3770 Hazel Street
Fort Erie (Ridgeway) ON
Transportation Impact Assessment

Paradigm Transportation Solutions Limited

February 2023
220558

ptsl.com

Project Summary

Project Number
220558

February 2023

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3770 Hazel Street
Fort Erie (Ridgeway) ON
Transportation Impact Assessment

Erica Bayley, P.Eng.

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Executive Summary

Content

Schout Communities retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Assessment (TIA) for a proposed residential development located at 3770 Hazel Street in the Town of Fort Erie (Ridgeway).

This study determines the impacts of the development traffic on the surrounding road network and identifies the recommended improvements, if necessary, to accommodate the site generated traffic.

Development Concept

The site concept includes 93 townhouse units. Vehicle access is proposed by three private driveways. A driveway is proposed to form the fourth leg to the Pearl Street and Belleview Boulevard intersection and two driveways are proposed to Hazel Street. Build-out of the site is anticipated to occur by Year 2025.

Conclusion

The main findings and conclusions of this study are as follows:

- **Base Year Traffic**: The study area intersections are operating within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.
- **Trip Generation**: The site's trip generation is estimated to be approximately 52 AM peak hour vehicle trips and 61 PM peak hour vehicle trips.
- **Background Traffic**: The study area intersections are forecast to continue to operate within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.
- **Total Traffic**: The study area intersections are forecast to continue to operate within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.

  The site driveway approaches to Hazel Street and Belleview Boulevard are forecast to operate with delays in the LOS A range with low v/c ratios. Queues on the driveway approaches are forecast to be minimal (less than one vehicle) and would not be expected to interfere with the proposed private driveways to

the various townhouse units near the site driveway intersections.

- **Remedial Measures**: No changes to the existing lane configurations or traffic control are recommended to support the development of the subject site.

Recommendations

Based on the findings of this study, it is recommended the development proceed without any changes to the existing transportation network.

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1 Introduction

1.1 Overview

Schout Communities retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Assessment (TIA) for a proposed residential development located at 3770 Hazel Street in the Town of Fort Erie (Ridgeway). **Figure 1.1** illustrates the site location.

The scope of the study includes:

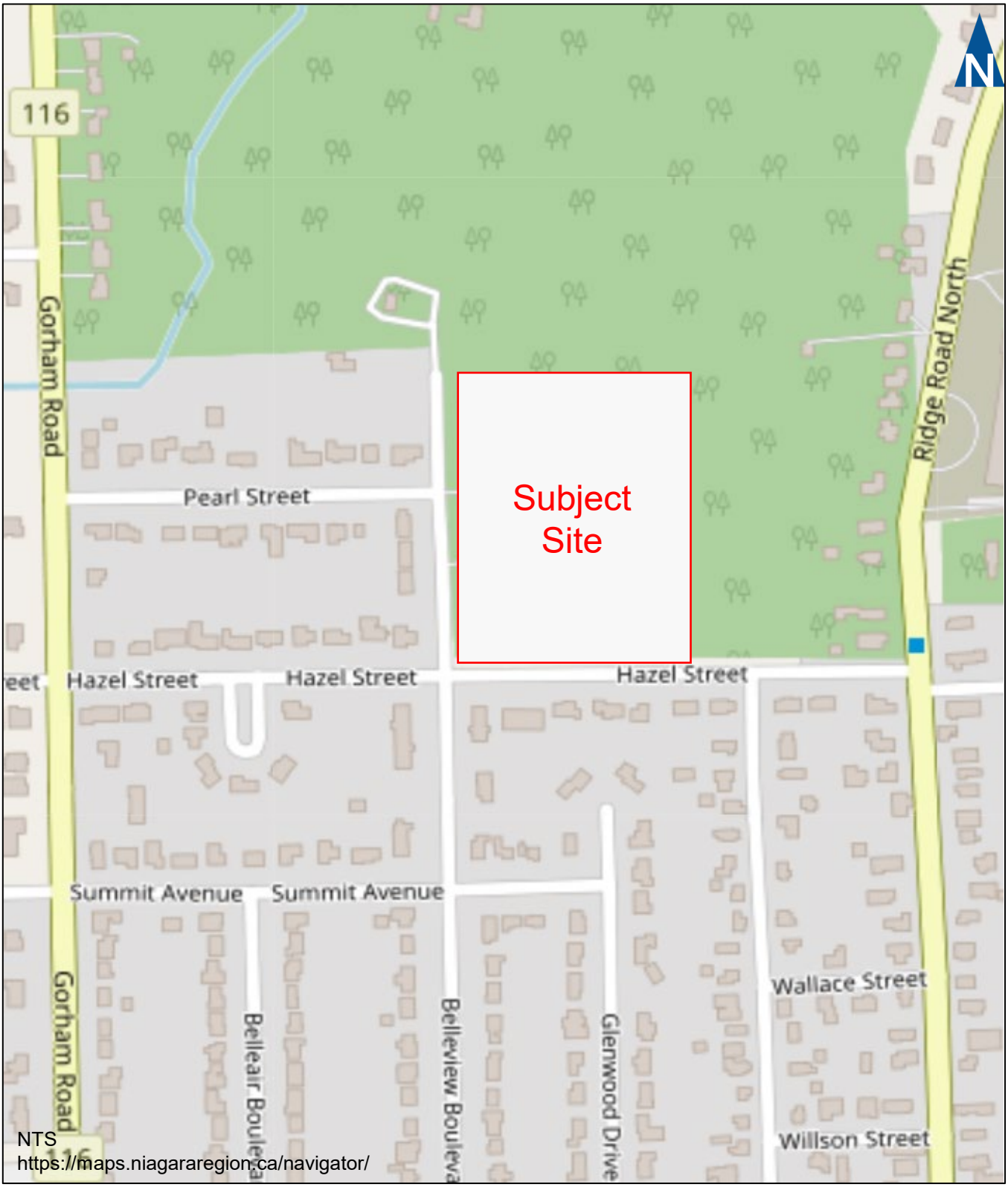
- Determine and assess the current study area traffic conditions;
- Forecast the additional traffic generated by the proposed development;
- Analyze the impacts of this additional traffic on the study area road network; and
- Recommend any necessary remedial measures required to mitigate these impacts.

Appendix A contains the pre-study consultation material and responses from the Town of Fort Erie and Niagara Region. The study generally follows the Niagara Region[1] Transportation Impact Study (TIS) guidelines.

The study area intersections assessed in this study include:

- Gorham Road (RR116) at Pearl Street (unsignalized);
- Gorham Road (RR116) at Hazel Street (unsignalized);
- Belleview Boulevard at Pearl Street (unsignalized);
- Belleview Boulevard at Hazel Street (unsignalized);
- Ridge Road North at Hazel Street (unsignalized); and
- The proposed site driveways (assumed unsignalized).

[1] (Niagara Region). Guidelines for Transportation Impact Studies. (Niagara: May 2012).



NTS
https://maps.niagararegion.ca/navigator/

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Site Location

3770 Hazel Street
220558

Figure 1.1

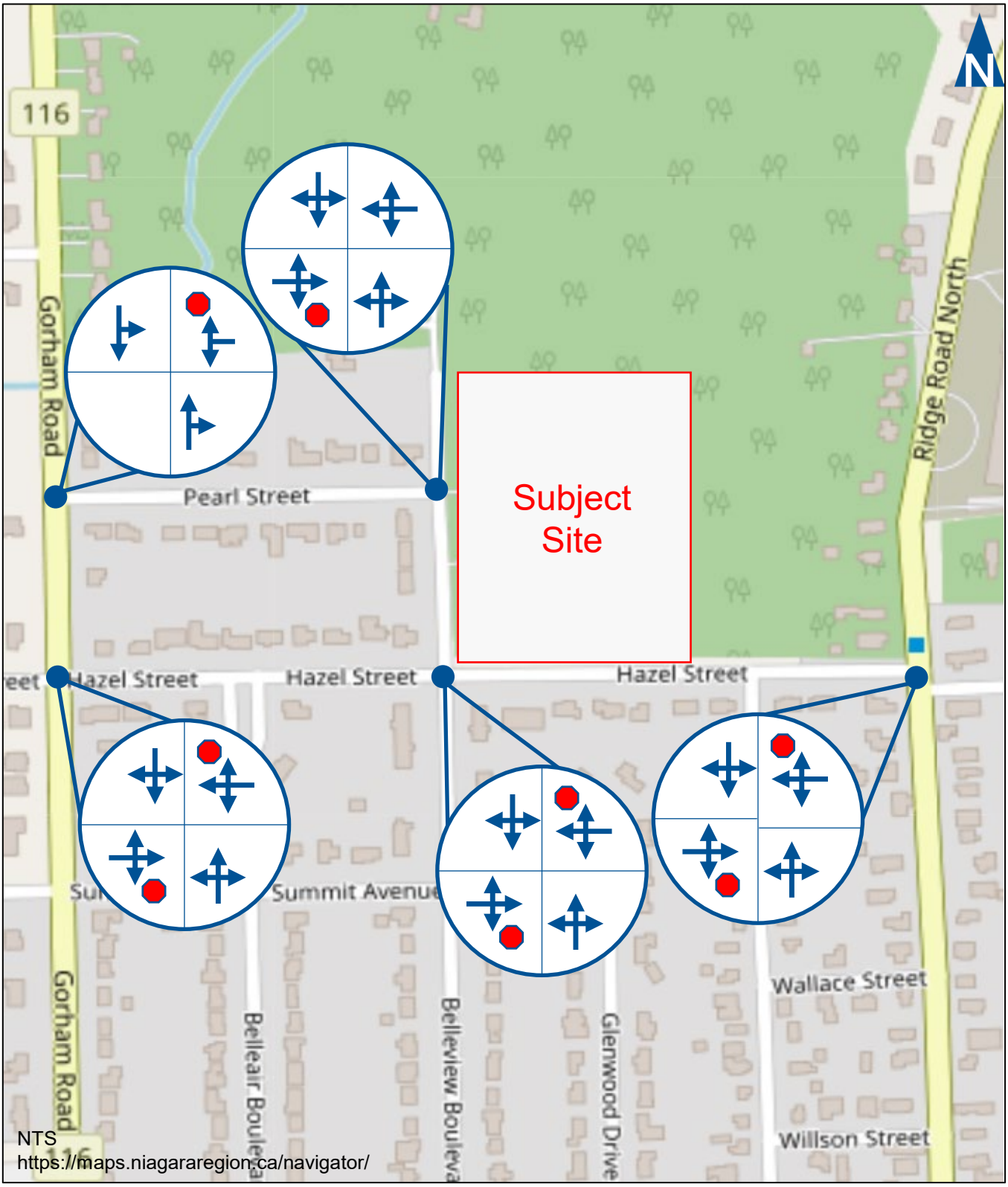
2 Existing Conditions

2.1 Road Network

The roadways of interest within the study area include:

- **Hazel Street** is an east-west local road with a two-lane rural cross-section. The road has a posted speed limit of 40 km/h west of Ridge Road North and a 50 km/h speed limit to the east. A sidewalk is provided on the north side of the road between Ridge Road North and Belleview Boulevard. The east leg of the Ridge Road North intersection is offset approximately 15 m (centreline to centerline) south of the west leg.
- **Belleview Boulevard** is a north-south local road with a two-lane rural cross-section. The posted speed limit is 40 km/h within the study area. No sidewalks are provided along this roadway.
- **Pearl Street** is an east-west local road with a two-lane rural cross-section. The speed limit changes from 50 km/h to 40 km/h about mid-point between Belleview Boulevard and Gorham Road. The 40 km/h section continues east to Belleview Boulevard. No sidewalks are provided along this roadway.
- **Gorham Road** is a north-south local road with a two-lane rural cross-section. The posted speed limit is 50 km/h within the study area. A sidewalk is provided on the west side of the road from Summit Avenue to just north of Christina Court.
- **Ridge Road North** is a north-south local road with a two-lane rural cross-section. The speed limit is 40 km/h north of Hazel Street and 50 km/h south of Hazel Street. Sidewalks are provided on both sides of the road.

Figure 2.1 illustrates the existing lane configuration and traffic control at the study area intersections.



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Existing Lane Configuration & Traffic Control

3770 Hazel Street
220558

Figure 2.1

2.2 Active Transportation

The Town's active transportation infrastructure includes on-street and off-street cycling facilities and pedestrian walkways. On-street cycling facilities comprise of cycling lanes, signed cycling routes, and paved shoulders. Off-street facilities are in the form of multi-use or informal trails.

Figure 2.2 illustrates the active transportation facilities near the subject site[2].

The Region's Strategic Cycling Network Technical Paper[3] identifies the cycling network in Niagara Region. An infill link is identified on Ridge Road North, but no specific planned improvements are noted.

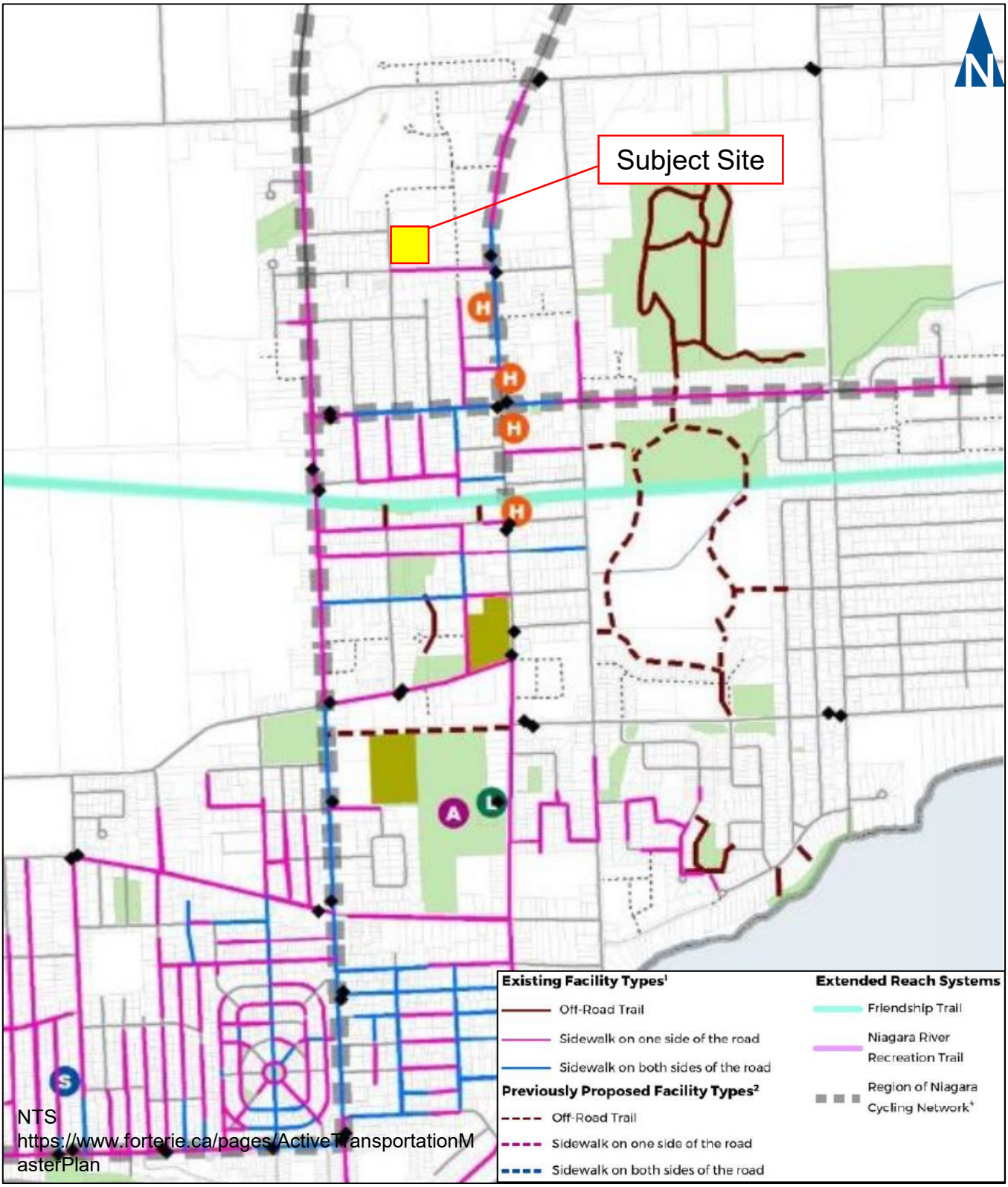
2.3 Transit Service

Fort Erie Transit operates the public transit system in the Town of Fort Erie. In October 2021, the Town has replaced its fixed-route service with an On-Demand service[4].

The On-Demand service is a shared-ride public transit service without a fixed schedule or route. The vehicles' path is optimized by software and is based upon rider trip requests. As the service operates within the entire Town, riders can travel without transfers. Riders may have to walk up to 400 metres to a bus stop or point of interest to meet their vehicle. Rides can be booked by calling customer service, booking online, or through the app from Monday to Saturday from 6:00 AM to 9:00 PM. The service is unavailable Sunday or Statutory holidays.

Fort Erie Accessible Specialized Transit (FAST) provides curb-to-curb transportation services within Fort Erie to people who, due to a mobility challenge, would be physically unable to board the conventional transit buses or walk 175 metres. Service is available Monday to Saturday from 6:00 AM to 9:00 PM but is unavailable Sunday or Statutory holidays.

2 Map 2b – Existing and Previously Planned Pedestrian and Trail Conditions – Active Transportation Master Plan Technical Memo #1, Town of Fort Erie, June 2019.
3 Strategic Cycling Network Development Technical Paper, Nagara Region, June 2017.
4 www.fetransit.ca



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Existing Lane Configuration & Traffic Control

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Figure 2.2

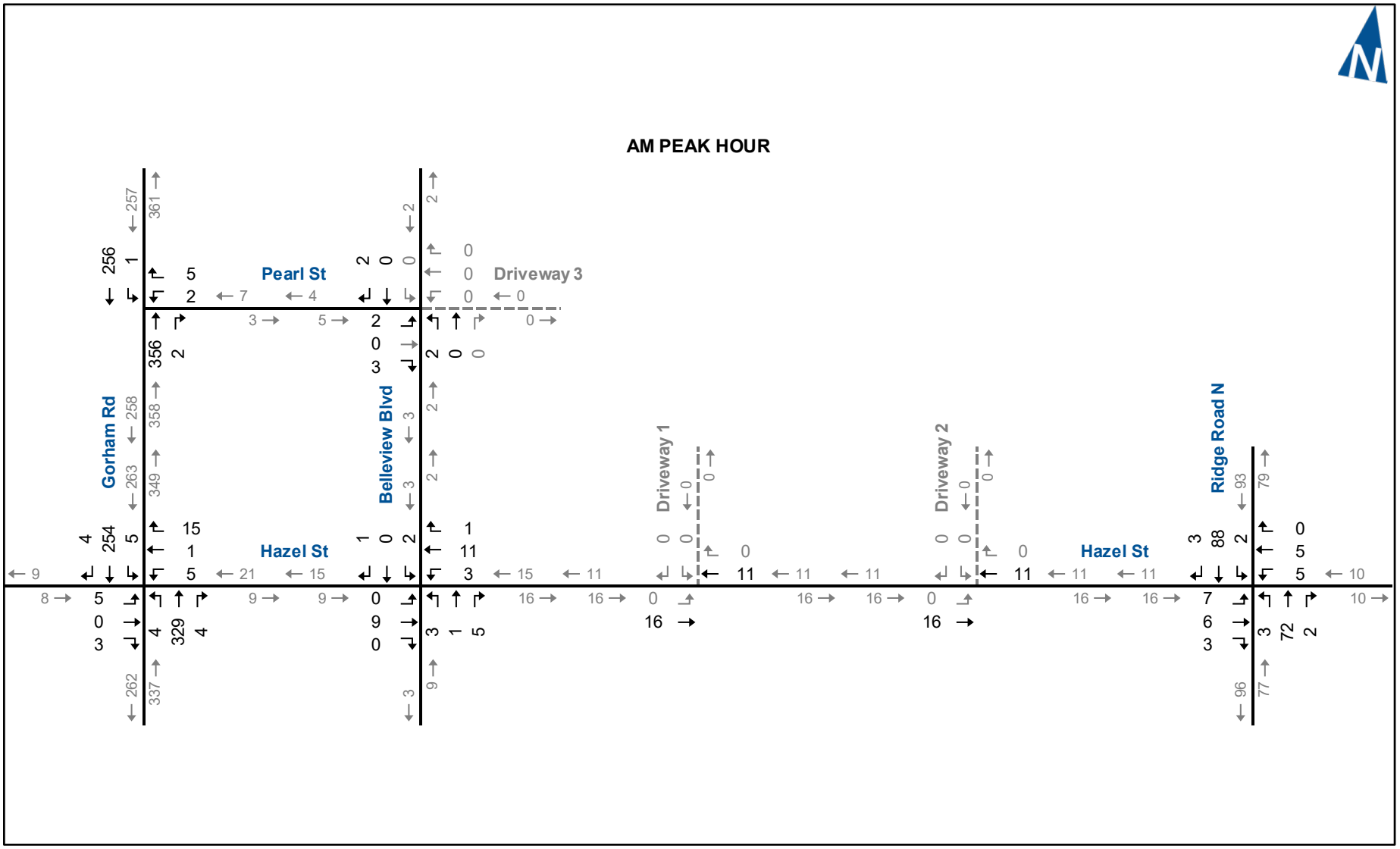
2.4 Traffic Volumes

Table 2.1 summarizes the location and date of the existing turning movement count (TMC) data used in the analysis. The data was collected by Paradigm using Miovision Scout Unit Technology. **Appendix B** contains the existing count data.

Figure 2.3A illustrates the existing AM peak hour traffic volumes and **Figure 2.3B** illustrates the existing PM peak hour traffic volumes.

TABLE 2.1: EXISTING TURNING MOVEMENT COUNTS

Intersection	Date
Gorham Road & Pearl Street	Wednesday, November 16, 2022
Gorham Road & Hazel Street	Wednesday, November 16, 2022
Belleview Boulevard & Pearl Street	Wednesday, November 16, 2022
Belleview Boulevard & Hazel Street	Wednesday, November 16, 2022
Ridge Road North & Hazel Street	Wednesday, November 16, 2022



Existing Traffic Volumes – AM Peak Hour

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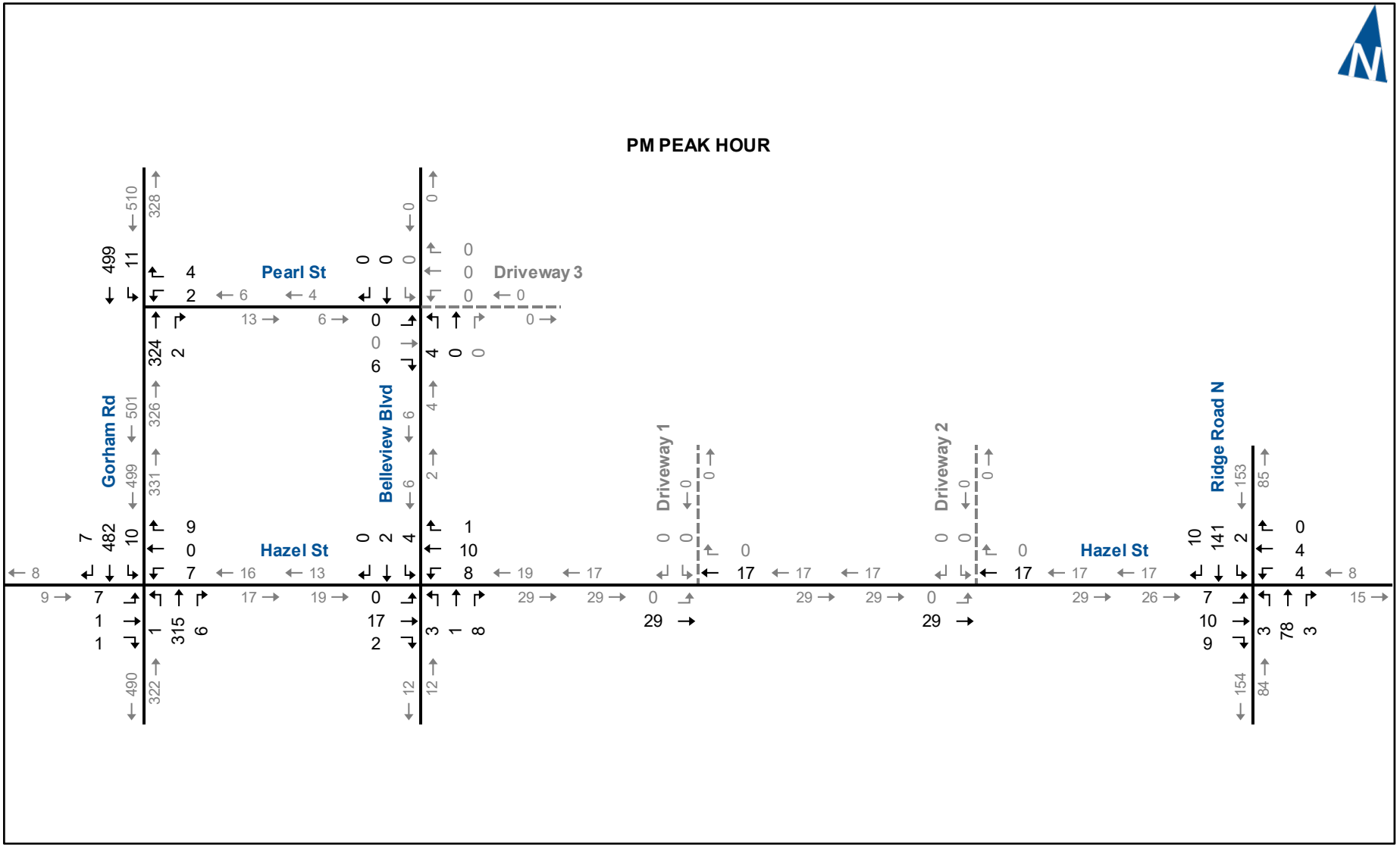
Figure 2.3A



Existing Traffic Volumes – PM Peak Hour

3770 Hazel Street
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Figure 2.3B

2.5 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the efficiency of traffic flow at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles wanting to make a movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows. The highest possible rating is LOS A, under which the average total delay is equal or less than 10 seconds per vehicle. When the average delay exceeds 80 seconds at signalized intersections (50 seconds at unsignalized), the movement is considered to have a LOS F and remedial measures are usually implemented if they are feasible.

