Traffic Impact Study

Part of Lots 7 & 8 North of Queen Street and Part of Lot 31 Concession Road 8

WDD Main Street

28 June 2024

→ The Power of Commitment

Executive Summary

GHD Limited is pleased to provide the following updated Traffic Impact Study in support of the proposed residential development located on part of lots 7 & 8 North of Queen Street and Part of lot 31 Concession 8, located generally southeast of the intersection of Highway 6 and Badenoch Street in the Township of Puslinch. This updated report addresses comments received from the second submission.

This report determines the site related traffic and subsequent traffic related impacts on the adjacent road network during the weekday a.m. and p.m. peak hours. These impacts are based on the projected future background traffic and road network conditions derived for a 2024, 2029 and 2034 future planning horizon year.

The proposed Draft Plan of Subdivision has been prepared by Weston Consulting and consists of 21 detached dwelling units.

Access to the development is proposed via an extension of Ochs Street, providing a direct connection to Badenoch Street at an existing full moves unsignalized intersection.

The study intersections included in the analysis include:

- Highway 6 and Badenoch Street/Calfass Road
- Badenoch Street and Ochs Street
- Ochs Street and Back Street

Based on ITE Trip Generation rates, the proposed development is expected to generate a total of 20 new two-way trips during the weekday a.m. peak hour consisting of 5 inbound and 15 outbound trips and 25 new two-way trips during the weekday p.m. peak hour consisting of 16 inbound and 9 outbound trips.

Under existing conditions, all study intersections are operating with acceptable v/c ratios and delays.

The planned Morriston Bypass was not included in the analysis of future traffic scenarios, as a result, the analysis presented in this report is conservative as it does not account for any reduction in traffic volumes along the existing Highway 6 alignment that will occur once the new alignment is completed.

In the future 2024, 2029 and 2034 horizon years, the intersections continue to operate at mostly satisfactory levels with the intersection of Hwy 6 and Badenoch Street/Calfass Road operating with some critical movements however all movements operating with v/c ratios of less 1.0. The unsignalized intersections of Badenoch Street with Ochs Street and Ochs Street with Back Street are reported to operate with low v/c ratios and delays and no critical movements up to the 2034 horizon year.

The overall impact of the development generated traffic was found to be negligible to the operation of the study area intersections and traffic flow along Highway 6 and Badenoch Street. The site traffic does not result in any turning movements increasing to critical levels, all critical movements under the future traffic scenarios are a result of the assumed corridor growth rate.

Application of the current Township of Puslinch's Comprehensive Zoning By-Law parking rates to the subject site results in a requirement of a minimum of 2 parking spaces per dwelling unit. The minimum By-law parking requirement of 2 spaces per dwelling unit will be satisfied with the provision of garage and driveway parking.

A sightline assessment of vehicles exiting from Och Street onto Badenoch Street was completed in the field, it confirmed that there is sufficient sightlines to satisfy the TAC requirements for a 60 km/h design speed for passenger vehicles and snowplow vehicles. A speed study was completed along Badenoch Street in the general vicinity of the crest of the road to the west of Ochs Street and the results indicated that the eastbound direction had an 85th percentile speed of 61 km/h.

The existing intersection of Badenoch Street and Och Street has an existing retaining wall within the County right-of-way that limits sightline visibility for outbound traffic exiting Och Street to see an oncoming vehicle travelling

eastbound on Badenoch Street. It is recommended that the retaining wall be relocated to provide the required sightline. A design for the relocation of the retaining wall has been prepared by Crozier Consulting Engineers.

The subject site proposes to generally use the Township's 20-metre Urban cross-section along Street "A".

We trust that this satisfies your requirements, but do not hesitate to contact the undersigned if you have any questions.

Sincerely,

GHD

William Maria, P. Eng.

Transportation Planning Lead

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1. Introduction

1.1 Retainer and Objective

GHD Limited was retained to prepare a Traffic Impact Study in support of the proposed residential development located on part of lots 7 & 8 North of Queen Street and Part of lot 31 Concession 8, located generally southeast of the intersection of Highway 6 and Badenoch Street in the Township of Puslinch.

The updated TIS report, dated June 2024, is in response to comments provided by the Township of Puslinch from their review of the second submission, dated December 2023. The Township expressed concern with having the site's access on Ochs Street due to potential sightline concerns at the intersection of Badenoch Street and Ochs Street. The TIS has also been updated to address the concern related to the sightline issues at the existing intersection. The response to the comments from the previous submission are provided in **Appendix F.**

The site location is illustrated in **Figure 1**.

The purpose of this study is to:

- Establish baseline traffic conditions for the study area in 2023 and determine future background operating conditions for a future planning horizon in 2024, 2029, and 2034.
- Utilize Institute of Transportation Engineer's (ITE) Trip Generation data and first principles to estimate the site trips generated by the proposed development and distribute the traffic to the adjacent road network.
- Determine future operating traffic conditions during the weekday peek periods through intersection capacity analysis.

1.2 Study Team

The GHD team involved in the preparation of the study are:

- William Maria, P. Eng., Transportation Planning Lead
- Rafael Andrenacci, B.Eng., Transportation Planner

Figure 1 Site Location

2. Site Characteristics

2.1 Study Area

The following intersections were included in the study area:

- Highway 6 and Badenoch Street/Calfass Road
- Badenoch Street and Ochs Street
- Ochs Street and Back Street

2.2 Proposed Development Content

A draft plan of subdivision was prepared by Weston Consulting, dated May 2024 and is shown in **Figure 2**. The proposed residential development consists of 21 single detached lots.

Access to the proposed development is proposed primarily an extension of Ochs Street south of its intersection with Back Street. Lot 1 will be the only lot that will have a connection onto Main Street.

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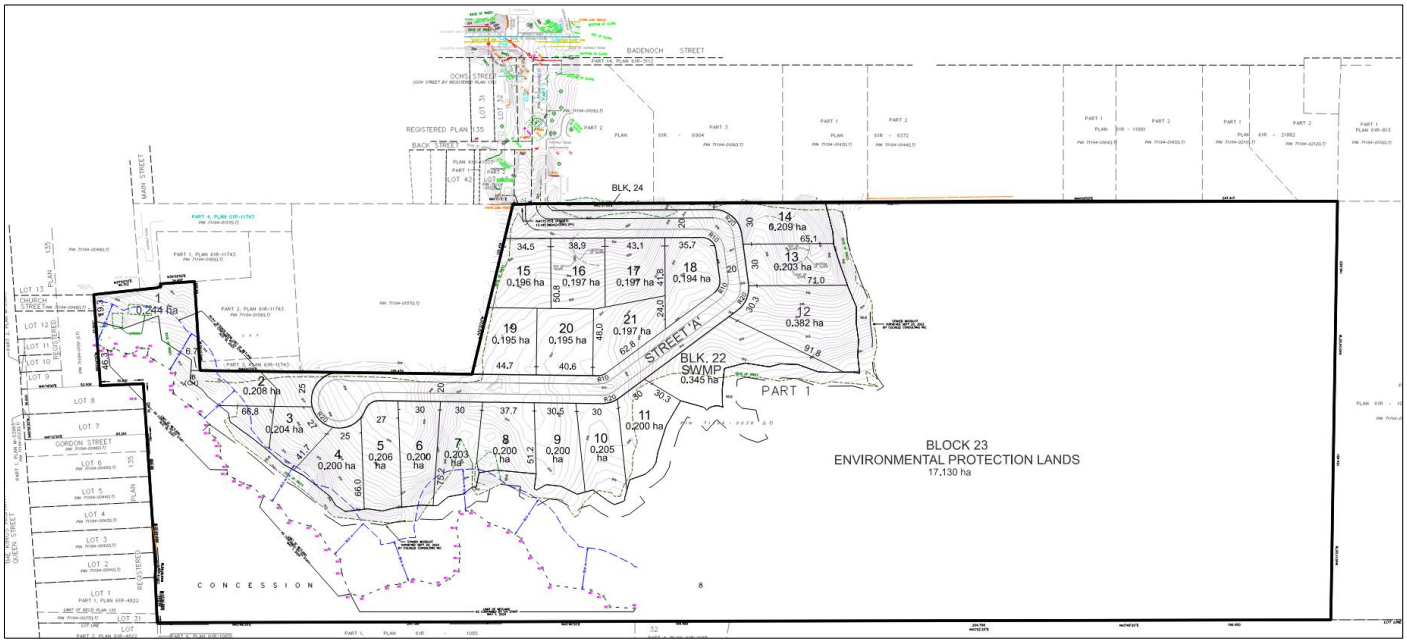


Figure 2 Proposed Draft Plan

3. Existing Conditions

3.1 Existing Road Network

Highway 6 is a north/south 2B arterial road under the jurisdiction of the Ministry of Transportation. Within the study area it has a three-lane cross-section north of its intersection with Badenoch Street/Calfass Road and a two-lane cross-section south of it, with the three-lane cross-section including a two-way left-turn lane in the centre lane. Its intersection with Badenoch Street/Calfass Road is signalized, with an auxiliary left-turn lane in both the northbound and southbound directions. Within the study area, Highway 6 has a posted speed limit of 50 km/h.

Badenoch Street (Wellington Road 36) is an east/west County Road under the jurisdiction of the County of Wellington. Within the study area it has a two-lane cross-section. Its intersection with Highway 6 is signalized with an auxiliary right-turn lane provided in the westbound direction. Its intersection with Ochs Street is unsignalized with the stop-control only provided on the minor approach onto Badenoch Street. West of its intersection with Highway 6, Badenoch Street continues as Calfass Road. The posted speed limit along Badenoch Street is 50 km/h.

Ochs Street is a north/south local road under the jurisdiction of the Township of Puslinch with a two-lane cross-section within the study area. Its intersection with Badenoch Street is unsignalized with the stop-control only provided on the minor approach onto Badenoch Street. Ochs Street currently terminates in the south at Back Street and continues towards the west as Back Street with no stop-controls. The assumed posted speed limit along Ochs Street is 50 km/h.

Back Street is an east/west local road under the jurisdiction of the Township of Puslinch with a two-lane cross-section within the study area. Back Street terminates in the west at Ochs Street and continues towards the north along Ochs Street with no stop-controls at the intersection of Ochs Street and Back Street. The assumed posted speed limit along Back Street is 50 km/h.

The existing lane configuration within the study area is shown in the figure below

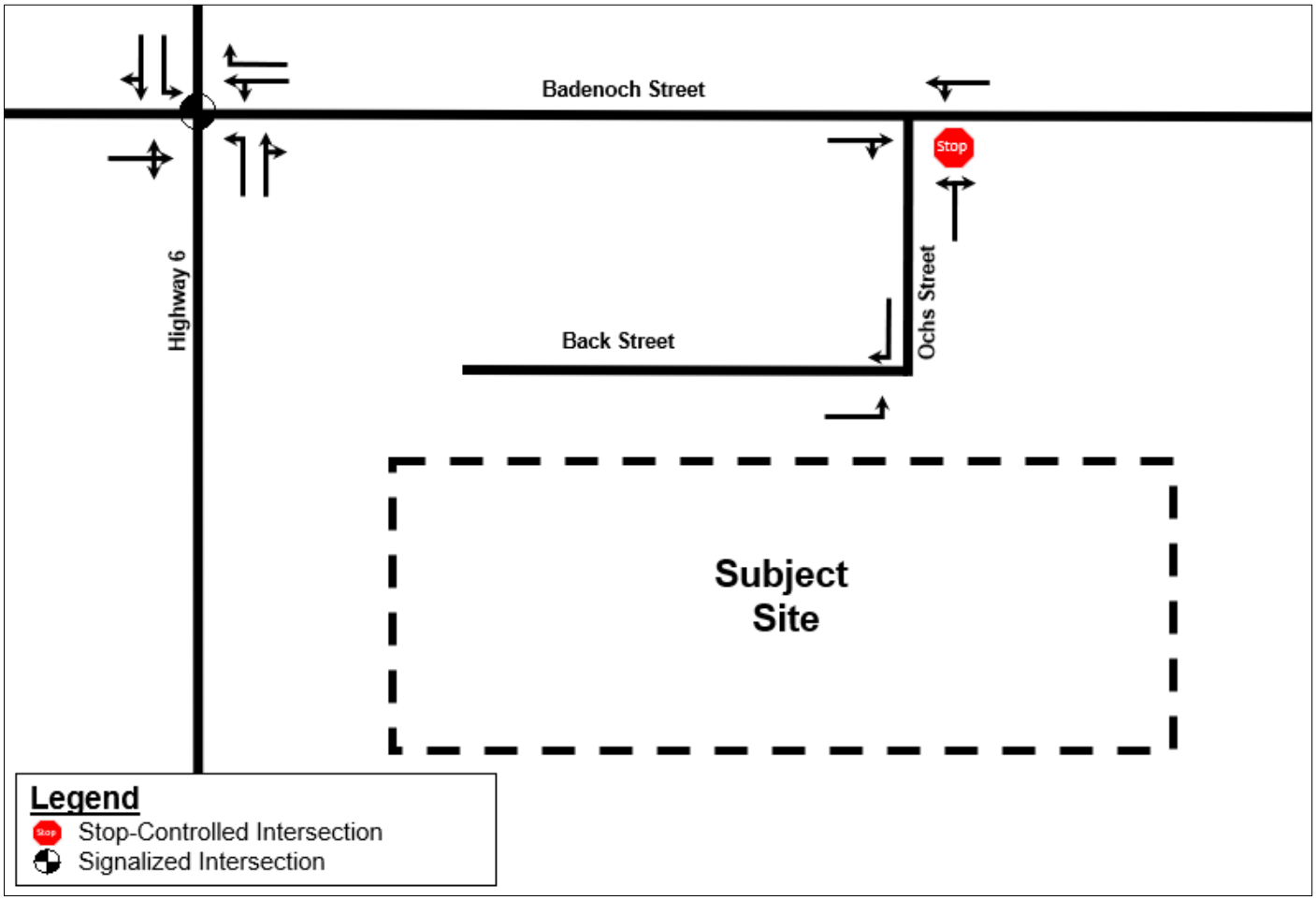


Figure 3 Existing Lane Configuration

3.2 Existing Pedestrian and Cycling Network

Pedestrian sidewalks are available along Highway 6, Badenoch Street, and Calfass Road within the study area.

- Highway 6
  - West side of Highway 6, from Calfass Road to Church Street
  - East side of Highway 6, from approximately 100 metres north of Badenoch Street and continues towards the south beyond the study area.
- Badenoch Street
  - Along both sides of the road from Highway 6 to Ochs Street
- Calfass Road
  - Along the south side of the road from Victoria Street to Highway 6

There are currently no cycling provisions within the study area.

All existing pedestrian and cycling amenities within the study area are shown on **Figure 4**.

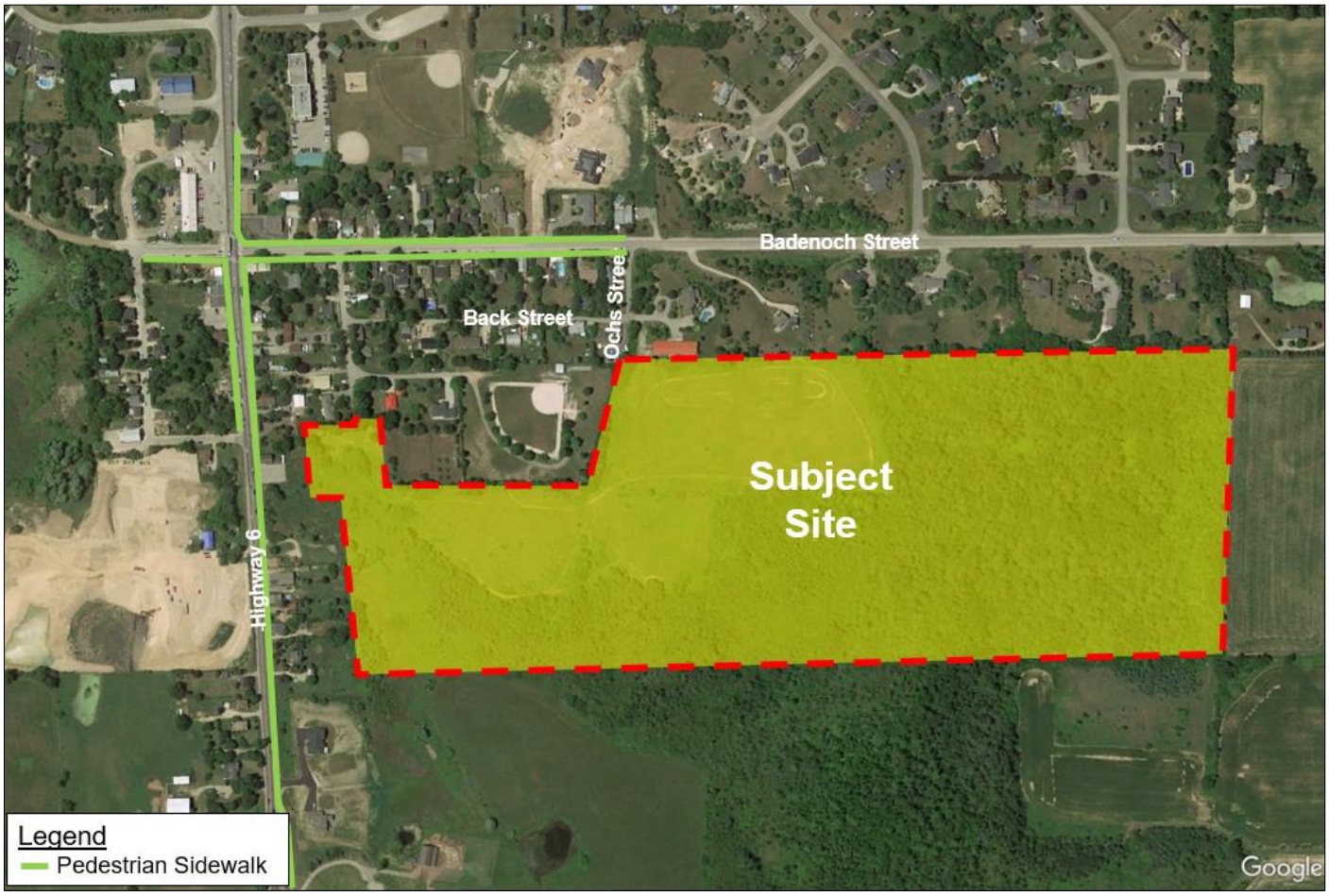


Figure 4 Existing Sidewalk

3.3 Existing Transit Service

With the study area there is currently no public transit service available. However, on October 1, 2019, Wellington County initiated a county-wide demand-responsive public transit service available to all inhabitants and visitors. This project is a pilot service sponsored by the Ontario Government and provides a safe and cost-effective means of transportation throughout the County. The pilot program has been granted two additional years of funding and is expected to conclude in 2025.

RIDE WELL is a public transit service that utilizes a rideshare operational model that uses software to optimize shared rides to ensure that as many individuals as possible are transported to their destination in a reliable manner with minimal vehicles. It provides an alternative means of transportation for regular needs in rural settings and for those who are unable to access personal vehicles.

The service runs from Monday to Friday between 6:00am and 7:00pm. Bookings can be made from or to any location within Wellington County or Guelph.

3.4 Existing Traffic Data

GHD contracted Spectrum Traffic Solutions Inc. to collect turning movement counts at the existing study intersections, with the counts completed in February 2023.

The existing 2023 traffic volumes for the a.m. and p.m. peak hours are summarized in **Figure 5** with the full turning movement count data provided in **Appendix A**.

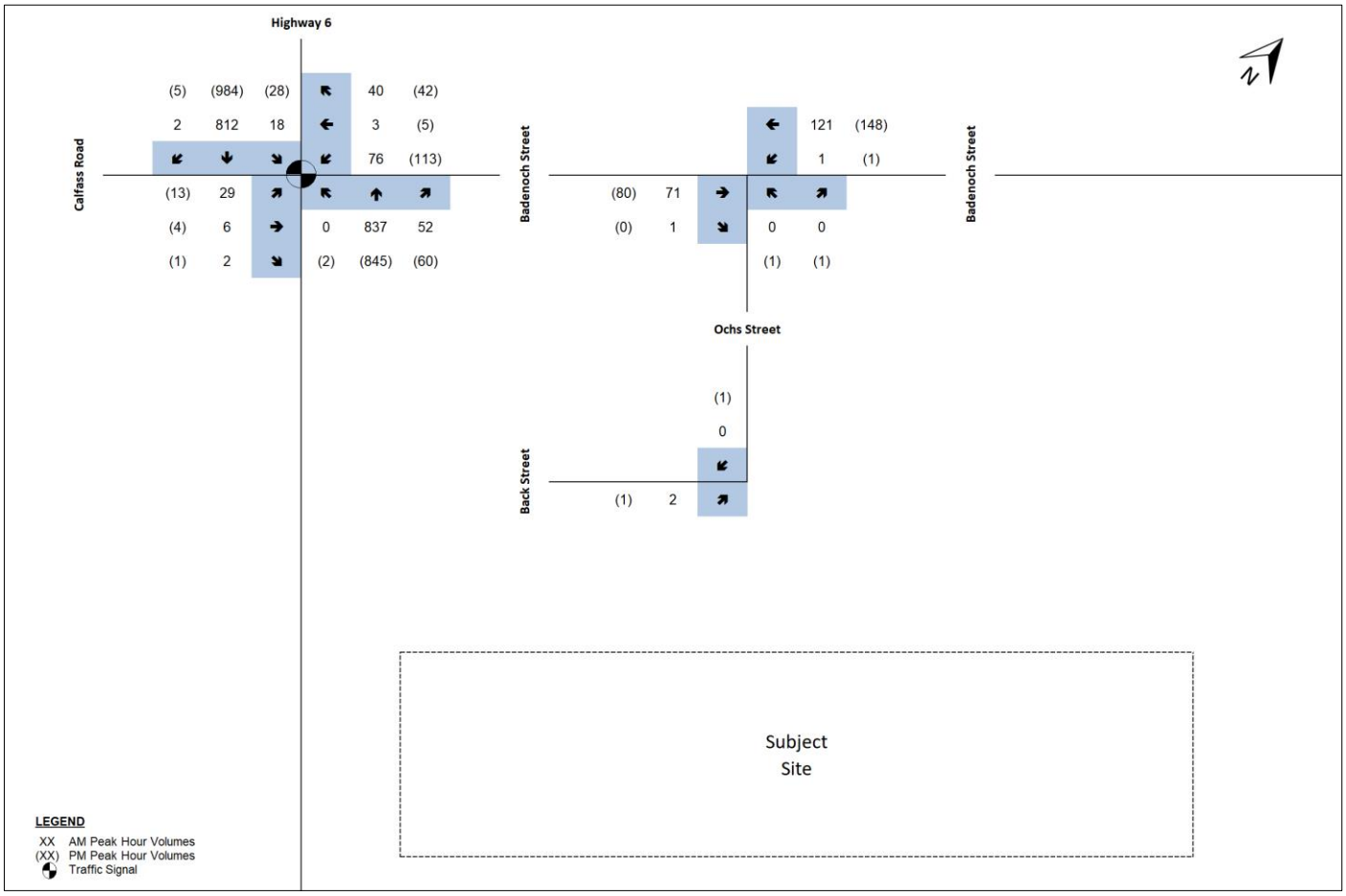


Figure 5 Existing 2022 Traffic Volumes

4. Future Background Traffic

4.1 Study Horizon Year

The future horizon years selected for analysis includes the full build-out year in 2024 along with 5- and 10-years post build-out corresponding to a 2029 and 2034 planning horizon years. This is also consistent with the MTO's Traffic Impact Study Guidelines.

4.2 Road Network Improvements

An environmental assessment was completed and approved by the provincial government for improvements within the Highway 401 and Highway 6 corridor in 1995, with a Notice of Approval to Proceed with the Undertaking being granted in 2009. The proposal included the Morriston Bypass, which will consist of a new four-lane alignment of Highway 6 west of the current alignment from Highway 401 in the north to Maddaugh Road in the south. The new four-lane alignment will provide additional capacity within the corridor with the current alignment through Morriston being restrained to a two-lane cross-section as a result of no additional space to widen the road.

In May 2022, the Ontario government announced that they will be moving forward with the construction of the new interchange and the re-alignment of Highway 6 with the earliest completion date set for 2025 for the interchange.

The updated plan for the project is provided in **Figure 6** below, and identifies the current location of Highway 6, the new alignment of Highway 6, and the location of the subject site with respect to the study area.

Once this road project is constructed, a reduction of vehicular traffic is expected along the current Highway 6 alignment through the study area with the Morriston Bypass providing a new connection from Highway 401 to the southern portion of Highway 6 towards Hamilton.

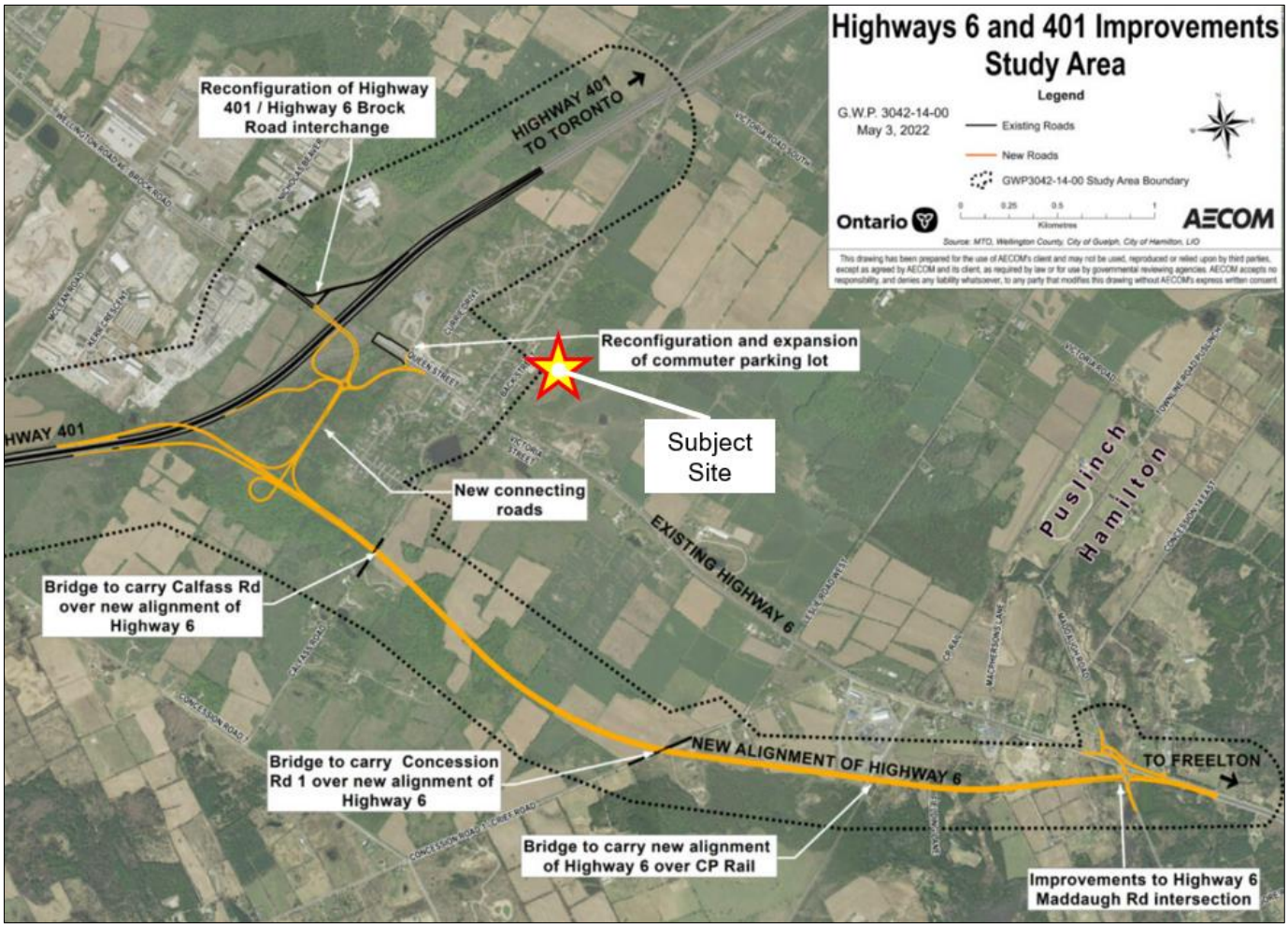


Figure 6 Morriston Bypass (highways6and401hamiltontoguelph.ca)

The Wellington County Road Master Action Plan, dated December 2021, has included an assessment of Badenoch Street within the study area that included a recommendation to consider urbanizing the road between Back Street and Ochs Drive. It is also suggested that a cycling facility assessment be completed prior to the urbanization of the road.

For the purpose of this report, neither of these road improvements have been assumed to be in place by the 2034 horizon year, as a result the analysis presented in this report is conservative as it does not account for any reduction in traffic volumes along the existing Highway 6 alignment that will occur once the new alignment is completed.

4.3 Corridor Growth

GHD applied a 2% per annum growth rate along all study area roads, consistent with the growth rate typically provided by the MTO for roadways under their jurisdiction.

4.4 Background Developments

No background developments were identified near the site that would contribute to additional traffic along the study area roads.

4.5 Future Background Traffic Volumes

The background traffic volumes for the 2024, 2029, and 2034 horizon years were derived by applying the 2% per annum corridor growth rate to the baseline 2023 traffic volumes.

The resulting 2024, 2029, and 2034 future background traffic volumes are summarized in **Figure 7**, **Figure 8**, and **Figure 9**..

