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116 Bond Street

TRANSPORTATION IMPACT BRIEF

Sullnet Holdings Inc.

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PROVINCE OF ONTARIO

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Issue	Date	Description
1	January 22, 2025	Final Report

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1 Introduction

Tatham Engineering Limited was retained by Sullnet Holdings Inc. to prepare a Transportation Impact Brief in support of the proposed residential development to be located at 116 Bond Street in the City of Orillia. The location of the development site is illustrated in Figure 1.

1.1 REPORT OBJECTIVE

The objective of this report is to present the findings of the transportation impact brief and address the requirements of the City with respect to the potential impacts of the development on the area road network. In particular, the following will be discussed:

- existing conditions, including a description of the study area road network, traffic volumes, operations and planned/ proposed improvements;
- details of the proposed development and anticipated trip generation;
- assessment of the site access as per the City's Entrance Analysis requirements; and
- future conditions, including transportation impacts associated with the proposed development.

1.2 REPORT STRUCTURE

The report is structured as follows:

- Chapter 1: introduction and study purpose
- Chapter 2: existing conditions, detailing the road system and corresponding traffic operations;
- Chapter 3: proposed development, access assessment and trip generation;
- Chapter 4: future traffic operations associated with the proposed development; and
- Chapter 5: summary of the report and key findings.

2 Existing Conditions

This chapter will describe the road network, traffic volumes and operations for the existing conditions.

2.1 ROAD NETWORK

The road network to be addressed by this study consists of Bond Street and its intersection with Gill Street. Aerial mapping and photographs of the road system are provided in Figure 2.

2.1.1 Roads

Bond Street

Bond Street is classified as a local road as per Schedule D of the *City of Orillia Official Plan*[1]. The road is oriented east-west through the study area and has a 2-lane semi-urban cross-section with gravel/grass shoulders, open ditches and a sidewalk on the south side of the road. The speed limit is unposted; thus a 50 km/h speed has been assumed (as is typical within a built-up area).

Gill Street

Gill Street is classified as a collector road as per the *City's Official Plan.* The road is oriented north-south through the study area and has a 2-lane semi-urban cross-section with gravel/grass shoulders, open ditches and a sidewalk on the east side of the road to the north of Bond Street and on both sides of the road to the south of Bond Street. The speed limit is unposted; thus a 50 km/h speed has been assumed.

2.1.2 Intersection

Bond Street & Gill Street

The intersection of Bond Street with Gill Street is a 3-leg intersection with stop control on Bond Street. All approaches are single lane approaches (i.e. no exclusive turn lanes are provided).

2.2 TRAFFIC VOLUMES

2.2.1 Traffic Counts

To determine the existing traffic volumes on the study area road network, a turning movement count was conducted at the intersection of Bond Street with Gill Street on Thursday March 14,

[1] *City of Orillia Official Plan, Schedule D: Road Network*. City of Orillia, February 9, 2021.

2024 from 7:00 to 10:00 and 15:00 to 18:00. The observed peak hour traffic volumes are illustrated in Figure 3 with detailed count sheets provided in Appendix A.

2.2.2 2025 Traffic Volumes

To reflect existing 2025 volumes, a background growth rate of 2% per annum (refer to the justification provided in Section 4.1.1) was applied to the volumes observed during the 2024 traffic count. The resulting 2025 peak hour volumes are illustrated in Figure 4.

2.3 TRAFFIC OPERATIONS

The capacity, and hence operations, of a road system is effectively dictated by its intersections. As such, the traffic assessment has focused on the operations of the study area intersections, based on the following:

- procedures outlined in the *Highway Capacity Manual 6th Edition*[2] (using Synchro v.11);
- the 2025 traffic volumes; and
- the existing intersection configuration and control.

For the study area intersection, the analysis considers:

- the average delay (measured in seconds);
- level of service (LOS); and
- volume to capacity (v/c) for the critical (i.e. stop controlled) movements.

With respect to the noted metrics:

- level of service 'A' corresponds to the best operating condition with minimal delays whereas level of service 'F' corresponds to poor operations resulting from high intersection delays (additional details regarding Level of Service definitions are provided in Appendix B); and
- a v/c ratio of less than 1.0 indicates the intersection movement is operating at less than capacity while v/c of 1.0 indicates capacity has been reached.

A summary of the analysis is provided Table 1, whereas detailed worksheets are included in Appendix C. Based on the existing volumes, the subject intersection currently provides excellent overall levels of service (LOS A) with minor delays during both peak hours.

[2] *Highway Capacity Manual, 6th Edition*. Transportation Research Board, October 2016.

Table 1: Intersection Operations – 2025

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
Bond Street & Gill Street	EB LR	stop	9	A	0.02	10	A	0.03
	NB LT	free	7	A	0.01	8	A	0.01

L - left T - through R - right LTR - left-through-right LT - left-through TR - through-right LR - left-right

2.4 NEED FOR IMPROVEMENTS

Based on the results of the operations assessment, no intersection improvements are required to support the existing conditions.

3 Proposed Development

This chapter will provide additional details with respect to the proposed development, including its location, land use and the projected site generated traffic volumes and the assignment of such to the adjacent road network.

3.1 LOCATION

The proposed development is to be located at 116 Bond Street in the City of Orillia (as illustrated in Figure 1). The site is bounded by residential properties to the west, north and east, and by Bond Street to the south.

3.2 LAND USE

3.2.1 Current Development Application

The proposed development will consist of 18 stacked townhouse units contained in 2 3-storey buildings. A site plan is provided in Figure 5.

3.2.2 Future Development Application

It is understood that 120 Bond Street, which abuts the east limit of the subject site and is also owned by the applicant, will be developed as a future phase under a separate development application. The future phase will add another 16 stacked townhouse units and will share access with the 116 Bond Street parcel. It is noted that this future phase is still conceptual and subject to change.

3.2.3 Phasing

While not part of the development application for 116 Bond Street, the traffic study has considered full build-out of both 116 and 120 Bond Street by the 2028 horizon.

3.3 ACCESS

3.3.1 Location

The site will be served by a single, full moves access on Bond Street.

3.3.2 Configuration

The access has been reviewed in context of the Ontario Provincial Standard Drawing (OPSD) for urban industrial, commercial and apartment entrances (OPSD 350.010) and the recommended

practices for access design as published in the Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads*[3]. The design elements are discussed in detail below.

Width & Right Turn Radius

For access, OPSD 350.010 requires a throat width in the order of 7.2 to 12.0 metres, with a curb radius between 4.5 and 12.0 metres. It is noted that the OPSD access dimensions are consistent with those recommended in the TAC *Design Guide.*

The access has a width of 7.2 metres (measured at the property line) and maintains a minimum corner radius of 9.0 metres. In consideration of the above, the access width and turn radius are considered appropriate.

Corner Clearance

Corner clearance is the minimum suggested distance between a proposed access and an adjacent intersection or driveway. The distance is typically measured from the near curb of the adjacent street/access to the near edge of the proposed access. Inadequate corner clearance can result in interrupted traffic flow, poor access operations and safety concerns. Appropriate corner clearance is of particular concern at intersections where stop or signal control is present (i.e. stop control and traffic signals may create queues that encroach on the operations of the adjacent driveway).

