

6586 BEATTY LINE NORTH TOWNSHIP OF CENTRE WELLINGTON

Proposed Residential Subdivision
Transportation Impact Study



Prepared For: The Sorbara/Tribute Brubacher Holdings Inc.

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BA Group

AUTHORSHIP

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Overview.....	1
1.2	The Site.....	1
1.3	The Proposed Development	1
2.0	PLANNING POLICIES	5
2.1	Wellington County Road Master Action Plan.....	5
2.2	Township of Centre Wellington Transportation Master Plan.....	5
2.3	North West Fergus Secondary Plan.....	6
2.4	Beatty Line North / Millage Lane / Elliot Avenue East Signals	6
2.5	Beatty Line Reconstruction	7
3.0	AREA TRANSPORTATION CONTEXT	9
3.1	Road Network	9
3.2	Transit Network.....	10
3.3	Bicycle Network.....	10
3.4	Pedestrian Network	10
4.0	TRAFFIC VOLUME PROJECTIONS	13
4.1	Scope	13
4.2	Existing Traffic Volumes	13
4.3	Future Background Traffic Volumes	14
4.4	Site Traffic Forecasts	15
5.0	OPERATION ANALYSIS	28
5.1	Analysis Methodology.....	28
5.2	Analysis Assumptions and Parameters	28
5.3	Intersection Operations Analysis	30
6.0	TRANSPORTATION DEMAND MANAGEMENT	1
6.1	Mobility Choice Travel Plan.....	1
6.2	Organizational Framework	1
7.0	SUMMARY AND CONCLUSIONS	3



LIST OF TABLES

Table 1	Existing Traffic Data Sources	13
Table 2	Area Background Development	14
Table 3	Adopted Vehicle Trip Generation Rates	15
Table 4	Site Vehicle Trip Generation	16
Table 5	Site Traffic Distribution	16
Table 6	Network Delay Calibrations	29
Table 7	Signalized Intersections Capacity Analysis Summary	1
Table 8	Signalized Intersections Queue Length Summary	2
Table 9	Unsignalized Intersections Capacity Analysis Summary	3
Table 10	Unsignalized Intersections Queue Length Summary	5
Table 11	Potential Mobility Choice Travel Plan Strategies	2

LIST OF FIGURES

Figure 1:	Site Location	3
Figure 2:	Concept Plan	4
Figure 3:	North West Fergus Secondary Plan	8
Figure 4:	Existing and Proposed Street Network	11
Figure 5:	Existing and Proposed Bicycle Network	12
Figure 6:	Existing Lane Configurations	17
Figure 7:	Future Lane Configurations	18
Figure 8:	Existing Traffic Volumes	19
Figure 9:	Corridor Growth Traffic Volumes (5-Year Horizon)	20
Figure 10:	Corridor Growth Traffic Volumes (10-Year Horizon)	21
Figure 11:	Background Development Traffic Volumes	22
Figure 12:	Future Background Traffic Volumes (5-Year Horizon)	23
Figure 13:	Future Background Traffic Volumes (10-Year Horizon)	24
Figure 14:	Site Traffic Volumes	25
Figure 15:	Future Total Traffic Volumes (5-Year Horizon)	26
Figure 16:	Future Total Traffic Volumes (10-Year Horizon)	27

TABLE OF APPENDICES

Appendix A: Concept Plan
Appendix B: Cross Sections
Appendix C: Turning Movement Counts
Appendix D: Operations Analysis Outputs (Synchro and SIDRA)
Appendix E: Calibration Studies



1.0 INTRODUCTION

1.1 Overview

BA Group is retained by Sorbara/Tribute Brubacher Holdings Inc. to provide transportation consulting services in relation to the proposed residential subdivision located at 6586 Beatty Line North in the Township of Centre Wellington (the “site”). An Official Plan Amendment (“OPA”) application is being made to the Township for the proposed development. The effects of the OPA are to re-designate the site and to expand the boundaries of the North West Fergus Secondary Plan in the Township of Centre Wellington Official Plan (“TCWOP”).

The proposed OPA will augment the County-level May 2024 Settlement Area Boundary Expansion (“SABE”) request. The instrument will establish permissions for serviced, urban-type land uses on the site in conformity with the minimum density targets of the Centre Wellington Official Plan (“CWOP”), the TCWOP and the Secondary Plan. In doing so, the OPA will assist the County and Township in meeting their residential growth targets by the 2051 planning horizon.

The site is contemplated for inclusion with the Fergus Settlement Area Boundaries to permit urban-type residential uses. The site would form a logical extension of the Storybrook Subdivision, which is a subdivision consisting of low and medium density residential uses, a park, and a stormwater management pond.

This report is being submitted in support of the proposed development and provides an assessment of the transportation impacts of the development proposal.

1.2 The Site

The site is located on the west side of Beatty Line North, approximately 150 metres north of Farley Road/Side Road 18 and approximately 400 metres south of Nichol Road 15. The site is generally bound by Beatty Line North to the east, the Storybrook Subdivision to the south, and rural land to the north and west. The site is currently occupied by a residential dwelling. An existing driveway to Beatty Line North services the dwelling. Surrounding land use is generally residential in nature.

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

1.3 The Proposed Development

The proposed development contemplates the construction of a residential subdivision comprising the following:

- 569 residential units, including:
 - 368 detached dwellings;
 - 201 townhouses

The dwellings will be serviced by an internal public road network, generally comprising roads with an 18 metre right of way in accordance with Section B.2 of the Centre Wellington Development Manual, dated June 2024 (“CWDM”) for a “Local Street”. A proposed street connects between Beatty Line North to the north end of Elliot Avenue West in the Storybrook Subdivision to the south (“EW Street”). EW Street is proposed as a “Minor Collector Street A” with a right of way width of 20 metres, in accordance with Section B.2 of the CWDM.

Access to the site is conceptually shown at three locations as follows:

- A new unsignalized intersection at Beatty Line North / EW Street, located approximately 160 metres north of the site’s southern boundary;
- Connection to the north end of Elliot Avenue West in the Storybrook Subdivision to the south; and
- Protection for a connection to potential future development to the north of the site.

Internal intersections across the redevelopment are expected to operate under two-way or all-way Stop control. Vehicle access to individual lots is generally proposed via the abovementioned internal public road network.

In addition to the abovementioned residential units and internal public road network, the redevelopment will include other features including a storm water management facility and a park.

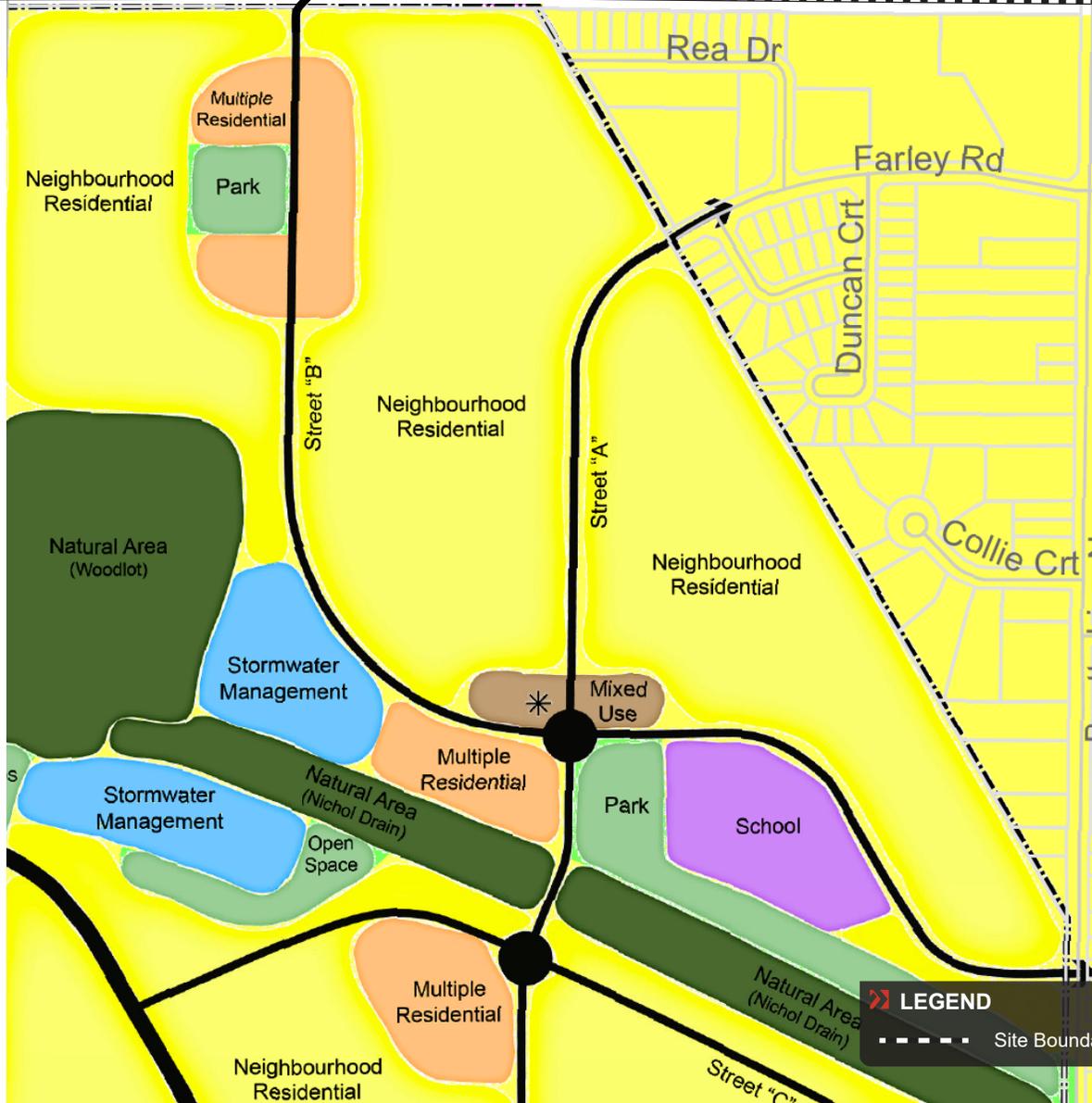
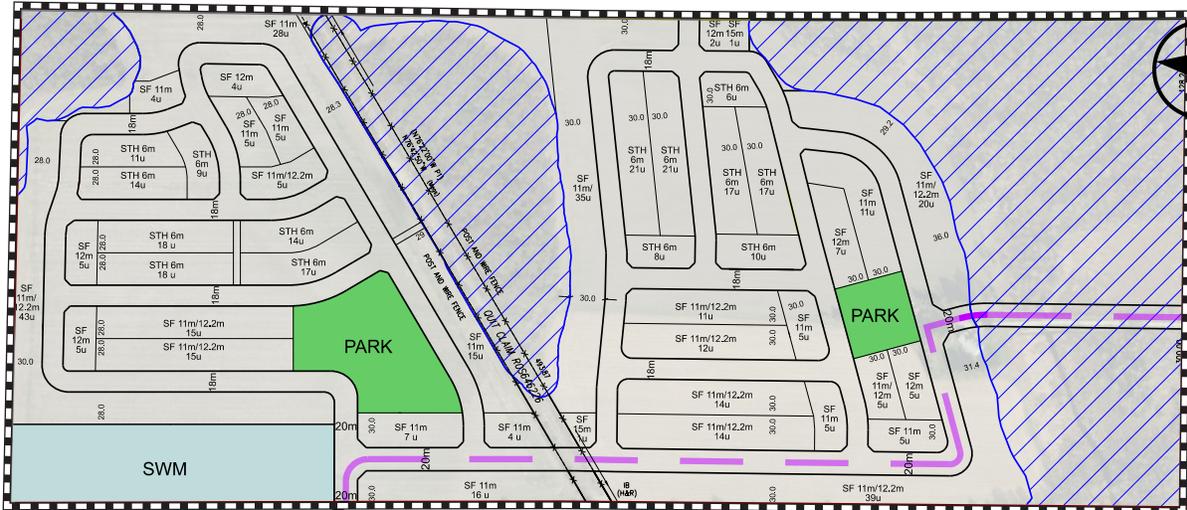
The concept plan is shown in **Figure 2** and attached in **Appendix A**. Township of Centre Wellington’s draft cross sections, dated February 2021, have been assumed for the proposed development and are attached in **Appendix B**.



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FIGURE 1 SITE LOCATION



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FIGURE 2 SITE PLAN

2.0 PLANNING POLICIES

2.1 Wellington County Road Master Action Plan

The Wellington County Road Master Action Plan, dated December 2021 (“RMAP”) provides long-term guidance on transportation in the County by identifying future policy direction and transportation infrastructure needs on the County transportation network to accommodate future population and employment growth into 2041.

Wellington Road 18 is an east-west road operated by the Wellington of County which extends east from Elora and through Fergus. Wellington Road 18 connects with Beatty Line North approximately 2.5 kilometres south of the site. In the vicinity of Beatty Line North, the RMAP identifies an existing Annual Average Daily Traffic (“AADT”) on Wellington Road 18 of 5,000-10,000 and a volume to capacity (“v/c”) ratio of 0.50-0.70.

Based on the projected 2041 Wellington County population of 140,000 (increase from 96,000 in 2016) and employment of 61,000 (increase from 40,100 in 2016), future traffic forecasts were undertaken to assess short-term and long-term needs. Based on these projections, the RMAP estimates that the AADT on Wellington Road 18 between Wellington Road 21 in Elora and Wellington Road 43 (Scotland Street) in Fergus will increase, and this corridor will exceed capacity by 2041. The RMAP reviews a number of alternatives to respond to this projected future condition and ultimately recommends restricted parking and a centre left turn lane between Metcalfe Street and Kertland Street, and an additional lane per direction between Kertland Street and Canrobert Street and between Highway 6 and Wellington Road 43. The improvements are recommended to be implemented within a 6-10 year timeframe.

In addition to the corridor-specific review, potential bypass options were also reviewed to potentially improve capacity generally between Fergus and Elora. The RMAP recommended that a detailed Area Wide Feasibility Study be undertaken to confirm area needs.

With respect to active transportation, the RMAP notes that the County recently approved for the Township of Centre Wellington to implement a signed bicycle route on this corridor and recommended that the future roadway improvements should continue to include designated active mode space.

The RMAP also reviewed a number of potential transit service models when assessing the future of transit in Wellington County. The RMAP ultimately recommended that Wellington County continue to operate the Ride Well service (discussed in **Section 3.2**) and undertake a number of additional actions such as increasing the number of vehicles, expanding service hours, reduce passenger fares, potential partnerships with Ride Well to allow other types of service, and coordination with Community Care Agencies.

2.2 Township of Centre Wellington Transportation Master Plan

The Township of Centre Wellington Transportation Master Plan, dated January 2019 (“TMP”) sets a vision for a sustainable transportation future that maintains and enhances the quality of life in the Township.

In the vicinity of the site, the TMP identifies Beatty Line North, Colborne Street and Nichol Road 15 as collector roads and identifies existing v/c ratios between 0.00-0.59 for each of these.

The TMP estimates a future 2041 Township population of 52,310 (increase from 29,885 in 2016) and employment of 22,780 (increase from 11,970 in 2016). Accordingly the road network was analyzed through an EMME strategic travel mode and identifies a preferred 2041 road network.

The preferred 2041 road network includes a new bridge on Beatty Line North across the Grand River, resulting in an extension south of Wellington Road (the “Beatty Line extension”) to a new east-west collector street which will be an extension to McQueen Boulevard extension. Beatty Line North is proposed to be upgraded to an urban collector between Nichol Road 15 and Wellington Road 18, and intersection improvements are identified at a number of intersections along Beatty Line North, including at Wellington Road 18, Hill Street West, Colborne Street and Millage Lane.

Colborne Street is proposed to be realigned and upgraded to an urban collector, and an extension is proposed of Farley Road to Colborne Street as a collector road.

Nichol Road 15 is redesignated as an arterial road both east and west of Beatty Line North.

The Beatty Line Extension and the redesignation of Nichol Road 15 as an arterial road west of Beatty Line North are identified as medium-term improvements (i.e. by 2031). The other noted improvements are identified as short-term improvements (i.e. by 2023), some of which have already commenced or completed, including pedestrian signals at Wellington Road 18 and Millage Lane (ultimately to be upgraded to a signalized intersection) as discussed in **Section 2.4**, and a roundabout at Colborne Street and upgrades to Beatty Line North between Hill Street West and Millage Lane/Elliot Avenue East as discussed in **Section**.

The TMP also consolidates active transportation recommendations from the Township of Centre Wellington Trails Master Plan, dated May 2014, and the Wellington County Active Transportation Plan, dated September 2012. In the vicinity of the site, the TMP identifies Beatty Line North, Side Road 19, Millage Lane and Nichol Road 15 as proposed on-road cycling routes.

With regards to transit, the TMP recommends that a Transit Service Strategy report be prepared, discussing with existing service providers on whether or not there is an opportunity to serve Centre Wellington, and participating in any future studies regarding transit expansion or provision led by others. It's noted that the TMP is dated January 2019 and pre-dates the implementation of the Ride Well transit service that was implemented in October 2019, as outlined further in **Section 3.2**.

2.3 North West Fergus Secondary Plan

Township of Centre Wellington By-law 2015-016 came into force in April 2015 to adopt Amendment No. 7 to the Township of Centre Wellington Official Plan. This amendment relates to the North West Fergus Secondary Plan ("NWFSP"), which encompasses approximately 99.2 hectares of land. Construction of Phase 1 of the NWFSP has largely been completed, and construction on Phase 2 of the NWFSP has commenced.

The NWFSP is located directly to the south of the site, as shown in **Figure 3**. The site is proposed to connect into the north end of Elliot Avenue West within Phase 2 of the NWFSP, and the boundaries of the NWFSP are proposed to be expanded to incorporate the site.

2.4 Beatty Line North / Millage Lane / Elliot Avenue East Signals

At the Township of Centre Wellington Committee of the Whole meeting on October 21, 2019, a staff report was presented that recommended that the Township execute a Service Financing Commitment Agreement for the construction of intersection improvements and municipal services on Beatty Line North and Millage Lane.

The staff report provided a summary of work, which included the installation and construction of new pedestrian signals and turning lanes, and the installation of hardware to accommodate future traffic signals.

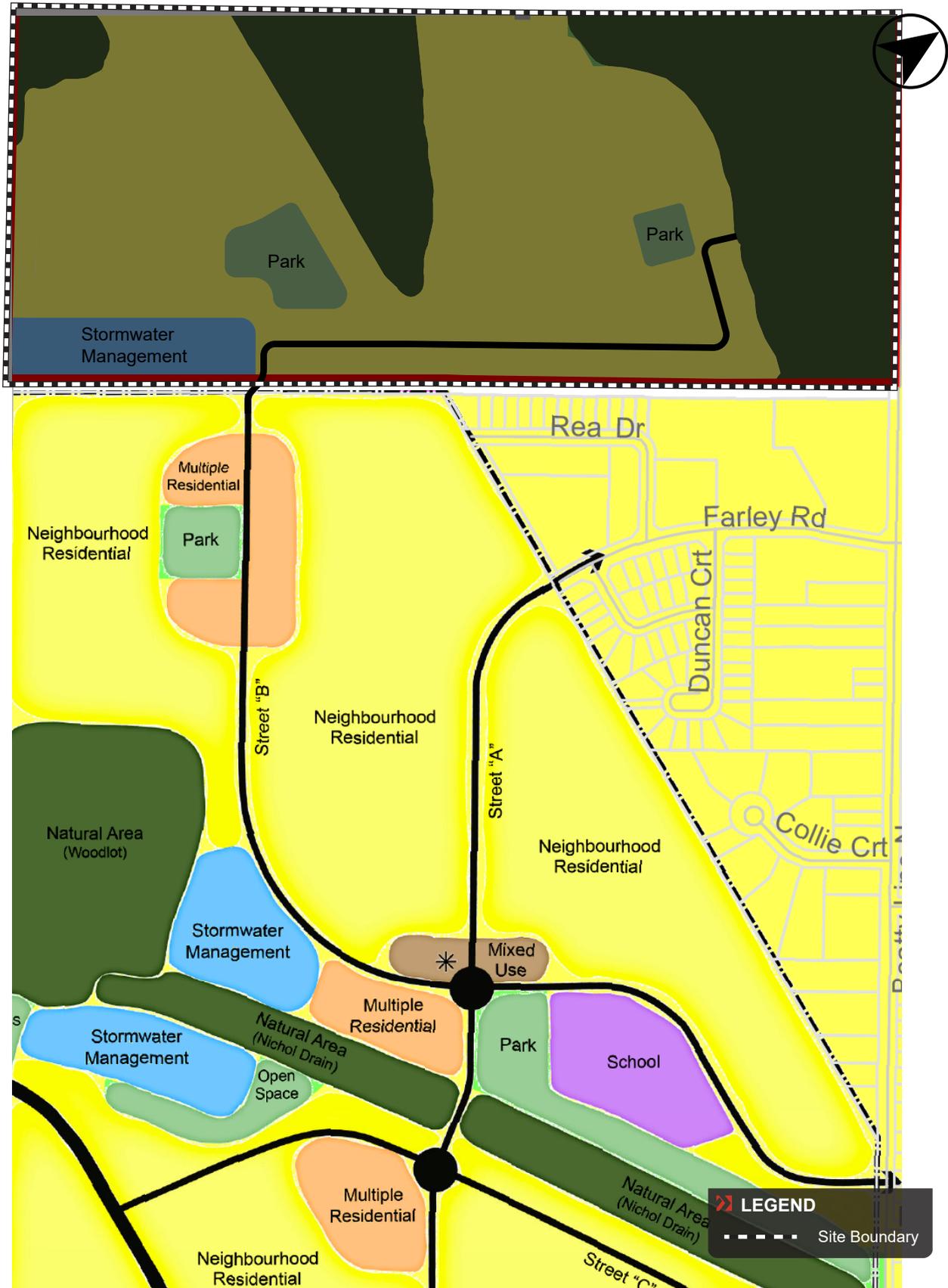
The recommendation was carried at the Committee of the Whole meeting, and was later ratified at the Council meeting on October 28, 2019.

The pedestrian signals at the Beatty Line North / Millage Lane / Elliot Avenue intersection have since been installed.

2.5 Beatty Line Reconstruction

The Township of Centre Wellington recently completed upgrades to Beatty Line North which included:

- The conversion of the current rural cross section to an urban cross section, including centre medians and turning lanes and a multi-use path; and
- The construction of a roundabout at the Beatty Line North / Colborne Street intersection.



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FIGURE 3 NORTH WEST FERGUS SECONDARY PLAN

3.0 AREA TRANSPORTATION CONTEXT

3.1 Road Network

3.1.1 Overview

The following sections provide an overview of the existing and future area road network, as shown graphically in **Figure 4**.

3.1.2 Beatty Line North

Beatty Line North is a Township of Centre Wellington collector road which currently extends generally in a northwest to southeast direction from Peel Street to Colquhuon Street.

In the vicinity of the site, Beatty Line North provides for a single lane of traffic in each direction, and operates with a posted speed limit of 50 kilometres per hour. There are no sidewalks along Beatty Line North adjacent the site.

As discussed in **Section 2.5**, to the south of the site, Beatty Line North was recently converted from a rural cross section to an urban cross section between Hill Street West and Millage Lane/Elliot Avenue East, including centre medians and turning lanes and a multi-use path. As part of these works, a roundabout was constructed at the Beatty Line North / Colborne Street intersection.

3.1.3 Elliot Avenue

Elliot Avenue is a Township of Centre Wellington collector road, extending west from Beatty Line North and ultimately connecting north into the site's southern boundary.

Elliot Avenue provides for a single lane of traffic in each direction, and operates under the default speed limit of 50 kilometres per hour. Sidewalks are provided along both sides of Elliot Avenue.

As discussed in **Section 2.4**, pedestrian signals were recently constructed at the Beatty Line North / Millage Lane / Elliot Avenue East intersection, and will ultimately be upgraded to a signalized intersection.

3.1.4 Township of Centre Wellington TMP Preferred 2041 Road Network

As discussed in **Section 2.2**, the preferred 2041 road network as outlined in the TMP proposes the following in the vicinity of the site:

- Upgrades to Beatty Line between Nichol Road 15 and Wellington Road 18, and intersection improvements are at a number of intersections along Beatty Line North, including at Wellington Road 18, Hill Street West, Colborne Street and Millage Lane (short-term improvements by 2023). Some of these have already commenced or completed, including pedestrian signals at Wellington Road 18 and Millage Lane (ultimately to be upgraded to a signalized intersection) as discussed in **Section 2.4**, and a roundabout at Colborne Street and upgrades to Beatty Line North between Hill Street West and Millage Lane/Elliot Avenue East as discussed in **Section 2.5**;
- The Beatty Line Extension, extending the existing Beatty Line North across the Grand River to a new east-west collector street which will be an extension south of Wellington (medium-term improvement by 2031);
- Upgrades and realignment of Colborne Street and extension of Farley Road to Colborne Street (short-term improvement by 2023); and
- Redesignation of Nichol Road 15 as an arterial road (short-term improvement by 2023 east of Beatty Line North, and medium-term improvement by 2031 west of Beatty Line North).

3.2 Transit Network

On October 1, 2019, Wellington County launched a county wide, demand based, public transit service available to all residents and visitors (“Ride Well”). This pilot service is currently funded to 2025, and operates Monday to Friday, 6:00am-7:00pm. Bookings can be made to or from any address in Wellington County or Guelph.

This service also provides opportunities to connect to other nearby transit agencies and routes, including Guelph Transit, GO Transit, and Guelph Owen Sound Transportation (a transit service which extends from Owen Sound to Guelph with stops in Chatsworth, Williamsford, Durham, Mount Forest, Arthur, Fergus and Elora).

3.3 Bicycle Network

As noted in **Section 2.5**, a multi-use path was recently constructed along Beatty Line North to the south of the site. In addition to this, as discussed in **Section 2.2**, the TMP identifies Beatty Line North, Side Road 19, Millage Lane and Nichol Road 15 as proposed on-road cycling routes. As discussed in **Section 2.1**, the RMAP notes that the County recently approved for the Township of Centre Wellington to implement a signed bicycle route on Wellington Road 18 and recommended that the future roadway improvements should continue to include designated active mode space.

The above routes provide connections to the broader existing and future bicycle network through the Township of Centre Wellington and beyond.

The existing and future area bicycle network is shown in **Figure 5**.

3.4 Pedestrian Network

There are currently no sidewalks adjacent the site. South of the site there are sidewalks along one or both sides of Beatty Line North, and a number of local streets in nearby residential subdivisions. A signalized crossing location is available at the Beatty Line North / Millage Lane / Elliot Avenue East intersection.



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Aerial maps provided courtesy of: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and/or Google Earth/Maps.

FIGURE 4 EXISTING AND PROPOSED STREET NETWORK

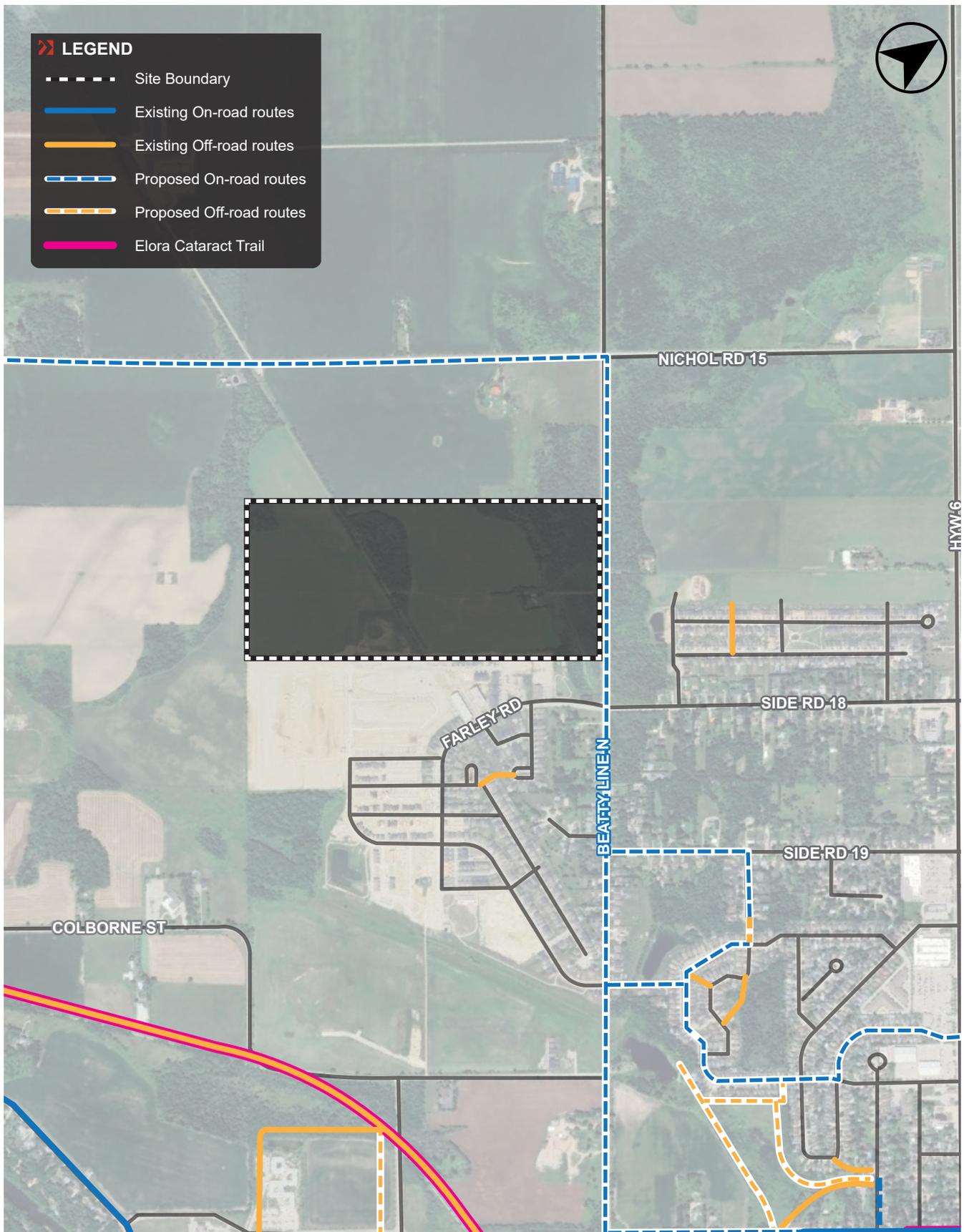


FIGURE 5 EXISTING AND PROPOSED BICYCLE NETWORK

4.0 TRAFFIC VOLUME PROJECTIONS

4.1 Scope

For the purpose of analysis, a build-out timeframe of 5-years has been assumed. In accordance with County of Wellington Traffic Impact Study Guidelines, analysis has been undertaken for opening year (i.e. 5-year horizon) and opening year plus 5 years (i.e. 10-year horizon).

Accordingly, analysis has been completed for the following scenarios during the AM and PM peak hour:

- Existing Conditions;
- Future Background Conditions (5-Year Horizon);
- Future Background Conditions (10-Year Horizon);
- Future Total Conditions (5-Year Horizon); and
- Future Total Conditions (10-Year Horizon).

Intersections included within the analysis study area are listed below:

- Beatty Line North / Millage Lane / Elliot Avenue East;
- Beatty Line North / Nichol Road 15;
- Beatty Line / Farley Road / Side Road 18;
- Beatty Line / Colborne Street; and
- Beatty Line / Site Access

Existing lane configurations are shown in **Figure 6** and future lane configurations are shown in **Figure 7**.

4.2 Existing Traffic Volumes

Existing peak hour traffic volumes have been established based on traffic counts undertaken by Spectrum Traffic Data on behalf of BA Group. The intersections which were counted are summarized in **Table 1**. The existing baseline area traffic volumes for the AM and PM peak hours are provided in **Figure 8**, and the raw data is attached in **Appendix C**.

Table 1 Existing Traffic Data Sources

Intersection	Count Date	Count Times	Source
Beatty Line N / Farley Rd / Side Rd 18	Tuesday, December 19, 2023	12:00am-12:00am (24 hr count)	Spectrum Traffic Data
Beatty Line N / Millage Ln / Elliot Ave E		7:00am-9:00am 4:00pm-6:00pm	
Beatty Line N / Nichol Rd 15			
Beatty Line N / Colborne St			

4.3 Future Background Traffic Volumes

4.3.1 Corridor Growth

For the purpose of this assessment, a growth rate of 1% per annum has conservatively been adopted along Nichol Road 15, Beatty Line and Colborne Street, which is consistent with other traffic studies completed in the area.

Corridor growth traffic volumes for the 5-year and 10-year horizons are shown in **Figure 9** and **Figure 10** respectively.

4.3.2 Background Development Growth

Background development traffic allowances included within the analysis were based on information available within the Norfolk County pending development applications map, as summarized in **Table 2**. In the absence of an available transportation study, trip generation and distribution assumptions consistent with those adopted for the site were manually applied to the proposed redevelopment.

Background development traffic volumes are shown in **Figure 11**.

Table 2 Area Background Development

Site	Development Statistics	Study
North West Fergus Secondary Plan Phases 2 and 3	1,126 residential units 3,000 m ² commercial	Report prepared by Burnside, dated February, 2018
75 Woolwich Street East, Nichol (Cachet Developments)	286 residential units	Report prepared by Paradigm, dated June, 2023
112 Side Rd 19, Fergus (Wrightshaven Homes)	16 residential units	-
465 Garafraxa St W, Fergus (Habitat for Humanity)	32 residential units	-
6542 and 6560 Gerrie Rd, Elora (Ainley Subdivision)	251 residential units	Report prepared by Paradigm, dated October, 2017
Beatty Line N, Fergus (Jennark Homes)	30 residential units	-

4.3.3 Future Background Traffic Volumes

The future background traffic volumes are determined by adding existing traffic volumes, background development traffic volumes and corridor growth traffic volumes.

Future background traffic volumes for the 5-year and 10-year horizons are shown in **Figure 12** and **Figure 13** respectively.

4.4 Site Traffic Forecasts

4.4.1 Vehicle Trip Generation Rates

Vehicle trip generation rates in the ITE Trip Generation Manual 11th Edition and in proxy data collected by BA Group in Fergus were reviewed, as outlined in **Table 3**. For the purpose of this assessment, trip generation has been adopted in accordance with the rates outlined in the ITE Trip Generation Manual.