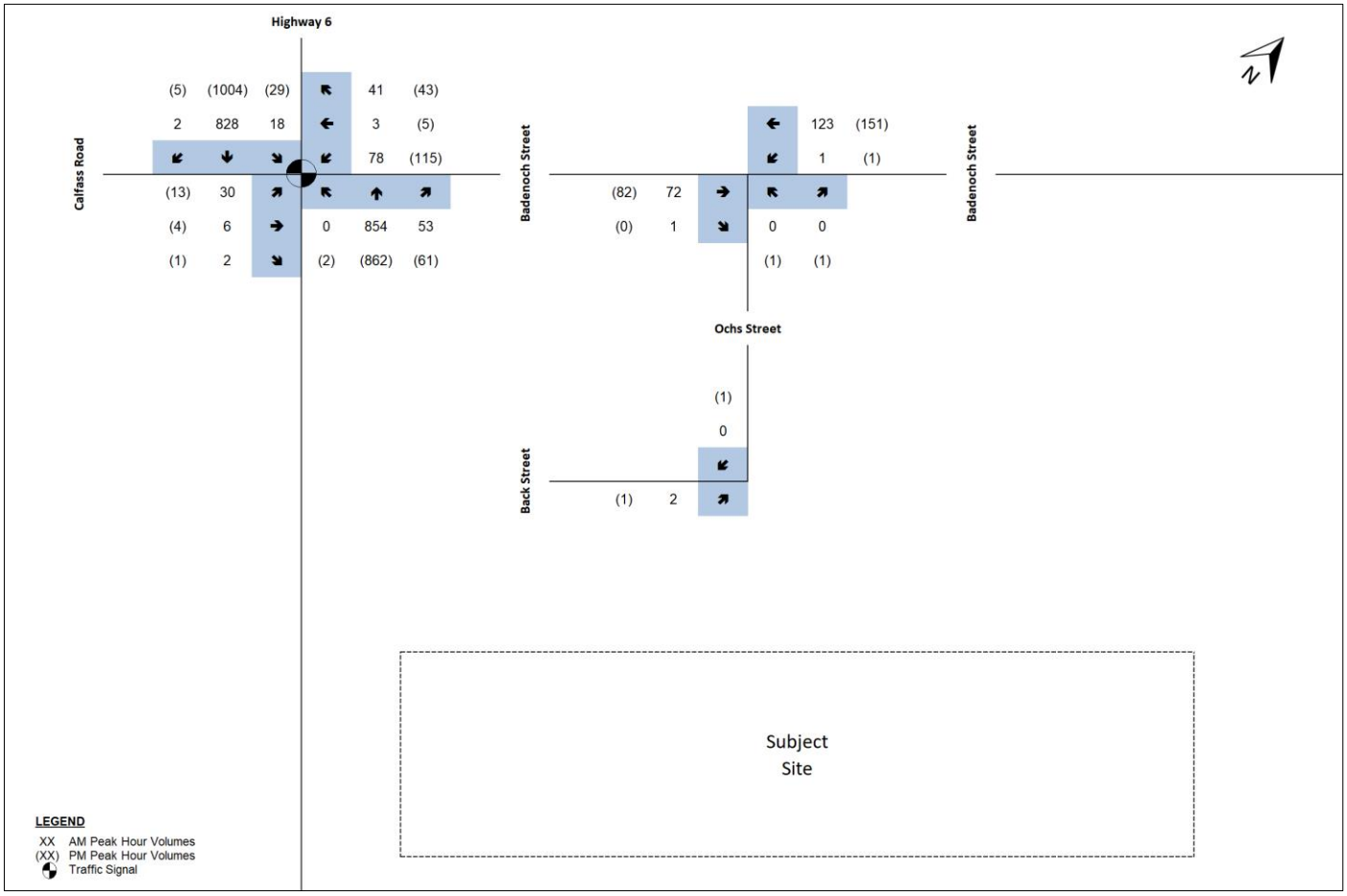


Figure 7 2024 Future Background Traffic Volumes

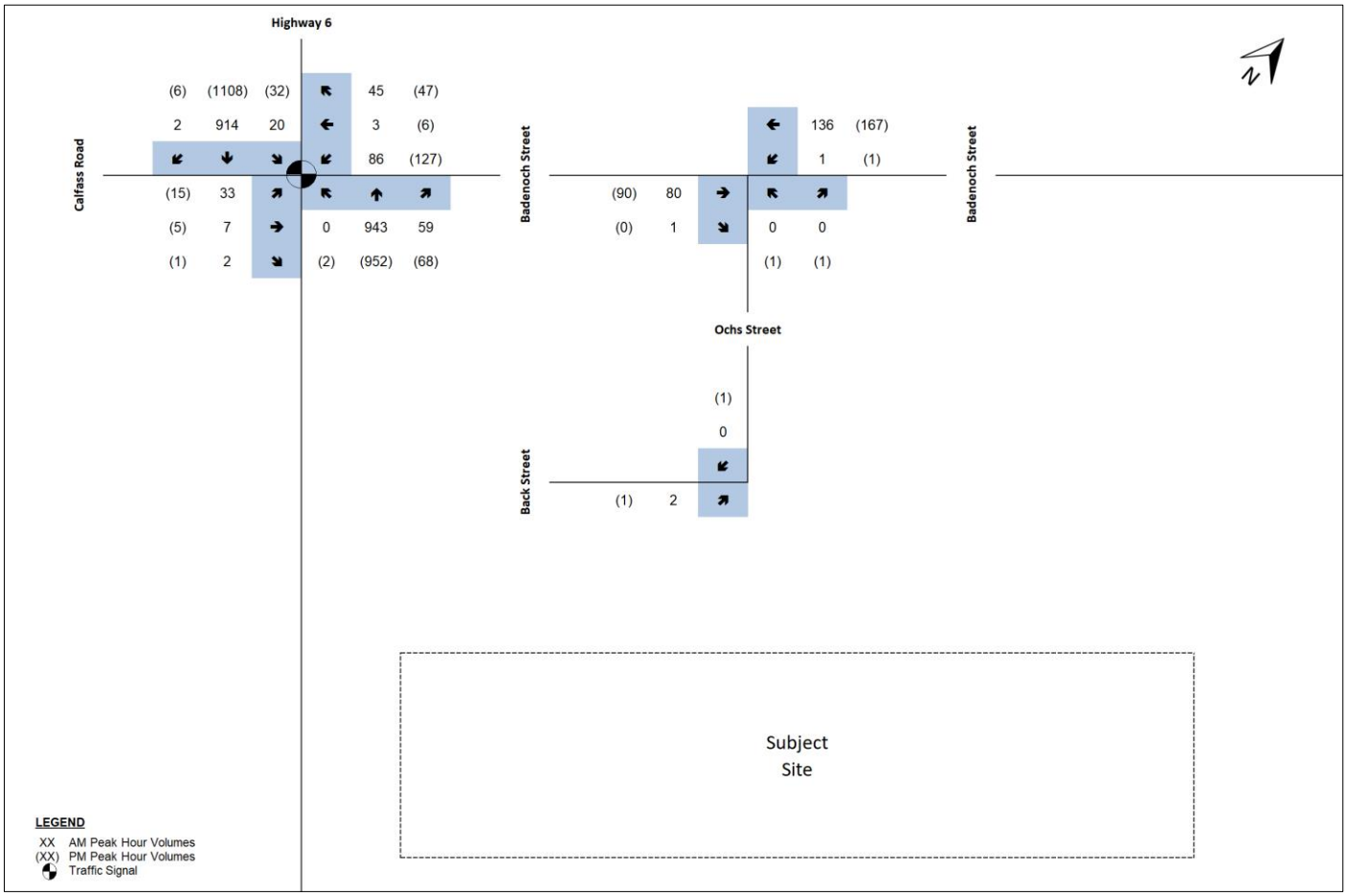


Figure 8 2029 Future Background Traffic Volumes

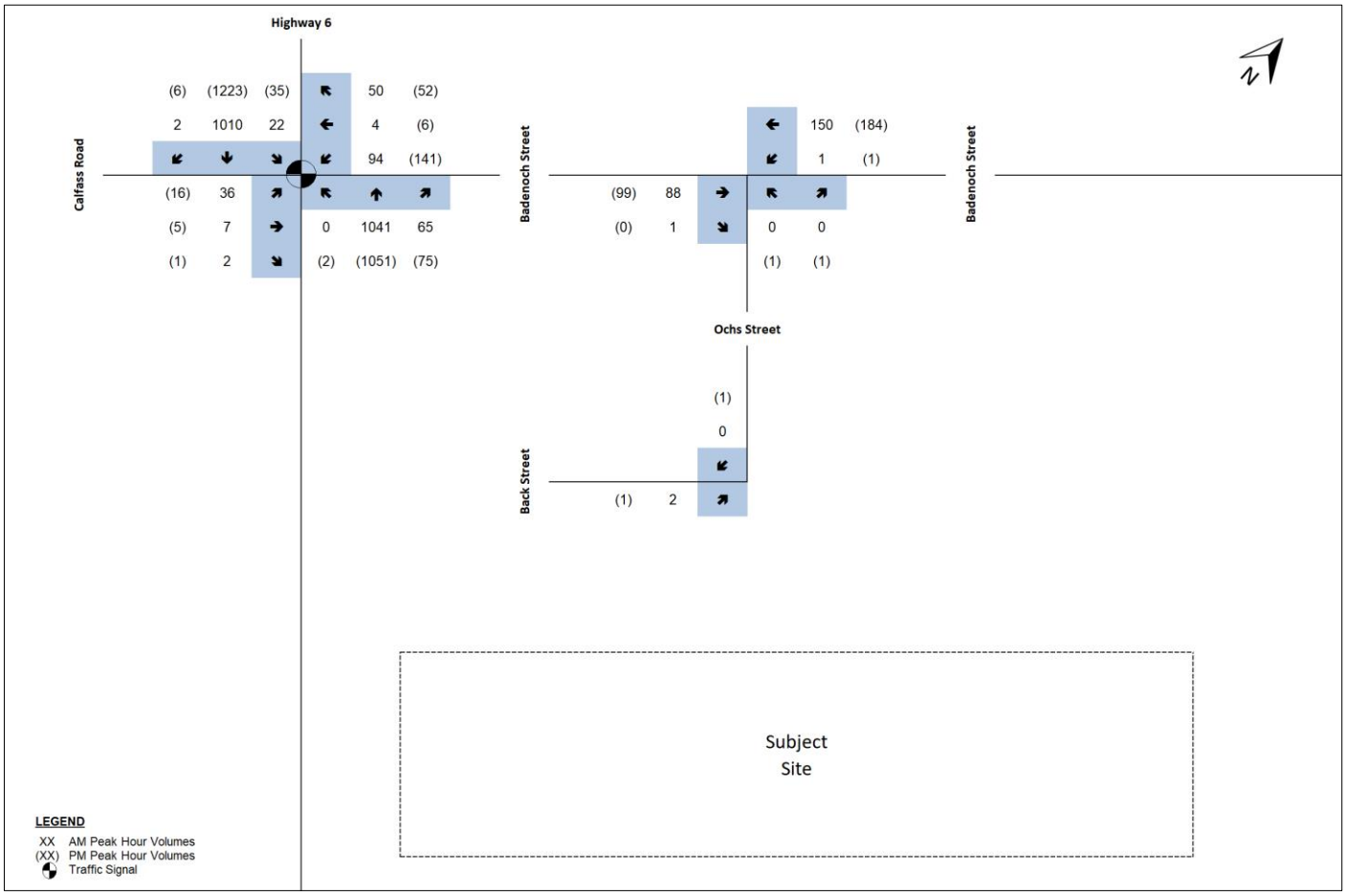


Figure 9 2034 Future Background Traffic Volumes

5. Site Generated Traffic

5.1 Site Traffic Generation

The subject site consists of a total of 21 detached residential lots.

Estimates of trip generation were calculated using rates provided in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition using Land Use Code (LUC) 210 (Single-Family Detached Housing).

GHD compared the average rates to the fitted curve equation and adopted the rate that generated the highest volume of site trips for a more conservative analysis.

No transit modal split reduction was applied to the ITE trip rates given the lack of transit options available in the area.

Table 1 below summarizes the estimated trip generation for the proposed subdivision.

Table 1 Estimated Site Trips

Land Uses	Dwelling Units	Parameters	Peak Hour					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Detached Units (LUC 215)	21 units	Trip Ratio	25%	75%	100%	63%	37%	100%
		Gross Trips	5	15	20	16	9	25
Total Primary Trips			***5***	***15***	***20***	***16***	***9***	***25***

The proposed residential development is expected to generate a total of 20 new two-way trips during the weekday a.m. peak hour consisting of 5 inbound and 11 outbound trips and 25 new two-way trips during the weekday p.m. peak hour consisting of 16 inbound and 9 outbound trips.

5.2 Site Traffic Distribution and Assignment

The distribution of the site-generated traffic was based primarily on a review of the existing travel patterns along the study area roadways and the 2016 Transportation Tomorrow Survey (TTS). Due to a low number of survey results within the subject site's zone (8315) and the next nearest zone with a considerable number of dwelling units (8307), the existing travel patterns derived from the turning movement counts provided a better representation of travel patterns to be used by future residents within the study area.

It was assumed that the Morriston Bypass would not have an impact on the site traffic distribution once constructed with site generated traffic continuing to use the current Highway 6 alignment to access Highway 401 and Guelph to the north or Hamilton, Highway 403 and the Queen Elizabeth Way to the south.

The proposed trip distribution is summarized in **Table 2** below.

Table 2 Trip Distribution

Origin/Destination	AM Peak Hour		PM Peak Hour	
	Percentage of Inbound Trips	Percentage of Outbound Trips	Percentage of Inbound Trips	Percentage of Outbound Trips
North (Highway 6)	45%	45%	45%	45%
South (Highway 6)	45%	45%	45%	45%
East (Badenoch Street)	10%	10%	10%	10%
Total	**100%**	**100%**	**100%**	**100%**

The estimated site trips generated by the proposed development and distributed to the study area road network for the weekday a.m. and p.m. peak hours is shown in **Figure 10**.

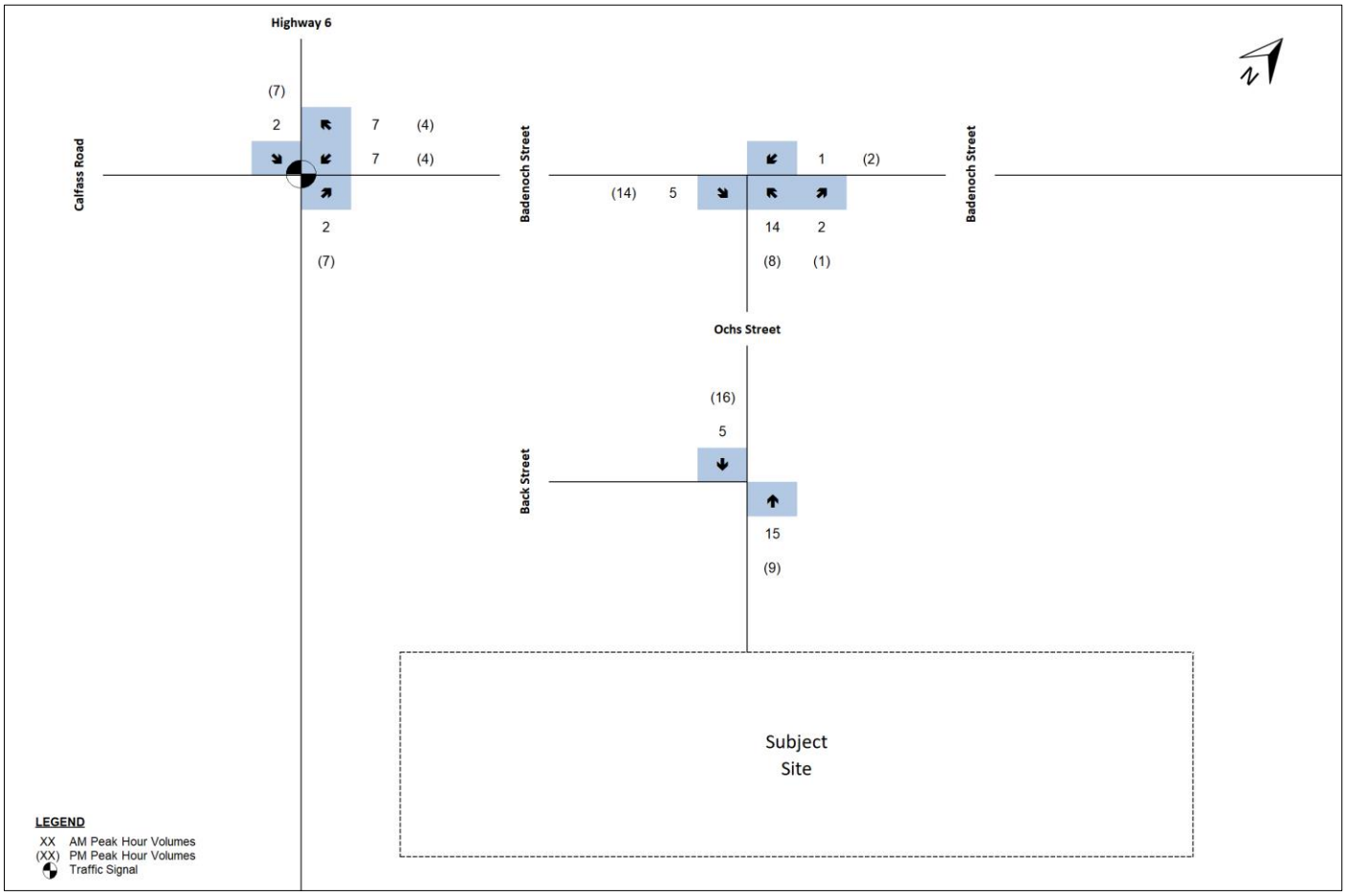


Figure 10 Total Site Trips

6. Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak hours for the 2024, 2029, and 2034 planning horizons were derived by combining the projected future background traffic with the corresponding estimated site generated traffic. The resulting traffic volumes are presented in **Figure 11**, **Figure 12**, and **Figure 13**.

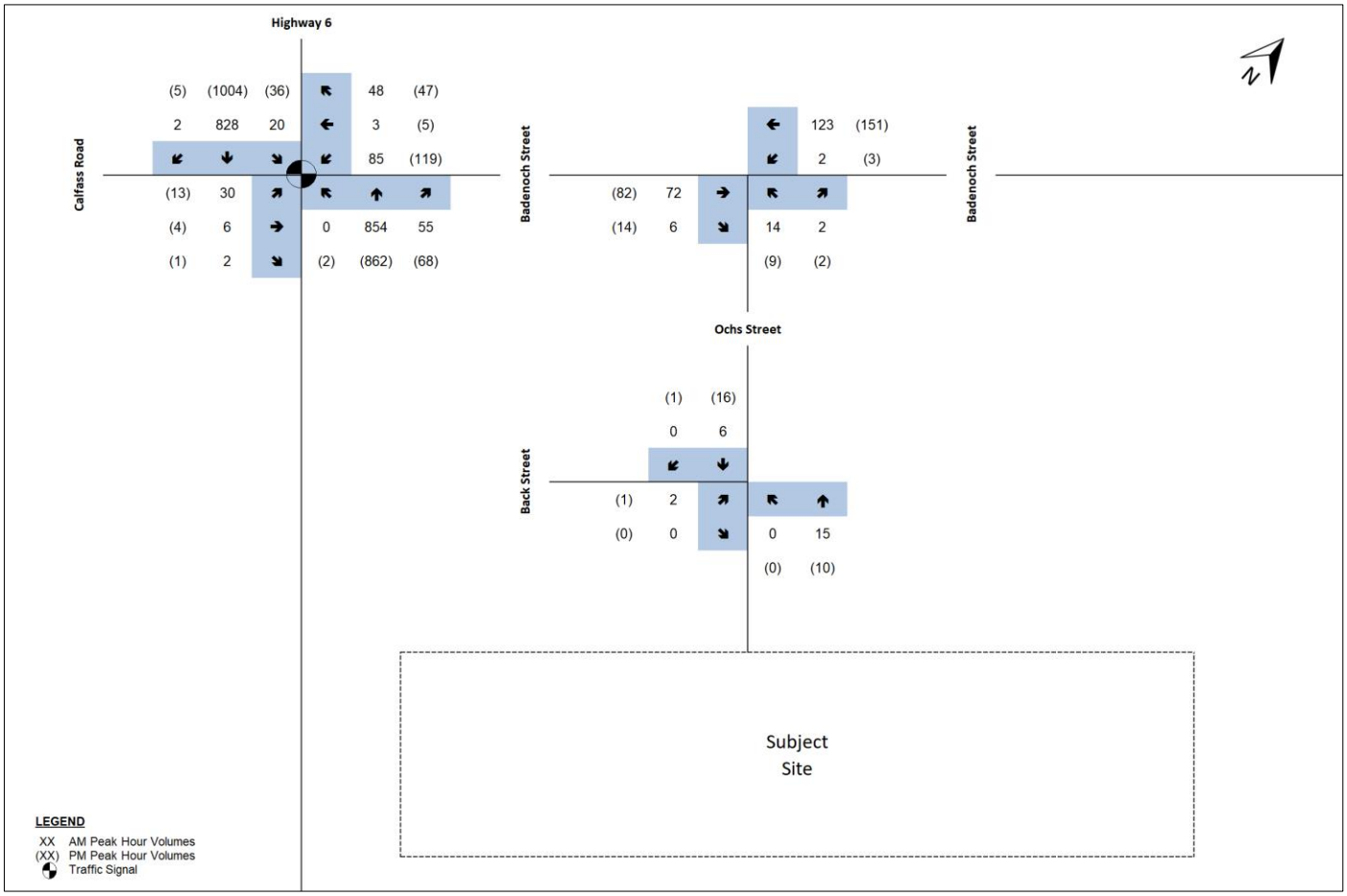


Figure 11 2024 Future Total Traffic Volumes

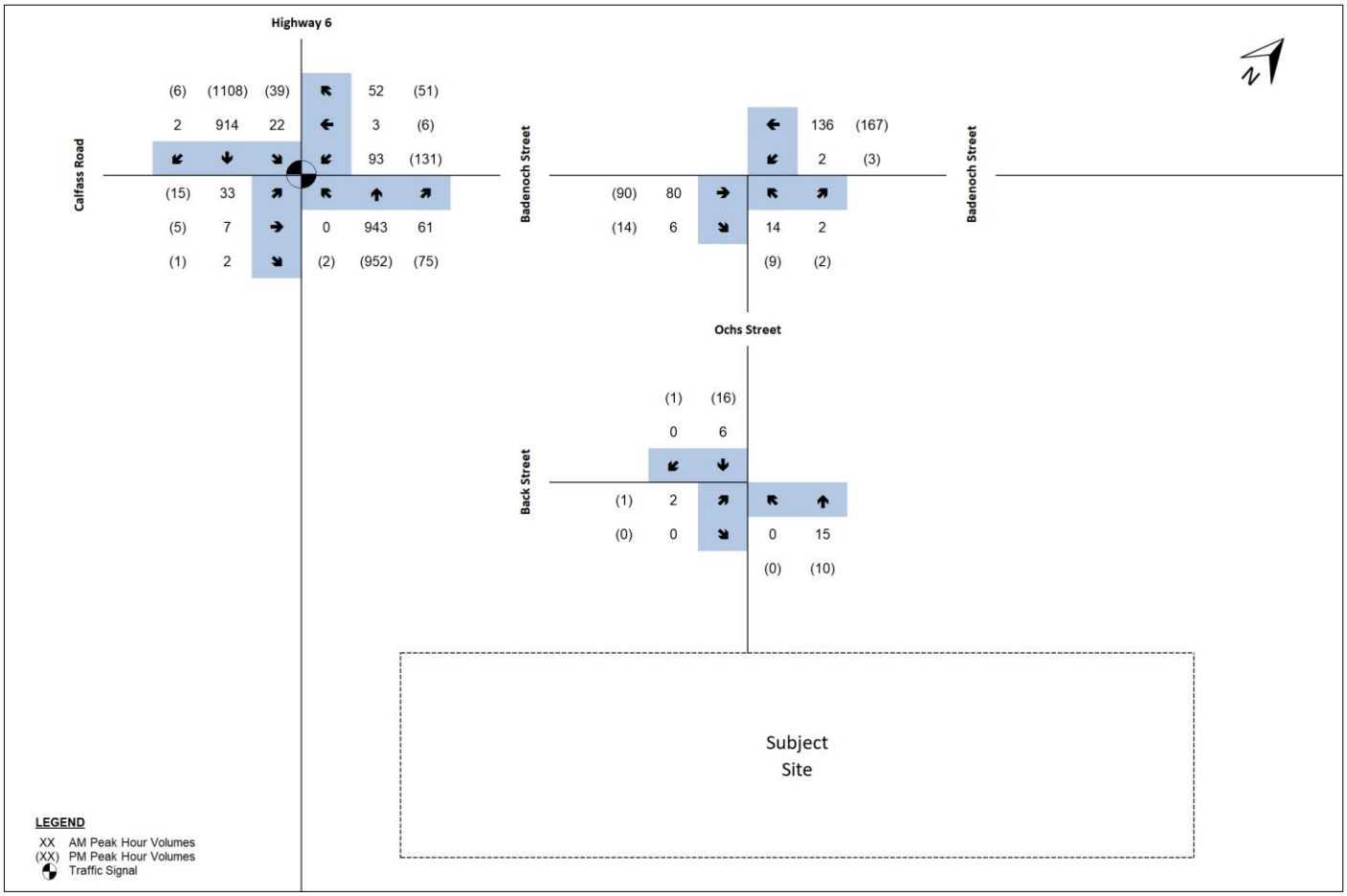


Figure 12 2029 Future Total Traffic Volumes

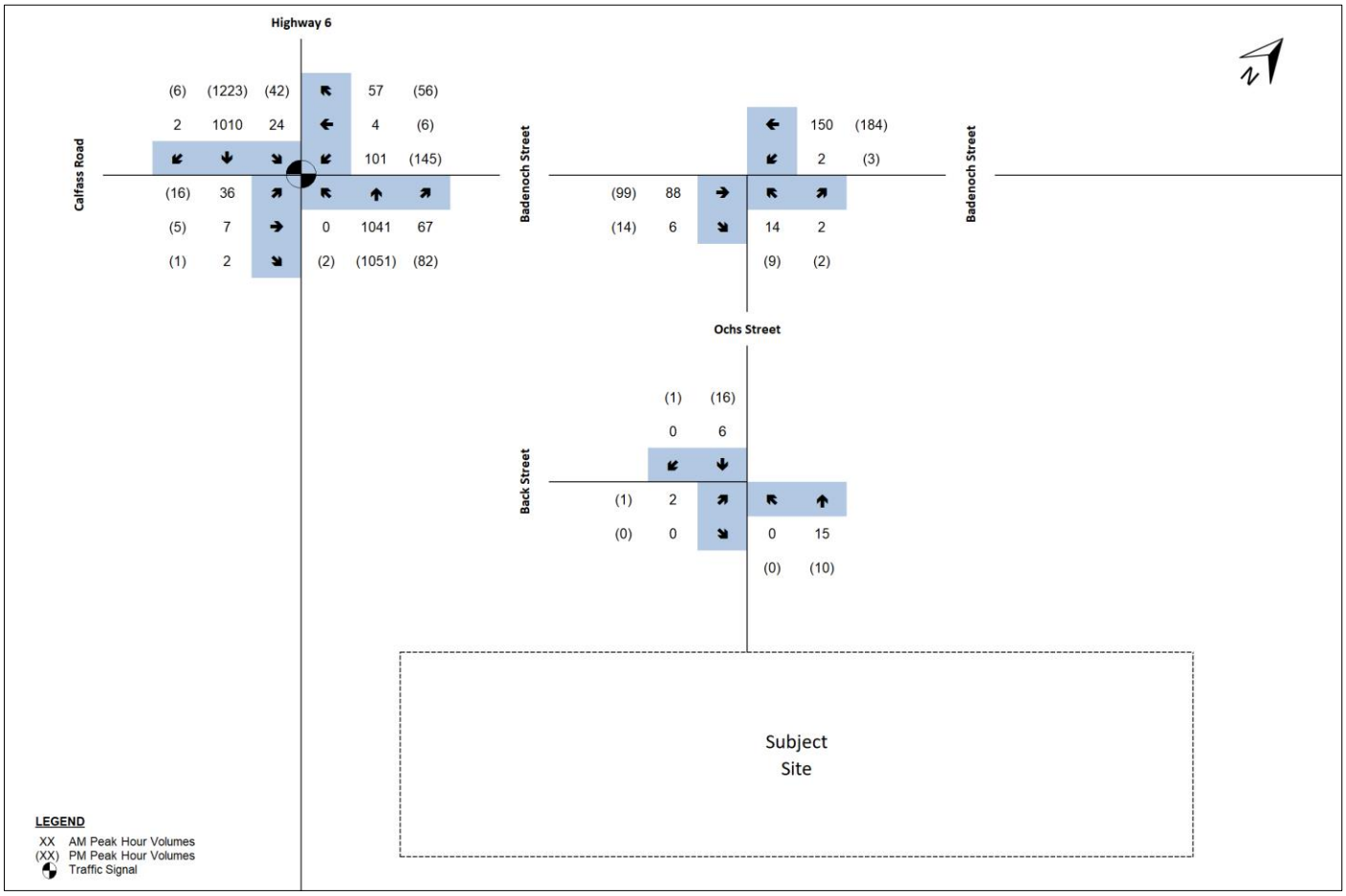


Figure 13 2034 Future Total Traffic Volumes

7. Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 10 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement. Both pedestrian crossing volumes and heavy vehicle proportions are included in the analyses. The peak hour factors from the traffic counts were used to analyze existing and future traffic conditions.

The analysis includes identification and required modifications and improvements (if any) at intersections where the addition of background growth or background growth plus site-generated traffic volumes causes the following:

'Critical' intersections and movements for a signalized intersection include:

- V/C ratios for overall intersections operations, through movements, or shared through/turning movements increase to 0.85 or above;
- V/C ratios for exclusive movements increase to 0.90 or above; or
- 95th percentile queue length for individual movements that are projected to, or exceed, the storage length.

'Critical' intersections and movements for an unsignalized intersection include:

- Level of Services (LOS), based on average delay per vehicle, on individual movements exceeds LOS "D",
- Queue length for individual movements that exceeds the lesser of 5 vehicles or the available queue storage.

For signalized intersections under the jurisdiction of the MTO, movements with v/c ratios greater than 0.85 are deemed to be "critical".

The following tables summarize the HCM capacity results for the study intersections during the weekday a.m. and p.m. peak hours under existing (2023), future background (2024, 2029 & 2034) and future total (2024, 2029 & 2034) traffic conditions. The detailed calculation sheets are provided in **Appendix B**.

7.1 Highway 6 and Badenoch Street/Calfass Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic condition are summarized in the following table.

Table 3 Capacity analysis of Highway 6 and Badenoch Street/Calfass Road

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2023	Overall: 0.70 (B) 14 EBTLR = 0.21 (D) 37 WBTL = 0.45 (D) 44 WBR = 0.03 (C) 34 NBL = 0 (A) 0 NBTR = 0.75 (B) 12 SBL = 0.08 (A) 4 SBTR = 0.73 (B) 12	 EBTLR = 15 m WBTL = 30 m WBR = 10 m NBL = 0 m NBTR = 135 m SBL = 5 m SBTR = 120 m	Overall: 0.79 (B) 16 EBTLR = 0.08 (C) 30 WBTL = 0.57 (D) 36 WBR = 0.03 (C) 30 NBL = 0.01 (A) 4 NBTR = 0.8 (B) 13 SBL = 0.12 (A) 5 SBTR = 0.84 (B) 15	 EBTLR = 10 m WBTL = 50 m WBR = 10 m NBL = 5 m NBTR = 170 m SBL = 5 m SBTR = 200 m
Future Background 2024	Overall: 0.71 (B) 13 EBTLR = 0.24 (D) 40 WBTL = 0.54 (D) 50 WBR = 0.03 (D) 36 NBL = 0 (A) 0	 EBTLR = 15 m WBTL = 30 m WBR = 10 m NBL = 0 m	Overall: 0.77 (B) 16 EBTLR = 0.1 (D) 46 WBTL = 0.71 (E) 62 WBR = 0.03 (D) 45 NBL = 0.01 (A) 3	 EBTLR = 10 m WBTL = 50 m WBR = 10 m NBL = 5 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
	NBTR = 0.74 (B) 11 SBL = 0.08 (A) 4 SBTR = 0.72 (B) 10	NBTR = 125 m SBL = 5 m SBTR = 115 m	NBTR = 0.74 (B) 11 SBL = 0.09 (A) 4 SBTR = 0.77 (B) 12	NBTR = 180 m SBL = 5 m SBTR = 210 m
Future Total 2024	Overall: 0.72 (B) 14 EBTLR = 0.25 (D) 40 WBTL = 0.59 (D) 53 WBR = 0.03 (D) 36 NBL = 0 (A) 0 NBTR = 0.74 (B) 11 SBL = 0.08 (A) 4 SBTR = 0.72 (B) 10	 EBTLR = 15 m WBTL = 35 m WBR = 10 m NBL = 0 m NBTR = 125 m SBL = 5 m SBTR = 115 m	Overall: 0.77 (B) 16 EBTLR = 0.1 (D) 46 WBTL = 0.73 (E) 64 WBR = 0.03 (D) 45 NBL = 0.01 (A) 4 NBTR = 0.74 (B) 12 SBL = 0.12 (A) 4 SBTR = 0.78 (B) 13	 EBTLR = 10 m WBTL = 50 m WBR = 10 m NBL = 5 m NBTR = 185 m SBL = 5 m SBTR = 210 m
Future Background 2029	Overall: 0.79 (B) 16 EBTLR = 0.27 (D) 41 WBTL = 0.6 (D) 54 WBR = 0.03 (D) 36 NBL = 0 (A) 0 NBTR = 0.82 (B) 14 SBL = 0.11 (A) 4 SBTR = 0.8 (B) 13	 EBTLR = 15 m WBTL = 35 m WBR = 10 m NBL = 0 m NBTR = 165 m SBL = 5 m SBTR = 150 m	Overall: 0.84 (B) 20 EBTLR = 0.1 (D) 46 WBTL = 0.77 (E) 68 WBR = 0.05 (D) 45 NBL = 0.01 (A) 4 NBTR = 0.82 (B) 15 SBL = 0.13 (A) 5 **SBTR = 0.86 (B) 17**	 EBTLR = 15 m WBTL = 60 m WBR = 15 m NBL = 5 m NBTR = 225 m SBL = 5 m SBTR = 275 m
Future Total 2029	Overall: 0.80 (B) 16 EBTLR = 0.27 (D) 41 WBTL = 0.64 (E) 57 WBR = 0.04 (D) 36 NBL = 0 (A) 0 NBTR = 0.82 (B) 14 SBL = 0.12 (A) 4 SBTR = 0.8 (B) 13	 EBTLR = 15 m WBTL = 40 m WBR = 10 m NBL = 0 m NBTR = 165 m SBL = 5 m SBTR = 150 m	Overall: **0.85** (C) 20 EBTLR = 0.1 (D) 46 WBTL = 0.78 (E) 69 WBR = 0.05 (D) 45 NBL = 0.01 (A) 4 NBTR = 0.82 (B) 15 SBL = 0.17 (A) 6 **SBTR = 0.86 (B) 17**	 EBTLR = 15 m WBTL = 60 m WBR = 15 m NBL = 5 m NBTR = 230 m SBL = 10 m SBTR = 275 m
Future Background 2034	Overall: **0.87** (C) 22 EBTLR = 0.31 (D) 42 WBTL = 0.66 (E) 58 WBR = 0.03 (D) 36 NBL = 0 (A) 0 **NBTR = 0.91 (C) 20** SBL = 0.17 (A) 6 **SBTR = 0.88 (B) 18**	 EBTLR = 20 m WBTL = 40 m WBR = 10 m NBL = 0 m NBTR = 265 m SBL = 5 m SBTR = 240 m	Overall: **0.93** (C) 27 EBTLR = 0.13 (D) 46 **WBTL = 0.87 (F) 85** WBR = 0.08 (D) 46 NBL = 0.02 (A) 4 **NBTR = 0.90 (C) 20** SBL = 0.2 (A) 7 **SBTR = 0.94 (C) 26**	 EBTLR = 15 m WBTL = 75 m WBR = 15 m NBL = 5 m NBTR = 340 m SBL = 10 m SBTR = 380 m
Future Total 2034	Overall: **0.88** (C) 22 EBTLR = 0.31 (D) 42 WBTL = 0.71 (E) 62 WBR = 0.04 (D) 36 NBL = 0 (A) 0 NBTR = **0.91** (C) 20 SBL = 0.18 (A) 6 SBTR = **0.88** (B) 18	 EBTLR = 20 m WBTL = 45 m WBR = 10 m NBL = 0 m NBTR = 265 m SBL = 5 m SBTR = 240 m	Overall: **0.94** (C) 28 EBTLR = 0.13 (D) 46 **WBTL = 0.89 (F) 90** WBR = 0.09 (D) 46 NBL = 0.02 (A) 4 NBTR = **0.90** (C) 21 SBL = 0.25 (A) 8 SBTR = **0.94** (C) 26	 EBTLR = 15 m WBTL = 75 m WBR = 15 m NBL = 5 m NBTR = 345 m SBL = 10 m SBTR = 380 m

Under existing conditions, the intersection of Highway 6 and Badenoch Street is operating at acceptable levels with an overall v/c ratio of 0.70 LOS B and 0.79 LOS B during the a.m. and p.m. peak hours, respectively. The longest delays are observed in the westbound through-left movement, reporting delays of 44 and 36 seconds during the a.m. and p.m. peak hours, respectively.

Under the 2024 future background horizon year, including the addition of corridor growth and signal timing improvements to minimize delays, the intersection continues to operate at satisfactory levels with overall v/c ratios of 0.71 LOS B and 0.77 LOS B during the a.m. and p.m. peak hours, respectively. The westbound through-left movement continues to operate with the longest delays with a 50 second delay during the a.m. peak hour and 62 seconds during the p.m. peak hour.

Under the 2024 future total traffic condition, with the addition of the site generated traffic, the overall intersection continues to operate at a satisfactory level with a slight increase to the overall v/c ratio from 0.71 to 0.72 LOS B during the a.m. peak hour and remains unchanged at 0.77 LOS during the p.m. peak hour. With the addition of the site traffic, the delays to the westbound through/left movements reports a nominal increase of 3 seconds during the a.m. peak hour and 2 seconds during the p.m. peak hour.

Under the 2029 future background scenario, which includes corridor growth and signal improvements, the intersection continues to operate at satisfactory levels with an overall v/c ratio of 0.79 LOS B during the a.m. peak hour and 0.84 LOS B during the p.m. peak hour. The delays along the westbound through-left movement have increased to 54 and 68 seconds during the a.m. and p.m. peak hour, respectively, as a result of corridor growth.