The corner clearance distance consists of three measurements: the corner curb radius of the adjacent intersection or access, a tangent section and the radius of the proposed access. The tangent section provides separation between the end of the adjacent intersection corner radius and the end of the proposed access radius. For a commercial access, TAC guidelines recommend a minimum tangent length of 5.0 metres from the nearest intersection and 3.0 metres from the nearest adjacent commercial access. For the purpose of this review, the commercial access requirements have been considered.

The proposed access location will provide a tangent length of approximately 60 metres to Gill Street to the east and a tangent length of approximately 170 metres to High Street to the west. As such, the resulting corner clearances to the adjacent intersections satisfy the TAC guidelines.

With respect to separation from the adjacent driveways, a minimum tangent length of approximately 14 metres will be provided between the site access and the adjacent residential access points to the east and west.

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[3] *Geometric Design Guide for Canadian Roads, Chapter 8.* Transportation Association of Canada. June 2017

Sight Lines

The sight line assessment has considered minimum stopping sight distance requirements as per the Transportation Association of Canada's (TAC) *Geometric Design Guide for Canadian Roads* as detailed below.

- The minimum stopping sight distance provides a sufficient distance for an approaching motorist to observe a stationary hazard in the road and bring their vehicle to a complete stop prior to the hazard.

The minimum stopping sight requirements for a design speed of 60 km/h (posted speed limit + 10 km/h on lower speed roads) is 85 metres.

The available sight lines along Bond Street are 65 metres to/from the east and 150 metres to/from the west. The sightlines to the east are limited by the termination of Bond Street at Gill Street. In this respect, the reduced sight distances are not considered problematic in that vehicles approaching from the east will be doing so at a reduced operating speed having just completed a turning movement from Gill Street to Bond Street.

Based on the above, the available sight lines along Bond Street at the site access are considered acceptable.

3.4 ON-SITE CIRCULATION

The *City of Orillia Zoning By-law 2014-44*[4] requires that an aisle providing access to parking spaces have a minimum width of 6.0 metres. As per the site plan, a minimum aisle width of 6.0 metres will be maintained throughout the site, thus satisfying the City's requirements.

With respect to emergency vehicle operations, an internal fire route has been established that will maintain the required minimum 6.0 metre clear width. As the fire route is not more than 90 metres, a turnaround facility within the site is not required. Rather, emergency vehicles will reverse out of the site as required.

3.5 PARKING

Vehicle Parking

For a residential development, the City's *Zoning By-law* requires a parking supply of 1.5 spaces per unit, or 27 spaces. As per the site plan, the development will provide 1.25 spaces per unit,

[4] *City of Orillia Zoning By-law 2014-44*. City of Orillia, June 2013 (Consolidated November 2022)

which translates to a parking supply of 23 spaces. The proposed parking supply is addressed in further detail in the *116 Bond Street Parking Justification Study*[5], provided under separate cover.

3.5.1 Bicycle Parking

For residential uses requiring more than 10 vehicle parking spaces, the City's *Zoning By-law* requires that 1 bicycle space be provided for every 10 vehicle spaces. With an overall parking requirement of 27 vehicle spaces, the site is required to provide 3 bicycle spaces. As per the site plan, 6 bicycle spaces will be provided.

3.6 SITE TRAFFIC

3.6.1 Trip Generation

The number of vehicle trips to be generated by the proposed development has been determined based on the type of use, development size and trip generation rates published in the *ITE Trip Generation Manual, 11th Edition*[6]. Based on the proposed development the trip rates for *multi-family housing – low-rise* (ITE code 220) have been applied.

The associated trip rates and trip estimates are provided in Table 2 and Table 3, respectively. As previously noted, trip generation for both 116 and 120 Bond Street has been considered.

Table 2: Trip Rates – Site

LAND USE	VARIABLE	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
multi-family housing – low-rise (ITE 220)	units	0.10	0.30	0.40	0.32	0.19	0.51

Table 3: Trip Estimates – 116 & 120 Bond Street

LAND USE	UNITS	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		In	Out	Total	In	Out	Total
116 Bond Street	18 units	2	5	7	6	3	9
120 Bond Street (Future)	16 units	1	5	6	5	3	8
	34 units	**3**	**10**	**13**	**11**	**6**	**17**

[5] *116 Bond Street Parking Justification Study.* Tatham Engineering Limited. January 2025.
[6] *ITE Trip Generation Manual, 11th Edition.* Institute of Transportation Engineers, September 2021.

As indicated, 116 Bond Street is expected to generate 7 trips during the AM peak hour and 9 trips during the PM peak hour.

When considering the completion of 120 Bond Street, the overall development block is expected to generate 13 trips during the AM peak hour and 17 trips during the PM peak hour.

3.6.2 Trip Distribution

The distribution of the site generated trips has been developed based on the results of the *Transportation Tomorrow Survey* (TTS) conducted in 2022. The TTS is a comprehensive travel survey conducted in the Greater Golden Horseshoe area once every five years. Based on data provided in the TTS, the following distribution was established:

- to from the north via Gill Street – 40%;
- to from the south via Gill Street – 25%; and
- to/from the west via Bond Street - 35%.

The distribution to the east along Bond Street considers the proximity of the site to the City's downtown and also includes traffic that will ultimately travel to/from the north, south and east. The distribution to/from the west along Bond Street includes traffic traveling to/from the west.

The assignment of the site generated traffic to the road network is illustrated in:

- Figure 6 for 116 Bond Street traffic;
- Figure 7 for 120 Bond Street traffic; and
- Figure 8 for both 116 and 120 Bond Street traffic.

4 Future Conditions

This chapter will address future traffic conditions and the resulting impacts of the proposed development on the adjacent road system. The following areas are to be addressed:

- traffic volumes;
- intersections operations including site access intersection with Bond Street; and
- potential improvements to the study area road network, if necessary.

For the purpose of this study, a 3-year full build-out horizon (2028) in addition to a 5-year beyond build-out horizon (2033) have been assessed and otherwise considered appropriate (in the context of the number of trips to be generated by the site) to determine the impact of the proposed development on the surrounding road network and as per City's guidelines.

4.1 TRAFFIC VOLUMES

Traffic volumes expected for the 2028 and 2033 horizon years have been determined based on the 2024 traffic counts, historical and projected growth, and consideration for the subject development volumes.

4.1.1 Background Growth

Background growth has been established in consideration of the following:

- Based on the Census data for the years 2016 and 2021, the population of the City of Orillia increased from 31,166 to 33,411 persons, translating to an annual growth rate of 1.4%.
- The *City of Orillia Official Plan*[7] estimates that the City's population will grow to 41,000 by the year 2031, translating to an annual growth of 2.0% from 2021 to 2031 (when considering the 2021 census population).
- The *City of Orillia Multi-Modal Transportation Master Plan*[8] (MTMP) forecasts the number of trips made to/from and within the City of Orillia to grow from 52,659 in 2016 to 63,900 by 2036, translating to an annual growth rate of approximately 1.0%.

Based on the above, and to ensure a conservative approach, an annual growth rate of 2% has been applied to the volumes on the road network.

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[7] *City of Orillia Official Plan.* City of Orillia, March 2010 (Consolidated November 2022).
[8] *Multi-Modal Transportation Master Plan, City of Orillia*. Stantec, November 2019.