Table 3 Adopted Vehicle Trip Generation Rates

Land Use	Trip Rate Source	Vehicle Trip Generation Rate (vehicle trips per unit)					
		AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
ITE Trip Generation Manual 11th Edition							
Detached Dwelling	LUC 210 (Single-Family Detached Housing) General Urban/Suburban	0.18	0.52	0.70	0.59	0.35	0.94
Townhouse	LUC 215 (Single-Family Attached Housing) General Urban/Suburban	0.12	0.36	0.48	0.34	0.23	0.57
Proxy Data							
Mix of Detached / Townhouse	Vincent St / Steele St Neighbourhood, Fergus 201 residential units Survey undertaken Wednesday, December 13, 2023	0.22	0.49	0.71	0.53	0.32	0.85
	Robinson Rd / Middleton Ave Neighbourhood, Fergus 213 residential units Survey undertaken Wednesday, June 19, 2024	0.32	0.58	0.90	0.58	0.45	1.03
Adopted Rates							
Detached Dwelling		0.18	0.52	0.70	0.59	0.35	0.94
Townhouse		0.12	0.36	0.48	0.34	0.23	0.57

4.4.2 Site Vehicle Trip Generation

Based on the above adopted rates, the traffic volumes projected to be generated by the redevelopment are summarized in **Table 4**.

Overall, it is projected that the proposed redevelopment will generate in the order of 350 and 460 two-way vehicle trips during the AM and PM peak hours respectively.

Table 4 Site Vehicle Trip Generation

Type of Units	Number of Units	AM Peak Hour			PM Peak Hour		
		In	Out	2-Way	In	Out	2-Way
Detached Dwellings	368 units	0.18	0.52	0.70	0.59	0.35	0.94
		65	190	255	215	130	345
Townhouses	201 units	0.15	0.33	0.48	0.32	0.25	0.57
		30	65	95	65	50	115
Total		95	255	350	280	180	460

4.4.3 Vehicle Trip Distribution

Site traffic was assigned onto the area road network based on the results of the 2016 Transportation Tomorrow Survey (TTS), prevailing traffic patterns and area turn restrictions. General direction of approach percentages for residential traffic was based on the results of the TTS and is summarized in **Table 5**.

Table 5 Site Traffic Distribution

Road	Direction	Inbound	Outbound
Beatty Line	North	5%	5%
Beatty Line	South	55%	50%
Side Road 18	East	15%	15%
Garafraxa Street West		10%	10%
Colborne Street	West	10%	10%
Nichol Road 15		5%	10%
Total		100%	100%

Notes:

1. Based on TTS zone 8351

4.4.4 Site Traffic Volumes

The site traffic volumes are shown in **Figure 14**.

4.4.5 Future Total Traffic Volumes

Future total traffic volumes are determined by adding the future background traffic volumes and the site traffic volumes.

The future total traffic volumes are shown in **Figure 15** and **Figure 16** for the 5-year and 10-year horizons respectively.

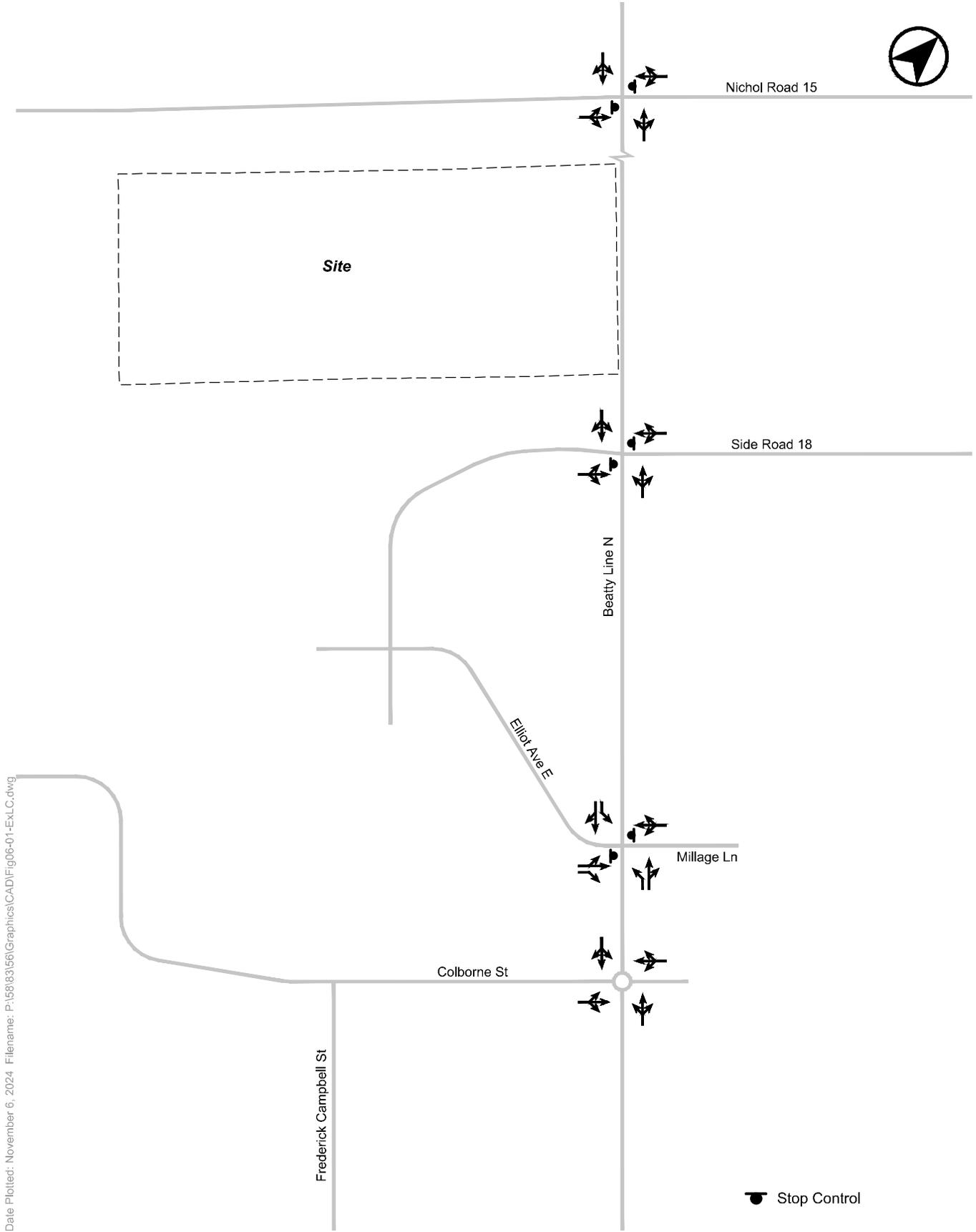


FIGURE 6 EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

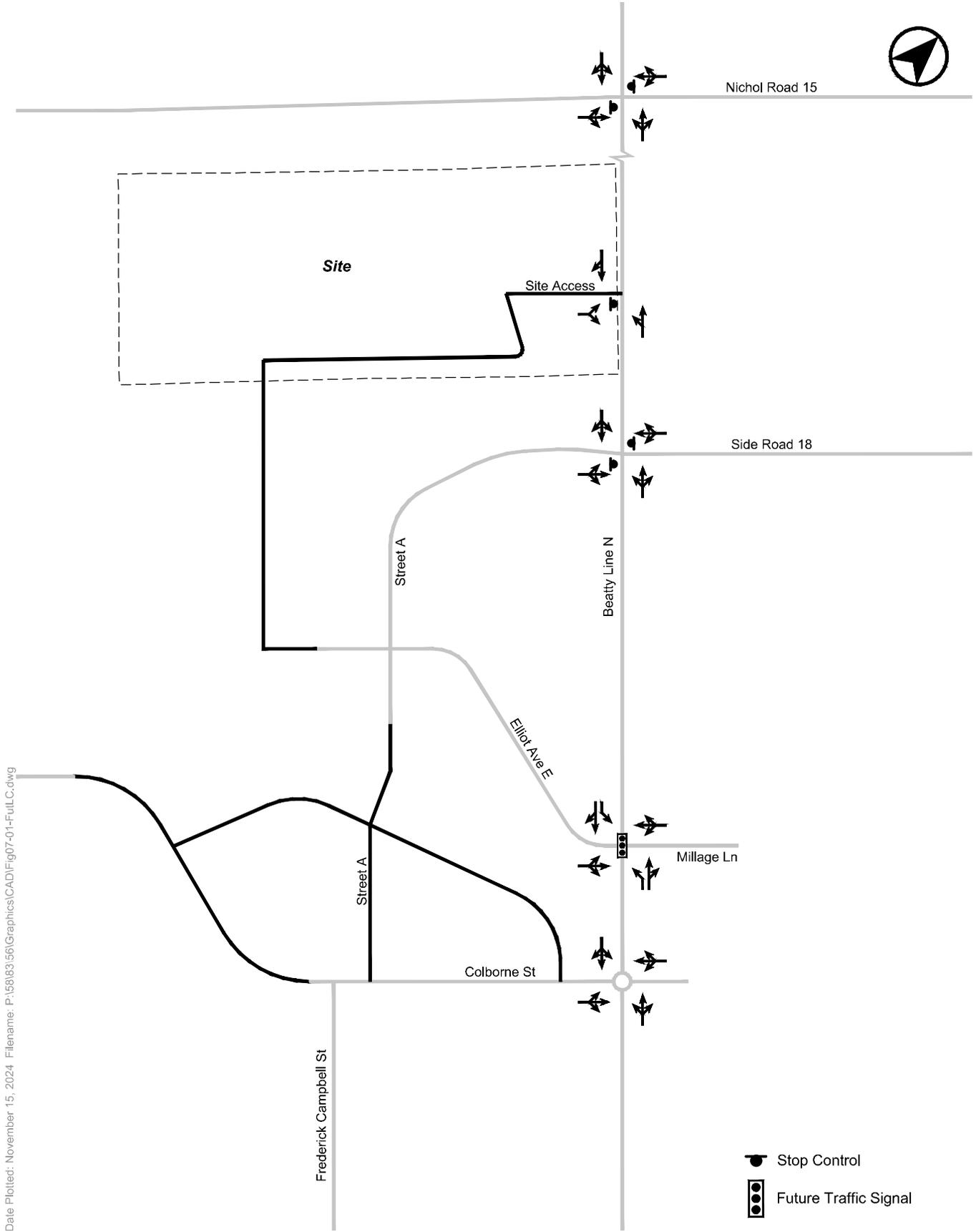


FIGURE 7 FUTURE LANE CONFIGURATION AND TRAFFIC CONTROL

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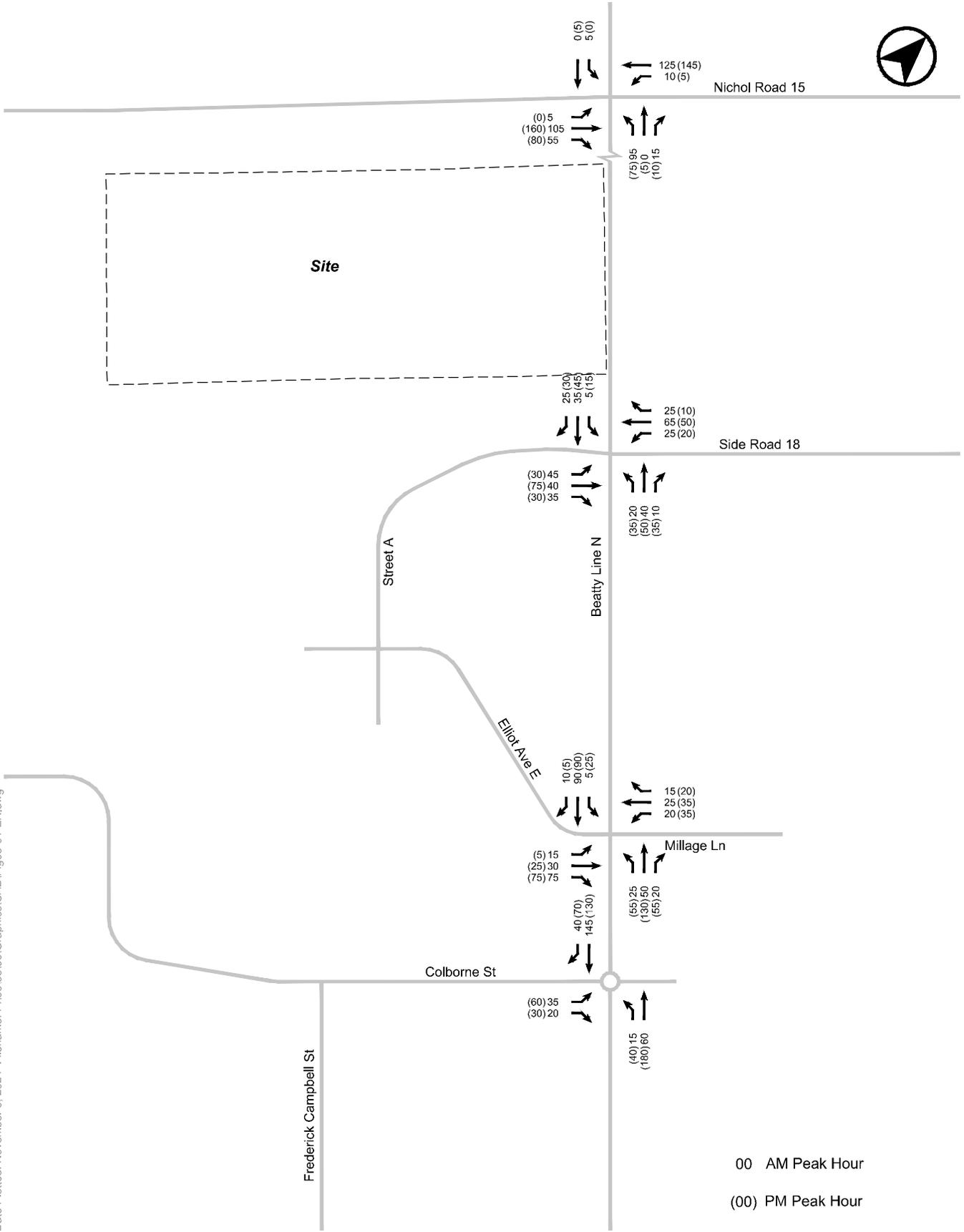
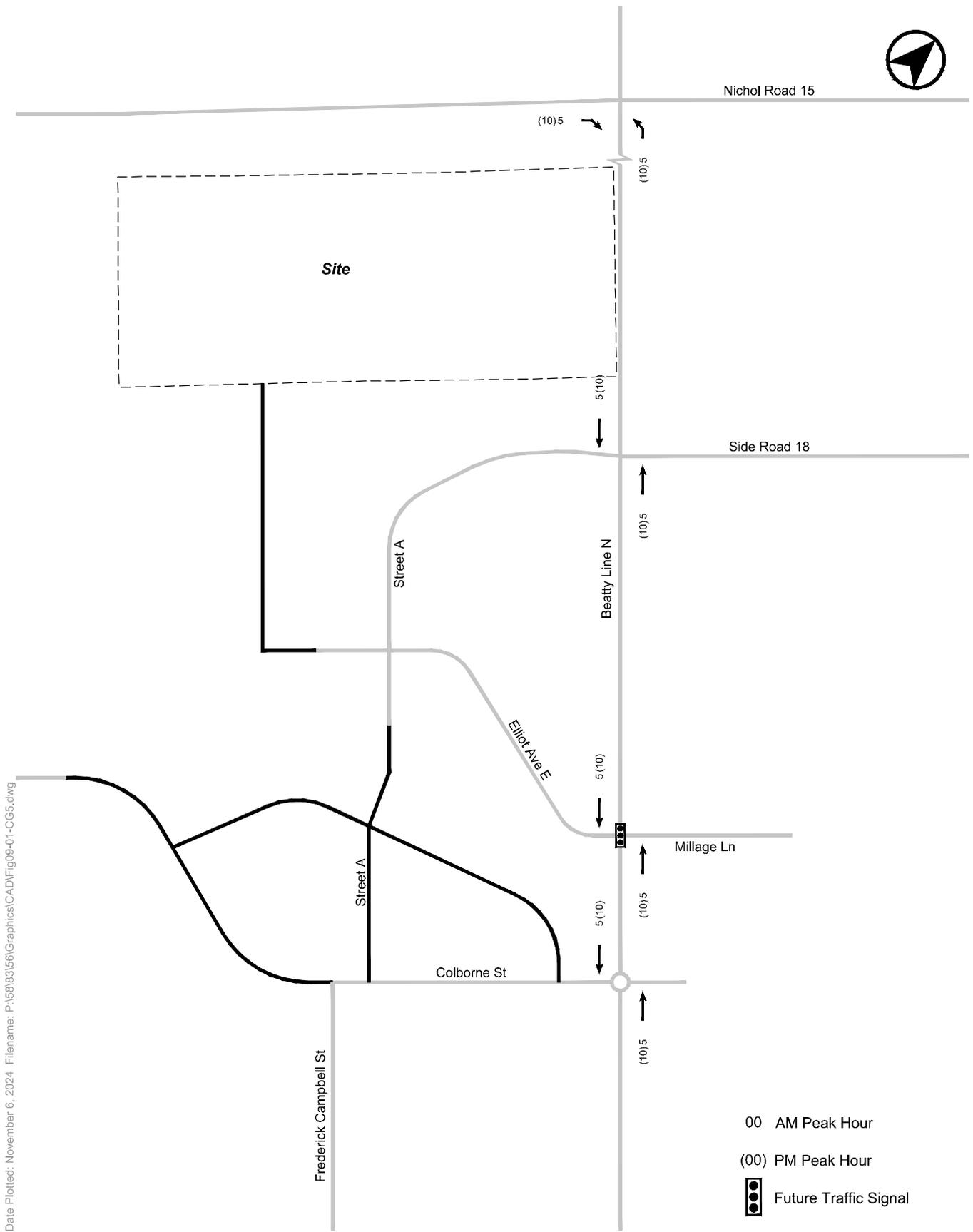
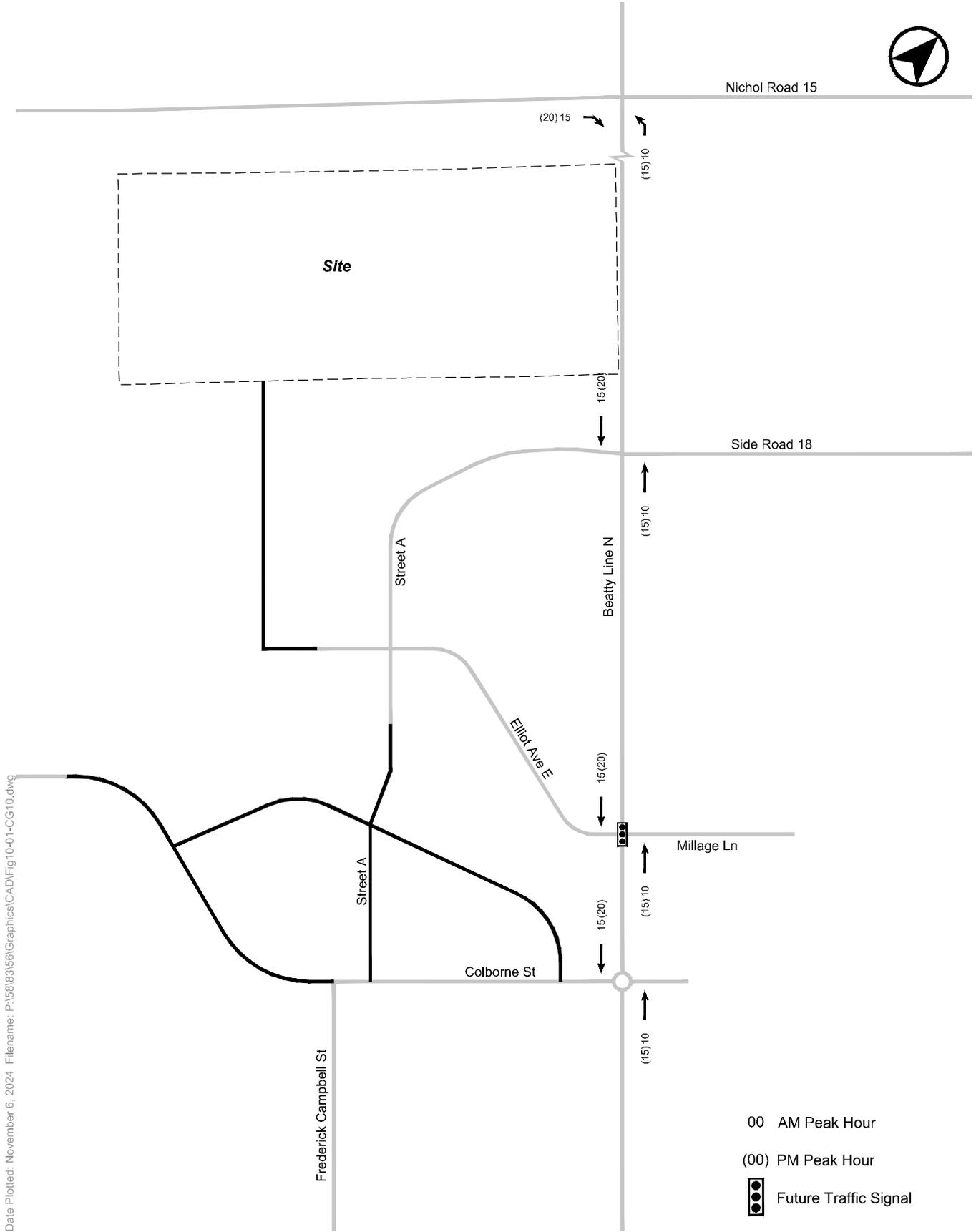


FIGURE 8 EXISTING TRAFFIC VOLUMES



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FIGURE 9 CORRIDOR GROWTH TRAFFIC VOLUMES (5-YEAR HORIZON)



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FIGURE 10 CORRIDOR GROWTH TRAFFIC VOLUMES (10-YEAR HORIZON)

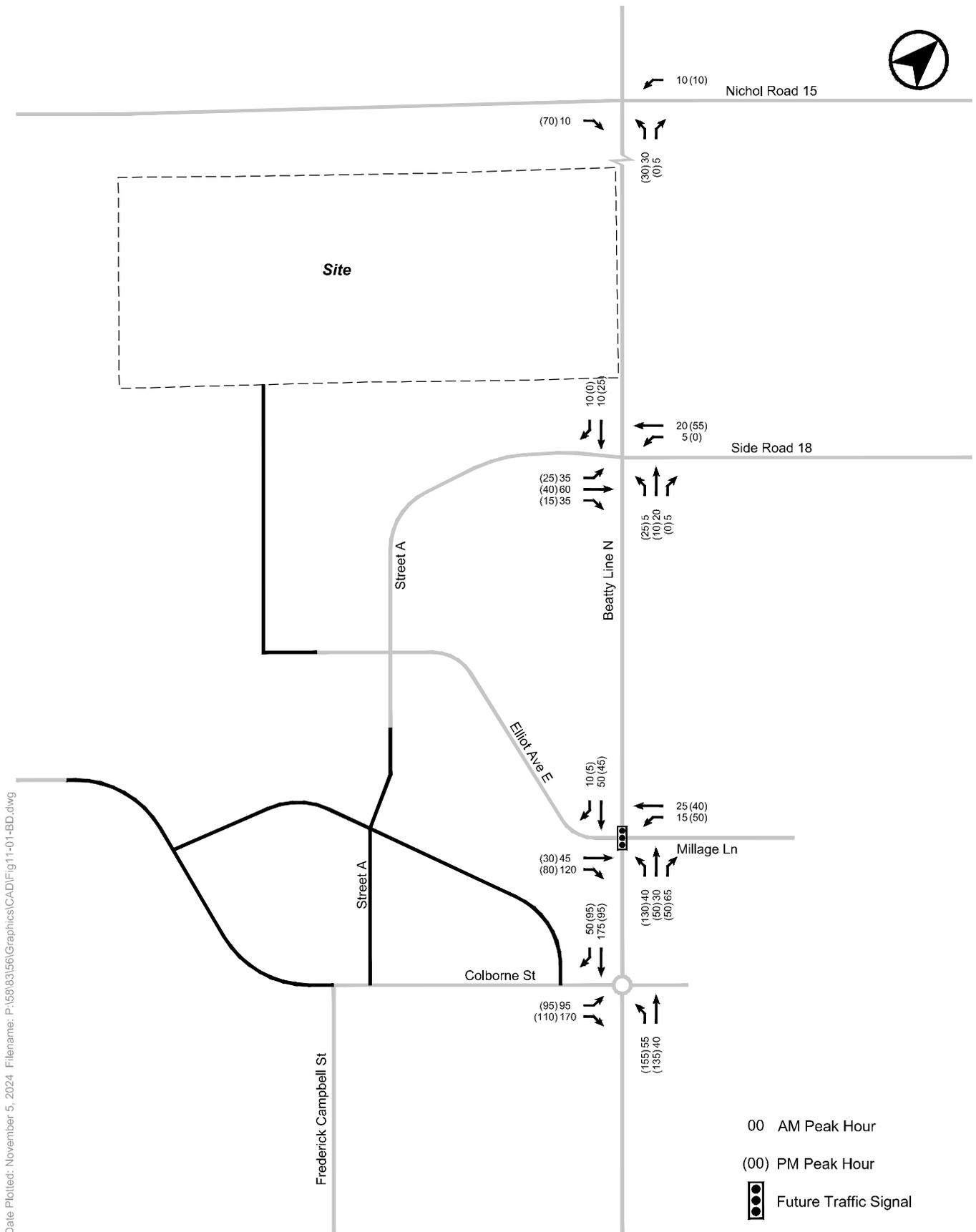
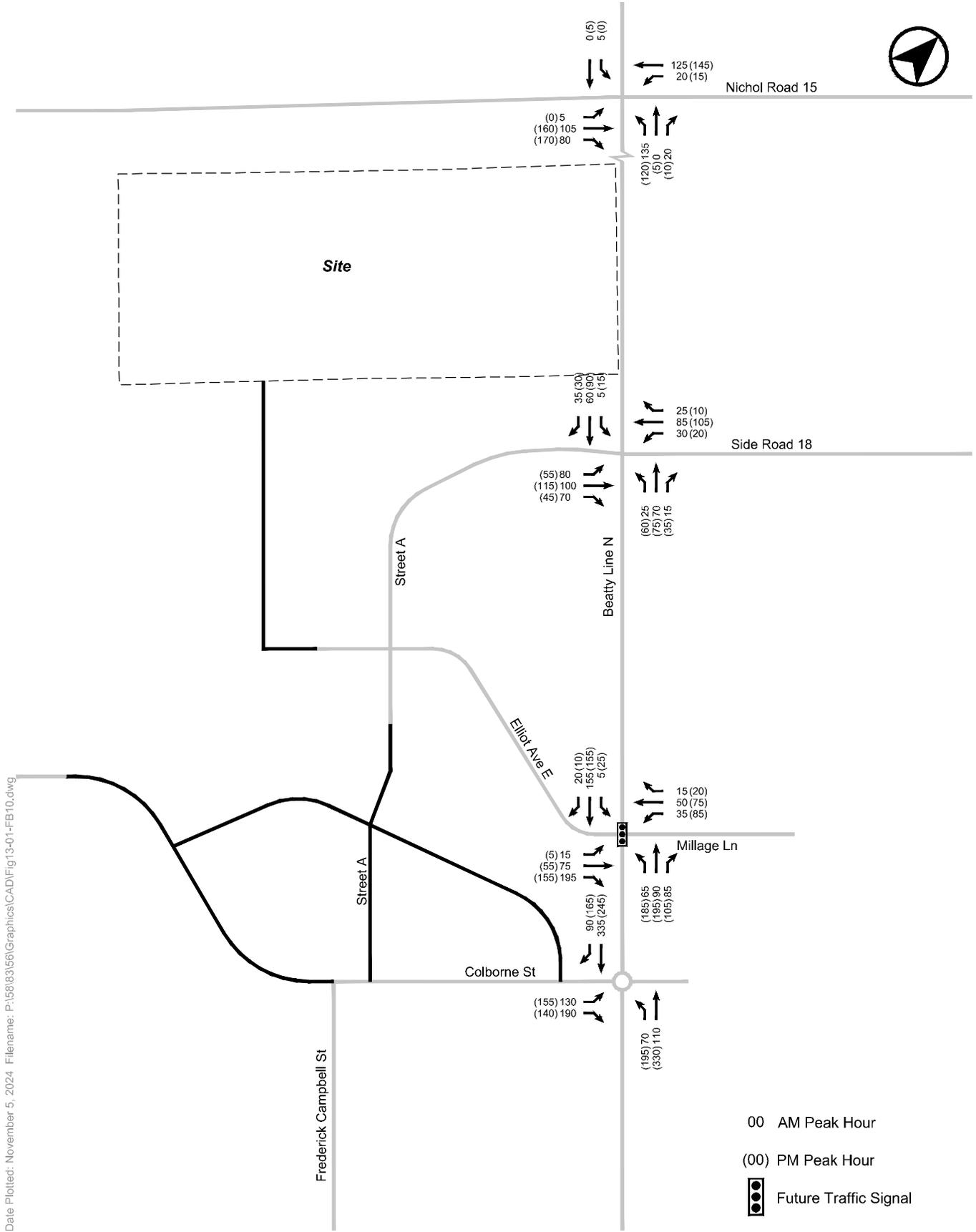
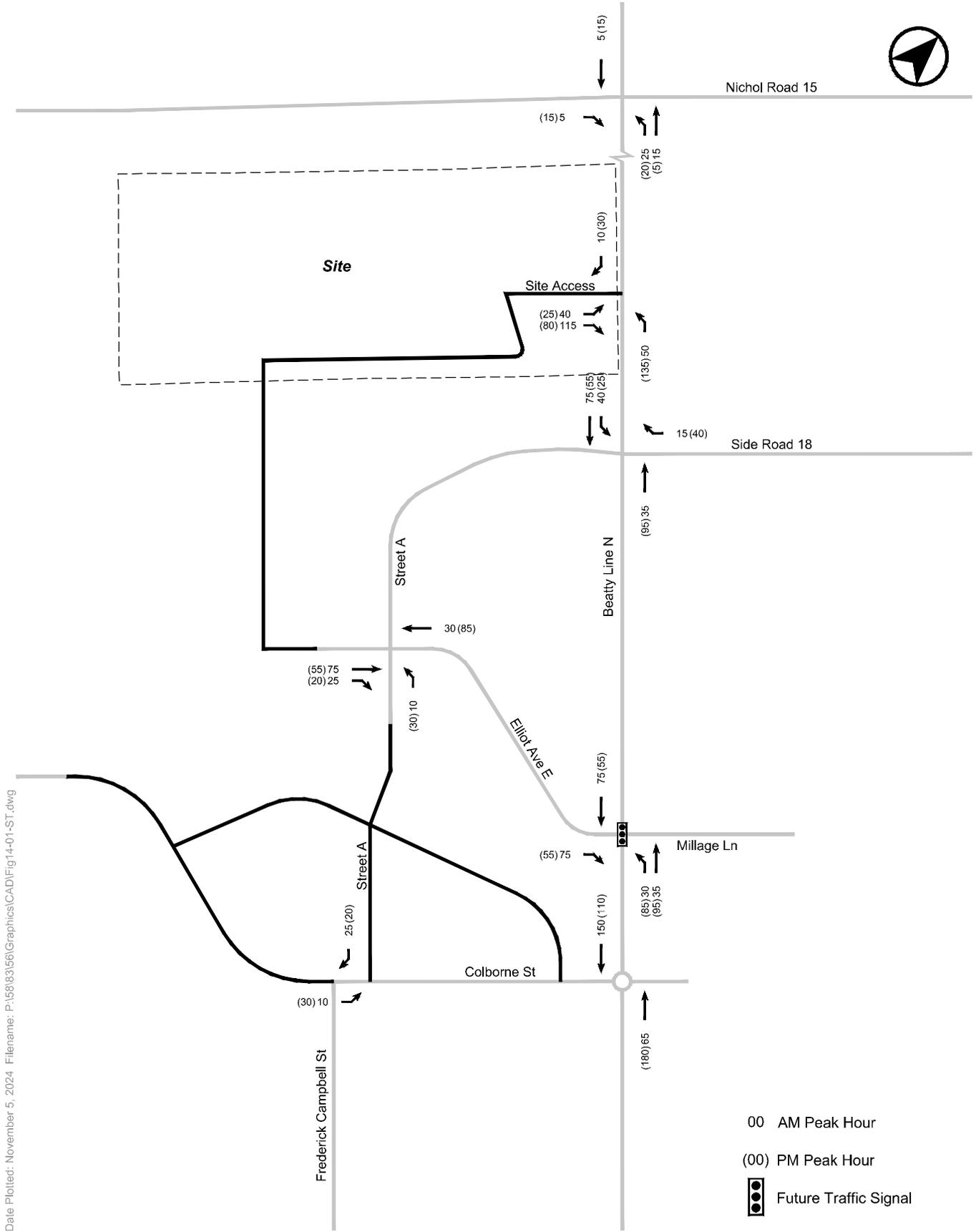


FIGURE 11 BACKGROUND DEVELOPMENT TRAFFIC VOLUMES



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FIGURE 13 FUTURE BACKGROUND TRAFFIC VOLUMES (10-YEAR HORIZON)



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FIGURE 14 SITE TRAFFIC VOLUMES