With the addition of site generated traffic under the 2029 future total scenario, the overall v/c ratios of the intersection continue to operate satisfactorily and an increase of 0.01 to 0.80 LOS B during the a.m. peak hour and 0.01 to 0.85 LOS C during the p.m. peak hour. With the addition of the proposed development site traffic, the delays along the westbound through-left movement increase by 3 seconds and 1 second during the a.m. and p.m. peak hour, respectively.

Under the 2034 future background scenario, which includes corridor growth and signal improvements, the intersection continues to operate at satisfactory levels with an overall v/c ratio of 0.87 LOS C during the a.m. peak hour and 0.93 LOS C during the p.m. peak hour. The westbound through-left movement continues to operate with the longest delays with a 58 second delay during the a.m. peak hour and 85 second delay during the p.m. peak hour.

With the addition of site generated traffic under the 2034 future total scenario, the overall v/c ratios of the intersection continue to operate satisfactorily and an increase of 0.01 to 0.88 LOS C during the a.m. peak hour and 0.01 to 0.94 LOS C during the p.m. peak hours. The reported delays to the westbound through-left movement increase by 4 seconds to 62 seconds during the a.m. peak hour and 5 seconds to 90 seconds during the p.m. peak hour.

No improvements are recommended at this intersection as a result of the proposed development. The majority of the intersection capacity issues are a result of the 2034 horizon year and are a result of the assumed corridor growth rate along Highway 6. Furthermore, there are limited options to improve the geometry of the intersection given the available right-of-way, proximity to existing buildings and unique configuration of the intersection. The delays are expected to be significantly reduced once the Morriston Bypass is constructed and volumes along the existing Highway 6 alignment are reduced through the study area.

7.1.1 Queuing Analysis – Left-Turn Lane, MTO Protocol

As requested by the MTO, a queueing analysis was completed at the intersection of Highway 6 and Badenoch Street/Calfass Road based on the MTO's Protocol using the MTO's Geometric Design Standards.

The findings are summarized in the table below and are based on the Future Total 2034 volumes for the auxiliary southbound left-turn. The recommended storage length (in vehicles) has been retrieved from the MTO's Geometric Design Standards for Ontario Highways, Chapter B, Table B7-5 for urban/commuter intersections.

Table 4 MTO Queuing Protocol - Highway 6 and Badenoch Street/Calfass Road (FB 2034)

Lane	Future Background Volumes (2034)	Heavy Vehicle%	PCU	Cycle Length (in seconds)	Arrival Rate (vehicles/cycle)	Recommended Storage, MTO Table B7-5 (vehicles)	Recommended Storage (in metres, 7.5 m/vehicle)	Available Storage (metres)
AM Peak Hour								
SBL	22	27.8%	28	91	0.8	2	15	40
NBL	14	0%	14	91	0.4	2	15	20
PM Peak Hour								
SBL	35	0%	35	120	1.2	3	22.5	40
NBL	2	0%	2	120	0.1	1	7.5	20

Table 5 MTO Queuing Protocol - Highway 6 and Badenoch Street/Calfass Road (FT 2034)

Lane	Future Total Volumes (2034)	Heavy Vehicle%	PCU	Cycle Length (in seconds)	Arrival Rate (vehicles/cycle)	Recommended Storage, MTO Table B7-5 (vehicles)	Recommended Storage (in metres, 7.5 m/vehicle)	Available Storage (metres)
AM Peak Hour								
SBL	24	27.8%	31	91	0.8	2	15	40
NBL	14	0%	14	91	0.4	2	15	20
PM Peak Hour								
SBL	42	0%	42	120	1.4	4	30	40
NBL	2	0%	2	120	0.1	1	7.5	20

As summarized in the table above, under the Future Total 2034 scenario, the auxiliary southbound left-turn and would have a recommended storage length of 30 metres based on the MTO's protocol. The southbound left-turn lane has 40 metres of available storage satisfying the recommended storage length. The northbound left-turn lane has a recommended storage length of 15 and 7.5 metres during the a.m. and p.m. peak hours, respectively, during both peak hours. The northbound left-turn lane has 20 metres of available storage satisfying the recommended storage length

As a result, no improvements are recommended for the southbound left-turn lane at this intersection as a result of the proposed development.

7.1.2 Queuing Analysis – Right-Turn Lane, MTO Protocol

As directed by MTO staff, the right-turn lane queuing assessment was completed based methodology provided from MTO staff based on Chapter 9 of TAC's Geometric Design Guide for Canadian Roads. The queueing assessment was completed as follows:

- For right-turn movements do not convert trucks to passenger vehicles, use VPH only.
- For right-turn taper with auxiliary lanes at signalized intersections, the storage lane length should accommodate:
    - 1.5 times the average number of passenger vehicles to be stored per cycle for roadway design speed <= 60kph
    - 2 times the number of pass vehicles for design speed >= 60kph

- For right-turn storage length calculations based on TAC Chapter 9, use 90 sec signal cycle length.

The right-turn lane queueing analysis is summarized in the table below.

Table 6 MTO Queuing Protocol - Right-Turn Lane at Highway 6 and Badenoch Street/Calfass Road

Design Speed	Scenario	Lane	Future Volumes (2034)	Cycle Length (in seconds)	Arrival Rate (vehicles/cycle)	Recommended Storage (2x arrival rate, 7.5 metre vehicle)	Available Storage (metres)
60 km/h	**AM Peak Hour**						
	FB2034	**WBR**	50	90	1.3	19	30
	FT2034	**WBR**	57	90	1.4	22	30
	PM Peak Hour						
	FB2034	**WBR**	52	90	1.3	20	30
	FT2034	**WBR**	56	90	1.4	21	30

As summarized in the table above, the auxiliary westbound right-turn lane would have a recommended storage length of 10 and 11 metres under future background and future total 2034 volumes, respectively based on the MTO's protocol. The westbound right-turn lane has 30 metres of available storage satisfying the recommended storage length.

7.1.3 Queuing Analysis – SimTraffic

GHD also completed a SimTraffic analysis of the intersection using a 15-minute seed time, 60-minute run time, and an average of 5 runs. The results of the analysis are provided in the table below.

Table 7 Highway 6 and Badenoch Street/Calfass Road SimTraffic Queueing Analysis (2034)

Scenario	SimTraffic 95th Percentile Queue Length	
	AM Peak Hour	**PM Peak Hour**
Future Background 2034	EBTLR = 22 m WBTL = 44 m WBR = 25 m NBL = 0 m NBTR = 213 m SBL = 25 m SBTR = 126 m	EBTLR = 14 m WBTL = 66 m WBR = 28 m NBL = 3 m NBTR = 242 m SBL = 27 m SBTR = 125 m
Future Total 2034	EBTLR = 27 m WBTL = 46 m WBR = 26 m NBL = 0 m NBTR = 231 m SBL = 28 m SBTR = 122 m	EBTLR = 14 m WBTL = 68 m WBR = 27 m NBL = 3 m NBTR = 276 m SBL = 40 m SBTR = 120 m

As summarized in the table above, the westbound right-turn lane operates with a 95th percentile queue length of 25 metres during the a.m. peak hour and 28 metres during the p.m. peak hour under the 2034 future background conditions.

With the addition of site generated traffic under the 2034 future total condition, the queuing in the westbound right-turn lane is reported to increase by one 1 metre during the a.m. peak hour to 26 metres and is not reported to increase during the p.m. peak hour.

There is approximately 30 metres of available storage for the westbound right turn lane on Badenoch Street, as a result, no improvements are recommended for the westbound right-turn lane at this intersection as a result of the proposed development.

7.2 Badenoch Street and Ochs Street

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions out are summarized in the following table.

Table 8 Capacity analysis of Badenoch Street and Ochs Street

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Existing 2023	EBTR = 0.05 (A) 0 WBTL = 0 (A) 0 NBLR = 0 (A) 0	EBTR = 0 m WBTL = 0 m NBLR = 0 m	EBTR = 0.05 (A) 0 WBTL = 0 (A) 0 NBLR = 0 (A) 9	EBTR = 0 m WBTL = 0 m NBLR = 5 m
Future Background 2024	EBTR = 0.05 (A) 0 WBTL = 0 (A) 0 NBLR = 0.02 (A) 0	EBTR = 0 m WBTL = 0 m NBLR = 0 m	EBTR = 0.05 (A) 0 WBTL = 0 (A) 0 NBLR = 0 (A) 9	EBTR = 0 m WBTL = 0 m NBLR = 5 m
Future Total 2024	EBTR = 0.05 (A) 0 WBTL = 0 (A) 0 NBLR = 0.02 (A) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m	EBTR = 0.06 (A) 0 WBTL = 0 (A) 0 NBLR = 0.02 (A) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m
Future Background 2029	EBTR = 0.05 (A) 0 WBTL = 0 (A) 0 NBLR = 0 (A) 0	EBTR = 0 m WBTL = 0 m NBLR = 0 m	EBTR = 0.06 (A) 0 WBTL = 0 (A) 0 NBLR = 0 (A) 9	EBTR = 0 m WBTL = 0 m NBLR = 5 m
Future Total 2029	EBTR = 0.06 (A) 0 WBTL = 0 (A) 0 NBLR = 0.02 (A) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m	EBTR = 0.07 (A) 0 WBTL = 0 (A) 0 NBLR = 0.02 (A) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m
Future Background 2034	EBTR = 0.06 (A) 0 WBTL = 0 (A) 0 NBLR = 0 (A) 0	EBTR = 0 m WBTL = 0 m NBLR = 0 m	EBTR = 0.06 (A) 0 WBTL = 0 (A) 0 NBLR = 0 (A) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m
Future Total 2034	EBTR = 0.06 (A) 0 WBTL = 0 (A) 0 NBLR = 0.02 (B) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m	EBTR = 0.07 (A) 0 WBTL = 0 (A) 0 NBLR = 0.02 (B) 10	EBTR = 0 m WBTL = 0 m NBLR = 5 m

Under existing conditions, the intersection of Badenoch Street and Ochs Street is operating at acceptable levels with no delays during the a.m. peak hour and a 9 second delay during the p.m. peak hour along the northbound approach.

Under all three future background conditions, with the addition of corridor growth along Badenoch Street, the northbound approach from Ochs Street continues to operate with only a 9 second delay during the p.m. peak hour and increases to 10 seconds during the 2034 horizon year.

With the addition of site generated traffic under the three future horizon years, nominal changes to the intersection delays are reported with the northbound approach showing a maximum delay of ten seconds during both the a.m. and p.m. peak hours.

No improvements are recommended at this intersection as a result of the proposed development.

7.3 Ochs Street and Back Street

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

Table 9 Capacity analysis of Ochs Street and Back Street

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95th % Que.	V/C (LOS) seconds	95th % Que
Future Total 2024	EBLR = 0 (A) 9 NBTL = 0 (A) 0 SBTR = 0 (A) 0	EBLR = 0 m NBTL = 0 m SBTR = 0 m	EBLR = 0 (A) 9 NBTL = 0 (A) 0 SBTR = 0.01 (A) 0	EBLR = 0 m NBTL = 0 m SBTR = 0 m
Future Total 2029	EBLR = 0 (A) 9 NBTL = 0 (A) 0 SBTR = 0 (A) 0	EBLR = 0 m NBTL = 0 m SBTR = 0 m	EBLR = 0 (A) 9 NBTL = 0 (A) 0 SBTR = 0.01 (A) 0	EBLR = 0 m NBTL = 0 m SBTR = 0 m
Future Total 2034	EBLR = 0 (A) 9 NBTL = 0 (A) 0 SBTR = 0 (A) 0	EBLR = 0 m NBTL = 0 m SBTR = 0 m	EBLR = 0 (A) 9 NBTL = 0 (A) 0 SBTR = 0.01 (A) 0	EBLR = 0 m NBTL = 0 m SBTR = 0 m

With the addition of the south leg and site generated traffic under all three future total scenarios, a maximum delay of 9 seconds is expected along the eastbound approach during each peak hour.

No improvements are recommended at this intersection as a result of the proposed development as the subject site is expected to introduce a very low volume of additional traffic to this intersection.

8. Parking Provision

Application of the current Township of Puslinch's Comprehensive Zoning By-Law parking rates to the subject site results in a requirement of a minimum of 2 parking spaces per dwelling unit. The minimum By-law parking requirement of 2 spaces per dwelling unit will be satisfied with the provision of garage and driveway parking.

The subject site proposes to generally use the Township's 20-metre urban cross-section along Street "A" as discussed in **Section 10** with an 8-metre pavement width. The proposed cross-section provides two travel lanes and on-street parking.

9. Sightline Assessment

Adjacent to the proposed site, Badenoch Street has a posted speed limit of 50 km/h with a crest in the road located between Main Street and Ochs Street. For the purpose of Stopping Sight Distance requirements a design speed of 60 km/h was used for the assessment on Badenoch Street based on the 50 km/h posted speed limit. Per Transportation Association of Canada's Geometric Design Guide for Canadian Roads (TAC GDGCR) Table 2.5.2, the minimum stopping sight-distance for level roadways with a design speed of 60 km/h is 85 metres for level roadways.

A speed study was completed along Badenoch Street along the crest in the roadway to the west of Och Street in the general location of Ikondar Place. The speed study was undertaken during a 24-hour period on Thursday, March 21st, 2024, in both the eastbound and westbound directions. A driver looking towards the crest in the road to the west is observing vehicles travelling in the eastbound direction, with the results of the speed study indicating that the 85th percentile speed in that direction is 61 km/h and generally consistent with the assumed design speed based on the posted speed limit. The results of the speed study are provided in **Appendix E**.

Section 9.9 of the TAC GDCR provides intersection sight distances for different scenarios, with the following scenarios used to complete the intersection sight distance analysis:

- Case B1 – Left turn from the minor road
- Case B2 – Right turn from the minor road

- Case F – Left turns from the major road

For the purpose of the assessment, the minor road is assumed to be Ochs Street for the assessment. A vehicle entering the major road (Badenoch Street) from Ochs Street is assumed to stop a distance of approximately 4.5 to 5.4 metres to the pavement edge of Badenoch Street as recommended by TAC. In this stopped position, the driver will be required to look left and right in order to perceive and react to approaching vehicles prior to initiating a turning movement onto the intersecting drive aisle.

The required intersection sight distances are provided in TAC GDGCR Tables 9.9.4, 9.9.6 and 9.9.12 for passenger vehicles turning left from stop, turning right from stop, or turning left from the major road, respectively, and are summarized in the following table. The required intersection sight distances summarized in the tables below are based on a 60 km/h design speed along the major road. As requested by Township and County staff, the assessment was completed for both passenger vehicles and single unit trucks in order to complete an assessment of a snowplow entering Badenoch Street from Ochs Street.

Table 10 Intersection Sight Distance Requirement

Case (Design Speed of 60 km/h)	Required Intersection Sight Distance for Passenger Cars (TAC 2017)	Required Intersection Sight Distance for Single Unit Trucks (TAC 2017)	TAC Reference
B1: Vehicles turning left from stop	125.1 m	158.4 m	Table 9.9.4
B2: Vehicles turning right from stop	108.4 m	141.8 m	Table 9.9.6
F: Left turns from the major road	91.7 m	108.4.5 m	Table 9.9.12

The required intersection sight distance is calculated from the equation:

$$ISD = 0.278\, V_{major}\, t_g$$

Where:

$$ISD = intersection\ sight\ distance$$

$$V_{major} = design\ speed\ of\ the\ major\ road\ \left(\frac{km}{h}\right)$$

$$t_g = time\ gap\ for\ the\ minor\ road\ vehicle\ to\ enter\ the\ major\ road\ (s)$$

The intersection sight distance requirement for passenger cars was determined by the equation above, where the time gap for the minor road vehicle to enter the major road for trucks is 7.5 seconds for vehicles turning left from stop, 6.5 seconds for vehicles turning right from a stop and 5.5 seconds for left turns from the major road.

The intersection sight distance requirement for trucks was determined by the equation above, where the time gap for the minor road vehicle to enter the major road for trucks is 9.5 seconds for vehicles turning left from stop, 8.5 seconds for vehicles turning right from a stop and 6.5 seconds for left turns from the major road.

The available sight distances along Badenoch Street to the west of Ochs Street meet the minimum required stopping sight distance for a 60 km/h design speed. Due to the crest in the road along Badenoch Street located between Main Street and Ochs Street, the sightline assessment was completed using the vertical profile for Badenoch Street contained within the “Approved for Construction” drawings which was provided by the County and was confirmed through measurements taken on site.

The use of the vertical profile drawings is considered less accurate as it is based on “Approved Construction Drawings” and not “As Builts” which measure the actual vertical profile of what was constructed in the field which can differ significantly. Based on the vertical profile, there should be 129 metres of sightline available, however, the sightline measured in the field confirmed that there is currently 136.5 metres of available sight distance looking to the west from Och Street, satisfying the required intersection sight distance requirement for passenger vehicles.

The sightline assessment was also completed for a single unit truck to consider a snowplow truck exiting onto Badenoch Street. Township staff confirmed that the heigh of the driver's eye for the snowplow truck is 2.6 metres.

Based on the vertical profile, there should be 165 metres of sightline available, satisfying the required intersection sight distance requirement for snowplow vehicles.

The sightline assessment completed using the vertical profile drawings in provided in **Appendix D**, while the results from the field observations are provided in **Figure 14**.

Figure 14 Field Observations

As can be seen in **Figure 14**, the existing retaining wall in the southwest corner of the intersection is located within the right-of-way and limits the sightline visibility along Badenoch Street. To provide the required sightline measured 4.4 metres back from the edge of pavement, it is recommended that the existing retaining wall on the west side of the intersection be shifted to be further away from sidewalk as illustrated in **Figure 15**. The assessment using the requirement for Scenario B1 in **Table 10** is provided in **Appendix D**.

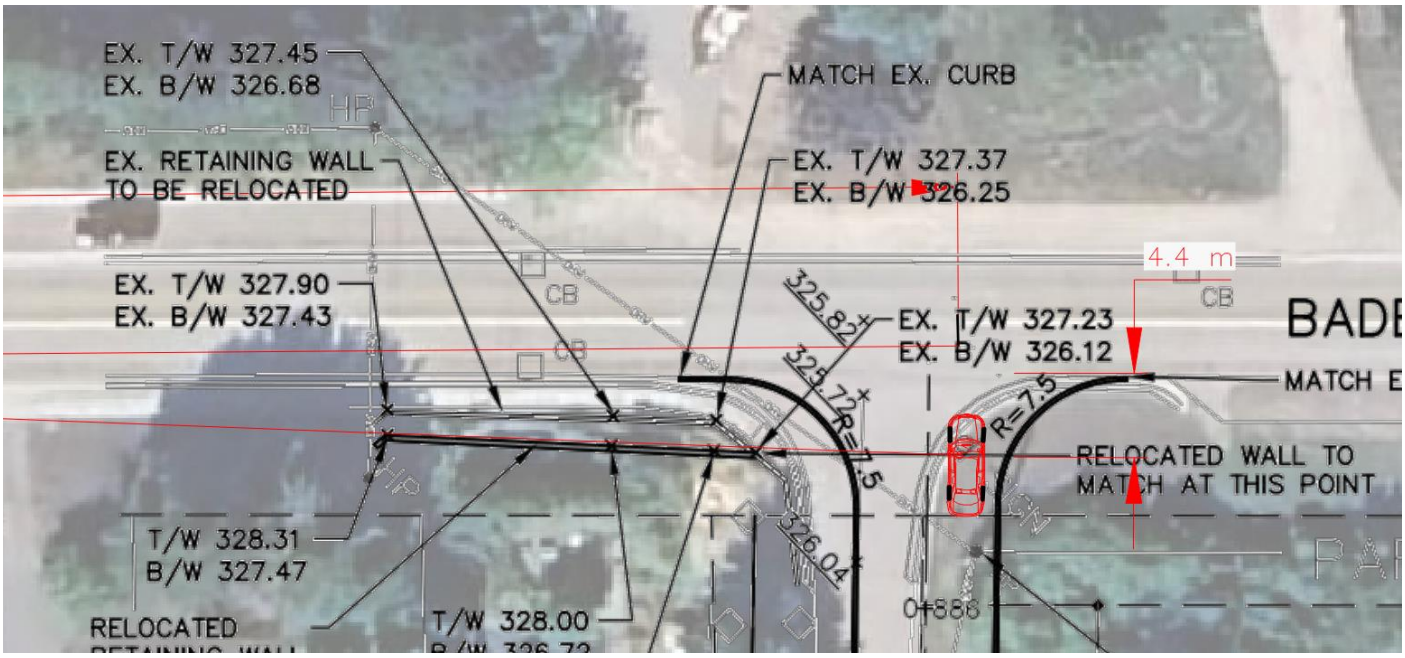


Figure 15 Recommended Retaining Wall Relocation

10. Internal Road Geometric Review

The subject site proposes to use the Township's 20-metre wide urban cross-section along Street "A". The 20-metre right-of-way includes a pavement width of 8 metres and allows for on-street parking. The 20-metre right-of-way includes a 1.5 metre sidewalk on each side of the road, however it is proposed to only provide a sidewalk on the west side of the road due to the small number of units and limited sidewalk connectivity.

The Township's 20-metre wide cross-section is provided in **Figure 16.**

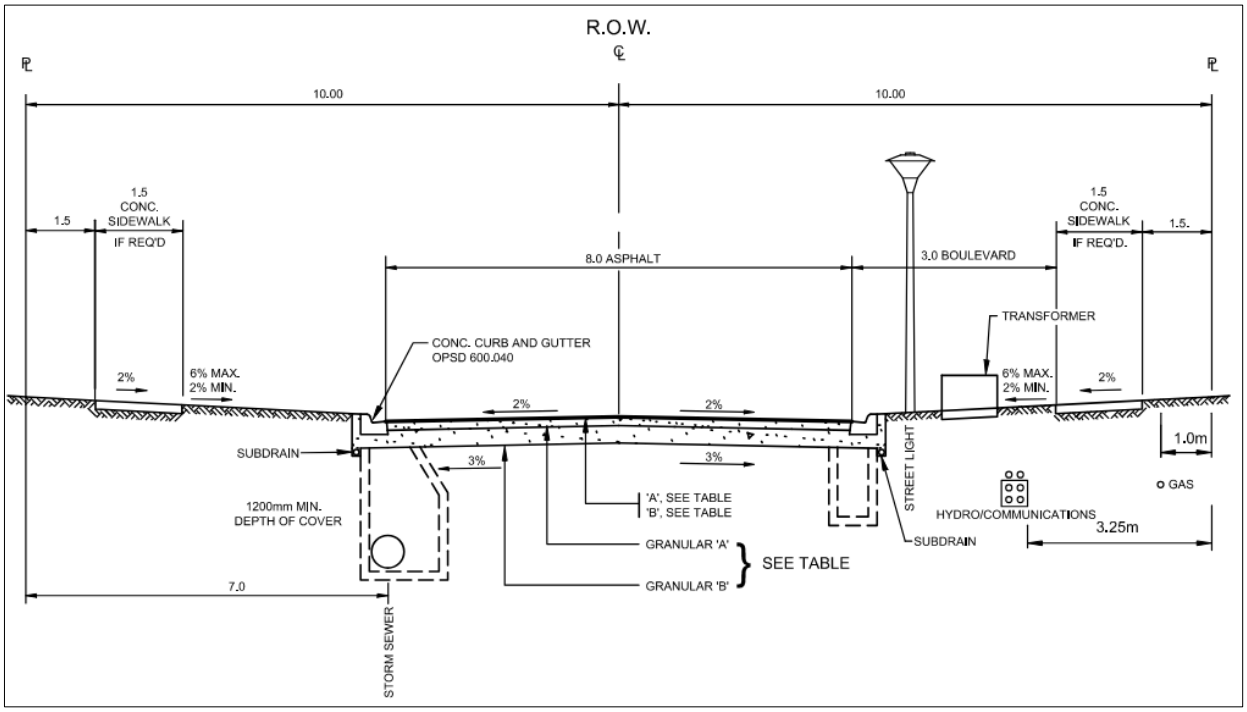


Figure 16 Township of Puslinch 20-metre Urban Cross-Section

11. Conclusion

The proposed Draft Plan of Subdivision has been prepared by Weston Consulting and consists of 21 detached dwelling units.

Access to the development is proposed via an extension of Ochs Street to the south from Back Street and provides access to Badenoch Street and the external road network.

The proposed development is expected to generate a total of 20 new two-way trips during the weekday a.m. peak hour consisting of 5 inbound and 15 outbound trips and 25 new two-way trips during the weekday p.m. peak hour consisting of 16 inbound and 9 outbound trips.

Access to the development is proposed via an extension of Ochs Street, providing a direct connection to Badenoch Street at an existing full moves unsignalized intersection.

The study intersections included in the analysis include:

- Highway 6 and Badenoch Street/Calfass Road
- Badenoch Street and Ochs Street
- Ochs Street and Back Street

Based on ITE Trip Generation rates, the proposed development is expected to generate a total of 20 new two-way trips during the weekday a.m. peak hour consisting of 5 inbound and 15 outbound trips and 25 new two-way trips during the weekday p.m. peak hour consisting of 16 inbound and 9 outbound trips.

Under existing conditions, all study intersections are operating with acceptable v/c ratios and delays.

In the future 2024, 2029 and 2034 horizon years, the intersections continue to operate at mostly satisfactory levels with the intersection of Hwy 6 and Badenoch Street/Calfass Road operating with some critical movements however all movements operating with v/c ratios of less 1.0. The unsignalized intersections of Badenoch Street with Ochs Street and Ochs Street with Back Street are reported to operate with low v/c ratios and delays and no critical movements up to the 2034 horizon year.

The overall impact of the development generated traffic was found to be negligible to the operation of the study area intersections and traffic flow along Highway 6 and Badenoch Street. The site traffic does not result in any turning movements increasing to critical levels, all critical movements under the future traffic scenarios are a result of the assumed corridor growth rate.

Application of the current Township of Puslinch's Comprehensive Zoning By-Law parking rates to the subject site results in a requirement of a minimum of 2 parking spaces per dwelling unit. The minimum By-law parking requirement of 2 spaces per dwelling unit will be satisfied with the provision of garage and driveway parking.

A sightline assessment of vehicles exiting from Och Street onto Badenoch Street was completed in the field, it confirmed that there is sufficient sightlines to satisfy the TAC requirements for a 60 km/h design speed for passenger vehicles and snowplow vehicles. The 60 km/h design speed was confirmed through a speed study conducted along Badenoch Street in the general vicinity of the crest in the road.

The existing intersection of Badenoch Street and Och Street has an existing retaining wall within the County right-of-way that limits sightline visibility for outbound traffic exiting Och Street to see an oncoming vehicle travelling eastbound on Badenoch Street. It is recommended that the retaining wall be relocated to provide the required sightline. A design for the relocation of the retaining wall has been prepared by Crozier Consulting Engineers.

The subject site proposes to generally use the Township's 20-metre Urban cross-section along Street "A".

Appendices

Appendix A

Traffic Data

GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

Turning Movement Count (1 . BADENOCH ST & OCHS ST)

Start Time	E Approach BADENOCH ST					S Approach OCHS ST					W Approach BADENOCH ST					Int. Total (15 min)	Int. Total (1 hr)
	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	UTurn W:W	Peds W:	Approach Total		
07:00:00	32	0	0	0	32	0	0	0	0	0	0	12	0	0	12	44	
07:15:00	30	0	0	0	30	1	0	0	0	1	1	11	0	0	12	43	
07:30:00	18	0	0	0	18	0	0	0	0	0	0	18	0	0	18	36	
07:45:00	30	1	0	0	31	0	0	0	0	0	1	24	0	0	25	56	179
08:00:00	23	0	0	0	23	0	0	0	0	0	0	16	0	0	16	39	174
08:15:00	38	0	0	0	38	0	0	0	0	0	0	16	0	0	16	54	185
08:30:00	30	0	0	0	30	0	0	0	0	0	0	15	0	0	15	45	194
08:45:00	18	0	0	0	18	0	0	0	1	0	0	13	0	0	13	31	169
BREAK																	
16:00:00	36	0	0	0	36	0	0	0	0	0	1	21	0	0	22	58	
16:15:00	34	1	0	0	35	1	0	0	0	1	0	18	0	0	18	54	
16:30:00	34	0	0	0	34	0	1	0	0	1	0	18	0	0	18	53	
16:45:00	38	0	0	0	38	0	0	0	0	0	0	23	0	0	23	61	226
17:00:00	42	0	0	1	42	0	0	0	1	0	0	21	0	0	21	63	231
17:15:00	26	0	0	0	26	0	1	0	0	1	0	18	0	0	18	45	222
17:30:00	18	0	0	0	18	0	0	0	0	0	1	24	0	0	25	43	212
17:45:00	27	0	0	0	27	0	0	0	0	0	0	24	0	0	24	51	202
Grand Total	474	2	0	1	476	2	2	0	2	4	4	292	0	0	296	**776**	-
Approach%	99.6%	0.4%	0%		-	50%	50%	0%		-	1.4%	98.6%	0%		-	**-**	-
Totals %	61.1%	0.3%	0%		61.3%	0.3%	0.3%	0%		0.5%	0.5%	37.6%	0%		38.1%	**-**	-
Heavy	14	1	0		-	0	0	0		-	1	13	0		-	**-**	-
Heavy %	3%	50%	0%		-	0%	0%	0%		-	25%	4.5%	0%		-	**-**	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	**-**	-

Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (-2.89 °C)

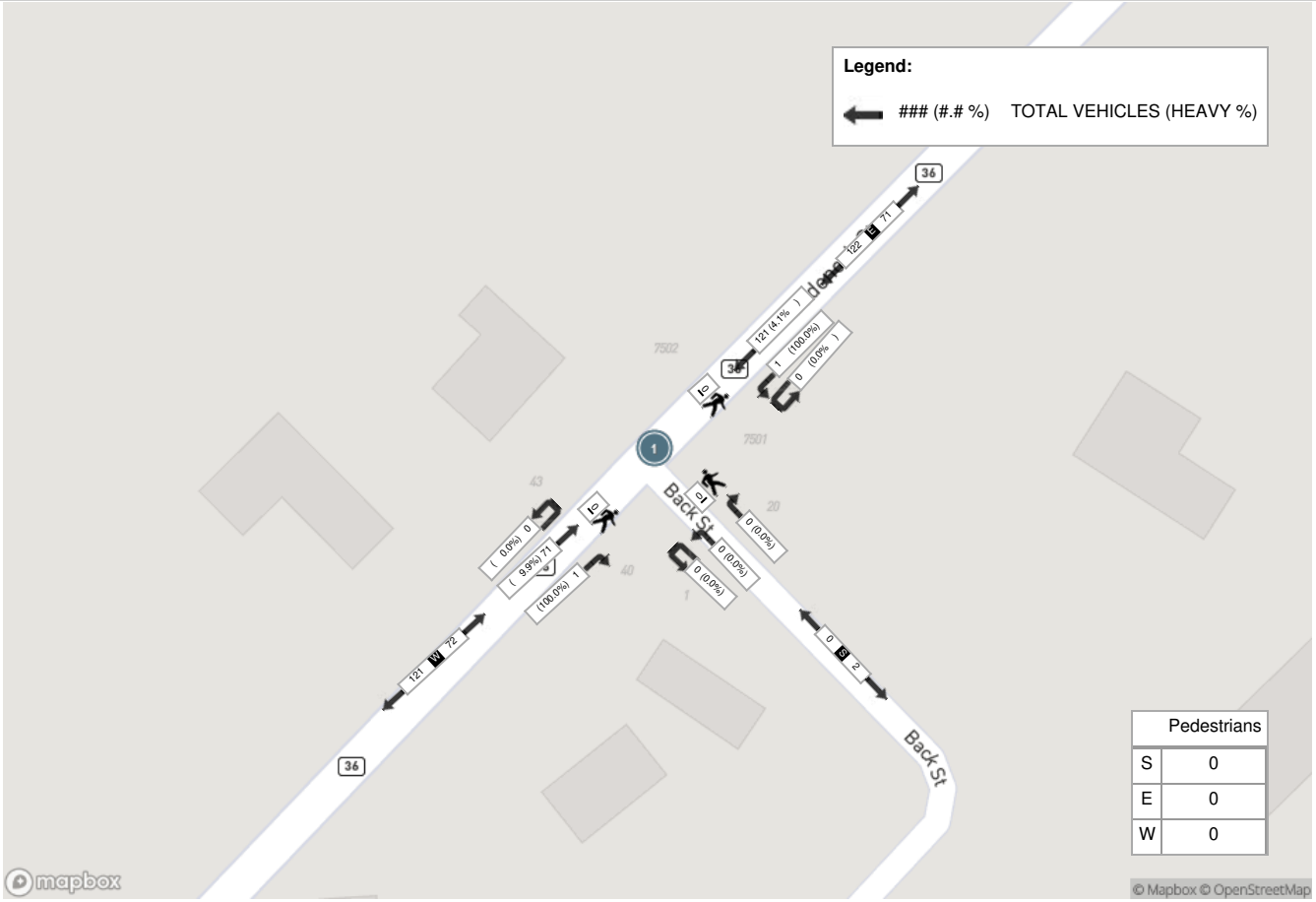
Start Time	E Approach BADENOCH ST					S Approach OCHS ST					W Approach BADENOCH ST					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
07:45:00	30	1	0	0	31	0	0	0	0	0	1	24	0	0	25	56
08:00:00	23	0	0	0	23	0	0	0	0	0	0	16	0	0	16	39
08:15:00	38	0	0	0	38	0	0	0	0	0	0	16	0	0	16	54
08:30:00	30	0	0	0	30	0	0	0	0	0	0	15	0	0	15	45
Grand Total	121	1	0	0	122	0	0	0	0	0	1	71	0	0	72	**194**
Approach%	99.2%	0.8%	0%		-	0%	0%	0%		-	1.4%	98.6%	0%		-	**-**
Totals %	62.4%	0.5%	0%		62.9%	0%	0%	0%		0%	0.5%	36.6%	0%		37.1%	**-**
PHF	0.8	0.25	0		0.8	0	0	0		0	0.25	0.74	0		0.72	**-**
Heavy	5	1	0		6	0	0	0		0	1	7	0		8	**-**
Heavy %	4.1%	100%	0%		4.9%	0%	0%	0%		0%	100%	9.9%	0%		11.1%	**-**
Lights	116	0	0		116	0	0	0		0	0	64	0		64	**-**
Lights %	95.9%	0%	0%		95.1%	0%	0%	0%		0%	0%	90.1%	0%		88.9%	**-**
Single-Unit Trucks	3	0	0		3	0	0	0		0	0	2	0		2	**-**
Single-Unit Trucks %	2.5%	0%	0%		2.5%	0%	0%	0%		0%	0%	2.8%	0%		2.8%	**-**
Buses	2	1	0		3	0	0	0		0	1	5	0		6	**-**
Buses %	1.7%	100%	0%		2.5%	0%	0%	0%		0%	100%	7%	0%		8.3%	**-**
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	0%		-	-	-	0%		-	-	-	0%		**-**

GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (6.07 °C)

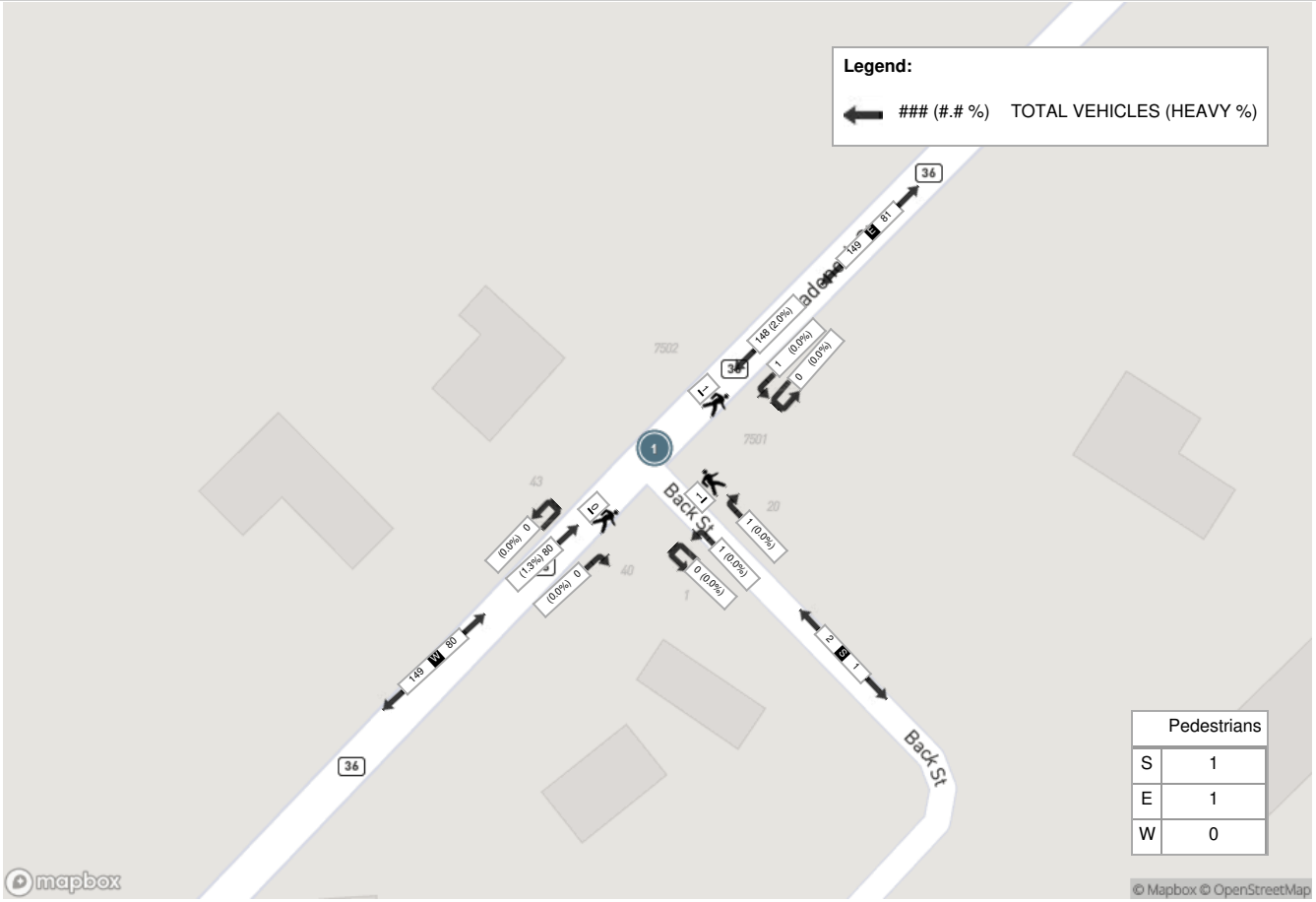
Start Time	E Approach BADENOCH ST					S Approach OCHS ST					W Approach BADENOCH ST					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
16:15:00	34	1	0	0	35	1	0	0	0	1	0	18	0	0	18	54
16:30:00	34	0	0	0	34	0	1	0	0	1	0	18	0	0	18	53
16:45:00	38	0	0	0	38	0	0	0	0	0	0	23	0	0	23	61
17:00:00	42	0	0	1	42	0	0	0	1	0	0	21	0	0	21	63
Grand Total	148	1	0	1	149	1	1	0	1	2	0	80	0	0	80	**231**
Approach%	99.3%	0.7%	0%		-	50%	50%	0%		-	0%	100%	0%		-	**-**
Totals %	64.1%	0.4%	0%		64.5%	0.4%	0.4%	0%		0.9%	0%	34.6%	0%		34.6%	**-**
PHF	0.88	0.25	0		0.89	0.25	0.25	0		0.5	0	0.87	0		0.87	**-**
Heavy	3	0	0		3	0	0	0		0	0	1	0		1	**-**
Heavy %	2%	0%	0%		2%	0%	0%	0%		0%	0%	1.3%	0%		1.3%	**-**
Lights	145	1	0		146	1	1	0		2	0	79	0		79	**-**
Lights %	98%	100%	0%		98%	100%	100%	0%		100%	0%	98.8%	0%		98.8%	**-**
Single-Unit Trucks	1	0	0		1	0	0	0		0	0	0	0		0	**-**
Single-Unit Trucks %	0.7%	0%	0%		0.7%	0%	0%	0%		0%	0%	0%	0%		0%	**-**
Buses	2	0	0		2	0	0	0		0	0	1	0		1	**-**
Buses %	1.4%	0%	0%		1.3%	0%	0%	0%		0%	0%	1.3%	0%		1.3%	**-**
Pedestrians	-	-	-	1	-	-	-	-	1	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	50%		-	-	-	50%		-	-	-	0%		**-**

Peak Hour: 07:45 AM - 08:45 AM Weather: Overcast Clouds (-2.89 °C)



	Pedestrians
S	0
E	0
W	0

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (6.07 °C)



Spectrum

Turning Movement Count
Location Name: HWY 6 & CALFASS RD / BADENOCH ST
Date: Tue, Feb 07, 2023 Deployment Lead: Walter Fugaj

GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

Turning Movement Count (3 . HWY 6 & CALFASS RD / BADENOCH ST)

Start Time	N Approach HWY 6						E Approach BADENOCH ST						S Approach HWY 6						W Approach CALFASS RD						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		
07:00:00	1	179	3	0	0	183	7	1	28	0	0	36	7	156	0	0	0	163	0	1	2	0	0	3	385	
07:15:00	0	187	0	0	0	187	13	1	19	0	0	33	10	187	0	0	0	197	0	2	1	0	0	3	420	
07:30:00	0	202	7	0	0	209	10	0	13	0	0	23	11	226	0	0	2	237	1	0	2	0	0	3	472	
07:45:00	1	192	3	0	0	196	5	0	25	0	0	30	13	189	0	0	0	202	1	5	14	0	0	20	448	1725
08:00:00	1	210	5	0	1	216	11	1	11	0	0	23	13	208	0	0	2	221	0	0	6	0	1	6	466	1806
08:15:00	0	208	3	0	0	211	14	2	27	0	0	43	15	214	0	0	0	229	0	1	7	0	0	8	491	1877
08:30:00	1	219	2	0	0	222	12	1	18	0	0	31	11	193	0	0	0	204	0	0	2	0	0	2	459	1864
08:45:00	1	191	7	0	0	199	7	1	15	0	0	23	9	174	0	0	2	183	1	0	3	0	1	4	409	1825
BREAK																										
16:00:00	6	207	10	0	0	223	12	2	16	0	0	30	15	185	1	0	1	201	1	1	1	0	1	3	457	
16:15:00	0	244	6	0	0	250	11	1	22	0	0	34	18	204	1	0	2	223	0	0	6	0	1	6	513	
16:30:00	4	260	9	0	1	273	10	2	32	0	0	44	9	225	0	0	0	234	0	2	2	0	0	4	555	
16:45:00	0	251	7	0	0	258	9	0	27	0	0	36	14	230	1	0	0	245	0	2	4	0	1	6	545	2070
17:00:00	1	229	6	0	0	236	12	2	32	0	0	46	19	186	0	0	0	205	1	0	1	0	0	2	489	2102
17:15:00	5	248	9	0	0	262	12	1	14	0	0	27	15	188	0	0	0	203	0	1	2	0	0	3	495	2084
17:30:00	3	247	8	0	0	258	4	1	15	0	0	20	16	174	1	0	0	191	0	1	3	0	1	4	473	2002
17:45:00	2	252	13	0	0	267	7	2	15	0	0	24	11	176	0	0	0	187	0	0	2	0	0	2	480	1937
Grand Total	26	3526	98	0	2	3650	156	18	329	0	0	503	206	3115	4	0	9	3325	5	16	58	0	6	79	**7557**	-
Approach%	0.7%	96.6%	2.7%	0%		-	31%	3.6%	65.4%	0%		-	6.2%	93.7%	0.1%	0%		-	6.3%	20.3%	73.4%	0%		-	-	-
Totals %	0.3%	46.7%	1.3%	0%		48.3%	2.1%	0.2%	4.4%	0%		6.7%	2.7%	41.2%	0.1%	0%		44%	0.1%	0.2%	0.8%	0%		1%	-	-
Heavy	0	459	5	0		-	3	1	9	0		-	3	372	0	0		-	3	4	1	0		-	-	-
Heavy %	0%	13%	5.1%	0%		-	1.9%	5.6%	2.7%	0%		-	1.5%	11.9%	0%	0%		-	60%	25%	1.7%	0%		-	-	-
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-

Peak Hour: 07:30 AM - 08:30 AM **Weather: Overcast Clouds (-2.89 °C)**

Start Time	N Approach HWY 6						E Approach BADENOCH ST						S Approach HWY 6						W Approach CALFASS RD						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	
07:30:00	0	202	7	0	0	209	10	0	13	0	0	23	11	226	0	0	2	237	1	0	2	0	0	3	472
07:45:00	1	192	3	0	0	196	5	0	25	0	0	30	13	189	0	0	0	202	1	5	14	0	0	20	448
08:00:00	1	210	5	0	1	216	11	1	11	0	0	23	13	208	0	0	2	221	0	0	6	0	1	6	466
08:15:00	0	208	3	0	0	211	14	2	27	0	0	43	15	214	0	0	0	229	0	1	7	0	0	8	491
Grand Total	2	812	18	0	1	832	40	3	76	0	0	119	52	837	0	0	4	889	2	6	29	0	1	37	**1877**
Approach%	0.2%	97.6%	2.2%	0%		-	33.6%	2.5%	63.9%	0%		-	5.8%	94.2%	0%	0%		-	5.4%	16.2%	78.4%	0%		-	**-**
Totals %	0.1%	43.3%	1%	0%		44.3%	2.1%	0.2%	4%	0%		6.3%	2.8%	44.6%	0%	0%		47.4%	0.1%	0.3%	1.5%	0%		2%	**-**
PHF	0.5	0.97	0.64	0		0.96	0.71	0.38	0.7	0		0.69	0.87	0.93	0	0		0.94	0.5	0.3	0.52	0		0.46	**-**
Heavy	0	153	5	0		158	2	0	3	0		5	1	99	0	0		100	2	1	1	0		4	**-**
Heavy %	0%	18.8%	27.8%	0%		19%	5%	0%	3.9%	0%		4.2%	1.9%	11.8%	0%	0%		11.2%	100%	16.7%	3.4%	0%		10.8%	**-**
Lights	2	659	13	0		674	38	3	73	0		114	51	738	0	0		789	0	5	28	0		33	**-**
Lights %	100%	81.2%	72.2%	0%		81%	95%	100%	96.1%	0%		95.8%	98.1%	88.2%	0%	0%		88.8%	0%	83.3%	96.6%	0%		89.2%	**-**
Single-Unit Trucks	0	44	2	0		46	0	0	2	0		2	0	27	0	0		27	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	5.4%	11.1%	0%		5.5%	0%	0%	2.6%	0%		1.7%	0%	3.2%	0%	0%		3%	0%	0%	0%	0%		0%	**-**
Buses	0	0	3	0		3	2	0	1	0		3	1	1	0	0		2	2	1	1	0		4	**-**
Buses %	0%	0%	16.7%	0%		0.4%	5%	0%	1.3%	0%		2.5%	1.9%	0.1%	0%	0%		0.2%	100%	16.7%	3.4%	0%		10.8%	**-**
Articulated Trucks	0	109	0	0		109	0	0	0	0		0	0	71	0	0		71	0	0	0	0		0	**-**
Articulated Trucks %	0%	13.4%	0%	0%		13.1%	0%	0%	0%	0%		0%	0%	8.5%	0%	0%		8%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	1	-	**-**
Pedestrians%	-	-	-	-	16.7%		-	-	-	-	0%		-	-	-	-	66.7%		-	-	-	-	16.7%		**-**

Spectrum

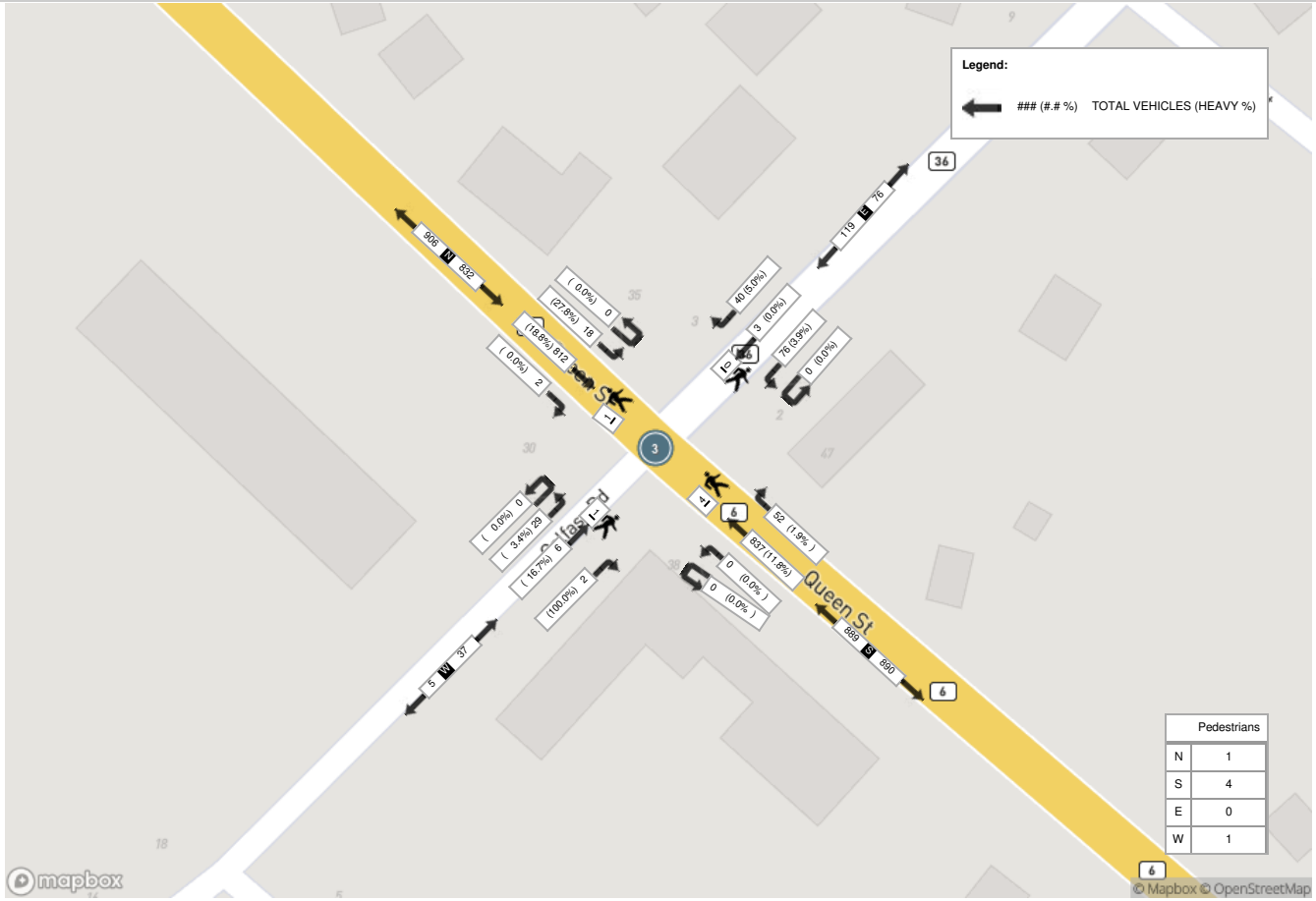
Turning Movement Count
Location Name: HWY 6 & CALFASS RD / BADENOCH ST
Date: Tue, Feb 07, 2023 Deployment Lead: Walter Fugaj

GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (6.07 °C)

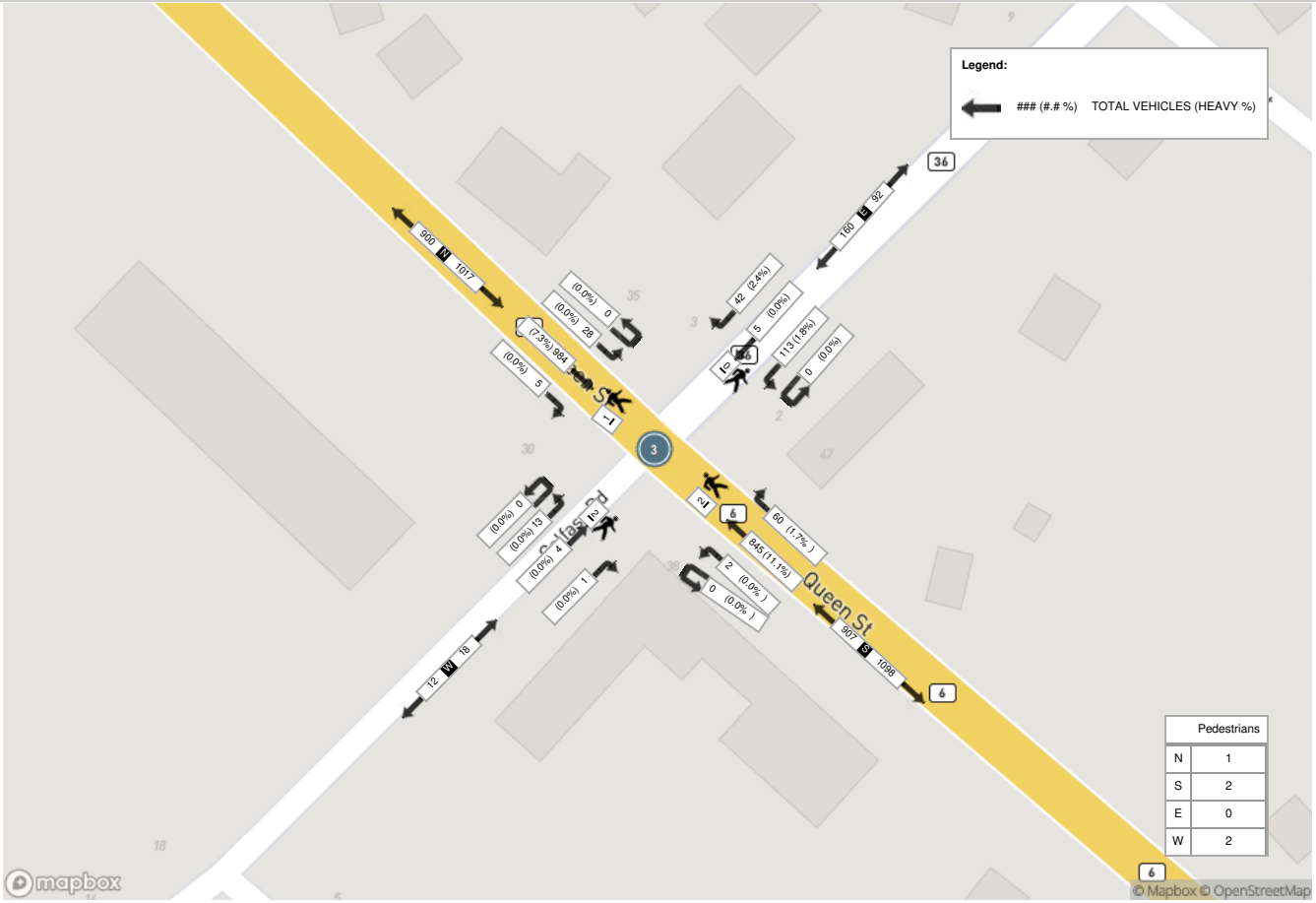
Start Time	N Approach HWY 6						E Approach BADENOCH ST						S Approach HWY 6						W Approach CALFASS RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	0	244	6	0	0	250	11	1	22	0	0	34	18	204	1	0	2	223	0	0	6	0	1	6	513
16:30:00	4	260	9	0	1	273	10	2	32	0	0	44	9	225	0	0	0	234	0	2	2	0	0	4	555
16:45:00	0	251	7	0	0	258	9	0	27	0	0	36	14	230	1	0	0	245	0	2	4	0	1	6	545
17:00:00	1	229	6	0	0	236	12	2	32	0	0	46	19	186	0	0	0	205	1	0	1	0	0	2	489
Grand Total	5	984	28	0	1	1017	42	5	113	0	0	160	60	845	2	0	2	907	1	4	13	0	2	18	**2102**
Approach%	0.5%	96.8%	2.8%	0%		-	26.3%	3.1%	70.6%	0%		-	6.6%	93.2%	0.2%	0%		-	5.6%	22.2%	72.2%	0%		-	**-**
Totals %	0.2%	46.8%	1.3%	0%		48.4%	2%	0.2%	5.4%	0%		7.6%	2.9%	40.2%	0.1%	0%		43.1%	0%	0.2%	0.6%	0%		0.9%	**-**
PHF	0.31	0.95	0.78	0		0.93	0.88	0.63	0.88	0		0.87	0.79	0.92	0.5	0		0.93	0.25	0.5	0.54	0		0.75	**-**
Heavy	0	72	0	0		72	1	0	2	0		3	1	94	0	0		95	0	0	0	0		0	**-**
Heavy %	0%	7.3%	0%	0%		7.1%	2.4%	0%	1.8%	0%		1.9%	1.7%	11.1%	0%	0%		10.5%	0%	0%	0%	0%		0%	**-**
Lights	5	912	28	0		945	41	5	111	0		157	59	751	2	0		812	1	4	13	0		18	**-**
Lights %	100%	92.7%	100%	0%		92.9%	97.6%	100%	98.2%	0%		98.1%	98.3%	88.9%	100%	0%		89.5%	100%	100%	100%	0%		100%	**-**
Single-Unit Trucks	0	21	0	0		21	0	0	1	0		1	0	36	0	0		36	0	0	0	0		0	**-**
Single-Unit Trucks %	0%	2.1%	0%	0%		2.1%	0%	0%	0.9%	0%		0.6%	0%	4.3%	0%	0%		4%	0%	0%	0%	0%		0%	**-**
Buses	0	4	0	0		4	1	0	1	0		2	1	2	0	0		3	0	0	0	0		0	**-**
Buses %	0%	0.4%	0%	0%		0.4%	2.4%	0%	0.9%	0%		1.3%	1.7%	0.2%	0%	0%		0.3%	0%	0%	0%	0%		0%	**-**
Articulated Trucks	0	47	0	0		47	0	0	0	0		0	0	56	0	0		56	0	0	0	0		0	**-**
Articulated Trucks %	0%	4.8%	0%	0%		4.6%	0%	0%	0%	0%		0%	0%	6.6%	0%	0%		6.2%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	20%		-	-	-	-	0%		-	-	-	-	40%		-	-	-	-	40%		**-**

Peak Hour: 07:30 AM - 08:30 AM **Weather: Overcast Clouds (-2.89 °C)**



GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

Peak Hour: 04:15 PM - 05:15 PM **Weather: Overcast Clouds (6.07 °C)**



Spectrum

Turning Movement Count
Location Name: OCHS ST & BACK ST
Date: Tue, Feb 07, 2023 Deployment Lead: Walter Fugaj

GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

Turning Movement Count (2 . OCHS ST & BACK ST)

Start Time	N Approach OCHS ST							E Approach BACK ST							S Approach OCHS ST							W Approach BACK ST							SE Approach SOUTHEAST DRIVEWAY							Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Bear Left N:SE	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	Hard Left E:SE	UTurn E:E	Peds E:	Approach Total	Hard Right S:SE	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Bear Right W:SE	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total	Hard Right SE:E	Bear Right SE:N	Bear Left SE:W	Hard Left SE:S	UTurn SE:SE	Peds SE:	Approach Total		
07:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:15:00	0	1	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
07:30:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	
07:45:00	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4
08:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
08:15:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
08:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BREAK																																					
16:00:00	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
16:15:00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
17:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	2
17:30:00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
17:45:00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
Grand Total	5	1	0	1	0	4	7	1	0	0	0	0	0	1	0	0	1	0	0	4	1	0	0	0	2	0	0	2	0	0	0	0	0	4	0	**11**	-
Approach%	71.4%	14.3%	0%	14.3%	0%		-	100%	0%	0%	0%	0%		-	0%	0%	100%	0%	0%		-	0%	0%	0%	100%	0%		-	0%	0%	0%	0%	0%		-	**-**	-
Totals %	45.5%	9.1%	0%	9.1%	0%		63.6%	9.1%	0%	0%	0%	0%		9.1%	0%	0%	9.1%	0%	0%		9.1%	0%	0%	0%	18.2%	0%		18.2%	0%	0%	0%	0%	0%		0%	**-**	-
Heavy	2	0	0	0	0		-	0	0	0	0	0		-	0	0	0	0	0		-	0	0	0	0	0		-	0	0	0	0	0		-	**-**	-
Heavy %	40%	0%	0%	0%	0%		-	0%	0%	0%	0%	0%		-	0%	0%	0%	0%	0%		-	0%	0%	0%	0%	0%		-	0%	0%	0%	0%	0%		-	**-**	-
Bicycles	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	**-**	-
Bicycle %	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-		-	**-**	-

Spectrum

Turning Movement Count
Location Name: OCHS ST & BACK ST
Date: Tue, Feb 07, 2023 Deployment Lead: Walter Fugaj

GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (-2.89 °C)

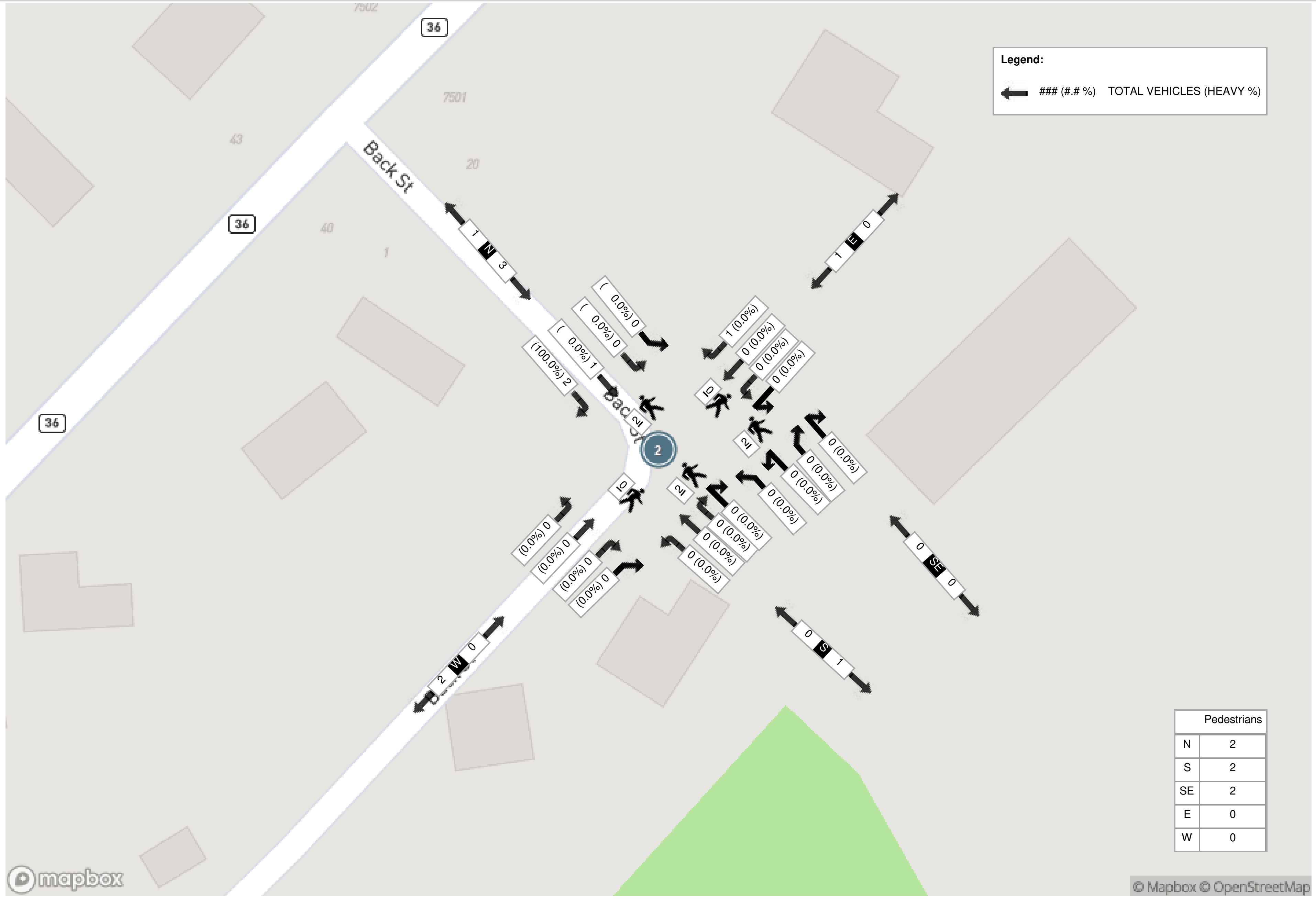
Start Time	N Approach OCHS ST							E Approach BACK ST							S Approach OCHS ST							W Approach BACK ST							SE Approach SOUTHEAST DRIVEWAY							Int. Total (15 min)
	Right	Thru	Bear Left	Left	UTurn	Peds	Approach Total	Right	Thru	Left	Hard Left	UTurn	Peds	Approach Total	Hard Right	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Bear Right	Thru	Left	UTurn	Peds	Approach Total	Hard Right	Bear Right	Bear Left	Hard Left	UTurn	Peds	Approach Total	
07:15:00	0	1	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:30:00	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
07:45:00	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	2	1	0	0	0	2	3	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	**4**
Approach%	66.7%	33.3%	0%	0%	0%		-	100%	0%	0%	0%	0%		-	0%	0%	0%	0%	0%		-	0%	0%	0%	0%	0%		-	0%	0%	0%	0%	0%		-	**-**
Totals %	50%	25%	0%	0%	0%		75%	25%	0%	0%	0%	0%		25%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	**-**
PHF	0.25	0.25	0	0	0		0.38	0.25	0	0	0	0		0.25	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	**-**
Heavy	2	0	0	0	0		2	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	**-**
Heavy %	100%	0%	0%	0%	0%		66.7%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	**-**
Lights	0	1	0	0	0		1	1	0	0	0	0		1	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	**-**
Lights %	0%	100%	0%	0%	0%		33.3%	100%	0%	0%	0%	0%		100%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	**-**
Buses	2	0	0	0	0		2	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	**-**
Buses %	100%	0%	0%	0%	0%		66.7%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	2	-	**-**
Pedestrians%	-	-	-	-	-	33.3%		-	-	-	-	-	0%		-	-	-	-	-	33.3%		-	-	-	-	-	0%		-	-	-	-	-	-	33.3%		**-**

Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (6.07 °C)

Start Time	N Approach OCHS ST							E Approach BACK ST							S Approach OCHS ST							W Approach BACK ST							SE Approach SOUTHEAST DRIVEWAY							Int. Total (15 min)
	Right	Thru	Bear Left	Left	UTurn	Peds	Approach Total	Right	Thru	Left	Hard Left	UTurn	Peds	Approach Total	Hard Right	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Bear Right	Thru	Left	UTurn	Peds	Approach Total	Hard Right	Bear Right	Bear Left	Hard Left	UTurn	Peds	Approach Total	
16:00:00	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
16:15:00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16:30:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
16:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	**4**
Approach%	50%	0%	0%	50%	0%		-	0%	0%	0%	0%	0%		-	0%	0%	100%	0%	0%		-	0%	0%	0%	100%	0%		-	0%	0%	0%	0%	0%		-	**-**
Totals %	25%	0%	0%	25%	0%		50%	0%	0%	0%	0%	0%		0%	0%	0%	25%	0%	0%		25%	0%	0%	0%	25%	0%		25%	0%	0%	0%	0%	0%		0%	**-**
PHF	0.25	0	0	0.25	0		0.5	0	0	0	0	0		0	0	0	0.25	0	0		0.25	0	0	0	0.25	0		0.25	0	0	0	0	0		0	**-**
Heavy	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0		0	**-**
Heavy %	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	**-**
Lights	1	0	0	1	0		2	0	0	0	0	0		0	0	0	1	0	0		1	0	0	0	1	0		1	0	0	0	0	0		0	**-**
Lights %	100%	0%	0%	100%	0%		100%	0%	0%	0%	0%	0%		0%	0%	0%	100%	0%	0%		100%	0%	0%	0%	100%	0%		100%	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	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%	0%	0%	0%		0%	0%	0%	0%	0%	0%		0%	**-**
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	**-**
Pedestrians%	-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		-	-	-	-	-	0%		**-**

GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

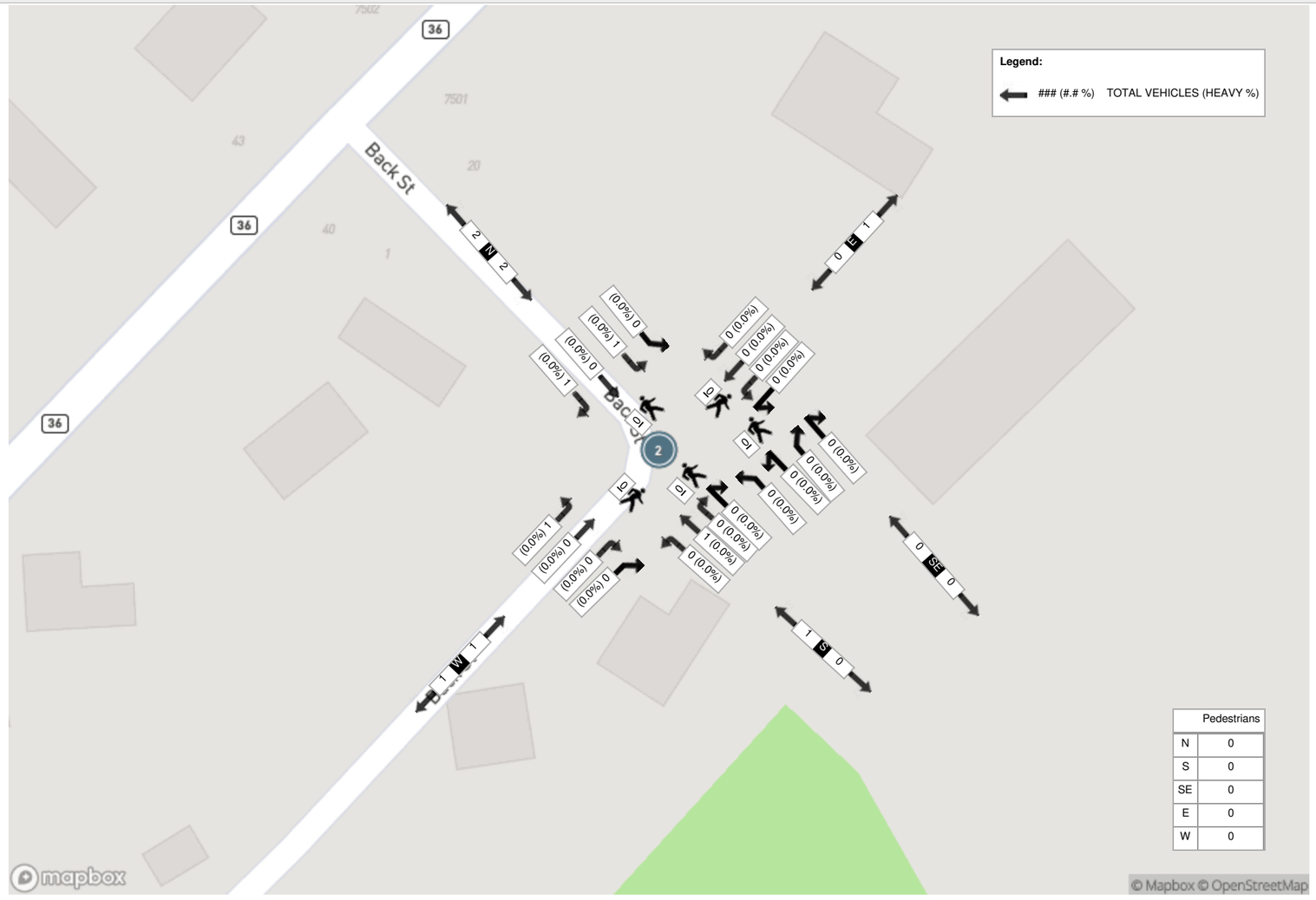
Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (-2.89 °C)



	Pedestrians
N	2
S	2
SE	2
E	0
W	0

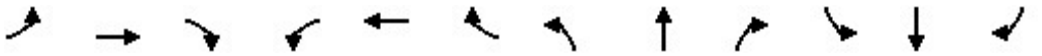
GHD
UNIT 1 705 MILLCREEK DRIVE
MISSISSAUGA ONTARIO, L5N 5M4
CANADA

Peak Hour: 04:00 PM - 05:00 PM Weather: Overcast Clouds (6.07 °C)



Appendix B

Synchro Outputs

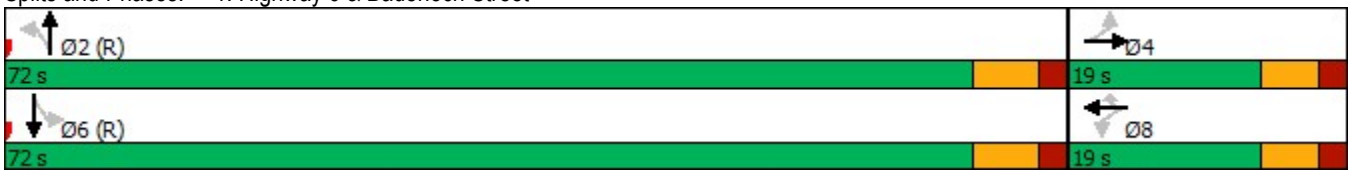


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	6	2	76	3	40	0	837	52	18	812	2
Future Volume (vph)	29	6	2	76	3	40	0	837	52	18	812	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.98	0.98					1.00	
Frt		0.993				0.850		0.991				
Flt Protected		0.962			0.954					0.950		
Satd. Flow (prot)	0	1660	0	0	1765	1555	1921	1709	0	1426	1615	0
Flt Permitted		0.723			0.706					0.222		
Satd. Flow (perm)	0	1244	0	0	1286	1518	1921	1709	0	333	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				42		9				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		4	4		1	1					1
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 (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Adj. Flow (vph)	30	6	2	79	3	42	0	872	54	19	846	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	0	0	82	42	0	926	0	19	848	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	57.5	57.5		57.5	57.5	
Total Split (s)	19.0	19.0		19.0	19.0	19.0	72.0	72.0		72.0	72.0	
Total Split (%)	20.9%	20.9%		20.9%	20.9%	20.9%	79.1%	79.1%		79.1%	79.1%	
Maximum Green (s)	13.0	13.0		13.0	13.0	13.0	65.5	65.5		65.5	65.5	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		13.0			13.0	13.0		65.5		65.5	65.5	
Actuated g/C Ratio		0.14			0.14	0.14		0.72		0.72	0.72	
v/c Ratio		0.21			0.45	0.17		0.75		0.08	0.73	
Control Delay		36.5			44.4	12.8		12.6		4.7	12.3	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		36.5			44.4	12.8		12.6		4.7	12.3	
LOS		D			D	B		B		A	B	
Approach Delay		36.5			33.7			12.6			12.1	
Approach LOS		D			C			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 91			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 14.2		Intersection LOS: B	
Intersection Capacity Utilization 81.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	38	82	42	926	19	848
v/c Ratio	0.21	0.45	0.17	0.75	0.08	0.73
Control Delay	36.5	44.4	12.8	12.6	4.7	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	44.4	12.8	12.6	4.7	12.3
Queue Length 50th (m)	5.6	13.3	0.0	82.3	0.8	73.5
Queue Length 95th (m)	14.7	27.4	8.8	131.9	2.9	118.4
Internal Link Dist (m)	53.1	355.9		273.6		78.6
Turn Bay Length (m)			20.0		40.0	
Base Capacity (vph)	179	183	252	1232	239	1162
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	0.21	0.45	0.17	0.75	0.08	0.73

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	6	2	76	3	40	0	837	52	18	812	2
Future Volume (vph)	29	6	2	76	3	40	0	837	52	18	812	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.98	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1655			1738	1518		1709		1426	1614	
Flt Permitted		0.72			0.71	1.00		1.00		0.22	1.00	
Satd. Flow (perm)		1245			1286	1518		1709		333	1614	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	30	6	2	79	3	42	0	872	54	19	846	2
RTOR Reduction (vph)	0	2	0	0	0	36	0	3	0	0	0	0
Lane Group Flow (vph)	0	36	0	0	82	6	0	923	0	19	848	0
Confl. Peds. (#/hr)	1		4	4		1	1					1
Heavy Vehicles (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		13.0			13.0	13.0		65.5		65.5	65.5	
Effective Green, g (s)		13.0			13.0	13.0		65.5		65.5	65.5	
Actuated g/C Ratio		0.14			0.14	0.14		0.72		0.72	0.72	
Clearance Time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Grp Cap (vph)		177			183	216		1230		239	1161	
v/s Ratio Prot								c0.54			0.53	
v/s Ratio Perm		0.03			c0.06	0.00				0.06		
v/c Ratio		0.21			0.45	0.03		0.75		0.08	0.73	
Uniform Delay, d1		34.4			35.7	33.6		7.8		3.8	7.5	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		2.6			7.7	0.2		4.2		0.6	4.1	
Delay (s)		37.0			43.5	33.8		12.0		4.4	11.6	
Level of Service		D			D	C		B		A	B	
Approach Delay (s)		37.0			40.2			12.0			11.4	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

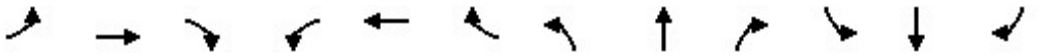
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	71	1	1	121	0	0
Future Volume (vph)	71	1	1	121	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998					
Flt Protected						
Satd. Flow (prot)	1743	0	0	1846	1921	0
Flt Permitted						
Satd. Flow (perm)	1743	0	0	1846	1921	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	10%	4%	0%	0%
Adj. Flow (vph)	82	1	1	139	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	83	0	0	140	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 10.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	71	1	1	121	0	0
Future Volume (Veh/h)	71	1	1	121	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	82	1	1	139	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			83		224	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			83		224	82
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1465		769	983

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	83	140	0
Volume Left	0	1	0
Volume Right	1	0	0
cSH	1700	1465	1700
Volume to Capacity	0.05	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.1	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		10.5%	ICU Level of Service
Analysis Period (min)		15	

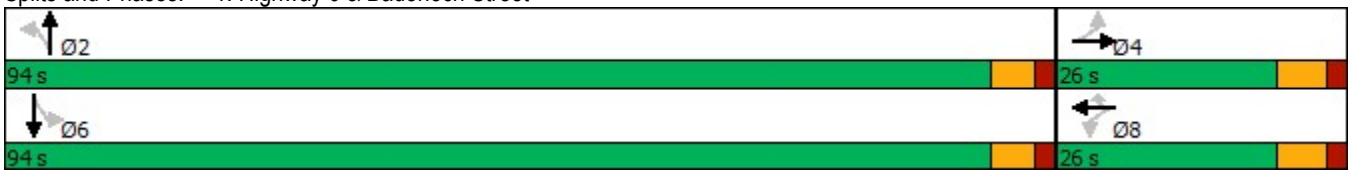


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	4	1	113	5	42	2	845	60	28	984	5
Future Volume (vph)	13	4	1	113	5	42	2	845	60	28	984	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.99	0.97					1.00	
Frt		0.993				0.850		0.990			0.999	
Flt Protected		0.964			0.954		0.950			0.950		
Satd. Flow (prot)	0	1836	0	0	1798	1601	1825	1723	0	1825	1794	0
Flt Permitted		0.758			0.721		0.141			0.189		
Satd. Flow (perm)	0	1439	0	0	1345	1560	271	1723	0	363	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				44		8			1	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		2	2		1	2					2
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%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Adj. Flow (vph)	14	4	1	119	5	44	2	889	63	29	1036	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	124	44	2	952	0	29	1041	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	25.0	25.0		25.0	25.0	
Minimum Split (s)	17.5	17.5		17.5	17.5	17.5	57.5	57.5		57.5	57.5	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	94.0	94.0		94.0	94.0	
Total Split (%)	21.7%	21.7%		21.7%	21.7%	21.7%	78.3%	78.3%		78.3%	78.3%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	88.0	88.0		88.0	88.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	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	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5	6.5	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	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		13.8			13.8	13.8	58.7	58.7		58.7	58.7	
Actuated g/C Ratio		0.16			0.16	0.16	0.68	0.68		0.68	0.68	
v/c Ratio		0.08			0.57	0.15	0.01	0.81		0.12	0.85	
Control Delay		37.1			48.9	13.9	4.5	15.7		5.9	18.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		37.1			48.9	13.9	4.5	15.7		5.9	18.0	
LOS		D			D	B	A	B		A	B	
Approach Delay		37.1			39.8			15.7			17.7	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 85.7			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 18.7		Intersection LOS: B	
Intersection Capacity Utilization 80.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	124	44	2	952	29	1041
v/c Ratio	0.08	0.57	0.15	0.01	0.81	0.12	0.85
Control Delay	37.1	48.9	13.9	4.5	15.7	5.9	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	48.9	13.9	4.5	15.7	5.9	18.0
Queue Length 50th (m)	2.3	17.2	0.0	0.1	86.3	1.3	101.6
Queue Length 95th (m)	10.6	47.4	10.3	0.8	168.5	4.8	198.5
Internal Link Dist (m)	53.1	355.9			273.6		78.6
Turn Bay Length (m)			20.0	15.0		40.0	
Base Capacity (vph)	347	324	409	250	1590	335	1655
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	0.05	0.38	0.11	0.01	0.60	0.09	0.63

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	4	1	113	5	42	2	845	60	28	984	5
Future Volume (vph)	13	4	1	113	5	42	2	845	60	28	984	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1833			1786	1563	1825	1723		1825	1794	
Flt Permitted		0.76			0.72	1.00	0.14	1.00		0.19	1.00	
Satd. Flow (perm)		1440			1349	1563	271	1723		363	1794	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	14	4	1	119	5	44	2	889	63	29	1036	5
RTOR Reduction (vph)	0	1	0	0	0	37	0	2	0	0	0	0
Lane Group Flow (vph)	0	18	0	0	124	7	2	950	0	29	1041	0
Confl. Peds. (#/hr)	1		2	2		1	2					2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		13.8			13.8	13.8	58.7	58.7		58.7	58.7	
Effective Green, g (s)		13.8			13.8	13.8	58.7	58.7		58.7	58.7	
Actuated g/C Ratio		0.16			0.16	0.16	0.69	0.69		0.69	0.69	
Clearance Time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		233			219	253	187	1189		250	1238	
v/s Ratio Prot								0.55			c0.58	
v/s Ratio Perm		0.01			c0.09	0.00	0.01			0.08		
v/c Ratio		0.08			0.57	0.03	0.01	0.80		0.12	0.84	
Uniform Delay, d1		30.2			32.8	30.0	4.1	9.1		4.4	9.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			3.3	0.0	0.0	3.8		0.2	5.3	
Delay (s)		30.3			36.2	30.0	4.1	12.9		4.6	15.0	
Level of Service		C			D	C	A	B		A	B	
Approach Delay (s)		30.3			34.6			12.9			14.7	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

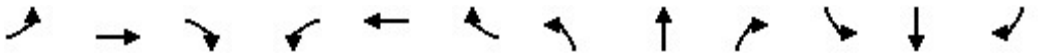
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	80	0	1	148	1	1
Future Volume (vph)	80	0	1	148	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	1902	0	0	1884	1748	0
Flt Permitted					0.976	
Satd. Flow (perm)	1902	0	0	1884	1748	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Adj. Flow (vph)	87	0	1	161	1	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	0	0	162	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	80	0	1	148	1	1
Future Volume (Veh/h)	80	0	1	148	1	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	0	1	161	1	1
Pedestrians				1	1	
Lane Width (m)				3.7	3.7	
Walking Speed (m/s)				1.2	1.2	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			88		251	89
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			88		251	89
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1519		741	973

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	87	162	2
Volume Left	0	1	1
Volume Right	0	0	1
cSH	1700	1519	841
Volume to Capacity	0.05	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.1	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.3
Approach LOS			A

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		18.9%	ICU Level of Service
Analysis Period (min)		15	

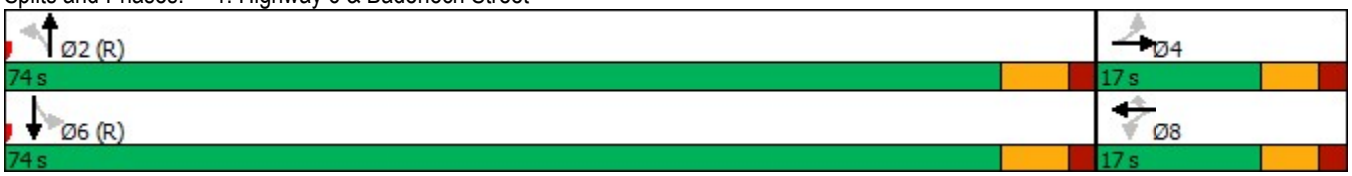


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	6	2	77	3	40	0	853	53	18	828	2
Future Volume (vph)	29	6	2	77	3	40	0	853	53	18	828	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.98	0.98					1.00	
Frt		0.993				0.850		0.991				
Flt Protected		0.962			0.954					0.950		
Satd. Flow (prot)	0	1660	0	0	1765	1555	1921	1709	0	1426	1615	0
Flt Permitted		0.716			0.706					0.226		
Satd. Flow (perm)	0	1232	0	0	1286	1518	1921	1709	0	339	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				42		9				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		4	4		1	1					1
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 (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Adj. Flow (vph)	30	6	2	80	3	42	0	889	55	19	863	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	0	0	83	42	0	944	0	19	865	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	57.5	57.5		57.5	57.5	
Total Split (s)	17.0	17.0		17.0	17.0	17.0	74.0	74.0		74.0	74.0	
Total Split (%)	18.7%	18.7%		18.7%	18.7%	18.7%	81.3%	81.3%		81.3%	81.3%	
Maximum Green (s)	11.0	11.0		11.0	11.0	11.0	67.5	67.5		67.5	67.5	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
v/c Ratio		0.25			0.54	0.19		0.74		0.08	0.72	
Control Delay		39.6			51.2	13.9		11.3		4.1	11.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		39.6			51.2	13.9		11.3		4.1	11.0	
LOS		D			D	B		B		A	B	
Approach Delay		39.6			38.7			11.3			10.8	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 91			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 13.3		Intersection LOS: B	
Intersection Capacity Utilization 81.9%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	38	83	42	944	19	865
v/c Ratio	0.25	0.54	0.19	0.74	0.08	0.72
Control Delay	39.6	51.2	13.9	11.3	4.1	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	51.2	13.9	11.3	4.1	11.0
Queue Length 50th (m)	5.8	13.9	0.0	77.0	0.8	69.1
Queue Length 95th (m)	15.2	#29.1	9.1	124.1	2.6	111.8
Internal Link Dist (m)	53.1	355.9		273.6		78.6
Turn Bay Length (m)			20.0		40.0	
Base Capacity (vph)	150	155	220	1269	251	1197
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	0.25	0.54	0.19	0.74	0.08	0.72

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	6	2	77	3	40	0	853	53	18	828	2
Future Volume (vph)	29	6	2	77	3	40	0	853	53	18	828	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.98	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1655			1738	1518		1709		1426	1614	
Flt Permitted		0.72			0.71	1.00		1.00		0.23	1.00	
Satd. Flow (perm)		1232			1286	1518		1709		339	1614	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	30	6	2	80	3	42	0	889	55	19	862	2
RTOR Reduction (vph)	0	2	0	0	0	37	0	2	0	0	0	0
Lane Group Flow (vph)	0	36	0	0	83	5	0	942	0	19	865	0
Confl. Peds. (#/hr)	1		4	4		1	1					1
Heavy Vehicles (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Effective Green, g (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
Clearance Time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Grp Cap (vph)		148			155	183		1267		251	1197	
v/s Ratio Prot								c0.55			0.54	
v/s Ratio Perm		0.03			c0.06	0.00				0.06		
v/c Ratio		0.24			0.54	0.03		0.74		0.08	0.72	
Uniform Delay, d1		36.2			37.6	35.3		6.8		3.2	6.5	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		3.9			12.6	0.3		4.0		0.6	3.8	
Delay (s)		40.1			50.2	35.6		10.7		3.8	10.3	
Level of Service		D			D	D		B		A	B	
Approach Delay (s)		40.1			45.3			10.7			10.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	72	1	1	123	0	0
Future Volume (vph)	72	1	1	123	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998					
Flt Protected						
Satd. Flow (prot)	1743	0	0	1846	1921	0
Flt Permitted						
Satd. Flow (perm)	1743	0	0	1846	1921	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	10%	4%	0%	0%
Adj. Flow (vph)	83	1	1	141	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	0	142	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 10.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	72	1	1	123	0	0
Future Volume (Veh/h)	72	1	1	123	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	83	1	1	141	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			84		226	84
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			84		226	84
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1464		766	981

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	84	142	0
Volume Left	0	1	0
Volume Right	1	0	0
cSH	1700	1464	1700
Volume to Capacity	0.05	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.1	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	0.0
Approach LOS			A

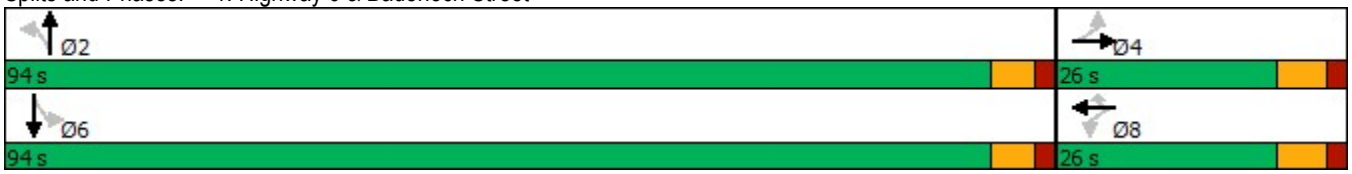
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	4	1	115	5	42	2	861	61	28	1003	5
Future Volume (vph)	13	4	1	115	5	42	2	861	61	28	1003	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.99	0.97					1.00	
Frt		0.993				0.850		0.990			0.999	
Flt Protected		0.964			0.954		0.950			0.950		
Satd. Flow (prot)	0	1836	0	0	1798	1601	1825	1723	0	1825	1794	0
Flt Permitted		0.755			0.721		0.177			0.218		
Satd. Flow (perm)	0	1433	0	0	1345	1560	340	1723	0	419	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				44		8			1	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		2	2		1	2					2
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%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Adj. Flow (vph)	14	4	1	121	5	44	2	906	64	29	1056	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	126	44	2	970	0	29	1061	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	25.0	25.0		25.0	25.0	
Minimum Split (s)	17.5	17.5		17.5	17.5	17.5	57.5	57.5		57.5	57.5	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	94.0	94.0		94.0	94.0	
Total Split (%)	21.7%	21.7%		21.7%	21.7%	21.7%	78.3%	78.3%		78.3%	78.3%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	88.0	88.0		88.0	88.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	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	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5	6.5	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	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		15.7			15.7	15.7	91.1	91.1		91.1	91.1	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
v/c Ratio		0.10			0.71	0.18	0.01	0.74		0.09	0.78	
Control Delay		43.1			70.8	14.4	4.5	12.6		5.1	14.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		43.1			70.8	14.4	4.5	12.6		5.1	14.0	
LOS		D			E	B	A	B		A	B	
Approach Delay		43.1			56.2			12.6			13.8	
Approach LOS		D			E			B			B	

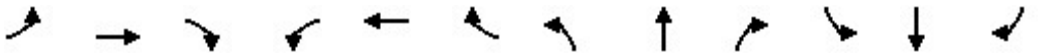
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 81.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	126	44	2	970	29	1061
v/c Ratio	0.10	0.71	0.18	0.01	0.74	0.09	0.78
Control Delay	43.1	70.8	14.4	4.5	12.6	5.1	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.1	70.8	14.4	4.5	12.6	5.1	14.0
Queue Length 50th (m)	3.7	27.7	0.0	0.1	104.9	1.5	123.9
Queue Length 95th (m)	10.6	48.0	10.3	0.8	177.4	4.6	208.8
Internal Link Dist (m)	53.1	355.9			273.6		78.6
Turn Bay Length (m)			20.0	15.0		40.0	
Base Capacity (vph)	235	219	291	259	1317	320	1369
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	0.08	0.58	0.15	0.01	0.74	0.09	0.78

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	4	1	115	5	42	2	861	61	28	1003	5
Future Volume (vph)	13	4	1	115	5	42	2	861	61	28	1003	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831			1780	1560	1825	1723		1825	1794	
Flt Permitted		0.76			0.72	1.00	0.18	1.00		0.22	1.00	
Satd. Flow (perm)		1433			1345	1560	339	1723		419	1794	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	14	4	1	121	5	44	2	906	64	29	1056	5
RTOR Reduction (vph)	0	1	0	0	0	38	0	2	0	0	0	0
Lane Group Flow (vph)	0	18	0	0	126	6	2	968	0	29	1061	0
Confl. Peds. (#/hr)	1		2	2		1	2					2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		15.7			15.7	15.7	91.1	91.1		91.1	91.1	
Effective Green, g (s)		15.7			15.7	15.7	91.1	91.1		91.1	91.1	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
Clearance Time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		188			177	205	258	1315		319	1369	
v/s Ratio Prot								0.56			c0.59	
v/s Ratio Perm		0.01			c0.09	0.00	0.01			0.07		
v/c Ratio		0.10			0.71	0.03	0.01	0.74		0.09	0.77	
Uniform Delay, d1		45.6			49.6	45.2	3.4	7.6		3.6	8.2	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			12.7	0.1	0.1	3.7		0.6	4.3	
Delay (s)		45.8			62.3	45.2	3.4	11.3		4.1	12.5	
Level of Service		D			E	D	A	B		A	B	
Approach Delay (s)		45.8			57.9			11.3			12.3	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	119.3	Sum of lost time (s)	12.5
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

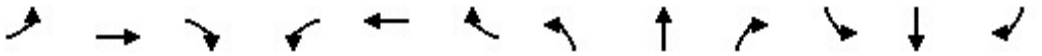
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	81	0	1	150	1	1
Future Volume (vph)	81	0	1	150	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	1902	0	0	1884	1748	0
Flt Permitted					0.976	
Satd. Flow (perm)	1902	0	0	1884	1748	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Adj. Flow (vph)	88	0	1	163	1	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	88	0	0	164	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	81	0	1	150	1	1
Future Volume (Veh/h)	81	0	1	150	1	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	88	0	1	163	1	1
Pedestrians				1	1	
Lane Width (m)				3.7	3.7	
Walking Speed (m/s)				1.2	1.2	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			89		254	90
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			89		254	90
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1518		738	972

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	88	164	2
Volume Left	0	1	1
Volume Right	0	0	1
cSH	1700	1518	839
Volume to Capacity	0.05	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.1	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.3
Approach LOS			A

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		19.0%	ICU Level of Service
Analysis Period (min)		15	

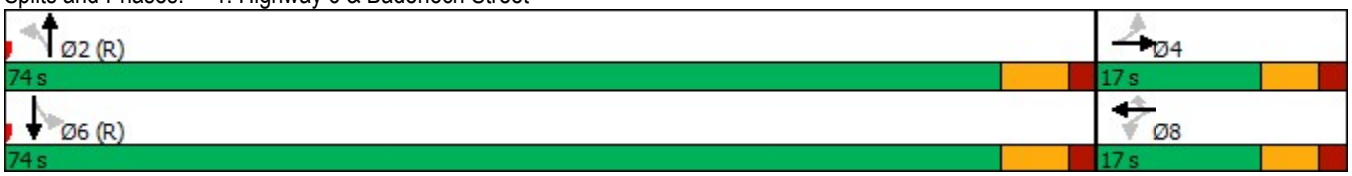


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	6	2	84	3	47	0	853	55	20	828	2
Future Volume (vph)	29	6	2	84	3	47	0	853	55	20	828	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.98	0.98					1.00	
Frt		0.993				0.850		0.991				
Flt Protected		0.962			0.954					0.950		
Satd. Flow (prot)	0	1660	0	0	1764	1555	1921	1709	0	1426	1615	0
Flt Permitted		0.711			0.705					0.225		
Satd. Flow (perm)	0	1224	0	0	1284	1518	1921	1709	0	338	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				49		10				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		4	4		1	1					1
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 (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Adj. Flow (vph)	30	6	2	88	3	49	0	889	57	21	863	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	0	0	91	49	0	946	0	21	865	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	57.5	57.5		57.5	57.5	
Total Split (s)	17.0	17.0		17.0	17.0	17.0	74.0	74.0		74.0	74.0	
Total Split (%)	18.7%	18.7%		18.7%	18.7%	18.7%	81.3%	81.3%		81.3%	81.3%	
Maximum Green (s)	11.0	11.0		11.0	11.0	11.0	67.5	67.5		67.5	67.5	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
v/c Ratio		0.26			0.59	0.22		0.74		0.08	0.72	
Control Delay		39.7			54.5	13.6		11.3		4.2	11.0	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		39.7			54.5	13.6		11.3		4.2	11.0	
LOS		D			D	B		B		A	B	
Approach Delay		39.7			40.2			11.3			10.8	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 91			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 13.6		Intersection LOS: B	
Intersection Capacity Utilization 82.0%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	38	91	49	946	21	865
v/c Ratio	0.26	0.59	0.22	0.74	0.08	0.72
Control Delay	39.7	54.5	13.6	11.3	4.2	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	54.5	13.6	11.3	4.2	11.0
Queue Length 50th (m)	5.8	15.3	0.0	77.3	0.8	69.1
Queue Length 95th (m)	15.2	#34.3	9.8	124.8	2.8	111.8
Internal Link Dist (m)	53.1	355.9		273.6		78.6
Turn Bay Length (m)			20.0		40.0	
Base Capacity (vph)	149	155	226	1270	250	1197
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	0.26	0.59	0.22	0.74	0.08	0.72

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	6	2	84	3	47	0	853	55	20	828	2
Future Volume (vph)	29	6	2	84	3	47	0	853	55	20	828	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.98	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1655			1737	1518		1709		1426	1614	
Flt Permitted		0.71			0.71	1.00		1.00		0.23	1.00	
Satd. Flow (perm)		1223			1285	1518		1709		338	1614	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	30	6	2	88	3	49	0	889	57	21	862	2
RTOR Reduction (vph)	0	2	0	0	0	43	0	3	0	0	0	0
Lane Group Flow (vph)	0	36	0	0	91	6	0	943	0	21	865	0
Confl. Peds. (#/hr)	1		4	4		1	1					1
Heavy Vehicles (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Effective Green, g (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
Clearance Time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Grp Cap (vph)		147			155	183		1267		250	1197	
v/s Ratio Prot								c0.55			0.54	
v/s Ratio Perm		0.03			c0.07	0.00				0.06		
v/c Ratio		0.25			0.59	0.03		0.74		0.08	0.72	
Uniform Delay, d1		36.2			37.9	35.3		6.8		3.2	6.5	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		4.0			15.3	0.3		4.0		0.7	3.8	
Delay (s)		40.2			53.1	35.6		10.8		3.9	10.3	
Level of Service		D			D	D		B		A	B	
Approach Delay (s)		40.2			47.0			10.8			10.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	72	6	2	123	14	2
Future Volume (vph)	72	6	2	123	14	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989				0.985	
Flt Protected				0.999	0.957	
Satd. Flow (prot)	1727	0	0	1844	1811	0
Flt Permitted				0.999	0.957	
Satd. Flow (perm)	1727	0	0	1844	1811	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	10%	4%	0%	0%
Adj. Flow (vph)	83	7	2	141	16	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	0	0	143	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.1%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	72	6	2	123	14	2
Future Volume (Veh/h)	72	6	2	123	14	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	83	7	2	141	16	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			90		232	86
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			90		232	86
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1456		760	978

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	90	143	18
Volume Left	0	2	16
Volume Right	7	0	2
cSH	1700	1456	779
Volume to Capacity	0.05	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.5
Control Delay (s)	0.0	0.1	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.7
Approach LOS			A

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		18.1%	ICU Level of Service
Analysis Period (min)		15	

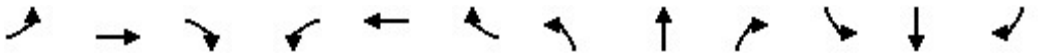
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	0	0	15	6	0
Future Volume (vph)	2	0	0	15	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1825	0	0	1921	1921	0
Flt Permitted	0.950					
Satd. Flow (perm)	1825	0	0	1921	1921	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	145.0			95.3	69.0	
Travel Time (s)	10.9			7.1	5.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	2	0	0	15	6	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	15	6	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	15	6	0
Future Volume (Veh/h)	2	0	0	15	6	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	0	15	6	0
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	21	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	21	6	6			
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	100	100			
cM capacity (veh/h)	1001	1083	1628			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	15	6
Volume Left	2	0	0
Volume Right	0	0	0
cSH	1001	1628	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

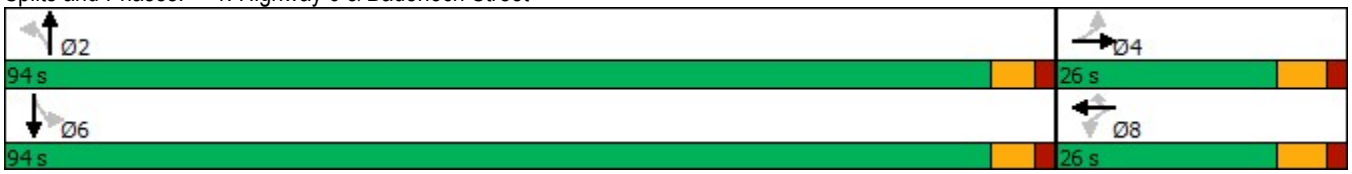


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	4	1	119	5	46	2	861	68	35	1003	5
Future Volume (vph)	13	4	1	119	5	46	2	861	68	35	1003	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.99	0.97					1.00	
Frt		0.993				0.850		0.989			0.999	
Flt Protected		0.964			0.954		0.950			0.950		
Satd. Flow (prot)	0	1836	0	0	1798	1601	1825	1722	0	1825	1794	0
Flt Permitted		0.755			0.721		0.176			0.214		
Satd. Flow (perm)	0	1433	0	0	1345	1560	338	1722	0	411	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				48		9			1	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		2	2		1	2					2
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%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Adj. Flow (vph)	14	4	1	125	5	48	2	906	72	37	1056	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	0	130	48	2	978	0	37	1061	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	25.0	25.0		25.0	25.0	
Minimum Split (s)	17.5	17.5		17.5	17.5	17.5	57.5	57.5		57.5	57.5	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	94.0	94.0		94.0	94.0	
Total Split (%)	21.7%	21.7%		21.7%	21.7%	21.7%	78.3%	78.3%		78.3%	78.3%	
Maximum Green (s)	19.5	19.5		19.5	19.5	19.5	88.0	88.0		88.0	88.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	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	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5	6.5	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	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		15.9			15.9	15.9	91.0	91.0		91.0	91.0	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
v/c Ratio		0.10			0.73	0.19	0.01	0.74		0.12	0.78	
Control Delay		43.0			72.0	14.1	4.5	12.9		5.5	14.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		43.0			72.0	14.1	4.5	12.9		5.5	14.2	
LOS		D			E	B	A	B		A	B	
Approach Delay		43.0			56.4			12.9			13.9	
Approach LOS		D			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.4			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 17.0		Intersection LOS: B	
Intersection Capacity Utilization 82.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	19	130	48	2	978	37	1061
v/c Ratio	0.10	0.73	0.19	0.01	0.74	0.12	0.78
Control Delay	43.0	72.0	14.1	4.5	12.9	5.5	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	72.0	14.1	4.5	12.9	5.5	14.2
Queue Length 50th (m)	3.7	28.7	0.0	0.1	108.8	2.0	126.2
Queue Length 95th (m)	10.6	49.6	10.5	0.8	181.0	5.7	208.8
Internal Link Dist (m)	53.1	355.9			273.6		78.6
Turn Bay Length (m)			20.0	15.0		40.0	
Base Capacity (vph)	234	219	294	257	1314	313	1367
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	0.08	0.59	0.16	0.01	0.74	0.12	0.78

