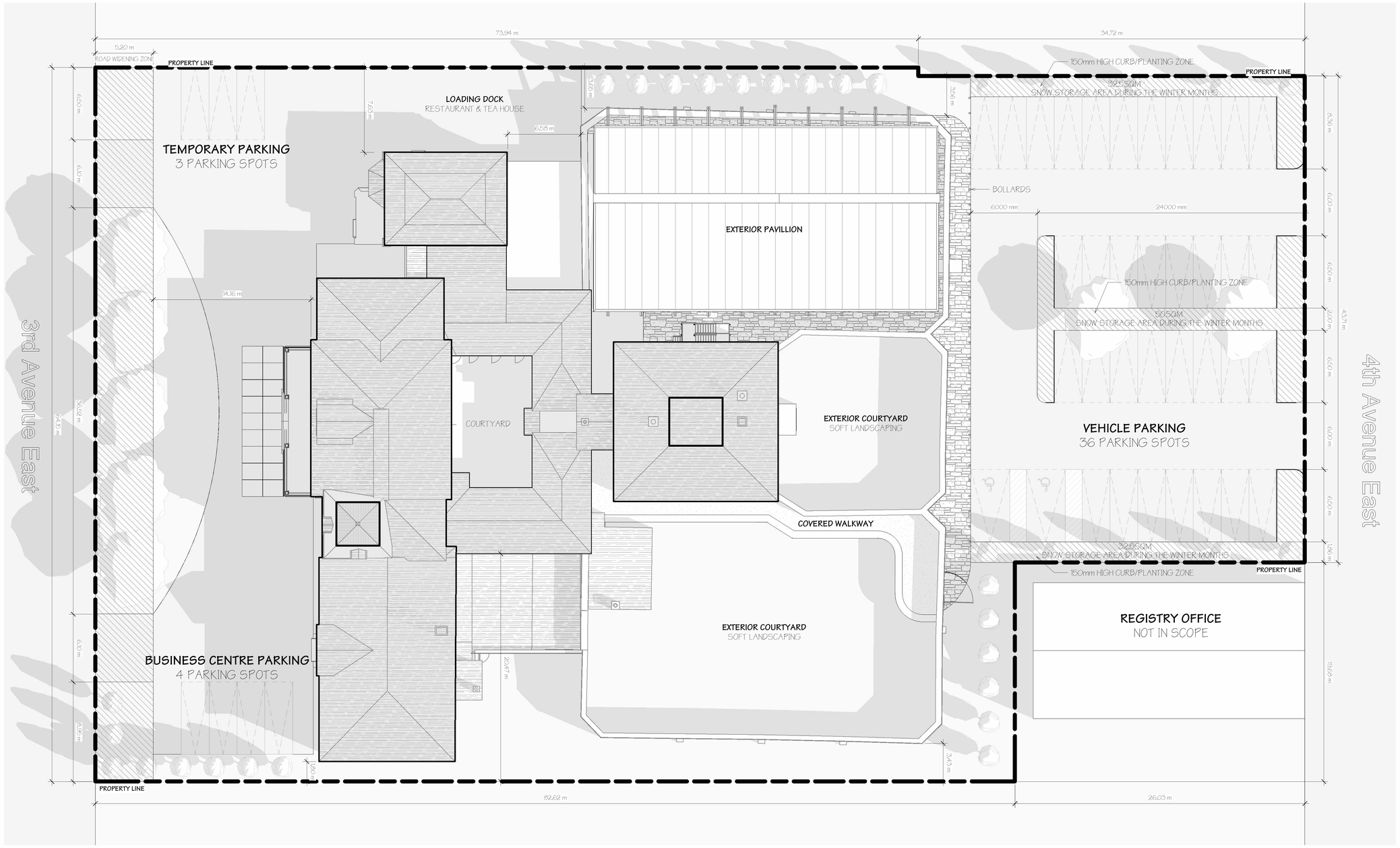

Inglis Falls

List of Figures

ZONING DESIGNATION	**EXISTING ZONING** : Institutional **PROPOSED ZONING**: Mixed Use Commercial
LEGAL DESCRIPTION	LOTS 15 & 16 EAST OF BAY ST & LOTS 15 & 16 WEST OF HILL ST
PROPERTY ADDRESS	1234 & 1259 3rd AVENUE EAST, OWEN SOUND, ONTARIO
OWNERSHIP	FC Hospitality & Entertainment Inc.

SITE SPECIFICS	EXISTING	PROPOSED
Building Use	Vacant	Mixed-Use Commercial
Lot Area	6434.26 sq.m	No Change
Lot Coverage	21.10 %	20.5 %
GFA	1995 sq.m	2050 sq.m
Front Yard Setback	14.16 m	No Change
Side Yard Setback (N)	3.56 m	No Change
Side Yard Setback (S)	1.8 m	No Change
Rear Yard Setback	31.35 m	No Change
Landscaped Surface	54 %	33.5 %

INFORMATION TAKEN FROM PLAN OF SURVEY



Revision Schedule

No.	Description	Date
1	Issued for Pre-Consultation Meeting	2022-10-14
2	Issued for Client Review	2022-12-09
3	Issued for OPA/ZBA - Submission 1	2023-04-20

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Web boldera.ca

FC Entertainment & Hospitality Inc.