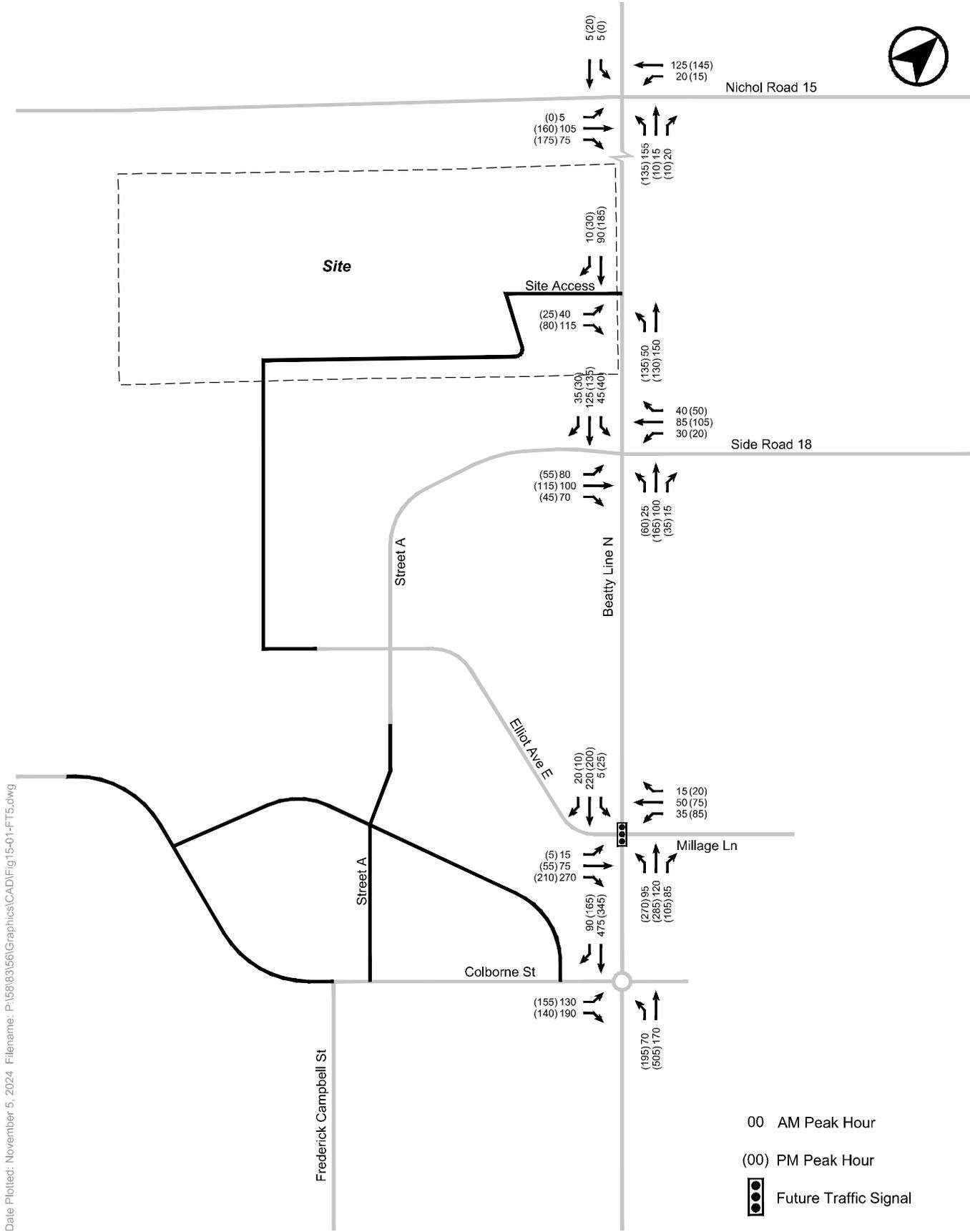


FIGURE 15 FUTURE TOTAL TRAFFIC VOLUMES (5-YEAR HORIZON)

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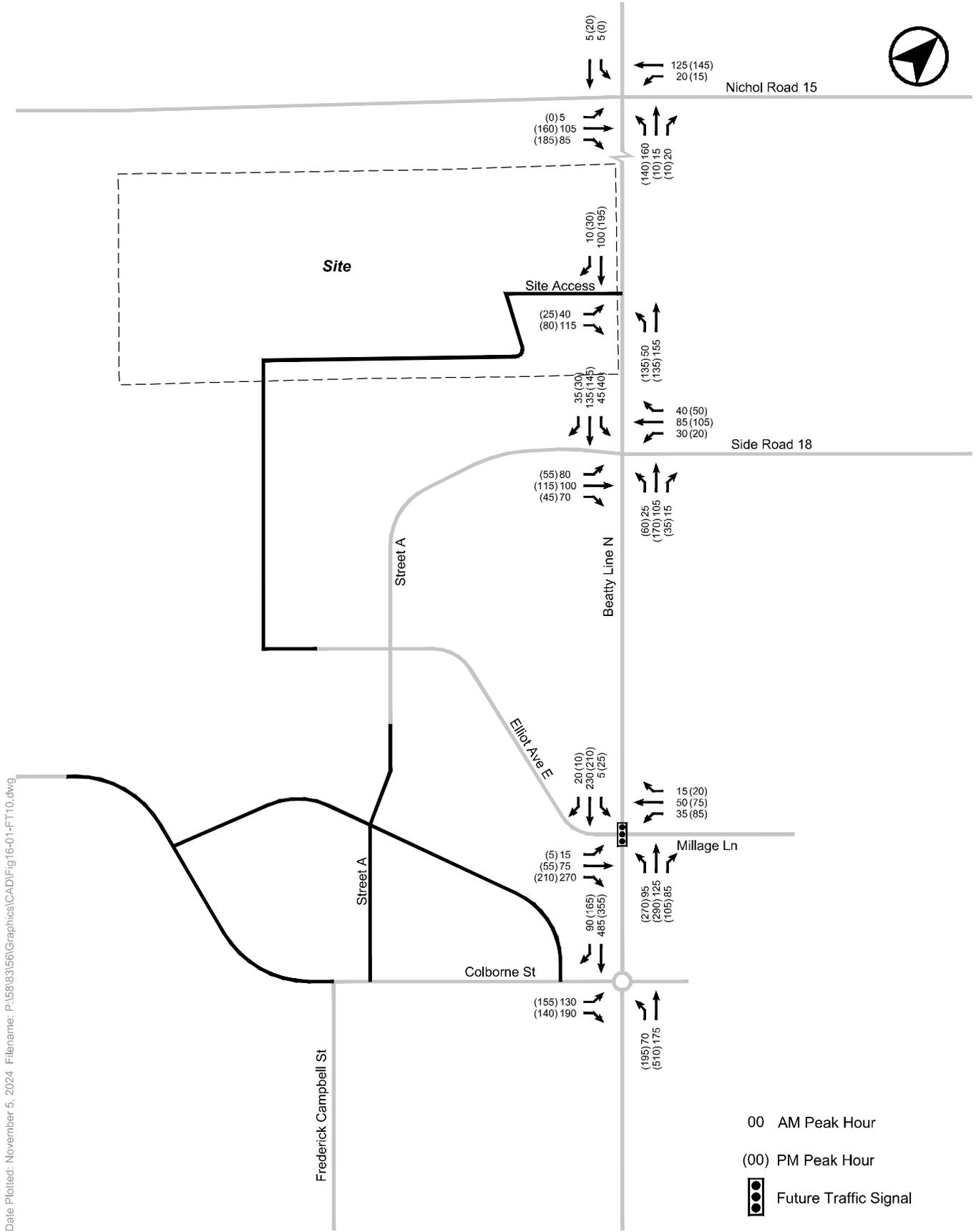


FIGURE 16 FUTURE TOTAL TRAFFIC VOLUMES (10-YEAR HORIZON)

5.0 OPERATION ANALYSIS

5.1 Analysis Methodology

Synchro Version 11 and the Highway Capacity Manual (HCM) methodology were used to analyze the study area intersections and site access points, with the exception of the Beatty Line North / Colborne Street roundabout, which was analyzed using SIDRA Version 9.1.

For signalized intersections, the volume-to-capacity ratio (v/c) is an indicator of the capacity utilization for the key movements in the intersection. A v/c of 1.00 indicates that a traffic movement through an intersection is operating at or near maximum capacity.

For unsignalized intersections, level of service (LOS) characterizes operational conditions for key movements in terms of average delay experienced by vehicles attempting to complete a manoeuvre through the intersection. LOS 'A' represents a good level of service with short delays, while LOS 'F' represents a poor level of service with extended delays.

Further to the above, it is noted that Wellington County TIS Guidelines specify that at signalized intersections, a v/c ratio of greater than 0.85 on through or shared through/turn lanes, and a v/c ratio of greater than 0.9 on dedicated turn lanes is deemed to be "critical" in terms of operations. Wellington County TIS Guidelines also note that the assessment should identify unsignalized intersections where the overall intersection LOS is 'E' or 'F', and where 95th percentile queues exceed the available storage.

Capacity analysis and queue length results for the signalized intersections can be found in **Table 7** and **Table 8** respectively. Capacity analysis and queue results for the unsignalized intersections can be found in **Table 9** and **Table 10** respectively. Detailed analysis worksheets are attached in **Appendix D**.

5.2 Analysis Assumptions and Parameters

5.2.1 Heavy Vehicle Assumptions

Heavy and medium truck percentages incorporated into the analysis were based upon information in the traffic counts.

5.2.2 Saturation Flow Assumptions

A base saturation flow rate of 1,900 passenger cars per hour of green time per lane (pcphgpl) was adopted for signalized and unsignalized intersections.

5.2.3 Lost Time Adjustments

A base lost time adjustment factor of 0 seconds (i.e. a total lost time per phase equal to the amber plus all-red time) was adopted for signalized intersections.

5.2.4 Peak Hour Factor

Peak hour factors were calculated from information in the traffic counts.

5.2.5 Delay Calibrations

BA Group has conducted delay studies for several movements at their respective intersections along Beatty Line North. The critical gap and follow up time values in Synchro analyses were adjusted to match the reported Synchro 11 delay to the observed average overall delay plus start up time (of 5 seconds). Overall delay observations and resultant calibration factors used in Synchro analyses are summarized in **Table 6**.

Delay study details are attached in **Appendix E**.

Table 6 Network Delay Calibrations

Movement	Study Date	Observed Control Delay (s)	Model Control Delay (s)	Critical Gap (tC)	Follow Up Time (tF)
Beatty Line N / Farley Road / Sideroad 18					
EBL	Tues, December 19, 2024	6	11.2	6.8	2.9
EBT				5.8	3.8
EBR				6.0	3.2
WBL		6	11.2	6.1	3.2
WBT				4.5	3.7
WBR				6.1	3.1

Notes:

1. PM Values Only

5.3 Intersection Operations Analysis

5.3.1 Beatty Line North / Elliot Avenue East / Millage Lane

The intersection of Beatty Line North / Elliot Avenue East / Millage Lane is currently unsignalized with pedestrian signals on the northbound approach, and operates at LOS D or better during the AM and PM peak hours.

As discussed in **Section 2.4**, there will be future traffic signals installed at this location and this has been assumed under future background and future total conditions.

Under future background conditions, the intersection is projected to operate at the following overall v/c ratios:

- **5-Year Horizon:** 0.26 and 0.36 in the AM and PM peak hours, respectively.
- **10-Year Horizon:** 0.27 and 0.37 in the AM and PM peak hours, respectively.

Under future total conditions, the intersection is projected to operate at the following overall v/c ratios:

- **5-Year Horizon:** 0.34 and 0.48 in the AM and PM peak hours, respectively.
- **10-Year Horizon:** 0.35 and 0.49 in the AM and PM peak hours, respectively.

Overall, it is projected that site traffic can be accommodated at this intersection. Capacity analysis and queue results for the existing unsignalized configuration are provided in **Table 9** and **Table 10** respectively. Capacity analysis and queue results for the future signalized configuration are provided in **Table 7** and **Table 8** respectively. Synchro output sheets are provided in **Appendix D**.

5.3.2 Beatty Line North / Nichol Road 15

The intersection of Beatty Line North / Nichol Road 15 is unsignalized and is projected to operate at LOS C or better in all analysis scenarios.

Overall, it is projected that site traffic can be accommodated at this intersection. Capacity analysis and queue results can be found in **Table 9** and **Table 10** respectively. Synchro output sheets are provided in **Appendix D**.

5.3.3 Beatty Line North / Farley Road / Side Road 18

The intersection of Beatty Line North / Farley Road / Side Road 18 is unsignalized and is projected to operate at LOS D or better in all analysis scenarios.

Overall, it is projected that site traffic can be accommodated at this intersection. Capacity analysis and queue results can be found in **Table 9** and **Table 10** respectively. Synchro output sheets are provided in **Appendix D**.

5.3.4 Beatty Line North / Colborne Street

The intersection of Beatty Line North / Colborne Street is a roundabout and is projected to operate at LOS A or better in all analysis scenarios.

Overall, it is projected that site traffic can be accommodated at this intersection. Capacity analysis and queue results can be found in **Table 9** and **Table 10** respectively. Synchro output sheets are provided in **Appendix D**.

5.3.5 Beatty Line North / Site Access

The intersection of Beatty Line North / Site Access is a proposed new unsignalized intersection and is projected to operate at LOS B or better in all analysis scenarios.

Overall, it is projected that site traffic can be accommodated at this intersection. Capacity analysis and queue results can be found in **Table 9** and **Table 10** respectively. Synchro output sheets are provided in **Appendix D**.

Table 7 Signalized Intersections Capacity Analysis Summary

Movement	Existing			Future Background						Future Total					
				5-Year Horizon			10-Year Horizon			5-Year Horizon			10-Year Horizon		
	V/C	Delay (s)	LOS	V/C	LOS	Delay (s)									
Beatty Line N / Elliot Ave E / Millage Ln															
EBL	_2			0.03 (0.01)	B (B)	12.9 (15.9)									
EBTR				0.26 (0.21)	B (B)	15.0 (17.8)	0.26 (0.21)	B (B)	15.0 (17.8)	0.31 (0.24)	B (B)	15.6 (18.2)	0.31 (0.24)	B (B)	15.6 (18.2)
WBTLR				0.17 (0.40)	B (C)	14.1 (20.8)	0.17 (0.40)	B (C)	14.1 (20.8)	0.17 (0.45)	B (C)	14.2 (22.0)	0.17 (0.45)	B (C)	14.2 (22.0)
NBL				0.15 (0.33)	B (B)	14.1 (13.1)	0.15 (0.34)	B (B)	14.1 (13.2)	0.24 (0.51)	B (B)	15.3 (16.3)	0.25 (0.52)	B (B)	15.4 (16.4)
NBTR				0.20 (0.34)	B (B)	14.3 (12.8)	0.21 (0.35)	B (B)	14.4 (12.8)	0.27 (0.46)	B (B)	15.1 (14.4)	0.28 (0.47)	B (B)	15.2 (14.4)
SBL				0.01 (0.05)	B (B)	12.7 (10.2)	0.01 (0.05)	B (B)	12.7 (10.2)	0.01 (0.06)	B (B)	12.7 (10.4)	0.01 (0.06)	B (B)	12.7 (10.4)
SBTR				0.26 (0.18)	B (B)	15.0 (11.2)	0.27 (0.19)	B (B)	15.2 (11.3)	0.38 (0.25)	B (B)	16.4 (11.8)	0.39 (0.26)	B (B)	16.7 (11.9)
Overall				0.26 (0.36)	B (B)	14.6 (14.9)	0.27 (0.37)	B (B)	14.7 (14.9)	0.34 (0.48)	B (B)	15.5 (16.0)	0.35 (0.49)	B (B)	15.6 (16.1)

Notes:

1. xx (xx) – AM Peak (PM Peak)
2. Intersection is not signalized under existing conditions



Table 8 Signalized Intersections Queue Length Summary

Movement	Approx. Storage Length (m)	Existing		Future Background				Future Total			
				5-Year Horizon		10-Year Horizon		5-Year Horizon		10-Year Horizon	
		50%ile (m)	95%ile (m)	50%ile (m)	95%ile (m)	50%ile (m)	95%ile (m)	50%ile (m)	95%ile (m)	50%ile (m)	95%ile (m)
Beatty Line N / Elliot Ave E / Millage Ln											
EBLTR	> 1,000	-2		19.3 (7.2)	40.0 (22.1)	19.3 (7.2)	40.0 (22.1)	21.4 (7.1)	45.0 (23.5)	21.4 (7.1)	45.0 (23.5)
WBLTR	200			12.8 (23.0)	25.0 (39.0)	12.8 (23.0)	25.0 (39.0)	12.8 (23.2)	24.8 (39.9)	12.8 (23.2)	24.8 (39.9)
NBL	40			3.4 (11.5)	10.9 (27.7)	3.4 (11.5)	10.9 (27.8)	5.6 (19.2)	16.9 (45.4)	5.6 (19.3)	16.9 (45.6)
NBTR	200			4.6 (15.0)	15.9 (34.5)	5.2 (15.3)	16.9 (35.2)	8.7 (24.4)	24.5 (52.9)	9.1 (24.9)	25.5 (53.9)
SBL	50			0.2 (1.3)	1.8 (5.3)	0.2 (1.3)	1.8 (5.3)	0.3 (1.4)	2.0 (5.5)	0.3 (1.4)	2.0 (5.5)
SBLTR	> 1,000			8.6 (8.5)	22.0 (20.5)	9.2 (9.1)	23.4 (21.7)	14.7 (12.6)	36.0 (28.7)	15.4 (13.3)	37.5 (29.9)

Notes:

1. xx (xx) – AM Peak (PM Peak)
2. Intersection is not signalized under existing conditions



Table 9 Unsignalized Intersections Capacity Analysis Summary

Movement	Existing			Future Background						Future Total					
				5-Year Horizon			10-Year Horizon			5-Year Horizon			10-Year Horizon		
	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
Beatty Line N / Elliot Ave E / Millage Ln															
EBLTR	0.16 (0.15)	B (B)	10.3 (10.8)	.2			.2			.2			.2		
WBLTR	0.10 (0.20)	B (B)	11.1 (14.4)												
NBL	0.02 (0.04)	A (A)	7.5 (7.5)												
SBL	0.05 (0.11)	A (A)	0.0 (0.0)												
Beatty Line N / Nichol Rd 15															
EBLTR	0.00 (0.00)	A (A)	0.3 (0.0)	0.00 (0.00)	A (A)	0.2 (0.0)	0.00 (0.00)	A (A)	0.2 (0.0)	0.00 (0.00)	A (A)	0.2 (0.0)	0.00 (0.00)	A (A)	0.2 (0.0)
WBLTR	0.01 (0.00)	A (A)	0.7 (0.3)	0.02 (0.01)	A (A)	1.2 (0.9)	0.02 (0.01)	A (A)	1.3 (0.9)	0.02 (0.01)	A (A)	1.2 (0.9)	0.02 (0.01)	A (A)	1.3 (0.9)
NBLTR	0.24 (0.16)	B (B)	12.9 (12.1)	0.35 (0.26)	B (B)	14.8 (14.0)	0.36 (0.27)	C (B)	15.1 (14.2)	0.45 (0.32)	C (C)	16.9 (15.4)	0.47 (0.34)	C (C)	17.4 (15.7)
SBLTR	0.01 (0.01)	B (B)	12.7 (11.9)	0.01 (0.01)	B (B)	13.4 (13.0)	0.01 (0.01)	B (B)	13.5 (13.1)	0.03 (0.05)	B (B)	13.2 (13.4)	0.03 (0.05)	B (B)	13.4 (13.6)
Beatty Line N / Farley Rd / Side Rd 18															
EBLTR	0.16 (0.23)	B (B)	10.6 (11.2)	0.36 (0.21)	B (B)	13.0 (15.1)	0.31 (0.42)	B (C)	13.2 (15.5)	0.48 (0.59)	C (D)	18.0 (25.1)	0.49 (0.60)	C (D)	18.5 (26.3)
WBLTR	0.15 (0.15)	B (B)	10.7 (11.2)	0.22 (0.13)	B (B)	12.2 (14.1)	0.22 (0.29)	B (B)	12.3 (14.4)	0.30 (0.45)	C (C)	15.1 (19.2)	0.31 (0.46)	C (C)	15.4 (19.8)
NBLTR	0.01 (0.03)	A (A)	2.2 (2.3)	0.02 (0.03)	A (A)	1.9 (3.0)	0.02 (0.05)	A (A)	1.8 (2.9)	0.02 (0.05)	A (A)	1.5 (2.1)	0.02 (0.05)	A (A)	1.5 (2.1)



Movement	Existing			Future Background						Future Total					
				5-Year Horizon			10-Year Horizon			5-Year Horizon			10-Year Horizon		
	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
SBLTR	0.00 (0.01)	A (A)	0.6 (1.3)	0.00 (0.01)	A (A)	0.4 (1.0)	0.00 (0.01)	A (A)	0.4 (0.9)	0.03 (0.03)	A (A)	1.9 (1.8)	0.03 (0.03)	A (A)	1.8 (1.8)
Beatty Line N / Colborne St (Roundabout)															
NBLTR	0.06 (0.17)	A (A)	3.7 (3.7)	0.15 (0.43)	A (A)	5.0 (5.1)	0.16 (0.43)	A (A)	5.0 (5.1)	0.20 (0.57)	A (A)	4.5 (4.9)	0.20 (0.57)	A (A)	4.5 (4.9)
WBLTR	0.00 (0.00)	A (A)	3.1 (3.7)	0.00 (0.00)	A (A)	3.8 (5.6)	0.00 (0.00)	A (A)	3.8 (5.6)	0.00 (0.00)	A (A)	4.0 (7.2)	0.00 (0.00)	A (A)	4.0 (7.2)
SBLTR	0.13 (0.14)	A (A)	4.0 (4.1)	0.32 (0.35)	A (A)	4.3 (4.8)	0.32 (0.35)	A (A)	4.3 (4.8)	0.41 (0.44)	A (A)	4.3 (4.9)	0.43 (0.45)	A (A)	4.3 (4.9)
EBLTR	0.05 (0.08)	A (A)	7.3 (7.4)	0.31 (0.27)	A (A)	7.4 (7.4)	0.32 (0.27)	A (A)	7.4 (7.4)	0.35 (0.30)	A (A)	8.2 (7.9)	0.36 (0.30)	A (A)	8.4 (8.0)
Beatty Line N / Site Access															
EBLR	_3			_3			_3			0.18 (0.15)	B (B)	10.2 (11.2)	0.18 (0.16)	B (B)	10.3 (11.4)
NBLT										0.03 (0.10)	A (A)	2.1 (4.5)	0.03 (0.10)	A (A)	2.0 (4.4)

Notes:

1. xx (xx) – AM Peak (PM Peak)
2. Intersection assumed to be signalized under future conditions
3. Intersection does not exist under existing or future background conditions



Table 10 Unsignalized Intersections Queue Length Summary

Movement	Approx. Storage Length (m)	Existing	Future Background		Future Total	
			5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon
		95%ile (m)	95%ile (m)	95%ile (m)	95%ile (m)	95%ile (m)
Beatty Line N / Elliot Ave E / Millage Ln						
EBLTR	> 1,000	4.6 (4.2)				
WBLTR	200	4.6 (4.2)				
NBL	40	4.6 (4.2)				
SBL	50	4.6 (4.2)				
Beatty Line N / Nichol Rd 15						
EBLTR	> 1,000	0.1 (0.0)	0.1 (0.0)	0.1 (0.0)	0.1 (0.0)	0.1 (0.0)
WBLTR	1,000	0.2 (0.1)	0.5 (0.3)	0.5 (0.3)	0.5 (0.3)	0.5 (0.3)
NBLTR	1,000	7.4 (4.5)	12.3 (8.1)	13.1 (8.6)	18.5 (11.1)	19.8 (11.7)
SBLTR	> 1,000	0.3 (0.2)	0.3 (0.3)	0.3 (0.3)	0.7 (1.2)	0.7 (1.2)
Beatty Line N / Farley Rd / Side Rd 18						
EBLTR	1,000	4.4 (6.3)	13.0 (16.0)	13.4 (16.6)	20.4 (29.3)	21.1 (30.7)
WBLTR	1,000	4.4 (3.7)	6.6 (9.2)	6.8 (9.5)	10.2 (18.0)	10.5 (18.6)
NBLTR	1,000	0.3 (0.6)	0.4 (1.2)	0.4 (1.2)	0.4 (1.2)	0.4 (1.3)
SBLTR	1,000	0.1 (0.3)	0.1 (0.3)	0.1 (0.3)	0.8 (0.9)	0.8 (0.9)
Beatty Line N / Colborne St (Roundabout)						
NBLTR	> 1,000	1.7 (5.1)	5.0 (18.2)	5.2 (18.5)	7.4 (30.1)	7.7 (30.6)
WBLTR	30	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
SBLTR	> 1,000	3.8 (4.2)	11.9 (13.3)	12.2 (13.8)	17.4 (19.1)	19.1 (19.6)
EBLTR	> 1,000	1.3 (2.1)	11.7 (9.8)	11.8 (9.9)	13.8 (11.2)	14.3 (11.4)
Beatty Line N / Site Access						



Movement	Approx. Storage Length (m)	Existing	Future Background		Future Total	
			5-Year Horizon	10-Year Horizon	5-Year Horizon	10-Year Horizon
		95%ile (m)	95%ile (m)	95%ile (m)	95%ile (m)	95%ile (m)
EBLR	> 1,000		-3		5.3 (4.3)	5.4 (4.4)
NBLT	200				0.8 (2.6)	0.8 (2.6)

Notes:

1. xx (xx) – AM Peak (PM Peak)
2. Intersection assumed to be signalized under future conditions
3. Intersection does not exist under existing or future background conditions



6.0 TRANSPORTATION DEMAND MANAGEMENT

6.1 Mobility Choice Travel Plan

The location of the site and its surrounding uses greatly influence the success of a Mobility Choice Travel Plan. The purpose of the Mobility Choice Travel Plan is to guide the provision of viable alternative personal transportation options beyond the single-occupant, private automobile. This plan intends to support the proposed redevelopment by outlining Transportation Demand Management (TDM) measures and the suite of strategies under consideration to promote the use of more active and sustainable transportation modes; respond to the mobility needs of residents and visitors of the site; and to reduce the overall dependence on the private automobile.

Four specific objectives define the policy framework for the Mobility Choice Travel Plan:

- Encourage the use of alternate travel modes (transit, cycling, walking);
- Increase vehicle occupancy;
- Shift travel to off-peak periods; and
- Reduce vehicle kilometres travelled.

6.2 Organizational Framework

The four broader objectives can be organized within the following categories:

- Encourage Transit Use;
- Encourage and Facilitate Bicycle Use;
- Enhance Pedestrian Access and Walkability;
- Facilitation of Reduced Car Ownership and Usage;
- Vehicular Parking Supply and Management;
- Land Use and Building Infrastructure; and
- Coordination, Communication, and Promotion.

Potential Mobility Choice Travel Plan Strategies for the proposed redevelopment are summarized in **Table 11**.



Table 11 Potential Mobility Choice Travel Plan Strategies

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">TRANSIT USE</p>		<p>Intent:</p> <p>Encourage Transit Use</p> <p>Support for and the promotion of the use of area transit services for both short and long-distance travel by residents and visitors will reduce the overall use of a vehicle and the need to own one.</p>	<p>Existing and Future Context:</p> <ul style="list-style-type: none"> Wellington County operates a demand based, public transit service available to all residents and visitors. Bookings can be made to or from any address in Wellington County or Guelph. <p>Mobility Strategies:</p> <ul style="list-style-type: none"> At first occupancy, provide new residents with a transit information package detailing available transit services in the area
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">BICYCLE FACILITIES</p>		<p>Intent:</p> <p>Encourage Bicycle Use</p> <p>Provide cycling infrastructure that supports and promotes cycling as a convenient and viable travel alternative to the personal automobile.</p>	<p>Existing and Future Context:</p> <ul style="list-style-type: none"> Bicycle infrastructure in the area includes an existing multi-use path on Beatty Line to the south of the site and future on-road cycling routes on Beatty Line North, Side Road 19, Millage Lane, Nichol Road 15 and Wellington Road 18. <p>Mobility Strategies:</p> <ul style="list-style-type: none"> At first occupancy, provide new residents with a cycling information package detailing available routes in the area
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">PEDESTRIAN CONNECTIVITY</p>		<p>Intent:</p> <p>Encourage Pedestrian Use</p> <p>A high-quality, safe, connection between the site and transit stations / stops, cycling network, and public street system encourages residents, employees, and visitors to travel around the site area without a vehicle.</p>	<p>Existing and Future Context:</p> <ul style="list-style-type: none"> There are currently no sidewalks adjacent the site. South of the site there are sidewalks along one or both sides of Beatty Line North, and a number of local streets in nearby residential subdivisions. A signalized crossing location is available at the Beatty Line North / Millage Lane / Elliot Avenue East intersection. <p>Mobility Strategies:</p> <ul style="list-style-type: none"> Provision of sidewalks along both sides of proposed roads within the site.



7.0 SUMMARY AND CONCLUSIONS

Proposal Overview

1. The proposal is for a residential subdivision comprising a total of 569 residential units.
2. An internal public road network is proposed to service the subdivision, with proposed roads in accordance with the Centre Wellington Development Manual.
3. Access to the subdivision is conceptually shown at three locations as follows:
 - A new unsignalized intersection at Beatty Line North / EW Street, located approximately 160 metres north of the site's southern boundary;
 - Connection to the north end of Elliot Avenue West in the Storybrook Subdivision to the south; and
 - Protection for a connection to potential future development to the north of the site.

Traffic Analysis

4. Analysis has been completed for the following scenarios during the AM and PM peak hour:
 - Existing Conditions;
 - Future Background Conditions (5-Year Horizon);
 - Future Background Conditions (10-Year Horizon);
 - Future Total Conditions (5-Year Horizon); and
 - Future Total Conditions (10-Year Horizon).
5. Capacity analysis was undertaken to determine the site vehicular traffic impact within the analysis study area listed below:
 - Beatty Line North / Millage Lane / Elliot Avenue East;
 - Beatty Line North / Nichol Road 15;
 - Beatty Line / Farley Road / Side Road 18;
 - Beatty Line / Colborne Street; and
 - Beatty Line / Site Access
6. The proposed redevelopment is expected to generate in the order of 350 and 460 two-way vehicle trips during the AM and PM peak hours respectively.
7. It is projected that traffic associated with the proposed development can be suitably accommodated at all intersections within the study area.