The operations of the intersections in the study area were evaluated under existing conditions using Synchro 11 and HCM 2000 procedures. The intersection analysis considered three separate measures of performance:

- The LOS for each turning movement;
- The volume to capacity ratio (v/c) for each movement; and
- The 95th percentile queue lengths using Synchro 11.

Under the Region's TIS Guidelines, the operational analysis must include identification of signalized and unsignalized intersections where:

- Volume to Capacity ratios (v/c) for through, shared through/turning or exclusive right-turn movements that exceed 0.85 at a signalized intersection;
- v/c ratios for exclusive left-turn movements that exceed 0.90 at a signalized intersection;
- The 95th percentile queues for an individual movement are projected to exceed available turning lane storage; and
- LOS, based on average delay per vehicle on individual movements, operates at LOS D or worse for unsignalized intersections.

Table 2.2 summarizes the level of service conditions.

The study area intersections are operating within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.

Appendix C contains the detailed Synchro 11 reports.

TABLE 2.2: EXISTING OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																OVERALL
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Gorham Road & Pearl Street	TWSC	LOS					<		B	**B**		A	>	**A**	<	A		**A**	**A**
			Delay					<		12	**12**		0	>	**0**	<	0		**0**	**0**
			V/C					<		0.0			0.23	>		<	0.00			
			95th					<		0			0	>		<	0			
	Gorham Road & Hazel Street	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	13	>	**13**	<	12	>	**12**	<	0	>	**0.1**	<	0	>	**0.2**	**1**
			V/C	<	0.02	>		<	0.04	>		<	0.00	>		<	0.00	>		
			95th	<	0	>		<	1	>		<	0	>		<	0	>		
	Belleview Blvd & Pearl Street	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	8	>	**8**	<	0	>	**0**	<	7	>	**7**	<	0	>	**0**	**6**
			V/C	<	0.00	>		<	0.01	>		<	0.00	>		<	0.00	>		
			95th	<	0	>		<	0	>		<	0	>		<	0	>		
	Belleview Blvd & Hazel Street	TCS	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	9	>	**9**	<	9	>	**9**	<	2	>	**2**	<	5	>	**5**	**7**
			V/C	<	0.01	>		<	0.02	>		<	0.00	>		<	0.00	>		
			95th	<	0	>		<	0	>		<	0	>		<	0	>		
	Ridge Road N & Hazel Street	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	10	>	**10**	<	10	>	**10**	<	0	>	**0**	<	0	>	**0**	**2**
			V/C	<	0.02	>		<	0.01	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	0	>		<	0	>		<	0	>		
PM Peak Hour	Gorham Road & Pearl Street	TWSC	LOS					<		B	**B**		A	>	**A**	<	A		**A**	**A**
			Delay					<		13	**13**		0	>	**0**	<	0		**0**	**0**
			V/C					<		0.0			0.21	>		<	0.01			
			95th					<		0			0	>		<	0			
	Gorham Road & Hazel Street	TWSC	LOS	<	C	>	**C**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	19	>	**19**	<	15	>	**15**	<	0	>	**0.0**	<	0	>	**0.3**	**1**
			V/C	<	0.04	>		<	0.05	>		<	0.00	>		<	0.01	>		
			95th	<	1	>		<	1	>		<	0	>		<	0	>		
	Belleview Blvd & Pearl Street	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	8	>	**8**	<	0	>	**0**	<	7	>	**7**	<	0	>	**0**	**8**
			V/C	<	0.01	>		<	0.03	>		<	0.00	>		<	0.00	>		
			95th	<	0	>		<	0	>		<	0	>		<	0	>		
	Belleview Blvd & Hazel Street	TCS	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	9	>	**9**	<	9	>	**9**	<	2	>	**2**	<	5	>	**5**	**7**
			V/C	<	0.02	>		<	0.02	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	1	>		<	0	>		<	0	>		
	Ridge Road N & Hazel Street	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	10	>	**10**	<	11	>	**11**	<	0	>	**0**	<	0	>	**0**	**1**
			V/C	<	0.04	>		<	0.01	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	0	>		<	0	>		<	0	>		

MOE - Measure of Effectiveness
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
LOS - Level of Service

V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)

> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

3 Development Concept

3.1 Description

The subject site is located at 3770 Hazel Street in the Town of Fort Erie (Ridgeway).

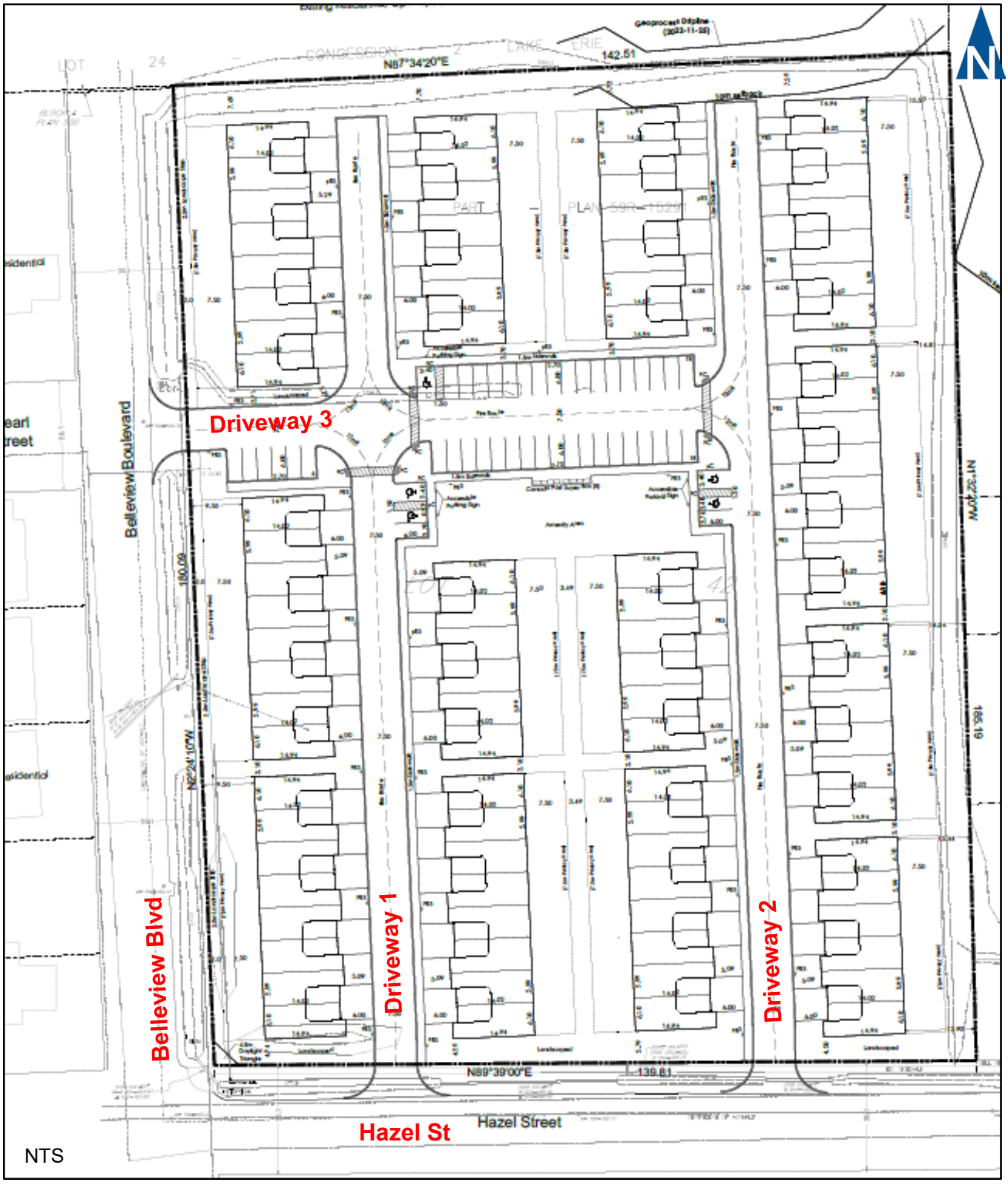
The site concept includes 93 townhouse units with vehicle access proposed by three private driveways.

A driveway is proposed to form the fourth leg to the Pearl Street and Belleview Boulevard intersection and two driveways are proposed to Hazel Street. The Hazel Street driveways are proposed approximately 45 m and 110 m east of Belleview Boulevard. All site driveways are assumed to operate under stop control on the minor approach.

The site's parking supply meets the Town's zoning requirements as indicated on the site plan.

Build-out of the site is anticipated to occur by Year 2025, subject to market conditions.

Figure 3.1 illustrates the site concept plan.



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Site Concept Plan

3770 Hazel Street
220558

Figure 3.1

3.2 Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation[5] methods are used to estimate the site trip generation. The fitted curve equations[6] for Land Use Code (LUC) Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) is used.

To remain conservative, no modal split adjustments have been applied to the trip generation estimate to account for active transportation or transit-oriented trips.

Table 3.1 summarizes the estimated trip generation. The subject site is forecast to generate approximately 51 and 60 vehicle trips during the AM and PM peak hours, respectively.

TABLE 3.1: ESTIMATED TRIP GENERATION

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
LUC 220 Multifamily Housing (Low-Rise) * - 93 Units	12	40	52	38	23	61
Total Generation	**12**	**40**	**52**	**38**	**23**	**61**

*AM - T = 0.31(X) + 22.85, PM - T = 0.43(X) + 20.55

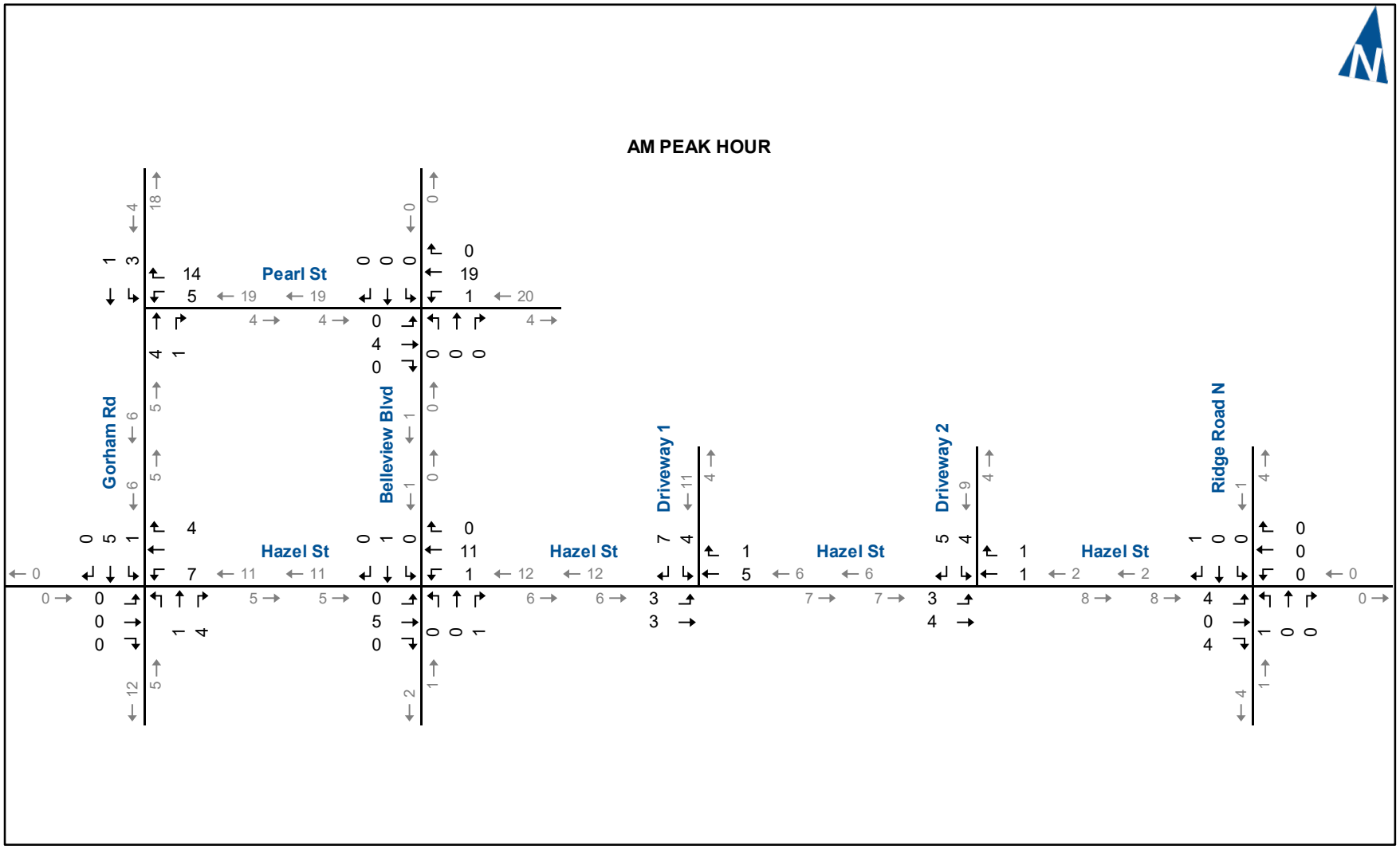
Table 3.2 summarizes the estimated trip distribution. The distribution was developed using the existing traffic volumes near the subject site as the surrounding land uses are primarily residential. **Figure 3.2A** illustrates the AM site-generated traffic volumes. **Figure 3.2B** illustrates the PM site-generated traffic volumes.

[5] *Trip Generation Eleventh Edition*, Institute of Transportation Engineers, Washington D.C., 2021

[6] AM: T = 0.31(X) + 22.85 | PM: T = 0.43(X) + 20.55

TABLE 3.2: ESTIMATED TRIP DISTRIBUTION

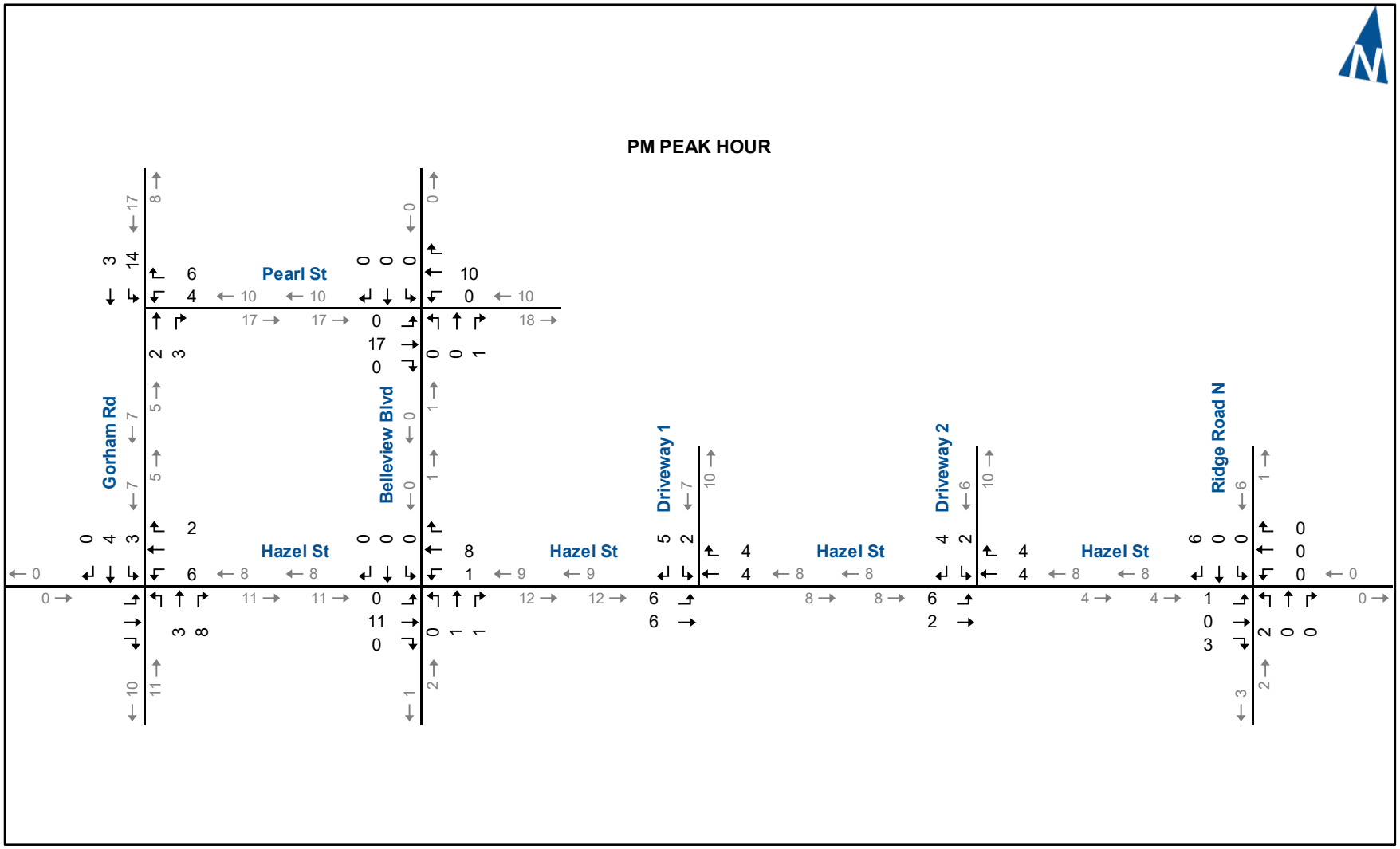
Origin/Destination	AM Peak Hour		PM Peak Hour	
	In	Out	In	Out
North via Gorham Road	30%	45%	45%	30%
North via Ridge Road North	10%	10%	15%	5%
South via Gorham Road	45%	30%	30%	45%
South via Ridge Road North	10%	10%	5%	15%
South via Bellview Boulevard	5%	5%	5%	5%
East via Hazel Street	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**



Site Generated Traffic Volumes – AM Peak Hour

3770 Hazel Street
220558

Figure 3.2A



Site Generated Traffic Volumes – PM Peak Hour

3770 Hazel Street
220558

Figure 3.2B

4 Future Traffic Conditions

The assessment of future conditions in this section includes the following components:

- Future background traffic estimates;
- Level of service analysis for background traffic (pre-development);
- Future total traffic estimates; and
- Level of service analysis for total traffic (post-development).

4.1 Forecast Traffic

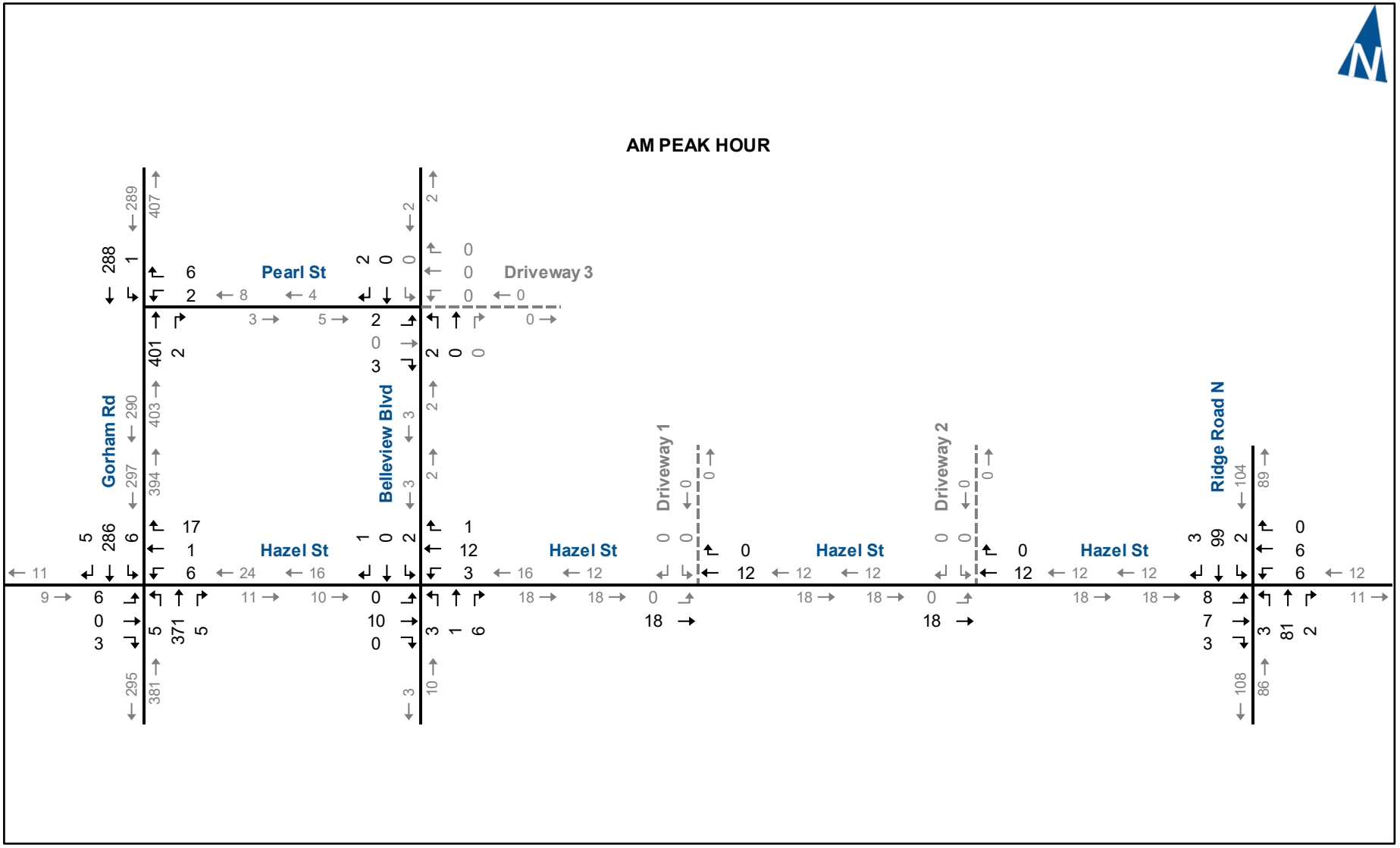
A five-year horizon (Year 2028) from the date of the study is assessed. The likely future traffic volumes near the subject site are estimated to consist of:

- Increased non-site traffic (generalized background traffic growth);
- Traffic generated by the proposed development.

A background growth rate of 2.0% per annum was applied to existing traffic volumes to forecast future conditions as identified during pre-study consultation. No background developments were identified by Town or Regional staff during pre-study consultation for inclusion in the traffic forecasts.

Figure 4.1A illustrates the forecast background traffic volumes for the AM peak hour and **Figure 4.1B** illustrates the forecast background traffic volumes for the PM peak hour.

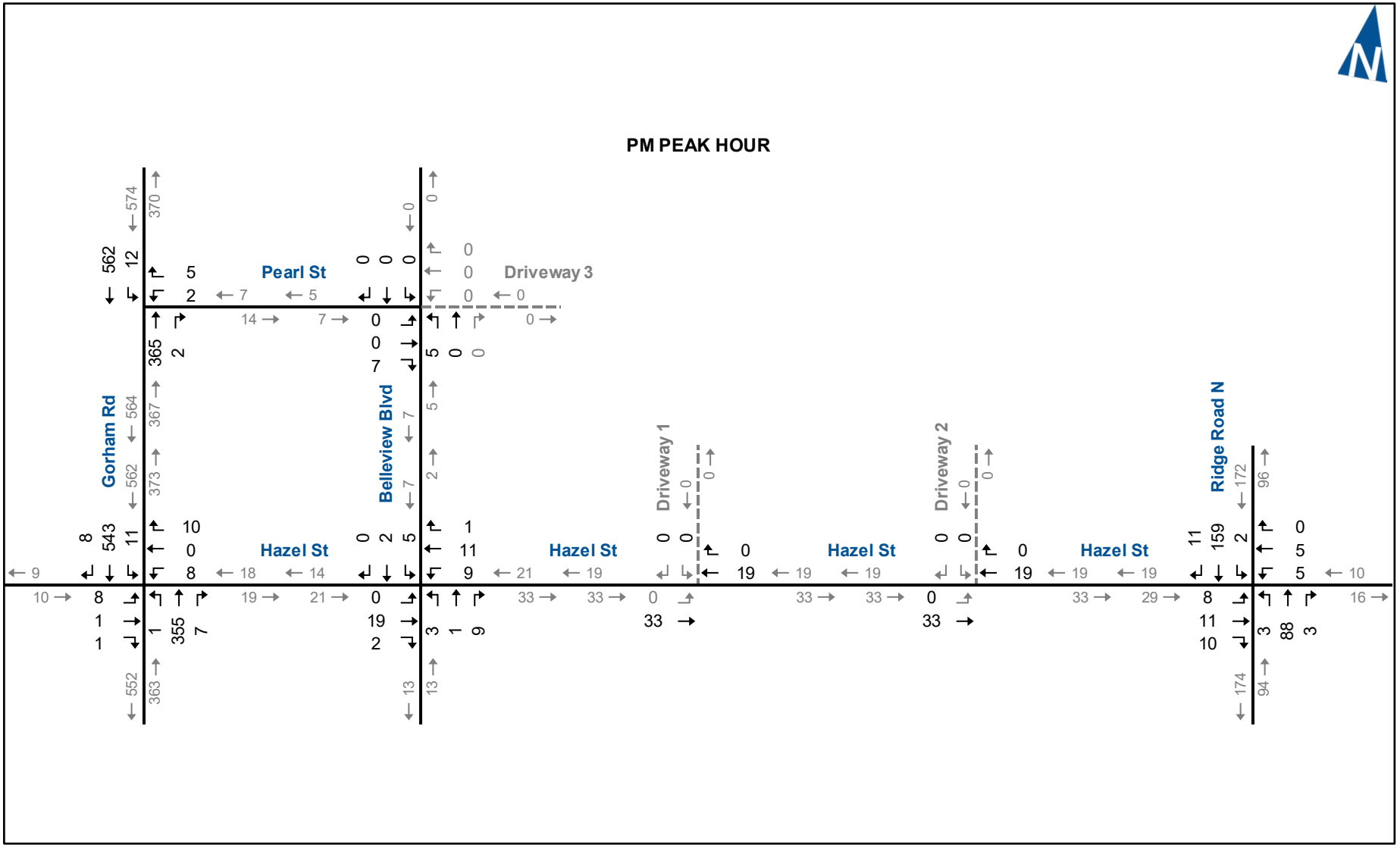
Figure 4.2A illustrates the forecast total traffic volumes for the AM peak hour and **Figure 4.2B** illustrates the forecast total traffic volumes for the PM peak hour.