Royal Rose Court

1235 & 1259 3rd Avenue East
Owen Sound, ON N4K 2L6

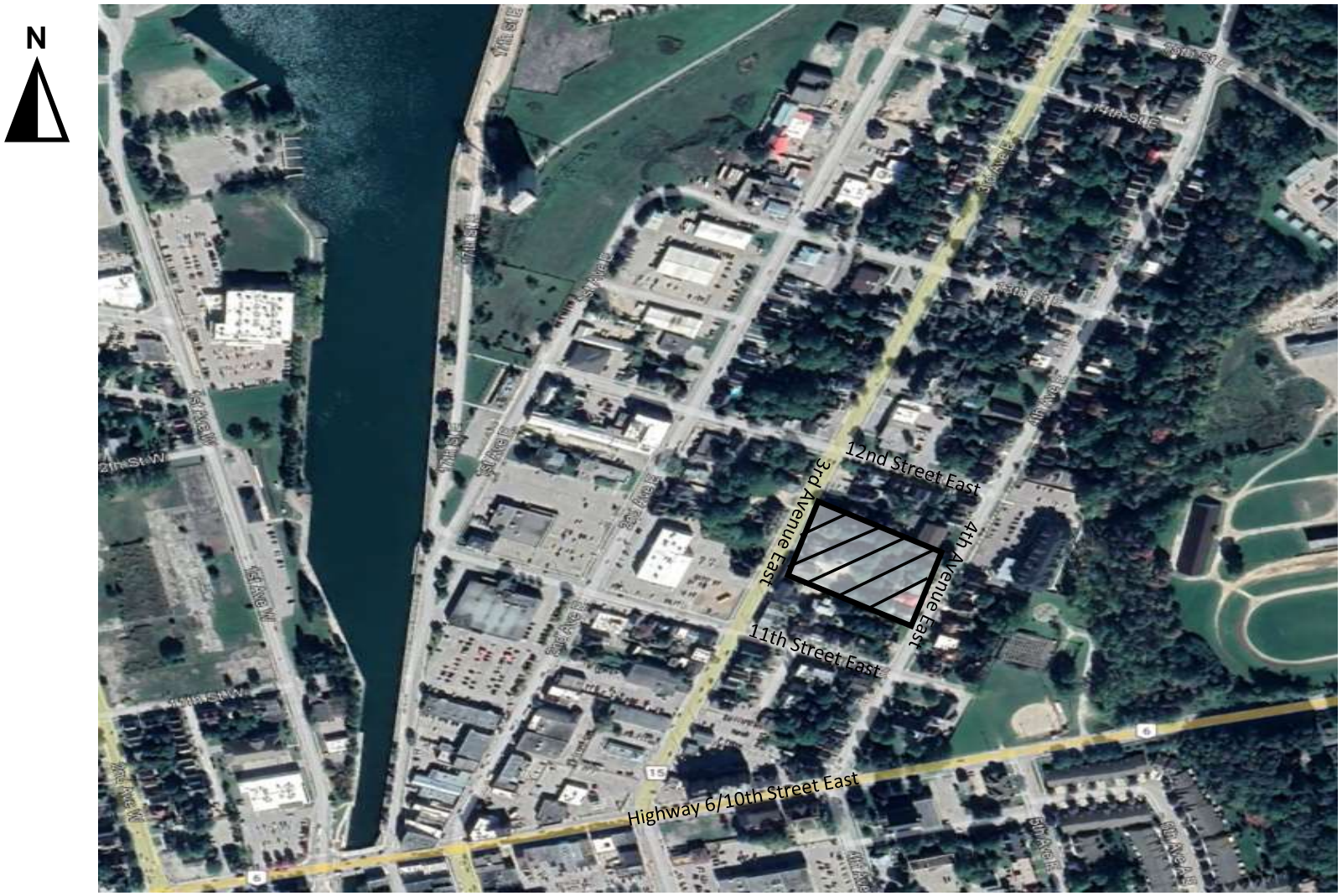
SITE PLAN

OPA/ZBA Application		Date	**2023-04-20**
Project Number	**22.0056.00**	Scale	**1 : 128**
Drawn by	**ER**	Checked by	**ER**