Transportation Demand Management

8. Proposed Transportation Demand Management measures include:
 - Provision of transit information package
 - Provision of cycling information package
 - Provision of sidewalks within the site

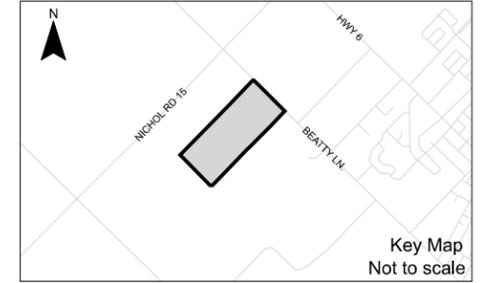


Appendix A: Concept Plan



DRAFT

FOR DISCUSSION
PURPOSES ONLY



LEGEND

- Subject Property
- Developments Limit
- Collector Road
- Constraint Limit

Development Statistics

Gross Study Area	43.2 ha
Constraint Limit Area	14.2 ha
Net Developable Area (Approx.)	29.0 ha
SWM Area	6%*
Park	5%*

*Based of Net Developable Area

Estimated Saleable Frontage:

Single Detached Blocks:	4174 m
Townhouse Blocks:	1323 m
Total:	5497 m

Estimated Unit Yield:

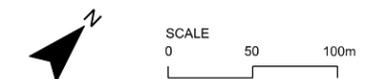
Single Detached Lots (11m-15m):	368 units
Townhouse Blocks (6m):	201 units
Total:	569 units

DRAWN / REVISED

01 JAN 2025	Update park colouring
15 OCT 2024	Add vista blocks & calculate net res. areas & densities
27 SEP 2024	Add estimated unit calculations; Issued for Review
07 MAR 2024	Issued for Review

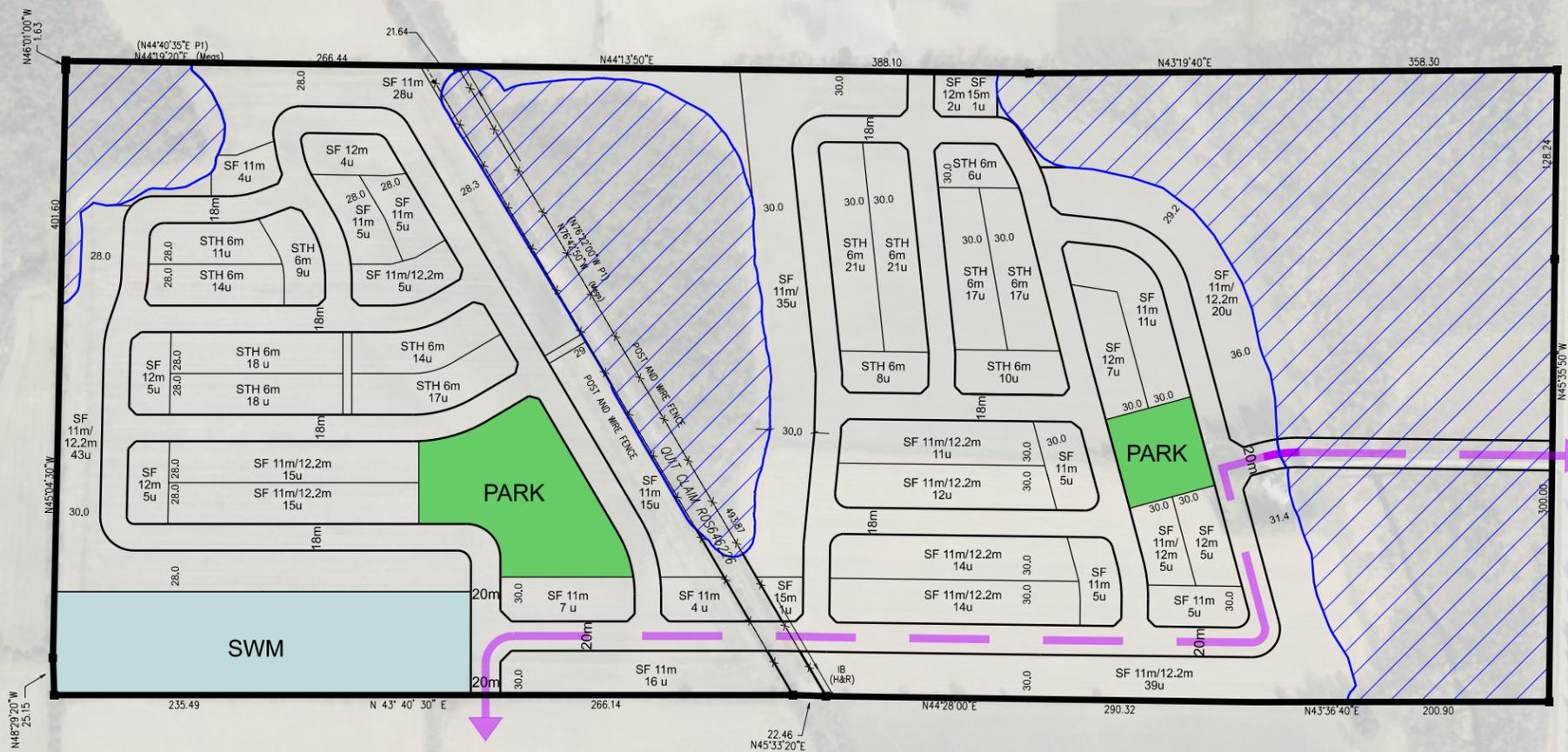
CONCEPTUAL BLOCK PLAN

6569 BEATTY LINE NORTH
TOWN OF FERGUS
WELLINGTON COUNTY



File Number: 11554
Date: 2025-01-15
Drawn By: SM
Planner: RG
CAD: 11554_Concept C1_2025-01-15.dgn

Drawing
C1

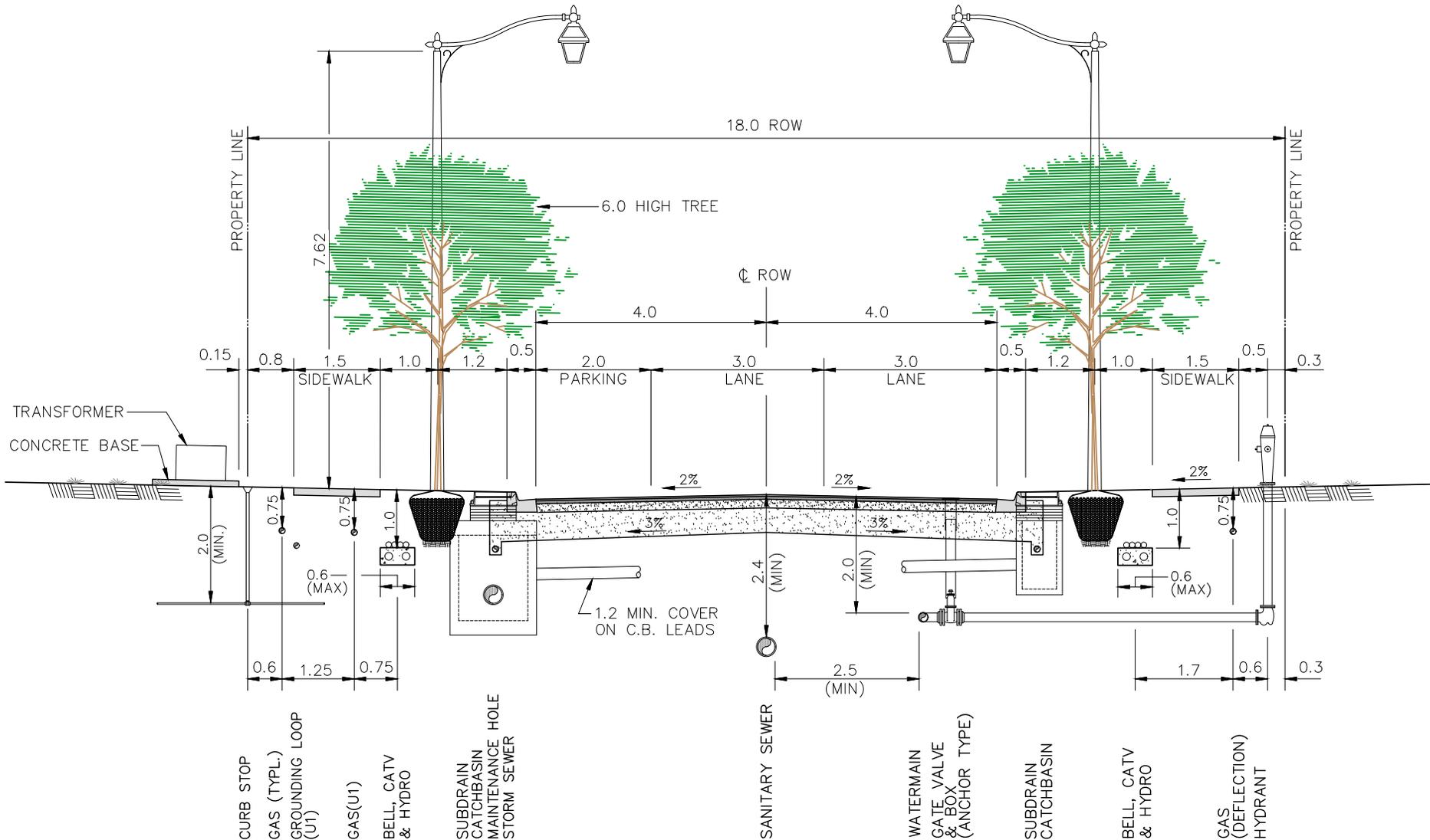


Notes:

- Site Boundary provided Brubacher R-Plan from J.D. Barnes (2207)
- Development Limit provided by SCS Consulting Group on February 20, 2024.
- Areas and dimensions are approximate and subject to confirmation by survey.
- Air photo from First Base Solutions Inc., 2010 image.
- Draft Plan of Subdivision provided by the Town of Centre Wellington and it is dated 2016.
- Density Ranges based on County of Wellington Official Plan Section 4.4.4 and 8.3.5.

Appendix B: Cross Sections





DRAFT

- NOTES:
1. TRANSFORMER TO BE PLACED AS PER TOWNSHIP STANDARD U1.
 2. SIDEWALK ON BOTH SIDES.
 3. TREE PLANTING ON BOTH SIDES.
 4. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

No	DATE	REVISION
3	FEB 2021	FOR TOWNSHIP REVIEW
2	AUG 2017	FOR CIRCULATION
1	JULY 2017	DRAFT FOR REVIEW

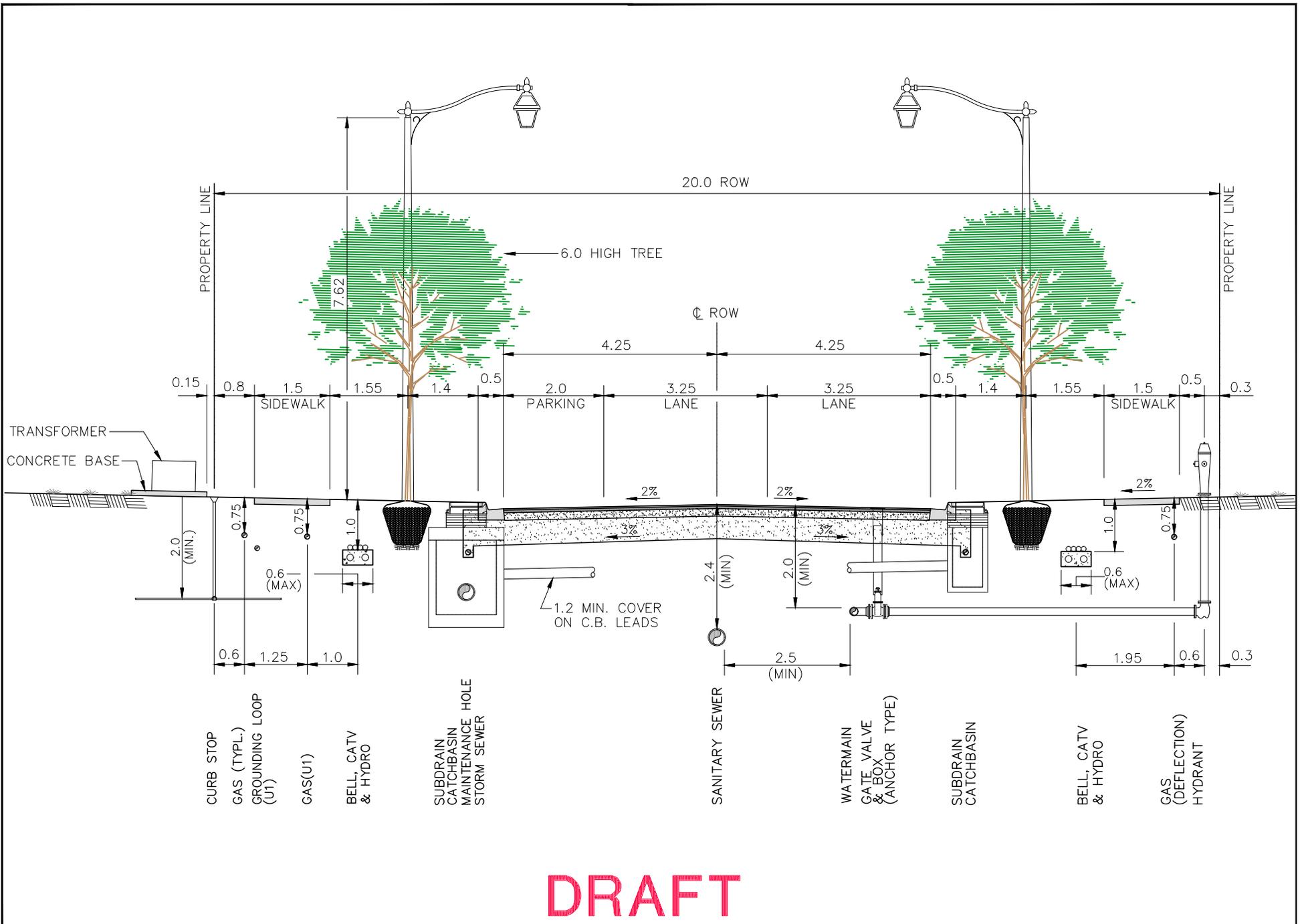
**LOCAL STREET - 18m ROW
STANDARD CROSS SECTION**

**TOWNSHIP OF CENTRE
WELLINGTON**

1 MACDONALD SQUARE
ELORA, ONTARIO N0B 1S0



SCALE	1:100
STANDARD NUMBER	R5
	[REV. 1]



DRAFT

NOTES:

1. TRANSFORMER TO BE PLACED AS PER TOWNSHIP STANDARD U1.
2. SIDEWALK ON BOTH SIDES.
3. TREE PLANTING ON BOTH SIDES.
4. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.

No	DATE	REVISION
3	FEB 2021	FOR TOWNSHIP REVIEW
2	AUG 2017	FOR CIRCULATION
1	JULY 2017	DRAFT FOR REVIEW

MINOR COLLECTOR - 20m ROW
STANDARD CROSS SECTION

TOWNSHIP OF CENTRE
WELLINGTON

1 MACDONALD SQUARE
ELORA, ONTARIO N0B 1S0



SCALE	1:100
STANDARD NUMBER	R1(1)
[REV. 1]	

Appendix C: Turning Movement Counts





Turning Movement Count (1 . BEATTY LINE & NICHOL RD 15)

Start Time	N Approach BEATTY LINE						E Approach NICHOL RD 15						S Approach BEATTY LINE						W Approach NICHOL RD 15						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	0	1	0	0	0	1	0	25	1	0	0	26	0	0	14	0	0	14	6	13	0	0	0	19	60	
07:15:00	0	0	0	0	0	0	1	30	0	0	0	31	2	2	14	0	0	18	9	18	0	0	0	27	76	
07:30:00	0	1	0	0	0	1	0	24	2	0	0	26	3	0	11	0	0	14	5	20	0	0	0	25	66	
07:45:00	0	2	0	0	0	2	0	37	3	0	0	40	0	0	9	0	0	9	17	29	0	0	0	46	97	299
08:00:00	0	0	0	0	0	0	1	27	1	0	0	29	2	1	17	0	0	20	4	34	1	0	0	39	88	327
08:15:00	0	0	2	0	0	2	0	32	4	0	0	36	3	0	24	0	0	27	6	20	1	0	0	27	92	343
08:30:00	0	0	0	0	0	0	0	36	0	0	0	36	1	0	28	0	0	29	9	15	1	0	0	25	90	367
08:45:00	0	1	2	0	0	3	0	30	2	0	0	32	9	0	28	0	0	37	21	37	0	0	0	58	130	400
BREAK																										
16:00:00	0	2	0	0	0	2	2	36	3	0	0	41	3	2	7	0	0	12	18	13	0	0	0	31	86	
16:15:00	0	0	0	0	0	0	0	25	0	0	0	25	2	3	11	0	0	16	10	44	0	0	0	54	95	
16:30:00	0	0	1	0	0	1	0	43	4	0	0	47	2	0	18	0	0	20	17	41	0	0	0	58	126	
16:45:00	0	2	0	0	0	2	1	35	0	0	0	36	1	1	23	0	0	25	21	39	1	0	0	61	124	431
17:00:00	0	0	0	0	0	0	0	28	3	0	0	31	2	0	19	0	0	21	18	37	0	0	0	55	107	452
17:15:00	0	1	0	0	0	1	0	39	0	0	0	39	5	3	14	0	0	22	24	41	0	0	0	65	127	484
17:30:00	0	0	0	0	0	0	1	29	1	0	0	31	1	1	11	0	0	13	26	27	0	0	0	53	97	455
17:45:00	0	0	0	0	0	0	0	22	1	0	0	23	0	0	8	0	0	8	15	44	0	0	0	59	90	421
Grand Total	0	10	5	0	0	15	6	498	25	0	0	529	36	13	256	0	0	305	226	472	4	0	0	702	1551	-
Approach%	0%	66.7%	33.3%	0%	-	-	1.1%	94.1%	4.7%	0%	-	-	11.8%	4.3%	83.9%	0%	-	-	32.2%	67.2%	0.6%	0%	-	-	-	
Totals %	0%	0.6%	0.3%	0%	1%	34.1%	0.4%	32.1%	1.6%	0%	34.1%	2.3%	0.8%	16.5%	0%	19.7%	14.6%	30.4%	0.3%	0%	45.3%	-	-	-	-	
Heavy	0	0	2	0	-	-	1	14	2	0	-	-	2	0	9	0	-	-	6	23	1	0	-	-	-	
Heavy %	0%	0%	40%	0%	-	-	16.7%	2.8%	8%	0%	-	-	5.6%	0%	3.5%	0%	-	-	2.7%	4.9%	25%	0%	-	-	-	
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (-5.97 °C)

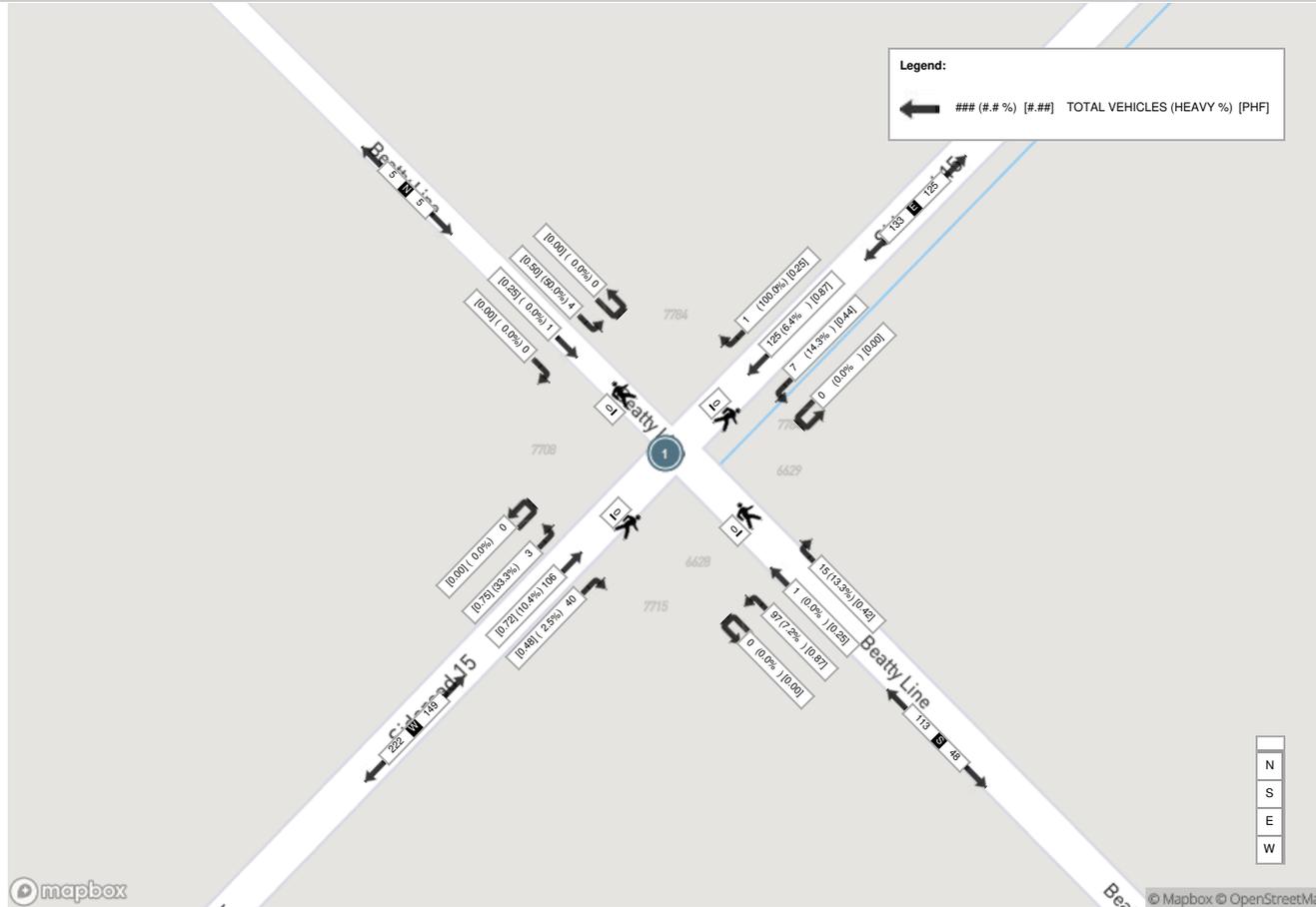
Start Time	N Approach BEATTY LINE						E Approach NICHOL RD 15						S Approach BEATTY LINE						W Approach NICHOL RD 15						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	0	0	0	0	0	0	1	27	1	0	0	29	2	1	17	0	0	20	4	34	1	0	0	39	88
08:15:00	0	0	2	0	0	2	0	32	4	0	0	36	3	0	24	0	0	27	6	20	1	0	0	27	92
08:30:00	0	0	0	0	0	0	0	36	0	0	0	36	1	0	28	0	0	29	9	15	1	0	0	25	90
08:45:00	0	1	2	0	0	3	0	30	2	0	0	32	9	0	28	0	0	37	21	37	0	0	0	58	130
Grand Total	0	1	4	0	0	5	1	125	7	0	0	133	15	1	97	0	0	113	40	106	3	0	0	149	400
Approach%	0%	20%	80%	0%	-	-	0.8%	94%	5.3%	0%	-	-	13.3%	0.9%	85.8%	0%	-	-	26.8%	71.1%	2%	0%	-	-	
Totals %	0%	0.3%	1%	0%	1.3%	0.3%	0.3%	31.3%	1.8%	0%	33.3%	3.8%	0.3%	24.3%	0%	28.3%	10%	26.5%	0.8%	0%	37.3%	-	-		
PHF	0	0.25	0.5	0	0.42	0.25	0.25	0.87	0.44	0	0.92	0.42	0.25	0.87	0	0.76	0.48	0.72	0.75	0	0.64	-	-		
Heavy	0	0	2	0	2	1	8	1	0	10	2	0	7	0	9	1	11	1	0	13	-	-			
Heavy %	0%	0%	50%	0%	40%	100%	6.4%	14.3%	0%	7.5%	13.3%	0%	7.2%	0%	8%	2.5%	10.4%	33.3%	0%	8.7%	-	-			
Lights	0	1	2	0	3	0	117	6	0	123	13	1	90	0	104	39	95	2	0	136	-	-			
Lights %	0%	100%	50%	0%	60%	0%	93.6%	85.7%	0%	92.5%	86.7%	100%	92.8%	0%	92%	97.5%	89.6%	66.7%	0%	91.3%	-	-			
Single-Unit Trucks	0	0	0	0	0	1	6	0	0	7	1	0	1	0	2	0	3	0	0	3	-	-			
Single-Unit Trucks %	0%	0%	0%	0%	0%	100%	4.8%	0%	0%	5.3%	6.7%	0%	1%	0%	1.8%	0%	2.8%	0%	0%	2%	-	-			
Buses	0	0	2	0	2	0	2	1	0	3	1	0	6	0	7	1	8	1	0	10	-	-			
Buses %	0%	0%	50%	0%	40%	0%	1.6%	14.3%	0%	2.3%	6.7%	0%	6.2%	0%	6.2%	2.5%	7.5%	33.3%	0%	6.7%	-	-			
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-			
Articulated Trucks %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-			



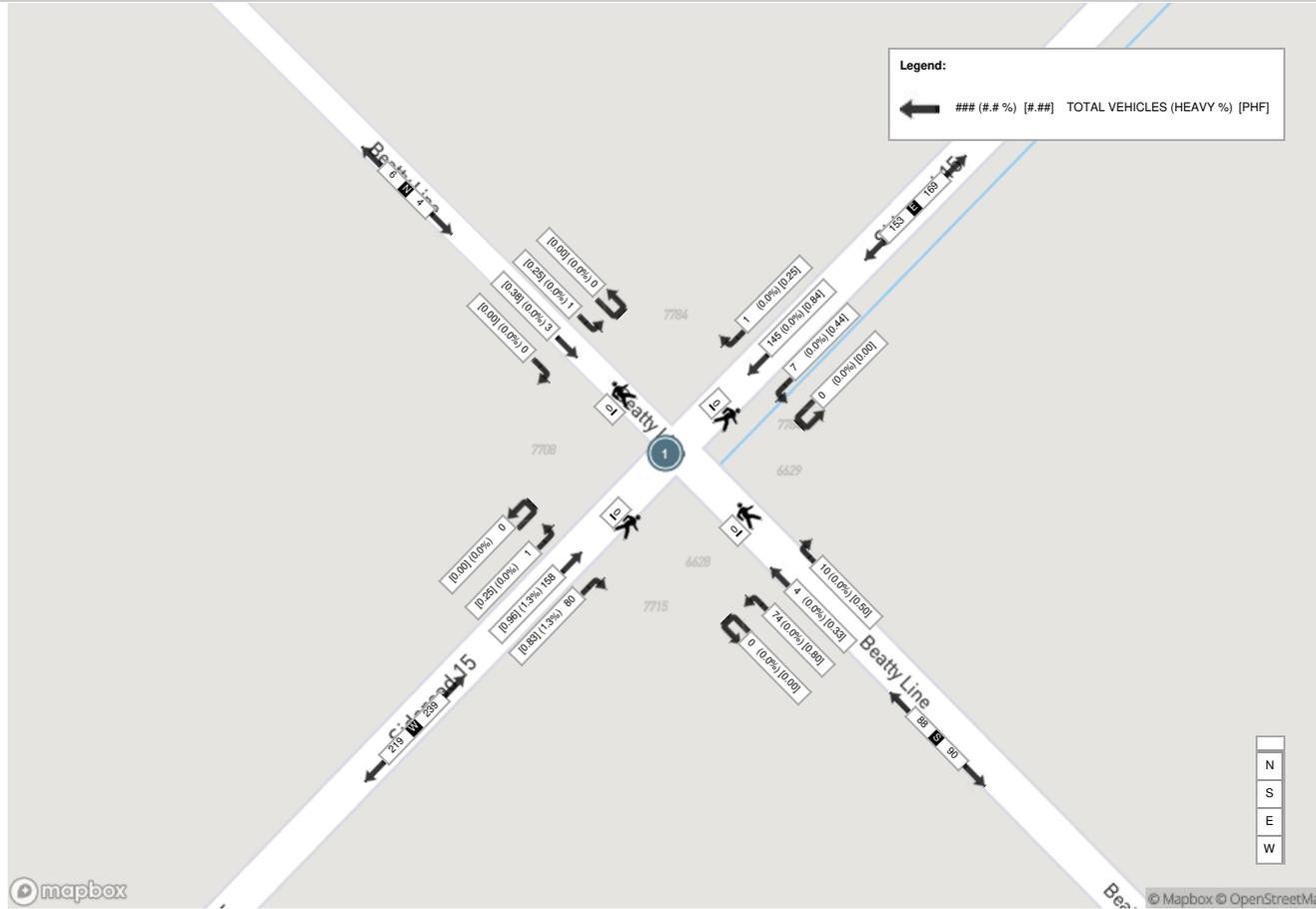
Peak Hour: 04:30 PM - 05:30 PM Weather: Few Clouds (-3.1 °C)

Start Time	N Approach BEATTY LINE						E Approach NICHOL RD 15						S Approach BEATTY LINE						W Approach NICHOL RD 15						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	0	0	1	0	0	1	0	43	4	0	0	47	2	0	18	0	0	20	17	41	0	0	0	58	126
16:45:00	0	2	0	0	0	2	1	35	0	0	0	36	1	1	23	0	0	25	21	39	1	0	0	61	124
17:00:00	0	0	0	0	0	0	0	28	3	0	0	31	2	0	19	0	0	21	18	37	0	0	0	55	107
17:15:00	0	1	0	0	0	1	0	39	0	0	0	39	5	3	14	0	0	22	24	41	0	0	0	65	127
Grand Total	0	3	1	0	0	4	1	145	7	0	0	153	10	4	74	0	0	88	80	158	1	0	0	239	484
Approach%	0%	75%	25%	0%	-	-	0.7%	94.8%	4.6%	0%	-	-	11.4%	4.5%	84.1%	0%	-	-	33.5%	66.1%	0.4%	0%	-	-	
Totals %	0%	0.6%	0.2%	0%	0.8%	0.8%	0.2%	30%	1.4%	0%	31.6%	2.1%	0.8%	15.3%	0%	18.2%	16.5%	32.6%	0.2%	0%	49.4%	-	-		
PHF	0	0.38	0.25	0	0.5	0.5	0.25	0.84	0.44	0	0.81	0.5	0.33	0.8	0	0.88	0.83	0.96	0.25	0	0.92	-	-		
Heavy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	-	
Heavy %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1.3%	1.3%	0%	0%	1.3%	-	
Lights	0	3	1	0	4	4	1	145	7	0	153	10	4	74	0	88	79	156	1	0	236	-	-		
Lights %	0%	100%	100%	0%	100%	100%	100%	100%	100%	0%	100%	100%	100%	100%	0%	100%	98.8%	98.7%	100%	0%	98.7%	-	-		
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	-	
Single-Unit Trucks %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1.3%	0.6%	0%	0%	0.8%	-	
Buses	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%	-	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	-	
Articulated Trucks %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.6%	0%	0%	0.4%	-	

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (-5.97 °C)



Peak Hour: 04:30 PM - 05:30 PM Weather: Few Clouds (-3.1 °C)





Turning Movement Count (2 . BEATTY LINE N & FARLEY RD / SIDE ROAD 18)

Start Time	N Approach BEATTY LINE NORTH						E Approach SIDEROAD 18						S Approach BEATTY LINE NORTH						W Approach FARLEY ROAD						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		
00:00:00	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	3	
00:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	
00:30:00	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	
00:45:00	0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	3	7
01:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	5
01:15:00	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5
01:30:00	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	6
01:45:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	4
02:00:00	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	3
02:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	2	4
02:30:00	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
02:45:00	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	2	5
03:00:00	2	0	0	0	0	2	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4	9
03:15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	8
03:30:00	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	8
03:45:00	2	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	4	10
04:00:00	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	3	9
04:15:00	1	1	1	0	0	3	0	1	0	0	0	1	0	0	0	0	0	0	2	4	0	0	0	6	10	18
04:30:00	1	0	0	0	0	1	1	0	2	0	0	3	0	1	0	0	0	1	0	0	0	0	0	0	5	22
04:45:00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	5	1	0	0	6	8	26
05:00:00	0	0	0	0	0	0	1	1	0	0	0	2	0	2	0	0	0	2	1	4	0	0	0	5	9	32
05:15:00	2	1	0	0	0	3	1	3	1	0	0	5	0	3	0	0	0	3	1	3	0	0	0	4	15	37
05:30:00	0	0	0	0	0	0	0	1	0	0	0	1	1	2	0	0	0	3	3	5	2	0	0	10	14	46
05:45:00	0	1	0	0	0	1	2	3	1	0	0	6	0	3	1	0	0	4	5	4	0	0	0	9	20	58
06:00:00	0	0	0	0	0	0	1	4	0	0	0	5	1	4	1	0	0	6	7	6	1	0	0	14	25	74
06:15:00	2	2	0	0	0	4	2	1	2	0	0	5	0	6	1	0	0	7	0	11	6	0	0	17	33	92
06:30:00	3	2	0	0	0	5	3	7	5	0	0	15	0	3	1	0	0	4	3	5	1	0	0	9	33	111
06:45:00	7	1	2	0	0	10	1	10	3	0	0	14	1	7	1	0	0	9	1	5	5	0	0	11	44	135
07:00:00	7	3	0	0	1	10	4	23	5	0	1	32	0	7	2	0	1	9	5	9	4	0	0	18	69	179
07:15:00	7	0	2	0	0	9	6	11	7	1	0	25	4	6	7	0	0	17	5	12	5	0	0	22	73	219
07:30:00	3	3	0	0	0	6	2	16	3	0	0	21	5	6	7	0	3	18	8	12	5	0	0	25	70	256
07:45:00	3	18	3	0	0	24	3	15	7	0	0	25	4	5	3	0	2	12	5	11	3	0	0	19	80	292
08:00:00	3	2	1	0	0	6	6	14	5	0	0	25	0	11	5	0	0	16	11	14	3	0	0	28	75	298
08:15:00	3	5	1	0	0	9	5	8	9	0	0	22	5	6	5	0	0	16	9	11	14	0	0	34	81	306
08:30:00	6	4	0	0	0	10	9	22	7	0	0	38	2	10	5	0	11	17	14	13	15	0	0	42	107	343
08:45:00	9	10	4	0	0	23	6	14	5	0	0	25	1	15	4	0	0	20	9	12	11	0	0	32	100	363
09:00:00	9	10	2	0	0	21	3	22	2	0	0	27	3	7	6	0	1	16	2	6	7	0	0	15	79	367
09:15:00	2	5	3	0	0	10	2	13	4	0	0	19	5	7	3	0	0	15	8	8	5	1	0	22	66	352
09:30:00	0	2	1	0	0	3	4	9	2	0	0	15	3	4	7	1	1	15	8	12	6	0	0	26	59	304
09:45:00	6	7	0	0	0	13	2	15	0	0	0	17	0	4	6	0	1	10	7	9	1	0	0	17	57	261
10:00:00	3	6	0	0	0	9	0	15	3	0	0	18	6	5	3	0	0	14	4	8	3	0	0	15	56	238
10:15:00	2	3	1	0	0	6	0	14	2	0	0	16	5	7	3	0	1	15	4	8	3	0	0	15	52	224
10:30:00	1	7	0	0	0	8	0	8	6	0	0	14	1	6	2	0	0	9	5	10	4	0	0	19	50	215
10:45:00	6	2	0	0	0	8	1	5	3	0	0	9	4	6	4	0	3	14	5	4	3	0	0	12	43	201
11:00:00	2	3	1	0	0	6	3	6	6	0	0	15	1	12	3	0	1	16	2	12	2	0	0	16	53	198