Background Traffic Volumes – AM Peak Hour

3770 Hazel Street
220558

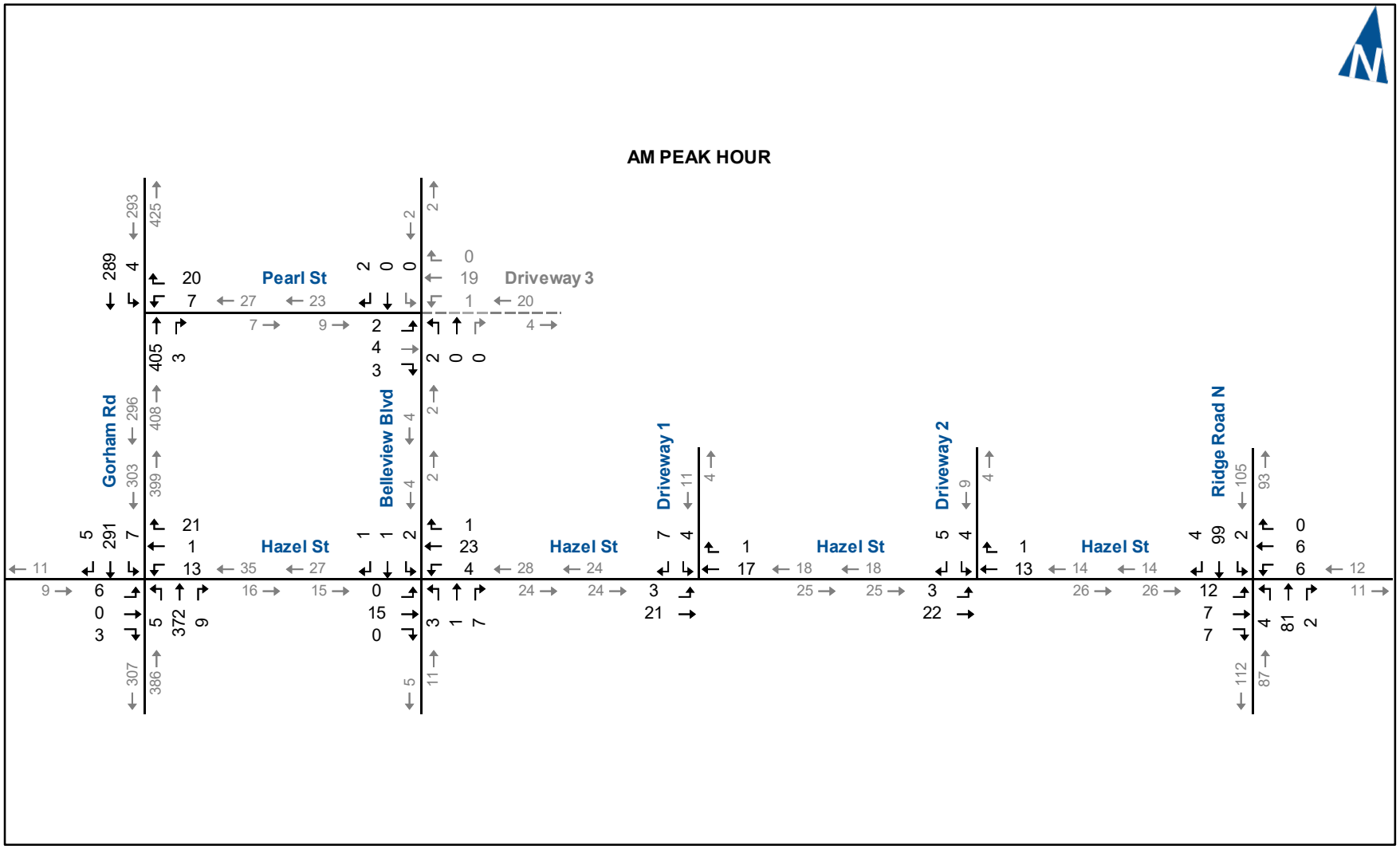
Figure 4.1A



Background Traffic Volumes – PM Peak Hour

3770 Hazel Street
220558

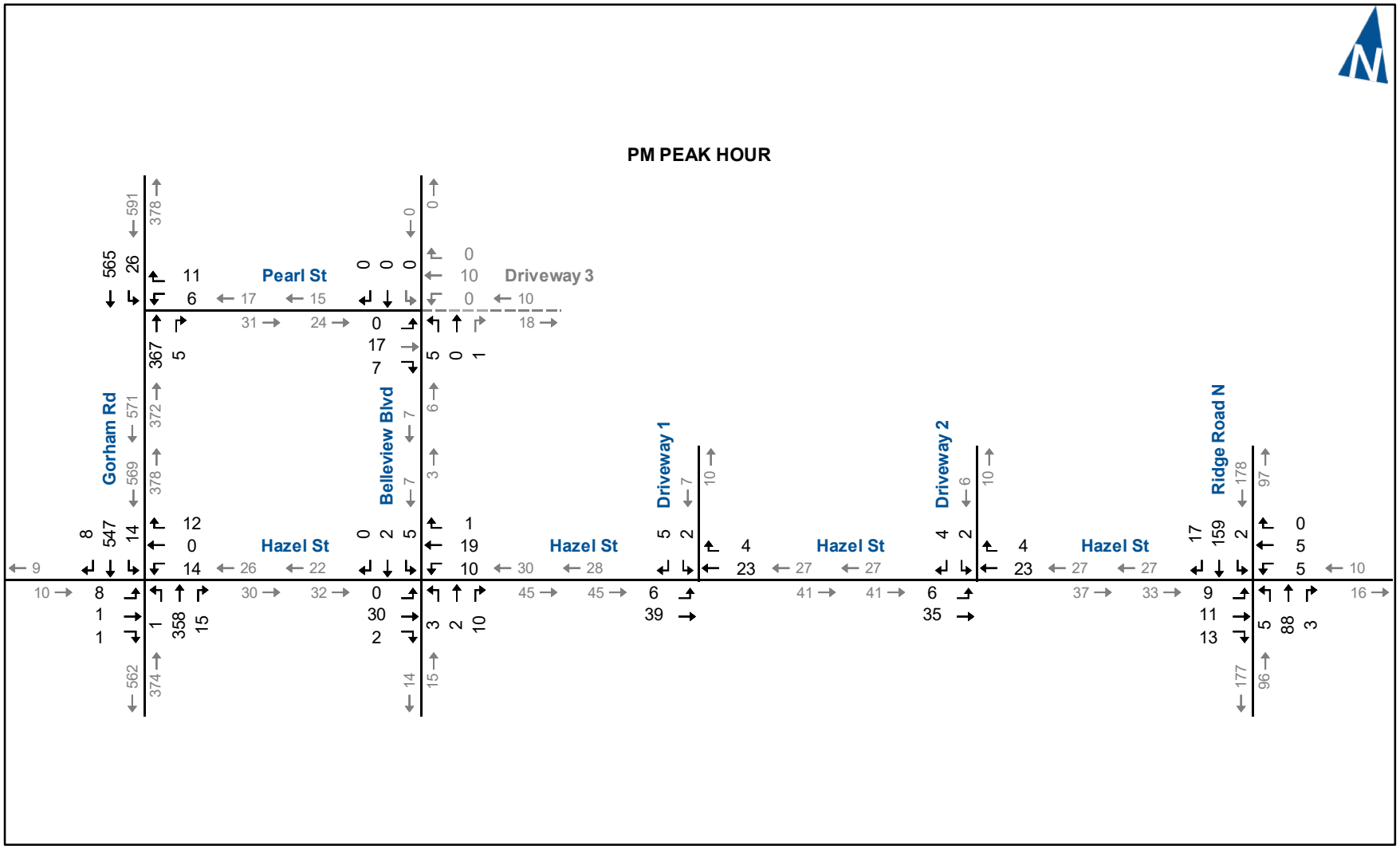
Figure 4.1B



Total Traffic Volumes – AM Peak Hour

3770 Hazel Street
220558

Figure 4.2A



Total Traffic Volumes – PM Peak Hour

3770 Hazel Street
220558

Figure 4.2B

4.2 Forecast Traffic Operations

4.2.1 Background Traffic Operations

The study area intersection operations analyses followed the same methodology used for existing conditions. No changes to the existing lane configurations or traffic control are assumed.

Table 4.1 summarizes the level of service conditions.

The study area intersections are forecast to continue to operate within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.

Appendix D contains the detailed Synchro 11 reports.

TABLE 4.1: BACKGROUND OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																	OVERALL
				Eastbound				Westbound				Northbound				Southbound					
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
AM Peak Hour	Gorham Road & Pearl Street	TWSC	LOS					<		B	**B**		A	>	**A**	<	A		**A**	**A**
			Delay					<		12	**12**		0	>	**0**	<	0		**0**	**0**
			V/C					<		0.0			0.26	>		<	0.00			
			95th					<		0			0	>		<	0			
	Gorham Road & Hazel Street	TWSC	LOS	<	C	>	**C**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	15	>	**15**	<	13	>	**13**	<	0	>	**0.1**	<	0	>	**0.2**	**1**
			V/C	<	0.03	>		<	0.05	>		<	0.00	>		<	0.01	>		
			95th	<	1	>		<	1	>		<	0	>		<	0	>		
	Belleview Blvd & Pearl Street	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	8	>	**8**	<	0	>	**0**	<	7	>	**7**	<	0	>	**0**	**6**
			V/C	<	0.00	>		<	0.01	>		<	0.00	>		<	0.00	>		
			95th	<	0	>		<	0	>		<	0	>		<	0	>		
	Belleview Blvd & Hazel Street	TCS	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	9	>	**9**	<	9	>	**9**	<	2	>	**2**	<	5	>	**5**	**7**
			V/C	<	0.01	>		<	0.02	>		<	0.00	>		<	0.00	>		
			95th	<	0	>		<	1	>		<	0	>		<	0	>		
	Ridge Road N & Hazel Street	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	10	>	**10**	<	10	>	**10**	<	0	>	**0**	<	0	>	**0**	**2**
			V/C	<	0.03	>		<	0.02	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	1	>		<	0	>		<	0	>		
PM Peak Hour	Gorham Road & Pearl Street	TWSC	LOS					<		B	**B**		A	>	**A**	<	A		**A**	**A**
			Delay					<		13	**13**		0	>	**0**	<	0		**0**	**0**
			V/C					<		0.0			0.23	>		<	0.01			
			95th					<		0			0	>		<	0			
	Gorham Road & Hazel Street	TWSC	LOS	<	C	>	**C**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	21	>	**21**	<	17	>	**17**	<	0	>	**0.0**	<	0	>	**0.3**	**1**
			V/C	<	0.05	>		<	0.06	>		<	0.00	>		<	0.01	>		
			95th	<	1	>		<	2	>		<	0	>		<	0	>		
	Belleview Blvd & Pearl Street	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	8	>	**8**	<	0	>	**0**	<	7	>	**7**	<	0	>	**0**	**8**
			V/C	<	0.01	>		<	0.03	>		<	0.00	>		<	0.00	>		
			95th	<	0	>		<	0	>		<	0	>		<	0	>		
	Belleview Blvd & Hazel Street	TCS	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	9	>	**9**	<	9	>	**9**	<	2	>	**2**	<	5	>	**5**	**7**
			V/C	<	0.03	>		<	0.03	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	1	>		<	0	>		<	0	>		
	Ridge Road N & Hazel Street	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	10	>	**10**	<	11	>	**11**	<	0	>	**0**	<	0	>	**0**	**1**
			V/C	<	0.05	>		<	0.01	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	0	>		<	0	>		<	0	>		

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Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

4.2.2 Total Traffic Operations

The study area intersection operations analyses followed the same methodology used for base year conditions. No changes to the existing signal timings or lane configurations are assumed.

Table 4.2A and **Table 4.2B** summarizes the level of service conditions.

The study area intersections are forecast to continue to operate within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.

The site driveway approaches to Hazel Street and Belleview Boulevard are forecast to operate with delays in the LOS A range with low v/c ratios. Queues on the driveway approaches are forecast to be minimal (less than one vehicle) and would not be expected to interfere with the proposed private driveways to the various townhouse units near the site driveway intersections.

Appendix E contains the detailed Synchro 11 reports.

TABLE 4.2A: TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																	
				Eastbound				Westbound				Northbound				Southbound				OVERALL
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Gorham Road & Pearl Street	TWSC	LOS					<		B	**B**		A	>	**A**	<	A		**A**	**A**
			Delay					<		13	**13**		0	>	**0**	<	0		**0**	**1**
			V/C					<		0.1			0.26	>		<	0.00			
			95th					<		2			0	>		<	0			
	Gorham Road & Hazel Street	TWSC	LOS	<	C	>	**C**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	15	>	**15**	<	14	>	**14**	<	0	>	**0.1**	<	0	>	**0.3**	**1**
			V/C	<	0.03	>		<	0.08	>		<	0.00	>		<	0.01	>		
			95th	<	1	>		<	2	>		<	0	>		<	0	>		
	Belleview Blvd & Pearl Street	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	9	>	**9**	<	9	>	**9**	<	7	>	**7**	<	0	>	**0**	**8**
			V/C	<	0.01	>		<	0.02	>		<	0.00	>		<	0.00	>		
			95th	<	0	>		<	1	>		<	0	>		<	0	>		
	Belleview Blvd & Hazel Street	TCS	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	9	>	**9**	<	9	>	**9**	<	2	>	**2**	<	4	>	**4**	**7**
			V/C	<	0.02	>		<	0.03	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	1	>		<	0	>		<	0	>		
	Ridge Road N & Hazel Street	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	10	>	**10**	<	10	>	**10**	<	0	>	**0**	<	0	>	**0**	**2**
			V/C	<	0.04	>		<	0.02	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	1	>		<	0	>		<	0	>		
	Hazel Street & Driveway 1	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	1		**1**		0	>	**0**					9		>	**9**	**2**
			V/C	<	0.00				0.01	>						0.01		>		
			95th	<	0				0	>						0		>		
	Hazel Street & Driveway 2	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	1		**1**		0	>	**0**					9		>	**9**	**2**
			V/C	<	0.00				0.01	>						0.01		>		
			95th	<	0				0	>						0		>		

MOE - Measure of Effectiveness
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
LOS - Level of Service
V/C - Volume to Capacity Ratio
95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

TABLE 4.2B: TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																	
				Eastbound				Westbound				Northbound				Southbound				OVERALL
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Gorham Road & Pearl Street	TWSC	LOS					<		B	**B**		A	>	**A**	<	A		**A**	**A**
			Delay					<		14	**14**		0	>	**0**	<	1		**1**	**1**
			V/C					<		0.1			0.24	>		<	0.03			
			95th					<		1			0	>		<	1			
	Gorham Road & Hazel Street	TWSC	LOS	<	C	>	**C**	<	C	>	**C**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	22	>	**22**	<	20	>	**20**	<	0	>	**0.0**	<	0	>	**0.4**	**1**
			V/C	<	0.05	>		<	0.10	>		<	0.00	>		<	0.01	>		
			95th	<	1	>		<	3	>		<	0	>		<	0	>		
	Belleview Blvd & Pearl Street	TWSC	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	9	>	**9**	<	9	>	**9**	<	6	>	**6**	<	0	>	**0**	**9**
			V/C	<	0.03	>		<	0.01	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	0	>		<	0	>		<	0	>		
	Belleview Blvd & Hazel Street	TCS	LOS	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	9	>	**9**	<	9	>	**9**	<	2	>	**2**	<	5	>	**5**	**8**
			V/C	<	0.04	>		<	0.04	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	1	>		<	0	>		<	0	>		
	Ridge Road N & Hazel Street	TWSC	LOS	<	B	>	**B**	<	B	>	**B**	<	A	>	**A**	<	A	>	**A**	**A**
			Delay	<	10	>	**10**	<	11	>	**11**	<	0	>	**0**	<	0	>	**0**	**2**
			V/C	<	0.05	>		<	0.02	>		<	0.00	>		<	0.00	>		
			95th	<	1	>		<	0	>		<	0	>		<	0	>		
	Hazel Street & Driveway 1	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	1		**1**		0	>	**0**					9		>	**9**	**1**
			V/C	<	0.00				0.02	>						0.01		>		
			95th	<	0				0	>						0		>		
	Hazel Street & Driveway 2	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	**A**
			Delay	<	1		**1**		0	>	**0**					9		>	**9**	**1**
			V/C	<	0.00				0.02	>						0.01		>		
			95th	<	0				0	>						0		>		

MOE - Measure of Effectiveness
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
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95th - 95th Percentile Queue Length
Ex. - Existing Storage (m)
Avail. - Available Storage (m)
> - Shared Right-Turn Lane
< - Shared Left-Turn Lane

5 Remedial Measures

5.1 Traffic Control Signals

The need for traffic control improvements was assessed using the Ontario Traffic Manual (OTM Book 12) signal warrant[7] procedures. To warrant the installation of a traffic control signal with forecast traffic volumes (average hourly volumes), at least one warrant must be fulfilled by 120% for an existing intersection or 150% for a proposed intersection.

Table 5.1 summarizes the OTM warrant analysis. **Appendix F** contains the traffic signal warrants.

Traffic signals are not warranted at the unsignalized intersections in the study area. No changes to the existing form of traffic control are recommended.

TABLE 5.1: OTM WARRANT SUMMARY

Intersection	OTM Warrant				
	1A	1B	2A	2B	Warranted
Gorham Road & Pearl Street	59%	5%	57%	8%	**No**
Gorham Road & Hazel Street	59%	12%	56%	18%	**No**
Belleview Boulevard & Pearl Street	3%	11%	0%	16%	**No**
Belleview Boulevard & Hazel Street	5%	5%	4%	8%	**No**
Ridge Road North & Hazel Street	19%	12%	16%	21%	**No**

[7] Ontario Traffic Manual Book 12, Ministry of Transportation of Ontario, December 2021

5.1 Left-Turn Lanes

The Ministry of Transportation's Design Supplement to the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads[8] provides guidance on the assessment of and/or need for auxiliary left-turn lanes at intersections. The warrant nomograph to determine if a left-turn lane is needed is based on the following criteria:

- Design speed of the road (assumed as 10 km/h over the posted speed limit);
- Advancing Volume;
- Opposing Volume; and
- Percent of advancing vehicles performing a left-turn maneuver.

The need for eastbound left-turn lanes was assessed at the site driveway intersections with Hazel Street (Driveway 1 and Driveway 2).

The movements were analyzed using the nomographs for left-turn lanes on two-lane undivided highways at unsignalized intersections. **Appendix G** contains the left-turn warrant nomographs. The results indicate that left-turn lanes are not warranted at the study area intersections.

No changes to the existing lane configurations are recommended.

[8] Transportation Association of Canada, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads – Appendix 9A*, Ministry of Transportation of Ontario, 2017.

6 Conclusions and Recommendations

6.1 Conclusion

The main findings and conclusions of this study are as follows:

- **Base Year Traffic**: The study area intersections are operating within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.
- **Trip Generation**: The site's trip generation is estimated to be approximately 52 AM peak hour vehicle trips and 61 PM peak hour vehicle trips.
- **Background Traffic**: The study area intersections are forecast to continue to operate within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.
- **Total Traffic**: The study area intersections are forecast to continue to operate within capacity during the weekday AM and PM peak hours. No critical movements are noted at the study area intersections.

  The site driveway approaches to Hazel Street and Belleview Boulevard are forecast to operate with delays in the LOS A range with low v/c ratios. Queues on the driveway approaches are forecast to be minimal (less than one vehicle) and would not be expected to interfere with the proposed private driveways to the various townhouse units near the site driveway intersections.
- **Remedial Measures**: No changes to the existing lane configurations or traffic control are recommended to support the development of the subject site.

6.2 Recommendations

Based on the findings of this study, it is recommended the development proceed without any changes to the existing transportation network.

Appendix A

Pre-Study Consultation

Creighton Chartier

From: Jeremy Korevaar <JKorevaar@forterie.ca>
Sent: October 27, 2022 8:35 AM
To: Creighton Chartier
Subject: Re: (220558) 4770 Hazel Street - Transportation Impact Study TOR

Good Morning Creighton,

I have no objections to the proposed terms of reference.

Regards,
Jeremy Korevaar, C.E.T.
Coordinator, Development Approvals

Town of Fort Erie
1 Municipal Centre Drive
Fort Erie, Ontario
Canada
L2A 2S6

TEL: 1-905-871-1600 ext.2505
FAX: 1-905-871-6411

From: "Creighton Chartier" <cchartier@ptsl.com>
To: "Jeremy Korevaar (JKorevaar@forterie.ca)" <JKorevaar@forterie.ca>, "Dunsmore, Susan" <Susan.Dunsmore@niagararegion.ca>
Cc: "Scott Catton" <scatton@ptsl.com>
Date: 2022-10-25 10:39 AM
Subject: (220558) 4770 Hazel Street - Transportation Impact Study TOR

Hello All,

Paradigm has been retained to prepare a traffic study for the proposed development of 3770 Hazel Street in the Town of Fort Erie (Ridgeway). The conceptual site plan is attached. The property owner is proposing to develop the site to include approximately 91 townhouse units.

Vehicle access is proposed by three private driveways. The first driveway is proposed directly opposite Pearl Street to form the fourth leg to the intersection. The second and third driveways are proposed to Hazel Street approximately 35 metres and 95 metres (CL-CL) respectively east of Belleview Boulevard.

Build-out is anticipated to occur by Year TBD.

Proposed Terms of Reference – [Transportation Impact Study]

Study Guidelines:

- Generally follow the Niagara Region Guidelines for Transportation Impact Studies

Study Area Intersections:

- Gorham Road (RR116) at Pearl Street (unsignalized);
- Gorham Road (RR116) at Hazel Street (unsignalized);
- Belleview Blvd at Pearl Street (unsignalized);
- Belleview Blvd at Hazel Street (unsignalized);
- Ridge Road North at Hazel Street (unsignalized); and
- The proposed site driveways.

Analysis Periods:

- Weekday AM peak hour
- Weekday PM peak hour

Existing Data:

- Collect new TMC data for the above noted intersections.

Horizon Year:

- Five-years from the date of the study

Analysis:

- Synchro 11 with HCM analysis

Traffic Forecast:

- Background traffic annual growth rate of 2%.
- Other approved developments to include in background. **Please identify**

Trip Generation:

- ITE Trip Generation Data 11th Edition - Multifamily Housing (Low-Rise) (LUC 220)
- Preliminary trip generation
    - AM Peak Period – 51 total new trips (12in/39out)
    - PM Peak Period – 60 total new trips (38in/22out)
- No modal split reductions.

Trip Distribution:

- Existing Traffic Patterns

Future Road Improvements:

- **None, unless identified**

Remedial Measure:

- OTM Traffic Control signal and all-way stop warrants

Report:

- Report documenting the study methodologies, findings and conclusions.

Regards,

Creighton Chartier
Transportation Consultant

*** Paradigm is now operating on a 4-day workweek. Our offices are closed Fridays. ***

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge ON N1R 8J8
p: 905.381.2229 x504
e: cchartier@ptsl.com
w: www.ptsl.com

Creighton Chartier

From: Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Sent: October 25, 2022 11:37 AM
To: Creighton Chartier
Cc: Scott Catton; Jeremy Korevaar (JKorevaar@forterie.ca)
Subject: RE: (220558) 4770 Hazel Street - Transportation Impact Study TOR

Hello Creighton

Thank you for including the Region in your terms of reference. The Region did not require a TIS for this site therefore we have no comments on the terms of reference.

If regional traffic data is required inquiries can be made through the Regional website: https://www.niagararegion.ca/living/roads/permits/traffic-data-requests.aspx,

If you require anything further please feel free to contact me at your convenience.

Thank you

Susan M. Dunsmore, P. Eng.
Manager, Development Engineering
Planning and Development Services

Phone: (905) 980-6000 or 1-800-263-7215 ext 3661
Address: 1815 Sir Isaac Brock Way, Thorold ON, L2V4T7

From: Creighton Chartier <cchartier@ptsl.com>
Sent: Tuesday, October 25, 2022 10:39 AM
To: Jeremy Korevaar (JKorevaar@forterie.ca) <JKorevaar@forterie.ca>; Dunsmore, Susan <Susan.Dunsmore@niagararegion.ca>
Cc: Scott Catton <scatton@ptsl.com>
Subject: (220558) 4770 Hazel Street - Transportation Impact Study TOR

Hello All,

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- Weekday AM peak hour
- Weekday PM peak hour

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- Five-years from the date of the study

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- Preliminary trip generation
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- No modal split reductions.

Trip Distribution:
- Existing Traffic Patterns

Future Road Improvements:
- **None, unless identified**

Remedial Measure:
- OTM Traffic Control signal and all-way stop warrants

Report:

- Report documenting the study methodologies, findings and conclusions.