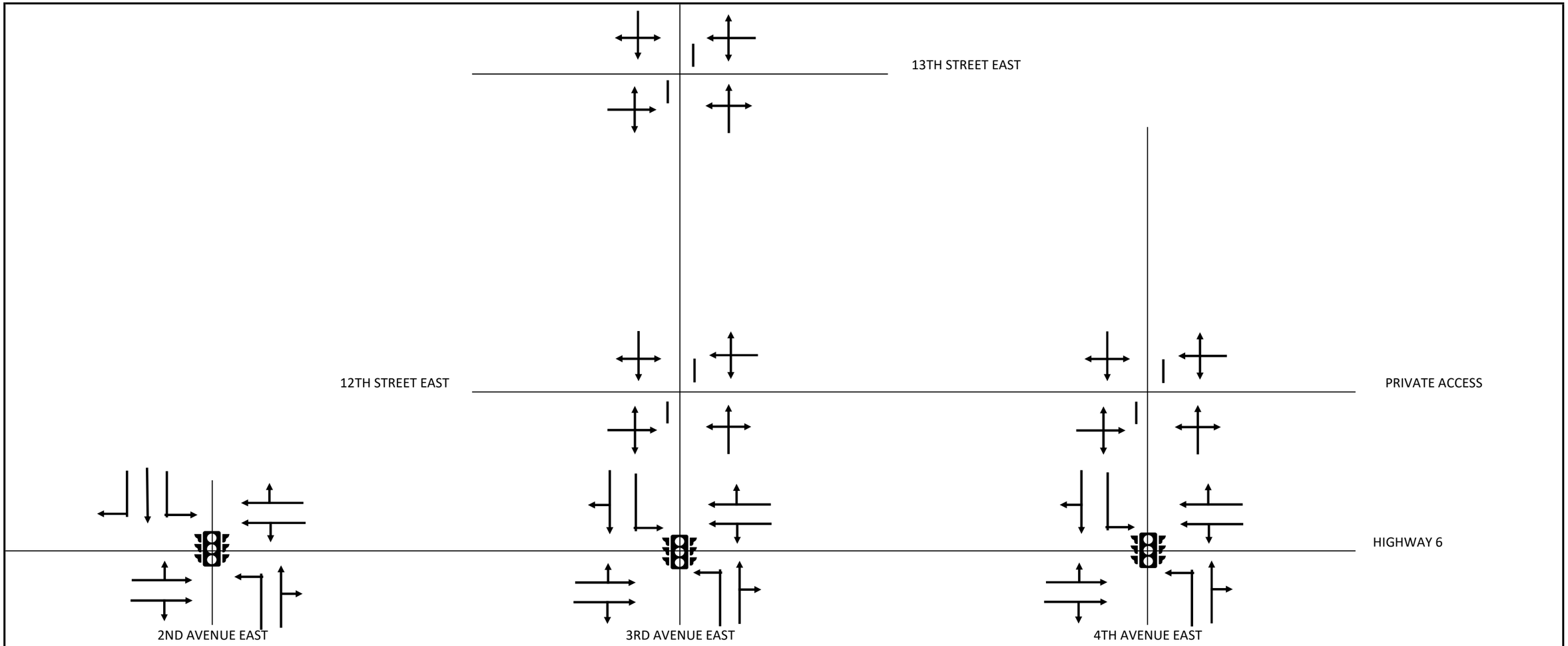
AP-001

NOT FOR CONSTRUCTION

4/20/2023 2:54:48 PM



Legend	1235 3rd Avenue East City of Owen Sound	CROZIER CONSULTING ENGINEERS	Figure 2
Location of the Site	Site Location		Project No. 1733-6596 Date: May 2023 Analyst. D.B.



LEGEND:

TRAFFIC SIGNAL

STOP SIGN

DRAWING NAME:

EXISTING TRAFFIC CONTROLS AND CONFIGURATION

PROJECT NAME:

1235 3RD AVENUE EAST
CITY OF OWEN SOUND

DESIGNED BY:	DB
DRAWN BY:	DB
CHECKED BY:	KH
DATE:	May-23

CROZIER CONSULTING ENGINEERS
1 First Street, Suite 200
Collingwood, ON
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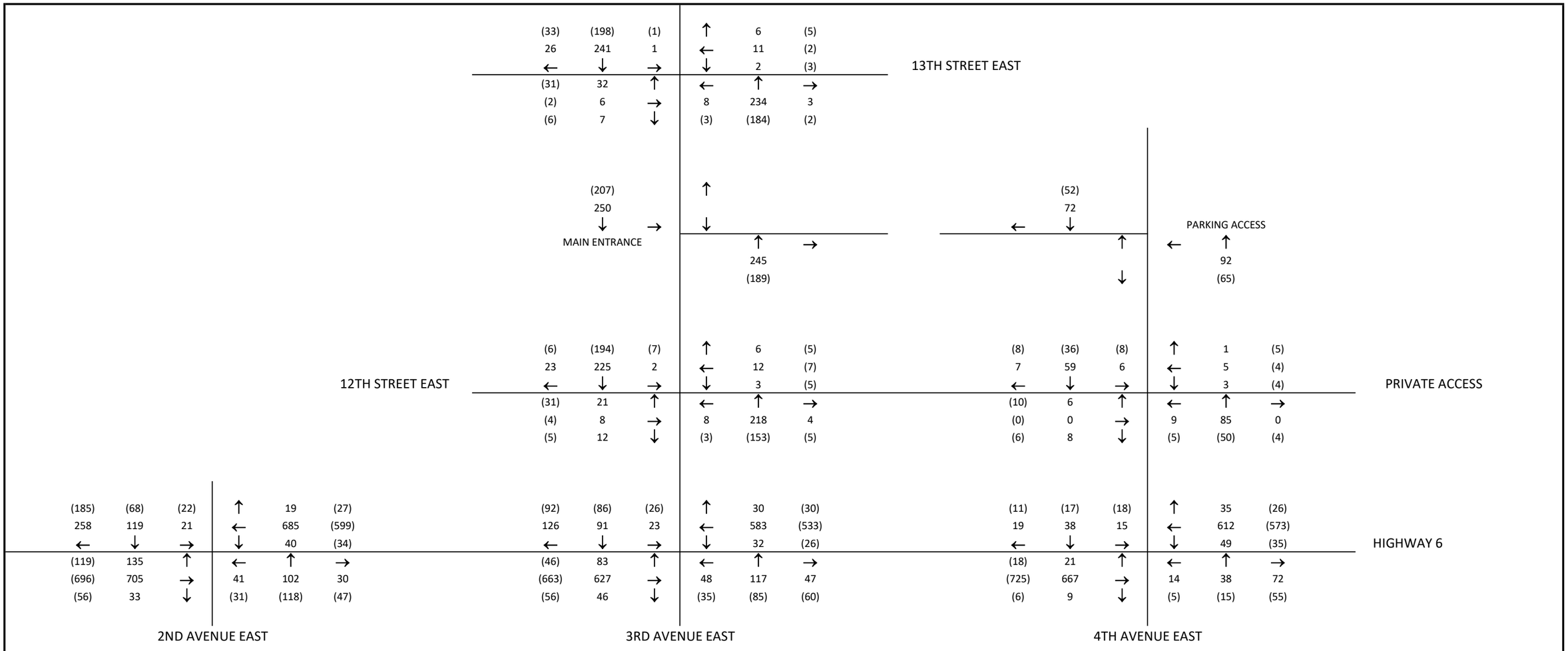
PROJECT NO. 1733-6596