4.1.2 Future Volumes

The 2028 and 2033 traffic volumes, based on the 2024 traffic counts and adjusted to reflect the noted annual background growth and the trips associated with the subject development (116 Bond Street and 120 Bond Street), are illustrated in Figure 9 and Figure 10, respectively.

4.2 TRAFFIC OPERATIONS

The study area intersection and development access intersection were analyzed to consider the future total traffic volumes. The results of the operational review are summarized in Table 4 (2028) and Table 5 (2033), with detailed worksheets provided in Appendix D.

Table 4: Intersection Operations – 2028

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
Bond Street & Gill Street	EB LR	stop	9	A	0.03	10	A	0.04
	NB LT	free	7	A	0.01	8	A	0.01
Bond Street & Site Access	EB LT	free	7	A	0.00	7	A	0.00
	SB LR	stop	9	A	0.01	9	A	0.01

L - left T - through R - right LTR - left-through-right LT - left-through TR - through-right LR - left-right

Table 5: Intersection Operations – 2033

INTERSECTION, MOVEMENT & CONTROL			WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			Delay	LOS	V/C	Delay	LOS	V/C
Bond Street & Gill Street	EB LR	stop	10	A	0.03	10	A	0.05
	NB LT	free	8	A	0.01	8	A	0.01
Bond Street & Site Access	EB LT	free	7	A	0.00	7	A	0.00
	SB LR	stop	9	A	0.01	9	A	0.01

L - left T - through R - right LTR - left-through-right LT - left-through TR - through-right LR - left-right

As indicated, the study area intersection will continue to provide excellent operations (LOS A) until 2033 horizon and the site access will provide excellent operations (LOS A).

4.3 NEED FOR IMPROVEMENTS

4.3.1 Intersection Operations

In consideration of the intersection operational analyses, no improvements are required to accommodate the additional site-generated traffic under future conditions.

4.3.2 Turn Lane Requirements

The peak hour turning volumes accessing the site (2 to 7 right turning vehicles and 2 to 5 left turning vehicles) are considered minimal and not such that would warrant or require the implementation of exclusive turn lanes.

5 Summary

Proposed Development

The study has addressed the transportation impacts associated with the proposed residential development to be located at 116 Bond Street in the City of Orillia. Upon completion, 116 Bond Street is expected to generate 7 trips during the AM peak hour and 9 trips during the PM peak hour. When considering the completion of 120 Bond Street, the overall development block is expected to generate 13 trips during the AM peak hour and 17 trips during the PM peak hour..

Transportation Impacts

In addressing the study area traffic operations, the intersection of Bond Street with Gill Street was analyzed under existing (2025) and future (2028 and 2033) horizon periods. Based on these assessments, the area road system can readily accommodate the development, and hence no improvements are required to support the proposed development.

Sight Line Assessment

Sight lines along Bond Street were reviewed at the access location and determined to satisfy the TAC guidelines for minimum stopping sight and intersection sight distances.

Turn Lane Requirements

Given the limited volumes accessing the site, exclusive turn lanes are not required to serve the subject site.