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	4	1	119	5	46	2	861	68	35	1003	5
Future Volume (vph)	13	4	1	119	5	46	2	861	68	35	1003	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831			1780	1560	1825	1722		1825	1794	
Flt Permitted		0.75			0.72	1.00	0.18	1.00		0.21	1.00	
Satd. Flow (perm)		1433			1344	1560	338	1722		410	1794	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	14	4	1	125	5	48	2	906	72	37	1056	5
RTOR Reduction (vph)	0	1	0	0	0	42	0	2	0	0	0	0
Lane Group Flow (vph)	0	18	0	0	130	6	2	976	0	37	1061	0
Confl. Peds. (#/hr)	1		2	2		1	2					2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		15.9			15.9	15.9	91.0	91.0		91.0	91.0	
Effective Green, g (s)		15.9			15.9	15.9	91.0	91.0		91.0	91.0	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
Clearance Time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		190			178	207	257	1312		312	1367	
v/s Ratio Prot								0.57			c0.59	
v/s Ratio Perm		0.01			c0.10	0.00	0.01			0.09		
v/c Ratio		0.10			0.73	0.03	0.01	0.74		0.12	0.78	
Uniform Delay, d1		45.4			49.7	45.0	3.4	7.8		3.7	8.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			14.3	0.1	0.1	3.9		0.8	4.4	
Delay (s)		45.7			64.0	45.1	3.5	11.7		4.5	12.6	
Level of Service		D			E	D	A	B		A	B	
Approach Delay (s)		45.7			58.9			11.6			12.4	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	119.4	Sum of lost time (s)	12.5
Intersection Capacity Utilization	82.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	81	14	3	150	9	2
Future Volume (vph)	81	14	3	150	9	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.980				0.977	
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1867	0	0	1882	1802	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1867	0	0	1882	1802	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Adj. Flow (vph)	88	15	3	163	10	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	0	0	166	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	81	14	3	150	9	2
Future Volume (Veh/h)	81	14	3	150	9	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	88	15	3	163	10	2
Pedestrians				1	1	
Lane Width (m)				3.7	3.7	
Walking Speed (m/s)				1.2	1.2	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			104		266	98
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			104		266	98
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1499		726	962

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	103	166	12
Volume Left	0	3	10
Volume Right	15	0	2
cSH	1700	1499	757
Volume to Capacity	0.06	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.4
Control Delay (s)	0.0	0.1	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.8
Approach LOS			A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		

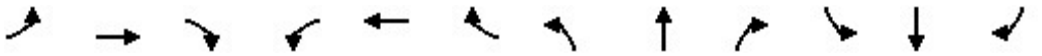
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	0	0	10	16	1
Future Volume (vph)	1	0	0	10	16	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.992	
Flt Protected	0.950					
Satd. Flow (prot)	1825	0	0	1921	1906	0
Flt Permitted	0.950					
Satd. Flow (perm)	1825	0	0	1921	1906	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	145.0			95.3	69.0	
Travel Time (s)	10.9			7.1	5.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	0	10	16	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	10	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	0	10	16	1
Future Volume (Veh/h)	1	0	0	10	16	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	0	0	10	16	1
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	26	16	17			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	26	16	17			
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	100	100			
cM capacity (veh/h)	994	1068	1613			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	10	17
Volume Left	1	0	0
Volume Right	0	0	1
cSH	994	1613	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

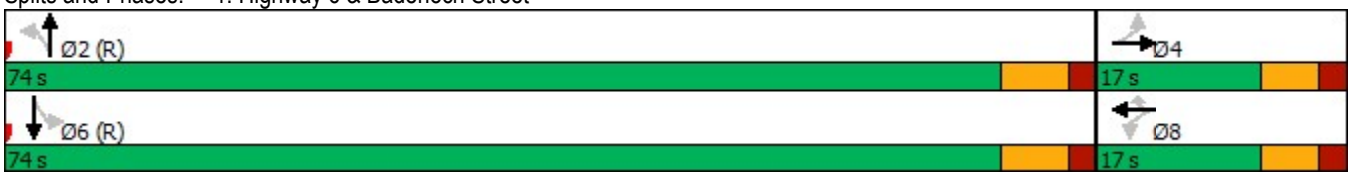


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	6	2	85	3	45	0	942	58	20	914	2
Future Volume (vph)	32	6	2	85	3	45	0	942	58	20	914	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.98	0.98					1.00	
Frt		0.993				0.850		0.991				
Flt Protected		0.961			0.954					0.950		
Satd. Flow (prot)	0	1667	0	0	1764	1555	1921	1709	0	1426	1615	0
Flt Permitted		0.706			0.703					0.179		
Satd. Flow (perm)	0	1221	0	0	1281	1518	1921	1709	0	269	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				47		9				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		4	4		1	1					1
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 (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Adj. Flow (vph)	33	6	2	89	3	47	0	981	60	21	952	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	92	47	0	1041	0	21	954	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	57.5	57.5		57.5	57.5	
Total Split (s)	17.0	17.0		17.0	17.0	17.0	74.0	74.0		74.0	74.0	
Total Split (%)	18.7%	18.7%		18.7%	18.7%	18.7%	81.3%	81.3%		81.3%	81.3%	
Maximum Green (s)	11.0	11.0		11.0	11.0	11.0	67.5	67.5		67.5	67.5	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
v/c Ratio		0.28			0.60	0.21		0.82		0.11	0.80	
Control Delay		40.3			55.3	13.8		14.8		4.7	13.9	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		40.3			55.3	13.8		14.8		4.7	13.9	
LOS		D			E	B		B		A	B	
Approach Delay		40.3			41.3			14.8			13.7	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 91			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 86.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	41	92	47	1041	21	954
v/c Ratio	0.28	0.60	0.21	0.82	0.11	0.80
Control Delay	40.3	55.3	13.8	14.8	4.7	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	55.3	13.8	14.8	4.7	13.9
Queue Length 50th (m)	6.3	15.5	0.0	97.7	0.8	86.5
Queue Length 95th (m)	15.9	#34.8	9.6	164.6	2.9	146.6
Internal Link Dist (m)	53.1	355.9		273.6		78.6
Turn Bay Length (m)			20.0		40.0	
Base Capacity (vph)	149	154	224	1269	199	1197
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	0.28	0.60	0.21	0.82	0.11	0.80

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	6	2	85	3	45	0	942	58	20	914	2
Future Volume (vph)	32	6	2	85	3	45	0	942	58	20	914	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.98	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1663			1738	1518		1709		1426	1614	
Flt Permitted		0.71			0.70	1.00		1.00		0.18	1.00	
Satd. Flow (perm)		1222			1280	1518		1709		269	1614	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	33	6	2	89	3	47	0	981	60	21	952	2
RTOR Reduction (vph)	0	2	0	0	0	41	0	2	0	0	0	0
Lane Group Flow (vph)	0	39	0	0	92	6	0	1039	0	21	954	0
Confl. Peds. (#/hr)	1		4	4		1	1					1
Heavy Vehicles (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Effective Green, g (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
Clearance Time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Grp Cap (vph)		147			154	183		1267		199	1197	
v/s Ratio Prot								c0.61			0.59	
v/s Ratio Perm		0.03			c0.07	0.00				0.08		
v/c Ratio		0.27			0.60	0.03		0.82		0.11	0.80	
Uniform Delay, d1		36.3			37.9	35.3		7.7		3.3	7.4	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		4.4			15.9	0.3		6.0		1.1	5.6	
Delay (s)		40.7			53.8	35.6		13.8		4.4	13.0	
Level of Service		D			D	D		B		A	B	
Approach Delay (s)		40.7			47.7			13.8			12.8	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	79	1	1	136	0	0
Future Volume (vph)	79	1	1	136	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999					
Flt Protected						
Satd. Flow (prot)	1745	0	0	1847	1921	0
Flt Permitted						
Satd. Flow (perm)	1745	0	0	1847	1921	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	10%	4%	0%	0%
Adj. Flow (vph)	91	1	1	156	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	157	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	11.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	79	1	1	136	0	0
Future Volume (Veh/h)	79	1	1	136	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	91	1	1	156	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			92		250	92
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			92		250	92
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1454		743	971

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	92	157	0
Volume Left	0	1	0
Volume Right	1	0	0
cSH	1700	1454	1700
Volume to Capacity	0.05	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.1	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	0.0
Approach LOS			A

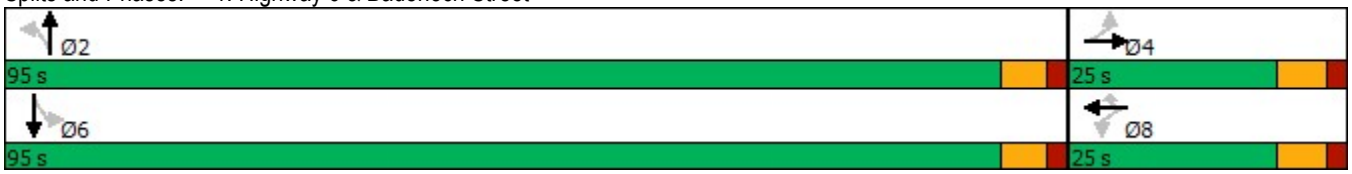
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	11.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	4	1	127	5	47	2	951	67	31	1108	5
Future Volume (vph)	14	4	1	127	5	47	2	951	67	31	1108	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.99	0.97					1.00	
Frt		0.993				0.850		0.990			0.999	
Flt Protected		0.964			0.954		0.950			0.950		
Satd. Flow (prot)	0	1836	0	0	1798	1601	1825	1723	0	1825	1794	0
Flt Permitted		0.744			0.719		0.124			0.170		
Satd. Flow (perm)	0	1413	0	0	1341	1560	238	1723	0	327	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				45		8				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		2	2		1	2					2
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%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Adj. Flow (vph)	15	4	1	134	5	49	2	1001	71	33	1166	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	139	49	2	1072	0	33	1171	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	25.0	25.0		25.0	25.0	
Minimum Split (s)	17.5	17.5		17.5	17.5	17.5	57.5	57.5		57.5	57.5	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	95.0	95.0		95.0	95.0	
Total Split (%)	20.8%	20.8%		20.8%	20.8%	20.8%	79.2%	79.2%		79.2%	79.2%	
Maximum Green (s)	18.5	18.5		18.5	18.5	18.5	89.0	89.0		89.0	89.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	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	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5	6.5	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	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		16.1			16.1	16.1	91.3	91.3		91.3	91.3	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
v/c Ratio		0.11			0.77	0.20	0.01	0.82		0.13	0.86	
Control Delay		43.8			77.0	16.4	4.5	16.3		5.8	18.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		43.8			77.0	16.4	4.5	16.3		5.8	18.9	
LOS		D			E	B	A	B		A	B	
Approach Delay		43.8			61.2			16.3			18.5	
Approach LOS		D			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 119.9			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 86.7%		ICU Level of Service E	
Analysis Period (min) 15			

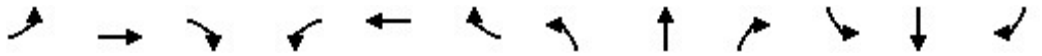
Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	139	49	2	1072	33	1171
v/c Ratio	0.11	0.77	0.20	0.01	0.82	0.13	0.86
Control Delay	43.8	77.0	16.4	4.5	16.3	5.8	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	77.0	16.4	4.5	16.3	5.8	18.9
Queue Length 50th (m)	3.9	31.3	0.8	0.1	145.1	1.9	174.2
Queue Length 95th (m)	11.1	#57.7	11.7	0.8	225.8	5.3	#273.1
Internal Link Dist (m)	53.1	355.9			273.6		78.6
Turn Bay Length (m)			20.0	15.0		40.0	
Base Capacity (vph)	218	206	278	181	1313	248	1365
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	0.09	0.67	0.18	0.01	0.82	0.13	0.86

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	4	1	127	5	47	2	951	67	31	1108	5
Future Volume (vph)	14	4	1	127	5	47	2	951	67	31	1108	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831			1780	1560	1825	1723		1825	1795	
Flt Permitted		0.74			0.72	1.00	0.12	1.00		0.17	1.00	
Satd. Flow (perm)		1414			1342	1560	238	1723		327	1795	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	4	1	134	5	49	2	1001	71	33	1166	5
RTOR Reduction (vph)	0	1	0	0	0	39	0	2	0	0	0	0
Lane Group Flow (vph)	0	19	0	0	139	10	2	1070	0	33	1171	0
Confl. Peds. (#/hr)	1		2	2		1	2					2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		16.1			16.1	16.1	91.3	91.3		91.3	91.3	
Effective Green, g (s)		16.1			16.1	16.1	91.3	91.3		91.3	91.3	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
Clearance Time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		189			180	209	181	1312		249	1366	
v/s Ratio Prot								0.62			c0.65	
v/s Ratio Perm		0.01			c0.10	0.01	0.01			0.10		
v/c Ratio		0.10			0.77	0.05	0.01	0.82		0.13	0.86	
Uniform Delay, d1		45.6			50.1	45.2	3.4	9.0		3.8	9.8	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			18.3	0.1	0.1	5.7		1.1	7.1	
Delay (s)		45.8			68.5	45.3	3.6	14.7		4.9	16.9	
Level of Service		D			E	D	A	B		A	B	
Approach Delay (s)		45.8			62.4			14.7			16.6	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	119.9	Sum of lost time (s)	12.5
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

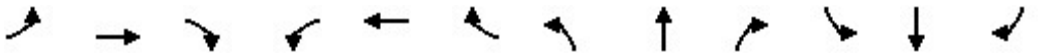
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	90	0	1	166	1	1
Future Volume (vph)	90	0	1	166	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	1902	0	0	1884	1748	0
Flt Permitted					0.976	
Satd. Flow (perm)	1902	0	0	1884	1748	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Adj. Flow (vph)	98	0	1	180	1	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	0	0	181	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	90	0	1	166	1	1
Future Volume (Veh/h)	90	0	1	166	1	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	0	1	180	1	1
Pedestrians				1	1	
Lane Width (m)				3.7	3.7	
Walking Speed (m/s)				1.2	1.2	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			99		281	100
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			99		281	100
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1505		712	959

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	98	181	2
Volume Left	0	1	1
Volume Right	0	0	1
cSH	1700	1505	818
Volume to Capacity	0.06	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		19.9%	ICU Level of Service
Analysis Period (min)		15	

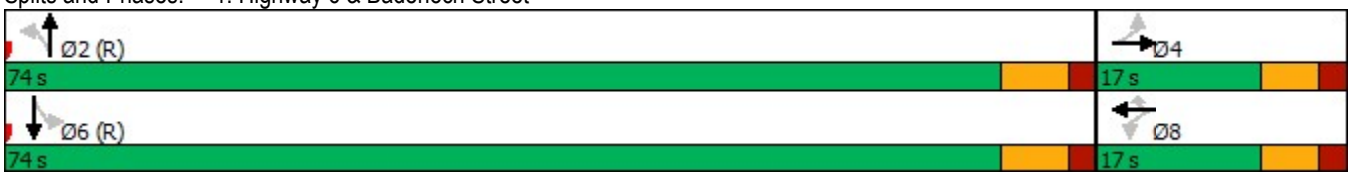


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	6	2	92	3	52	0	942	60	22	914	2
Future Volume (vph)	32	6	2	92	3	52	0	942	60	22	914	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.98	0.98					1.00	
Frt		0.993				0.850		0.991				
Flt Protected		0.961			0.954					0.950		
Satd. Flow (prot)	0	1667	0	0	1764	1555	1921	1709	0	1426	1615	0
Flt Permitted		0.702			0.702					0.178		
Satd. Flow (perm)	0	1214	0	0	1279	1518	1921	1709	0	267	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				54		10				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		4	4		1	1					1
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 (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Adj. Flow (vph)	33	6	2	96	3	54	0	981	63	23	952	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	99	54	0	1044	0	23	954	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	57.5	57.5		57.5	57.5	
Total Split (s)	17.0	17.0		17.0	17.0	17.0	74.0	74.0		74.0	74.0	
Total Split (%)	18.7%	18.7%		18.7%	18.7%	18.7%	81.3%	81.3%		81.3%	81.3%	
Maximum Green (s)	11.0	11.0		11.0	11.0	11.0	67.5	67.5		67.5	67.5	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
v/c Ratio		0.28			0.64	0.23		0.82		0.12	0.80	
Control Delay		40.4			58.7	13.4		14.9		4.9	13.9	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		40.4			58.7	13.4		14.9		4.9	13.9	
LOS		D			E	B		B		A	B	
Approach Delay		40.4			42.7			14.9			13.7	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 91			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 75			
Control Type: Pretimed			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 16.8		Intersection LOS: B	
Intersection Capacity Utilization 87.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	41	99	54	1044	23	954
v/c Ratio	0.28	0.64	0.23	0.82	0.12	0.80
Control Delay	40.4	58.7	13.4	14.9	4.9	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	58.7	13.4	14.9	4.9	13.9
Queue Length 50th (m)	6.3	16.8	0.0	97.9	0.9	86.5
Queue Length 95th (m)	15.9	#38.5	10.3	165.6	3.3	146.6
Internal Link Dist (m)	53.1	355.9		273.6		78.6
Turn Bay Length (m)			20.0		40.0	
Base Capacity (vph)	148	154	230	1270	198	1197
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	0.28	0.64	0.23	0.82	0.12	0.80

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	6	2	92	3	52	0	942	60	22	914	2
Future Volume (vph)	32	6	2	92	3	52	0	942	60	22	914	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.98	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1663			1737	1518		1709		1426	1614	
Flt Permitted		0.70			0.70	1.00		1.00		0.18	1.00	
Satd. Flow (perm)		1214			1279	1518		1709		267	1614	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	33	6	2	96	3	54	0	981	62	23	952	2
RTOR Reduction (vph)	0	2	0	0	0	47	0	3	0	0	0	0
Lane Group Flow (vph)	0	39	0	0	99	7	0	1041	0	23	954	0
Confl. Peds. (#/hr)	1		4	4		1	1					1
Heavy Vehicles (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Effective Green, g (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
Clearance Time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Grp Cap (vph)		146			154	183		1267		198	1197	
v/s Ratio Prot								c0.61			0.59	
v/s Ratio Perm		0.03			c0.08	0.00				0.09		
v/c Ratio		0.27			0.64	0.04		0.82		0.12	0.80	
Uniform Delay, d1		36.3			38.1	35.3		7.8		3.3	7.4	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		4.5			18.8	0.4		6.1		1.2	5.6	
Delay (s)		40.8			57.0	35.7		13.9		4.5	13.0	
Level of Service		D			E	D		B		A	B	
Approach Delay (s)		40.8			49.4			13.9			12.8	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	79	6	2	136	14	2
Future Volume (vph)	79	6	2	136	14	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990				0.985	
Flt Protected				0.999	0.957	
Satd. Flow (prot)	1729	0	0	1844	1811	0
Flt Permitted				0.999	0.957	
Satd. Flow (perm)	1729	0	0	1844	1811	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	10%	4%	0%	0%
Adj. Flow (vph)	91	7	2	156	16	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	0	0	158	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	79	6	2	136	14	2
Future Volume (Veh/h)	79	6	2	136	14	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	91	7	2	156	16	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			98		254	94
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			98		254	94
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1446		737	968

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	98	158	18
Volume Left	0	2	16
Volume Right	7	0	2
cSH	1700	1446	758
Volume to Capacity	0.06	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.0	0.1	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	9.9
Approach LOS			A

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		18.8%	ICU Level of Service
Analysis Period (min)		15	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	0	0	15	6	0
Future Volume (vph)	2	0	0	15	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1825	0	0	1921	1921	0
Flt Permitted	0.950					
Satd. Flow (perm)	1825	0	0	1921	1921	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	145.0			95.3	69.0	
Travel Time (s)	10.9			7.1	5.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	2	0	0	15	6	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	15	6	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	15	6	0
Future Volume (Veh/h)	2	0	0	15	6	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	0	15	6	0
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	21	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	21	6	6			
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	100	100			
cM capacity (veh/h)	1001	1083	1628			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	15	6
Volume Left	2	0	0
Volume Right	0	0	0
cSH	1001	1628	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

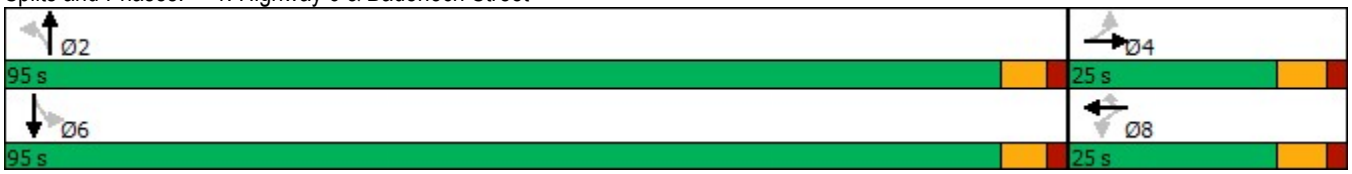
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	4	1	131	5	51	2	951	74	38	1108	5
Future Volume (vph)	14	4	1	131	5	51	2	951	74	38	1108	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.99	0.97					1.00	
Frt		0.993				0.850		0.989			0.999	
Flt Protected		0.964			0.954		0.950			0.950		
Satd. Flow (prot)	0	1836	0	0	1798	1601	1825	1722	0	1825	1794	0
Flt Permitted		0.744			0.719		0.122			0.165		
Satd. Flow (perm)	0	1413	0	0	1341	1560	234	1722	0	317	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				49		9				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		2	2		1	2					2
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%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Adj. Flow (vph)	15	4	1	138	5	54	2	1001	78	40	1166	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	143	54	2	1079	0	40	1171	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	25.0	25.0		25.0	25.0	
Minimum Split (s)	17.5	17.5		17.5	17.5	17.5	57.5	57.5		57.5	57.5	
Total Split (s)	25.0	25.0		25.0	25.0	25.0	95.0	95.0		95.0	95.0	
Total Split (%)	20.8%	20.8%		20.8%	20.8%	20.8%	79.2%	79.2%		79.2%	79.2%	
Maximum Green (s)	18.5	18.5		18.5	18.5	18.5	89.0	89.0		89.0	89.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	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	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5	6.5	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	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		16.4			16.4	16.4	91.1	91.1		91.1	91.1	
Actuated g/C Ratio		0.14			0.14	0.14	0.76	0.76		0.76	0.76	
v/c Ratio		0.10			0.78	0.21	0.01	0.82		0.17	0.86	
Control Delay		43.7			77.8	16.3	4.5	16.8		6.4	19.1	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		43.7			77.8	16.3	4.5	16.8		6.4	19.1	
LOS		D			E	B	A	B		A	B	
Approach Delay		43.7			60.9			16.8			18.7	
Approach LOS		D			E			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 87.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	20	143	54	2	1079	40	1171
v/c Ratio	0.10	0.78	0.21	0.01	0.82	0.17	0.86
Control Delay	43.7	77.8	16.3	4.5	16.8	6.4	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	77.8	16.3	4.5	16.8	6.4	19.1
Queue Length 50th (m)	3.9	32.3	1.0	0.1	150.6	2.4	177.6
Queue Length 95th (m)	11.1	#60.1	12.4	0.8	230.8	6.4	#273.1
Internal Link Dist (m)	53.1	355.9			273.6		78.6
Turn Bay Length (m)			20.0	15.0		40.0	
Base Capacity (vph)	218	206	281	177	1309	240	1362
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	0.09	0.69	0.19	0.01	0.82	0.17	0.86

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	4	1	131	5	51	2	951	74	38	1108	5
Future Volume (vph)	14	4	1	131	5	51	2	951	74	38	1108	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831			1780	1560	1825	1722		1825	1795	
Flt Permitted		0.74			0.72	1.00	0.12	1.00		0.17	1.00	
Satd. Flow (perm)		1414			1341	1560	234	1722		317	1795	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	4	1	138	5	54	2	1001	78	40	1166	5
RTOR Reduction (vph)	0	1	0	0	0	42	0	2	0	0	0	0
Lane Group Flow (vph)	0	19	0	0	143	12	2	1077	0	40	1171	0
Confl. Peds. (#/hr)	1		2	2		1	2					2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		16.4			16.4	16.4	91.1	91.1		91.1	91.1	
Effective Green, g (s)		16.4			16.4	16.4	91.1	91.1		91.1	91.1	
Actuated g/C Ratio		0.14			0.14	0.14	0.76	0.76		0.76	0.76	
Clearance Time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		193			183	213	177	1307		240	1362	
v/s Ratio Prot								0.63			c0.65	
v/s Ratio Perm		0.01			c0.11	0.01	0.01			0.13		
v/c Ratio		0.10			0.78	0.05	0.01	0.82		0.17	0.86	
Uniform Delay, d1		45.3			50.1	45.1	3.5	9.3		4.0	10.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			19.2	0.1	0.1	6.0		1.5	7.3	
Delay (s)		45.6			69.3	45.2	3.6	15.3		5.5	17.3	
Level of Service		D			E	D	A	B		A	B	
Approach Delay (s)		45.6			62.7			15.3			16.9	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	90	14	3	166	9	2
Future Volume (vph)	90	14	3	166	9	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.982				0.977	
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1870	0	0	1882	1802	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1870	0	0	1882	1802	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Adj. Flow (vph)	98	15	3	180	10	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	0	183	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	90	14	3	166	9	2
Future Volume (Veh/h)	90	14	3	166	9	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	15	3	180	10	2
Pedestrians				1	1	
Lane Width (m)				3.7	3.7	
Walking Speed (m/s)				1.2	1.2	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			114		292	108
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			114		292	108
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1486		701	950

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	113	183	12
Volume Left	0	3	10
Volume Right	15	0	2
cSH	1700	1486	733
Volume to Capacity	0.07	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.4
Control Delay (s)	0.0	0.1	10.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.1	10.0
Approach LOS			A

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		

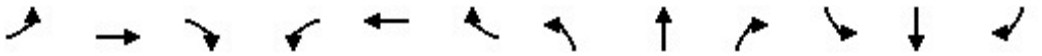
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	0	0	10	16	1
Future Volume (vph)	1	0	0	10	16	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.992	
Flt Protected	0.950					
Satd. Flow (prot)	1825	0	0	1921	1906	0
Flt Permitted	0.950					
Satd. Flow (perm)	1825	0	0	1921	1906	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	145.0			95.3	69.0	
Travel Time (s)	10.9			7.1	5.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	0	10	16	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	10	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	0	10	16	1
Future Volume (Veh/h)	1	0	0	10	16	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	0	0	10	16	1
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	26	16	17			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	26	16	17			
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	100	100			
cM capacity (veh/h)	994	1068	1613			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	10	17
Volume Left	1	0	0
Volume Right	0	0	1
cSH	994	1613	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

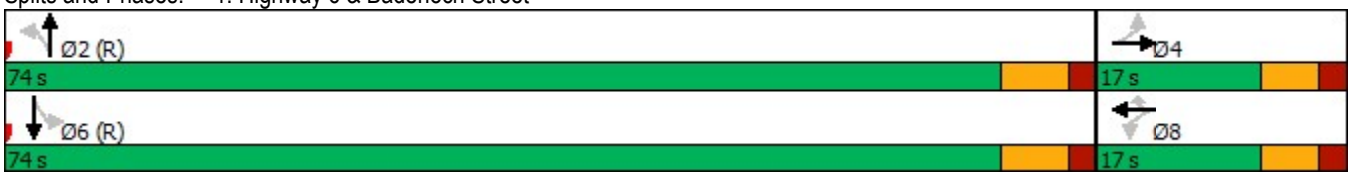


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	7	2	94	3	49	0	1040	64	22	1009	2
Future Volume (vph)	36	7	2	94	3	49	0	1040	64	22	1009	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.98	0.98					1.00	
Frt		0.994				0.850		0.991				
Flt Protected		0.961			0.954					0.950		
Satd. Flow (prot)	0	1678	0	0	1764	1555	1921	1709	0	1426	1615	0
Flt Permitted		0.699			0.698					0.126		
Satd. Flow (perm)	0	1217	0	0	1271	1518	1921	1709	0	189	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				51		9				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		4	4		1	1					1
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 (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Adj. Flow (vph)	38	7	2	98	3	51	0	1083	67	23	1051	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	101	51	0	1150	0	23	1053	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	57.5	57.5		57.5	57.5	
Total Split (s)	17.0	17.0		17.0	17.0	17.0	74.0	74.0		74.0	74.0	
Total Split (%)	18.7%	18.7%		18.7%	18.7%	18.7%	81.3%	81.3%		81.3%	81.3%	
Maximum Green (s)	11.0	11.0		11.0	11.0	11.0	67.5	67.5		67.5	67.5	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
v/c Ratio		0.32			0.66	0.22		0.91		0.16	0.88	
Control Delay		41.7			60.2	13.6		21.7		6.5	19.7	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		41.7			60.2	13.6		21.7		6.5	19.7	
LOS		D			E	B		C		A	B	
Approach Delay		41.7			44.6			21.7			19.4	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 91			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 22.5		Intersection LOS: C	
Intersection Capacity Utilization 92.4%		ICU Level of Service F	
Analysis Period (min) 15			

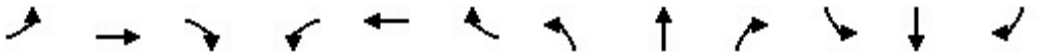
Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	47	101	51	1150	23	1053
v/c Ratio	0.32	0.66	0.22	0.91	0.16	0.88
Control Delay	41.7	60.2	13.6	21.7	6.5	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	60.2	13.6	21.7	6.5	19.7
Queue Length 50th (m)	7.3	17.2	0.0	128.8	1.0	112.4
Queue Length 95th (m)	17.8	#39.8	10.1	#263.4	3.8	#239.3
Internal Link Dist (m)	53.1	355.9		273.6		78.6
Turn Bay Length (m)			20.0		40.0	
Base Capacity (vph)	148	153	228	1269	140	1197
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	0.32	0.66	0.22	0.91	0.16	0.88

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	7	2	94	3	49	0	1040	64	22	1009	2
Future Volume (vph)	36	7	2	94	3	49	0	1040	64	22	1009	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.98	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1674			1737	1518		1709		1426	1614	
Flt Permitted		0.70			0.70	1.00		1.00		0.13	1.00	
Satd. Flow (perm)		1218			1271	1518		1709		188	1614	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	38	7	2	98	3	51	0	1083	67	23	1051	2
RTOR Reduction (vph)	0	2	0	0	0	45	0	2	0	0	0	0
Lane Group Flow (vph)	0	45	0	0	101	6	0	1148	0	23	1053	0
Confl. Peds. (#/hr)	1		4	4		1	1					1
Heavy Vehicles (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Effective Green, g (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
Clearance Time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Grp Cap (vph)		147			153	183		1267		139	1197	
v/s Ratio Prot								c0.67			0.65	
v/s Ratio Perm		0.04			c0.08	0.00				0.12		
v/c Ratio		0.31			0.66	0.03		0.91		0.17	0.88	
Uniform Delay, d1		36.5			38.2	35.3		9.2		3.5	8.7	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		5.4			20.2	0.3		10.9		2.6	9.4	
Delay (s)		41.9			58.4	35.7		20.1		6.0	18.1	
Level of Service		D			E	D		C		A	B	
Approach Delay (s)		41.9			50.8			20.1			17.8	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

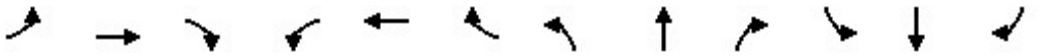
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	88	1	1	150	0	0
Future Volume (vph)	88	1	1	150	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999					
Flt Protected						
Satd. Flow (prot)	1745	0	0	1847	1921	0
Flt Permitted						
Satd. Flow (perm)	1745	0	0	1847	1921	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	10%	4%	0%	0%
Adj. Flow (vph)	101	1	1	172	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	173	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	12.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	88	1	1	150	0	0
Future Volume (Veh/h)	88	1	1	150	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	101	1	1	172	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			102		276	102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			102		276	102
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1441		718	959

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	102	173	0
Volume Left	0	1	0
Volume Right	1	0	0
cSH	1700	1441	1700
Volume to Capacity	0.06	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	12.0%	ICU Level of Service	A
Analysis Period (min)	15		