FIGURE NO. 3



LEGEND:

##(##) FRIDAY P.M. PEAK HOUR (SATURDAY PEAK HOUR)

DRAWING NAME: 2023 EXISTING VOLUMES

PROJECT NAME: 1235 3RD AVENUE EAST CITY OF OWEN SOUND

DESIGNED BY:	DB
DRAWN BY:	DB
CHECKED BY:	DB
DATE:	May-23

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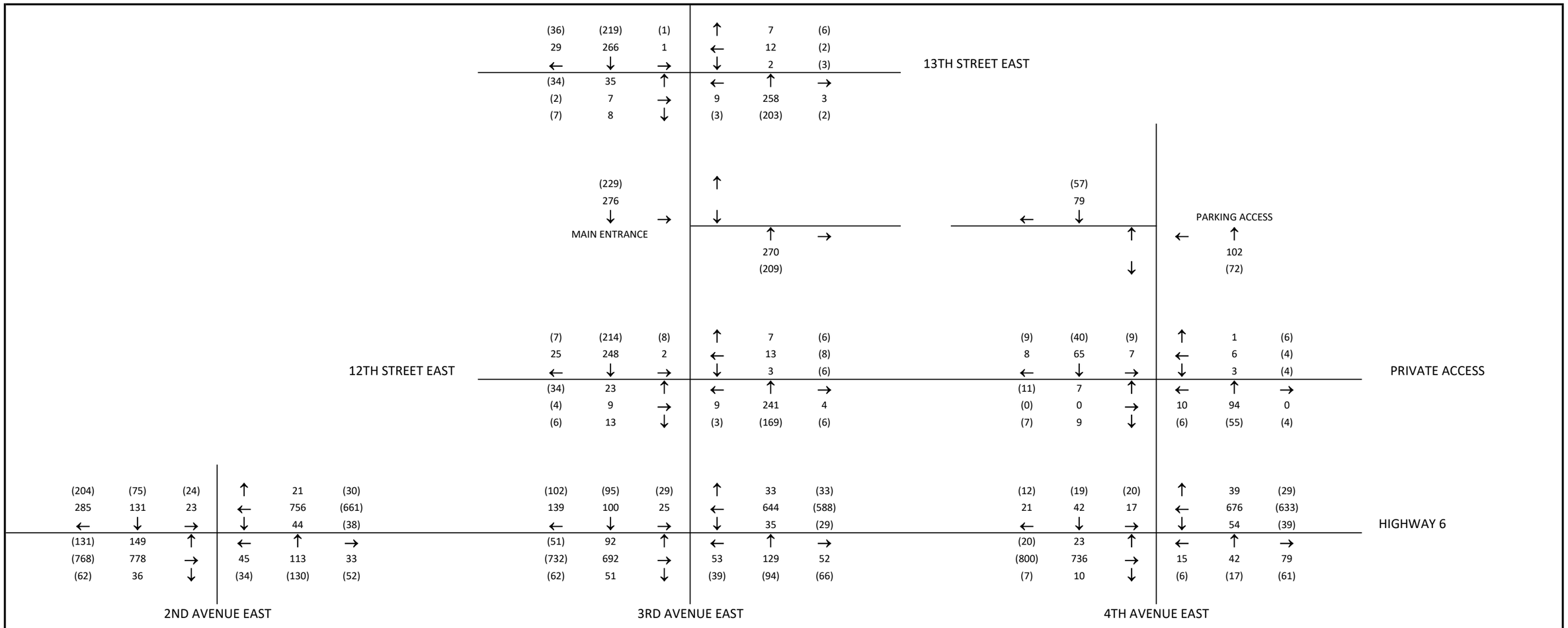
PROJECT NO. 1733-6596

FIGURE NO. 4



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DRAWING NAME: 2028 FUTURE BACKGROUND VOLUMES