Regards,

Creighton Chartier
Transportation Consultant

**** Paradigm is now operating on a 4-day workweek. Our offices are closed Fridays. ****

Paradigm Transportation Solutions Limited
5A-150 Pinebush Road, Cambridge ON N1R 8J8
p: 905.381.2229 x504
e: cchartier@ptsl.com
w: www.ptsl.com

Appendix B

Existing Data

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Hazel Street
Site Code: 220558
Start Date: 11/16/2022

Turning Movement Data

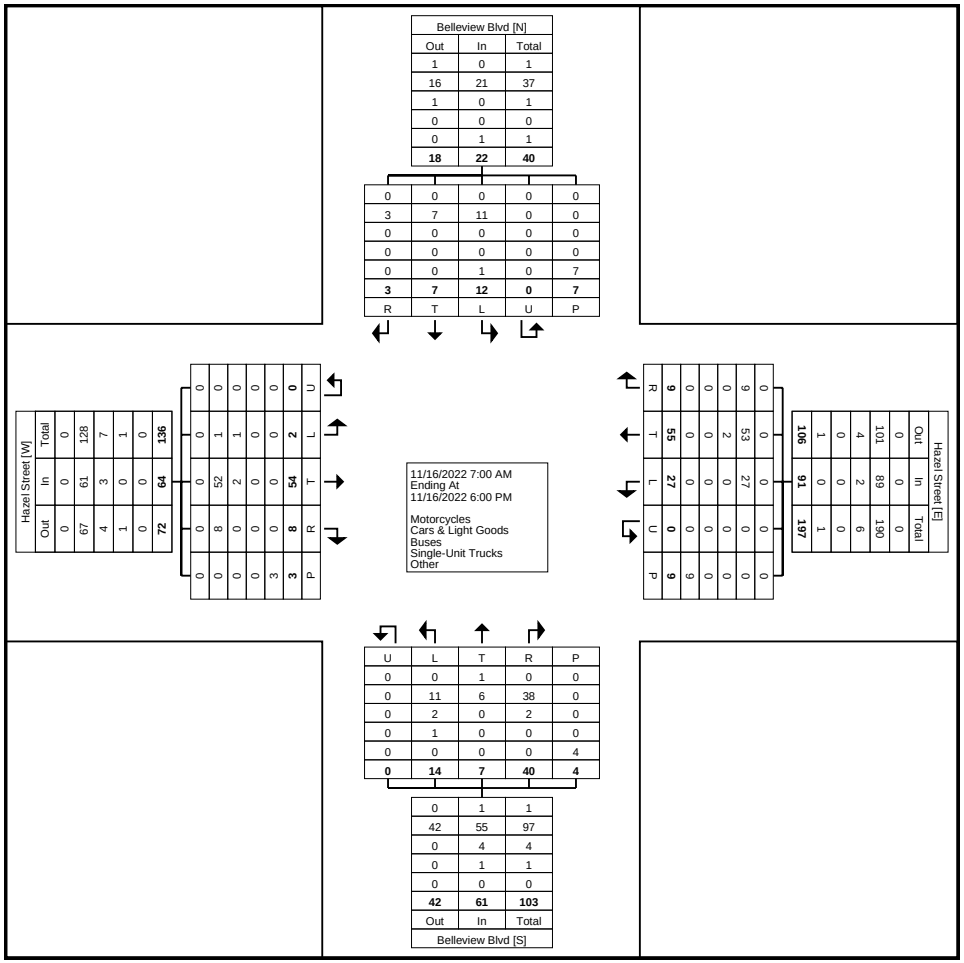
Start Time	Hazel Street Eastbound						Hazel Street Westbound						Belleview Blvd Northbound						Belleview Blvd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	2	0	0	1	2	0	0	1	0	0	1	0	0	0	0	0	0	3
7:15 AM	0	0	1	0	0	1	1	0	0	0	0	1	2	0	4	0	0	6	0	0	0	0	0	0	8
7:30 AM	0	2	0	0	0	2	0	2	0	0	1	2	2	1	2	0	0	5	0	0	0	0	0	0	9
7:45 AM	0	3	0	0	0	3	2	3	0	0	0	5	1	0	1	0	0	2	0	0	0	0	0	0	10
Hourly Total	0	5	1	0	0	6	3	7	0	0	2	10	5	1	8	0	0	14	0	0	0	0	0	0	30
8:00 AM	0	3	0	0	0	3	0	2	0	0	0	2	0	0	1	0	0	1	1	0	0	0	0	1	7
8:15 AM	0	1	0	0	0	1	1	4	1	0	0	6	0	0	1	0	0	1	1	0	1	0	0	2	10
8:30 AM	1	1	0	0	0	2	1	2	0	0	0	3	0	1	1	0	1	2	0	0	0	0	0	0	7
8:45 AM	0	3	0	0	0	3	1	2	0	0	0	3	0	0	2	0	0	2	0	0	0	0	1	0	8
Hourly Total	1	8	0	0	0	9	3	10	1	0	0	14	0	1	5	0	1	6	2	0	1	0	1	3	32
9:00 AM	0	1	1	0	0	2	0	2	0	0	0	2	0	1	2	0	0	3	0	1	0	0	0	1	8
9:15 AM	0	1	0	0	0	1	0	1	0	0	0	1	0	1	1	0	0	2	0	0	1	0	0	1	5
9:30 AM	0	3	0	0	0	3	0	4	0	0	0	4	3	0	1	0	0	4	0	0	0	0	1	0	11
9:45 AM	0	2	1	0	0	3	1	3	0	0	0	4	1	0	2	0	0	3	1	0	0	0	0	1	11
Hourly Total	0	7	2	0	0	9	1	10	0	0	0	11	4	2	6	0	0	12	1	1	1	0	1	3	35
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	3	0	0	1	3	0	1	1	0	0	2	0	0	1	0	1	1	1	0	0	0	0	1	7
3:15 PM	0	4	1	0	0	5	1	3	0	0	0	4	2	0	1	0	0	3	0	2	0	0	0	2	14
3:30 PM	0	1	0	0	0	1	2	1	2	0	0	5	0	0	4	0	0	4	1	1	0	0	2	2	12
3:45 PM	0	1	0	0	1	1	4	3	1	0	2	8	0	1	2	0	0	3	0	0	0	0	1	0	12
Hourly Total	0	9	1	0	2	10	7	8	4	0	2	19	2	1	8	0	1	11	2	3	0	0	3	5	45
4:00 PM	0	4	1	0	0	5	2	3	0	0	2	5	2	0	2	0	0	4	0	0	0	0	0	0	14
4:15 PM	0	8	0	0	0	8	0	2	1	0	0	3	0	1	1	0	0	2	3	0	0	0	0	3	16
4:30 PM	0	1	1	0	0	2	2	3	0	0	1	5	1	0	3	0	0	4	1	1	0	0	0	2	13
4:45 PM	0	4	0	0	0	4	4	2	0	0	1	6	0	0	2	0	0	2	0	1	0	0	0	1	13
Hourly Total	0	17	2	0	0	19	8	10	1	0	4	19	3	1	8	0	0	12	4	2	0	0	0	6	56
5:00 PM	0	2	0	0	1	2	2	1	1	0	0	4	0	0	1	0	1	1	3	0	1	0	1	4	11
5:15 PM	0	1	0	0	0	1	1	2	0	0	0	3	0	0	2	0	0	2	0	0	0	0	1	0	6
5:30 PM	0	1	1	0	0	2	2	6	0	0	0	8	0	1	2	0	1	3	0	0	0	0	0	0	13
5:45 PM	1	4	1	0	0	6	0	1	2	0	1	3	0	0	0	0	0	0	0	1	0	0	0	1	10
Hourly Total	1	8	2	0	1	11	5	10	3	0	1	18	0	1	5	0	2	6	3	1	1	0	2	5	40
Grand Total	2	54	8	0	3	64	27	55	9	0	9	91	14	7	40	0	4	61	12	7	3	0	7	22	238
Approach %	3.1	84.4	12.5	0.0	-	-	29.7	60.4	9.9	0.0	-	-	23.0	11.5	65.6	0.0	-	-	54.5	31.8	13.6	0.0	-	-	-
Total %	0.8	22.7	3.4	0.0	-	26.9	11.3	23.1	3.8	0.0	-	38.2	5.9	2.9	16.8	0.0	-	25.6	5.0	2.9	1.3	0.0	-	9.2	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1

% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	14.3	0.0	-	-	1.6	0.0	0.0	0.0	-	-	0.0	0.4
Cars & Light Goods	1	52	8	0	-	61	27	53	9	0	-	89	11	6	38	0	-	55	11	7	3	0	-	21	226
% Cars & Light Goods	50.0	96.3	100.0	-	-	95.3	100.0	96.4	100.0	-	-	97.8	78.6	85.7	95.0	-	-	90.2	91.7	100.0	100.0	-	-	95.5	95.0
Buses	1	2	0	0	-	3	0	2	0	0	-	2	2	0	2	0	-	4	0	0	0	0	-	0	9
% Buses	50.0	3.7	0.0	-	-	4.7	0.0	3.6	0.0	-	-	2.2	14.3	0.0	5.0	-	-	6.6	0.0	0.0	0.0	-	-	0.0	3.8
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	1
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	7.1	0.0	0.0	-	-	1.6	0.0	0.0	0.0	-	-	0.0	0.4
Articulated Trucks	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	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	1
% 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	8.3	0.0	0.0	-	-	4.5	0.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	9	-	-	-	-	-	4	-	-	-	-	-	7	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Hazel Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Hazel Street
Site Code: 220558
Start Date: 11/16/2022

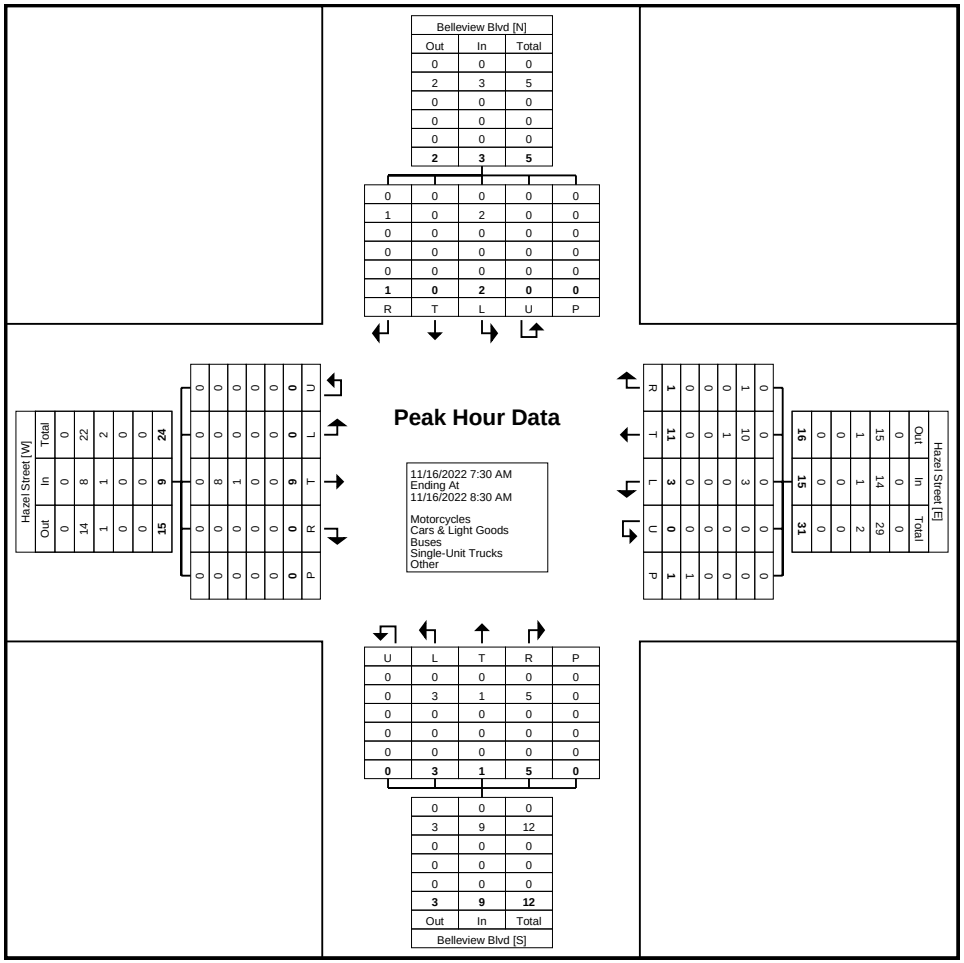
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Hazel Street Eastbound						Hazel Street Westbound						Belleview Blvd Northbound						Belleview Blvd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	2	0	0	0	2	0	2	0	0	1	2	2	1	2	0	0	5	0	0	0	0	0	0	9
7:45 AM	0	3	0	0	0	3	2	3	0	0	0	5	1	0	1	0	0	2	0	0	0	0	0	0	10
8:00 AM	0	3	0	0	0	3	0	2	0	0	0	2	0	0	1	0	0	1	1	0	0	0	0	1	7
8:15 AM	0	1	0	0	0	1	1	4	1	0	0	6	0	0	1	0	0	1	1	0	1	0	0	2	10
Total	0	9	0	0	0	9	3	11	1	0	1	15	3	1	5	0	0	9	2	0	1	0	0	3	36
Approach %	0.0	100.0	0.0	0.0	-	-	20.0	73.3	6.7	0.0	-	-	33.3	11.1	55.6	0.0	-	-	66.7	0.0	33.3	0.0	-	-	-
Total %	0.0	25.0	0.0	0.0	-	25.0	8.3	30.6	2.8	0.0	-	41.7	8.3	2.8	13.9	0.0	-	25.0	5.6	0.0	2.8	0.0	-	8.3	-
PHF	0.000	0.750	0.000	0.000	-	0.750	0.375	0.688	0.250	0.000	-	0.625	0.375	0.250	0.625	0.000	-	0.450	0.500	0.000	0.250	0.000	-	0.375	0.900
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Cars & Light Goods	0	8	0	0	-	8	3	10	1	0	-	14	3	1	5	0	-	9	2	0	1	0	-	3	34
% Cars & Light Goods	-	88.9	-	-	-	88.9	100.0	90.9	100.0	-	-	93.3	100.0	100.0	100.0	-	-	100.0	100.0	-	100.0	-	-	100.0	94.4
Buses	0	1	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	2
% Buses	-	11.1	-	-	-	11.1	0.0	9.1	0.0	-	-	6.7	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	5.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	-	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	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
% Articulated Trucks	-	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Road	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	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Hazel Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Peak Hour Data Plot (7:30 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Hazel Street
Site Code: 220558
Start Date: 11/16/2022

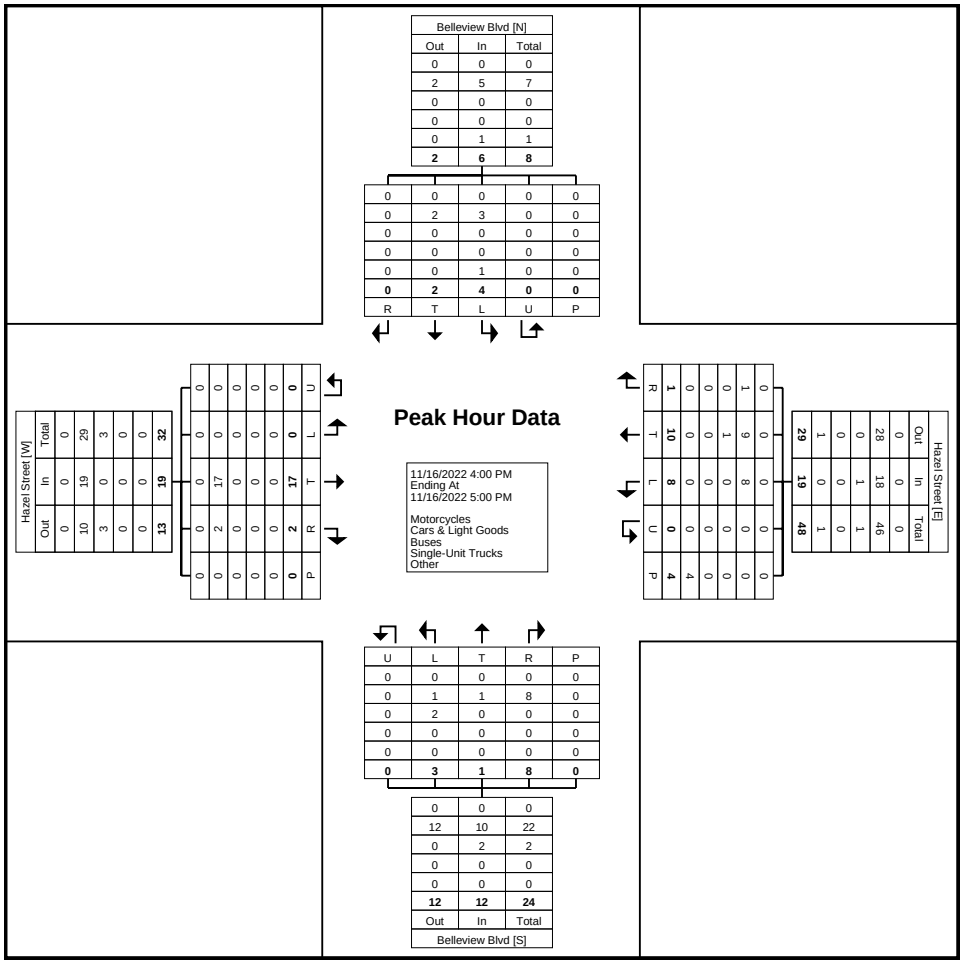
Turning Movement Peak Hour Data (4:00 PM)

Start Time	Hazel Street Eastbound						Hazel Street Westbound						Belleview Blvd Northbound						Belleview Blvd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	0	4	1	0	0	5	2	3	0	0	2	5	2	0	2	0	0	4	0	0	0	0	0	0	14
4:15 PM	0	8	0	0	0	8	0	2	1	0	0	3	0	1	1	0	0	2	3	0	0	0	0	3	16
4:30 PM	0	1	1	0	0	2	2	3	0	0	1	5	1	0	3	0	0	4	1	1	0	0	0	2	13
4:45 PM	0	4	0	0	0	4	4	2	0	0	1	6	0	0	2	0	0	2	0	1	0	0	0	1	13
Total	0	17	2	0	0	19	8	10	1	0	4	19	3	1	8	0	0	12	4	2	0	0	0	6	56
Approach %	0.0	89.5	10.5	0.0	-	-	42.1	52.6	5.3	0.0	-	-	25.0	8.3	66.7	0.0	-	-	66.7	33.3	0.0	0.0	-	-	-
Total %	0.0	30.4	3.6	0.0	-	33.9	14.3	17.9	1.8	0.0	-	33.9	5.4	1.8	14.3	0.0	-	21.4	7.1	3.6	0.0	0.0	-	10.7	-
PHF	0.000	0.531	0.500	0.000	-	0.594	0.500	0.833	0.250	0.000	-	0.792	0.375	0.250	0.667	0.000	-	0.750	0.333	0.500	0.000	0.000	-	0.500	0.875
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0
Cars & Light Goods	0	17	2	0	-	19	8	9	1	0	-	18	1	1	8	0	-	10	3	2	0	0	-	5	52
% Cars & Light Goods	-	100.0	100.0	-	-	100.0	100.0	90.0	100.0	-	-	94.7	33.3	100.0	100.0	-	-	83.3	75.0	100.0	-	-	-	83.3	92.9
Buses	0	0	0	0	-	0	0	1	0	0	-	1	2	0	0	0	-	2	0	0	0	0	-	0	3
% Buses	-	0.0	0.0	-	-	0.0	0.0	10.0	0.0	-	-	5.3	66.7	0.0	0.0	-	-	16.7	0.0	0.0	-	-	-	0.0	5.4
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	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
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	1
% 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	25.0	0.0	-	-	-	16.7	1.8
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Hazel Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Peak Hour Data Plot (4:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Pearl Street
Site Code: 220558
Start Date: 11/16/2022

Turning Movement Data

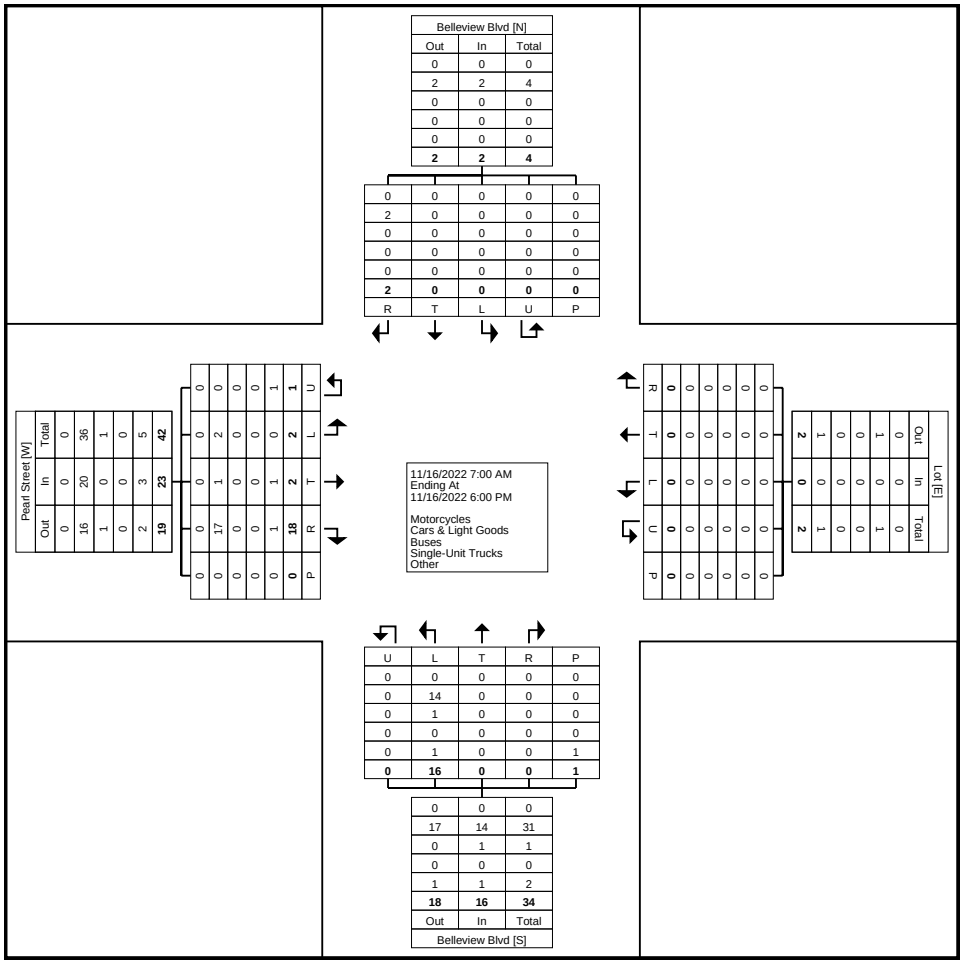
Start Time	Pearl Street Eastbound						Lot Westbound						Belleview Blvd Northbound						Belleview Blvd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	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
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
7:45 AM	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
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	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
8:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	2
8:45 AM	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
Hourly Total	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	0	1	3	0	0	0	0	0	0	5
9:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
9:15 AM	1	0	1	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3
9:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
9:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Hourly Total	2	0	3	0	0	5	0	0	0	0	0	0	2	0	0	0	0	2	0	0	2	0	0	2	9
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
3:15 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	3	1	0	4	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	7
3:45 PM	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
Hourly Total	0	0	6	1	0	7	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	11
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	1	0	0	2	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	4
4:30 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Hourly Total	0	2	4	0	0	6	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	8
5:00 PM	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3
5:15 PM	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
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	3
Hourly Total	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	7
Grand Total	2	2	18	1	0	23	0	0	0	0	0	0	16	0	0	0	1	16	0	0	2	0	0	2	41
Approach %	8.7	8.7	78.3	4.3	-	-	0.0	0.0	0.0	0.0	-	-	100.0	0.0	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	-
Total %	4.9	4.9	43.9	2.4	-	56.1	0.0	0.0	0.0	0.0	-	0.0	39.0	0.0	0.0	0.0	-	39.0	0.0	0.0	4.9	0.0	-	4.9	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Cars & Light Goods	2	1	17	0	-	20	0	0	0	0	-	0	14	0	0	0	-	14	0	0	2	0	-	2	36
% Cars & Light Goods	100.0	50.0	94.4	0.0	-	87.0	-	-	-	-	-	-	87.5	-	-	-	-	87.5	-	-	100.0	-	-	100.0	87.8
Buses	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	1
% Buses	0.0	0.0	0.0	0.0	-	0.0	-	-	-	-	-	-	6.3	-	-	-	-	6.3	-	-	0.0	-	-	0.0	2.4
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	0.0	0.0	0.0	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	50.0	0.0	0.0	-	4.3	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	0.0	-	-	0.0	2.4
Bicycles on Road	0	0	1	1	-	2	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	3
% Bicycles on Road	0.0	0.0	5.6	100.0	-	8.7	-	-	-	-	-	-	6.3	-	-	-	-	6.3	-	-	0.0	-	-	0.0	7.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Pearl Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Pearl Street
Site Code: 220558
Start Date: 11/16/2022

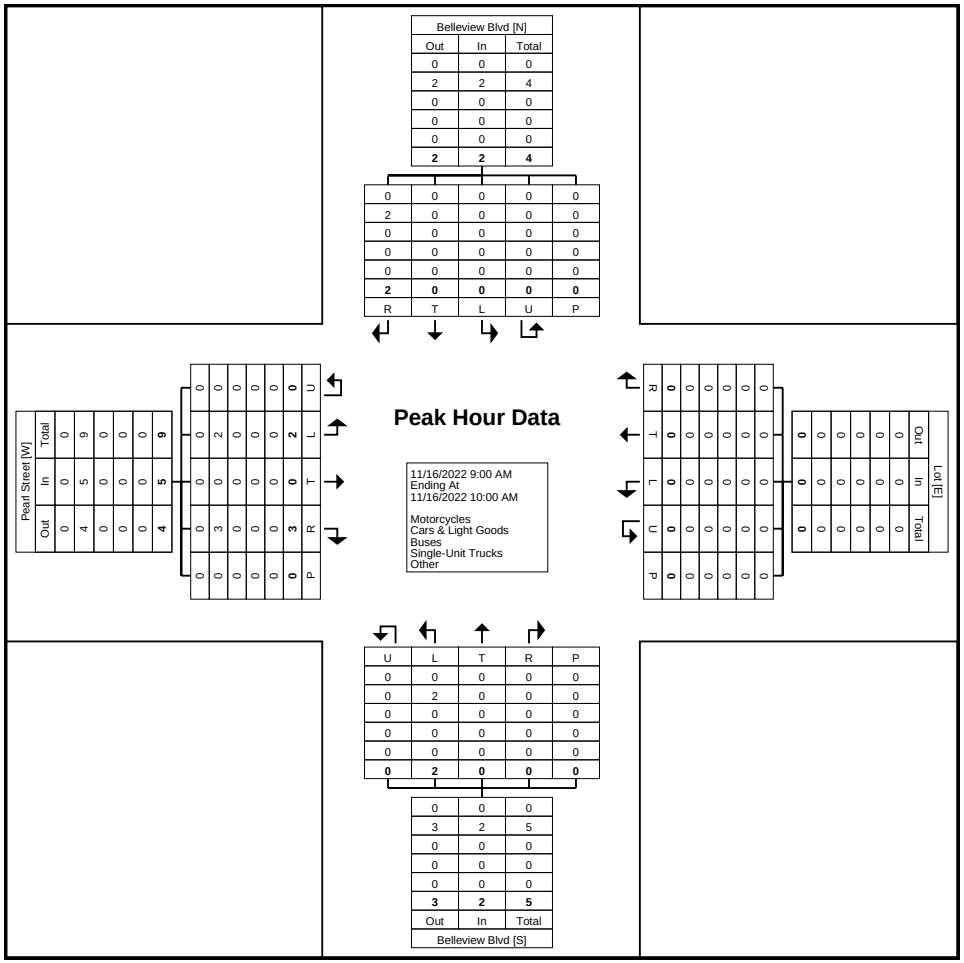
Turning Movement Peak Hour Data (9:00 AM)