11:15:00	3	3	3	0	0	9	1	4	0	0	0	5	4	10	5	0	0	19	5	8	2	1	0	16	49	195
11:30:00	3	2	3	0	0	8	0	7	4	0	0	11	4	11	6	0	0	21	8	10	8	0	0	26	66	211
11:45:00	4	4	1	0	0	9	0	14	6	0	0	20	4	8	4	0	1	16	10	13	2	0	0	25	70	238
12:00:00	2	7	1	0	0	10	2	14	4	0	0	20	2	8	6	0	0	16	11	22	2	0	0	35	81	266
12:15:00	2	7	1	0	0	10	2	12	3	0	0	17	5	9	13	0	2	27	10	15	2	0	0	27	81	298
12:30:00	2	6	0	0	0	8	1	11	3	0	0	15	5	7	7	0	0	19	3	12	2	0	0	17	59	291
12:45:00	3	4	1	0	0	8	1	9	2	0	0	12	4	7	11	0	0	22	13	7	3	0	0	23	65	286
13:00:00	2	8	0	0	0	10	1	16	3	0	0	20	3	7	13	0	0	23	8	17	2	0	0	27	80	285
13:15:00	3	5	2	0	0	10	3	12	4	0	0	19	1	10	10	0	1	21	11	3	2	0	0	16	66	270
13:30:00	5	6	3	0	0	14	0	7	4	0	0	11	5	9	8	0	1	22	3	7	4	0	0	14	61	272
13:45:00	8	9	0	0	0	17	2	12	3	0	0	17	4	6	8	0	0	18	6	8	1	0	0	15	67	274
14:00:00	4	5	1	0	0	10	3	5	8	0	0	16	2	4	5	0	0	11	3	15	4	0	0	22	59	253
14:15:00	1	8	2	0	0	11	6	10	3	0	0	19	2	11	6	0	0	19	4	4	3	0	0	11	60	247
14:30:00	3	13	1	0	0	17	1	5	1	0	0	7	6	10	4	1	0	21	7	7	4	0	0	18	63	249
14:45:00	6	10	4	0	0	20	3	10	3	0	0	16	10	5	8	0	1	23	4	14	6	0	0	24	83	265
15:00:00	1	4	1	0	0	6	3	10	5	0	0	18	7	17	10	0	0	34	5	17	10	1	1	33	91	297
15:15:00	9	10	4	0	0	23	2	8	5	0	1	15	6	6	6	0	19	18	9	16	2	0	2	27	83	320
15:30:00	9	6	5	0	0	20	4	9	7	0	0	20	9	15	11	0	0	35	8	9	4	0	0	21	96	353
15:45:00	0	4	3	0	0	7	3	18	2	0	0	23	11	14	10	0	3	35	7	17	8	0	0	32	97	367
16:00:00	6	14	2	0	0	22	0	10	7	0	0	17	7	11	9	0	0	27	7	13	2	0	0	22	88	364
16:15:00	1	7	4	0	0	12	2	10	6	0	0	18	9	10	10	0	0	29	3	13	5	0	0	21	80	361
16:30:00	8	9	5	0	0	22	4	9	4	0	0	17	9	9	10	0	1	28	6	11	6	0	0	23	90	355
16:45:00	5	9	8	0	0	22	3	13	8	0	0	24	10	11	4	0	1	25	9	21	11	0	0	41	112	370
17:00:00	6	13	2	0	0	21	3	16	4	0	0	23	11	14	9	0	0	34	9	25	10	0	0	44	122	404
17:15:00	9	13	1	0	0	23	2	11	3	0	0	16	6	10	13	0	0	29	8	18	5	0	0	31	99	423
17:30:00	8	16	4	0	0	28	1	10	2	0	0	13	6	6	5	0	0	17	9	14	4	0	0	27	85	418
17:45:00	6	7	5	0	0	18	3	8	1	0	0	12	5	3	8	0	2	16	7	9	2	0	0	18	64	370
18:00:00	3	4	4	0	0	11	1	10	2	0	0	13	2	8	7	0	0	17	6	8	4	0	0	18	59	307
18:15:00	2	7	4	0	0	13	0	8	5	0	0	13	3	5	7	0	1	15	12	4	3	0	0	19	60	268
18:30:00	1	6	0	0	0	7	1	8	3	0	0	12	5	4	9	0	1	18	3	4	2	0	0	9	46	229
18:45:00	5	7	0	0	0	12	2	6	1	0	0	9	4	9	6	0	1	19	8	5	1	0	0	14	54	219
19:00:00	3	3	1	0	0	7	0	7	3	0	0	10	6	8	6	0	0	20	4	6	3	0	0	13	50	210
19:15:00	6	2	5	0	0	13	3	11	0	0	0	14	3	10	6	0	0	19	2	8	2	0	0	12	58	208
19:30:00	2	4	2	0	0	8	0	8	2	0	0	10	2	1	5	0	0	8	0	3	2	0	0	5	31	193
19:45:00	2	2	2	0	0	6	1	3	0	0	0	4	3	5	10	0	2	18	1	1	0	0	0	2	30	169
20:00:00	3	2	1	0	0	6	0	4	1	0	0	5	2	6	6	0	2	14	3	5	0	0	0	8	33	152
20:15:00	0	5	2	0	0	7	0	4	1	0	0	5	2	4	12	0	0	18	1	1	0	0	0	2	32	126
20:30:00	0	11	0	0	0	11	0	1	0	0	0	1	1	0	2	0	0	3	3	2	2	0	0	7	22	117
20:45:00	1	6	0	0	0	7	0	3	1	0	0	4	2	4	5	0	0	11	1	3	1	0	0	5	27	114
21:00:00	2	0	2	0	0	4	1	1	2	0	0	4	2	4	5	0	0	11	5	2	1	0	0	8	27	108
21:15:00	4	3	0	0	0	7	0	4	3	0	0	7	1	3	1	0	0	5	2	1	0	0	0	3	22	98
21:30:00	0	5	1	0	0	6	1	5	0	0	0	6	3	2	2	0	0	7	2	1	0	0	0	3	22	98
21:45:00	5	3	0	0	0	8	0	4	1	0	0	5	2	1	7	0	0	10	2	2	0	0	0	4	27	98
22:00:00	3	1	1	0	0	5	2	4	0	0	0	6	0	7	5	0	0	12	1	1	0	0	0	2	25	96
22:15:00	0	2	1	0	0	3	0	1	0	0	0	1	0	1	1	0	0	2	1	1	1	0	0	3	9	83
22:30:00	0	0	0	0	0	0	0	2	1	0	0	3	0	0	1	0	0	1	0	2	0	0	0	2	6	67
22:45:00	0	1	0	0	0	1	0	6	0	0	0	6	1	2	2	0	0	5	2	2	2	0	0	6	18	58
23:00:00	1	0	0	0	0	1	1	2	0	0	0	3	0	2	2	0	0	4	0	1	0	0	0	1	9	42



23:15:00	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	3	36
23:30:00	0	0	1	0	0	1	0	1	0	0	0	1	0	0	1	0	0	1	1	1	0	0	0	2	5	35
23:45:00	0	4	0	0	0	4	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	6	23	
Grand Total	255	387	118	0	1	760	137	650	224	1	2	1012	253	496	410	2	64	1161	387	636	254	3	3	1280	4213	-
Approach%	33.6%	50.9%	15.5%	0%	-	13.5%	64.2%	22.1%	0.1%	-	21.8%	42.7%	35.3%	0.2%	-	30.2%	49.7%	19.8%	0.2%	-	-	-	-	-	-	-
Totals %	6.1%	9.2%	2.8%	0%	18%	3.3%	15.4%	5.3%	0%	24%	6%	11.8%	9.7%	0%	27.6%	9.2%	15.1%	6%	0.1%	30.4%	-	-	-	-	-	-
Heavy	11	8	5	0	-	3	20	9	0	-	6	8	10	0	-	13	16	12	0	-	-	-	-	-	-	-
Heavy %	4.3%	2.1%	4.2%	0%	-	2.2%	3.1%	4%	0%	-	2.4%	1.6%	2.4%	0%	-	3.4%	2.5%	4.7%	0%	-	-	-	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 04:30 PM - 05:30 PM Weather:

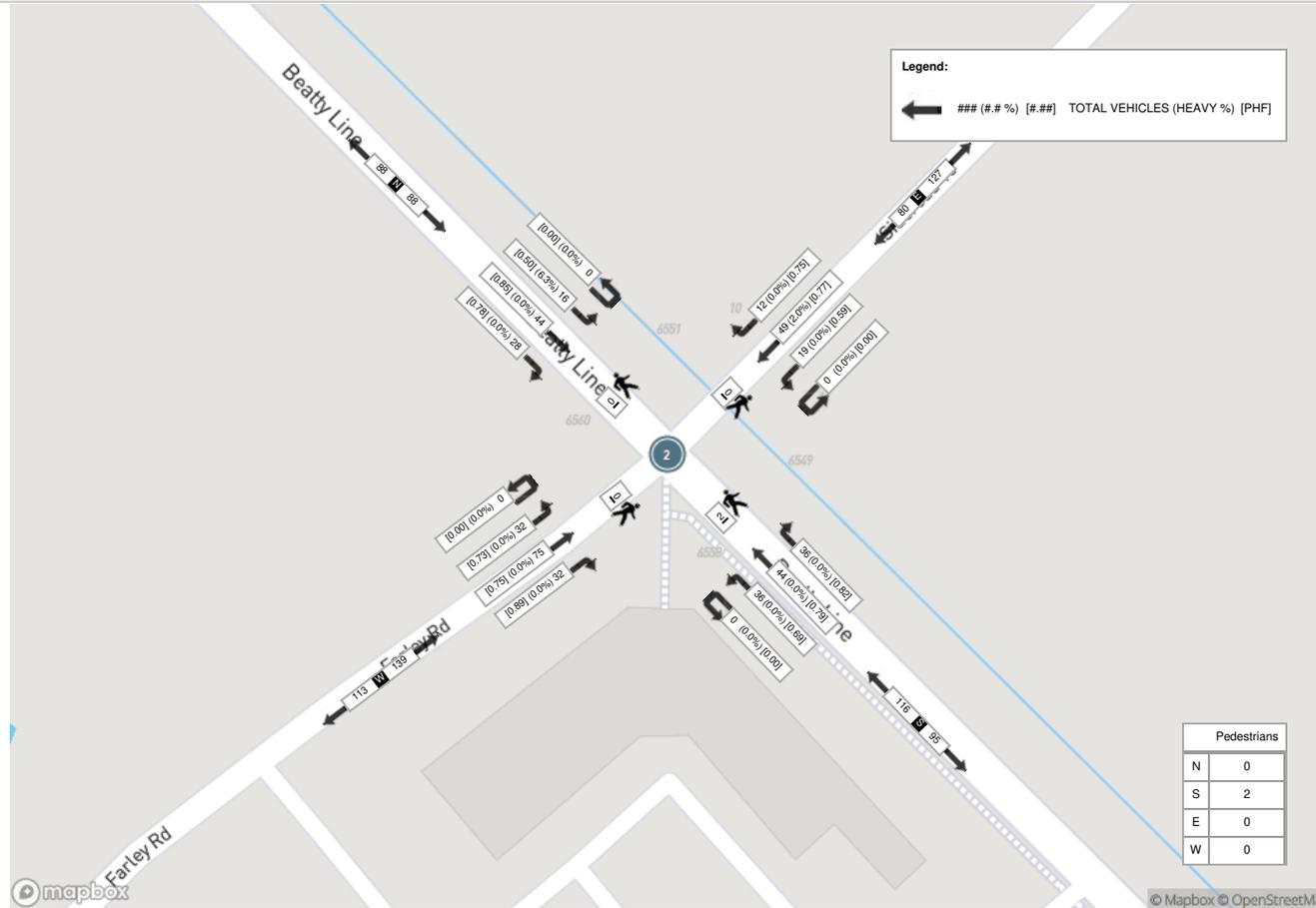
Start Time	N Approach BEATTY LINE NORTH						E Approach SIDEROAD 18						S Approach BEATTY LINE NORTH						W Approach FARLEY ROAD						Int. Total (15 min)	
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total		
16:30:00	8	9	5	0	0	22	4	9	4	0	0	17	9	9	10	0	1	28	6	11	6	0	0	23	90	
16:45:00	5	9	8	0	0	22	3	13	8	0	0	24	10	11	4	0	1	25	9	21	11	0	0	41	112	
17:00:00	6	13	2	0	0	21	3	16	4	0	0	23	11	14	9	0	0	34	9	25	10	0	0	44	122	
17:15:00	9	13	1	0	0	23	2	11	3	0	0	16	6	10	13	0	0	29	8	18	5	0	0	31	99	
Grand Total	28	44	16	0	0	88	12	49	19	0	0	80	36	44	36	0	2	116	32	75	32	0	0	139	423	
Approach%	31.8%	50%	18.2%	0%		-	15%	61.3%	23.8%	0%		-	31%	37.9%	31%	0%	-	23%	54%	23%	0%		-	-		
Totals %	6.6%	10.4%	3.8%	0%		20.8%	2.8%	11.6%	4.5%	0%		18.9%	8.5%	10.4%	8.5%	0%	27.4%	7.6%	17.7%	7.6%	0%		32.9%	-		
PHF	0.78	0.85	0.5	0		0.96	0.75	0.77	0.59	0		0.83	0.82	0.79	0.69	0	0.85	0.89	0.75	0.73	0		0.79	-		
Heavy	0	0	1	0		1	0	1	0	0		1	0	0	0	0	0	0	0	0	0	0	0	0	-	
Heavy %	0%	0%	6.3%	0%		1.1%	0%	2%	0%	0%		1.3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	
Lights	28	44	15	0		87	12	48	19	0		79	36	44	36	0	116	32	75	32	0		139	-		
Lights %	100%	100%	93.8%	0%		98.9%	100%	98%	100%	0%		98.8%	100%	100%	100%	0%	100%	100%	100%	100%	0%		100%	-		
Single-Unit Trucks	0	0	1	0		1	0	1	0	0		1	0	0	0	0	0	0	0	0	0	0	0	0	-	
Single-Unit Trucks %	0%	0%	6.3%	0%		1.1%	0%	2%	0%	0%		1.3%	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	-	
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	-	
Articulated Trucks %	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	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	
Pedestrians%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	100%	-	-	-	-	-	-	0%	-	-	-	



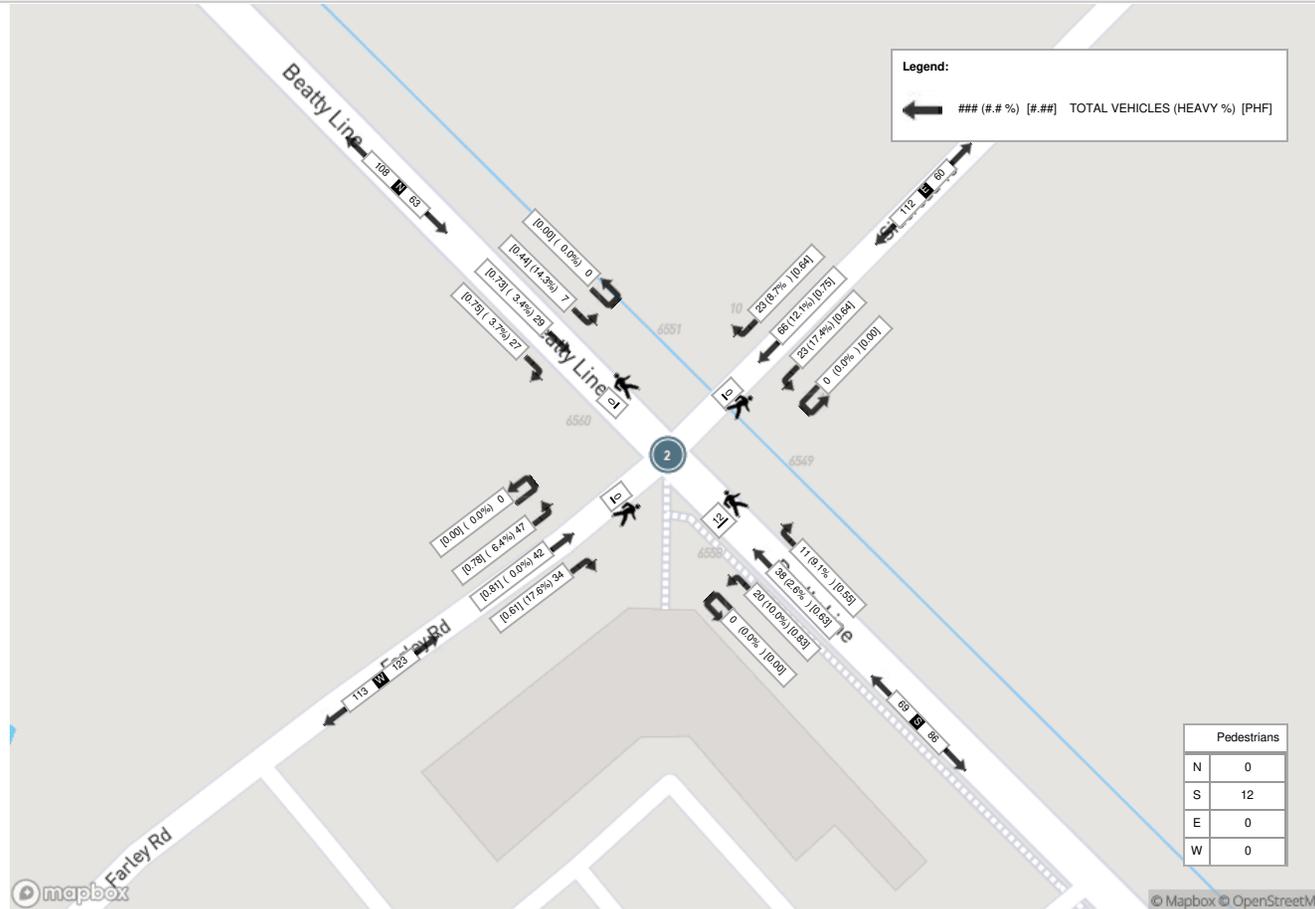
Selected Hour: 08:15 AM - 09:15 AM Weather:

Start Time	N Approach BEATTY LINE NORTH						E Approach SIDEROAD 18						S Approach BEATTY LINE NORTH						W Approach FARLEY ROAD						Int. Total (15 min)	
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total		
08:15:00	3	5	1	0	0	9	5	8	9	0	0	22	5	6	5	0	0	16	9	11	14	0	0	34	81	
08:30:00	6	4	0	0	0	10	9	22	7	0	0	38	2	10	5	0	11	17	14	13	15	0	0	42	107	
08:45:00	9	10	4	0	0	23	6	14	5	0	0	25	1	15	4	0	0	20	9	12	11	0	0	32	100	
09:00:00	9	10	2	0	0	21	3	22	2	0	0	27	3	7	6	0	1	16	2	6	7	0	0	15	79	
Grand Total	27	29	7	0	0	63	23	66	23	0	0	112	11	38	20	0	12	69	34	42	47	0	0	123	367	
Approach%	42.9%	46%	11.1%	0%		-	20.5%	58.9%	20.5%	0%		-	15.9%	55.1%	29%	0%		-	27.6%	34.1%	38.2%	0%		-	-	
Totals %	7.4%	7.9%	1.9%	0%		17.2%	6.3%	18%	6.3%	0%		30.5%	3%	10.4%	5.4%	0%		18.8%	9.3%	11.4%	12.8%	0%		33.5%	-	
PHF	0.75	0.73	0.44	0		0.68	0.64	0.75	0.64	0		0.74	0.55	0.63	0.83	0		0.86	0.61	0.81	0.78	0		0.73	-	
Heavy	1	1	1	0		3	2	8	4	0		14	1	1	2	0		4	6	0	3	0		9	-	
Heavy %	3.7%	3.4%	14.3%	0%		4.8%	8.7%	12.1%	17.4%	0%		12.5%	9.1%	2.6%	10%	0%		5.8%	17.6%	0%	6.4%	0%		7.3%	-	
Lights	26	28	6	0		60	21	58	19	0		98	10	37	18	0		65	28	42	44	0		114	-	
Lights %	96.3%	96.6%	85.7%	0%		95.2%	91.3%	87.9%	82.6%	0%		87.5%	90.9%	97.4%	90%	0%		94.2%	82.4%	100%	93.6%	0%		92.7%	-	
Single-Unit Trucks	0	0	0	0		0	0	6	0	0		6	0	1	1	0		2	3	0	1	0		4	-	
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	9.1%	0%	0%		5.4%	0%	2.6%	5%	0%		2.9%	8.8%	0%	2.1%	0%		3.3%	-	
Buses	1	1	1	0		3	2	2	4	0		8	1	0	1	0		2	2	0	2	0		4	-	
Buses %	3.7%	3.4%	14.3%	0%		4.8%	8.7%	3%	17.4%	0%		7.1%	9.1%	0%	5%	0%		2.9%	5.9%	0%	4.3%	0%		3.3%	-	
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	-	
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	2.9%	0%	0%	0%		0.8%	-	
Pedestrians	-	-	-	-	0		-	-	-	-	0		-	-	-	-	12		-	-	-	-	0		-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	100%		-	-	-	-	0%		-	-

Peak Hour: 04:30 PM - 05:30 PM Weather:



Selected Hour: 08:15 AM - 09:15 AM Weather:





Turning Movement Count (4 . BEATTY LINE N & COLBORNE ST)

Start Time	N Approach						E Approach						S Approach						W Approach						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	4	28	0	0	0	32	0	0	0	0	0	0	0	6	0	0	0	6	1	0	3	0	0	4	42	
07:15:00	10	13	0	0	0	23	0	0	0	0	0	0	0	14	1	0	0	15	6	0	13	0	0	19	57	
07:30:00	7	29	0	0	0	36	0	0	0	0	0	0	0	12	0	0	0	12	3	0	11	0	0	14	62	
07:45:00	13	30	0	0	0	43	0	0	0	0	0	0	0	8	3	1	0	12	7	0	8	0	0	15	70	231
08:00:00	4	33	0	0	0	37	0	0	0	0	0	0	0	13	3	0	0	16	4	0	7	0	0	11	64	253
08:15:00	15	42	0	0	0	57	0	0	0	0	0	0	0	10	4	0	0	14	7	0	9	0	0	16	87	283
08:30:00	13	33	0	0	0	46	0	0	0	0	0	0	0	14	2	0	0	16	9	0	11	0	0	20	82	303
08:45:00	10	35	0	0	0	45	0	1	0	0	0	1	0	24	8	0	0	32	2	0	8	0	0	10	88	321
BREAK																										
16:00:00	16	19	0	0	0	35	0	0	0	0	0	0	0	31	7	0	0	38	3	0	13	0	0	16	89	
16:15:00	16	26	0	0	0	42	0	0	0	0	0	0	0	42	12	0	0	54	6	0	17	0	0	23	119	
16:30:00	16	36	0	0	0	52	0	0	0	0	0	0	0	45	5	0	0	50	13	0	16	0	0	29	131	
16:45:00	17	37	0	0	0	54	0	0	0	0	0	0	0	45	6	0	0	51	8	0	15	0	1	23	128	467
17:00:00	15	31	0	0	0	46	0	0	0	0	0	0	0	46	16	0	0	62	3	0	11	0	0	14	122	500
17:15:00	9	32	0	0	0	41	0	0	0	0	0	0	0	34	7	0	0	41	8	0	13	0	0	21	103	484
17:30:00	7	23	0	0	0	30	0	0	0	0	0	0	0	28	3	1	0	32	5	0	7	0	0	12	74	427
17:45:00	9	29	0	0	0	38	0	0	0	0	0	0	0	27	8	0	0	35	5	0	15	0	0	20	93	392
Grand Total	181	476	0	0	0	657	0	1	0	0	0	1	0	399	85	2	0	486	90	0	177	0	1	267	1411	-
Approach%	27.5%	72.5%	0%	0%	-	-	0%	100%	0%	0%	-	-	0%	82.1%	17.5%	0.4%	-	33.7%	0%	66.3%	0%	-	-	-	-	-
Totals %	12.8%	33.7%	0%	0%	46.6%	0%	0.1%	0%	0%	0%	0.1%	0%	28.3%	6%	0.1%	34.4%	6.4%	0%	12.5%	0%	18.9%	-	-	-	-	-
Heavy	1	11	0	0	-	0	0	0	0	0	-	0	5	3	0	-	3	0	1	0	-	-	-	-	-	-
Heavy %	0.6%	2.3%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	1.3%	3.5%	0%	-	3.3%	0%	0.6%	0%	-	-	-	-	-	-
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	-	0	0	0	0	-	-	-	-	-	-
Bicycle %	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	1.2%	0%	-	0%	0%	0%	0%	-	-	-	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (-5.97 °C)

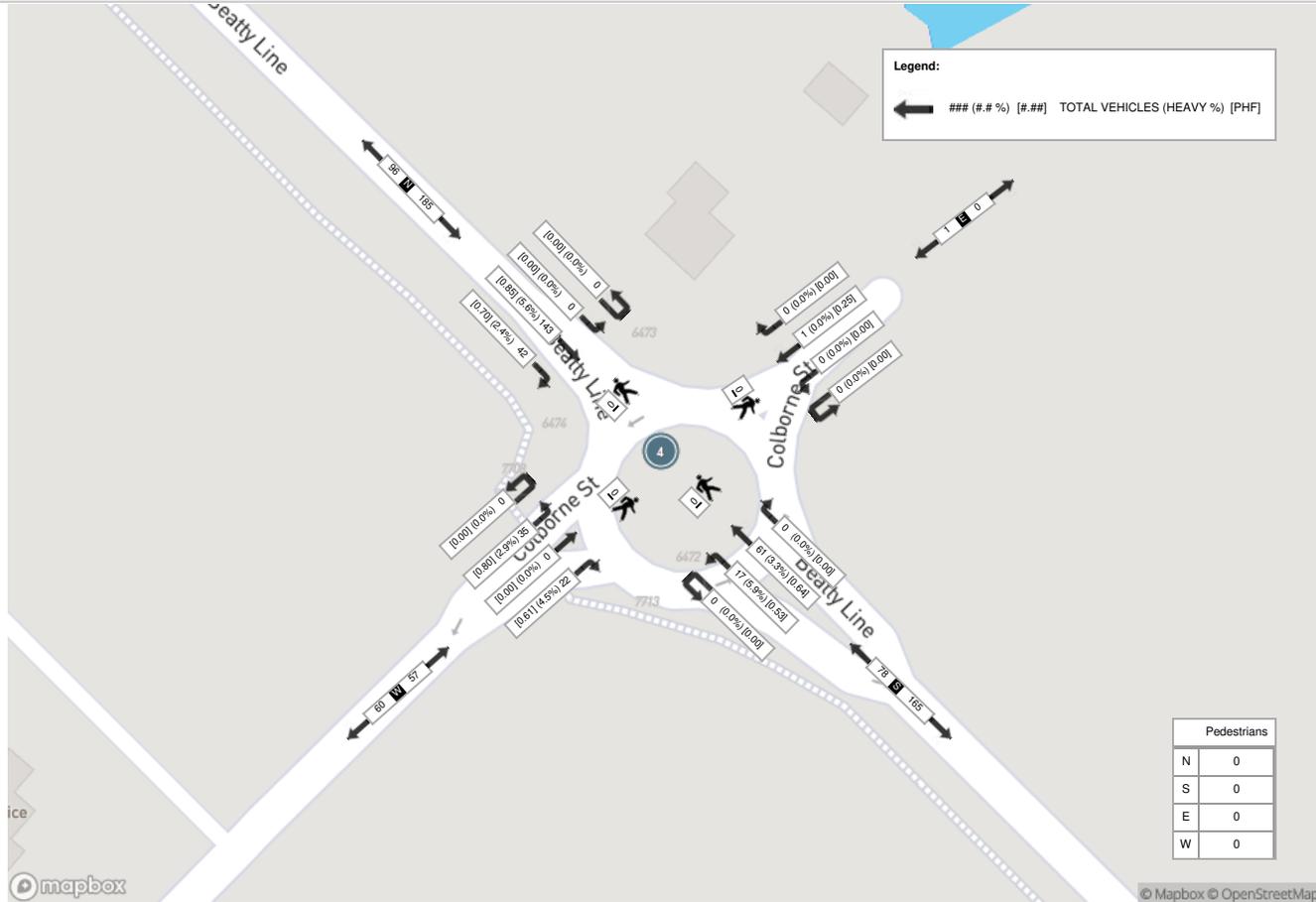
Start Time	N Approach						E Approach						S Approach						W Approach						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	4	33	0	0	0	37	0	0	0	0	0	0	0	13	3	0	0	16	4	0	7	0	0	11	64
08:15:00	15	42	0	0	0	57	0	0	0	0	0	0	0	10	4	0	0	14	7	0	9	0	0	16	87
08:30:00	13	33	0	0	0	46	0	0	0	0	0	0	0	14	2	0	0	16	9	0	11	0	0	20	82
08:45:00	10	35	0	0	0	45	0	1	0	0	0	1	0	24	8	0	0	32	2	0	8	0	0	10	88
Grand Total	42	143	0	0	0	185	0	1	0	0	0	1	0	61	17	0	0	78	22	0	35	0	0	57	321
Approach%	22.7%	77.3%	0%	0%	-	-	0%	100%	0%	0%	-	-	0%	78.2%	21.8%	0%	-	-	38.6%	0%	61.4%	0%	-	-	-
Totals %	13.1%	44.5%	0%	0%	57.6%	0%	0.3%	0%	0%	0%	0.3%	0%	0%	19%	5.3%	0%	24.3%	0%	6.9%	0%	10.9%	0%	17.8%	-	-
PHF	0.7	0.85	0	0	0.81	0	0.25	0	0	0	0.25	0	0	0.64	0.53	0	0.61	0	0.61	0	0.8	0	0.71	-	-
Heavy	1	8	0	0	9	0	0	0	0	0	0	0	0	2	1	0	3	0	1	0	1	0	2	-	-
Heavy %	2.4%	5.6%	0%	0%	4.9%	0%	0%	0%	0%	0%	0%	0%	0%	3.3%	5.9%	0%	3.8%	0%	4.5%	0%	2.9%	0%	3.5%	-	-
Lights	41	135	0	0	176	0	1	0	0	0	1	0	0	59	16	0	75	0	21	0	34	0	55	-	-
Lights %	97.6%	94.4%	0%	0%	95.1%	0%	100%	0%	0%	0%	100%	0%	96.7%	94.1%	0%	0%	96.2%	0%	95.5%	0%	97.1%	0%	96.5%	-	-
Single-Unit Trucks	0	3	0	0	3	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	1	0	1	-	-
Single-Unit Trucks %	0%	2.1%	0%	0%	1.6%	0%	0%	0%	0%	0%	0%	0%	3.3%	5.9%	0%	0%	3.8%	0%	0%	0%	2.9%	0%	1.8%	-	-
Buses	1	5	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	-	-
Buses %	2.4%	3.5%	0%	0%	3.2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4.5%	0%	0%	0%	1.8%	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



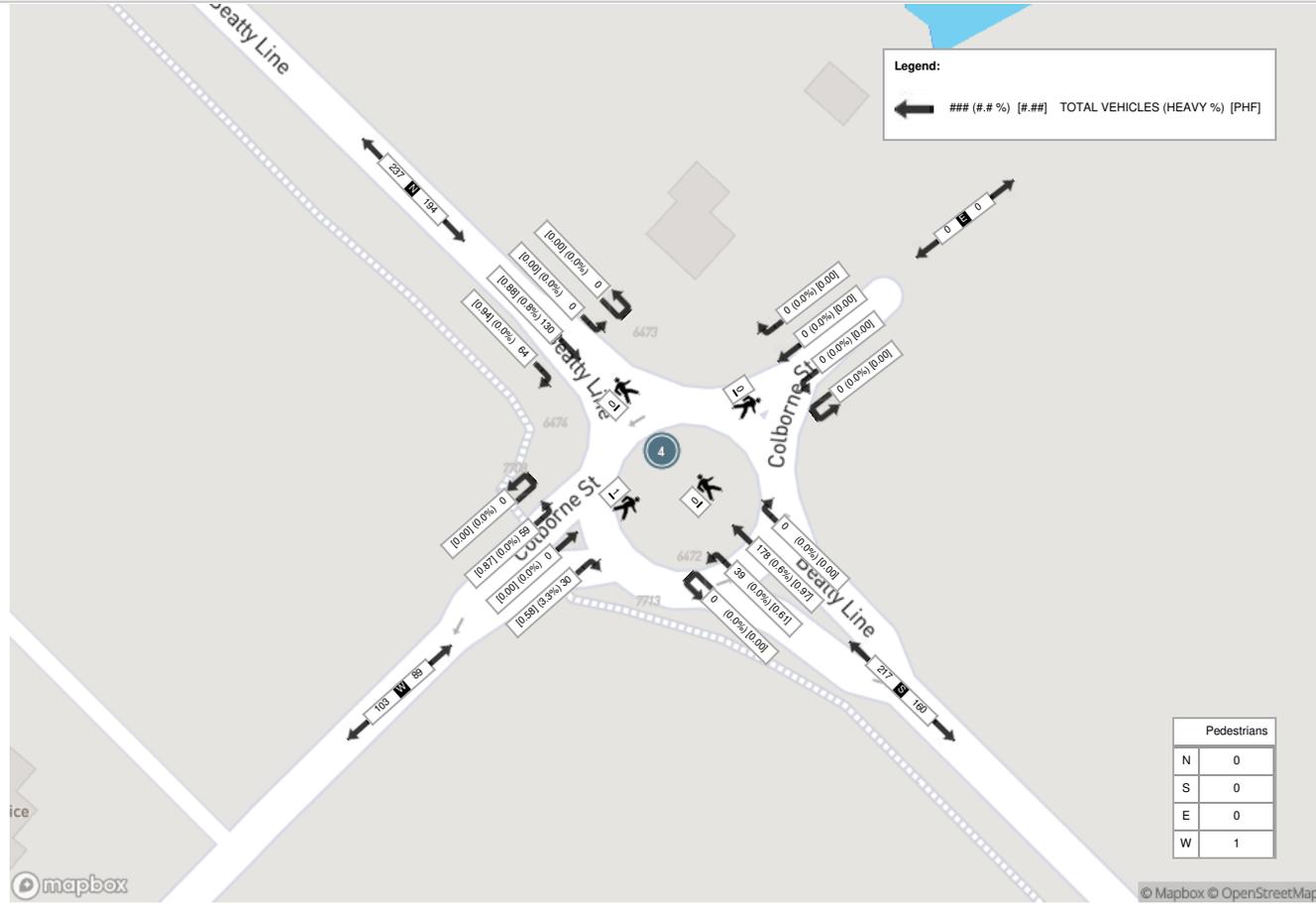
Peak Hour: 04:15 PM - 05:15 PM Weather: Few Clouds (-3.1 °C)

Start Time	N Approach						E Approach						S Approach						W Approach						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	16	26	0	0	0	42	0	0	0	0	0	0	0	42	12	0	0	54	6	0	17	0	0	23	119
16:30:00	16	36	0	0	0	52	0	0	0	0	0	0	0	45	5	0	0	50	13	0	16	0	0	29	131
16:45:00	17	37	0	0	0	54	0	0	0	0	0	0	0	45	6	0	0	51	8	0	15	0	1	23	128
17:00:00	15	31	0	0	0	46	0	0	0	0	0	0	0	46	16	0	0	62	3	0	11	0	0	14	122
Grand Total	64	130	0	0	0	194	0	0	0	0	0	0	0	178	39	0	0	217	30	0	59	0	1	89	500
Approach%	33%	67%	0%	0%	-	-	0%	0%	0%	0%	-	0%	82%	18%	0%	-	-	33.7%	0%	66.3%	0%	-	-	-	
Totals %	12.8%	26%	0%	0%	38.8%	0%	0%	0%	0%	0%	0%	0%	35.6%	7.8%	0%	43.4%	6%	0%	11.8%	0%	17.8%	-	-	-	
PHF	0.94	0.88	0	0	0.9	0	0	0	0	0	0	0	0.97	0.61	0	0.88	0.58	0	0.87	0	0.77	-	-	-	
Heavy	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	-	-	-	
Heavy %	0%	0.8%	0%	0%	0.5%	0%	0%	0%	0%	0%	0%	0%	0.6%	0%	0%	0.5%	3.3%	0%	0%	0%	1.1%	-	-	-	
Lights	64	129	0	0	193	0	0	0	0	0	0	0	177	39	0	216	29	0	59	0	88	-	-	-	
Lights %	100%	99.2%	0%	0%	99.5%	0%	0%	0%	0%	0%	0%	0%	99.4%	100%	0%	99.5%	96.7%	0%	100%	0%	98.9%	-	-	-	
Single-Unit Trucks	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	-	-	-	
Single-Unit Trucks %	0%	0.8%	0%	0%	0.5%	0%	0%	0%	0%	0%	0%	0%	0.6%	0%	0%	0.5%	3.3%	0%	0%	0%	1.1%	-	-	-	
Buses	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%	-	-	-	
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	1	-	-	-	
Pedestrians%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	100%	-	-	-	
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	-	0	0	1	0	0	-	0	0	0	0	-	-	-	
Bicycles on Road%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	0%	-	-	-	