PROJECT NAME: 1235 3RD AVENUE EAST CITY OF OWEN SOUND

DESIGNED BY: DB

DRAWN BY: DB

CHECKED BY: DB

DATE: May-23

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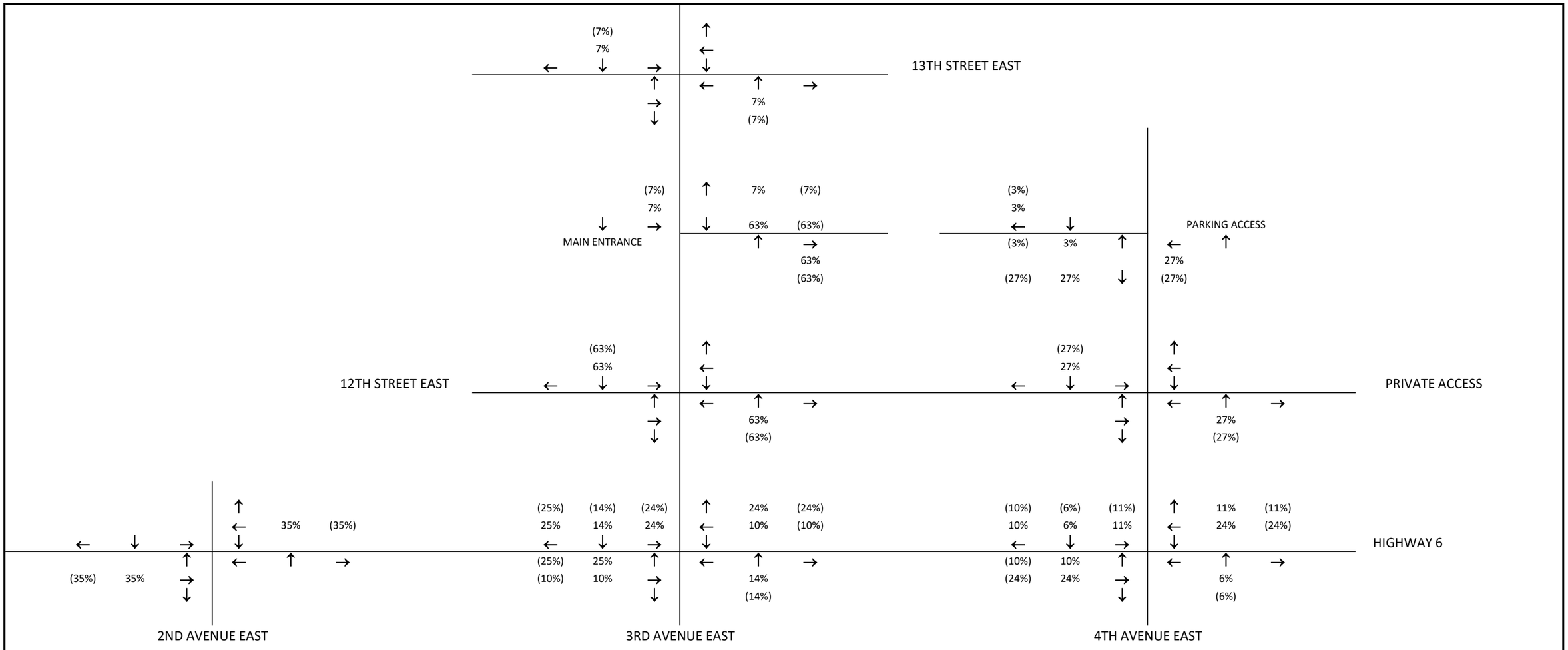
PROJECT NO. 1733-6596

FIGURE NO. 5



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DRAWING NAME: TRIP DISTRIBUTION