116 BOND STREET, TRANSPORTATION IMPACT BRIEF

Figure 1: Site Location

116 BOND STREET, TRANSPORTATION IMPACT BRIEF

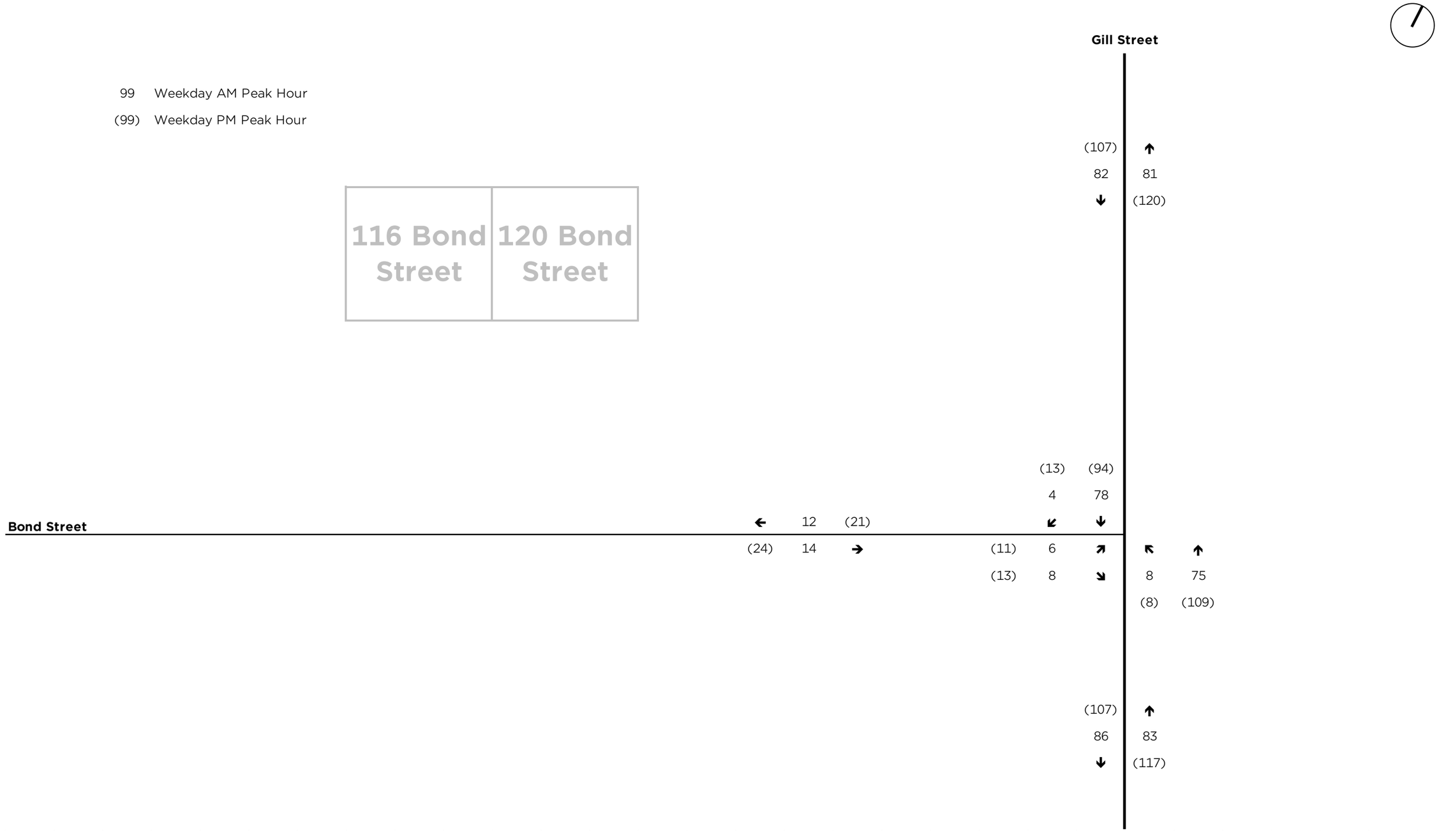
Figure 2A: Area Road Network

Looking west along Bond Street from site access

Looking east along Bond Street from site access

99 Weekday AM Peak Hour

(99) Weekday PM Peak Hour

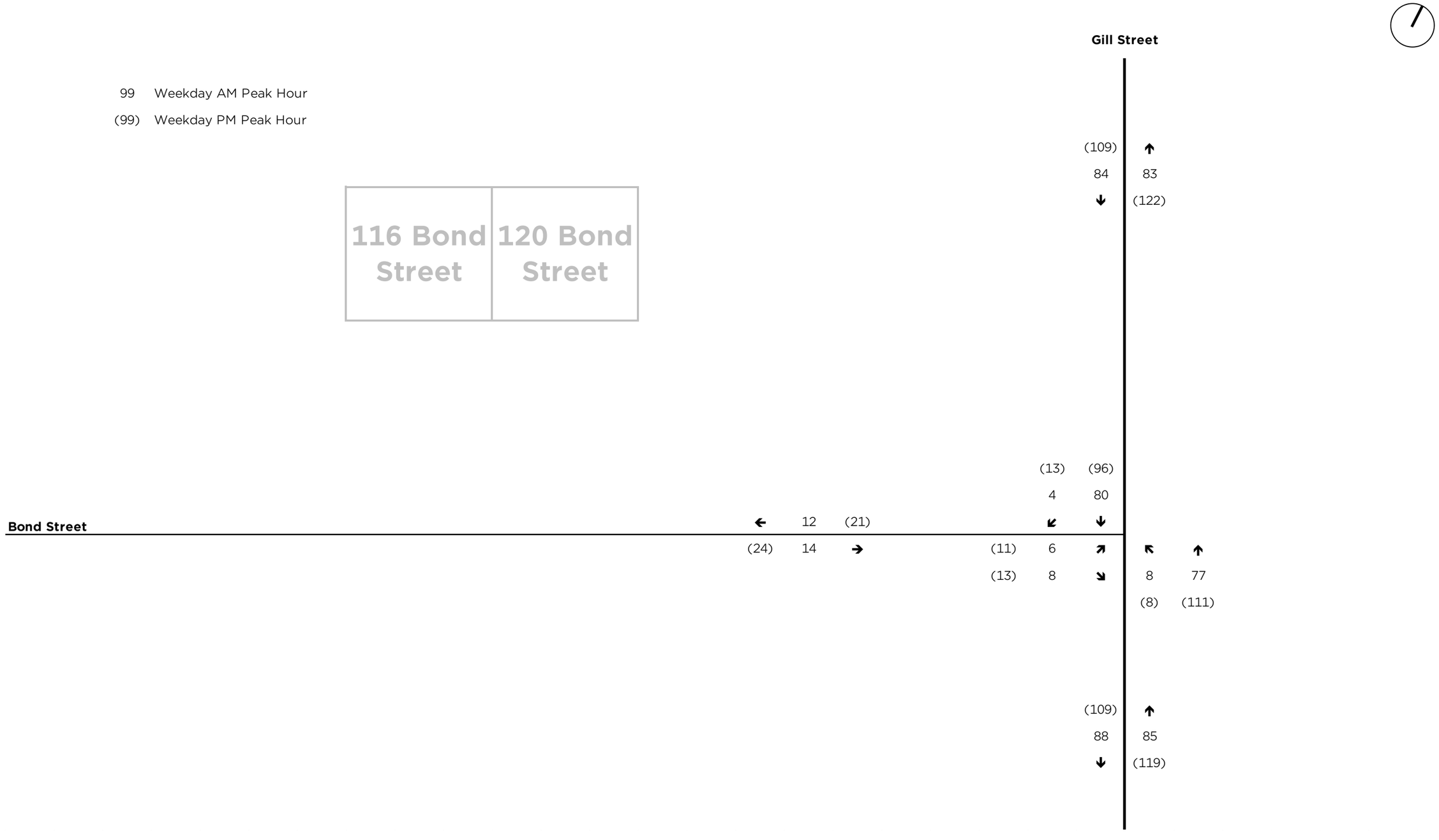


116 BOND STREET, TRANSPORTATION IMPACT BRIEF

Figure 3: Traffic Volumes – 2024 Counts

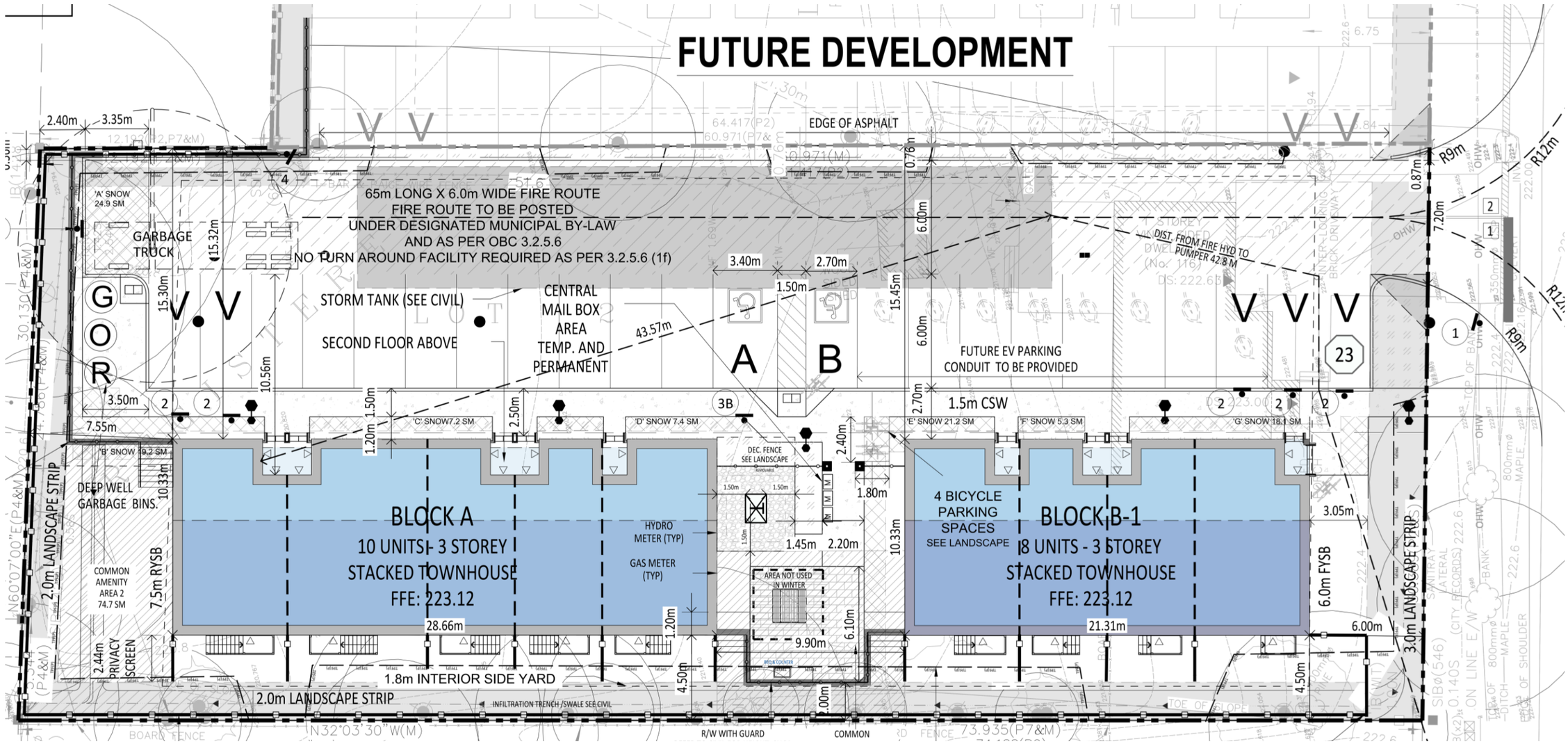
99 Weekday AM Peak Hour

(99) Weekday PM Peak Hour



116 BOND STREET, TRANSPORTATION IMPACT BRIEF

Figure 4: Traffic Volumes – 2025

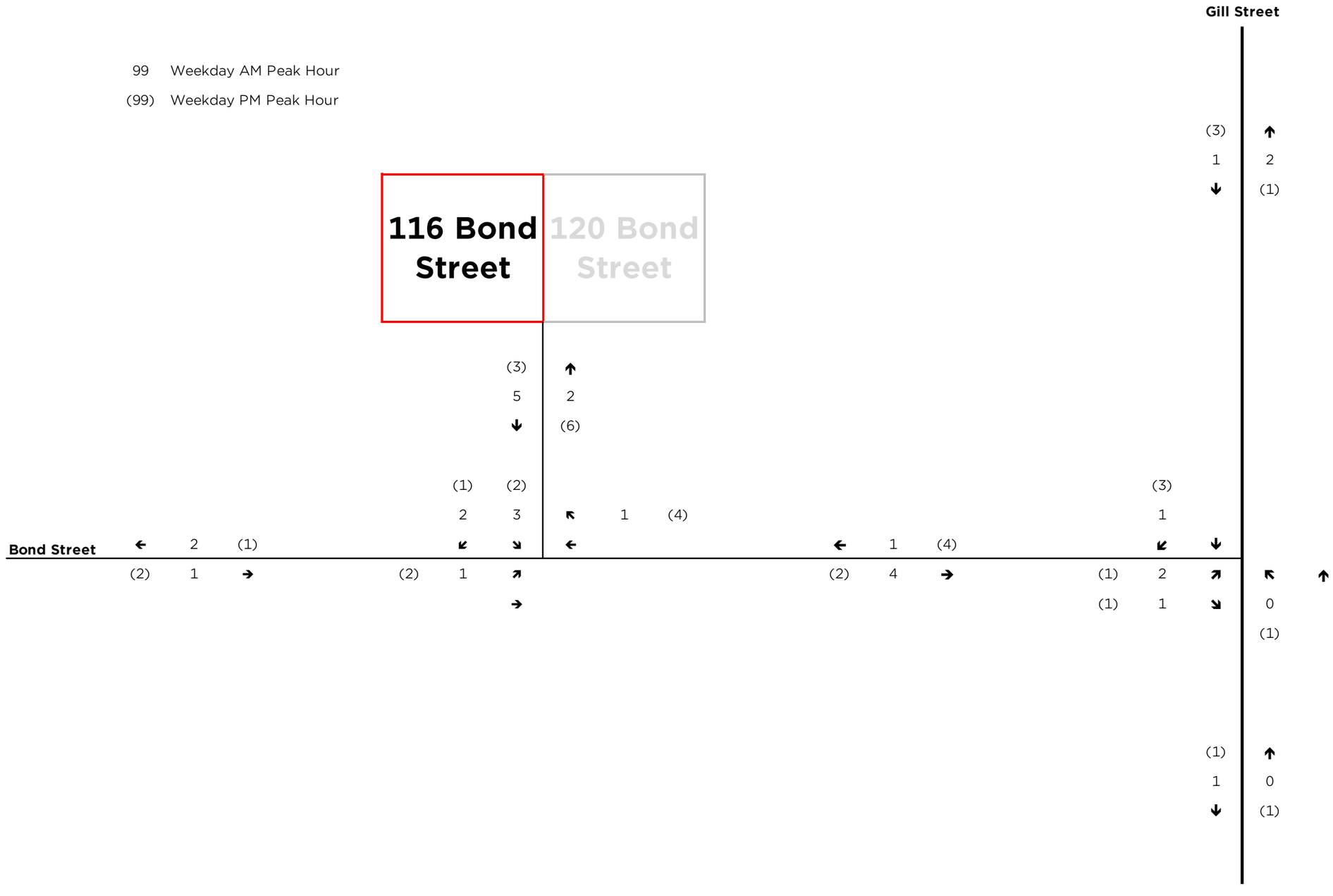


116 BOND STREET, TRANSPORTATION IMPACT BRIEF

Figure 5: Site Plan

99 Weekday AM Peak Hour

(99) Weekday PM Peak Hour



116 BOND STREET, TRANSPORTATION IMPACT BRIEF

Figure 6: Site Generated Traffic – 116 Bond Street

99 Weekday AM Peak Hour

(99) Weekday PM Peak Hour

Figure 7: Site Generated Traffic – 120 Bond Street

99 Weekday AM Peak Hour

(99) Weekday PM Peak Hour

Figure 8: Site Generated Traffic – 116 & 120 Bond Street

99 Weekday AM Peak Hour

(99) Weekday PM Peak Hour

116 BOND STREET, TRANSPORTATION IMPACT BRIEF

Figure 9: Traffic Volumes – 2028 Total

99 Weekday AM Peak Hour

(99) Weekday PM Peak Hour

Figure 10: Traffic Volumes – 2033 Total

Appendix A:
Traffic Counts

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Project #24-110 - Tatham Engineering Ltd

Intersection Count Report

Intersection:	Bond St & Gill St
Municipality:	Orillia
Count Date:	Thursday, Mar 14, 2024
Site Code:	2411000001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-10:00, 15:00-18:00
Weather:	Clear
Comments:	