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (-5.97 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Few Clouds (-3.1 °C)





Turning Movement Count (3 . BEATTY LINE N & ELLIOT AVE E / MILLAGE LN)

Start Time	N Approach BEATTY LINE						E Approach MILLAGE LN						S Approach BEATTY LINE						W Approach ELLIOT AVE E						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
07:00:00	0	15	0	0	0	15	6	2	2	0	0	10	1	3	3	0	0	7	14	1	0	0	0	15	47	
07:15:00	1	13	0	0	0	14	1	5	4	0	1	10	3	13	13	0	0	29	6	2	0	0	1	8	61	
07:30:00	0	14	0	0	0	14	4	6	4	0	0	14	1	14	7	0	0	22	20	4	2	0	0	26	76	
07:45:00	2	20	7	0	1	29	3	6	9	0	3	18	7	5	4	0	2	16	12	0	0	1	4	13	76	260
08:00:00	1	16	0	0	1	17	6	2	7	0	0	15	2	11	8	0	0	21	16	4	2	0	0	22	75	288
08:15:00	3	28	2	0	1	33	2	3	6	0	0	11	6	8	4	0	1	18	21	9	3	0	2	33	95	322
08:30:00	3	18	0	0	0	21	2	6	5	0	1	13	5	13	6	0	0	24	24	13	4	0	0	41	99	345
08:45:00	1	29	2	0	0	32	3	13	2	0	1	18	8	18	5	0	1	31	13	4	4	0	0	21	102	371
BREAK																										
16:00:00	1	25	8	0	0	34	4	8	6	0	1	18	5	25	14	0	1	44	5	8	1	0	0	14	110	
16:15:00	4	19	5	0	0	28	5	3	10	0	1	18	9	32	17	0	1	58	15	4	0	0	0	19	123	
16:30:00	0	24	4	0	0	28	2	9	7	0	7	18	18	32	12	0	4	62	20	6	0	0	0	26	134	
16:45:00	0	23	7	0	0	30	4	14	9	0	0	27	19	26	11	0	0	56	24	4	3	0	0	31	144	511
17:00:00	3	23	7	0	0	33	7	8	9	0	0	24	7	40	15	0	0	62	14	11	0	0	0	25	144	545
17:15:00	2	21	8	0	0	31	2	13	5	0	0	20	4	21	19	0	0	44	16	9	2	0	1	27	122	544
17:30:00	1	20	5	0	1	26	2	5	1	0	0	8	4	17	17	0	0	38	10	5	4	0	0	19	91	501
17:45:00	6	18	6	0	0	30	1	7	7	0	3	15	10	21	12	0	3	43	12	3	4	0	1	19	107	464
Grand Total	28	326	61	0	4	415	54	110	93	0	18	257	109	299	167	0	13	575	242	87	29	1	9	359	1606	-
Approach%	6.7%	78.6%	14.7%	0%	-	-	21%	42.8%	36.2%	0%	-	-	19%	52%	29%	0%	-	67.4%	24.2%	8.1%	0.3%	-	-	-	-	-
Totals %	1.7%	20.3%	3.8%	0%	25.8%	3.4%	6.8%	5.8%	0%	16%	6.8%	18.6%	10.4%	0%	35.8%	15.1%	5.4%	1.8%	0.1%	22.4%	-	-	-	-	-	-
Heavy	4	8	1	0	-	2	0	0	0	-	1	3	2	0	-	4	1	0	0	-	-	-	-	-	-	-
Heavy %	14.3%	2.5%	1.6%	0%	-	3.7%	0%	0%	0%	-	0.9%	1%	1.2%	0%	-	1.7%	1.1%	0%	0%	-	-	-	-	-	-	-
Bicycles	0	0	0	0	-	0	1	0	0	-	0	0	0	0	-	0	0	0	0	-	-	-	-	-	-	-
Bicycle %	0%	0%	0%	0%	-	0%	0.9%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	-	-	-	-	-



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (-5.97 °C)

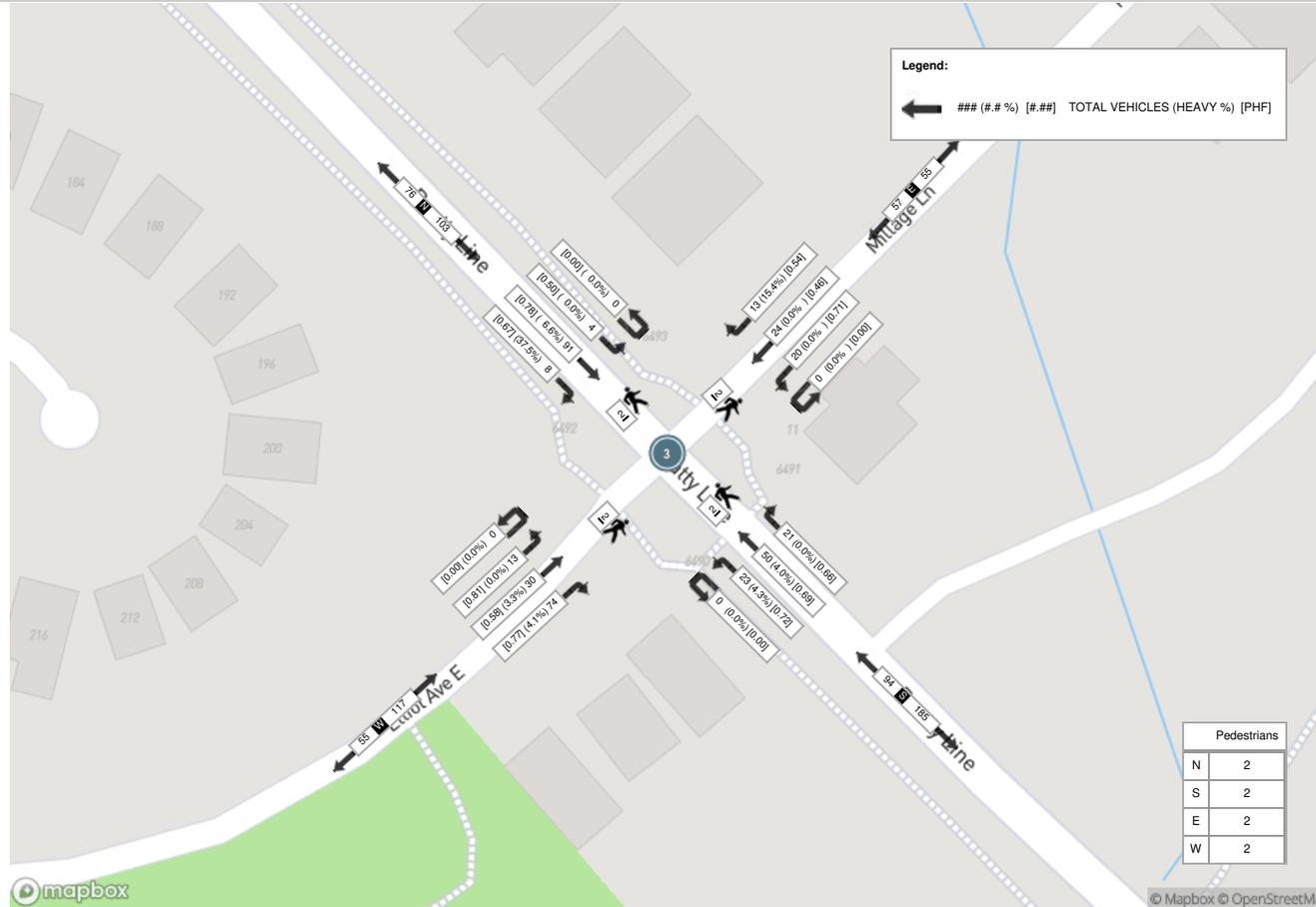
Start Time	N Approach BEATTY LINE						E Approach MILLAGE LN						S Approach BEATTY LINE						W Approach ELLIOT AVE E						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
08:00:00	1	16	0	0	1	17	6	2	7	0	0	15	2	11	8	0	0	21	16	4	2	0	0	22	75
08:15:00	3	28	2	0	1	33	2	3	6	0	0	11	6	8	4	0	1	18	21	9	3	0	2	33	95
08:30:00	3	18	0	0	0	21	2	6	5	0	1	13	5	13	6	0	0	24	24	13	4	0	0	41	99
08:45:00	1	29	2	0	0	32	3	13	2	0	1	18	8	18	5	0	1	31	13	4	4	0	0	21	102
Grand Total	8	91	4	0	2	103	13	24	20	0	2	57	21	50	23	0	2	94	74	30	13	0	2	117	371
Approach%	7.8%	88.3%	3.9%	0%	-	-	22.8%	42.1%	35.1%	0%	-	-	22.3%	53.2%	24.5%	0%	-	-	63.2%	25.6%	11.1%	0%	-	-	-
Totals %	2.2%	24.5%	1.1%	0%	27.8%	27.8%	3.5%	6.5%	5.4%	0%	15.4%	15.4%	5.7%	13.5%	6.2%	0%	25.3%	25.3%	19.9%	8.1%	3.5%	0%	31.5%	31.5%	-
PHF	0.67	0.78	0.5	0	0.78	0.78	0.54	0.46	0.71	0	0.79	0.79	0.66	0.69	0.72	0	0.76	0.76	0.77	0.58	0.81	0	0.71	0.71	-
Heavy	3	6	0	0	9	9	2	0	0	0	2	2	0	2	1	0	3	3	3	1	0	0	4	4	-
Heavy %	37.5%	6.6%	0%	0%	8.7%	8.7%	15.4%	0%	0%	0%	3.5%	3.5%	0%	4%	4.3%	0%	3.2%	3.2%	4.1%	3.3%	0%	0%	3.4%	3.4%	-
Lights	5	85	4	0	94	94	11	24	20	0	55	55	21	48	22	0	91	91	71	29	13	0	113	113	-
Lights %	62.5%	93.4%	100%	0%	91.3%	91.3%	84.6%	100%	100%	0%	96.5%	96.5%	100%	96%	95.7%	0%	96.8%	96.8%	95.9%	96.7%	100%	0%	96.6%	96.6%	-
Single-Unit Trucks	0	3	0	0	3	3	0	0	0	0	0	0	0	2	1	0	3	3	0	0	0	0	0	0	-
Single-Unit Trucks %	0%	3.3%	0%	0%	2.9%	2.9%	0%	0%	0%	0%	0%	0%	0%	4%	4.3%	0%	3.2%	3.2%	0%	0%	0%	0%	0%	0%	-
Buses	3	3	0	0	6	6	2	0	0	0	2	2	0	0	0	0	0	0	3	1	0	0	4	4	-
Buses %	37.5%	3.3%	0%	0%	5.8%	5.8%	15.4%	0%	0%	0%	3.5%	3.5%	0%	0%	0%	0%	0%	0%	4.1%	3.3%	0%	0%	3.4%	3.4%	-
Pedestrians	-	-	-	-	2	2	-	-	-	-	2	2	-	-	-	-	2	2	-	-	-	-	2	2	-
Pedestrians%	-	-	-	-	25%	25%	-	-	-	-	25%	25%	-	-	-	-	25%	25%	-	-	-	-	25%	25%	-
Bicycles on Road	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 on Road%	-	-	-	-	0%	0%	-	-	-	-	0%	0%	-	-	-	-	0%	0%	-	-	-	-	0%	0%	-



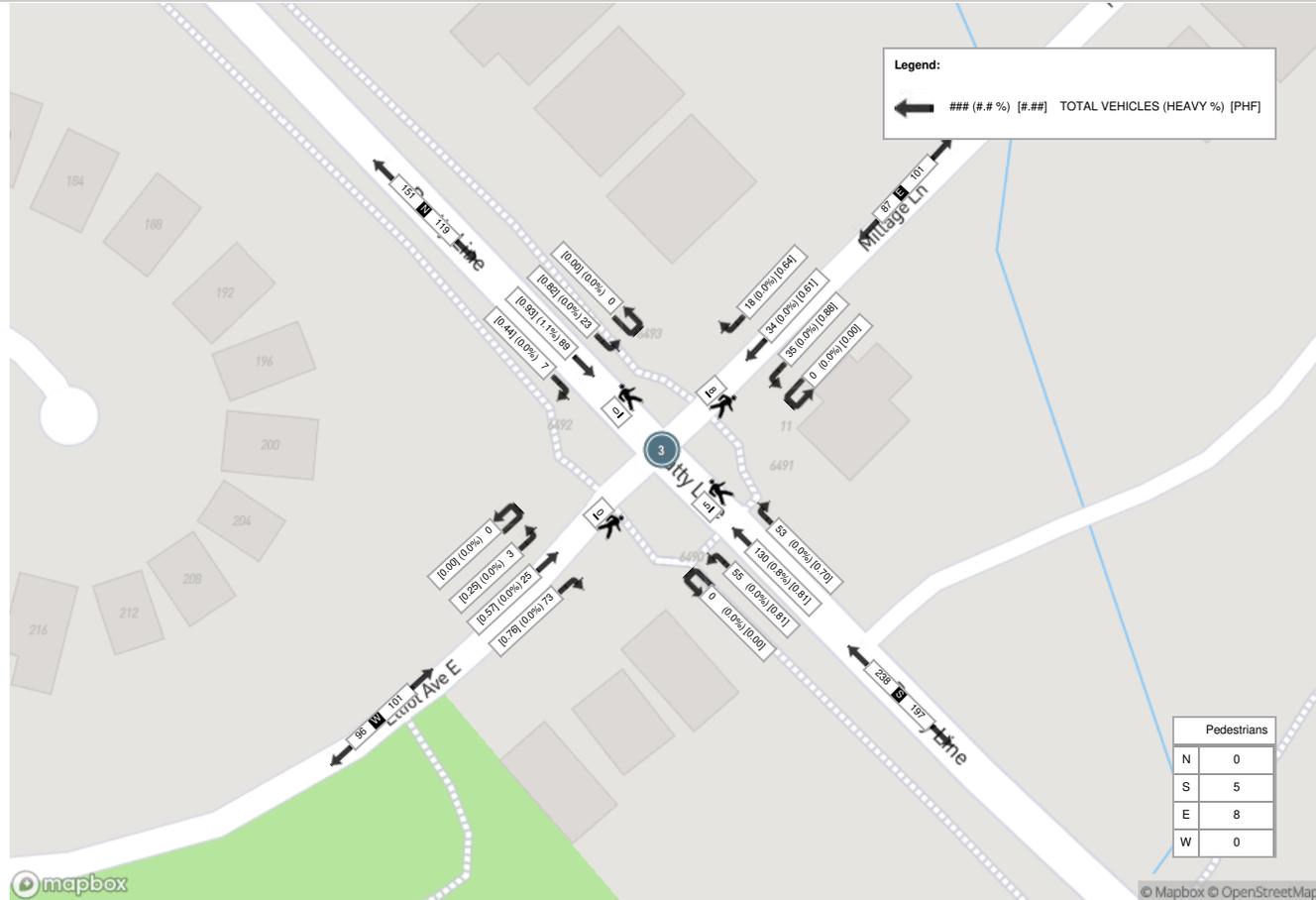
Peak Hour: 04:15 PM - 05:15 PM Weather: Few Clouds (-3.1 °C)

Start Time	N Approach BEATTY LINE						E Approach MILLAGE LN						S Approach BEATTY LINE						W Approach ELLIOT AVE E						Int. Total (15 min)	
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total		
16:15:00	4	19	5	0	0	28	5	3	10	0	1	18	9	32	17	0	1	58	15	4	0	0	0	19	123	
16:30:00	0	24	4	0	0	28	2	9	7	0	7	18	18	32	12	0	4	62	20	6	0	0	0	26	134	
16:45:00	0	23	7	0	0	30	4	14	9	0	0	27	19	26	11	0	0	56	24	4	3	0	0	31	144	
17:00:00	3	23	7	0	0	33	7	8	9	0	0	24	7	40	15	0	0	62	14	11	0	0	0	25	144	
Grand Total	7	89	23	0	0	119	18	34	35	0	8	87	53	130	55	0	5	238	73	25	3	0	0	101	545	
Approach%	5.9%	74.8%	19.3%	0%		-	20.7%	39.1%	40.2%	0%		-	22.3%	54.6%	23.1%	0%		-	72.3%	24.8%	3%	0%		-	-	
Totals %	1.3%	16.3%	4.2%	0%		21.8%	3.3%	6.2%	6.4%	0%		16%	9.7%	23.9%	10.1%	0%		43.7%	13.4%	4.6%	0.6%	0%		18.5%	-	
PHF	0.44	0.93	0.82	0		0.9	0.64	0.61	0.88	0		0.81	0.7	0.81	0.81	0		0.96	0.76	0.57	0.25	0		0.81	-	
Heavy	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	-	
Heavy %	0%	1.1%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0.8%	0%	0%		0.4%	0%	0%	0%	0%		0%	-	
Lights	7	88	23	0		118	18	34	35	0		87	53	129	55	0		237	73	25	3	0		101	-	
Lights %	100%	98.9%	100%	0%		99.2%	100%	100%	100%	0%		100%	100%	99.2%	100%	0%		99.6%	100%	100%	100%	0%		100%	-	
Single-Unit Trucks	0	1	0	0		1	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	-	
Single-Unit Trucks %	0%	1.1%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0.8%	0%	0%		0.4%	0%	0%	0%	0%		0%	-	
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-	
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-	
Pedestrians	-	-	-	-	0		-	-	-	-	8		-	-	-	-	5		-	-	-	-	0		-	-
Pedestrians%	-	-	-	-	0%		-	-	-	-	61.5%		-	-	-	-	38.5%		-	-	-	-	0%		-	-
Bicycles on Road	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		-	-
Bicycles on Road%	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	0%		-	-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (-5.97 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Few Clouds (-3.1 °C)



Appendix D: Operations Analysis Outputs (Synchro and SIDRA)



HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR												
Lane Configurations	↕			↕			↕			↕														
Traffic Volume (veh/h)	5	105	55	10	125	0	95	0	15	5	0	0												
Future Volume (Veh/h)	5	105	55	10	125	0	95	0	15	5	0	0												
Sign Control	Free			Free			Stop			Stop														
Grade	0%			0%			0%			0%														
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77												
Hourly flow rate (vph)	6	136	71	13	162	0	123	0	19	6	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)																								
pX, platoon unblocked																								
vC, conflicting volume	162			207			372			372			172			390			407			162		
vC1, stage 1 conf vol																								
vC2, stage 2 conf vol																								
vCu, unblocked vol	162			207			372			372			172			390			407			162		
tC, single (s)	4.4			4.2			7.2			6.5			6.3			7.6			6.5			6.2		
tC, 2 stage (s)																								
tF (s)	2.5			2.3			3.6			4.0			3.4			4.0			4.0			3.3		
p0 queue free %	100			99			78			100			98			99			100			100		
cM capacity (veh/h)	1249			1296			570			553			844			475			529			888		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																				
Volume Total	213	175	142	6																				
Volume Left	6	13	123	6																				
Volume Right	71	0	19	0																				
cSH	1249	1296	596	475																				
Volume to Capacity	0.00	0.01	0.24	0.01																				
Queue Length 95th (m)	0.1	0.2	7.4	0.3																				
Control Delay (s)	0.3	0.7	12.9	12.7																				
Lane LOS	A	A	B	B																				
Approach Delay (s)	0.3	0.7	12.9	12.7																				
Approach LOS	B		B																					
Intersection Summary																								
Average Delay	3.9																							
Intersection Capacity Utilization	23.4%			ICU Level of Service			A																	
Analysis Period (min)	15																							

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR												
Lane Configurations	↕			↕			↕			↕														
Traffic Volume (veh/h)	45	40	35	25	65	25	20	40	10	5	35	25												
Future Volume (Veh/h)	45	40	35	25	65	25	20	40	10	5	35	25												
Sign Control	Stop			Stop			Free			Free														
Grade	0%			0%			0%			0%														
Peak Hour 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												
Hourly flow rate (vph)	45	40	35	25	65	25	20	40	10	5	35	25												
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	200			148			48			198			155			45			60			50		
vC1, stage 1 conf vol																								
vC2, stage 2 conf vol																								
vCu, unblocked vol	200			148			48			198			155			45			60			50		
tC, single (s)	7.2			6.5			6.4			7.3			6.6			6.3			4.2			4.2		
tC, 2 stage (s)																								
tF (s)	3.6			4.0			3.5			3.7			4.1			3.4			2.3			2.3		
p0 queue free %	93			95			96			96			91			98			99			100		
cM capacity (veh/h)	671			735			978			666			707			1005			1494			1483		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																				
Volume Total	120	115	70	65																				
Volume Left	45	25	20	5																				
Volume Right	35	25	10	25																				
cSH	763	745	1494	1483																				
Volume to Capacity	0.16	0.15	0.01	0.00																				
Queue Length 95th (m)	4.4	4.4	0.3	0.1																				
Control Delay (s)	10.6	10.7	2.2	0.6																				
Lane LOS	B	B	A	A																				
Approach Delay (s)	10.6	10.7	2.2	0.6																				
Approach LOS	B		B																					
Intersection Summary																								
Average Delay	7.3																							
Intersection Capacity Utilization	27.3%			ICU Level of Service			A																	
Analysis Period (min)	15																							

HCM Unsignalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Existing AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔		↔		↔		↔		↔		↔		
Traffic Volume (veh/h)	15	30	75	20	25	15	25	50	20	5	90	10	
Future Volume (Veh/h)	15	30	75	20	25	15	25	50	20	5	90	10	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Hourly flow rate (vph)	16	33	82	22	27	16	27	55	22	5	99	11	
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	253	246	104	328	240	66	110						77
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	253	246	104	328	240	66	110						77
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.4	4.1						4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.4	2.2						2.2
p0 queue free %	98	95	91	96	96	98	98						100
cM capacity (veh/h)	660	641	945	543	650	963	1468						1535
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	16	115	65	27	77	5	110						
Volume Left	16	0	22	27	0	5	0						
Volume Right	0	82	16	0	22	0	11						
cSH	660	832	659	1468	1700	1535	1700						
Volume to Capacity	0.02	0.14	0.10	0.02	0.05	0.00	0.06						
Queue Length 95th (m)	0.6	3.8	2.6	0.4	0.0	0.1	0.0						
Control Delay (s)	10.6	10.0	11.1	7.5	0.0	7.4	0.0						
Lane LOS	B	B	B	A		A							
Approach Delay (s)	10.1		11.1	1.9		0.3							
Approach LOS	B		B										
Intersection Summary													
Average Delay	5.5												
Intersection Capacity Utilization	24.7%			ICU Level of Service			A						
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔		↔		↔		↔		↔		↔		
Traffic Volume (veh/h)	0	160	80	5	145	0	75	5	10	0	5	0	
Future Volume (Veh/h)	0	160	80	5	145	0	75	5	10	0	5	0	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	0	168	84	5	153	0	79	5	11	0	5	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	153			252				376	373	210	386	415	153
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	153			252				376	373	210	386	415	153
tC, single (s)	4.1			4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2			2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100				86	99	99	100	99	100
cM capacity (veh/h)	1440			1325				580	558	835	563	529	898
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	252	158	95	5									
Volume Left	0	5	79	0									
Volume Right	84	0	11	0									
cSH	1440	1325	600	529									
Volume to Capacity	0.00	0.00	0.16	0.01									
Queue Length 95th (m)	0.0	0.1	4.5	0.2									
Control Delay (s)	0.0	0.3	12.1	11.9									
Lane LOS		A	B	B									
Approach Delay (s)	0.0	0.3	12.1	11.9									
Approach LOS			B	B									
Intersection Summary													
Average Delay	2.5												
Intersection Capacity Utilization	31.7%			ICU Level of Service			A						
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	30	75	30	20	50	10	35	50	35	15	45	30
Future Volume (Veh/h)	30	75	30	20	50	10	35	50	35	15	45	30
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	34	86	34	23	57	11	40	57	40	17	52	34
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	300	280	69	337	277	77	86			97		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	300	280	69	337	277	77	86			97		
tC, single (s)	*6.8	*5.8	*6.0	*6.7	*6.2	*6.1	4.1			4.2		
tC, 2 stage (s)												
tF (s)	*2.9	*3.8	*3.2	*3.2	*3.7	*3.1	2.2			2.3		
p0 queue free %	95	87	97	96	91	99	97			99		
cM capacity (veh/h)	713	671	1034	589	668	1053	1523			1472		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	154	91	137	103								
Volume Left	34	23	40	17								
Volume Right	34	11	40	34								
cSH	738	675	1523	1472								
Volume to Capacity	0.21	0.13	0.03	0.01								
Queue Length 95th (m)	6.3	3.7	0.6	0.3								
Control Delay (s)	11.2	11.2	2.3	1.3								
Lane LOS	B	B	A	A								
Approach Delay (s)	11.2	11.2	2.3	1.3								
Approach LOS	B	B										
Intersection Summary												
Average Delay			6.6									
Intersection Capacity Utilization			27.6%		ICU Level of Service				A			
Analysis Period (min)			15									
* User Entered Value												

HCM Unsignalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Existing PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	25	75	35	35	20	55	130	55	25	90	5
Future Volume (Veh/h)	5	25	75	35	35	20	55	130	55	25	90	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	5	26	79	37	37	21	58	137	58	26	95	5
Pedestrians												
Lane Width (m)					3.6			3.6				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					1			0				
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	442	470	102	536	444	176	100			205		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	442	470	102	536	444	176	100			205		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	94	92	90	92	98	96			98		
cM capacity (veh/h)	462	462	954	378	478	865	1505			1367		
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2					
Volume Total	5	105	95	58	195	26	100					
Volume Left	5	0	37	58	0	26	0					
Volume Right	0	79	21	0	58	0	5					
cSH	462	755	476	1505	1700	1367	1700					
Volume to Capacity	0.01	0.14	0.20	0.04	0.11	0.02	0.06					
Queue Length 95th (m)	0.3	3.9	5.9	1.0	0.0	0.5	0.0					
Control Delay (s)	12.9	10.5	14.4	7.5	0.0	7.7	0.0					
Lane LOS	B	B	B	A		A						
Approach Delay (s)	10.6		14.4	1.7		1.6						
Approach LOS	B		B									
Intersection Summary												
Average Delay					5.4							
Intersection Capacity Utilization					36.3%		ICU Level of Service		A			
Analysis Period (min)					15							

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Future Background AM Peak Hour - 5 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	105	70	20	125	0	130	0	20	5	0	0
Future Volume (Veh/h)	5	105	70	20	125	0	130	0	20	5	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	6	136	91	26	162	0	169	0	26	6	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)												
pX, platoon unblocked												
vC, conflicting volume	162			227			408	408	182	434	453	162
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162			227			408	408	182	434	453	162
tC, single (s)	4.4			4.2			7.2	6.5	6.3	7.6	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.5			2.3			3.6	4.0	3.4	4.0	4.0	3.3
p0 queue free %	100			98			68	100	97	99	100	100
cM capacity (veh/h)	1249			1274			535	523	834	436	493	888
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	233	188	195	6								
Volume Left	6	26	169	6								
Volume Right	91	0	26	0								
cSH	1249	1274	562	436								
Volume to Capacity	0.00	0.02	0.35	0.01								
Queue Length 95th (m)	0.1	0.5	12.3	0.3								
Control Delay (s)	0.2	1.2	14.8	13.4								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.2	1.2	14.8	13.4								
Approach LOS			B	B								
Intersection Summary												
Average Delay				5.2								
Intersection Capacity Utilization				30.8%	ICU Level of Service	A						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Future Background AM Peak Hour - 5 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	80	100	70	30	85	25	25	65	15	5	50	35
Future Volume (Veh/h)	80	100	70	30	85	25	25	65	15	5	50	35
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour 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
Hourly flow rate (vph)	80	100	70	30	85	25	25	65	15	5	50	35
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	268	208	68	320	218	72	85				80	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	268	208	68	320	218	72	85				80	
tC, single (s)	7.2	6.5	6.4	7.3	6.6	6.3	4.2				4.2	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.7	4.1	3.4	2.3				2.3	
p0 queue free %	86	85	93	94	87	97	98				100	
cM capacity (veh/h)	584	679	953	489	650	970	1462				1445	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	250	140	105	90								
Volume Left	80	30	25	5								
Volume Right	70	25	15	35								
cSH	699	643	1462	1445								
Volume to Capacity	0.36	0.22	0.02	0.00								
Queue Length 95th (m)	13.0	6.6	0.4	0.1								
Control Delay (s)	13.0	12.2	1.9	0.4								
Lane LOS	B	B	A	A								
Approach Delay (s)	13.0	12.2	1.9	0.4								
Approach LOS	B	B										
Intersection Summary												
Average Delay				8.9								
Intersection Capacity Utilization				39.7%	ICU Level of Service	A						
Analysis Period (min)				15								

Queues

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Background AM Peak Hour - 5 Year

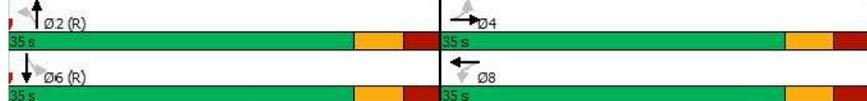


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	75	35	50	65	85	5	145
Future Volume (vph)	15	75	35	50	65	85	5	145
Lane Group Flow (vph)	16	296	0	109	71	186	5	181
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6	
Permitted Phases	4		8		2		6	
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.03	0.38	0.18	0.15	0.25	0.01	0.27	
Control Delay	13.1	6.1	12.7	14.6	8.7	12.8	14.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	13.1	6.1	12.7	14.6	8.7	12.8	14.4	
Queue Length 50th (m)	1.3	6.9	8.1	6.1	8.5	0.4	15.1	
Queue Length 95th (m)	4.8	22.0	17.8	14.1	20.8	2.3	28.6	
Internal Link Dist (m)	50.8		84.7		232.2		767.7	
Turn Bay Length (m)	30.0				55.0		55.0	
Base Capacity (vph)	522	782	608	470	740	486	680	
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	0.03	0.38	0.18	0.15	0.25	0.01	0.27	

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed

Splits and Phases: 3: Beatty Line & Elliot Avenue E/Millage Lane



HCM Signalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Background AM Peak Hour - 5 Year



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	75	195	35	50	15	65	85	85	5	145	20
Future Volume (vph)	15	75	195	35	50	15	65	85	85	5	145	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89			0.98		1.00	0.93		1.00	0.98	
Fit Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1633			1791		1736	1723		1805	1684	
Fit Permitted	0.69	1.00			0.82		0.64	1.00		0.64	1.00	
Satd. Flow (perm)	1305	1633			1499		1175	1723		1217	1684	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	82	214	38	55	16	71	93	93	5	159	22
RTOR Reduction (vph)	0	128	0	0	9	0	0	52	0	0	7	0
Lane Group Flow (vph)	16	168	0	0	100	0	71	134	0	5	174	0
Heavy Vehicles (%)	0%	3%	4%	0%	0%	15%	4%	4%	0%	0%	7%	38%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	4			8			2			6		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Grp Cap (vph)	522	653		599	470		689	486		673		
v/s Ratio Prot	c0.10			0.07			0.06			0.00		
v/s Ratio Perm	0.01			0.17			0.15	0.20		0.01	0.26	
Uniform Delay, d1	12.8	14.0		13.5	13.4		13.7	12.7		14.1		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.9		0.6	0.7		0.6	0.0		0.9		
Delay (s)	12.9	15.0		14.1	14.1		14.3	12.7		15.0		
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)	14.9			14.1			14.2			14.9		
Approach LOS	B			B			B			B		

Intersection Summary

HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Future Background AM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Volume (veh/h)	5	105	80	20	125	0	135	0	20	5	0	0
Future Volume (Veh/h)	5	105	80	20	125	0	135	0	20	5	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	6	136	104	26	162	0	175	0	26	6	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)												
pX, platoon unblocked												
vC, conflicting volume	162			240			414			414		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162			240			414			414		
tC, single (s)	4.4			4.2			7.2			6.5		
tC, 2 stage (s)												
tF (s)	2.5			2.3			3.6			4.0		
p0 queue free %	100			98			67			100		
cM capacity (veh/h)	1249			1259			529			518		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	246	188	201	6								
Volume Left	6	26	175	6								
Volume Right	104	0	26	0								
cSH	1249	1259	555	431								
Volume to Capacity	0.00	0.02	0.36	0.01								
Queue Length 95th (m)	0.1	0.5	13.1	0.3								
Control Delay (s)	0.2	1.3	15.1	13.5								
Lane LOS	A	A	C	B								
Approach Delay (s)	0.2	1.3	15.1	13.5								
Approach LOS	C			B								
Intersection Summary												
Average Delay	5.3											
Intersection Capacity Utilization	31.3%			ICU Level of Service	A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Future Background AM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Volume (veh/h)	80	100	70	30	85	25	25	70	15	5	60	35
Future Volume (Veh/h)	80	100	70	30	85	25	25	70	15	5	60	35
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour 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
Hourly flow rate (vph)	80	100	70	30	85	25	25	70	15	5	60	35
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	282			222			78			335		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282			222			78			335		
tC, single (s)	7.2			6.5			6.4			7.3		
tC, 2 stage (s)												
tF (s)	3.6			4.0			3.5			3.7		
p0 queue free %	86			85			93			94		
cM capacity (veh/h)	570			666			941			477		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	250	140	110	100								
Volume Left	80	30	25	5								
Volume Right	70	25	15	35								
cSH	685	630	1450	1439								
Volume to Capacity	0.37	0.22	0.02	0.00								
Queue Length 95th (m)	13.4	6.8	0.4	0.1								
Control Delay (s)	13.2	12.3	1.8	0.4								
Lane LOS	B	B	A	A								
Approach Delay (s)	13.2	12.3	1.8	0.4								
Approach LOS	B		B									
Intersection Summary												
Average Delay	8.8											
Intersection Capacity Utilization	39.9%			ICU Level of Service	A							
Analysis Period (min)	15											

Queues

3: Beatty Line & Elliot Avenue E/Millage Lane

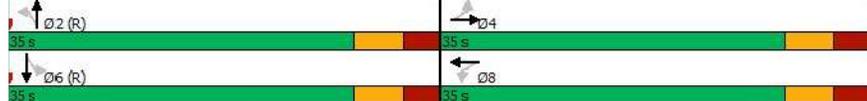
Future Background AM Peak Hour - 10 Year