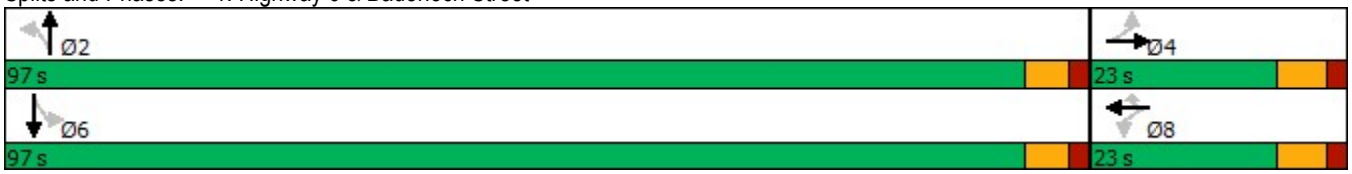


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	1	140	6	52	2	1050	74	34	1223	6
Future Volume (vph)	16	4	1	140	6	52	2	1050	74	34	1223	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.99	0.97					1.00	
Frt		0.994				0.850		0.990			0.999	
Flt Protected		0.963			0.954		0.950			0.950		
Satd. Flow (prot)	0	1836	0	0	1798	1601	1825	1723	0	1825	1794	0
Flt Permitted		0.677			0.718		0.064			0.120		
Satd. Flow (perm)	0	1287	0	0	1340	1560	123	1723	0	231	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				45		9			1	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		2	2		1	2					2
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%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Adj. Flow (vph)	17	4	1	147	6	55	2	1105	78	36	1287	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	153	55	2	1183	0	36	1293	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	25.0	25.0		25.0	25.0	
Minimum Split (s)	17.5	17.5		17.5	17.5	17.5	57.5	57.5		57.5	57.5	
Total Split (s)	23.0	23.0		23.0	23.0	23.0	97.0	97.0		97.0	97.0	
Total Split (%)	19.2%	19.2%		19.2%	19.2%	19.2%	80.8%	80.8%		80.8%	80.8%	
Maximum Green (s)	16.5	16.5		16.5	16.5	16.5	91.0	91.0		91.0	91.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	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	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5	6.5	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	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		15.8			15.8	15.8	91.7	91.7		91.7	91.7	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
v/c Ratio		0.13			0.87	0.23	0.02	0.90		0.20	0.94	
Control Delay		46.1			91.7	19.4	4.0	22.0		7.3	27.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		46.1			91.7	19.4	4.0	22.0		7.3	27.7	
LOS		D			F	B	A	C		A	C	
Approach Delay		46.1			72.6			22.0			27.1	
Approach LOS		D			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 92.3%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	153	55	2	1183	36	1293
v/c Ratio	0.13	0.87	0.23	0.02	0.90	0.20	0.94
Control Delay	46.1	91.7	19.4	4.0	22.0	7.3	27.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	91.7	19.4	4.0	22.0	7.3	27.7
Queue Length 50th (m)	4.4	35.5	2.1	0.1	181.9	2.1	224.7
Queue Length 95th (m)	12.3	#71.5	14.0	0.8	#337.7	6.1	#380.3
Internal Link Dist (m)	53.1	355.9			273.6		78.6
Turn Bay Length (m)			20.0	15.0		40.0	
Base Capacity (vph)	177	184	253	94	1318	176	1370
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	0.12	0.83	0.22	0.02	0.90	0.20	0.94

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	1	140	6	52	2	1050	74	34	1223	6
Future Volume (vph)	16	4	1	140	6	52	2	1050	74	34	1223	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1830			1780	1560	1825	1723		1825	1794	
Flt Permitted		0.68			0.72	1.00	0.06	1.00		0.12	1.00	
Satd. Flow (perm)		1288			1340	1560	122	1723		231	1794	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	4	1	147	6	55	2	1105	78	36	1287	6
RTOR Reduction (vph)	0	1	0	0	0	39	0	2	0	0	0	0
Lane Group Flow (vph)	0	21	0	0	153	16	2	1181	0	36	1293	0
Confl. Peds. (#/hr)	1		2	2		1	2					2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		15.8			15.8	15.8	91.7	91.7		91.7	91.7	
Effective Green, g (s)		15.8			15.8	15.8	91.7	91.7		91.7	91.7	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
Clearance Time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		169			176	205	93	1316		176	1370	
v/s Ratio Prot								0.69			c0.72	
v/s Ratio Perm		0.02			c0.11	0.01	0.02			0.16		
v/c Ratio		0.13			0.87	0.08	0.02	0.90		0.20	0.94	
Uniform Delay, d1		46.0			51.1	45.7	3.4	10.6		4.0	12.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			33.6	0.2	0.4	9.9		2.6	14.1	
Delay (s)		46.3			84.7	45.9	3.8	20.5		6.6	26.1	
Level of Service		D			F	D	A	C		A	C	
Approach Delay (s)		46.3			74.4			20.4			25.6	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

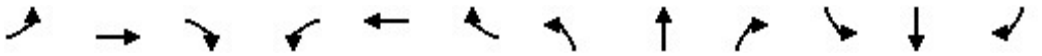
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	99	0	1	184	1	1
Future Volume (vph)	99	0	1	184	1	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.932	
Flt Protected					0.976	
Satd. Flow (prot)	1902	0	0	1884	1748	0
Flt Permitted					0.976	
Satd. Flow (perm)	1902	0	0	1884	1748	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Adj. Flow (vph)	108	0	1	200	1	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	0	0	201	2	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	99	0	1	184	1	1
Future Volume (Veh/h)	99	0	1	184	1	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	0	1	200	1	1
Pedestrians				1	1	
Lane Width (m)				3.7	3.7	
Walking Speed (m/s)				1.2	1.2	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			109		311	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			109		311	110
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1493		685	947

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	108	201	2
Volume Left	0	1	1
Volume Right	0	0	1
cSH	1700	1493	795
Volume to Capacity	0.06	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	9.5
Lane LOS		A	A
Approach Delay (s)	0.0	0.0	9.5
Approach LOS			A

Intersection Summary			
Average Delay		0.1	
Intersection Capacity Utilization		20.8%	ICU Level of Service
Analysis Period (min)		15	

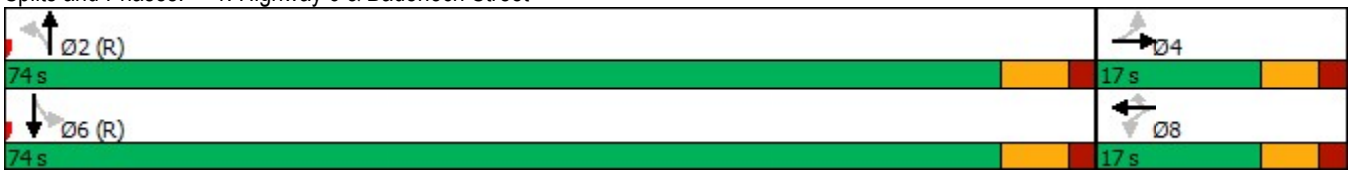


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	7	2	101	3	56	0	1040	66	24	1009	2
Future Volume (vph)	36	7	2	101	3	56	0	1040	66	24	1009	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.98	0.98					1.00	
Frt		0.994				0.850		0.991				
Flt Protected		0.961			0.954					0.950		
Satd. Flow (prot)	0	1678	0	0	1764	1555	1921	1709	0	1426	1615	0
Flt Permitted		0.695			0.697					0.125		
Satd. Flow (perm)	0	1210	0	0	1269	1518	1921	1709	0	188	1615	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				58		10				
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		4	4		1	1					1
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 (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Adj. Flow (vph)	38	7	2	105	3	58	0	1083	69	25	1051	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	0	0	108	58	0	1152	0	25	1053	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Minimum Split (s)	17.0	17.0		17.0	17.0	17.0	57.5	57.5		57.5	57.5	
Total Split (s)	17.0	17.0		17.0	17.0	17.0	74.0	74.0		74.0	74.0	
Total Split (%)	18.7%	18.7%		18.7%	18.7%	18.7%	81.3%	81.3%		81.3%	81.3%	
Maximum Green (s)	11.0	11.0		11.0	11.0	11.0	67.5	67.5		67.5	67.5	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.5	4.5		4.5	4.5	
All-Red Time (s)	2.0	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	0.0	
Total Lost Time (s)		6.0			6.0	6.0	6.5	6.5		6.5	6.5	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
v/c Ratio		0.32			0.71	0.25		0.91		0.18	0.88	
Control Delay		41.8			64.4	13.2		21.8		7.0	19.7	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		41.8			64.4	13.2		21.8		7.0	19.7	
LOS		D			E	B		C		A	B	
Approach Delay		41.8			46.5			21.8			19.4	
Approach LOS		D			D			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 91			
Actuated Cycle Length: 91			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Pretimed			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 22.8		Intersection LOS: C	
Intersection Capacity Utilization 92.5%		ICU Level of Service F	
Analysis Period (min) 15			

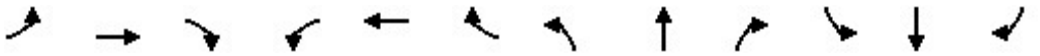
Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	47	108	58	1152	25	1053
v/c Ratio	0.32	0.71	0.25	0.91	0.18	0.88
Control Delay	41.8	64.4	13.2	21.8	7.0	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	64.4	13.2	21.8	7.0	19.7
Queue Length 50th (m)	7.3	18.5	0.0	129.3	1.1	112.4
Queue Length 95th (m)	17.8	#43.1	10.6	#264.1	4.0	#239.3
Internal Link Dist (m)	53.1	355.9		273.6		78.6
Turn Bay Length (m)			20.0		40.0	
Base Capacity (vph)	148	153	234	1270	139	1197
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	0.32	0.71	0.25	0.91	0.18	0.88

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	7	2	101	3	56	0	1040	66	24	1009	2
Future Volume (vph)	36	7	2	101	3	56	0	1040	66	24	1009	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98		1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.98	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1674			1737	1518		1709		1426	1614	
Flt Permitted		0.70			0.70	1.00		1.00		0.12	1.00	
Satd. Flow (perm)		1210			1270	1518		1709		187	1614	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	38	7	2	105	3	58	0	1083	69	25	1051	2
RTOR Reduction (vph)	0	2	0	0	0	51	0	3	0	0	0	0
Lane Group Flow (vph)	0	45	0	0	108	7	0	1149	0	25	1053	0
Confl. Peds. (#/hr)	1		4	4		1	1					1
Heavy Vehicles (%)	3%	17%	100%	4%	0%	5%	0%	12%	2%	28%	19%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Effective Green, g (s)		11.0			11.0	11.0		67.5		67.5	67.5	
Actuated g/C Ratio		0.12			0.12	0.12		0.74		0.74	0.74	
Clearance Time (s)		6.0			6.0	6.0		6.5		6.5	6.5	
Lane Grp Cap (vph)		146			153	183		1267		138	1197	
v/s Ratio Prot								c0.67			0.65	
v/s Ratio Perm		0.04			c0.09	0.00				0.13		
v/c Ratio		0.31			0.71	0.04		0.91		0.18	0.88	
Uniform Delay, d1		36.5			38.4	35.3		9.3		3.5	8.7	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		5.4			23.9	0.4		11.0		2.9	9.4	
Delay (s)		42.0			62.4	35.7		20.3		6.4	18.1	
Level of Service		D			E	D		C		A	B	
Approach Delay (s)		42.0			53.1			20.3			17.8	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	91.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	88	6	2	150	14	2
Future Volume (vph)	88	6	2	150	14	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991				0.985	
Flt Protected				0.999	0.957	
Satd. Flow (prot)	1731	0	0	1844	1811	0
Flt Permitted				0.999	0.957	
Satd. Flow (perm)	1731	0	0	1844	1811	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	10%	10%	10%	4%	0%	0%
Adj. Flow (vph)	101	7	2	172	16	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	108	0	0	174	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.5%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	88	6	2	150	14	2
Future Volume (Veh/h)	88	6	2	150	14	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	101	7	2	172	16	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			108		280	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			108		280	104
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			100		98	100
cM capacity (veh/h)			1434		713	956

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	108	174	18
Volume Left	0	2	16
Volume Right	7	0	2
cSH	1700	1434	733
Volume to Capacity	0.06	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.6
Control Delay (s)	0.0	0.1	10.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.0
Approach LOS			B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	0	0	15	6	0
Future Volume (vph)	2	0	0	15	6	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950					
Satd. Flow (prot)	1825	0	0	1921	1921	0
Flt Permitted	0.950					
Satd. Flow (perm)	1825	0	0	1921	1921	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	145.0			95.3	69.0	
Travel Time (s)	10.9			7.1	5.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%
Adj. Flow (vph)	2	0	0	15	6	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	15	6	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	15	6	0
Future Volume (Veh/h)	2	0	0	15	6	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	0	0	15	6	0
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	21	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	21	6	6			
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	100	100			
cM capacity (veh/h)	1001	1083	1628			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	15	6
Volume Left	2	0	0
Volume Right	0	0	0
cSH	1001	1628	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

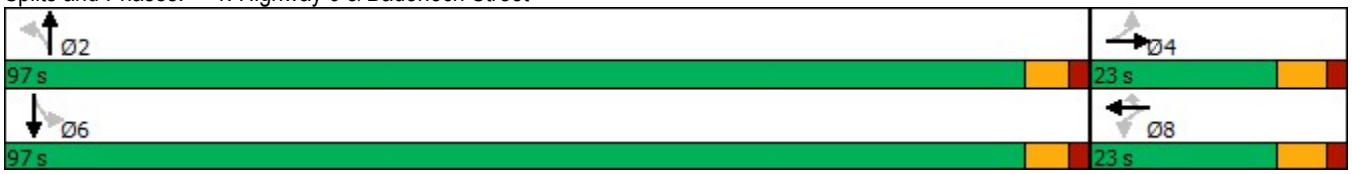
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	1	144	6	56	2	1050	81	41	1223	6
Future Volume (vph)	16	4	1	144	6	56	2	1050	81	41	1223	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		20.0	15.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	2.5			2.5			2.5			2.5		
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		1.00			0.99	0.97					1.00	
Frt		0.994				0.850		0.989			0.999	
Flt Protected		0.963			0.954		0.950			0.950		
Satd. Flow (prot)	0	1836	0	0	1798	1601	1825	1722	0	1825	1794	0
Flt Permitted		0.664			0.718		0.063			0.116		
Satd. Flow (perm)	0	1263	0	0	1340	1560	121	1722	0	223	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				47		10			1	
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		77.1			379.9			297.6			102.6	
Travel Time (s)		5.8			28.5			22.3			7.7	
Confl. Peds. (#/hr)	1		2	2		1	2					2
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%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Adj. Flow (vph)	17	4	1	152	6	59	2	1105	85	43	1287	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	158	59	2	1190	0	43	1293	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			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway 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
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
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)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
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)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	25.0	25.0		25.0	25.0	
Minimum Split (s)	17.5	17.5		17.5	17.5	17.5	57.5	57.5		57.5	57.5	
Total Split (s)	23.0	23.0		23.0	23.0	23.0	97.0	97.0		97.0	97.0	
Total Split (%)	19.2%	19.2%		19.2%	19.2%	19.2%	80.8%	80.8%		80.8%	80.8%	
Maximum Green (s)	16.5	16.5		16.5	16.5	16.5	91.0	91.0		91.0	91.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	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	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5	6.5	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	3.0	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		15.9			15.9	15.9	91.6	91.6		91.6	91.6	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
v/c Ratio		0.13			0.89	0.24	0.02	0.90		0.25	0.95	
Control Delay		46.1			95.2	19.8	4.0	22.8		8.6	28.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		46.1			95.2	19.8	4.0	22.8		8.6	28.0	
LOS		D			F	B	A	C		A	C	
Approach Delay		46.1			74.7			22.7			27.3	
Approach LOS		D			E			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 29.2		Intersection LOS: C	
Intersection Capacity Utilization 92.8%		ICU Level of Service F	
Analysis Period (min) 15			

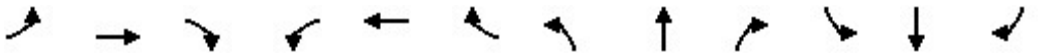
Splits and Phases: 1: Highway 6 & Badenoch Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	158	59	2	1190	43	1293
v/c Ratio	0.13	0.89	0.24	0.02	0.90	0.25	0.95
Control Delay	46.1	95.2	19.8	4.0	22.8	8.6	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	95.2	19.8	4.0	22.8	8.6	28.0
Queue Length 50th (m)	4.4	36.9	2.5	0.1	185.7	2.6	224.7
Queue Length 95th (m)	12.3	#74.4	14.7	0.8	#341.2	7.6	#380.3
Internal Link Dist (m)	53.1	355.9			273.6		78.6
Turn Bay Length (m)			20.0	15.0		40.0	
Base Capacity (vph)	174	184	255	92	1316	170	1368
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	0.13	0.86	0.23	0.02	0.90	0.25	0.95

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	1	144	6	56	2	1050	81	41	1223	6
Future Volume (vph)	16	4	1	144	6	56	2	1050	81	41	1223	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			0.99	1.00	1.00	1.00		1.00	1.00	
Frt		0.99			1.00	0.85	1.00	0.99		1.00	1.00	
Flt Protected		0.96			0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1831			1780	1560	1825	1722		1825	1794	
Flt Permitted		0.66			0.72	1.00	0.06	1.00		0.12	1.00	
Satd. Flow (perm)		1263			1340	1560	120	1722		223	1794	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	17	4	1	152	6	59	2	1105	85	43	1287	6
RTOR Reduction (vph)	0	1	0	0	0	41	0	2	0	0	0	0
Lane Group Flow (vph)	0	21	0	0	158	18	2	1188	0	43	1293	0
Confl. Peds. (#/hr)	1		2	2		1	2					2
Heavy Vehicles (%)	0%	0%	0%	2%	0%	2%	0%	11%	2%	0%	7%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		15.9			15.9	15.9	91.6	91.6		91.6	91.6	
Effective Green, g (s)		15.9			15.9	15.9	91.6	91.6		91.6	91.6	
Actuated g/C Ratio		0.13			0.13	0.13	0.76	0.76		0.76	0.76	
Clearance Time (s)		6.5			6.5	6.5	6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		167			177	206	91	1314		170	1369	
v/s Ratio Prot								0.69			c0.72	
v/s Ratio Perm		0.02			c0.12	0.01	0.02			0.19		
v/c Ratio		0.13			0.89	0.09	0.02	0.90		0.25	0.94	
Uniform Delay, d1		45.9			51.2	45.7	3.4	10.8		4.2	12.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			38.7	0.2	0.4	10.4		3.5	14.2	
Delay (s)		46.3			89.9	45.9	3.9	21.2		7.7	26.3	
Level of Service		D			F	D	A	C		A	C	
Approach Delay (s)		46.3			77.9			21.2			25.7	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	99	14	3	184	9	2
Future Volume (vph)	99	14	3	184	9	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.984				0.977	
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1874	0	0	1882	1802	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1874	0	0	1882	1802	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	379.9			142.3	69.0	
Travel Time (s)	28.5			10.7	5.2	
Confl. Peds. (#/hr)		1	1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	0%	0%
Adj. Flow (vph)	108	15	3	200	10	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	123	0	0	203	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	99	14	3	184	9	2
Future Volume (Veh/h)	99	14	3	184	9	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	108	15	3	200	10	2
Pedestrians				1	1	
Lane Width (m)				3.7	3.7	
Walking Speed (m/s)				1.2	1.2	
Percent Blockage				0	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	380					
pX, platoon unblocked						
vC, conflicting volume			124		322	118
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			124		322	118
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1474		673	938

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	123	203	12
Volume Left	0	3	10
Volume Right	15	0	2
cSH	1700	1474	707
Volume to Capacity	0.07	0.00	0.02
Queue Length 95th (m)	0.0	0.0	0.4
Control Delay (s)	0.0	0.1	10.2
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.2
Approach LOS			B

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	22.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	0	0	10	16	1
Future Volume (vph)	1	0	0	10	16	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.992	
Flt Protected	0.950					
Satd. Flow (prot)	1825	0	0	1921	1906	0
Flt Permitted	0.950					
Satd. Flow (perm)	1825	0	0	1921	1906	0
Link Speed (k/h)	48			48	48	
Link Distance (m)	145.0			95.3	69.0	
Travel Time (s)	10.9			7.1	5.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	0	10	16	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	10	17	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	0	10	16	1
Future Volume (Veh/h)	1	0	0	10	16	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	1	0	0	10	16	1
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	26	16	17			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	26	16	17			
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	100	100			
cM capacity (veh/h)	994	1068	1613			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	10	17
Volume Left	1	0	0
Volume Right	0	0	1
cSH	994	1613	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	8.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Highway 6 & Badenoch Street

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	TR	L	TR
Maximum Queue (m)	30.6	56.5	22.5	249.2	36.8	110.5
Average Queue (m)	9.4	21.3	10.8	105.8	7.9	74.0
95th Queue (m)	21.5	43.7	24.5	213.1	24.5	125.9
Link Distance (m)	69.4	365.0		291.6		93.9
Upstream Blk Time (%)				0		6
Queuing Penalty (veh)				0		0
Storage Bay Dist (m)			20.0		40.0	
Storage Blk Time (%)		14	2	21	0	12
Queuing Penalty (veh)		7	2	0	0	3

Intersection: 1: Highway 6 & Badenoch Street

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (m)	16.1	82.3	22.6	6.8	246.7	36.3	111.0
Average Queue (m)	4.9	36.4	12.9	0.4	124.1	10.9	92.4
95th Queue (m)	13.5	66.3	27.5	3.4	241.9	27.0	125.4
Link Distance (m)	69.4	365.0			291.6		93.9
Upstream Blk Time (%)					2		18
Queuing Penalty (veh)					0		0
Storage Bay Dist (m)			20.0	15.0		40.0	
Storage Blk Time (%)		36	2		20	0	18
Queuing Penalty (veh)		19	4		0	1	6

Intersection: 1: Highway 6 & Badenoch Street

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	TR	L	TR
Maximum Queue (m)	37.2	51.7	22.5	241.1	31.4	110.4
Average Queue (m)	11.3	23.4	12.7	117.0	10.2	74.2
95th Queue (m)	26.8	45.7	25.8	231.0	27.5	122.2
Link Distance (m)	69.4	365.0		291.6		93.9
Upstream Blk Time (%)				2		6
Queuing Penalty (veh)				0		0
Storage Bay Dist (m)			20.0		40.0	
Storage Blk Time (%)		13	6	22	0	12
Queuing Penalty (veh)		7	6	0	1	3

Intersection: 1: Highway 6 & Badenoch Street

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (m)	19.9	87.8	22.5	6.8	303.3	42.2	112.5
Average Queue (m)	5.0	36.6	12.9	0.3	141.1	17.0	96.0
95th Queue (m)	14.2	67.7	27.2	3.0	275.6	40.1	120.4
Link Distance (m)	69.4	365.0			291.6		93.9
Upstream Blk Time (%)					2		22
Queuing Penalty (veh)					0		0
Storage Bay Dist (m)			20.0	15.0		40.0	
Storage Blk Time (%)		37	3		20	6	19
Queuing Penalty (veh)		21	4		0	73	8

Appendix C

Transportation Tomorrow Survey 2016

AM Inbound

Mon Feb 13 2023 08:43:58 GMT-0500 (Eastern Standard Time) -

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(8307,8315)
TblG:

Filters:
Start time of trip - start_time In 600-900
and
Trip purpose of destination - purp_dest In H,

Trip 2016
Table:

.1	
Kitchener	20

AM Outbound

Mon Feb 13 2023 08:42:08 GMT-0500 (Eastern Standard Time) - Run Time: 2835ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(8307,8315)
TblG:

Filters:
Start time of trip - start_time In 600-900
and
Trip purpose of origin - purp_orig In H,

Trip 2016
Table:

.1	N	S	E	N Trips	S Trips	E Trips
PD 3 of Toronto	9	1		9	0	0
Scugog	113	1		113	0	0
Milton	44	1		44	0	0
Burlington	44	0.5	0.5	22	22	0
Kitchener	97	1		97	0	0
City of Guelph	175	0.5	0.5	87.5	0	87.5
Puslinch	175		1	0	175	0
Brantford	113	0.5	0.5	56.5	56.5	0
Sum	**770**			**429**	**253.5**	**87.5**
				56%	33%	11%

PM Inbound

Mon Feb 13 2023 08:43:44 GMT-0500 (Eastern Standard Time) - Run Time: 2605ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

RowG:
ColG:(8307,8315)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpose of destination - purp_dest In H,

Trip 2016
Table:

.1	N	S	E	W	N Trips	S Trips	E Trips	W Trips
PD 3 of Toronto	9	0.5	0.5		4.5	4.5	0	0
Milton	156	1			156	0	0	0
Burlington	44		1		0	44	0	0
Flamborough	45		0.5	0.5	0	22.5	0	22.5
Kitchener	78	1			78	0	0	0
City of Guelph	131	0.5		0.5	65.5	0	65.5	0
Puslinch	64		1		0	64	0	0
Sum	**527**				**304**	**135**	**65.5**	**22.5**
					58%	26%	12%	4%

PM Outbound

Mon Feb 13 2023 08:43:17 GMT-0500 (Eastern Standard Time) - Run Time: 2476ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: 2006 GTA zone of origin - gta06_orig

RowG:
ColG:(8307,8315)
TblG:

Filters:
Start time of trip - start_time In 1600-1900
and
Trip purpose of origin - purp_orig In H,

Trip 2016
Table:

.1		
Milton	89	
Puslinch	20	
		527

TOTAL - TTS

		N	S	E	W	
AM	Inbound					0%
	Outbound	56%	33%	11%	N/A	100%
PM	Inbound	58%	26%	12%	4%	100%
	Outbound					0%

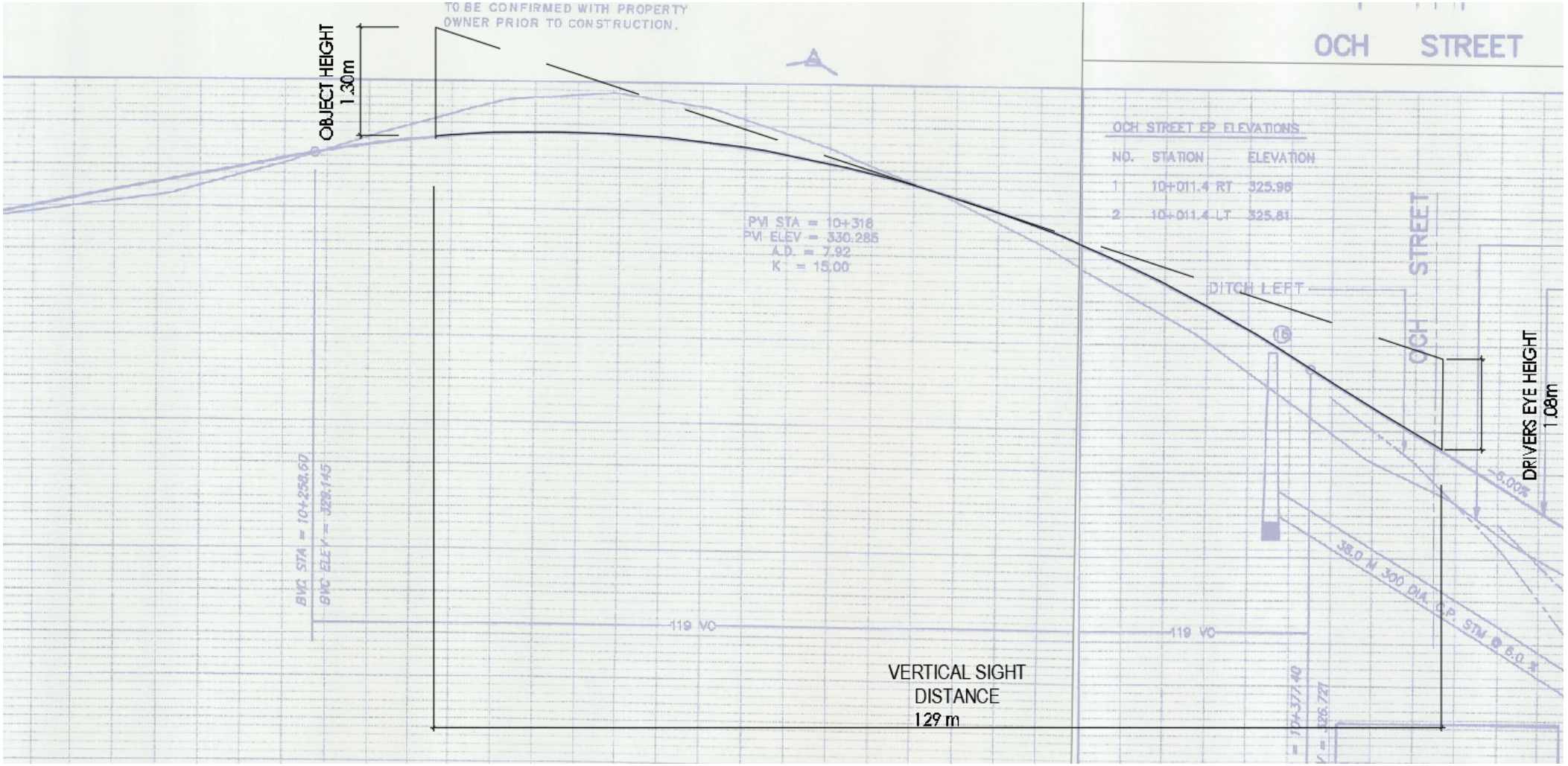
TOTAL - Adjusted

		N	S	E	W	
AM	Inbound	45%	45%	10%	0%	100%
	Outbound	45%	45%	10%	0%	100%
PM	Inbound	45%	45%	10%	0%	100%
	Outbound	45%	45%	10%	0%	100%

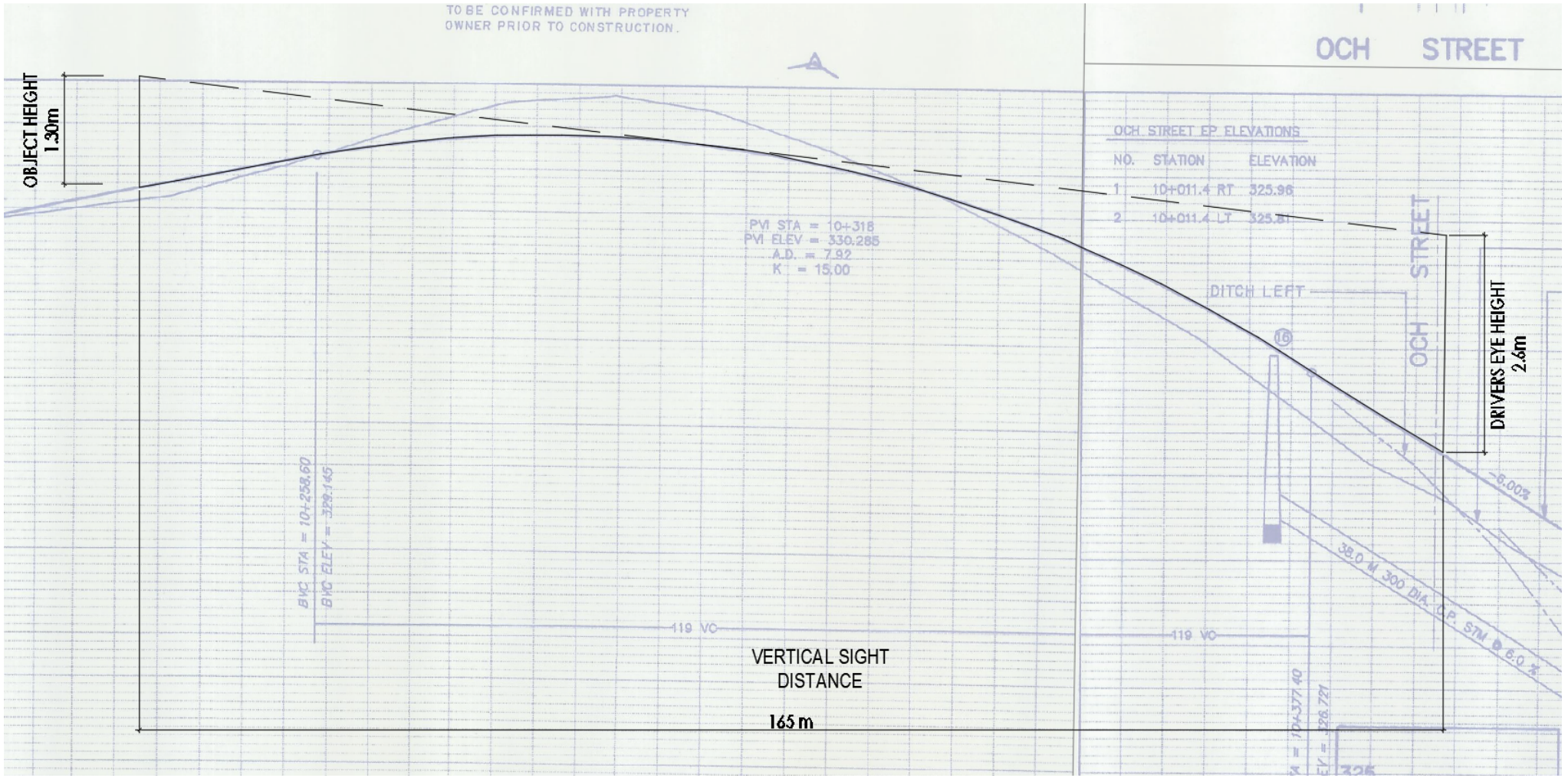
in	out
45%	45%
45%	45%
10%	10%
45%	45%
45%	45%
10%	10%

Appendix D

Sightline Assessment



Vertical Sightline – Passenger Vehicle



Vertical Sightline – Single Unit Truck

BADENOCH ST.
HORIZONTAL
SIGHT DISTANCE
130 m
EX. T/W 327.45
EX. B/W 326.68
EX. RETAINING WALL
TO BE RELOCATED
EX. T/W 327.90
EX. B/W 327.43
T/W 328.31
B/W 327.47
RELOCATED
RETAINING WALL
T/W 328.00
B/W 326.72
T/W 328.50
B/W 326.30
MATCH EX. CURB
EX. T/W 327.37
EX. B/W 326.25
4.4 m
EX. T/W 327.23
EX. B/W 326.12
RELOCATED WALL TO
MATCH AT THIS POINT
EX. HYDRO POLE TO
BE RELOCATED.
EX. TREE TO
BE REMOVED
CB
HP
R=7.5
325.82±
324.72±
326.04±
326.25±
326.04±
0+880
0+900
BADEN
PART
LOT 31
LOT 32
REET

Appendix E

Speed Study Data

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U248
Badenoch St just west of Ikonkar Place