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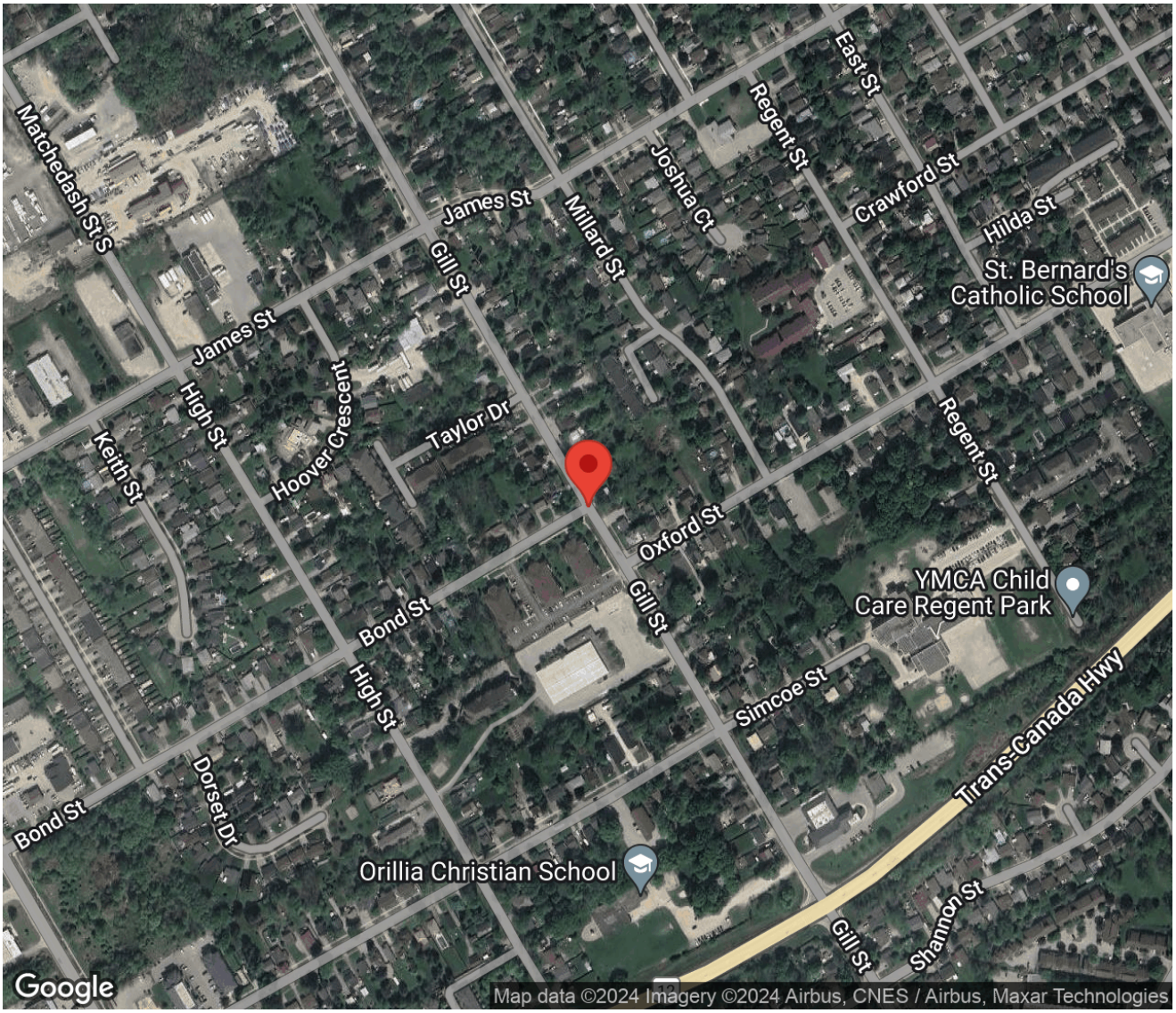
Traffic Count Map

Intersection:	Bond St & Gill St
Site Code:	2411000001
Municipality:	Orillia
Count Date:	Mar 14, 2024



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Traffic Count Summary

Intersection:	Bond St & Gill St
Site Code:	2411000001
Municipality:	Orillia
Count Date:	Mar 14, 2024

Gill St - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	43	4	0	47	0	13	39	0	0	52	1	99
08:00 - 09:00	0	75	5	0	80	0	8	68	0	0	76	4	156
09:00 - 10:00	0	53	7	0	60	0	3	72	0	0	75	1	135
BREAK													
15:00 - 16:00	0	81	12	0	93	0	6	84	0	0	90	0	183
16:00 - 17:00	0	96	10	0	106	0	6	95	0	0	101	5	207
17:00 - 18:00	0	103	12	0	115	0	3	82	0	0	85	0	200
GRAND TOTAL	**0**	**451**	**50**	**0**	**501**	**0**	**39**	**440**	**0**	**0**	**479**	**11**	**980**

Ontario Traffic Inc.
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Traffic Count Summary

Intersection:	Bond St & Gill St
Site Code:	2411000001
Municipality:	Orillia
Count Date:	Mar 14, 2024

Bond St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	0	0	0	0	0	1	0	8	0	9	1	9
08:00 - 09:00	0	0	0	0	0	0	4	0	10	0	14	0	14
09:00 - 10:00	0	0	0	0	0	0	5	0	6	0	11	0	11
BREAK													
15:00 - 16:00	0	0	0	0	0	0	4	0	10	0	14	0	14
16:00 - 17:00	0	0	0	0	0	0	9	0	11	0	20	0	20
17:00 - 18:00	0	0	0	0	0	0	13	0	7	0	20	0	20
GRAND TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**36**	**0**	**52**	**0**	**88**	**1**	**88**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Bond St & Gill St
Site Code: 2411000001
Municipality: Orillia
Count Date: Mar 14, 2024

North Approach - Gill St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
07:00	0	11	1	0	12	0	0	0	0	0	0	0	0	0	0	0
07:15	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0
07:30	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0
07:45	0	9	3	0	12	0	2	0	0	2	0	0	0	0	0	0
08:00	0	9	2	0	11	0	1	0	0	1	0	0	0	0	0	0
08:15	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0
08:30	0	21	1	0	22	0	2	0	0	2	0	0	0	0	0	0
08:45	0	27	2	0	29	0	1	0	0	1	0	0	0	0	0	0
09:00	0	13	1	0	14	0	0	0	0	0	0	0	0	0	0	0
09:15	0	14	2	0	16	0	0	1	0	1	0	0	0	0	0	0
09:30	0	14	2	0	16	0	0	1	0	1	0	0	0	0	0	0
09:45	0	12	0	0	12	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	165	14	0	179	0	6	2	0	8	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Bond St & Gill St
Site Code: 2411000001
Municipality: Orillia
Count Date: Mar 14, 2024

North Approach - Gill St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
15:00	0	26	4	0	30	0	1	0	0	1	0	0	0	0	0	0
15:15	0	14	3	0	17	0	0	0	0	0	0	0	0	0	0	0
15:30	0	20	3	0	23	0	2	0	0	2	0	1	1	0	2	0
15:45	0	17	1	0	18	0	0	0	0	0	0	0	0	0	0	0
16:00	0	30	0	0	30	0	0	0	0	0	0	0	0	0	0	0
16:15	0	19	3	0	22	0	0	0	0	0	0	0	0	0	0	0
16:30	0	24	4	0	28	0	0	0	0	0	0	1	0	0	1	0
16:45	0	22	3	0	25	0	0	0	0	0	0	0	0	0	0	0
17:00	0	28	3	0	31	0	0	0	0	0	0	0	0	0	0	0
17:15	0	30	2	0	32	0	0	0	0	0	0	0	0	0	0	0
17:30	0	20	4	0	24	0	0	0	0	0	0	0	0	0	0	0
17:45	0	25	3	0	28	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	275	33	0	308	0	3	0	0	3	0	2	1	0	3	0
GRAND TOTAL	0	440	47	0	487	0	9	2	0	11	0	2	1	0	3	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Bond St & Gill St
Site Code: 2411000001
Municipality: Orillia
Count Date: Mar 14, 2024