Start Time	Pearl Street Eastbound						Lot Westbound						Belleview Blvd Northbound						Belleview Blvd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
9:15 AM	1	0	1	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3
9:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
9:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total	2	0	3	0	0	5	0	0	0	0	0	0	2	0	0	0	0	2	0	0	2	0	0	2	9
Approach %	40.0	0.0	60.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	100.0	0.0	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	-
Total %	22.2	0.0	33.3	0.0	-	55.6	0.0	0.0	0.0	0.0	-	0.0	22.2	0.0	0.0	0.0	-	22.2	0.0	0.0	22.2	0.0	-	22.2	-
PHF	0.500	0.000	0.750	0.000	-	0.625	0.000	0.000	0.000	0.000	-	0.000	0.500	0.000	0.000	0.000	-	0.500	0.000	0.000	0.500	0.000	-	0.500	0.750
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Cars & Light Goods	2	0	3	0	-	5	0	0	0	0	-	0	2	0	0	0	-	2	0	0	2	0	-	2	9
% Cars & Light Goods	100.0	-	100.0	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	100.0	-	-	100.0	100.0
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
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Articulated Trucks	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
Bicycles on Road	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	-	-	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Pearl Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Peak Hour Data Plot (9:00 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Pearl Street
Site Code: 220558
Start Date: 11/16/2022

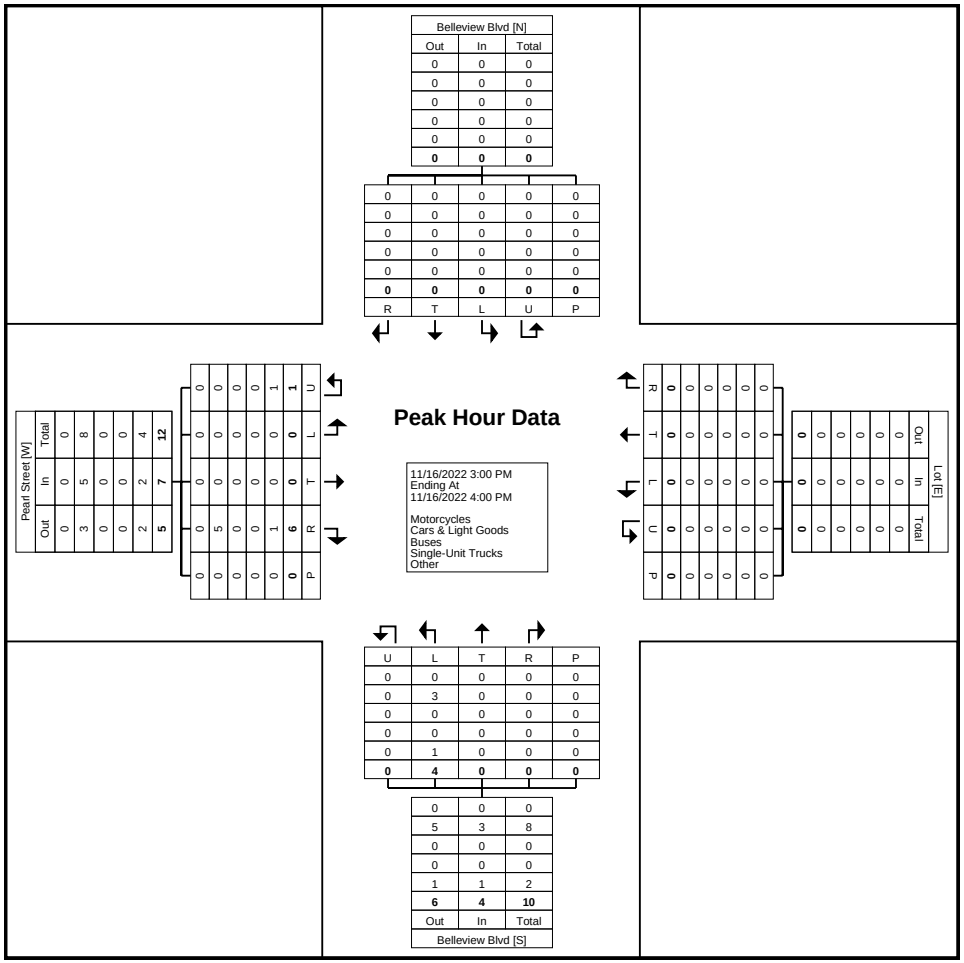
Turning Movement Peak Hour Data (3:00 PM)

Start Time	Pearl Street Eastbound						Lot Westbound						Belleview Blvd Northbound						Belleview Blvd Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
3:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
3:15 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	3	1	0	4	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	7
3:45 PM	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
Total	0	0	6	1	0	7	0	0	0	0	0	0	4	0	0	0	0	4	0	0	0	0	0	0	11
Approach %	0.0	0.0	85.7	14.3	-	-	0.0	0.0	0.0	0.0	-	-	100.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	54.5	9.1	-	63.6	0.0	0.0	0.0	0.0	-	0.0	36.4	0.0	0.0	0.0	-	36.4	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.000	0.500	0.250	-	0.438	0.000	0.000	0.000	0.000	-	0.000	0.333	0.000	0.000	0.000	-	0.333	0.000	0.000	0.000	0.000	-	0.000	0.393
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	-	0.0	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	0.0
Cars & Light Goods	0	0	5	0	-	5	0	0	0	0	-	0	3	0	0	0	-	3	0	0	0	0	-	0	8
% Cars & Light Goods	-	-	83.3	0.0	-	71.4	-	-	-	-	-	-	75.0	-	-	-	-	75.0	-	-	-	-	-	-	72.7
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
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Single-Unit Trucks	-	-	0.0	0.0	-	0.0	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	0.0
Articulated Trucks	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
Bicycles on Road	0	0	1	1	-	2	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	3
% Bicycles on Road	-	-	16.7	100.0	-	28.6	-	-	-	-	-	-	25.0	-	-	-	-	25.0	-	-	-	-	-	-	27.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Belleview Blvd & Pearl Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Peak Hour Data Plot (3:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Hazel Street
Site Code: 220558
Start Date: 11/16/2022

Turning Movement Data

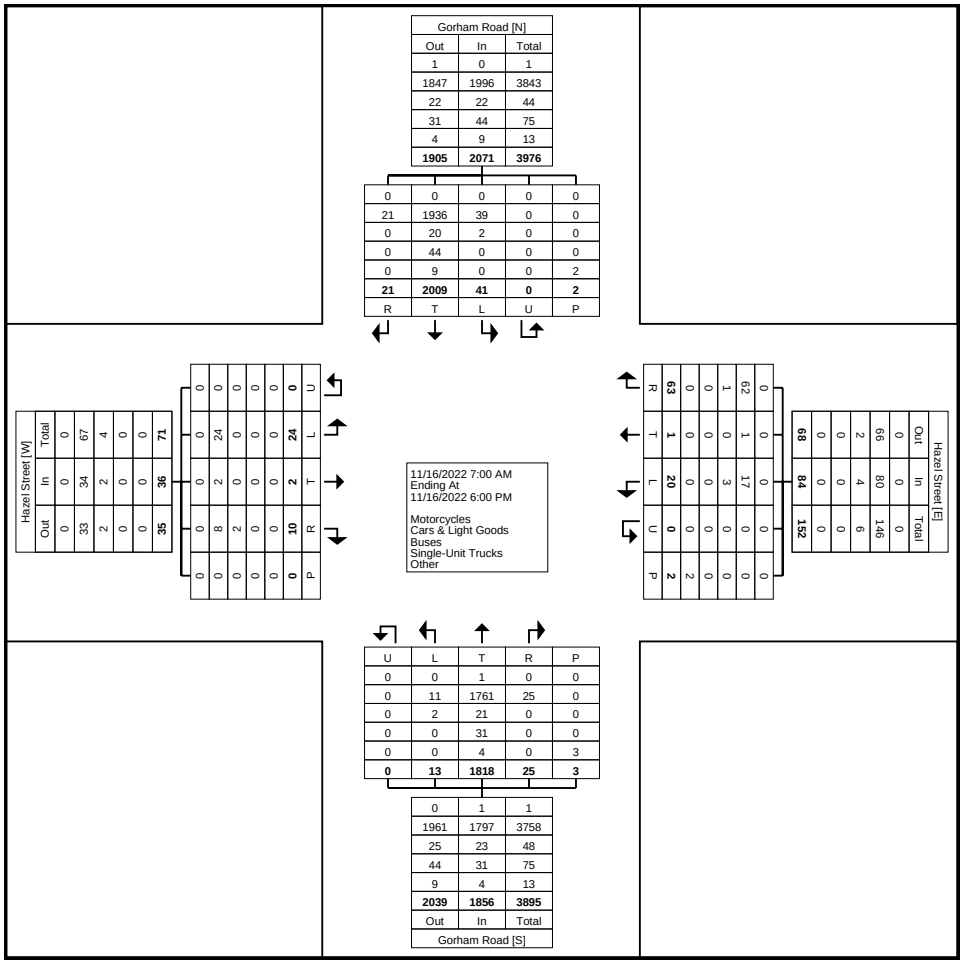
Start Time	Hazel Street Eastbound						Hazel Street Westbound						Gorham Road Northbound						Gorham Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	72	0	0	0	72	0	28	0	0	0	28	102
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	75	0	0	0	75	0	36	0	0	0	36	112
7:30 AM	0	0	0	0	0	0	0	0	5	0	0	5	0	112	0	0	0	112	2	45	0	0	0	47	164
7:45 AM	0	0	0	0	0	0	0	0	4	0	1	4	1	73	0	0	3	74	1	59	2	0	0	62	140
Hourly Total	0	0	0	0	0	0	0	0	12	0	1	12	1	332	0	0	3	333	3	168	2	0	0	173	518
8:00 AM	1	1	0	0	0	2	1	0	1	0	0	2	0	89	1	0	0	90	1	65	0	0	0	66	160
8:15 AM	2	0	0	0	0	2	3	0	4	0	0	7	1	74	0	0	0	75	2	54	0	0	0	56	140
8:30 AM	1	0	2	0	0	3	0	0	5	0	0	5	2	88	1	0	0	91	0	51	0	0	0	51	150
8:45 AM	1	0	1	0	0	2	0	0	3	0	0	3	1	84	3	0	0	88	1	82	1	0	0	84	177
Hourly Total	5	1	3	0	0	9	4	0	13	0	0	17	4	335	5	0	0	344	4	252	1	0	0	257	627
9:00 AM	1	0	0	0	0	1	2	1	3	0	0	6	0	83	0	0	0	83	2	67	3	0	0	72	162
9:15 AM	3	0	0	0	0	3	1	0	2	0	0	3	1	67	0	0	0	68	0	41	0	0	0	41	115
9:30 AM	0	0	0	0	0	0	0	0	7	0	0	7	1	78	1	0	0	80	2	53	0	0	0	55	142
9:45 AM	1	0	0	0	0	1	2	0	2	0	0	4	0	54	0	0	0	54	1	57	2	0	0	60	119
Hourly Total	5	0	0	0	0	5	5	1	14	0	0	20	2	282	1	0	0	285	5	218	5	0	0	228	538
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	1	0	0	1	0	0	1	0	0	1	2	71	1	0	0	74	1	96	0	0	1	97	173
3:15 PM	0	0	2	0	0	2	1	0	4	0	0	5	1	87	0	0	0	88	5	107	1	0	0	113	208
3:30 PM	2	0	0	0	0	2	0	0	1	0	0	1	0	87	1	0	0	88	1	98	1	0	0	100	191
3:45 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	60	2	0	0	62	2	104	1	0	0	107	171
Hourly Total	2	0	3	0	0	5	1	0	8	0	0	9	3	305	4	0	0	312	9	405	3	0	1	417	743
4:00 PM	1	0	1	0	0	2	4	0	4	0	0	8	0	101	2	0	0	103	3	126	4	0	0	133	246
4:15 PM	0	0	0	0	0	0	1	0	2	0	0	3	1	80	3	0	0	84	4	119	0	0	0	123	210
4:30 PM	3	0	0	0	0	3	2	0	1	0	0	3	0	65	1	0	0	66	0	133	1	0	0	134	206
4:45 PM	3	1	0	0	0	4	0	0	2	0	0	2	0	69	0	0	0	69	3	104	2	0	0	109	184
Hourly Total	7	1	1	0	0	9	7	0	9	0	0	16	1	315	6	0	0	322	10	482	7	0	0	499	846
5:00 PM	1	0	2	0	0	3	1	0	1	0	0	2	0	91	1	0	0	92	3	114	0	0	1	117	214
5:15 PM	2	0	1	0	0	3	0	0	1	0	0	1	1	66	3	0	0	70	0	133	0	0	0	133	207
5:30 PM	2	0	0	0	0	2	0	0	5	0	0	5	0	54	3	0	0	57	3	107	1	0	0	111	175
5:45 PM	0	0	0	0	0	0	2	0	0	0	1	2	1	38	2	0	0	41	4	130	2	0	0	136	179
Hourly Total	5	0	3	0	0	8	3	0	7	0	1	10	2	249	9	0	0	260	10	484	3	0	1	497	775
Grand Total	24	2	10	0	0	36	20	1	63	0	2	84	13	1818	25	0	3	1856	41	2009	21	0	2	2071	4047
Approach %	66.7	5.6	27.8	0.0	-	-	23.8	1.2	75.0	0.0	-	-	0.7	98.0	1.3	0.0	-	-	2.0	97.0	1.0	0.0	-	-	-
Total %	0.6	0.0	0.2	0.0	-	0.9	0.5	0.0	1.6	0.0	-	2.1	0.3	44.9	0.6	0.0	-	45.9	1.0	49.6	0.5	0.0	-	51.2	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1

% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	24	2	8	0	-	34	17	1	62	0	-	80	11	1761	25	0	-	1797	39	1936	21	0	-	1996	3907
% Cars & Light Goods	100.0	100.0	80.0	-	-	94.4	85.0	100.0	98.4	-	-	95.2	84.6	96.9	100.0	-	-	96.8	95.1	96.4	100.0	-	-	96.4	96.5
Buses	0	0	2	0	-	2	3	0	1	0	-	4	2	21	0	0	-	23	2	20	0	0	-	22	51
% Buses	0.0	0.0	20.0	-	-	5.6	15.0	0.0	1.6	-	-	4.8	15.4	1.2	0.0	-	-	1.2	4.9	1.0	0.0	-	-	1.1	1.3
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	31	0	0	-	31	0	44	0	0	-	44	75
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.7	0.0	-	-	1.7	0.0	2.2	0.0	-	-	2.1	1.9
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	0	-	3	0	9	0	0	-	9	12
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.4	0.0	-	-	0.4	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Hazel Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Hazel Street
Site Code: 220558
Start Date: 11/16/2022

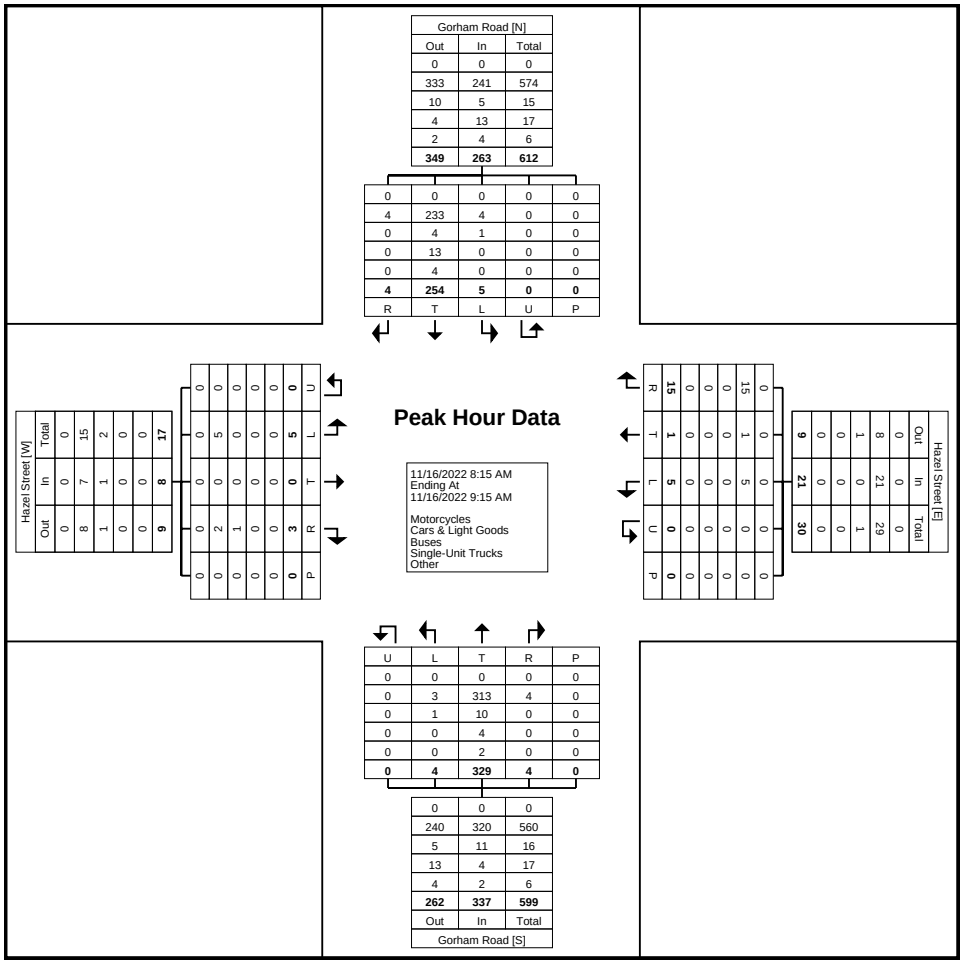
Turning Movement Peak Hour Data (8:15 AM)

Start Time	Hazel Street Eastbound						Hazel Street Westbound						Gorham Road Northbound						Gorham Road Southbound						
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
8:15 AM	2	0	0	0	0	2	3	0	4	0	0	7	1	74	0	0	0	75	2	54	0	0	0	56	140
8:30 AM	1	0	2	0	0	3	0	0	5	0	0	5	2	88	1	0	0	91	0	51	0	0	0	51	150
8:45 AM	1	0	1	0	0	2	0	0	3	0	0	3	1	84	3	0	0	88	1	82	1	0	0	84	177
9:00 AM	1	0	0	0	0	1	2	1	3	0	0	6	0	83	0	0	0	83	2	67	3	0	0	72	162
Total	5	0	3	0	0	8	5	1	15	0	0	21	4	329	4	0	0	337	5	254	4	0	0	263	629
Approach %	62.5	0.0	37.5	0.0	-	-	23.8	4.8	71.4	0.0	-	-	1.2	97.6	1.2	0.0	-	-	1.9	96.6	1.5	0.0	-	-	-
Total %	0.8	0.0	0.5	0.0	-	1.3	0.8	0.2	2.4	0.0	-	3.3	0.6	52.3	0.6	0.0	-	53.6	0.8	40.4	0.6	0.0	-	41.8	-
PHF	0.625	0.000	0.375	0.000	-	0.667	0.417	0.250	0.750	0.000	-	0.750	0.500	0.935	0.333	0.000	-	0.926	0.625	0.774	0.333	0.000	-	0.783	0.888
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	5	0	2	0	-	7	5	1	15	0	-	21	3	313	4	0	-	320	4	233	4	0	-	241	589
% Cars & Light Goods	100.0	-	66.7	-	-	87.5	100.0	100.0	100.0	-	-	100.0	75.0	95.1	100.0	-	-	95.0	80.0	91.7	100.0	-	-	91.6	93.6
Buses	0	0	1	0	-	1	0	0	0	0	-	0	1	10	0	0	-	11	1	4	0	0	-	5	17
% Buses	0.0	-	33.3	-	-	12.5	0.0	0.0	0.0	-	-	0.0	25.0	3.0	0.0	-	-	3.3	20.0	1.6	0.0	-	-	1.9	2.7
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	0	-	4	0	13	0	0	-	13	17
% Single-Unit Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.2	0.0	-	-	1.2	0.0	5.1	0.0	-	-	4.9	2.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	4	0	0	-	4	6
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.6	0.0	-	-	0.6	0.0	1.6	0.0	-	-	1.5	1.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% 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	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Hazel Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Peak Hour Data Plot (8:15 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Hazel Street
Site Code: 220558
Start Date: 11/16/2022

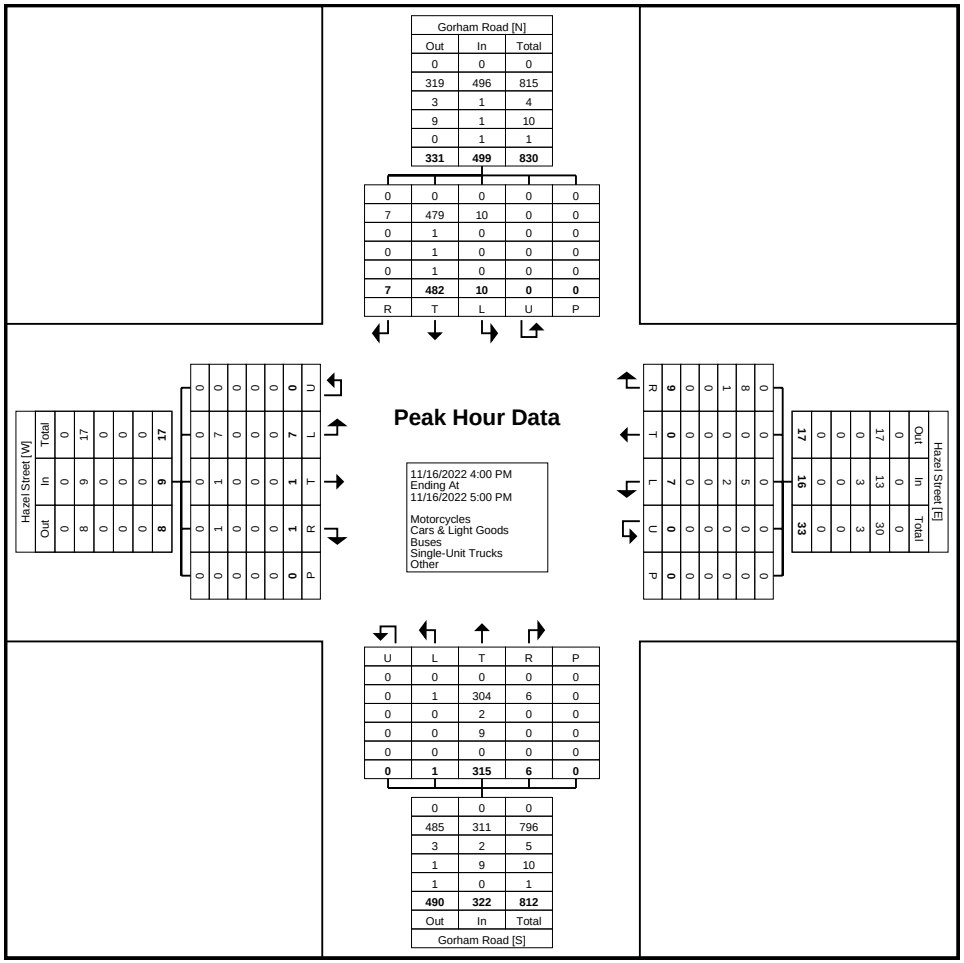
Turning Movement Peak Hour Data (4:00 PM)

Start Time	Hazel Street Eastbound						Hazel Street Westbound						Gorham Road Northbound						Gorham Road Southbound						
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Int. Total
4:00 PM	1	0	1	0	0	2	4	0	4	0	0	8	0	101	2	0	0	103	3	126	4	0	0	133	246
4:15 PM	0	0	0	0	0	0	1	0	2	0	0	3	1	80	3	0	0	84	4	119	0	0	0	123	210
4:30 PM	3	0	0	0	0	3	2	0	1	0	0	3	0	65	1	0	0	66	0	133	1	0	0	134	206
4:45 PM	3	1	0	0	0	4	0	0	2	0	0	2	0	69	0	0	0	69	3	104	2	0	0	109	184
Total	7	1	1	0	0	9	7	0	9	0	0	16	1	315	6	0	0	322	10	482	7	0	0	499	846
Approach %	77.8	11.1	11.1	0.0	-	-	43.8	0.0	56.3	0.0	-	-	0.3	97.8	1.9	0.0	-	-	2.0	96.6	1.4	0.0	-	-	-
Total %	0.8	0.1	0.1	0.0	-	1.1	0.8	0.0	1.1	0.0	-	1.9	0.1	37.2	0.7	0.0	-	38.1	1.2	57.0	0.8	0.0	-	59.0	-
PHF	0.583	0.250	0.250	0.000	-	0.563	0.438	0.000	0.563	0.000	-	0.500	0.250	0.780	0.500	0.000	-	0.782	0.625	0.906	0.438	0.000	-	0.931	0.860
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	7	1	1	0	-	9	5	0	8	0	-	13	1	304	6	0	-	311	10	479	7	0	-	496	829
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	71.4	-	88.9	-	-	81.3	100.0	96.5	100.0	-	-	96.6	100.0	99.4	100.0	-	-	99.4	98.0
Buses	0	0	0	0	-	0	2	0	1	0	-	3	0	2	0	0	-	2	0	1	0	0	-	1	6
% Buses	0.0	0.0	0.0	-	-	0.0	28.6	-	11.1	-	-	18.8	0.0	0.6	0.0	-	-	0.6	0.0	0.2	0.0	-	-	0.2	0.7
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	9	0	0	-	9	0	1	0	0	-	1	10
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	2.9	0.0	-	-	2.8	0.0	0.2	0.0	-	-	0.2	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.1
Bicycles on Road	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	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 Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Hazel Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Peak Hour Data Plot (4:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Pearl Street
Site Code: 220558
Start Date: 11/16/2022