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	75	35	50	65	90	5	155
Future Volume (vph)	15	75	35	50	65	90	5	155
Lane Group Flow (vph)	16	296	0	109	71	192	5	192
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6	
Permitted Phases	4		8		2		6	
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.03	0.38	0.18	0.15	0.26	0.01	0.28	
Control Delay	13.1	6.1	12.7	14.6	9.2	12.8	14.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	13.1	6.1	12.7	14.6	9.2	12.8	14.7	
Queue Length 50th (m)	1.3	6.9	8.1	6.1	9.5	0.4	16.2	
Queue Length 95th (m)	4.8	22.0	17.8	14.1	22.2	2.3	30.3	
Internal Link Dist (m)	50.8		84.7		232.2		767.7	
Turn Bay Length (m)	30.0				55.0		55.0	
Base Capacity (vph)	522	782	608	465	739	484	682	
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	0.03	0.38	0.18	0.15	0.26	0.01	0.28	

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBL, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed

Splits and Phases: 3: Beatty Line & Elliot Avenue E/Millage Lane



HCM Signalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Background AM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	75	195	35	50	15	65	90	85	5	155	20
Future Volume (vph)	15	75	195	35	50	15	65	90	85	5	155	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.89		0.98	1.00		0.93	1.00		1.00	0.98	
Fit Protected	0.95	1.00		0.98	0.95		1.00	0.95		1.00	0.95	
Satd. Flow (prot)	1805	1633		1791	1736		1726	1805		1689	1689	
Fit Permitted	0.69	1.00		0.82	0.64		1.00	0.64		1.00	1.00	
Satd. Flow (perm)	1305	1633		1499	1163		1726	1210		1689	1689	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	82	214	38	55	16	71	99	93	5	170	22
RTOR Reduction (vph)	0	128	0	0	9	0	0	49	0	0	7	0
Lane Group Flow (vph)	16	168	0	0	100	0	71	143	0	5	185	0
Heavy Vehicles (%)	0%	3%	4%	0%	0%	15%	4%	4%	0%	0%	7%	38%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	4			8			2			6		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Grp Cap (vph)	522	653		599	465		690	484		675	675	
v/s Ratio Prot	c0.10			0.07			0.06			0.00		
v/s Ratio Perm	0.01			0.17	0.15		0.21	0.01		0.27		
Uniform Delay, d1	12.8	14.0		13.5	13.4		13.7	12.7		14.2		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.9		0.6	0.7		0.7	0.0		1.0		
Delay (s)	12.9	15.0		14.1	14.1		14.4	12.7		15.2		
Level of Service	B	B		B	B		B	B		B	B	
Approach Delay (s)	14.9			14.1			14.3			15.1		
Approach LOS	B			B			B			B		

Intersection Summary

HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Future Background PM Peak Hour - 5 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (veh/h)	0	160	160	15	145	0	115	5	10	0	5	0
Future Volume (Veh/h)	0	160	160	15	145	0	115	5	10	0	5	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	168	168	16	153	0	121	5	11	0	5	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	153			336			440	437	252	450	521	153
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	153			336			440	437	252	450	521	153
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			77	99	99	100	99	100
cM capacity (veh/h)	1440			1235			522	509	792	506	457	898
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	336	169	137	5								
Volume Left	0	16	121	0								
Volume Right	168	0	11	0								
cSH	1440	1235	536	457								
Volume to Capacity	0.00	0.01	0.26	0.01								
Queue Length 95th (m)	0.0	0.3	8.1	0.3								
Control Delay (s)	0.0	0.9	14.0	13.0								
Lane LOS		A	B	B								
Approach Delay (s)	0.0	0.9	14.0	13.0								
Approach LOS			B	B								
Intersection Summary												
Average Delay	3.3											
Intersection Capacity Utilization	40.7%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Future Background PM Peak Hour - 5 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↕		↕		↕		↕		↕		↕		
Traffic Volume (veh/h)	55	115	45	20	105	10	60	70	35	15	80	30	
Future Volume (Veh/h)	55	115	45	20	105	10	60	70	35	15	80	30	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	63	132	52	23	121	11	69	80	40	17	92	34	
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	452	401	109	499	398	100	126						120
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	452	401	109	499	398	100	126						120
tC, single (s)	*6.9	*5.8	*6.0	*6.7	*6.2	*6.1	4.1						4.2
tC, 2 stage (s)													
tF (s)	*2.9	*3.8	*3.2	*3.2	*3.7	*3.1	2.2						2.3
p0 queue free %	87	77	95	94	78	99	95						99
cM capacity (veh/h)	492	574	984	411	563	1023	1473						1443
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	247	155	189	143									
Volume Left	63	23	69	17									
Volume Right	52	11	40	34									
cSH	601	550	1473	1443									
Volume to Capacity	0.41	0.28	0.05	0.01									
Queue Length 95th (m)	16.0	9.2	1.2	0.3									
Control Delay (s)	15.1	14.1	3.0	1.0									
Lane LOS	C	B	A	A									
Approach Delay (s)	15.1	14.1	3.0	1.0									
Approach LOS	C	B											
Intersection Summary													
Average Delay	9.0												
Intersection Capacity Utilization	41.0%			ICU Level of Service			A						
Analysis Period (min)	15												

* User Entered Value

Queues

3: Beatty Line & Elliot Avenue E/Millage Lane

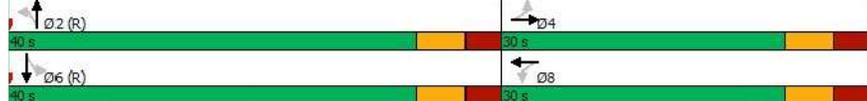
Future Background PM Peak Hour - 5 Year

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖↗	↖↗	↖	↗	↖	↗
Traffic Volume (vph)	5	55	85	75	185	190	25	145
Future Volume (vph)	5	55	85	75	185	190	25	145
Lane Group Flow (vph)	5	221	0	189	195	311	26	164
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6	
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.01	0.34		0.41	0.33	0.36	0.05	0.19
Control Delay	16.0	7.3		20.5	13.6	11.1	10.5	11.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	7.3		20.5	13.6	11.1	10.5	11.0
Queue Length 50th (m)	0.5	5.5		18.8	15.9	20.8	1.9	11.8
Queue Length 95th (m)	2.6	19.9		36.0	30.2	37.8	5.7	22.5
Internal Link Dist (m)		50.8		84.7		232.2		767.7
Turn Bay Length (m)	30.0				55.0		55.0	
Base Capacity (vph)	420	652		462	585	859	495	882
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	0.01	0.34		0.41	0.33	0.36	0.05	0.19

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed

Splits and Phases: 3: Beatty Line & Elliot Avenue E/Millage Lane



HCM Signalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Background PM Peak Hour - 5 Year

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	5	55	155	85	75	20	185	190	105	25	145	10
Future Volume (vph)	5	55	155	85	75	20	185	190	105	25	145	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98			1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.89			0.98		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1655			1823		1805	1764		1787	1863	
Flt Permitted	0.67	1.00			0.74		0.65	1.00		0.56	1.00	
Satd. Flow (perm)	1281	1655			1386		1241	1764		1051	1863	
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)	5	58	163	89	79	21	195	200	111	26	153	11
RTOR Reduction (vph)	0	109	0	0	7	0	0	29	0	0	4	0
Lane Group Flow (vph)	5	112	0	0	182	0	195	282	0	26	160	0
Confl. Peds. (#/hr)			5	5					10	10		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	NA	NA			NA		NA	NA		NA	NA	
Protected Phases	4		8		8		2		6		6	
Permitted Phases	4		8		8		2		6		6	
Actuated Green, G (s)	23.0	23.0			23.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	23.0	23.0			23.0		33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.33	0.33			0.33		0.47	0.47		0.47	0.47	
Clearance Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Grp Cap (vph)	420	543			455		585	831		495	878	
v/s Ratio Prot		0.07						c0.16			0.09	
v/s Ratio Perm	0.00				c0.13		0.16			0.02		
v/c Ratio	0.01	0.21			0.40		0.33	0.34		0.05	0.18	
Uniform Delay, d1	15.8	16.9			18.2		11.6	11.6		10.0	10.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.9			2.6		1.5	1.1		0.2	0.5	
Delay (s)	15.9	17.8			20.8		13.1	12.8		10.2	11.2	
Level of Service	B	B			C		B	B		B	B	
Approach Delay (s)		17.7			20.8		12.9			11.0		
Approach LOS		B			C		B			B		

Intersection Summary

HCM 2000 Control Delay: 14.9, HCM 2000 Level of Service: B
 HCM 2000 Volume to Capacity ratio: 0.36
 Actuated Cycle Length (s): 70.0, Sum of lost time (s): 14.0
 Intersection Capacity Utilization: 78.2%, ICU Level of Service: D
 Analysis Period (min): 15
 Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Future Background AM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (veh/h)	0	160	170	15	145	0	120	5	10	0	5	0
Future Volume (Veh/h)	0	160	170	15	145	0	120	5	10	0	5	0
Sign Control	Free				Free				Stop			
Grade	0%				0%				0%			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	168	179	16	153	0	126	5	11	0	5	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	153			347			445	442	258	456	532	153
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	153			347			445	442	258	456	532	153
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			76	99	99	100	99	100
cM capacity (veh/h)	1440			1223			517	506	786	502	450	898
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	347	169	142	5								
Volume Left	0	16	126	0								
Volume Right	179	0	11	0								
cSH	1440	1223	531	450								
Volume to Capacity	0.00	0.01	0.27	0.01								
Queue Length 95th (m)	0.0	0.3	8.6	0.3								
Control Delay (s)	0.0	0.9	14.2	13.1								
Lane LOS		A	B	B								
Approach Delay (s)	0.0	0.9	14.2	13.1								
Approach LOS			B	B								
Intersection Summary												
Average Delay	3.4											
Intersection Capacity Utilization	41.0%		ICU Level of Service		A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Future Background AM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↕		↕		↕		↕		↕		↕		
Traffic Volume (veh/h)	55	115	45	20	105	10	60	75	35	15	90	30	
Future Volume (Veh/h)	55	115	45	20	105	10	60	75	35	15	90	30	
Sign Control	Stop				Stop				Free				
Grade	0%				0%				0%				
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	63	132	52	23	121	11	69	86	40	17	103	34	
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	470	418	120	516	415	106	137						126
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	470	418	120	516	415	106	137						126
tC, single (s)	*6.9	*5.8	*6.0	*6.7	*6.2	*6.1	4.1						4.2
tC, 2 stage (s)													
tF (s)	*2.9	*3.8	*3.2	*3.2	*3.7	*3.1	2.2						2.3
p0 queue free %	87	77	95	94	78	99	95						99
cM capacity (veh/h)	477	563	971	398	551	1015	1459						1436
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	247	155	195	154									
Volume Left	63	23	69	17									
Volume Right	52	11	40	34									
cSH	588	538	1459	1436									
Volume to Capacity	0.42	0.29	0.05	0.01									
Queue Length 95th (m)	16.6	9.5	1.2	0.3									
Control Delay (s)	15.5	14.4	2.9	0.9									
Lane LOS	C	B	A	A									
Approach Delay (s)	15.5	14.4	2.9	0.9									
Approach LOS	C	B											
Intersection Summary													
Average Delay	9.0												
Intersection Capacity Utilization	41.2%		ICU Level of Service		A								
Analysis Period (min)	15												

* User Entered Value

Queues

3: Beatty Line & Elliot Avenue E/Millage Lane

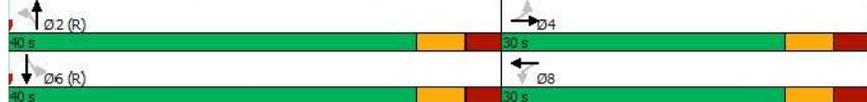
Future Background AM Peak Hour - 10 Year

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↔	↔	↖	↗	↖	↗
Traffic Volume (vph)	5	55	85	75	185	195	25	155
Future Volume (vph)	5	55	85	75	185	195	25	155
Lane Group Flow (vph)	5	221	0	189	195	316	26	174
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6	
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.01	0.34		0.41	0.34	0.37	0.05	0.20
Control Delay	16.0	7.3		20.5	13.7	11.2	10.5	11.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	7.3		20.5	13.7	11.2	10.5	11.1
Queue Length 50th (m)	0.5	5.5		18.8	16.0	21.3	1.9	12.7
Queue Length 95th (m)	2.6	19.9		36.0	30.4	38.6	5.7	23.7
Internal Link Dist (m)		50.8		84.7		232.2		767.7
Turn Bay Length (m)	30.0				55.0		55.0	
Base Capacity (vph)	420	652		462	579	860	491	882
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	0.01	0.34		0.41	0.34	0.37	0.05	0.20

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed

Splits and Phases: 3: Beatty Line & Elliot Avenue E/Millage Lane



HCM Signalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Background AM Peak Hour - 10 Year

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement	↖	↗	↔	↖	↗	↔	↖	↗	↔	↖	↗	↔
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	5	55	155	85	75	20	185	195	105	25	155	10
Future Volume (vph)	5	55	155	85	75	20	185	195	105	25	155	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98			1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.89			0.98		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1655			1823		1805	1766		1787	1865	
Flt Permitted	0.67	1.00			0.74		0.65	1.00		0.55	1.00	
Satd. Flow (perm)	1281	1655			1386		1230	1766		1041	1865	
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)	5	58	163	89	79	21	195	205	111	26	163	11
RTOR Reduction (vph)	0	109	0	0	7	0	0	28	0	0	4	0
Lane Group Flow (vph)	5	112	0	0	182	0	195	288	0	26	170	0
Confl. Peds. (#/hr)			5	5					10	10		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	4			8			2			6		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	23.0	23.0			23.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	23.0	23.0			23.0		33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.33	0.33			0.33		0.47	0.47		0.47	0.47	
Clearance Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Grp Cap (vph)	420	543			455		579	832		490	879	
v/s Ratio Prot		0.07					c0.16				0.09	
v/s Ratio Perm	0.00				c0.13		0.16			0.02		
v/c Ratio	0.01	0.21			0.40		0.34	0.35		0.05	0.19	
Uniform Delay, d1	15.8	16.9			18.2		11.6	11.7		10.0	10.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.9			2.6		1.6	1.1		0.2	0.5	
Delay (s)	15.9	17.8			20.8		13.2	12.8		10.2	11.3	
Level of Service	B	B			C		B	B		B	B	
Approach Delay (s)		17.7			20.8		13.0			11.1		
Approach LOS		B			C		B			B		

Intersection Summary

HCM 2000 Control Delay: 14.9, HCM 2000 Level of Service: B
 HCM 2000 Volume to Capacity ratio: 0.37
 Actuated Cycle Length (s): 70.0, Sum of lost time (s): 14.0
 Intersection Capacity Utilization: 78.2%, ICU Level of Service: D
 Analysis Period (min): 15
 Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Future Total AM Peak Hour - 5 Year

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	105	75	20	125	0	155	15	20	5	5	0
Future Volume (Veh/h)	5	105	75	20	125	0	155	15	20	5	5	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	6	136	97	26	162	0	201	19	26	6	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	162			233			414	410	184	446	459	162
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	162			233			414	410	184	446	459	162
tC, single (s)	4.4			4.2			7.2	6.5	6.3	7.6	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.5			2.3			3.6	4.0	3.4	4.0	4.0	3.3
p0 queue free %	100			98			62	96	97	99	99	100
cM capacity (veh/h)	1249			1267			525	521	830	415	489	888
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	239	188	246	12								
Volume Left	6	26	201	6								
Volume Right	97	0	26	0								
cSH	1249	1267	546	449								
Volume to Capacity	0.00	0.02	0.45	0.03								
Queue Length 95th (m)	0.1	0.5	18.5	0.7								
Control Delay (s)	0.2	1.2	16.9	13.2								
Lane LOS	A	A	C	B								
Approach Delay (s)	0.2	1.2	16.9	13.2								
Approach LOS			C	B								
Intersection Summary												
Average Delay			6.7									
Intersection Capacity Utilization			39.8%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Future Total AM Peak Hour - 5 Year

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Movement												
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	80	100	70	30	85	40	25	100	15	45	125	35
Future Volume (Veh/h)	80	100	70	30	85	40	25	100	15	45	125	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour 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
Hourly flow rate (vph)	80	100	70	30	85	40	25	100	15	45	125	35
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	472	398	142	510	408	108	160			115		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	472	398	142	510	408	108	160			115		
tC, single (s)	7.2	6.5	6.4	7.3	6.6	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.7	4.1	3.4	2.3			2.3		
p0 queue free %	80	81	92	91	83	96	98			97		
cM capacity (veh/h)	396	516	864	340	492	928	1372			1403		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	250	155	140	205								
Volume Left	80	30	25	45								
Volume Right	70	40	15	35								
cSH	524	510	1372	1403								
Volume to Capacity	0.48	0.30	0.02	0.03								
Queue Length 95th (m)	20.4	10.2	0.4	0.8								
Control Delay (s)	18.0	15.1	1.5	1.9								
Lane LOS	C	C	A	A								
Approach Delay (s)	18.0	15.1	1.5	1.9								
Approach LOS	C	C										
Intersection Summary												
Average Delay			9.9									
Intersection Capacity Utilization			45.9%		ICU Level of Service			A				
Analysis Period (min)			15									

Queues

3: Beatty Line & Elliot Avenue E/Millage Lane

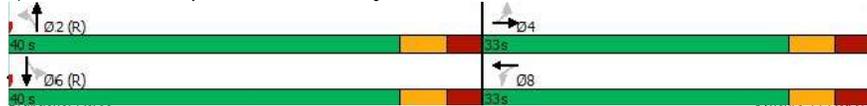
Future Total AM Peak Hour - 5 Year

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	15	75	35	50	95	120	5	220
Future Volume (vph)	15	75	35	50	95	120	5	220
Lane Group Flow (vph)	16	379	0	109	104	225	5	264
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	33.0	33.0	33.0	33.0	40.0	40.0	40.0	40.0
Total Split (%)	45.2%	45.2%	45.2%	45.2%	54.8%	54.8%	54.8%	54.8%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio	0.06	0.73		1.24	0.15	0.20	0.01	0.25
Control Delay	22.5	16.7		200.0	7.5	5.4	7.0	7.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	16.7		200.0	7.5	5.4	7.0	7.4
Queue Length 50th (m)	2.0	13.6		~20.4	4.8	7.5	0.2	12.7
Queue Length 95th (m)	6.0	36.2		#42.8	15.5	22.5	1.8	33.0
Internal Link Dist (m)		50.8		84.7		232.2		767.7
Turn Bay Length (m)	30.0			55.0		55.0		
Base Capacity (vph)	539	753		161	682	1115	736	1076
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	0.03	0.50		0.68	0.15	0.20	0.01	0.25

Intersection Summary

Cycle Length: 73
 Actuated Cycle Length: 73
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Beatty Line & Elliot Avenue E/Millage Lane



FT_AM.syn

HCM Signalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Total AM Peak Hour - 5 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	15	75	270	35	50	15	95	120	85	5	220	20
Future Volume (vph)	15	75	270	35	50	15	95	120	85	5	220	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.88		0.98	1.00		0.94	0.94		1.00	0.99	
Fit Protected	0.95	1.00		0.98	0.95		1.00	0.95		1.00	0.95	
Satd. Flow (prot)	1805	1616		1791	1736		1741	1805		1712	1712	
Fit Permitted	0.80	1.00		0.24	0.60		1.00	0.62		1.00	1.00	
Satd. Flow (perm)	1515	1616		431	1089		1741	1174		1712	1712	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	82	297	38	55	16	104	132	93	5	242	22
RTOR Reduction (vph)	0	227	0	0	11	0	0	23	0	0	3	0
Lane Group Flow (vph)	16	152	0	0	98	0	104	202	0	5	261	0
Heavy Vehicles (%)	0%	3%	4%	0%	0%	15%	4%	4%	0%	0%	7%	38%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.2	13.2		13.2	45.8		45.8	45.8		45.8	45.8	
Effective Green, g (s)	13.2	13.2		13.2	45.8		45.8	45.8		45.8	45.8	
Actuated g/C Ratio	0.18	0.18		0.18	0.63		0.63	0.63		0.63	0.63	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	273	292		77	683		1092	736		1074	1074	
v/s Ratio Prot		0.09					0.12				c0.15	
v/s Ratio Perm	0.01			c0.23	0.10			0.00				
v/c Ratio	0.06	0.52		1.28	0.15		0.18	0.01		0.24	0.24	
Uniform Delay, d1	24.8	27.0		29.9	5.6		5.7	5.1		6.0	6.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.7		194.0	0.5		0.4	0.0		0.5	0.5	
Delay (s)	24.8	28.7		223.9	6.1		6.1	5.1		6.5	6.5	
Level of Service	C	C		F	A		A	A		A	A	
Approach Delay (s)		28.6			223.9			6.1			6.5	
Approach LOS		C			F			A			A	

Intersection Summary

HCM 2000 Control Delay: 35.8, HCM 2000 Level of Service: D
 HCM 2000 Volume to Capacity ratio: 0.47
 Actuated Cycle Length (s): 73.0, Sum of lost time (s): 14.0
 Intersection Capacity Utilization: 73.4%, ICU Level of Service: D
 Analysis Period (min): 15
 c Critical Lane Group

Brubacher Acres

Synchro 11 Report

FT_AM.syn

HCM Unsignalized Intersection Capacity Analysis

10: Beatty Line

Future Total AM Peak Hour - 5 Year

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	115	50	150	90	10
Future Volume (Veh/h)	40	115	50	150	90	10
Sign Control	Stop		Free			
Grade	0%		0%			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	40	115	50	150	90	10
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	345	95	100			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	345	95	100			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	88	97			
cM capacity (veh/h)	634	967	1505			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	155	200	100			
Volume Left	40	50	0			
Volume Right	115	0	10			
cSH	852	1505	1700			
Volume to Capacity	0.18	0.03	0.06			
Queue Length 95th (m)	5.3	0.8	0.0			
Control Delay (s)	10.2	2.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.2	2.1	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	4.4					
Intersection Capacity Utilization	33.3%		ICU Level of Service	A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Future Total AM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	5	105	85	20	125	0	160	15	20	5	5	0	
Future Volume (Veh/h)	5	105	85	20	125	0	160	15	20	5	5	0	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	
Hourly flow rate (vph)	6	136	110	26	162	0	208	19	26	6	6	0	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type				None									
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	162			246				420	417	191	452	472	162
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	162			246				420	417	191	452	472	162
tC, single (s)	4.4			4.2				7.2	6.5	6.3	7.6	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.5			2.3				3.6	4.0	3.4	4.0	4.0	3.3
p0 queue free %	100			98				60	96	97	99	99	100
cM capacity (veh/h)	1249			1253				520	516	823	411	481	888
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	252	188	253	12									
Volume Left	6	26	208	6									
Volume Right	110	0	26	0									
cSH	1249	1253	540	443									
Volume to Capacity	0.00	0.02	0.47	0.03									
Queue Length 95th (m)	0.1	0.5	19.8	0.7									
Control Delay (s)	0.2	1.3	17.4	13.4									
Lane LOS	A	A	C	B									
Approach Delay (s)	0.2	1.3	17.4	13.4									
Approach LOS			C	B									
Intersection Summary													
Average Delay	6.9												
Intersection Capacity Utilization	40.5%			ICU Level of Service	A								
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Future Total AM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↕			↕				↕			↕		
Traffic Volume (veh/h)	80	100	70	30	85	40	25	105	15	45	135	35	
Future Volume (Veh/h)	80	100	70	30	85	40	25	105	15	45	135	35	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour 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	
Hourly flow rate (vph)	80	100	70	30	85	40	25	105	15	45	135	35	
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	488	412	152	525	422	112	170						120
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	488	412	152	525	422	112	170						120
tC, single (s)	7.2	6.5	6.4	7.3	6.6	6.3	4.2						4.2
tC, 2 stage (s)													
tF (s)	3.6	4.0	3.5	3.7	4.1	3.4	2.3						2.3
p0 queue free %	79	80	92	91	82	96	98						97
cM capacity (veh/h)	385	506	853	330	482	922	1360						1396
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	250	155	145	215									
Volume Left	80	30	25	45									
Volume Right	70	40	15	35									
cSH	513	499	1360	1396									
Volume to Capacity	0.49	0.31	0.02	0.03									
Queue Length 95th (m)	21.1	10.5	0.4	0.8									
Control Delay (s)	18.5	15.4	1.5	1.8									
Lane LOS	C	C	A	A									
Approach Delay (s)	18.5	15.4	1.5	1.8									
Approach LOS	C	C											
Intersection Summary													
Average Delay	10.0												
Intersection Capacity Utilization	46.6%				ICU Level of Service				A				
Analysis Period (min)	15												

Queues

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Total AM Peak Hour - 10 Year

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↕	↕		↕	↕	↕	↕	↕
Traffic Volume (vph)	15	75	35	50	95	125	5	230
Future Volume (vph)	15	75	35	50	95	125	5	230
Lane Group Flow (vph)	16	379	0	109	104	230	5	275
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6	
Permitted Phases	4		8		2		6	
Minimum Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.03	0.46		0.18	0.25	0.31	0.01	0.40
Control Delay	13.1	5.8		12.8	16.0	12.0	12.8	16.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	5.8		12.8	16.0	12.0	12.8	16.8
Queue Length 50th (m)	1.3	6.9		8.1	9.2	15.3	0.4	25.5
Queue Length 95th (m)	4.8	24.5		17.9	20.0	30.5	2.3	44.3
Internal Link Dist (m)	50.8		84.7		232.2		767.7	
Turn Bay Length (m)	30.0		55.0		55.0		690	
Base Capacity (vph)	522	824		590	422	732	467	690
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	0.03	0.46		0.18	0.25	0.31	0.01	0.40
Intersection Summary								
Cycle Length: 70								
Actuated Cycle Length: 70								
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green								
Natural Cycle: 70								
Control Type: Pretimed								
Splits and Phases: 3: Beatty Line & Elliot Avenue E/Millage Lane								

HCM Signalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Total AM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	75	270	35	50	15	95	125	85	5	230	20
Future Volume (vph)	15	75	270	35	50	15	95	125	85	5	230	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.88		0.98	1.00	0.94	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.98	0.95	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1616		1791	1736	1743	1805	1715		1805	1715	
Flt Permitted	0.69	1.00		0.80	0.58	1.00	0.62	1.00		0.62	1.00	
Satd. Flow (perm)	1305	1616		1455	1056	1743	1169	1715		1169	1715	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	16	82	297	38	55	16	104	137	93	5	253	22
RTOR Reduction (vph)	0	178	0	0	9	0	0	35	0	0	4	0
Lane Group Flow (vph)	16	201	0	0	100	0	104	195	0	5	271	0
Heavy Vehicles (%)	0%	3%	4%	0%	0%	15%	4%	4%	0%	0%	7%	38%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	4		8		8		2		6		6	
Permitted Phases	4		8		8		2		6		6	
Actuated Green, G (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	
Effective Green, g (s)	28.0	28.0		28.0	28.0		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.40	0.40		0.40	0.40	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Grp Cap (vph)	522	646		582	422		697	467		686		
v/s Ratio Prot		c0.12					0.11			c0.16		
v/s Ratio Perm	0.01			0.07	0.10			0.00				
v/c Ratio	0.03	0.31		0.17	0.25	0.28	0.01	0.39				
Uniform Delay, d1	12.8	14.4		13.5	14.0	14.2	12.7	15.0				
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00				
Incremental Delay, d2	0.1	1.3		0.6	1.4	1.0	0.0	1.7				
Delay (s)	12.9	15.6		14.2	15.4	15.2	12.7	16.7				
Level of Service	B	B		B	B	B	B	B		B	B	
Approach Delay (s)		15.5		14.2		15.2		16.6				
Approach LOS		B		B		B		B				
Intersection Summary												
HCM 2000 Control Delay		15.6		HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		70.0		Sum of lost time (s)				14.0				
Intersection Capacity Utilization		73.9%		ICU Level of Service				D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

10: Beatty Line

Future Total AM Peak Hour - 10 Year

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	40	115	50	155	100	10
Future Volume (Veh/h)	40	115	50	155	100	10
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)	40	115	50	155	100	10
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	360	105	110			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	360	105	110			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	88	97			
cM capacity (veh/h)	621	955	1493			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	155	205	110			
Volume Left	40	50	0			
Volume Right	115	0	10			
cSH	839	1493	1700			
Volume to Capacity	0.18	0.03	0.06			
Queue Length 95th (m)	5.4	0.8	0.0			
Control Delay (s)	10.3	2.0	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.3	2.0	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		4.3				
Intersection Capacity Utilization		33.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Future Total PM Peak Hour - 5 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (veh/h)	0	160	175	15	145	0	135	10	10	0	20	0
Future Volume (Veh/h)	0	160	175	15	145	0	135	10	10	0	20	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	168	184	16	153	0	142	11	11	0	21	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	153			352			456	445	260	462	537	153
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	153			352			456	445	260	462	537	153
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			71	98	99	100	95	100
cM capacity (veh/h)	1440			1218			495	504	784	493	447	898
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	352	169	164	21								
Volume Left	0	16	142	0								
Volume Right	184	0	11	0								
cSH	1440	1218	508	447								
Volume to Capacity	0.00	0.01	0.32	0.05								
Queue Length 95th (m)	0.0	0.3	11.1	1.2								
Control Delay (s)	0.0	0.9	15.4	13.4								
Lane LOS		A	C	B								
Approach Delay (s)	0.0	0.9	15.4	13.4								
Approach LOS			C	B								
Intersection Summary												
Average Delay				4.2								
Intersection Capacity Utilization				42.1%			ICU Level of Service			A		
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Future Total PM Peak Hour - 5 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (veh/h)	55	115	45	20	105	50	60	165	35	40	135	30
Future Volume (Veh/h)	55	115	45	20	105	50	60	165	35	40	135	30
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	63	132	52	23	121	57	69	190	40	46	155	34
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	730	632	172	730	629	210	189			230		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	730	632	172	730	629	210	189			230		
tC, single (s)	*6.8	*5.8	*6.0	*6.7	*6.2	*6.1	4.1			4.2		
tC, 2 stage (s)												
tF (s)	*2.9	*3.8	*3.2	*3.2	*3.7	*3.1	2.2			2.3		
p0 queue free %	78	69	94	91	71	94	95			97		
cM capacity (veh/h)	281	430	911	266	410	889	1397			1315		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	247	201	299	235								
Volume Left	63	23	69	46								
Volume Right	52	57	40	34								
cSH	420	451	1397	1315								
Volume to Capacity	0.59	0.45	0.05	0.03								
Queue Length 95th (m)	29.3	18.0	1.2	0.9								
Control Delay (s)	25.1	19.2	2.1	1.8								
Lane LOS	D	C	A	A								
Approach Delay (s)	25.1	19.2	2.1	1.8								
Approach LOS	D	C										
Intersection Summary												
Average Delay				11.3								
Intersection Capacity Utilization				48.9%			ICU Level of Service			A		
Analysis Period (min)				15								

* User Entered Value

Queues

3: Beatty Line & Elliot Avenue E/Millage Lane

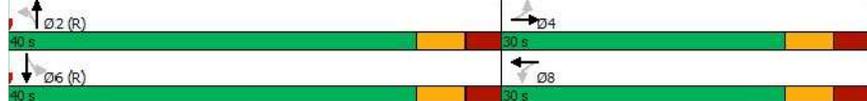
Future Total PM Peak Hour - 5 Year

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↔	↔	↖	↗	↖	↗
Traffic Volume (vph)	5	55	85	75	270	285	25	200
Future Volume (vph)	5	55	85	75	270	285	25	200
Lane Group Flow (vph)	5	279	0	189	284	411	26	222
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6	
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.01	0.41	0.46	0.51	0.48	0.06	0.25	
Control Delay	16.0	6.8	21.9	17.0	13.7	10.7	11.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.0	6.8	21.9	17.0	13.7	10.7	11.8	
Queue Length 50th (m)	0.5	5.5	19.1	25.8	32.9	1.9	16.9	
Queue Length 95th (m)	2.6	21.6	37.3	47.5	55.5	5.8	30.0	
Internal Link Dist (m)		50.8	84.7		232.2		767.7	
Turn Bay Length (m)	30.0			55.0		55.0		
Base Capacity (vph)	420	686	415	555	863	407	883	
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	0.01	0.41	0.46	0.51	0.48	0.06	0.25	

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed

Splits and Phases: 3: Beatty Line & Elliot Avenue E/Millage Lane



HCM Signalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Total PM Peak Hour - 5 Year

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↔	↔		↖	↗		↖	↗	
Traffic Volume (vph)	5	55	210	85	75	20	270	285	105	25	200	10
Future Volume (vph)	5	55	210	85	75	20	270	285	105	25	200	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.88		0.98	1.00		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.98	0.95		1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1637		1824	1805		1792	1792		1790	1868	
Flt Permitted	0.67	1.00		0.67	0.62		1.00	1.00		0.46	1.00	
Satd. Flow (perm)	1281	1637		1243	1177		1792	1792		865	1868	
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)	5	58	221	89	79	21	284	300	111	26	211	11
RTOR Reduction (vph)	0	148	0	0	7	0	19	0	0	3	0	0
Lane Group Flow (vph)	5	131	0	0	182	0	284	392	0	26	219	0
Confl. Peds. (#/hr)			5	5					10	10		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	4			8			2			6		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	23.0	23.0		23.0	23.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	23.0	23.0		23.0	23.0		33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.47		0.47	0.47		0.47	0.47	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Grp Cap (vph)	420	537		408	554		844	844		407	880	
v/s Ratio Prot		0.08					0.22				0.12	
v/s Ratio Perm	0.00			c0.15			c0.24			0.03		
v/c Ratio	0.01	0.24		0.45	0.51		0.46			0.06	0.25	
Uniform Delay, d1	15.8	17.1		18.5	12.9		12.5			10.1	11.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00	1.00	
Incremental Delay, d2	0.1	1.1		3.5	3.4		1.8			0.3	0.7	
Delay (s)	15.9	18.2		22.0	16.3		14.4			10.4	11.8	
Level of Service	B	B		C	B		B			B	B	
Approach Delay (s)	18.2			22.0			15.1			11.6		
Approach LOS	B			C			B			B		