South Approach - Gill St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	1	8	0	0	9	0	0	0	0	0	0	0	0	0	0	0
07:15	5	13	0	0	18	0	0	0	0	0	0	1	0	0	1	0
07:30	2	7	0	0	9	0	2	0	0	2	0	0	0	0	0	0
07:45	5	8	0	0	13	0	0	0	0	0	0	0	0	0	0	1
08:00	0	14	0	0	14	0	1	0	0	1	0	0	0	0	0	0
08:15	1	16	0	0	17	0	1	0	0	1	0	0	0	0	0	1
08:30	3	16	0	0	19	0	1	0	0	1	1	0	0	0	1	1
08:45	2	19	0	0	21	0	0	0	0	0	1	0	0	0	1	2
09:00	0	22	0	0	22	0	0	0	0	0	0	0	0	0	0	1
09:15	0	17	0	0	17	0	1	0	0	1	0	0	0	0	0	0
09:30	1	18	0	0	19	1	2	0	0	3	0	0	0	0	0	0
09:45	1	12	0	0	13	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	21	170	0	0	191	1	8	0	0	9	2	1	0	0	3	6

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Bond St & Gill St
Site Code: 2411000001
Municipality: Orillia
Count Date: Mar 14, 2024

South Approach - Gill St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	1	20	0	0	21	0	2	0	0	2	0	0	0	0	0	0
15:15	1	17	0	0	18	0	1	0	0	1	0	0	0	0	0	0
15:30	2	21	0	0	23	1	1	0	0	2	0	0	0	0	0	0
15:45	1	22	0	0	23	0	0	0	0	0	0	0	0	0	0	0
16:00	0	16	0	0	16	0	0	0	0	0	0	1	0	0	1	3
16:15	2	30	0	0	32	0	1	0	0	1	0	0	0	0	0	2
16:30	1	18	0	0	19	0	0	0	0	0	0	1	0	0	1	0
16:45	3	28	0	0	31	0	0	0	0	0	0	0	0	0	0	0
17:00	2	31	0	0	33	0	0	0	0	0	0	0	0	0	0	0
17:15	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0
17:30	1	13	0	0	14	0	0	0	0	0	0	0	0	0	0	0
17:45	0	24	0	0	24	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	14	254	0	0	268	1	5	0	0	6	0	2	0	0	2	5
GRAND TOTAL	35	424	0	0	459	2	13	0	0	15	2	3	0	0	5	11

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Bond St & Gill St
Site Code: 2411000001
Municipality: Orillia
Count Date: Mar 14, 2024

West Approach - Bond St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
07:30	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
07:45	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
08:15	3	0	4	0	7	0	0	0	0	0	0	0	0	0	0	0
08:30	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0
09:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
09:15	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0
09:30	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	10	0	23	0	33	0	0	1	0	1	0	0	0	0	0	1

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Bond St & Gill St
Site Code: 2411000001
Municipality: Orillia
Count Date: Mar 14, 2024

West Approach - Bond St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0
15:15	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
16:00	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
16:15	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0
16:30	2	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0
16:45	2	0	5	0	7	0	0	0	0	0	0	0	0	0	0	0
17:00	6	0	2	0	8	0	0	0	0	0	0	0	0	0	0	0
17:15	3	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0
17:30	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0
17:45	3	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	26	0	28	0	54	0	0	0	0	0	0	0	0	0	0	0
GRAND TOTAL	**36**	**0**	**51**	**0**	**87**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 10:00:00

One Hour Peak
From: 08:15:00
To: 09:15:00

Intersection: Bond St & Gill St
Site Code: 2411000001
Count Date: Mar 14, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Gill St runs N/S

North Approach

	Out	In	Total
Cars	79	79	158
Trucks	3	2	5
Bicycles	0	0	0
	82	**81**	**163**

Gill St

Bicycles	0	0	0
Trucks	0	3	0
Cars	4	75	0
Totals	**4**	**78**	**0**

Bond St

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	6	**6**
0	1	7	**8**

Peds: 0

Peds: 0

Peds: 0

Peds: 5

West Approach

	Out	In	Total
Cars	13	10	23
Trucks	1	0	1
Bicycles	0	2	2
	14	**12**	**26**

Totals	**8**	**75**	**0**
Cars	6	73	0
Trucks	0	2	0
Bicycles	2	0	0

Gill St

South Approach

	Out	In	Total
Cars	79	82	161
Trucks	2	4	6
Bicycles	2	0	2
	83	**86**	**169**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Bond St & Gill St
Site Code:	2411000001
Count Date:	Mar 14, 2024
Period:	07:00 - 10:00

Peak Hour Data (08:15 - 09:15)

Start Time	North Approach Gill St						South Approach Gill St						East Approach						West Approach Bond St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
08:15		14	0	0	0	14	1	17		0	1	18					0		3		4	0	0	7	39
08:30		23	1	0	0	24	4	17		0	1	21					0		1		2	0	0	3	48
08:45		28	2	0	0	30	3	19		0	2	22					0		0		2	0	0	2	54
09:00		13	1	0	0	14	0	22		0	1	22					0		2		0	0	0	2	38
Grand Total		**78**	**4**	**0**	**0**	**82**	**8**	**75**		**0**	**5**	**83**					**0**	**0**	**6**		**8**	**0**	**0**	**14**	**179**
Approach %		95.1	4.9	0		-	9.6	90.4		0		-						-	42.9		57.1	0		-	
Totals %		43.6	2.2	0		45.8	4.5	41.9		0		46.4						0	3.4		4.5	0		7.8	
PHF		**0.7**	**0.5**	**0**		**0.68**	**0.5**	**0.85**		**0**		**0.94**						**0**	**0.5**		**0.5**	**0**		**0.5**	**0.83**
Cars		75	4	0		79	6	73		0		79						0	6		7	0		13	171
% Cars		96.2	100	0		96.3	75	97.3		0		95.2						0	100		87.5	0		92.9	95.5
Trucks		3	0	0		3	0	2		0		2						0	0		1	0		1	6
% Trucks		3.8	0	0		3.7	0	2.7		0		2.4						0	0		12.5	0		7.1	3.4
Bicycles		0	0	0		0	2	0		0		2						0	0		0	0		0	2
% Bicycles		0	0	0		0	25	0		0		2.4						0	0		0	0		0	1.1
Peds					0	-					5	-					0	-					0	-	5
% Peds					0	-					100	-					0	-					0	-	

Peak Hour Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Intersection: Bond St & Gill St
Site Code: 2411000001
Count Date: Mar 14, 2024