Date Start: 21-Mar-24
Date End: 21-Mar-24

EB

Start Time	1 15	16 23	24 31	32 39	40 47	48 55	56 63	64 71	72 79	80 88	89 96	97 104	105 112	113 120	121 9999	Total
03/21/2																
4	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	3
00:15	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	3
00:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
00:45	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	0	1	0	1	2	1	4	0	0	0	0	0	0	0	0	9
01:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
02:30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
02:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	4
03:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
03:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
03:45	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	5
04:00	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
04:15	0	0	1	0	0	1	2	0	0	0	0	0	0	0	0	4
04:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45	0	0	0	0	1	0	3	1	0	0	0	0	0	0	0	5
	0	0	1	0	1	1	7	1	0	0	0	0	0	0	0	11
05:00	0	0	0	0	1	3	2	0	0	0	0	0	0	0	0	6
05:15	0	0	0	0	0	0	7	1	0	0	0	0	0	0	0	8
05:30	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	6
05:45	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	4
	0	0	0	0	1	5	15	3	0	0	0	0	0	0	0	24
06:00	0	0	0	0	0	3	4	1	0	0	0	0	0	0	0	8
06:15	0	0	0	0	0	4	4	2	0	0	0	0	0	0	0	10
06:30	0	0	0	0	0	2	7	1	0	0	0	0	0	0	0	10
06:45	0	0	0	1	1	3	6	0	0	0	0	0	0	0	0	11
	0	0	0	1	1	12	21	4	0	0	0	0	0	0	0	39
07:00	0	0	0	0	1	3	1	3	1	0	0	0	0	0	0	9
07:15	0	0	0	0	3	5	2	3	0	0	0	0	0	0	0	13
07:30	0	0	0	2	3	6	3	2	0	0	0	0	0	0	0	16
07:45	0	0	0	2	2	7	5	2	0	0	0	0	0	0	0	18
	0	0	0	4	9	21	11	10	1	0	0	0	0	0	0	56
08:00	0	0	0	0	1	4	3	1	0	0	0	0	0	0	0	9
08:15	0	0	0	1	3	3	4	1	0	0	0	0	0	0	0	12
08:30	0	0	1	2	3	9	3	0	0	0	0	0	0	0	0	18
08:45	0	0	0	0	2	7	4	0	0	0	0	0	0	0	0	13
	0	0	1	3	9	23	14	2	0	0	0	0	0	0	0	52
09:00	0	0	0	0	0	3	7	2	0	0	0	0	0	0	0	12
09:15	0	0	0	0	4	5	7	0	0	0	0	0	0	0	0	16
09:30	0	0	0	0	2	6	5	3	0	0	0	0	0	0	0	16
09:45	0	0	0	1	4	5	4	0	0	0	0	0	0	0	0	14
	0	0	0	1	10	19	23	5	0	0	0	0	0	0	0	58
10:00	0	0	0	0	1	5	3	3	0	0	0	0	0	0	0	12
10:15	0	0	0	0	2	7	0	1	0	0	0	0	0	0	0	10
10:30	1	0	1	1	0	6	4	1	1	0	0	0	0	0	0	15
10:45	0	0	0	2	0	6	4	0	0	0	0	0	0	0	0	12
	1	0	1	3	3	24	11	5	1	0	0	0	0	0	0	49
11:00	0	0	0	4	0	2	3	0	0	0	0	0	0	0	0	9
11:15	0	0	0	5	3	2	8	0	0	0	0	0	0	0	0	18
11:30	0	0	0	2	5	7	7	1	1	0	0	0	0	0	0	23
11:45	0	0	1	1	0	10	2	0	0	0	0	0	0	0	0	14
	0	0	1	12	8	21	20	1	1	0	0	0	0	0	0	64
Total	1	1	4	27	46	131	128	33	3	0	0	0	0	0	0	374

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U248
Badenoch St just west of Ikonkar Place

Date Start: 21-Mar-24
Date End: 21-Mar-24

EB

Start Time	1 15	16 23	24 31	32 39	40 47	48 55	56 63	64 71	72 79	80 88	89 96	97 104	105 112	113 120	121 9999	Total
12 PM	0	0	0	1	2	1	6	1	0	0	0	0	0	0	0	11
12:15	0	0	0	0	0	6	7	1	0	0	0	0	0	0	0	14
12:30	0	0	0	0	0	6	3	2	0	0	0	0	0	0	0	11
12:45	0	0	0	1	2	8	5	0	0	0	0	0	0	0	0	16
	0	0	0	2	4	21	21	4	0	0	0	0	0	0	0	52
13:00	0	0	1	2	3	7	5	1	0	0	0	0	0	0	0	19
13:15	0	1	1	0	2	8	6	1	1	0	0	0	0	0	0	20
13:30	0	0	0	4	2	7	3	1	0	0	0	0	0	0	0	17
13:45	0	0	0	0	1	9	4	0	0	0	0	0	0	0	0	14
	0	1	2	6	8	31	18	3	1	0	0	0	0	0	0	70
14:00	0	0	0	1	0	7	2	0	1	0	0	0	0	0	0	11
14:15	0	0	1	0	2	4	8	0	0	1	0	0	0	0	0	16
14:30	0	0	0	0	0	3	5	1	0	0	0	0	0	0	0	9
14:45	0	0	0	1	1	7	7	2	0	1	0	0	0	0	0	19
	0	0	1	2	3	21	22	3	1	2	0	0	0	0	0	55
15:00	0	0	1	5	3	2	4	1	0	0	0	0	0	0	0	16
15:15	0	1	2	2	3	9	6	1	0	0	0	0	0	0	0	24
15:30	0	0	1	1	2	6	4	3	1	0	0	0	0	0	0	18
15:45	0	0	1	1	2	8	5	0	0	0	0	0	0	0	0	17
	0	1	5	9	10	25	19	5	1	0	0	0	0	0	0	75
16:00	0	0	0	2	1	6	6	5	1	0	0	0	0	0	0	21
16:15	0	0	0	1	3	3	9	0	0	0	0	0	0	0	0	16
16:30	0	0	0	1	3	5	8	1	0	0	0	0	0	0	0	18
16:45	0	0	0	0	3	4	9	2	1	0	0	0	0	0	0	19
	0	0	0	4	10	18	32	8	2	0	0	0	0	0	0	74
17:00	0	0	2	5	7	6	5	2	0	0	0	0	0	0	0	27
17:15	0	0	0	2	6	7	8	4	1	0	0	0	0	0	0	28
17:30	0	0	0	4	3	10	3	1	0	0	0	0	0	0	0	21
17:45	0	1	0	1	1	5	3	1	1	0	0	1	0	0	0	14
	0	1	2	12	17	28	19	8	2	0	0	1	0	0	0	90
18:00	0	0	0	3	3	9	7	2	0	1	0	0	0	0	0	25
18:15	0	0	1	4	1	7	4	0	0	0	0	0	0	0	0	17
18:30	1	0	0	1	0	5	6	2	0	0	0	0	0	0	0	15
18:45	0	0	0	0	3	3	4	1	1	0	0	0	0	0	0	12
	1	0	1	8	7	24	21	5	1	1	0	0	0	0	0	69
19:00	0	0	0	2	2	3	8	1	0	0	0	0	0	0	0	16
19:15	0	0	1	2	2	2	2	1	0	0	0	0	0	0	0	10
19:30	0	0	0	1	2	6	6	3	1	0	0	0	0	0	0	19
19:45	0	0	0	0	3	7	4	1	0	0	0	0	0	0	0	15
	0	0	1	5	9	18	20	6	1	0	0	0	0	0	0	60
20:00	0	0	0	0	3	6	3	1	0	0	0	0	0	0	0	13
20:15	0	0	0	0	2	7	5	0	0	0	0	0	0	0	0	14
20:30	0	0	1	0	2	1	2	0	0	0	0	0	0	0	0	6
20:45	0	0	0	0	1	6	3	0	0	0	0	0	0	0	0	10
	0	0	1	0	8	20	13	1	0	0	0	0	0	0	0	43
21:00	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	3
21:15	0	0	0	0	1	3	1	1	0	0	0	0	0	0	0	6
21:30	0	0	0	0	0	8	5	1	0	0	0	0	0	0	0	14
21:45	0	0	0	0	0	3	4	0	0	0	0	0	0	0	0	7
	0	0	0	1	1	14	11	3	0	0	0	0	0	0	0	30
22:00	0	0	0	0	0	7	3	0	0	0	0	0	0	0	0	10
22:15	0	0	0	0	2	2	5	0	0	0	0	0	0	0	0	9
22:30	0	0	0	0	0	5	4	2	0	0	0	0	0	0	0	11
22:45	0	0	0	1	1	5	1	1	1	0	0	0	0	0	0	10
	0	0	0	1	3	19	13	3	1	0	0	0	0	0	0	40
23:00	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	3
23:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:30	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
23:45	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3
	0	0	0	0	0	4	3	1	0	0	0	0	0	0	0	8
Total	1	3	13	50	80	243	212	50	10	3	0	1	0	0	0	666
Total	2	4	17	77	126	374	340	83	13	3	0	1	0	0	0	1040

Stats		
	15th Percentile :	42 KPH
	50th Percentile :	53 KPH
	85th Percentile :	61 KPH
	95th Percentile :	67 KPH
	Mean Speed(Average) :	53 KPH
	15 KPH Pace Speed :	48-62 KPH
	Number in Pace :	671
	Percent in Pace :	64.5%
	Number of Vehicles > 40 KPH :	924
	Percent of Vehicles > 40 KPH :	88.9%

Ontario Traffic, Inc.
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Site Code: 1
Station ID: U248
Badenoch St just west of Ikonkar Place

Date Start: 21-Mar-24
Date End: 21-Mar-24

WB

Start Time	1 15	16 23	24 31	32 39	40 47	48 55	56 63	64 71	72 79	80 88	89 96	97 104	105 112	113 120	121 9999	Total
03/21/2																
4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
00:15	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
00:30	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
00:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	1	0	0	1	0	2	0	0	0	0	0	0	0	0	4
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
01:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
03:30	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
03:45	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
	0	0	0	0	1	3	1	0	1	0	0	0	0	0	0	6
04:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:15	0	0	0	1	0	2	2	0	1	0	0	0	0	0	0	6
04:30	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3
04:45	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
	0	0	1	2	0	3	5	0	1	0	0	0	0	0	0	12
05:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
05:15	0	0	0	0	1	3	1	1	1	0	0	0	0	0	0	7
05:30	0	0	1	0	0	1	3	1	0	0	0	0	0	0	0	6
05:45	0	0	0	1	0	6	2	1	1	0	0	0	0	0	0	11
	0	0	1	1	1	10	7	3	2	0	0	0	0	0	0	25
06:00	0	0	0	1	1	3	9	1	0	0	0	0	0	0	0	15
06:15	0	0	0	0	3	6	5	2	0	0	0	0	0	0	0	16
06:30	0	0	0	0	4	2	6	3	0	0	0	0	0	0	0	15
06:45	0	0	0	0	5	8	9	1	1	0	0	0	0	0	0	24
	0	0	0	1	13	19	29	7	1	0	0	0	0	0	0	70
07:00	0	0	0	1	0	9	7	2	0	0	0	0	0	0	0	19
07:15	0	1	0	2	3	16	10	2	1	0	0	0	0	0	0	35
07:30	0	0	0	4	7	6	5	4	1	0	0	0	0	0	0	27
07:45	0	2	1	4	7	15	3	0	1	0	0	0	0	0	0	33
	0	3	1	11	17	46	25	8	3	0	0	0	0	0	0	114
08:00	0	0	0	1	6	11	11	0	0	0	0	0	0	0	0	29
08:15	0	0	1	2	5	13	19	0	1	0	0	0	0	0	0	41
08:30	0	0	1	1	7	11	5	4	0	0	0	0	0	0	0	29
08:45	0	0	1	1	0	14	6	2	0	0	0	0	0	0	0	24
	0	0	3	5	18	49	41	6	1	0	0	0	0	0	0	123
09:00	0	0	2	0	5	10	5	1	0	0	0	0	0	0	0	23
09:15	0	0	0	2	6	16	4	2	0	0	0	0	0	0	0	30
09:30	0	0	0	1	10	7	6	1	0	0	0	0	0	0	0	25
09:45	0	0	1	2	6	10	1	3	0	0	0	0	0	0	0	23
	0	0	3	5	27	43	16	7	0	0	0	0	0	0	0	101
10:00	0	0	0	2	7	7	8	0	0	1	0	0	0	0	0	25
10:15	0	0	0	2	5	8	7	0	0	0	0	0	0	0	0	22
10:30	0	0	0	4	5	6	4	0	0	0	0	0	0	0	0	19
10:45	0	1	0	1	4	3	4	3	0	0	0	0	0	0	0	16
	0	1	0	9	21	24	23	3	0	1	0	0	0	0	0	82
11:00	0	0	4	3	5	8	1	1	0	0	0	0	0	0	0	22
11:15	0	0	2	6	3	8	6	3	0	0	0	0	0	0	0	28
11:30	0	0	1	1	4	10	7	0	0	0	0	0	0	0	0	23
11:45	0	0	0	1	6	10	3	0	1	0	0	0	0	0	0	21
	0	0	7	11	18	36	17	4	1	0	0	0	0	0	0	94
Total	0	5	16	45	117	234	168	38	10	1	0	0	0	0	0	634

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U248
Badenoch St just west of Ikonkar Place

Date Start: 21-Mar-24
Date End: 21-Mar-24

WB

Start Time	1 15	16 23	24 31	32 39	40 47	48 55	56 63	64 71	72 79	80 88	89 96	97 104	105 112	113 120	121 9999	Total
12 PM	0	0	0	0	0	7	9	0	0	0	0	0	0	0	0	16
12:15	0	0	0	0	7	11	5	0	1	0	0	0	0	0	0	24
12:30	0	0	0	1	2	6	1	1	0	0	0	0	0	0	0	11
12:45	0	0	0	1	6	4	2	1	0	0	0	0	0	0	0	14
	0	0	0	2	15	28	17	2	1	0	0	0	0	0	0	65
13:00	0	0	1	1	2	10	2	0	0	0	0	0	0	0	0	16
13:15	0	0	1	3	5	10	0	2	0	0	0	0	0	0	0	21
13:30	0	0	1	5	2	8	5	0	0	0	0	0	0	0	0	21
13:45	0	0	1	0	4	7	6	1	1	0	0	0	0	0	0	20
	0	0	4	9	13	35	13	3	1	0	0	0	0	0	0	78
14:00	0	0	0	0	2	7	3	0	0	0	0	0	0	0	0	12
14:15	0	0	0	0	4	14	5	0	0	0	0	0	0	0	0	23
14:30	0	0	0	2	5	17	4	2	0	0	0	0	0	0	0	30
14:45	0	0	0	2	6	5	5	1	0	0	0	0	0	0	0	19
	0	0	0	4	17	43	17	3	0	0	0	0	0	0	0	84
15:00	0	0	1	2	3	6	7	2	1	0	0	0	0	0	0	22
15:15	0	1	3	4	4	11	6	0	0	0	0	0	0	0	0	29
15:30	0	0	0	1	6	8	2	0	0	0	0	0	0	0	0	17
15:45	0	0	0	1	7	13	8	1	0	0	0	0	0	0	0	30
	0	1	4	8	20	38	23	3	1	0	0	0	0	0	0	98
16:00	0	0	1	2	15	6	7	3	1	0	0	0	0	0	0	35
16:15	0	0	2	0	12	13	13	6	1	0	0	0	0	0	0	47
16:30	0	0	0	0	14	8	6	2	1	0	0	0	0	0	0	31
16:45	0	0	0	1	9	22	7	3	0	0	0	0	0	0	0	42
	0	0	3	3	50	49	33	14	3	0	0	0	0	0	0	155
17:00	0	0	0	14	8	13	6	3	1	0	0	0	0	0	0	45
17:15	0	0	2	3	14	16	2	2	0	0	0	0	0	0	0	39
17:30	0	0	0	2	10	19	11	0	0	0	0	0	0	0	0	42
17:45	0	0	0	1	4	18	11	3	0	0	0	0	0	0	0	37
	0	0	2	20	36	66	30	8	1	0	0	0	0	0	0	163
18:00	0	0	0	0	12	12	6	3	1	0	0	0	0	0	0	34
18:15	0	0	2	5	7	10	3	0	0	0	0	0	0	0	0	27
18:30	0	0	0	1	10	10	1	1	0	0	0	0	0	0	0	23
18:45	0	0	0	1	3	5	4	3	0	0	0	0	0	0	0	16
	0	0	2	7	32	37	14	7	1	0	0	0	0	0	0	100
19:00	0	0	1	2	3	4	6	1	1	0	0	0	0	0	0	18
19:15	0	0	0	0	2	9	2	1	0	0	0	0	0	0	0	14
19:30	0	0	0	1	2	4	3	0	0	0	0	0	0	0	0	10
19:45	0	0	0	1	0	6	3	0	0	0	0	0	0	0	0	10
	0	0	1	4	7	23	14	2	1	0	0	0	0	0	0	52
20:00	0	0	0	0	3	5	5	0	0	0	0	0	0	0	0	13
20:15	0	0	0	0	3	6	4	1	1	0	0	0	0	0	0	15
20:30	0	0	0	0	0	4	1	1	0	0	0	0	0	0	0	6
20:45	0	0	0	1	0	5	2	0	0	0	0	0	0	0	0	8
	0	0	0	1	6	20	12	2	1	0	0	0	0	0	0	42
21:00	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	5
21:15	0	0	0	0	0	5	3	0	0	0	0	0	0	0	0	8
21:30	0	0	0	0	1	4	1	0	0	0	0	0	0	0	0	6
21:45	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	3
	0	0	0	2	2	11	6	1	0	0	0	0	0	0	0	22
22:00	0	0	1	1	1	3	0	0	0	0	0	0	0	0	0	6
22:15	0	0	0	0	1	5	2	1	1	0	0	0	0	0	0	10
22:30	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
22:45	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3
	0	0	1	1	3	9	5	1	1	0	0	0	0	0	0	21
23:00	0	0	0	0	0	3	1	2	0	0	0	0	0	0	0	6
23:15	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
23:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:45	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	0	0	0	0	0	6	1	2	0	0	0	0	0	0	0	9
Total	0	1	17	61	201	365	185	48	11	0	0	0	0	0	0	889
Total	0	6	33	106	318	599	353	86	21	1	0	0	0	0	0	1523

Stats	
15th Percentile :	41 KPH
50th Percentile :	50 KPH
85th Percentile :	60 KPH
95th Percentile :	65 KPH
Mean Speed(Average) :	51 KPH
15 KPH Pace Speed :	48-62 KPH
Number in Pace :	908
Percent in Pace :	59.6%
Number of Vehicles > 40 KPH :	1338
Percent of Vehicles > 40 KPH :	87.9%

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Site Code: 1
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Badenoch St just west of Ikonkar Place

Date Start: 21-Mar-24
Date End: 21-Mar-24

EB, WB

Start Time	1 15	16 23	24 31	32 39	40 47	48 55	56 63	64 71	72 79	80 88	89 96	97 104	105 112	113 120	121 9999	Total
03/21/2																
4	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	4
00:15	0	1	0	0	2	1	1	0	0	0	0	0	0	0	0	5
00:30	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
00:45	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	0	2	0	1	3	1	6	0	0	0	0	0	0	0	0	13
01:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
01:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
01:45	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
	0	0	0	0	0	3	1	1	0	0	0	0	0	0	0	5
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
02:30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
02:45	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	0	0	0	1	1	1	2	0	0	0	0	0	0	0	0	5
03:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
03:15	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
03:30	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4
03:45	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	3
	0	0	0	1	2	4	2	1	1	0	0	0	0	0	0	11
04:00	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
04:15	0	0	1	1	0	3	4	0	1	0	0	0	0	0	0	10
04:30	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	3
04:45	0	0	0	1	1	0	4	1	0	0	0	0	0	0	0	7
	0	0	2	2	1	4	12	1	1	0	0	0	0	0	0	23
05:00	0	0	0	0	1	3	3	0	0	0	0	0	0	0	0	7
05:15	0	0	0	0	1	3	8	2	1	0	0	0	0	0	0	15
05:30	0	0	1	0	0	3	7	1	0	0	0	0	0	0	0	12
05:45	0	0	0	1	0	6	4	3	1	0	0	0	0	0	0	15
	0	0	1	1	2	15	22	6	2	0	0	0	0	0	0	49
06:00	0	0	0	1	1	6	13	2	0	0	0	0	0	0	0	23
06:15	0	0	0	0	3	10	9	4	0	0	0	0	0	0	0	26
06:30	0	0	0	0	4	4	13	4	0	0	0	0	0	0	0	25
06:45	0	0	0	1	6	11	15	1	1	0	0	0	0	0	0	35
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09:00	0	0	2	0	5	13	12	3	0	0	0	0	0	0	0	35
09:15	0	0	0	2	10	21	11	2	0	0	0	0	0	0	0	46
09:30	0	0	0	1	12	13	11	4	0	0	0	0	0	0	0	41
09:45	0	0	1	3	10	15	5	3	0	0	0	0	0	0	0	37
	0	0	3	6	37	62	39	12	0	0	0	0	0	0	0	159
10:00	0	0	0	2	8	12	11	3	0	1	0	0	0	0	0	37
10:15	0	0	0	2	7	15	7	1	0	0	0	0	0	0	0	32
10:30	1	0	1	5	5	12	8	1	1	0	0	0	0	0	0	34
10:45	0	1	0	3	4	9	8	3	0	0	0	0	0	0	0	28
	1	1	1	12	24	48	34	8	1	1	0	0	0	0	0	131
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11:15	0	0	2	11	6	10	14	3	0	0	0	0	0	0	0	46
11:30	0	0	1	3	9	17	14	1	1	0	0	0	0	0	0	46
11:45	0	0	1	2	6	20	5	0	1	0	0	0	0	0	0	35
	0	0	8	23	26	57	37	5	2	0	0	0	0	0	0	158
Total	1	6	20	72	163	365	296	71	13	1	0	0	0	0	0	1008

Ontario Traffic, Inc.
17705 Leslie St., Unit 6
Newmarket, Ontario L3Y 3E3
Tel: (905) 898-7711 Fax: (905) 898-3664

Site Code: 1
Station ID: U248
Badenoch St just west of Ikonkar Place

Date Start: 21-Mar-24
Date End: 21-Mar-24

EB, WB

Start Time	1 15	16 23	24 31	32 39	40 47	48 55	56 63	64 71	72 79	80 88	89 96	97 104	105 112	113 120	121 9999	Total
12 PM	0	0	0	1	2	8	15	1	0	0	0	0	0	0	0	27
12:15	0	0	0	0	7	17	12	1	1	0	0	0	0	0	0	38
12:30	0	0	0	1	2	12	4	3	0	0	0	0	0	0	0	22
12:45	0	0	0	2	8	12	7	1	0	0	0	0	0	0	0	30
	0	0	0	4	19	49	38	6	1	0	0	0	0	0	0	117
13:00	0	0	2	3	5	17	7	1	0	0	0	0	0	0	0	35
13:15	0	1	2	3	7	18	6	3	1	0	0	0	0	0	0	41
13:30	0	0	1	9	4	15	8	1	0	0	0	0	0	0	0	38
13:45	0	0	1	0	5	16	10	1	1	0	0	0	0	0	0	34
	0	1	6	15	21	66	31	6	2	0	0	0	0	0	0	148
14:00	0	0	0	1	2	14	5	0	1	0	0	0	0	0	0	23
14:15	0	0	1	0	6	18	13	0	0	1	0	0	0	0	0	39
14:30	0	0	0	2	5	20	9	3	0	0	0	0	0	0	0	39
14:45	0	0	0	3	7	12	12	3	0	1	0	0	0	0	0	38
	0	0	1	6	20	64	39	6	1	2	0	0	0	0	0	139
15:00	0	0	2	7	6	8	11	3	1	0	0	0	0	0	0	38
15:15	0	2	5	6	7	20	12	1	0	0	0	0	0	0	0	53
15:30	0	0	1	2	8	14	6	3	1	0	0	0	0	0	0	35
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	0	2	9	17	30	63	42	8	2	0	0	0	0	0	0	173
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16:15	0	0	2	1	15	16	22	6	1	0	0	0	0	0	0	63
16:30	0	0	0	1	17	13	14	3	1	0	0	0	0	0	0	49
16:45	0	0	0	1	12	26	16	5	1	0	0	0	0	0	0	61
	0	0	3	7	60	67	65	22	5	0	0	0	0	0	0	229
17:00	0	0	2	19	15	19	11	5	1	0	0	0	0	0	0	72
17:15	0	0	2	5	20	23	10	6	1	0	0	0	0	0	0	67
17:30	0	0	0	6	13	29	14	1	0	0	0	0	0	0	0	63
17:45	0	1	0	2	5	23	14	4	1	0	0	1	0	0	0	51
	0	1	4	32	53	94	49	16	3	0	0	1	0	0	0	253
18:00	0	0	0	3	15	21	13	5	1	1	0	0	0	0	0	59
18:15	0	0	3	9	8	17	7	0	0	0	0	0	0	0	0	44
18:30	1	0	0	2	10	15	7	3	0	0	0	0	0	0	0	38
18:45	0	0	0	1	6	8	8	4	1	0	0	0	0	0	0	28
	1	0	3	15	39	61	35	12	2	1	0	0	0	0	0	169
19:00	0	0	1	4	5	7	14	2	1	0	0	0	0	0	0	34
19:15	0	0	1	2	4	11	4	2	0	0	0	0	0	0	0	24
19:30	0	0	0	2	4	10	9	3	1	0	0	0	0	0	0	29
19:45	0	0	0	1	3	13	7	1	0	0	0	0	0	0	0	25
	0	0	2	9	16	41	34	8	2	0	0	0	0	0	0	112
20:00	0	0	0	0	6	11	8	1	0	0	0	0	0	0	0	26
20:15	0	0	0	0	5	13	9	1	1	0	0	0	0	0	0	29
20:30	0	0	1	0	2	5	3	1	0	0	0	0	0	0	0	12
20:45	0	0	0	1	1	11	5	0	0	0	0	0	0	0	0	18
	0	0	1	1	14	40	25	3	1	0	0	0	0	0	0	85
21:00	0	0	0	2	1	1	2	2	0	0	0	0	0	0	0	8
21:15	0	0	0	0	1	8	4	1	0	0	0	0	0	0	0	14
21:30	0	0	0	0	1	12	6	1	0	0	0	0	0	0	0	20
21:45	0	0	0	1	0	4	5	0	0	0	0	0	0	0	0	10
	0	0	0	3	3	25	17	4	0	0	0	0	0	0	0	52
22:00	0	0	1	1	1	10	3	0	0	0	0	0	0	0	0	16
22:15	0	0	0	0	3	7	7	1	1	0	0	0	0	0	0	19
22:30	0	0	0	0	0	5	6	2	0	0	0	0	0	0	0	13
22:45	0	0	0	1	2	6	2	1	1	0	0	0	0	0	0	13
	0	0	1	2	6	28	18	4	2	0	0	0	0	0	0	61
23:00	0	0	0	0	0	4	2	3	0	0	0	0	0	0	0	9
23:15	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
23:30	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
23:45	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	4
	0	0	0	0	0	10	4	3	0	0	0	0	0	0	0	17
Total	1	4	30	111	281	608	397	98	21	3	0	1	0	0	0	1555
Total	2	10	50	183	444	973	693	169	34	4	0	1	0	0	0	2563

Stats	
15th Percentile :	41 KPH
50th Percentile :	51 KPH
85th Percentile :	60 KPH
95th Percentile :	66 KPH
Mean Speed(Average) :	52 KPH
15 KPH Pace Speed :	48-62 KPH
Number in Pace :	1579
Percent in Pace :	61.6%
Number of Vehicles > 40 KPH :	2262
Percent of Vehicles > 40 KPH :	88.3%

Appendix F

Response to Comments

Draft Plan and Zoning By-law Amendment Application (ZBA)

Second Submission Comments

Township of Puslinch

Weston File: 10779

February 2024

1. GM Blueplan Engineering Parth Lad Feb 09, 2024		
Comment	**Consultant**	**Response**
24. Sight Distance Figure Traffic Impact Study		
GMBP Comment (February 9, 2024) In Section 9 of the Traffic Impact Study (TIS), please include an additional figure that is similar to Figure 15 but enlarged to illustrate the extent of the sight distances described in Table 9.	GHD	A figure illustrating the full extent of the sightline assessment is provided in Appendix D.
25. Internal Road Geometry Figure Traffic Impact Study		
GMBP Comment (February 9, 2024) Section 10 of the TIS needs to be revised using the Township of Puslinch 20m wide urban road cross-section. Additionally, the TIS states that the proposed right-of-way is 18m wide. Please revise to 20m to be consistent with the engineering reports and drawings.	GHD	Report has been updated to reflect the proposed 20 metre right-of-way for Street A

6. Salvini Consulting Julia Salvini March 07, 2024		
Comment	**Consultant**	**Response**
I've reviewed the December 2023 TIS prepared by GHD for the proposed residential subdivision in Morriston and provide my comments below:		
• Base traffic data, the background growth assumptions, the traffic generation and distribution, and the future total traffic volumes are all acceptable. I am in agreement with the capacity analyses at the Badenoch/Ochs and Ochs/Back intersections.	GHD	Noted.
• The sightline assessment exiting Ochs Street to Badenoch Street was undertaken with the following parameters from the TAC Geometric Design Guide for Canadian Roads: - Driver's eye set back 4.4 metres from the edge of the traveled way - Driver's eye height of 1.08 metres for the passenger vehicle - Driver's eye height of 1.8 metres for the truck/snow plow - Object height of 1.3 metres representing the top of a car • A design speed of 60 kph was chosen for the assessment representing 10 kph beyond the posted speed limit of 50 kph. Given the tight assessment, Township staff would like to see a speed study on Badenoch Street at the crest of the hill to confirm that 60 kph is appropriate. The speed study should provide a speed assessment by direction.	GHD	A speed study was completed with the results of the study indicating that the 85th percentile speed in the eastbound direction travelling towards Ochs Street is 61 km/h and generally consistent with the assumed design speed based on the posted speed limit.
• The sightline assessment indicates that using these parameters, the available sightlines meet the TAC requirements for the passenger vehicle but there is about a 3 metre shortfall in the sightline for the truck (out of a requirement for 158.4 metres). The calculation of available sightlines is based both on the design drawings for reconstructed Badenoch Street and were confirmed in the field to be slightly higher than on the design drawings. Township staff have confirmed that the height of the driver's eye for the snow plow is 2.6 metres. The consultant should revise the drawing to confirm if the appropriate sight distance can be achieved with the additional height to the driver's eye.	GHD	Noted. The sightline assessment was updated using a 2.6 metre driver's eye height for the snow plow assessment.

• The parameters above represent daylight conditions where the top of an approaching vehicle can be seen. At night there are streetlights on Badenoch Street to illuminate oncoming vehicles and given the curve in the road, headlights from westbound traffic will be pointing upward and will be more easily seen from the east.	GHD	Noted.
• The study does not address the reconstruction of Ochs Street. Ochs Street is narrow and requires reconstruction to meet Township standards. It is also my understanding that it will be realigned slightly to the east.	GHD Crozier	Noted. Ochs Street is being reconstructed and realigned to meet Township standards.
• Crozier, the Civil Engineer for the project, has prepared a drawing illustrating how the retaining wall at the southwest corner of the Badenoch/Ochs intersection could be reconfigured to meet the sightline requirements at the intersection. This will be reviewed in more detail with GM BluePlan. This drawing illustrates a reconstructed Ochs Street. Township staff confirmed that the distance between the front of a snow plow and the driver's eye can fit in the 4.4 metre setback from the traveled way (see photo below). The design of the shifted retaining wall must consider the sight triangle for the snow plow and include the 4.4 metre setback to ensure proper sight distance for the snow plow driver.	GHD	Noted. The assessment was completed with design of the shifted retaining wall considering the daylighting triangle and to accommodate the sightline assessment for a snow plow design vehicle.
• A proposed cross-section is included in the study for new Streets A and B. The consultant suggests that the cross-section will accommodate a single lane of traffic in each direction plus parking on both sides of the road. This should be reviewed in more detail with GM BluePlan and Township staff. The paved portion of the road is proposed at 6.5 metres with a 1.25 metre shoulder on both sides. If there were cars parked on both sides of the road, there would not be 6 metres of clear width for a firetruck.	GHD	The proposed cross-section for Street A is based on the Township's design standards for a 20-metre right-of-way, however a sidewalk is provided only on the west side of the road due to the small number of units and limited sidewalk connectivity.
• MTO comments on the previous version of the TIS were provided to the consultant on August 2, 2023. MTO will have to provide further comments on this revised TIS. • We have shared these comments with staff from the County and they are in agreement with them.	GHD	Noted. The report has been updated to address all commens from the MTO.

7. Ministry of Transportation Allan Hodgins March 27, 2024		
Comment	**Consultant**	**Response**
Blocks and Land Use:		
It is premature to comment on any block configuration until a municipal road configuration is determined to be acceptable by MTO and supported by an approved Traffic Impact Study (TIS), MTO comments on the TIS detailed below. • The draft plans achieve MTO required 14.0m setback, however future submission should clearly show/label the setback along the Highway 6 frontage.	GHD	Noted.
MTO would be willing to review a sight line analysis as proposed by Township/County staff to review both locations to further support access, pending the following comments are addressed in a TIS resubmission:		
• MTO will require the MTO/TAC protocol analysis to be completed for all four legs of the intersection of Highway and Badenoch St. ○ Page 18, Section 7.1.1, only provides analysis for SBLT lane, analysis for the NB, WB, EB lanes shall be included in the resubmission.	GHD	The queuing analysis in Section 7.1.1 was completed for left-turn lanes only. Despite the subject site not generating any additional trips to the northbound left-turn movement, the section was revised to also include the NBL lane. The eastbound and westbound approaches do not have exclusive left-turn lanes resulting in no queuing analysis for the respective approaches.
• MTO will require the MTO/TAC protocol to be completed for the right turn lane analysis. ○ Page 19, Section 7.1.2, notes it is not possible, please see section below for information to perform right turn lane analysis.	GHD	Similar to the comment above, only the westbound approach has an exclusive right-turn lane and the queue assessment was only completed for that approach.
• The Synchro files show a PHF= 0.95-96 for future horizon years, MTO policy requires PHF= 0.88 (rural), or 0.92 (urban/suburban). ○ See section below regarding MTO PHF Policy to prepare the resubmission.	GHD	As confirmed through discussion with MTO staff, the existing PHF that is greater than 0.92 can continue to be used.

• In addition to the proposed intersection sightline analysis, MTO suggest alternative measure be reviewed and considered to support access from Ochs St (i.e. posted speed reduction, higher enforcement or photo-radar along this section.	GHD	Noted.

ghd.com

→ The Power of Commitment