Turning Movement Data

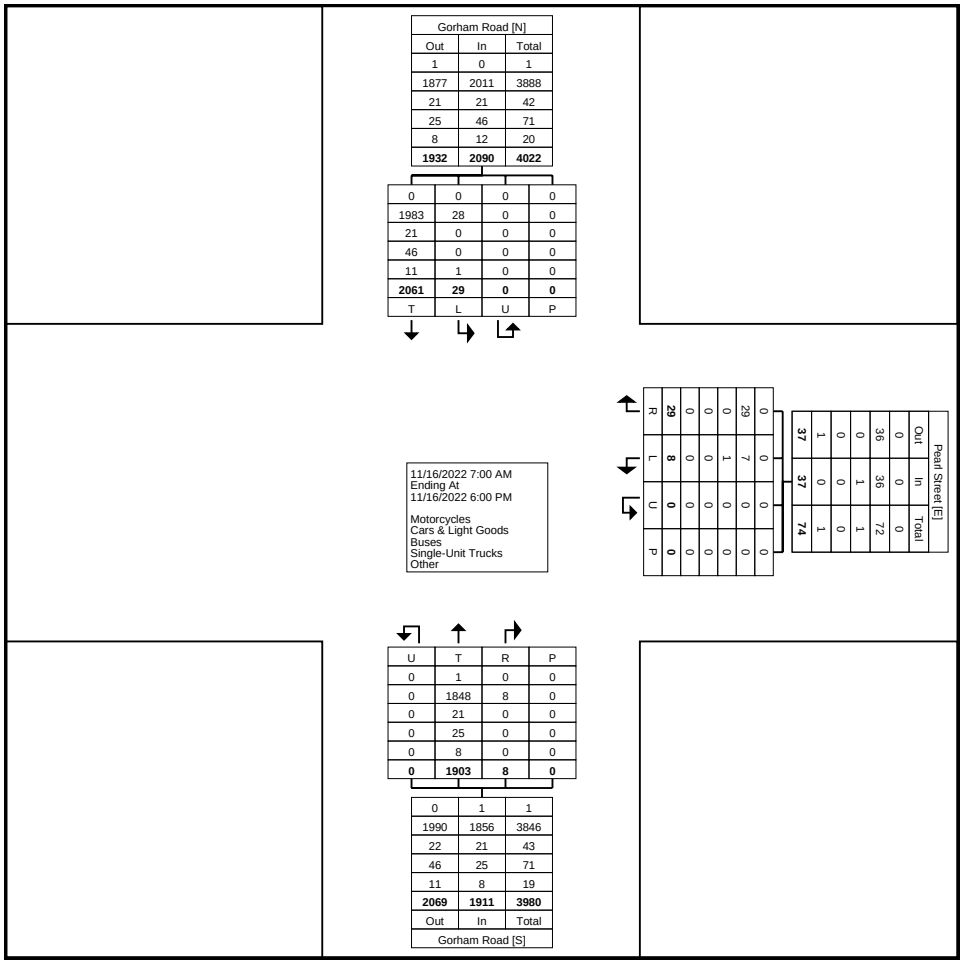
Start Time	Pearl Street Westbound					Gorham Road Northbound					Gorham Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
7:00 AM	0	2	0	0	2	75	0	0	0	75	0	26	0	0	26	103
7:15 AM	0	5	0	0	5	75	0	0	0	75	1	36	0	0	37	117
7:30 AM	0	3	0	0	3	120	0	0	0	120	0	47	0	0	47	170
7:45 AM	1	1	0	0	2	75	0	0	0	75	0	61	0	0	61	138
Hourly Total	1	11	0	0	12	345	0	0	0	345	1	170	0	0	171	528
8:00 AM	0	0	0	0	0	94	0	0	0	94	0	66	0	0	66	160
8:15 AM	1	0	0	0	1	82	1	0	0	83	0	56	0	0	56	140
8:30 AM	1	4	0	0	5	93	0	0	0	93	0	52	0	0	52	150
8:45 AM	0	1	0	0	1	87	1	0	0	88	1	82	0	0	83	172
Hourly Total	2	5	0	0	7	356	2	0	0	358	1	256	0	0	257	622
9:00 AM	0	1	0	0	1	87	1	0	0	88	0	68	0	0	68	157
9:15 AM	0	2	0	0	2	73	0	0	0	73	1	41	0	0	42	117
9:30 AM	0	0	0	0	0	85	0	0	0	85	0	57	0	0	57	142
9:45 AM	0	2	0	0	2	58	0	0	0	58	2	61	0	0	63	123
Hourly Total	0	5	0	0	5	303	1	0	0	304	3	227	0	0	230	539
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	0	0	0	0	72	0	0	0	72	2	99	0	0	101	173
3:15 PM	1	0	0	0	1	88	1	0	0	89	3	109	0	0	112	202
3:30 PM	1	2	0	0	3	90	0	0	0	90	1	98	0	0	99	192
3:45 PM	0	0	0	0	0	64	0	0	0	64	0	108	0	0	108	172
Hourly Total	2	2	0	0	4	314	1	0	0	315	6	414	0	0	420	739
4:00 PM	1	0	0	0	1	100	1	0	0	101	0	130	0	0	130	232
4:15 PM	0	4	0	0	4	84	0	0	0	84	4	124	0	0	128	216
4:30 PM	0	0	0	0	0	66	0	0	0	66	3	134	0	0	137	203
4:45 PM	1	0	0	0	1	74	1	0	0	75	4	111	0	0	115	191
Hourly Total	2	4	0	0	6	324	2	0	0	326	11	499	0	0	510	842
5:00 PM	1	0	0	0	1	92	0	0	0	92	4	115	0	0	119	212
5:15 PM	0	0	0	0	0	68	1	0	0	69	0	133	0	0	133	202
5:30 PM	0	2	0	0	2	62	0	0	0	62	1	109	0	0	110	174
5:45 PM	0	0	0	0	0	39	1	0	0	40	2	138	0	0	140	180
Hourly Total	1	2	0	0	3	261	2	0	0	263	7	495	0	0	502	768
Grand Total	8	29	0	0	37	1903	8	0	0	1911	29	2061	0	0	2090	4038
Approach %	21.6	78.4	0.0	-	-	99.6	0.4	0.0	-	-	1.4	98.6	0.0	-	-	-
Total %	0.2	0.7	0.0	-	0.9	47.1	0.2	0.0	-	47.3	0.7	51.0	0.0	-	51.8	-
Motorcycles	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Motorcycles	0.0	0.0	-	-	0.0	0.1	0.0	-	-	0.1	0.0	0.0	-	-	0.0	0.0

Cars & Light Goods	7	29	0	-	36	1848	8	0	-	1856	28	1983	0	-	2011	3903
% Cars & Light Goods	87.5	100.0	-	-	97.3	97.1	100.0	-	-	97.1	96.6	96.2	-	-	96.2	96.7
Buses	1	0	0	-	1	21	0	0	-	21	0	21	0	-	21	43
% Buses	12.5	0.0	-	-	2.7	1.1	0.0	-	-	1.1	0.0	1.0	-	-	1.0	1.1
Single-Unit Trucks	0	0	0	-	0	25	0	0	-	25	0	46	0	-	46	71
% Single-Unit Trucks	0.0	0.0	-	-	0.0	1.3	0.0	-	-	1.3	0.0	2.2	-	-	2.2	1.8
Articulated Trucks	0	0	0	-	0	7	0	0	-	7	1	11	0	-	12	19
% Articulated Trucks	0.0	0.0	-	-	0.0	0.4	0.0	-	-	0.4	3.4	0.5	-	-	0.6	0.5
Bicycles on Road	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	-	-	0.0	0.1	0.0	-	-	0.1	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Pearl Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Pearl Street
Site Code: 220558
Start Date: 11/16/2022

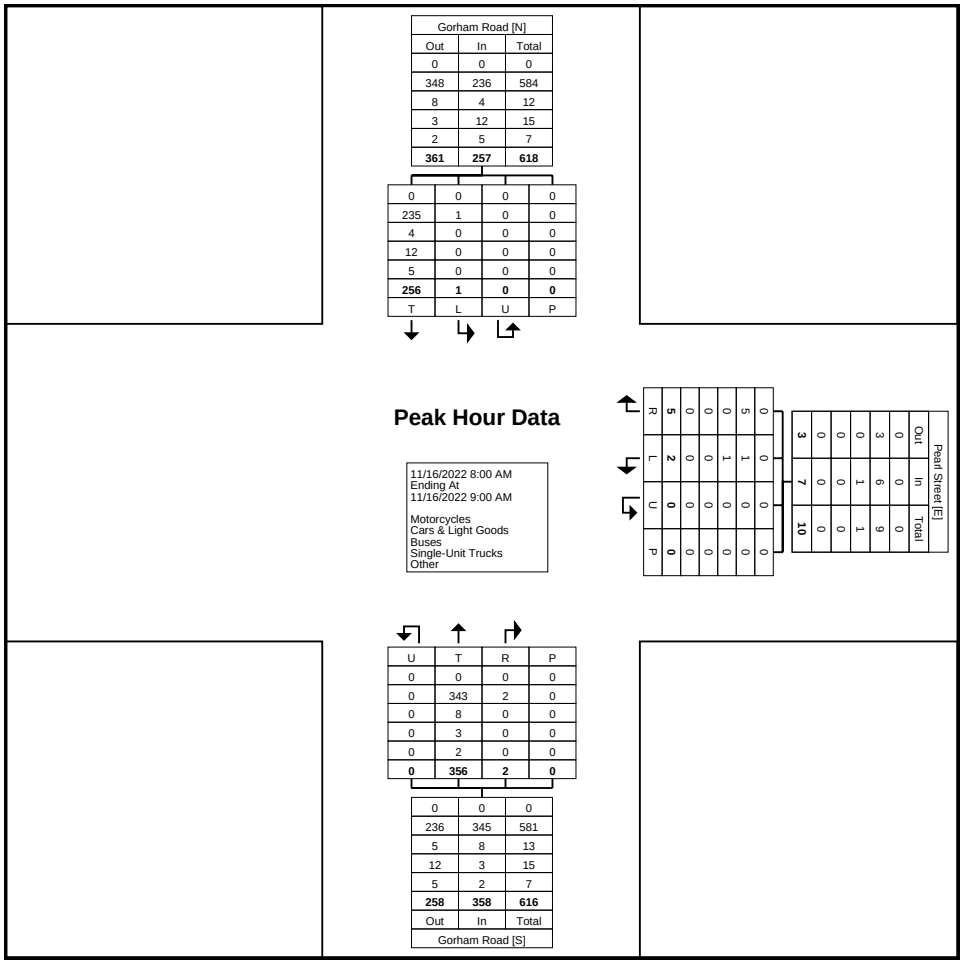
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Pearl Street Westbound					Gorham Road Northbound					Gorham Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
8:00 AM	0	0	0	0	0	94	0	0	0	94	0	66	0	0	66	160
8:15 AM	1	0	0	0	1	82	1	0	0	83	0	56	0	0	56	140
8:30 AM	1	4	0	0	5	93	0	0	0	93	0	52	0	0	52	150
8:45 AM	0	1	0	0	1	87	1	0	0	88	1	82	0	0	83	172
Total	2	5	0	0	7	356	2	0	0	358	1	256	0	0	257	622
Approach %	28.6	71.4	0.0	-	-	99.4	0.6	0.0	-	-	0.4	99.6	0.0	-	-	-
Total %	0.3	0.8	0.0	-	1.1	57.2	0.3	0.0	-	57.6	0.2	41.2	0.0	-	41.3	-
PHF	0.500	0.313	0.000	-	0.350	0.947	0.500	0.000	-	0.952	0.250	0.780	0.000	-	0.774	0.904
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	1	5	0	-	6	343	2	0	-	345	1	235	0	-	236	587
% Cars & Light Goods	50.0	100.0	-	-	85.7	96.3	100.0	-	-	96.4	100.0	91.8	-	-	91.8	94.4
Buses	1	0	0	-	1	8	0	0	-	8	0	4	0	-	4	13
% Buses	50.0	0.0	-	-	14.3	2.2	0.0	-	-	2.2	0.0	1.6	-	-	1.6	2.1
Single-Unit Trucks	0	0	0	-	0	3	0	0	-	3	0	12	0	-	12	15
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.8	0.0	-	-	0.8	0.0	4.7	-	-	4.7	2.4
Articulated Trucks	0	0	0	-	0	2	0	0	-	2	0	5	0	-	5	7
% Articulated Trucks	0.0	0.0	-	-	0.0	0.6	0.0	-	-	0.6	0.0	2.0	-	-	1.9	1.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Pearl Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Peak Hour Data Plot (8:00 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Pearl Street
Site Code: 220558
Start Date: 11/16/2022

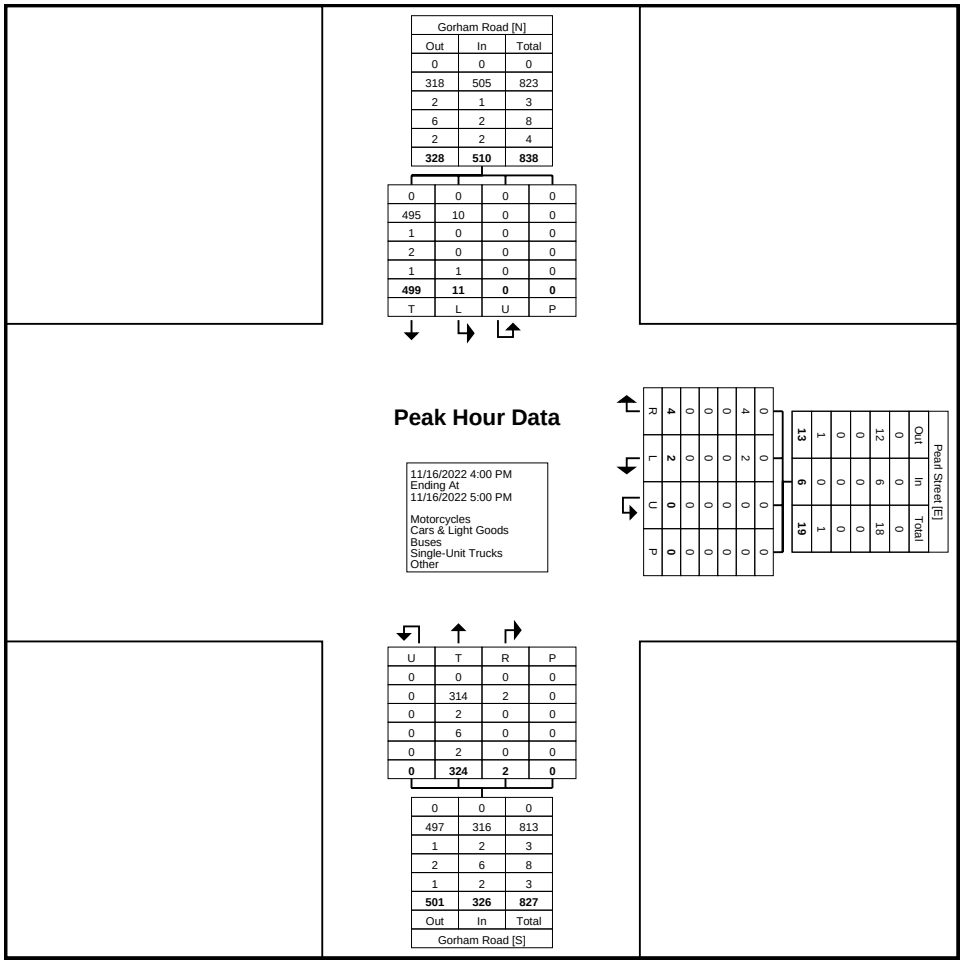
Turning Movement Peak Hour Data (4:00 PM)

Start Time	Pearl Street Westbound					Gorham Road Northbound					Gorham Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
4:00 PM	1	0	0	0	1	100	1	0	0	101	0	130	0	0	130	232
4:15 PM	0	4	0	0	4	84	0	0	0	84	4	124	0	0	128	216
4:30 PM	0	0	0	0	0	66	0	0	0	66	3	134	0	0	137	203
4:45 PM	1	0	0	0	1	74	1	0	0	75	4	111	0	0	115	191
Total	2	4	0	0	6	324	2	0	0	326	11	499	0	0	510	842
Approach %	33.3	66.7	0.0	-	-	99.4	0.6	0.0	-	-	2.2	97.8	0.0	-	-	-
Total %	0.2	0.5	0.0	-	0.7	38.5	0.2	0.0	-	38.7	1.3	59.3	0.0	-	60.6	-
PHF	0.500	0.250	0.000	-	0.375	0.810	0.500	0.000	-	0.807	0.688	0.931	0.000	-	0.931	0.907
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	2	4	0	-	6	314	2	0	-	316	10	495	0	-	505	827
% Cars & Light Goods	100.0	100.0	-	-	100.0	96.9	100.0	-	-	96.9	90.9	99.2	-	-	99.0	98.2
Buses	0	0	0	-	0	2	0	0	-	2	0	1	0	-	1	3
% Buses	0.0	0.0	-	-	0.0	0.6	0.0	-	-	0.6	0.0	0.2	-	-	0.2	0.4
Single-Unit Trucks	0	0	0	-	0	6	0	0	-	6	0	2	0	-	2	8
% Single-Unit Trucks	0.0	0.0	-	-	0.0	1.9	0.0	-	-	1.8	0.0	0.4	-	-	0.4	1.0
Articulated Trucks	0	0	0	-	0	2	0	0	-	2	1	1	0	-	2	4
% Articulated Trucks	0.0	0.0	-	-	0.0	0.6	0.0	-	-	0.6	9.1	0.2	-	-	0.4	0.5
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Gorham Road & Pearl Street
Site Code: 220558
Start Date: 11/16/2022



Turning Movement Peak Hour Data Plot (4:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 scatton@ptsl.com

Count Name: Ridge Road N & Hazel Street
Site Code: 220558
Start Date: 16/11/2022

Turning Movement Data

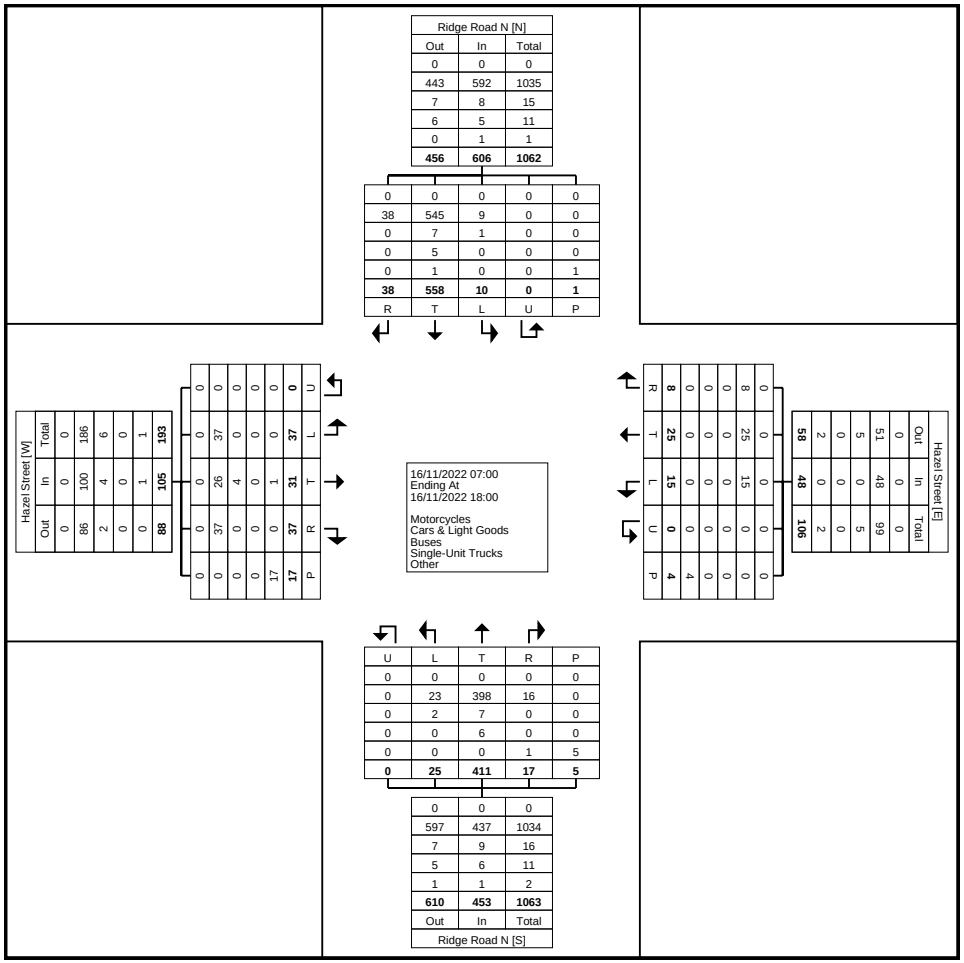
Start Time	Hazel Street Eastbound						Hazel Street Westbound						Ridge Road N Northbound						Ridge Road N Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
07:00	2	0	0	0	0	2	0	1	0	0	1	1	0	5	1	0	0	6	0	3	0	0	0	3	12
07:15	1	2	0	0	0	3	0	0	0	0	0	0	0	11	0	0	0	11	1	5	1	0	0	7	21
07:30	2	2	2	0	0	6	0	1	1	0	0	2	0	10	0	0	0	10	0	11	0	0	0	11	29
07:45	0	1	2	0	0	3	1	2	0	0	0	3	1	6	1	0	1	8	0	12	2	0	0	14	28
Hourly Total	5	5	4	0	0	14	1	4	1	0	1	6	1	32	2	0	1	35	1	31	3	0	0	35	90
08:00	4	2	1	0	2	7	1	1	0	0	0	2	1	18	0	0	0	19	0	19	0	0	0	19	47
08:15	1	0	1	0	2	2	1	3	0	0	0	4	1	11	1	0	0	13	1	20	1	0	0	22	41
08:30	1	1	0	0	0	2	1	1	0	0	0	2	0	23	1	0	0	24	0	26	1	0	0	27	55
08:45	1	3	1	0	0	5	2	0	0	0	0	2	1	20	0	0	0	21	1	23	1	0	0	25	53
Hourly Total	7	6	3	0	4	16	5	5	0	0	0	10	3	72	2	0	0	77	2	88	3	0	0	93	196
09:00	0	1	2	0	0	3	0	2	0	0	0	2	0	19	1	0	0	20	0	13	1	0	0	14	39
09:15	1	0	1	0	0	2	0	1	0	0	0	1	0	14	1	0	0	15	0	17	0	0	0	17	35
09:30	1	1	1	0	1	3	1	2	2	0	1	5	1	16	0	0	0	17	0	15	0	0	0	15	40
09:45	5	1	1	0	1	7	0	2	1	0	0	3	1	32	0	0	0	33	0	23	1	0	0	24	67
Hourly Total	7	3	5	0	2	15	1	7	3	0	1	11	2	81	2	0	0	85	0	68	2	0	0	70	181
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15:00	1	1	3	0	0	5	0	0	1	0	1	1	0	27	1	0	0	28	0	28	2	0	0	30	64
15:15	1	1	3	0	1	5	0	1	1	0	1	2	0	18	1	0	0	19	1	33	2	0	0	36	62
15:30	1	2	2	0	3	5	0	0	1	0	0	1	3	22	1	0	2	26	0	35	2	0	0	37	69
15:45	3	0	1	0	2	4	1	1	0	0	0	2	2	16	1	0	0	19	0	37	5	0	0	42	67
Hourly Total	6	4	9	0	6	19	1	2	3	0	2	6	5	83	4	0	2	92	1	133	11	0	0	145	262
16:00	2	0	3	0	0	5	2	0	0	0	0	2	5	19	2	0	0	26	1	28	2	0	0	31	64
16:15	2	5	3	0	1	10	1	0	0	0	0	1	1	15	1	0	0	17	1	32	2	0	0	35	63
16:30	2	1	2	0	0	5	1	2	0	0	0	3	0	15	0	0	0	15	0	39	4	0	0	43	66
16:45	2	4	2	0	0	8	1	2	0	0	0	3	0	26	2	0	0	28	0	36	2	0	0	38	77
Hourly Total	8	10	10	0	1	28	5	4	0	0	0	9	6	75	5	0	0	86	2	135	10	0	0	147	270
17:00	1	0	2	0	2	3	1	0	0	0	0	1	2	22	0	0	0	24	1	34	2	0	0	37	65
17:15	2	0	2	0	1	4	0	1	0	0	0	1	2	19	0	0	0	21	0	19	1	0	0	20	46
17:30	1	2	1	0	1	4	0	2	0	0	0	2	2	12	1	0	0	15	2	21	4	0	0	27	48
17:45	0	1	1	0	0	2	1	0	1	0	0	2	2	15	1	0	2	18	1	29	2	0	1	32	54
Hourly Total	4	3	6	0	4	13	2	3	1	0	0	6	8	68	2	0	2	78	4	103	9	0	1	116	213
Grand Total	37	31	37	0	17	105	15	25	8	0	4	48	25	411	17	0	5	453	10	558	38	0	1	606	1212
Approach %	35.2	29.5	35.2	0.0	-	-	31.3	52.1	16.7	0.0	-	-	5.5	90.7	3.8	0.0	-	-	1.7	92.1	6.3	0.0	-	-	-
Total %	3.1	2.6	3.1	0.0	-	8.7	1.2	2.1	0.7	0.0	-	4.0	2.1	33.9	1.4	0.0	-	37.4	0.8	46.0	3.1	0.0	-	50.0	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0

% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	37	26	37	0	-	100	15	25	8	0	-	48	23	398	16	0	-	437	9	545	38	0	-	592	1177
% Cars & Light Goods	100.0	83.9	100.0	-	-	95.2	100.0	100.0	100.0	-	-	100.0	92.0	96.8	94.1	-	-	96.5	90.0	97.7	100.0	-	-	97.7	97.1
Buses	0	4	0	0	-	4	0	0	0	0	-	0	2	7	0	0	-	9	1	7	0	0	-	8	21
% Buses	0.0	12.9	0.0	-	-	3.8	0.0	0.0	0.0	-	-	0.0	8.0	1.7	0.0	-	-	2.0	10.0	1.3	0.0	-	-	1.3	1.7
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	6	0	0	-	6	0	5	0	0	-	5	11
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.5	0.0	-	-	1.3	0.0	0.9	0.0	-	-	0.8	0.9
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.1
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	2
% Bicycles on Road	0.0	3.2	0.0	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	5.9	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	17	-	-	-	-	-	4	-	-	-	-	-	5	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 scatton@ptsl.com