PROJECT NAME: 1235 3RD AVENUE EAST CITY OF OWEN SOUND

DESIGNED BY:	DB
DRAWN BY:	DB
CHECKED BY:	DB
DATE:	May-23

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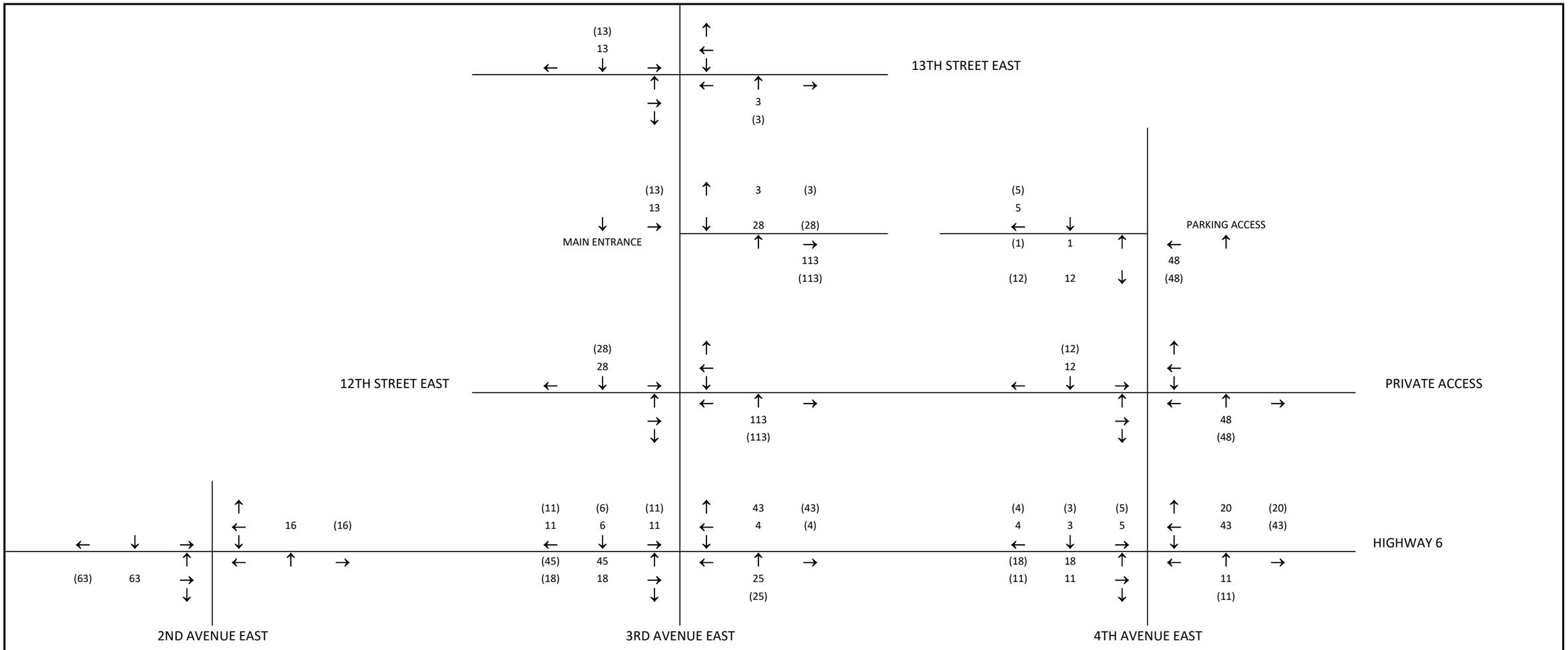
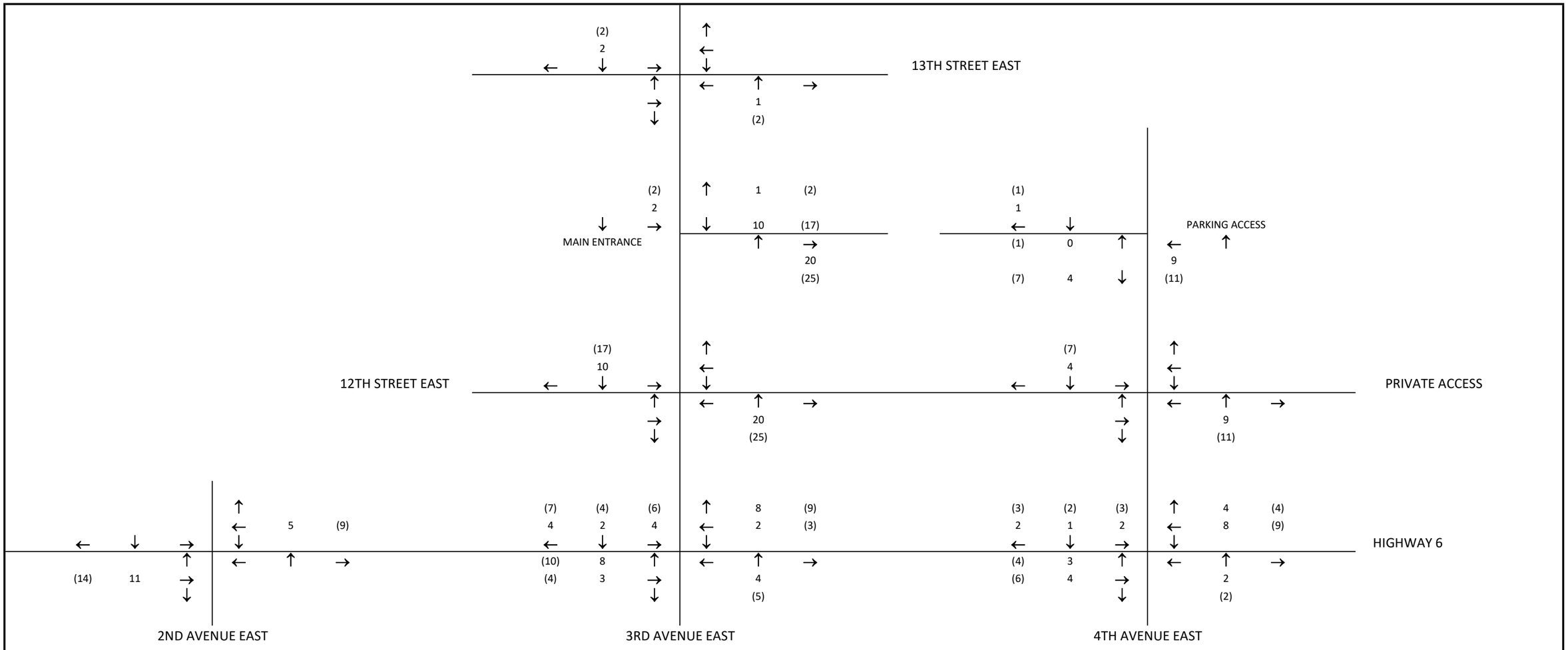
PROJECT NO. 1733-6596

FIGURE NO. 6



LEGEND: ##(##) FRIDAY P.M. PEAK HOUR (SATURDAY PEAK HOUR)	DRAWING NAME: EVENT VENUE TRIP ASSIGNMENT PROJECT NAME: 1235 3RD AVENUE EAST CITY OF OWEN SOUND	DESIGNED BY: DB DRAWN BY: DB CHECKED BY: DB DATE: May-23	CROZIER CONSULTING ENGINEERS 1 First Street, Suite 200 Collingwood, ON L9Y 1A1 T. 705.446.3510 F. 705.446.3520 cfcrozier.ca PROJECT NO. 1733-6596 FIGURE NO. 7