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Gill St runs N/S

North Approach

	Out	In	Total
Cars	106	118	224
Trucks	0	1	1
Bicycles	1	1	2
	107	**120**	**227**

Gill St

Bicycles	0	1	0
Trucks	0	0	0
Cars	13	93	0
Totals	**13**	**94**	**0**

Bond St

			Totals
0	0	0	**0**
0	0	11	**11**
0	0	13	**13**

Peds: 0

Peds: 0

Peds: 0

Peds: 2

West Approach

	Out	In	Total
Cars	24	21	45
Trucks	0	0	0
Bicycles	0	0	0
	24	**21**	**45**

Totals	**8**	**109**	**0**
Cars	8	107	0
Trucks	0	1	0
Bicycles	0	1	0

Gill St

South Approach

	Out	In	Total
Cars	115	106	221
Trucks	1	0	1
Bicycles	1	1	2
	117	**107**	**224**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Bond St & Gill St
Site Code: 2411000001
Count Date: Mar 14, 2024
Period: 15:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Gill St						South Approach Gill St						East Approach						West Approach Bond St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15		19	3	0	0	22	2	31		0	2	33					0		1		3	0	0	4	59
16:30		25	4	0	0	29	1	19		0	0	20					0		2		3	0	0	5	54
16:45		22	3	0	0	25	3	28		0	0	31					0		2		5	0	0	7	63
17:00		28	3	0	0	31	2	31		0	0	33					0		6		2	0	0	8	72
Grand Total		**94**	**13**	**0**	**0**	**107**	**8**	**109**		**0**	**2**	**117**					**0**	**0**	**11**		**13**	**0**	**0**	**24**	**248**
Approach %		87.9	12.1	0		-	6.8	93.2		0		-						-	45.8		54.2	0		-	
Totals %		37.9	5.2	0		43.1	3.2	44		0		47.2						0	4.4		5.2	0		9.7	
PHF		**0.84**	**0.81**	**0**		**0.86**	**0.67**	**0.88**		**0**		**0.89**						**0**	**0.46**		**0.65**	**0**		**0.75**	**0.86**
Cars		93	13	0		106	8	107		0		115						0	11		13	0		24	245
% Cars		98.9	100	0		99.1	100	98.2		0		98.3						0	100		100	0		100	98.8
Trucks		0	0	0		0	0	1		0		1						0	0		0	0		0	1
% Trucks		0	0	0		0	0	0.9		0		0.9						0	0		0	0		0	0.4
Bicycles		1	0	0		1	0	1		0		1						0	0		0	0		0	2
% Bicycles		1.1	0	0		0.9	0	0.9		0		0.9						0	0		0	0		0	0.8
Peds					0	-					2	-					0	-					0	-	2
% Peds					0	-					100	-					0	-					0	-	

Appendix B:
LOS Definitions

TATHAM ENGINEERING

Level of Service – Unsignalized Intersections

Level of Service (LOS) for unsignalized intersections is defined in terms of control delay for each critical lane. Control delay includes initial deceleration, queue move-up time, stopped delay and final acceleration delay, and is a function of the service rate or capacity of the approach and degree of saturation.

The following table describes in detail the characteristics of each level of service, with A being the best and F being the worst.

LOS	EXPECTED DELAY TO STREET TRAFFIC	DELAY (sec/veh)
A	Little or no delays	$0 < d \leq 10$
B	Short traffic delays	$10 < d \leq 15$
C	Average traffic delays	$15 < d \leq 25$
D	Long traffic delays	$25 < d \leq 35$
E	Very long traffic delays	$35 < d \leq 50$
F	Extreme delays with queuing which may cause congestion affecting other traffic movements in the intersection	$50 < d$

source: 2010 Highway Capacity Manual

Appendix C:
Traffic Operations - Existing

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	8	8	77	80	4
Future Vol, veh/h	6	8	8	77	80	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	10	10	93	96	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	212	99	101	0	-	0
Stage 1	99	-	-	-	-	-
Stage 2	113	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	776	957	1491	-	-	-
Stage 1	925	-	-	-	-	-
Stage 2	912	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	771	957	1491	-	-	-
Mov Cap-2 Maneuver	771	-	-	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	912	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1491	-	867	-	-
HCM Lane V/C Ratio	0.006	-	0.019	-	-
HCM Control Delay (s)	7.4	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	13	8	111	96	13
Future Vol, veh/h	11	13	8	111	96	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	15	9	129	112	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	267	120	127	0	-	0
Stage 1	120	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	722	931	1459	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	717	931	1459	-	-	-
Mov Cap-2 Maneuver	717	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	880	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1459	-	819	-	-
HCM Lane V/C Ratio	0.006	-	0.034	-	-
HCM Control Delay (s)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Appendix D:
Traffic Operations - Total

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	11	9	81	84	6
Future Vol, veh/h	11	11	9	81	84	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	13	11	98	101	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	225	105	108	0	-	0
Stage 1	105	-	-	-	-	-
Stage 2	120	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	763	949	1483	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	757	949	1483	-	-	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	905	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1483	-	842	-	-
HCM Lane V/C Ratio	0.007	-	0.031	-	-
HCM Control Delay (s)	7.4	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	14	13	2	6	4
Future Vol, veh/h	1	14	13	2	6	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	15	14	2	7	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	16	0	-	0	32	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1602	-	-	-	982	1065
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1602	-	-	-	981	1065
Mov Cap-2 Maneuver	-	-	-	-	981	-
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	1006	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1602	-	-	-	1013
HCM Lane V/C Ratio	0.001	-	-	-	0.011
HCM Control Delay (s)	7.2	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	16	11	118	102	19
Future Vol, veh/h	14	16	11	118	102	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	19	13	137	119	22

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	293	130	141	0	-	0
Stage 1	130	-	-	-	-	-
Stage 2	163	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	698	920	1442	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	691	920	1442	-	-	-
Mov Cap-2 Maneuver	691	-	-	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	866	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1442	-	797	-	-
HCM Lane V/C Ratio	0.009	-	0.044	-	-
HCM Control Delay (s)	7.5	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	22	23	7	4	2
Future Vol, veh/h	4	22	23	7	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	24	25	8	4	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	33	0	-	0	61	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	32	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1579	-	-	-	945	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	991	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1579	-	-	-	942	1046
Mov Cap-2 Maneuver	-	-	-	-	942	-
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	991	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	974
HCM Lane V/C Ratio	0.003	-	-	-	0.007
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	12	10	90	93	6
Future Vol, veh/h	11	12	10	90	93	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	14	12	108	112	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	248	116	119	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	132	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	740	936	1469	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	894	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	733	936	1469	-	-	-
Mov Cap-2 Maneuver	733	-	-	-	-	-
Stage 1	901	-	-	-	-	-
Stage 2	894	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	827	-	-
HCM Lane V/C Ratio	0.008	-	0.034	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	16	14	2	6	4
Future Vol, veh/h	1	16	14	2	6	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	17	15	2	7	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	17	0	-	0	35	16
Stage 1	-	-	-	-	16	-
Stage 2	-	-	-	-	19	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1600	-	-	-	978	1063
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	1004	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1600	-	-	-	977	1063
Mov Cap-2 Maneuver	-	-	-	-	977	-
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	1004	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1600	-	-	-	1010
HCM Lane V/C Ratio	0.001	-	-	-	0.011
HCM Control Delay (s)	7.3	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	17	12	130	112	20
Future Vol, veh/h	15	17	12	130	112	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	20	14	151	130	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	321	142	153	0	-	0
Stage 1	142	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	673	906	1428	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	666	906	1428	-	-	-
Mov Cap-2 Maneuver	666	-	-	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1428	-	775	-	-
HCM Lane V/C Ratio	0.01	-	0.048	-	-
HCM Control Delay (s)	7.5	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	25	25	7	4	2
Future Vol, veh/h	4	25	25	7	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	27	27	8	4	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	35	0	-	0	66	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	35	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1576	-	-	-	939	1043
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	987	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1576	-	-	-	936	1043
Mov Cap-2 Maneuver	-	-	-	-	936	-
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	987	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1576	-	-	-	969
HCM Lane V/C Ratio	0.003	-	-	-	0.007
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0