Count Name: Ridge Road N & Hazel Street
Site Code: 220558
Start Date: 16/11/2022



Turning Movement Data Plot

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 scatton@ptsl.com

Count Name: Ridge Road N & Hazel Street
Site Code: 220558
Start Date: 16/11/2022

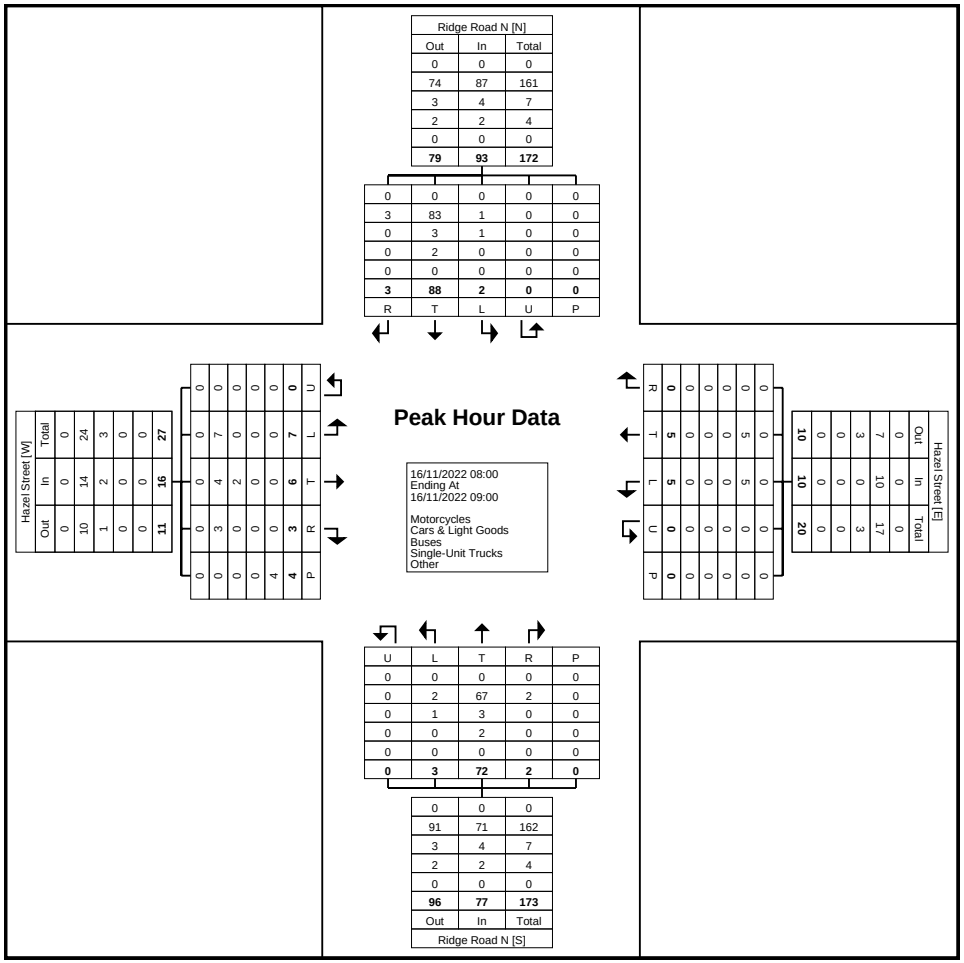
Turning Movement Peak Hour Data (08:00)

Start Time	Hazel Street Eastbound						Hazel Street Westbound						Ridge Road N Northbound						Ridge Road N Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
08:00	4	2	1	0	2	7	1	1	0	0	0	2	1	18	0	0	0	19	0	19	0	0	0	19	47
08:15	1	0	1	0	2	2	1	3	0	0	0	4	1	11	1	0	0	13	1	20	1	0	0	22	41
08:30	1	1	0	0	0	2	1	1	0	0	0	2	0	23	1	0	0	24	0	26	1	0	0	27	55
08:45	1	3	1	0	0	5	2	0	0	0	0	2	1	20	0	0	0	21	1	23	1	0	0	25	53
Total	7	6	3	0	4	16	5	5	0	0	0	10	3	72	2	0	0	77	2	88	3	0	0	93	196
Approach %	43.8	37.5	18.8	0.0	-	-	50.0	50.0	0.0	0.0	-	-	3.9	93.5	2.6	0.0	-	-	2.2	94.6	3.2	0.0	-	-	-
Total %	3.6	3.1	1.5	0.0	-	8.2	2.6	2.6	0.0	0.0	-	5.1	1.5	36.7	1.0	0.0	-	39.3	1.0	44.9	1.5	0.0	-	47.4	-
PHF	0.438	0.500	0.750	0.000	-	0.571	0.625	0.417	0.000	0.000	-	0.625	0.750	0.783	0.500	0.000	-	0.802	0.500	0.846	0.750	0.000	-	0.861	0.891
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	7	4	3	0	-	14	5	5	0	0	-	10	2	67	2	0	-	71	1	83	3	0	-	87	182
% Cars & Light Goods	100.0	66.7	100.0	-	-	87.5	100.0	100.0	-	-	-	100.0	66.7	93.1	100.0	-	-	92.2	50.0	94.3	100.0	-	-	93.5	92.9
Buses	0	2	0	0	-	2	0	0	0	0	-	0	1	3	0	0	-	4	1	3	0	0	-	4	10
% Buses	0.0	33.3	0.0	-	-	12.5	0.0	0.0	-	-	-	0.0	33.3	4.2	0.0	-	-	5.2	50.0	3.4	0.0	-	-	4.3	5.1
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	2	0	0	-	2	4
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	2.8	0.0	-	-	2.6	0.0	2.3	0.0	-	-	2.2	2.0
Articulated Trucks	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	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	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	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 scatton@ptsl.com

Count Name: Ridge Road N & Hazel Street
Site Code: 220558
Start Date: 16/11/2022



Turning Movement Peak Hour Data Plot (08:00)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 scatton@ptsl.com

Count Name: Ridge Road N & Hazel Street
Site Code: 220558
Start Date: 16/11/2022

Turning Movement Peak Hour Data (16:15)

Start Time	Hazel Street Eastbound						Hazel Street Westbound						Ridge Road N Northbound						Ridge Road N Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
16:15	2	5	3	0	1	10	1	0	0	0	0	1	1	15	1	0	0	17	1	32	2	0	0	35	63
16:30	2	1	2	0	0	5	1	2	0	0	0	3	0	15	0	0	0	15	0	39	4	0	0	43	66
16:45	2	4	2	0	0	8	1	2	0	0	0	3	0	26	2	0	0	28	0	36	2	0	0	38	77
17:00	1	0	2	0	2	3	1	0	0	0	0	1	2	22	0	0	0	24	1	34	2	0	0	37	65
Total	7	10	9	0	3	26	4	4	0	0	0	8	3	78	3	0	0	84	2	141	10	0	0	153	271
Approach %	26.9	38.5	34.6	0.0	-	-	50.0	50.0	0.0	0.0	-	-	3.6	92.9	3.6	0.0	-	-	1.3	92.2	6.5	0.0	-	-	-
Total %	2.6	3.7	3.3	0.0	-	9.6	1.5	1.5	0.0	0.0	-	3.0	1.1	28.8	1.1	0.0	-	31.0	0.7	52.0	3.7	0.0	-	56.5	-
PHF	0.875	0.500	0.750	0.000	-	0.650	1.000	0.500	0.000	0.000	-	0.667	0.375	0.750	0.375	0.000	-	0.750	0.500	0.904	0.625	0.000	-	0.890	0.880
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	7	9	9	0	-	25	4	4	0	0	-	8	3	78	3	0	-	84	2	140	10	0	-	152	269
% Cars & Light Goods	100.0	90.0	100.0	-	-	96.2	100.0	100.0	-	-	-	100.0	100.0	100.0	100.0	-	-	100.0	100.0	99.3	100.0	-	-	99.3	99.3
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	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.7	0.0	-	-	0.7	0.4
Articulated Trucks	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	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	10.0	0.0	-	-	3.8	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
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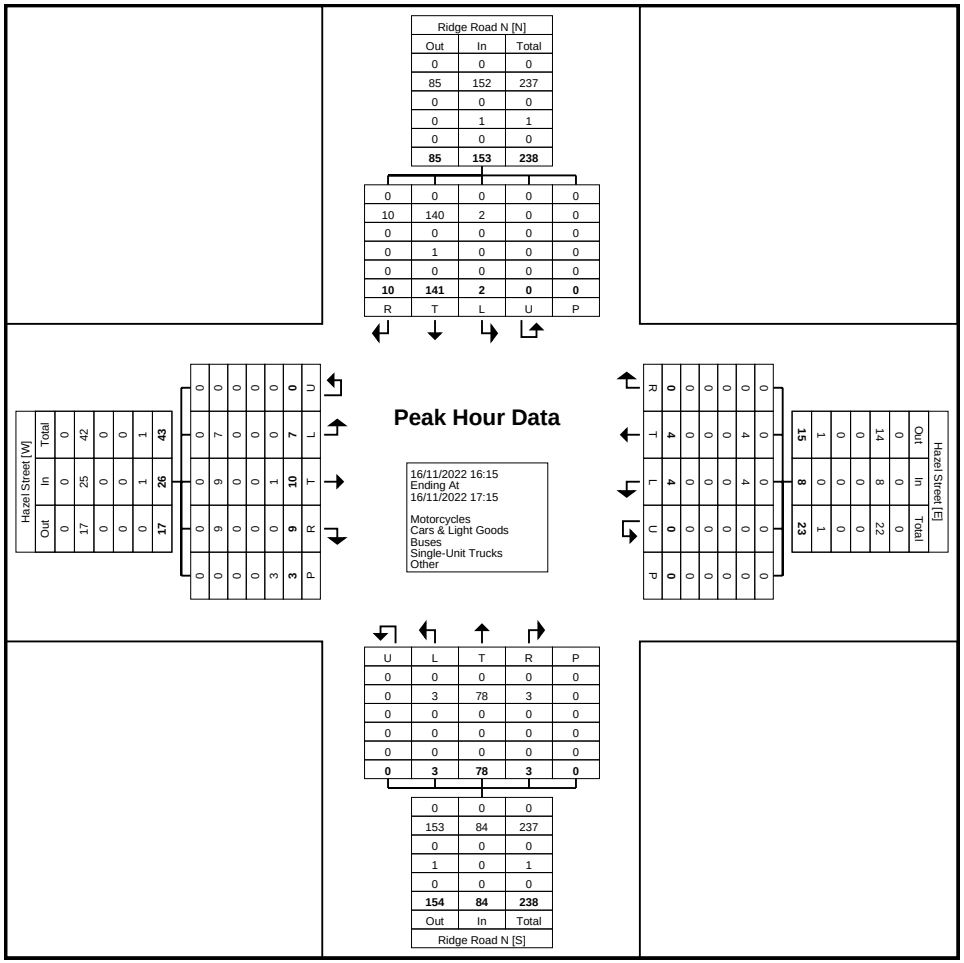


Turning Movement Peak Hour Data Plot (16:15)

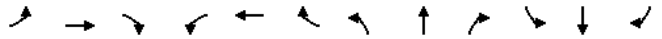
Appendix C

Base Year Traffic Operations Reports

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	5	356	2	1	256
Future Volume (Veh/h)	2	5	356	2	1	256
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	5	387	2	1	278
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	668	388			389	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	668	388			389	
tC, single (s)	6.9	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	357	665			1181	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	7	389	279
Volume Left	2	0	1
Volume Right	5	2	0
cSH	533	1700	1181
Volume to Capacity	0.01	0.23	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	11.8	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	11.8	0.0	0.0
Approach LOS	B		

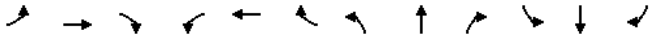
Intersection Summary				
Average Delay		0.1		
Intersection Capacity Utilization		30.5%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	3	5	1	15	4	329	4	5	254	4
Future Volume (Veh/h)	5	0	3	5	1	15	4	329	4	5	254	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	0	3	5	1	16	4	358	4	5	276	4
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	672	658	278	659	658	360	280			362		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	672	658	278	659	658	360	280			362		
tC, single (s)	7.1	6.5	6.5	7.1	6.5	6.2	4.3			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.6	3.5	4.0	3.3	2.4			2.4		
p0 queue free %	99	100	100	99	100	98	100			100		
cM capacity (veh/h)	360	384	692	376	384	689	1161			1104		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	22	366	285
Volume Left	5	5	4	5
Volume Right	3	16	4	4
cSH	439	562	1161	1104
Volume to Capacity	0.02	0.04	0.00	0.00
Queue Length 95th (m)	0.4	1.0	0.1	0.1
Control Delay (s)	13.3	11.7	0.1	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	13.3	11.7	0.1	0.2
Approach LOS	B	B		

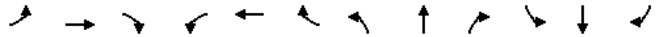
Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		31.3%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	3	0	0	0	2	0	0	0	0	2
Future Volume (Veh/h)	2	0	3	0	0	0	2	0	0	0	0	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	3	0	0	0	2	0	0	0	0	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	5	5	1	8	6	0	2			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5	5	1	8	6	0	2			0		
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 %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	1020	893	1090	1013	892	1091	1634			1636		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	0	2	2
Volume Left	2	0	2	0
Volume Right	3	0	0	2
cSH	1061	1700	1634	1636
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0	0.0
Control Delay (s)	8.4	0.0	7.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.4	0.0	7.2	0.0
Approach LOS	A	A		

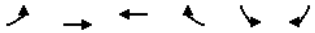
Intersection Summary				
Average Delay			6.3	
Intersection Capacity Utilization			13.3%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	9	0	3	11	1	3	1	5	2	0	1
Future Volume (Veh/h)	0	9	0	3	11	1	3	1	5	2	0	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	10	0	3	12	1	3	1	5	2	0	1
Pedestrians					1							
Lane Width (m)					3.6							
Walking Speed (m/s)					1.2							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	21	18	0	20	16	4	1			7		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	21	18	0	20	16	4	1			7		
tC, single (s)	7.1	6.6	6.2	7.1	6.6	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	100	99	100	100	99	100	100			100		
cM capacity (veh/h)	983	856	1090	986	862	1084	1635			1625		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	16	9	3
Volume Left	0	3	3	2
Volume Right	0	1	5	1
cSH	856	894	1635	1625
Volume to Capacity	0.01	0.02	0.00	0.00
Queue Length 95th (m)	0.3	0.4	0.0	0.0
Control Delay (s)	9.3	9.1	2.4	4.8
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.1	2.4	4.8
Approach LOS	A	A		

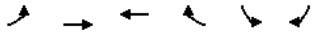
Intersection Summary				
Average Delay			7.2	
Intersection Capacity Utilization			13.9%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	16	11	0	0	0
Future Volume (Veh/h)	0	16	11	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	12	0	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	12				29	12
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	12				29	12
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1607				986	1069

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	17	12	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1607	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	16	11	0	0	0
Future Volume (Veh/h)	0	16	11	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	12	0	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	12				29	12
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	12				29	12
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1607				986	1069

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	17	12	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1607	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	6	3	5	5	0	3	72	2	2	88	3
Future Volume (Veh/h)	7	6	3	5	5	0	3	72	2	2	88	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	7	3	5	5	0	3	78	2	2	96	3
Pedestrians		4										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	193	192	102	193	192	79	103			80		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	193	192	102	193	192	79	103			80		
tC, single (s)	7.1	6.8	6.2	7.1	6.5	6.2	4.4			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.3	3.3	3.5	4.0	3.3	2.5			2.7		
p0 queue free %	99	99	100	99	99	100	100			100		
cM capacity (veh/h)	760	647	956	758	702	987	1312			1263		

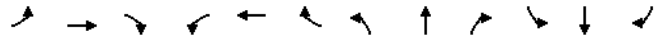
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	10	83	101
Volume Left	8	5	3	2
Volume Right	3	0	2	3
cSH	735	729	1312	1263
Volume to Capacity	0.02	0.01	0.00	0.00
Queue Length 95th (m)	0.6	0.3	0.1	0.0
Control Delay (s)	10.0	10.0	0.3	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	10.0	10.0	0.3	0.2
Approach LOS	B	B		

Intersection Summary				
Average Delay		1.5		
Intersection Capacity Utilization	17.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	4	324	2	11	499
Future Volume (Veh/h)	2	4	324	2	11	499
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	4	352	2	12	542
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	919	353			354	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	919	353			354	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	99	99			99	
cM capacity (veh/h)	301	695			1167	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	6	354	554
Volume Left	2	0	12
Volume Right	4	2	0
cSH	484	1700	1167
Volume to Capacity	0.01	0.21	0.01
Queue Length 95th (m)	0.3	0.0	0.2
Control Delay (s)	12.5	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	12.5	0.0	0.3
Approach LOS	B		

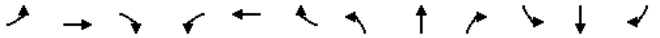
Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization		48.1%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1	1	7	0	9	1	315	6	10	482	7
Future Volume (Veh/h)	7	1	1	7	0	9	1	315	6	10	482	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	1	1	8	0	10	1	342	7	11	524	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	908	901	528	899	902	346	532			349		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	908	901	528	899	902	346	532			349		
tC, single (s)	7.1	6.5	6.2	7.4	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.8	4.0	3.4	2.2			2.2		
p0 queue free %	97	100	100	97	100	99	100			99		
cM capacity (veh/h)	253	277	554	230	277	677	1046			1221		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	18	350	543
Volume Left	8	8	1	11
Volume Right	1	10	7	8
cSH	270	364	1046	1221
Volume to Capacity	0.04	0.05	0.00	0.01
Queue Length 95th (m)	0.9	1.2	0.0	0.2
Control Delay (s)	18.9	15.4	0.0	0.3
Lane LOS	C	C	A	A
Approach Delay (s)	18.9	15.4	0.0	0.3
Approach LOS	C	C		

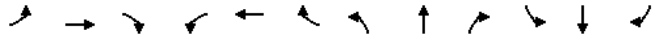
Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		46.0%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	6	0	0	0	4	0	0	0	0	0
Future Volume (Veh/h)	0	0	6	0	0	0	4	0	0	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	7	0	0	0	4	0	0	0	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	8	8	0	15	8	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	8	8	0	15	8	0	0			0		
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 %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	1015	889	1091	998	889	1091	1636			1636		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	0	4	0
Volume Left	0	0	4	0
Volume Right	7	0	0	0
cSH	1091	1700	1636	1700
Volume to Capacity	0.01	0.03	0.00	0.00
Queue Length 95th (m)	0.2	0.0	0.1	0.0
Control Delay (s)	8.3	0.0	7.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.3	0.0	7.2	0.0
Approach LOS	A	A		

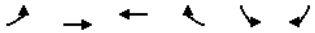
Intersection Summary				
Average Delay			7.9	
Intersection Capacity Utilization			13.3%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	17	2	8	10	1	3	1	8	4	2	0
Future Volume (Veh/h)	0	17	2	8	10	1	3	1	8	4	2	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	18	2	9	11	1	3	1	9	4	2	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	28	26	2	32	22	6	2			10		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28	26	2	32	22	6	2			10		
tC, single (s)	7.1	6.5	6.2	7.1	6.6	6.2	4.8			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.1	3.3	2.8			2.2		
p0 queue free %	100	98	100	99	99	100	100			100		
cM capacity (veh/h)	972	867	1088	959	852	1083	1282			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	21	13	6
Volume Left	0	9	3	4
Volume Right	2	1	9	0
cSH	885	905	1282	1623
Volume to Capacity	0.02	0.02	0.00	0.00
Queue Length 95th (m)	0.6	0.6	0.1	0.1
Control Delay (s)	9.2	9.1	1.8	4.8
Lane LOS	A	A	A	A
Approach Delay (s)	9.2	9.1	1.8	4.8
Approach LOS	A	A		

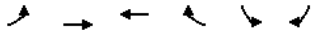
Intersection Summary				
Average Delay			7.1	
Intersection Capacity Utilization			17.8%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	29	17	0	0	0
Future Volume (Veh/h)	0	29	17	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	32	18	0	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	18				50	18
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	18				50	18
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1599				959	1061

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	32	18	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1599	1700	1700
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	29	17	0	0	0
Future Volume (Veh/h)	0	29	17	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	32	18	0	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	18				50	18
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	18				50	18
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1599				959	1061

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	32	18	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1599	1700	1700
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	10	9	4	4	0	3	78	3	2	141	10
Future Volume (Veh/h)	7	10	9	4	4	0	3	78	3	2	141	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	11	10	4	4	0	3	85	3	2	153	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	257	256	158	270	260	86	164			88		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	257	256	158	270	260	86	164			88		
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	98	99	99	99	100	100			100		
cM capacity (veh/h)	695	649	892	668	645	978	1427			1520		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	29	8	91	166
Volume Left	8	4	3	2
Volume Right	10	0	3	11
cSH	731	656	1427	1520
Volume to Capacity	0.04	0.01	0.00	0.00
Queue Length 95th (m)	1.0	0.3	0.1	0.0
Control Delay (s)	10.1	10.6	0.3	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	10.6	0.3	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	19.6%	ICU Level of Service	A	
Analysis Period (min)	15			

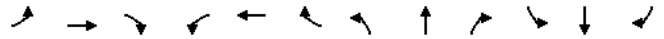
Appendix D

Background Traffic Operations Reports

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	6	401	2	1	288
Future Volume (Veh/h)	2	6	401	2	1	288
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	7	436	2	1	313
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	752	437			438	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	752	437			438	
tC, single (s)	6.9	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	316	624			1133	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	438	314
Volume Left	2	0	1
Volume Right	7	2	0
cSH	513	1700	1133
Volume to Capacity	0.02	0.26	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	12.1	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	12.1	0.0	0.0
Approach LOS	B		

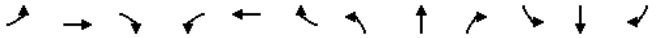
Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		33.0%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	3	6	1	17	5	371	5	6	286	5
Future Volume (Veh/h)	6	0	3	6	1	17	5	371	5	6	286	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	0	3	7	1	18	5	403	5	7	311	5
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	762	746	314	746	746	406	316			408		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	762	746	314	746	746	406	316			408		
tC, single (s)	7.1	6.5	6.5	7.1	6.5	6.2	4.3			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.6	3.5	4.0	3.3	2.4			2.4		
p0 queue free %	98	100	100	98	100	97	100			99		
cM capacity (veh/h)	312	341	660	328	341	650	1125			1060		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	26	413	323
Volume Left	7	7	5	7
Volume Right	3	18	5	5
cSH	371	500	1125	1060
Volume to Capacity	0.03	0.05	0.00	0.01
Queue Length 95th (m)	0.7	1.3	0.1	0.2
Control Delay (s)	15.0	12.6	0.1	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	15.0	12.6	0.1	0.2
Approach LOS	B	B		

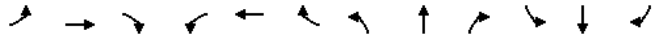
Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		34.3%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	3	0	0	0	2	0	0	0	0	2
Future Volume (Veh/h)	2	0	3	0	0	0	2	0	0	0	0	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	3	0	0	0	2	0	0	0	0	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	5	5	1	8	6	0	2			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5	5	1	8	6	0	2			0		
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 %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	1020	893	1090	1013	892	1091	1634			1636		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	0	2	2
Volume Left	2	0	2	0
Volume Right	3	0	0	2
cSH	1061	1700	1634	1636
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0	0.0
Control Delay (s)	8.4	0.0	7.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.4	0.0	7.2	0.0
Approach LOS	A	A		

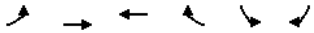
Intersection Summary				
Average Delay		6.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	10	0	3	12	1	3	1	6	2	0	1
Future Volume (Veh/h)	0	10	0	3	12	1	3	1	6	2	0	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	0	3	13	1	3	1	7	2	0	1
Pedestrians					1							
Lane Width (m)					3.6							
Walking Speed (m/s)					1.2							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	22	20	0	22	16	6	1			9		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	22	20	0	22	16	6	1			9		
tC, single (s)	7.1	6.6	6.2	7.1	6.6	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	100	99	100	100	98	100	100			100		
cM capacity (veh/h)	979	853	1090	983	861	1082	1635			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	17	11	3
Volume Left	0	3	3	2
Volume Right	0	1	7	1
cSH	853	891	1635	1623
Volume to Capacity	0.01	0.02	0.00	0.00
Queue Length 95th (m)	0.3	0.5	0.0	0.0
Control Delay (s)	9.3	9.1	2.0	4.8
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.1	2.0	4.8
Approach LOS	A	A		

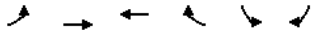
Intersection Summary				
Average Delay		7.0		
Intersection Capacity Utilization	13.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	12	0	0	0
Future Volume (Veh/h)	0	18	12	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	13	0	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	13				33	13
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				33	13
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1606				980	1067

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	13	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1606	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		6.7%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	12	0	0	0
Future Volume (Veh/h)	0	18	12	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	13	0	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	13				33	13
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				33	13
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1606				980	1067

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	13	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1606	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		6.7%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	7	3	6	6	0	3	81	2	2	99	3
Future Volume (Veh/h)	8	7	3	6	6	0	3	81	2	2	99	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	8	3	7	7	0	3	88	2	2	108	3
Pedestrians		4										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	216	214	114	216	214	89	115			90		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	216	214	114	216	214	89	115			90		
tC, single (s)	7.1	6.8	6.2	7.1	6.5	6.2	4.4			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.3	3.3	3.5	4.0	3.3	2.5			2.7		
p0 queue free %	99	99	100	99	99	100	100			100		
cM capacity (veh/h)	732	628	942	732	682	975	1298			1251		

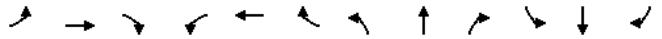
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	14	93	113
Volume Left	9	7	3	2
Volume Right	3	0	2	3
cSH	709	706	1298	1251
Volume to Capacity	0.03	0.02	0.00	0.00
Queue Length 95th (m)	0.7	0.5	0.1	0.0
Control Delay (s)	10.2	10.2	0.3	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	10.2	10.2	0.3	0.2
Approach LOS	B	B		

Intersection Summary					
Average Delay		1.6			
Intersection Capacity Utilization		17.6%	ICU Level of Service		A
Analysis Period (min)		15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	5	365	2	12	562
Future Volume (Veh/h)	2	5	365	2	12	562
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	5	397	2	13	611
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	1035	398			399	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1035	398			399	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	99	99			99	
cM capacity (veh/h)	256	656			1123	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	7	399	624
Volume Left	2	0	13
Volume Right	5	2	0
cSH	454	1700	1123
Volume to Capacity	0.02	0.23	0.01
Queue Length 95th (m)	0.4	0.0	0.3
Control Delay (s)	13.1	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	13.1	0.0	0.3
Approach LOS	B		