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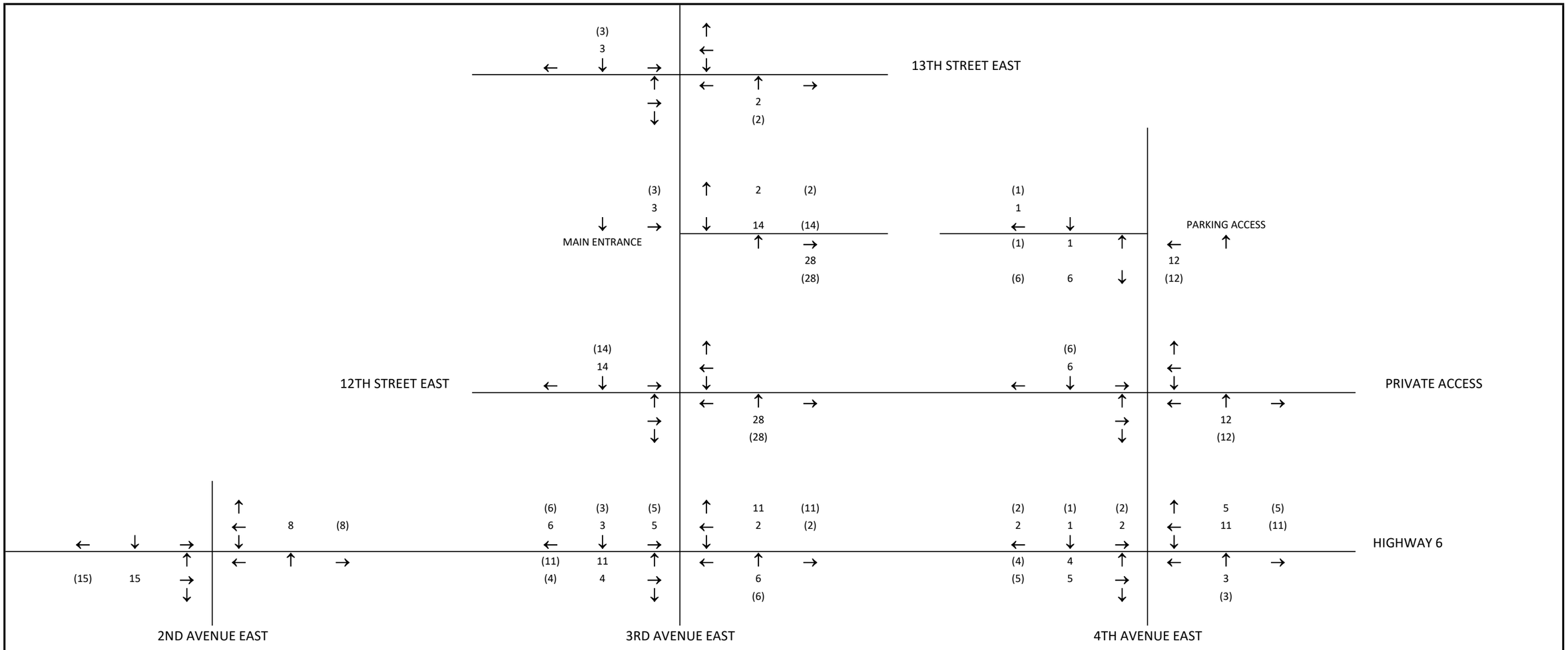
	PROJECT NAME: 1235 3RD AVENUE EAST CITY OF OWEN SOUND	DATE: May-23	PROJECT NO. 1733-6596 FIGURE NO. 8



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DRAWING NAME: SPEAKEASY TRIP ASSIGNMENT

PROJECT NAME: 1235 3RD AVENUE EAST CITY OF OWEN SOUND

DESIGNED BY:	DB
DRAWN BY:	DB
CHECKED BY:	DB
DATE:	May-23

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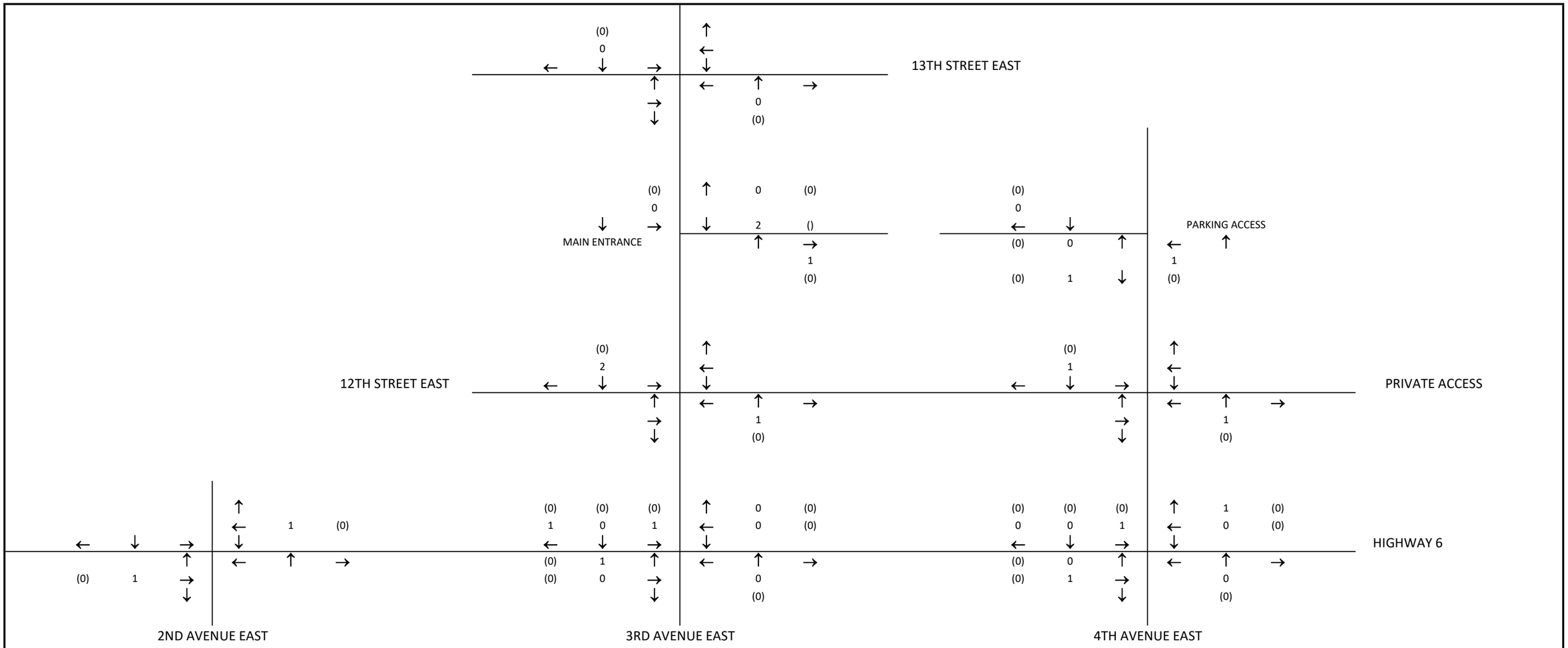
PROJECT NO. 1733-6596