Intersection Summary

HCM 2000 Control Delay: 16.0, HCM 2000 Level of Service: B
 HCM 2000 Volume to Capacity ratio: 0.48
 Actuated Cycle Length (s): 70.0, Sum of lost time (s): 14.0
 Intersection Capacity Utilization: 81.5%, ICU Level of Service: D
 Analysis Period (min): 15
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Beatty Line & Colborne St

Future Total PM Peak Hour - 5 Year

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	155	140	195	505	345	165
Future Volume (veh/h)	155	140	195	505	345	165
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	163	147	205	532	363	174
Approach Volume (veh/h)	310			737	537	
Crossing Volume (veh/h)	363			163	205	
High Capacity (veh/h)	1041			1219	1179	
High v/c (veh/h)	0.30			0.60	0.46	
Low Capacity (veh/h)	850			1011	975	
Low v/c (veh/h)	0.36			0.73	0.55	
Intersection Summary						
Maximum v/c High				0.60		
Maximum v/c Low				0.73		
Intersection Capacity Utilization			92.7%		ICU Level of Service	F

HCM Unsignalized Intersection Capacity Analysis

10: Beatty Line

Future Total PM Peak Hour - 5 Year

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T	T	T	T	T	T
Traffic Volume (veh/h)	25	80	135	130	185	30
Future Volume (Veh/h)	25	80	135	130	185	30
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)	25	80	135	130	185	30
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	600	200	215			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	600	200	215			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	91	90			
cM capacity (veh/h)	421	846	1367			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	105	265	215			
Volume Left	25	135	0			
Volume Right	80	0	30			
cSH	682	1367	1700			
Volume to Capacity	0.15	0.10	0.13			
Queue Length 95th (m)	4.3	2.6	0.0			
Control Delay (s)	11.2	4.5	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.2	4.5	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			42.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

1: Beatty Line & Nichol Road 15

Future Total PM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (veh/h)	0	160	185	15	145	0	140	10	10	0	20	0
Future Volume (Veh/h)	0	160	185	15	145	0	140	10	10	0	20	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	168	195	16	153	0	147	11	11	0	21	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	153			363			461	450	266	467	548	153
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	153			363			461	450	266	467	548	153
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			70	98	99	100	95	100
cM capacity (veh/h)	1440			1207			490	500	778	489	441	898
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	363	169	169	21								
Volume Left	0	16	147	0								
Volume Right	195	0	11	0								
cSH	1440	1207	503	441								
Volume to Capacity	0.00	0.01	0.34	0.05								
Queue Length 95th (m)	0.0	0.3	11.7	1.2								
Control Delay (s)	0.0	0.9	15.7	13.6								
Lane LOS		A	C	B								
Approach Delay (s)	0.0	0.9	15.7	13.6								
Approach LOS			C	B								
Intersection Summary												
Average Delay				4.3								
Intersection Capacity Utilization				42.3%	ICU Level of Service	A						
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

2: Beatty Line & Farley Road/Side Road 18

Future Total PM Peak Hour - 10 Year

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (veh/h)	55	115	45	20	105	50	60	170	35	40	145	30
Future Volume (Veh/h)	55	115	45	20	105	50	60	170	35	40	145	30
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	63	132	52	23	121	57	69	195	40	46	167	34
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	746	649	184	747	646	215	201			235		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	746	649	184	747	646	215	201			235		
tC, single (s)	*6.8	*5.8	*6.0	*6.7	*6.2	*6.1	4.1			4.2		
tC, 2 stage (s)												
tF (s)	*2.9	*3.8	*3.2	*3.2	*3.7	*3.1	2.2			2.3		
p0 queue free %	77	69	94	91	70	94	95			96		
cM capacity (veh/h)	272	422	897	257	401	884	1383			1309		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	247	201	304	247								
Volume Left	63	23	69	46								
Volume Right	52	57	40	34								
cSH	410	441	1383	1309								
Volume to Capacity	0.60	0.46	0.05	0.04								
Queue Length 95th (m)	30.7	18.6	1.3	0.9								
Control Delay (s)	26.3	19.8	2.1	1.7								
Lane LOS	D	C	A	A								
Approach Delay (s)	26.3	19.8	2.1	1.7								
Approach LOS	D	C										
Intersection Summary												
Average Delay				11.5								
Intersection Capacity Utilization				49.4%	ICU Level of Service	A						
Analysis Period (min)				15								

* User Entered Value

Queues

3: Beatty Line & Elliot Avenue E/Millage Lane

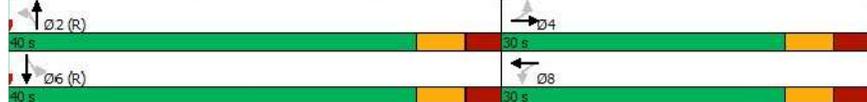
Future Total PM Peak Hour - 10 Year

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗	↔	↔	↖	↗	↖	↗
Traffic Volume (vph)	5	55	85	75	270	290	25	210
Future Volume (vph)	5	55	85	75	270	290	25	210
Lane Group Flow (vph)	5	279	0	189	284	416	26	232
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		8		2		6	
Permitted Phases	4		8		2		6	
Minimum Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (s)	30.0	30.0	30.0	30.0	40.0	40.0	40.0	40.0
Total Split (%)	42.9%	42.9%	42.9%	42.9%	57.1%	57.1%	57.1%	57.1%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
v/c Ratio	0.01	0.41	0.46	0.52	0.48	0.06	0.26	
Control Delay	16.0	6.8	21.9	17.1	13.8	10.7	11.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.0	6.8	21.9	17.1	13.8	10.7	11.9	
Queue Length 50th (m)	0.5	5.5	19.1	25.9	33.6	1.9	17.8	
Queue Length 95th (m)	2.6	21.6	37.3	47.8	56.6	5.8	31.4	
Internal Link Dist (m)		50.8	84.7		232.2		767.7	
Turn Bay Length (m)	30.0			55.0		55.0		
Base Capacity (vph)	420	686	415	550	864	403	883	
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	0.01	0.41	0.46	0.52	0.48	0.06	0.26	

Intersection Summary

Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBL, Start of Green
 Natural Cycle: 60
 Control Type: Pretimed

Splits and Phases: 3: Beatty Line & Elliot Avenue E/Millage Lane



HCM Signalized Intersection Capacity Analysis

3: Beatty Line & Elliot Avenue E/Millage Lane

Future Total PM Peak Hour - 10 Year

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↔	↔		↖	↗		↖	↗	
Traffic Volume (vph)	5	55	210	85	75	20	270	290	105	25	210	10
Future Volume (vph)	5	55	210	85	75	20	270	290	105	25	210	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.88		0.98	1.00		1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.98	0.95		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1637		1824	1805		1805	1793		1790	1869	
Flt Permitted	0.67	1.00		0.67	0.61		1.00			0.45	1.00	
Satd. Flow (perm)	1281	1637		1243	1167		1793			856	1869	
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)	5	58	221	89	79	21	284	305	111	26	221	11
RTOR Reduction (vph)	0	148	0	0	7	0	19	0	0	3	0	0
Lane Group Flow (vph)	5	131	0	0	182	0	284	398	0	26	229	0
Confl. Peds. (#/hr)			5	5					10	10		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	4			8			2			6		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	23.0	23.0		23.0	33.0		33.0	33.0		33.0	33.0	
Effective Green, g (s)	23.0	23.0		23.0	33.0		33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.33	0.33		0.33	0.47		0.47	0.47		0.47	0.47	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Lane Grp Cap (vph)	420	537		408	550		845			403	881	
v/s Ratio Prot		0.08			0.22						0.12	
v/s Ratio Perm	0.00			c0.15	c0.24					0.03		
v/c Ratio	0.01	0.24		0.45	0.52		0.47			0.06	0.26	
Uniform Delay, d1	15.8	17.1		18.5	12.9		12.6			10.1	11.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00			1.00	1.00	
Incremental Delay, d2	0.1	1.1		3.5	3.4		1.9			0.3	0.7	
Delay (s)	15.9	18.2		22.0	16.4		14.4			10.4	11.9	
Level of Service	B	B		C	B		B			B	B	
Approach Delay (s)	18.2			22.0			15.2			11.7		
Approach LOS	B			C			B			B		

Intersection Summary

HCM 2000 Control Delay: 16.1, HCM 2000 Level of Service: B
 HCM 2000 Volume to Capacity ratio: 0.49
 Actuated Cycle Length (s): 70.0, Sum of lost time (s): 14.0
 Intersection Capacity Utilization: 81.8%, ICU Level of Service: D
 Analysis Period (min): 15
 Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Beatty Line & Colborne St

Future Total PM Peak Hour - 10 Year

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	155	140	195	510	355	165
Future Volume (veh/h)	155	140	195	510	355	165
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	163	147	205	537	374	174
Approach Volume (veh/h)	310			742	548	
Crossing Volume (veh/h)	374			163	205	
High Capacity (veh/h)	1032			1219	1179	
High v/c (veh/h)	0.30			0.61	0.46	
Low Capacity (veh/h)	842			1011	975	
Low v/c (veh/h)	0.37			0.73	0.56	
Intersection Summary						
Maximum v/c High				0.61		
Maximum v/c Low				0.73		
Intersection Capacity Utilization			93.5%		ICU Level of Service	F

HCM Unsignalized Intersection Capacity Analysis

10: Beatty Line

Future Total PM Peak Hour - 10 Year

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	80	135	135	195	30
Future Volume (Veh/h)	25	80	135	135	195	30
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)	25	80	135	135	195	30
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	615	210	225			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	615	210	225			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	90	90			
cM capacity (veh/h)	412	835	1356			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	105	270	225			
Volume Left	25	135	0			
Volume Right	80	0	30			
cSH	671	1356	1700			
Volume to Capacity	0.16	0.10	0.13			
Queue Length 95th (m)	4.4	2.6	0.0			
Control Delay (s)	11.4	4.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.4	4.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			43.0%		ICU Level of Service	A
Analysis Period (min)			15			

LANE SUMMARY

Site: EXAM [Beatty Line / Colborne Road - EXAM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

EXAM
Site Category: EXAM
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.	
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]						[Veh]	[Dist]			%	%
South: RoadName															
Lane 1 ^d	80	3.6	80	3.6	1359	0.059	100	3.7	LOS A	0.2	1.7	Full	450	0.0	0.0
Approach	80	3.6	80	3.6		0.059		3.7	LOS A	0.2	1.7				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	1278	0.002	100	3.1	LOS A	0.0	0.1	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.002		3.1	LOS A	0.0	0.1				
North: RoadName															
Lane 1 ^d	196	5.1	196	5.1	1498	0.131	100	4.0	LOS A	0.5	3.8	Full	240	0.0	0.0
Approach	196	5.1	196	5.1		0.131		4.0	LOS A	0.5	3.8				
West: RoadName															
Lane 1 ^d	59	3.7	59	3.7	1220	0.048	100	7.3	LOS A	0.2	1.3	Full	90	0.0	0.0
Approach	59	3.7	59	3.7		0.048		7.3	LOS A	0.2	1.3				
All Vehicles	338	4.4	338	4.4		0.131		4.5	LOS A	0.5	3.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S	W	N	E			Cap. veh/h	v/c	%	%	No.	
To Exit:											
Lane 1	16	63	1	80	3.6	1359	0.059	100	NA	NA	
Approach	16	63	1	80	3.6		0.059				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E	S	W	N			Cap. veh/h	v/c	%	%	No.	
To Exit:											
Lane 1	1	1	1	3	0.0	1278	0.002	100	NA	NA	
Approach	1	1	1	3	0.0		0.002				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	153	42	196	5.1	1498	0.131	100	NA	NA
Approach	1	153	42	196	5.1		0.131			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	37	1	21	59	3.7	1220	0.048	100	NA	NA
Approach	37	1	21	59	3.7		0.048			
Total %HV Deg. Satn (v/c)										
All Vehicles	338	4.4			0.131					

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: EXPM [Beatty Line / Colborne Road - EXPM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

EXPM
Site Category: EXPM
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.	
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]						[Veh]	[Dist]			Cap. Adj. %	Prob. Block. %
South: RoadName															
Lane 1 ^d	233	0.8	233	0.8	1395	0.167	100	3.7	LOS A	0.7	5.1	Full	450	0.0	0.0
Approach	233	0.8	233	0.8		0.167		3.7	LOS A	0.7	5.1				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	1150	0.003	100	3.7	LOS A	0.0	0.1	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.003		3.7	LOS A	0.0	0.1				
North: RoadName															
Lane 1 ^d	206	0.7	206	0.7	1437	0.144	100	4.1	LOS A	0.6	4.2	Full	240	0.0	0.0
Approach	206	0.7	206	0.7		0.144		4.1	LOS A	0.6	4.2				
West: RoadName															
Lane 1 ^d	96	1.0	96	1.0	1253	0.076	100	7.4	LOS A	0.3	2.1	Full	90	0.0	0.0
Approach	96	1.0	96	1.0		0.076		7.4	LOS A	0.3	2.1				
All Vehicles	538	0.8	538	0.8		0.167		4.5	LOS A	0.7	5.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S						Cap. veh/h	v/c	%	%	No.	
To Exit:	W	N	E								
Lane 1	42	189	1	233	0.8	1395	0.167	100	NA	NA	
Approach	42	189	1	233	0.8		0.167				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E						Cap. veh/h	v/c	%	%	No.	
To Exit:	S	W	N								
Lane 1	1	1	1	3	0.0	1150	0.003	100	NA	NA	
Approach	1	1	1	3	0.0		0.003				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	137	68	206	0.7	1437	0.144	100	NA	NA
Approach	1	137	68	206	0.7		0.144			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	63	1	32	96	1.0	1253	0.076	100	NA	NA
Approach	63	1	32	96	1.0		0.076			
Total %HV Deg. Satn (v/c)										
All Vehicles	538	0.8		0.167						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec		
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: FBAM_5 [Beatty Line / Colborne Road - FBAM -5 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

FBAM_5
Site Category: FBAM_5
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist] m		m	%	%
South: RoadName															
Lane 1 ^d	185	4.2	185	4.2	1231	0.151	100	5.0	LOS A	0.7	5.0	Full	450	0.0	0.0
Approach	185	4.2	185	4.2		0.151		5.0	LOS A	0.7	5.0				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	1126	0.003	100	3.8	LOS A	0.0	0.1	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.003		3.8	LOS A	0.0	0.1				
North: RoadName															
Lane 1 ^d	438	5.1	438	5.1	1387	0.316	100	4.3	LOS A	1.6	11.9	Full	240	0.0	0.0
Approach	438	5.1	438	5.1		0.316		4.3	LOS A	1.6	11.9				
West: RoadName															
Lane 1 ^d	338	4.2	338	4.2	1078	0.313	100	7.4	LOS A	1.6	11.7	Full	90	0.0	0.0
Approach	338	4.2	338	4.2		0.313		7.4	LOS A	1.6	11.7				
All Vehicles	964	4.6	964	4.6		0.316		5.5	LOS A	1.6	11.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From S	W	N	E			veh/h	Satn	Util.	SL	Ov.	Lane
To Exit:							v/c	%	%		No.
Lane 1	74	111	1	185	4.2	1231	0.151	100	NA	NA	
Approach	74	111	1	185	4.2		0.151				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From E	S	W	N			veh/h	Satn	Util.	SL	Ov.	Lane
To Exit:							v/c	%	%		No.
Lane 1	1	1	1	3	0.0	1126	0.003	100	NA	NA	
Approach	1	1	1	3	0.0		0.003				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	342	95	438	5.1	1387	0.316	100	NA	NA
Approach	1	342	95	438	5.1		0.316			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	137	1	200	338	4.2	1078	0.313	100	NA	NA
Approach	137	1	200	338	4.2		0.313			
Total %HV Deg. Satn (v/c)										
All Vehicles	964	4.6			0.316					

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec		
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: FTAM_5 [Beatty Line / Colborne Road - FTAM -5 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

FTAM_5
Site Category: FTAM_5
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist] m		m	%	%
South: RoadName															
Lane 1 ^d	254	3.9	254	3.9	1244	0.204	100	4.5	LOS A	1.0	7.4	Full	450	0.0	0.0
Approach	254	3.9	254	3.9		0.204		4.5	LOS A	1.0	7.4				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	1076	0.003	100	4.0	LOS A	0.0	0.1	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.003		4.0	LOS A	0.0	0.1				
North: RoadName															
Lane 1 ^d	596	1.0	596	1.0	1438	0.414	100	4.3	LOS A	2.5	17.4	Full	240	0.0	0.0
Approach	596	1.0	596	1.0		0.414		4.3	LOS A	2.5	17.4				
West: RoadName															
Lane 1 ^d	338	4.2	338	4.2	975	0.346	100	8.2	LOS A	1.9	13.8	Full	90	0.0	0.0
Approach	338	4.2	338	4.2		0.346		8.2	LOS A	1.9	13.8				
All Vehicles	1191	2.5	1191	2.5		0.414		5.4	LOS A	2.5	17.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From S	W	N	E			veh/h	v/c	Util.	SL	Ov.	Lane
To Exit:								%	%	%	No.
Lane 1	74	179	1	254	3.9	1244	0.204	100	NA	NA	
Approach	74	179	1	254	3.9		0.204				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From E	S	W	N			veh/h	v/c	Util.	SL	Ov.	Lane
To Exit:								%	%	%	No.
Lane 1	1	1	1	3	0.0	1076	0.003	100	NA	NA	
Approach	1	1	1	3	0.0		0.003				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	500	95	596	1.0	1438	0.414	100	NA	NA
Approach	1	500	95	596	1.0		0.414			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	137	1	200	338	4.2	975	0.346	100	NA	NA
Approach	137	1	200	338	4.2		0.346			
Total %HV Deg. Satn (v/c)										
All Vehicles	1191	2.5		0.414						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec		
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: FBPM_5 [Beatty Line / Colborne Road - FBPM -5 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

FBPM_5
 Site Category: FBPM_5
 Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.	
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]						[Veh]	[Dist]			Cap. %	Prob. %
South: RoadName															
Lane 1 ^d	548	0.6	548	0.6	1290	0.425	100	5.1	LOS A	2.6	18.2	Full	450	0.0	0.0
Approach	548	0.6	548	0.6		0.425		5.1	LOS A	2.6	18.2				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	846	0.004	100	5.6	LOS A	0.0	0.1	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.004		5.6	LOS A	0.0	0.1				
North: RoadName															
Lane 1 ^d	422	0.6	422	0.6	1223	0.345	100	4.8	LOS A	1.9	13.3	Full	240	0.0	0.0
Approach	422	0.6	422	0.6		0.345		4.8	LOS A	1.9	13.3				
West: RoadName															
Lane 1 ^d	312	1.4	312	1.4	1152	0.271	100	7.4	LOS A	1.4	9.8	Full	90	0.0	0.0
Approach	312	1.4	312	1.4		0.271		7.4	LOS A	1.4	9.8				
All Vehicles	1285	0.8	1285	0.8		0.425		5.6	LOS A	2.6	18.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S	W	N	E			Cap. veh/h	v/c	%	%	No.	
To Exit:											
Lane 1	205	342	1	548	0.6	1290	0.425	100	NA	NA	
Approach	205	342	1	548	0.6		0.425				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E	S	W	N			Cap. veh/h	v/c	%	%	No.	
To Exit:											
Lane 1	1	1	1	3	0.0	846	0.004	100	NA	NA	
Approach	1	1	1	3	0.0		0.004				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	247	174	422	0.6	1223	0.345	100	NA	NA
Approach	1	247	174	422	0.6		0.345			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	163	1	147	312	1.4	1152	0.271	100	NA	NA
Approach	163	1	147	312	1.4		0.271			
Total %HV Deg. Satn (v/c)										
All Vehicles	1285	0.8		0.425						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: FTPM_5 [Beatty Line / Colborne Road - FTPM -5 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

FTPM_5
Site Category: FTPM_5
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.	
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]						[Veh]	[Dist]			%	%
South: RoadName															
Lane 1 ^d	738	0.7	738	0.7	1303	0.566	100	4.9	LOS A	4.3	30.1	Full	450	0.0	0.0
Approach	738	0.7	738	0.7		0.566		4.9	LOS A	4.3	30.1				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	688	0.005	100	7.2	LOS A	0.0	0.2	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.005		7.2	LOS A	0.0	0.2				
North: RoadName															
Lane 1 ^d	538	0.7	538	0.7	1233	0.436	100	4.9	LOS A	2.7	19.1	Full	240	0.0	0.0
Approach	538	0.7	538	0.7		0.436		4.9	LOS A	2.7	19.1				
West: RoadName															
Lane 1 ^d	312	1.4	312	1.4	1057	0.295	100	7.9	LOS A	1.6	11.2	Full	90	0.0	0.0
Approach	312	1.4	312	1.4		0.295		7.9	LOS A	1.6	11.2				
All Vehicles	1591	0.8	1591	0.8		0.566		5.5	LOS A	4.3	30.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S	W	N	E			Cap. veh/h	v/c	%	%	No.	
To Exit:											
Lane 1	205	532	1	738	0.7	1303	0.566	100	NA	NA	
Approach	205	532	1	738	0.7		0.566				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E	S	W	N			Cap. veh/h	v/c	%	%	No.	
To Exit:											
Lane 1	1	1	1	3	0.0	688	0.005	100	NA	NA	
Approach	1	1	1	3	0.0		0.005				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	363	174	538	0.7	1233	0.436	100	NA	NA
Approach	1	363	174	538	0.7		0.436			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	163	1	147	312	1.4	1057	0.295	100	NA	NA
Approach	163	1	147	312	1.4		0.295			
Total %HV Deg. Satn (v/c)										
All Vehicles	1591	0.8		0.566						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: FBAM_10 [Beatty Line / Colborne Road - FBAM-10 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

FBAM_10
Site Category: FBAM_10
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]	veh/h	v/c	%	sec		[Veh]	[Dist] m		m	%	%
South: RoadName															
Lane 1 ^d	191	4.1	191	4.1	1232	0.155	100	5.0	LOS A	0.7	5.2	Full	450	0.0	0.0
Approach	191	4.1	191	4.1		0.155		5.0	LOS A	0.7	5.2				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	1123	0.003	100	3.8	LOS A	0.0	0.1	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.003		3.8	LOS A	0.0	0.1				
North: RoadName															
Lane 1 ^d	448	4.7	448	4.7	1392	0.322	100	4.3	LOS A	1.7	12.2	Full	240	0.0	0.0
Approach	448	4.7	448	4.7		0.322		4.3	LOS A	1.7	12.2				
West: RoadName															
Lane 1 ^d	338	4.2	338	4.2	1071	0.315	100	7.4	LOS A	1.6	11.8	Full	90	0.0	0.0
Approach	338	4.2	338	4.2		0.315		7.4	LOS A	1.6	11.8				
All Vehicles	980	4.4	980	4.4		0.322		5.5	LOS A	1.7	12.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From S	W	N	E			veh/h	v/c	Util.	SL	Ov.	Lane
To Exit:								%	%		No.
Lane 1	74	116	1	191	4.1	1232	0.155	100	NA	NA	
Approach	74	116	1	191	4.1		0.155				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From E	S	W	N			veh/h	v/c	Util.	SL	Ov.	Lane
To Exit:								%	%		No.
Lane 1	1	1	1	3	0.0	1123	0.003	100	NA	NA	
Approach	1	1	1	3	0.0		0.003				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	353	95	448	4.7	1392	0.322	100	NA	NA
Approach	1	353	95	448	4.7		0.322			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	137	1	200	338	4.2	1071	0.315	100	NA	NA
Approach	137	1	200	338	4.2		0.315			
Total %HV Deg. Satn (v/c)										
All Vehicles	980	4.4		0.322						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec			
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: FTAM_10 [Beatty Line / Colborne Road - FTAM-10 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

FTAM_10
 Site Category: FTAM_10
 Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.	
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]						[Veh]	[Dist]			Cap. %	Prob. %
South: RoadName															
Lane 1 ^d	259	3.8	259	3.8	1241	0.209	100	4.5	LOS A	1.1	7.7	Full	450	0.0	0.0
Approach	259	3.8	259	3.8		0.209		4.5	LOS A	1.1	7.7				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	1069	0.003	100	4.0	LOS A	0.0	0.1	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.003		4.0	LOS A	0.0	0.1				
North: RoadName															
Lane 1 ^d	606	5.1	606	5.1	1408	0.431	100	4.3	LOS A	2.6	19.1	Full	240	0.0	0.0
Approach	606	5.1	606	5.1		0.431		4.3	LOS A	2.6	19.1				
West: RoadName															
Lane 1 ^d	338	4.2	338	4.2	953	0.355	100	8.4	LOS A	2.0	14.3	Full	90	0.0	0.0
Approach	338	4.2	338	4.2		0.355		8.4	LOS A	2.0	14.3				
All Vehicles	1206	4.5	1206	4.5		0.431		5.5	LOS A	2.6	19.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S	W	N	E			Cap. veh/h	v/c	%	%	No.	
To Exit:											
Lane 1	74	184	1	259	3.8	1241	0.209	100	NA	NA	
Approach	74	184	1	259	3.8		0.209				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E	S	W	N			Cap. veh/h	v/c	%	%	No.	
To Exit:											
Lane 1	1	1	1	3	0.0	1069	0.003	100	NA	NA	
Approach	1	1	1	3	0.0		0.003				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	511	95	606	5.1	1408	0.431	100	NA	NA
Approach	1	511	95	606	5.1		0.431			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	137	1	200	338	4.2	953	0.355	100	NA	NA
Approach	137	1	200	338	4.2		0.355			
Total %HV Deg.Satn (v/c)										
All Vehicles	1206	4.5		0.431						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane % veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec			
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: FBPM_10 [Beatty Line / Colborne Road - FBPM-10 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

FBPM_10
 Site Category: FBPM_10
 Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.	
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]						[Veh]	[Dist] m			%	%
South: RoadName															
Lane 1 ^d	554	0.6	554	0.6	1290	0.429	100	5.1	LOS A	2.6	18.5	Full	450	0.0	0.0
Approach	554	0.6	554	0.6		0.429		5.1	LOS A	2.6	18.5				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	842	0.004	100	5.6	LOS A	0.0	0.1	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.004		5.6	LOS A	0.0	0.1				
North: RoadName															
Lane 1 ^d	433	0.6	433	0.6	1225	0.353	100	4.8	LOS A	2.0	13.8	Full	240	0.0	0.0
Approach	433	0.6	433	0.6		0.353		4.8	LOS A	2.0	13.8				
West: RoadName															
Lane 1 ^d	312	1.4	312	1.4	1142	0.273	100	7.4	LOS A	1.4	9.9	Full	90	0.0	0.0
Approach	312	1.4	312	1.4		0.273		7.4	LOS A	1.4	9.9				
All Vehicles	1301	0.8	1301	0.8		0.429		5.6	LOS A	2.6	18.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S						Cap. veh/h	v/c	%	%	No.	
To Exit:	W	N	E								
Lane 1	205	347	1	554	0.6	1290	0.429	100	NA	NA	
Approach	205	347	1	554	0.6		0.429				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E						Cap. veh/h	v/c	%	%	No.	
To Exit:	S	W	N								
Lane 1	1	1	1	3	0.0	842	0.004	100	NA	NA	
Approach	1	1	1	3	0.0		0.004				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	258	174	433	0.6	1225	0.353	100	NA	NA
Approach	1	258	174	433	0.6		0.353			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	163	1	147	312	1.4	1142	0.273	100	NA	NA
Approach	163	1	147	312	1.4		0.273			
Total %HV Deg. Satn (v/c)										
All Vehicles	1301	0.8		0.429						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec			
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

LANE SUMMARY

Site: FTPM_10 [Beatty Line / Colborne Road - FTPM-10 (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

FTPM_10
Site Category: FTPM_10
Roundabout

Lane Use and Performance															
	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% Back Of Queue		Lane Config	Lane Length	Cap. Prob. Adj. Block.	
	[Total veh/h]	[HV %]	[Total veh/h]	[HV %]						[Veh]	[Dist] m			%	%
South: RoadName															
Lane 1 ^d	743	0.7	743	0.7	1303	0.570	100	4.9	LOS A	4.3	30.6	Full	450	0.0	0.0
Approach	743	0.7	743	0.7		0.570		4.9	LOS A	4.3	30.6				
East: RoadName															
Lane 1 ^d	3	0.0	3	0.0	683	0.005	100	7.2	LOS A	0.0	0.2	Full	10	0.0	0.0
Approach	3	0.0	3	0.0		0.005		7.2	LOS A	0.0	0.2				
North: RoadName															
Lane 1 ^d	548	0.7	548	0.7	1234	0.445	100	4.9	LOS A	2.8	19.6	Full	240	0.0	0.0
Approach	548	0.7	548	0.7		0.445		4.9	LOS A	2.8	19.6				
West: RoadName															
Lane 1 ^d	312	1.4	312	1.4	1049	0.297	100	8.0	LOS A	1.6	11.4	Full	90	0.0	0.0
Approach	312	1.4	312	1.4		0.297		8.0	LOS A	1.6	11.4				
All Vehicles	1606	0.8	1606	0.8		0.570		5.5	LOS A	4.3	30.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From S						Cap. veh/h	v/c	%	%	No.	
To Exit:	W	N	E								
Lane 1	205	537	1	743	0.7	1303	0.570	100	NA	NA	
Approach	205	537	1	743	0.7		0.570				
East: RoadName											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL	Ov. Lane	
From E						Cap. veh/h	v/c	%	%	No.	
To Exit:	S	W	N								
Lane 1	1	1	1	3	0.0	683	0.005	100	NA	NA	
Approach	1	1	1	3	0.0		0.005				
North: RoadName											

Mov. From N To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	1	374	174	548	0.7	1234	0.445	100	NA	NA
Approach	1	374	174	548	0.7		0.445			
West: RoadName										
Mov. From W To Exit:	L2	T1	R2	Total	%HV	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Prob. SL Ov. %	Ov. Lane No.
Lane 1	163	1	147	312	1.4	1049	0.297	100	NA	NA
Approach	163	1	147	312	1.4		0.297			
Total %HV Deg. Satn (v/c)										
All Vehicles	1606	0.8		0.570						

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Merge Analysis												
Exit Lane Number	Short Lane Length m	Percent Opng in Lane %	Opposing Flow Rate veh/h	Opposing Flow Rate pcu/h	Critical Gap sec	Follow-up Headway sec	Lane Capacity Flow Rate veh/h	Lane Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
There are no Exit Short Lanes for Merge Analysis at this Site.												

Variable Demand Analysis				
	Initial Queued Demand veh	Residual Queued Demand veh	Time for Residual Demand to Clear sec	Duration of Oversatn sec
South: RoadName				
Lane 1	0.0	0.0	0.0	0.0
East: RoadName				
Lane 1	0.0	0.0	0.0	0.0
North: RoadName				
Lane 1	0.0	0.0	0.0	0.0
West: RoadName				
Lane 1	0.0	0.0	0.0	0.0

Appendix E: Calibration Studies



Project No: 5883-56
Project: Brubacher Acres
Study Location: EB Beatty Line & Farley Rd/Side Road 18
Municipality: Fergus
Study Date: Tuesday December 19, 2023
Study Time: 7:30-9:30 & 16:00-18:00

Delay Study

	Overall Delay (sec)	Left Turn Delay (sec)	Through Delay (sec)	Right Turn Delay (sec)	Courtesy Gap (sec)			2-Stage Gap (sec)		
					Left Turn	Through	Right Turn	Left Turn	Through	Right Turn
AM Peak Hour										
Minimum Delay	0	0	0	0	0	0	0	0	0	0
Average Delay	0	0	0	0	0	0	0	0	0	0
85th Percentile	0	0	0	0	0	0	0	0	0	0
95th Percentile	0	0	0	0	0	0	0	0	0	0
Maximum Delay	0	0	0	0	0	0	0	0	0	0
Total Vehicles Measured	0	0	0	0	0	0	0	0	0	0
Total from Traffic Count Sample	0	0	0	0	n/a	n/a	n/a	n/a	n/a	n/a
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	n/a	n/a	n/a	n/a	n/a	n/a
PM Peak Hour*										
Minimum Delay	0	2	0	0	0	0	0	0	0	0
Average Delay	6	7	7	4	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
85th Percentile	12	10	15	7	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
95th Percentile	20	15	26	16	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
Maximum Delay	47	47	34	20	0	0	0	0	0	0
Total Vehicles Measured	137	32	73	32	0	0	0	0	0	0
Total from Traffic Count Sample	139	32	75	32	n/a	n/a	n/a	n/a	n/a	n/a
	99%	100%	97%	100%	n/a	n/a	n/a	n/a	n/a	n/a

Project No: 5883-56
Project: Brubacher Acres
Study Location: WB Beatty Line & Farley Rd/Side Road 18
Municipality: Fergus
Study Date: Tuesday December 19, 2023
Study Time: 7:30-9:30 & 16:00-18:00

Delay Study

	Overall Delay (sec)	Left Turn Delay (sec)	Through Delay (sec)	Right Turn Delay (sec)	Courtesy Gap (sec)			2-Stage Gap (sec)		
					Left Turn	Through	Right Turn	Left Turn	Through	Right Turn
AM Peak Hour										
Minimum Delay	0	0	0	0	0	0	0	0	0	0
Average Delay	0	0	0	0	0	0	0	0	0	0
85th Percentile	0	0	0	0	0	0	0	0	0	0
95th Percentile	0	0	0	0	0	0	0	0	0	0
Maximum Delay	0	0	0	0	0	0	0	0	0	0
Total Vehicles Measured	0	0	0	0	0	0	0	0	0	0
Total from Traffic Count Sample	0	0	0	0	n/a	n/a	n/a	n/a	n/a	n/a
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	n/a	n/a	n/a	n/a	n/a	n/a
PM Peak Hour*										
Minimum Delay	0	2	0	0	0	0	0	0	0	0
Average Delay	6	11	5	3	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
85th Percentile	10	28	8	5	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
95th Percentile	28	31	15	9	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!
Maximum Delay	37	37	34	13	0	0	0	0	0	0
Total Vehicles Measured	81	19	50	12	0	0	0	0	0	0
Total from Traffic Count Sample	80	19	49	12	n/a	n/a	n/a	n/a	n/a	n/a
	101%	100%	102%	100%	n/a	n/a	n/a	n/a	n/a	n/a