FIGURE NO. 9



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DRAWING NAME: OFFICE TRIP ASSIGNMENT

PROJECT NAME: 1235 3RD AVENUE EAST CITY OF OWEN SOUND

DESIGNED BY:	DB
DRAWN BY:	DB
CHECKED BY:	DB
DATE:	May-23

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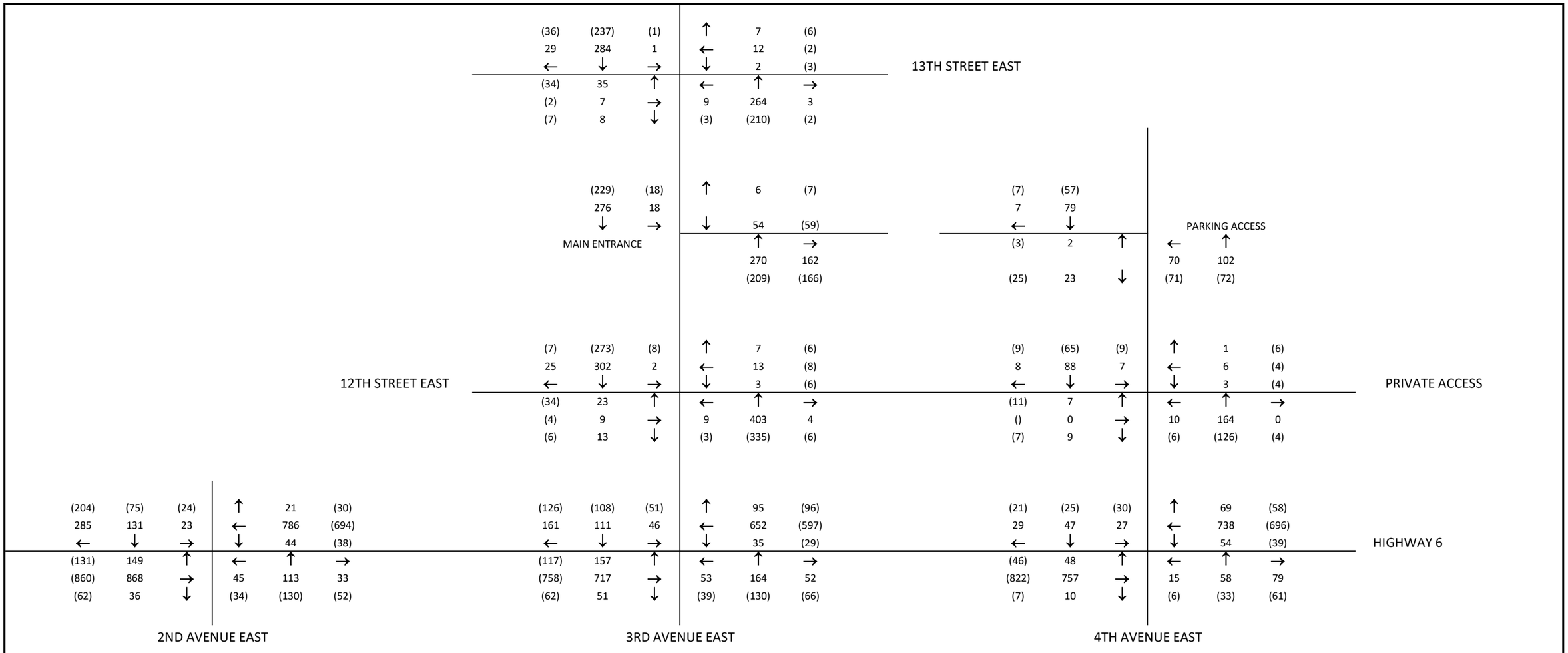
PROJECT NO. 1733-6596

FIGURE NO. 10



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DRAWING NAME:

2028 FUTURE TOTAL VOLUMES

PROJECT NAME:

1235 3RD AVENUE EAST
CITY OF OWEN SOUND

DESIGNED BY: DB

DRAWN BY: DB

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DATE: May-23

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FIGURE NO. 11