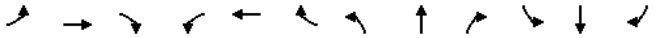
Intersection Summary				
Average Delay		0.3		
Intersection Capacity Utilization		52.6%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	1	8	0	10	1	355	7	11	543	8
Future Volume (Veh/h)	8	1	1	8	0	10	1	355	7	11	543	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	1	9	0	11	1	386	8	12	590	9
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	1022	1014	594	1012	1015	390	599			394		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1022	1014	594	1012	1015	390	599			394		
tC, single (s)	7.1	6.5	6.2	7.4	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.8	4.0	3.4	2.2			2.2		
p0 queue free %	96	100	100	95	100	98	100			99		
cM capacity (veh/h)	211	238	508	192	237	639	988			1176		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	20	395	611
Volume Left	9	9	1	12
Volume Right	1	11	8	9
cSH	225	312	988	1176
Volume to Capacity	0.05	0.06	0.00	0.01
Queue Length 95th (m)	1.2	1.6	0.0	0.2
Control Delay (s)	21.8	17.3	0.0	0.3
Lane LOS	C	C	A	A
Approach Delay (s)	21.8	17.3	0.0	0.3
Approach LOS	C	C		

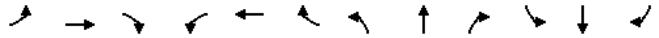
Intersection Summary				
Average Delay		0.7		
Intersection Capacity Utilization		50.4%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	0	0	0	5	0	0	0	0	0
Future Volume (Veh/h)	0	0	7	0	0	0	5	0	0	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	8	0	0	0	5	0	0	0	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	10	10	0	18	10	0	0			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	10	10	0	18	10	0	0			0		
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 %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	1011	886	1091	992	886	1091	1636			1636		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	0	5	0
Volume Left	0	0	5	0
Volume Right	8	0	0	0
cSH	1091	1700	1636	1700
Volume to Capacity	0.01	0.02	0.00	0.00
Queue Length 95th (m)	0.2	0.0	0.1	0.0
Control Delay (s)	8.3	0.0	7.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.3	0.0	7.2	0.0
Approach LOS	A	A		

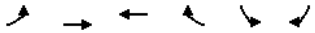
Intersection Summary				
Average Delay	7.9			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	19	2	9	11	1	3	1	9	5	2	0
Future Volume (Veh/h)	0	19	2	9	11	1	3	1	9	5	2	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	2	10	12	1	3	1	10	5	2	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	31	29	2	36	24	6	2			11		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	31	29	2	36	24	6	2			11		
tC, single (s)	7.1	6.5	6.2	7.1	6.6	6.2	4.8			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.1	3.3	2.8			2.2		
p0 queue free %	100	98	100	99	99	100	100			100		
cM capacity (veh/h)	967	863	1088	950	849	1083	1282			1621		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	23	23	14	7
Volume Left	0	10	3	5
Volume Right	2	1	10	0
cSH	879	899	1282	1621
Volume to Capacity	0.03	0.03	0.00	0.00
Queue Length 95th (m)	0.6	0.6	0.1	0.1
Control Delay (s)	9.2	9.1	1.7	5.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.2	9.1	1.7	5.2
Approach LOS	A	A		

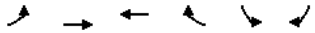
Intersection Summary				
Average Delay	7.2			
Intersection Capacity Utilization	17.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	33	19	0	0	0
Future Volume (Veh/h)	0	33	19	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	36	21	0	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	21				57	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	21				57	21
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1595				950	1056

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	36	21	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1595	1700	1700
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

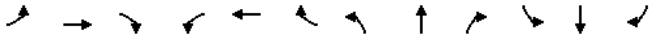
Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	33	19	0	0	0
Future Volume (Veh/h)	0	33	19	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	36	21	0	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	21				57	21
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	21				57	21
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1595				950	1056

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	36	21	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1595	1700	1700
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	11	10	5	5	0	3	88	3	2	159	11
Future Volume (Veh/h)	8	11	10	5	5	0	3	88	3	2	159	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	12	11	5	5	0	3	96	3	2	173	12
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	289	288	179	304	292	98	185			99		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	289	288	179	304	292	98	185			99		
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	98	99	99	99	100	100			100		
cM capacity (veh/h)	661	623	869	633	619	964	1402			1507		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	32	10	102	187
Volume Left	9	5	3	2
Volume Right	11	0	3	12
cSH	703	626	1402	1507
Volume to Capacity	0.05	0.02	0.00	0.00
Queue Length 95th (m)	1.1	0.4	0.1	0.0
Control Delay (s)	10.4	10.8	0.2	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.4	10.8	0.2	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	20.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix E

Total Traffic Operations Reports

HCM Unsignalized Intersection Capacity Analysis
101: Gorham Rd & Pearl St

01-31-2023

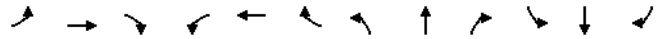
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	6	401	2	1	288
Future Volume (Veh/h)	2	6	401	2	1	288
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	7	436	2	1	313
Pedestrians						
Lane Width (m)						
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	752	437			438	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	752	437			438	
tC, single (s)	6.9	6.2			4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	316	624			1133	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	438	314
Volume Left	2	0	1
Volume Right	7	2	0
cSH	513	1700	1133
Volume to Capacity	0.02	0.26	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	12.1	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	12.1	0.0	0.0
Approach LOS	B		

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		33.0%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
102: Gorham Rd & Hazel St

01-31-2023



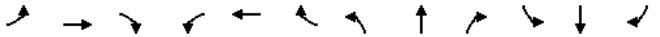
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	3	6	1	17	5	371	5	6	286	5
Future Volume (Veh/h)	6	0	3	6	1	17	5	371	5	6	286	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	0	3	7	1	18	5	403	5	7	311	5
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	762	746	314	746	746	406	316			408		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	762	746	314	746	746	406	316			408		
tC, single (s)	7.1	6.5	6.5	7.1	6.5	6.2	4.3			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.6	3.5	4.0	3.3	2.4			2.4		
p0 queue free %	98	100	100	98	100	97	100			99		
cM capacity (veh/h)	312	341	660	328	341	650	1125			1060		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	10	26	413	323
Volume Left	7	7	5	7
Volume Right	3	18	5	5
cSH	371	500	1125	1060
Volume to Capacity	0.03	0.05	0.00	0.01
Queue Length 95th (m)	0.7	1.3	0.1	0.2
Control Delay (s)	15.0	12.6	0.1	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	15.0	12.6	0.1	0.2
Approach LOS	B	B		

Intersection Summary				
Average Delay		0.8		
Intersection Capacity Utilization		34.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
103: Belleview Blvd & Pearl St

01-31-2023



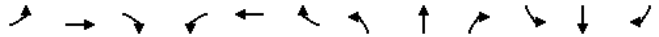
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	3	0	0	0	2	0	0	0	0	2
Future Volume (Veh/h)	2	0	3	0	0	0	2	0	0	0	0	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	3	0	0	0	2	0	0	0	0	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	5	5	1	8	6	0	2			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	5	5	1	8	6	0	2			0		
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 %	100	100	100	100	100	100	100			100		
cM capacity (veh/h)	1020	893	1090	1013	892	1091	1634			1636		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	0	2	2
Volume Left	2	0	2	0
Volume Right	3	0	0	2
cSH	1061	1700	1634	1636
Volume to Capacity	0.00	0.00	0.00	0.00
Queue Length 95th (m)	0.1	0.0	0.0	0.0
Control Delay (s)	8.4	0.0	7.2	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.4	0.0	7.2	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	6.3			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
104: Belleview Blvd & Hazel St

01-31-2023



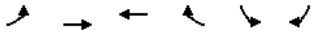
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	10	0	3	12	1	3	1	6	2	0	1
Future Volume (Veh/h)	0	10	0	3	12	1	3	1	6	2	0	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	11	0	3	13	1	3	1	7	2	0	1
Pedestrians					1							
Lane Width (m)					3.6							
Walking Speed (m/s)					1.2							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	22	20	0	22	16	6	1			9		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	22	20	0	22	16	6	1			9		
tC, single (s)	7.1	6.6	6.2	7.1	6.6	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	100	99	100	100	98	100	100			100		
cM capacity (veh/h)	979	853	1090	983	861	1082	1635			1623		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	17	11	3
Volume Left	0	3	3	2
Volume Right	0	1	7	1
cSH	853	891	1635	1623
Volume to Capacity	0.01	0.02	0.00	0.00
Queue Length 95th (m)	0.3	0.5	0.0	0.0
Control Delay (s)	9.3	9.1	2.0	4.8
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.1	2.0	4.8
Approach LOS	A	A		

Intersection Summary				
Average Delay	7.0			
Intersection Capacity Utilization	13.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
105: Hazel St & Driveway 1

01-31-2023



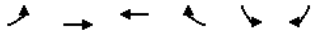
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	12	0	0	0
Future Volume (Veh/h)	0	18	12	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	13	0	0	0
Pedestrians						
Lane Width (m)						
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	13				33	13
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				33	13
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1606				980	1067

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	13	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1606	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
106: Hazel St & Driveway 2

01-31-2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	12	0	0	0
Future Volume (Veh/h)	0	18	12	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	13	0	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	13				33	13
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	13				33	13
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1606				980	1067

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	20	13	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1606	1700	1700
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary				
Average Delay		0.0		
Intersection Capacity Utilization		6.7%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
107: Ridge Rd N & Hazel St

01-31-2023

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	7	3	6	6	0	3	81	2	2	99	3
Future Volume (Veh/h)	8	7	3	6	6	0	3	81	2	2	99	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	8	3	7	7	0	3	88	2	2	108	3
Pedestrians		4										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	216	214	114	216	214	89	115			90		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	216	214	114	216	214	89	115			90		
tC, single (s)	7.1	6.8	6.2	7.1	6.5	6.2	4.4			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.3	3.3	3.5	4.0	3.3	2.5			2.7		
p0 queue free %	99	99	100	99	99	100	100			100		
cM capacity (veh/h)	732	628	942	732	682	975	1298			1251		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	14	93	113
Volume Left	9	7	3	2
Volume Right	3	0	2	3
cSH	709	706	1298	1251
Volume to Capacity	0.03	0.02	0.00	0.00
Queue Length 95th (m)	0.7	0.5	0.1	0.0
Control Delay (s)	10.2	10.2	0.3	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	10.2	10.2	0.3	0.2
Approach LOS	B	B		

Intersection Summary					
Average Delay		1.6			
Intersection Capacity Utilization		17.6%	ICU Level of Service	A	
Analysis Period (min)		15			

HCM Unsignalized Intersection Capacity Analysis
101: Gorham Rd & Pearl St

01-31-2023

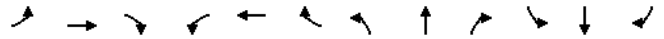
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	6	11	367	5	26	565
Future Volume (Veh/h)	6	11	367	5	26	565
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	12	399	5	28	614
Pedestrians						
Lane Width (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	1072	402			404	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1072	402			404	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	97	98			97	
cM capacity (veh/h)	240	653			1118	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	19	404	642
Volume Left	7	0	28
Volume Right	12	5	0
cSH	400	1700	1118
Volume to Capacity	0.05	0.24	0.03
Queue Length 95th (m)	1.2	0.0	0.6
Control Delay (s)	14.5	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	14.5	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		65.2%	ICU Level of Service C
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
102: Gorham Rd & Hazel St

01-31-2023



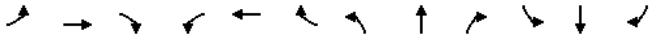
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	1	14	0	12	1	358	15	14	547	8
Future Volume (Veh/h)	8	1	1	14	0	12	1	358	15	14	547	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	1	1	15	0	13	1	389	16	15	595	9
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	1042	1036	600	1030	1033	397	604			405		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1042	1036	600	1030	1033	397	604			405		
tC, single (s)	7.1	6.5	6.2	7.4	6.5	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.8	4.0	3.4	2.2			2.2		
p0 queue free %	96	100	100	92	100	98	100			99		
cM capacity (veh/h)	203	230	505	186	231	633	984			1165		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	28	406	619
Volume Left	9	15	1	15
Volume Right	1	13	16	9
cSH	217	276	984	1165
Volume to Capacity	0.05	0.10	0.00	0.01
Queue Length 95th (m)	1.3	2.7	0.0	0.3
Control Delay (s)	22.4	19.5	0.0	0.4
Lane LOS	C	C	A	A
Approach Delay (s)	22.4	19.5	0.0	0.4
Approach LOS	C	C		

Intersection Summary			
Average Delay		1.0	
Intersection Capacity Utilization		53.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
103: Belleview Blvd & Pearl St

01-31-2023



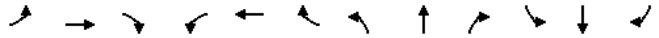
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	17	7	0	10	0	5	0	1	0	0	0
Future Volume (Veh/h)	0	17	7	0	10	0	5	0	1	0	0	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	18	8	0	11	0	5	0	1	0	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	16	11	0	28	10	0	0			1		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	16	11	0	28	10	0	0			1		
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 %	100	98	99	100	99	100	100			100		
cM capacity (veh/h)	993	885	1091	963	886	1090	1636			1635		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	26	11	6	0
Volume Left	0	0	5	0
Volume Right	8	0	1	0
cSH	940	886	1636	1700
Volume to Capacity	0.03	0.01	0.00	0.00
Queue Length 95th (m)	0.7	0.3	0.1	0.0
Control Delay (s)	8.9	9.1	6.0	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.9	9.1	6.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	8.6			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
104: Belleview Blvd & Hazel St

01-31-2023



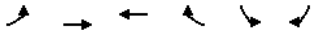
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	30	2	10	19	1	3	2	10	5	2	0
Future Volume (Veh/h)	0	30	2	10	19	1	3	2	10	5	2	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	33	2	11	21	1	3	2	11	5	2	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	37	31	2	44	26	8	2			13		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	37	31	2	44	26	8	2			13		
tC, single (s)	7.1	6.5	6.2	7.1	6.6	6.2	4.8			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.1	3.3	2.8			2.2		
p0 queue free %	100	96	100	99	98	100	100			100		
cM capacity (veh/h)	950	861	1088	930	848	1081	1282			1619		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	35	33	16	7
Volume Left	0	11	3	5
Volume Right	2	1	11	0
cSH	871	879	1282	1619
Volume to Capacity	0.04	0.04	0.00	0.00
Queue Length 95th (m)	1.0	0.9	0.1	0.1
Control Delay (s)	9.3	9.3	1.5	5.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.3	1.5	5.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	7.6			
Intersection Capacity Utilization	18.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
105: Hazel St & Driveway 1

01-31-2023



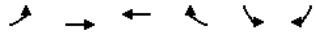
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	39	23	4	2	5
Future Volume (Veh/h)	6	39	23	4	2	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	42	25	4	2	5
Pedestrians						
Lane Width (m)						
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	29				83	27
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29				83	27
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1584				915	1048

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	49	29	7
Volume Left	7	0	2
Volume Right	0	4	5
cSH	1584	1700	1006
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (m)	0.1	0.0	0.2
Control Delay (s)	1.1	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	1.1	0.0	8.6
Approach LOS			A

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	17.7%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
106: Hazel St & Driveway 2

01-31-2023



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	35	23	4	2	4
Future Volume (Veh/h)	6	35	23	4	2	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	38	25	4	2	4
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	29				79	27
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	29				79	27
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1584				920	1048

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	45	29	6
Volume Left	7	0	2
Volume Right	0	4	4
cSH	1584	1700	1002
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (m)	0.1	0.0	0.1
Control Delay (s)	1.2	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	1.2	0.0	8.6
Approach LOS			A

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	17.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	11	13	5	5	0	5	88	3	2	159	17
Future Volume (Veh/h)	9	11	13	5	5	0	5	88	3	2	159	17
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	12	14	5	5	0	5	96	3	2	173	18
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	296	295	182	314	302	98	191			99		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	296	295	182	314	302	98	191			99		
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 %	98	98	98	99	99	100	100			100		
cM capacity (veh/h)	654	617	866	621	611	964	1395			1507		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	36	10	104	193
Volume Left	10	5	5	2
Volume Right	14	0	3	18
cSH	707	616	1395	1507
Volume to Capacity	0.05	0.02	0.00	0.00
Queue Length 95th (m)	1.3	0.4	0.1	0.0
Control Delay (s)	10.4	10.9	0.4	0.1
Lane LOS	B	B	A	A
Approach Delay (s)	10.4	10.9	0.4	0.1
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	20.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix F

Signal Warrants

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: Total Traffic
Region/City/Township: Town of Fort Erie

Major Street: Belleview
Minor Street: Site Driveway 3
North/South: Y

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Peds Crossing Main Road
	Belleview						Site Driveway 3						
	Northbound			Southbound			Eastbound			Westbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	2	0	0	0	0	2	2	7	3	0	24	0	4
PM Peak Hour	4	0	0	0	0	0	0	19	7	0	11	0	6
Average Hourly Volume	**2**	**0**	**0**	**0**	**0**	**1**	**1**	**7**	**3**	**0**	**9**	**0**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	20
1B - Mino	18
2A - Majo	2
2B - Cros	12

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	20
					% Fulfilled	**2.8%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	18
					% Fulfilled	**10.7%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	2
					% Fulfilled	**0.3%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	12
					% Fulfilled	**15.7%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: Total Traffic
Region/City/Township: Town of Fort Erie

Major Street: Hazel Street
North/South: N
Minor Street: Site Driveway 1

Number of Approach Lanes: 1
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Peds Crossing Main Road
	Hazel Street						Site Driveway 1						
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	3	20			18	1				5		6	4
PM Peak Hour	7	39			24	6				4		5	6
Average Hourly Volume	**3**	**15**	**0**	**0**	**11**	**2**	**0**	**0**	**0**	**2**	**0**	**3**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	35
1B - Mino	5
2A - Majo	30
2B - Cros	5

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	35
					% Fulfilled	**4.8%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	180	255	180	255	5
					% Fulfilled	**2.0%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	30
					% Fulfilled	**4.1%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	5
					% Fulfilled	**6.3%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: Total Traffic
Region/City/Township: Town of Fort Erie

Major Street: Hazel Street
North/South: N
Minor Street: Site Driveway 2

Number of Approach Lanes: 1
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Peds Crossing Main Road
	Hazel Street						Site Driveway 2						
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	2	23			13	1				5		6	4
PM Peak Hour	7	36			25	6				3		5	6
Average Hourly Volume	**2**	**15**	**0**	**0**	**10**	**2**	**0**	**0**	**0**	**2**	**0**	**3**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	33
1B - Mino	5
2A - Majo	28
2B - Cros	5

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	33
					% Fulfilled	**4.6%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	180	255	180	255	5
					% Fulfilled	**1.9%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	28
					% Fulfilled	**3.9%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	5
					% Fulfilled	**6.0%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: Total Traffic
Region/City/Township: Town of Fort Erie

Major Street: Gorham Road
Minor Street: Pearl Street
North/South: Y

Number of Approach Lanes: 1
Tee Intersection? Y
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street Gorham Road						Minor Street Pearl Street						Peds Crossing Main Road
	Northbound			Southbound			Eastbound			Westbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour		397	4	6	284					8		24	4
PM Peak Hour		360	6	27	555					7		10	6
Average Hourly Volume	**0**	**189**	**3**	**8**	**210**	**0**	**0**	**0**	**0**	**4**	**0**	**9**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	422
1B - Mino	12
2A - Majo	410
2B - Cros	6

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	422
					% Fulfilled	**58.6%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	180	255	180	255	12
					% Fulfilled	**4.8%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	410
					% Fulfilled	**56.9%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	6
					% Fulfilled	**8.3%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: Total Traffic
Region/City/Township: Town of Fort Erie

Major Street: Gorham Road
Minor Street: Hazel Street
North/South: Y

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street: Gorham Road						Minor Street: Hazel Street						Peds Crossing Main Road
	Northbound			Southbound			Eastbound			Westbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	4	365	8	7	286	4	6	0	3	14	1	21	4
PM Peak Hour	1	352	17	15	537	8	8	1	1	16	0	12	6
Average Hourly Volume	**1**	**179**	**6**	**6**	**206**	**3**	**4**	**0**	**1**	**8**	**0**	**8**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	422
1B - Mino	21
2A - Majo	401
2B - Cros	14

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	422
					% Fulfilled	**58.6%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	21
					% Fulfilled	**12.2%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	401
					% Fulfilled	**55.7%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	14
					% Fulfilled	**18.3%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: Total Traffic
Region/City/Township: Town of Fort Erie

Major Street: Hazel Street
Minor Street: Belleview Boulevard
North/South: N

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Peds Crossing Main Road
	Hazel Street						Belleview Boulevard						
	Eastbound			Westbound			Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	0	15	0	3	24	1	3	1	6	2	0	1	4
PM Peak Hour	0	33	2	9	21	1	3	1	9	4	2	0	6
Average Hourly Volume	**0**	**12**	**1**	**3**	**11**	**1**	**2**	**1**	**4**	**2**	**1**	**0**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	35
1B - Mino	8
2A - Majo	27
2B - Cros	6

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	35
					% Fulfilled	**4.9%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	8
					% Fulfilled	**4.7%**

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	27
					% Fulfilled	**3.8%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	6
					% Fulfilled	**8.0%**

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)

Horizon Year: Total Traffic
Region/City/Township: Town of Fort Erie

Major Street: Hazel Street
Minor Street: Ridge Road
North/South: Y

Number of Approach Lanes: 1
Tee Intersection? N
Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	**No**	Justification for new intersections with forecast traffic
120% Satisfied	**No**	Justification for existing intersections with forecast traffic

Time Period	Major Street						Minor Street						Peds Crossing Main Road
	Hazel Street						Ridge Road						
	Northbound			Southbound			Eastbound			Westbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
AM Peak Hour	4	79	2	2	97	4	13	7	8	6	6	0	4
PM Peak Hour	8	86	3	2	156	18	11	11	14	4	4	0	6
Average Hourly Volume	**3**	**41**	**1**	**1**	**63**	**6**	**6**	**5**	**6**	**3**	**3**	**0**	**3**

Warrant 1 - Minimum Vehicular Volume

Warrant	AHV
1A - All	136
1B - Mino	21
2A - Majo	115
2B - Cros	16

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	136
					% Fulfilled	**18.9%**

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	21
					% Fulfilled	**12.4%**

Warrant 2 - Delay To Cross Traffic

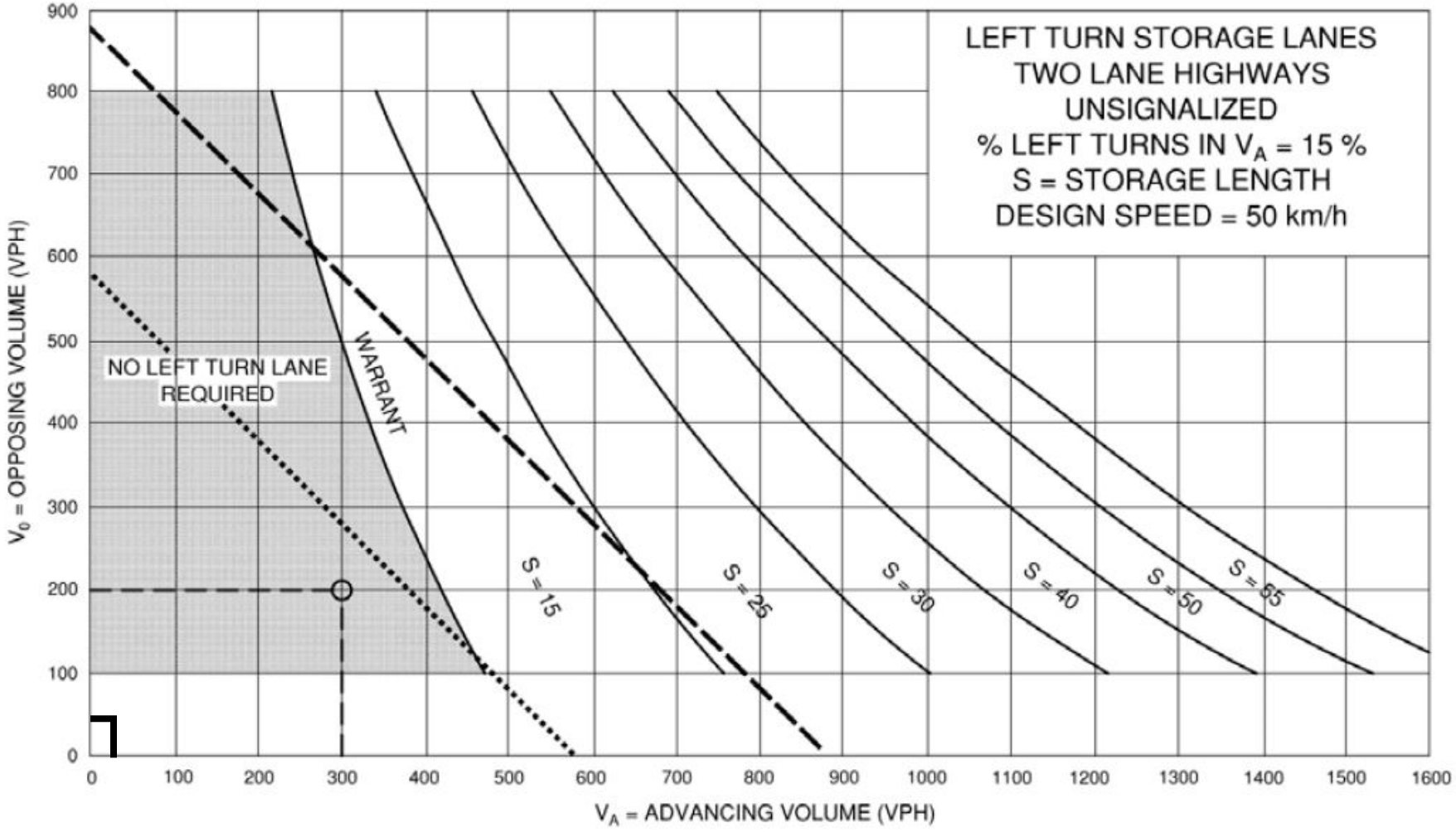
2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	115
					% Fulfilled	**16.0%**

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	16
					% Fulfilled	**20.7%**

Appendix G

Left-Turn Lane Warrants

Exhibit 9A-3



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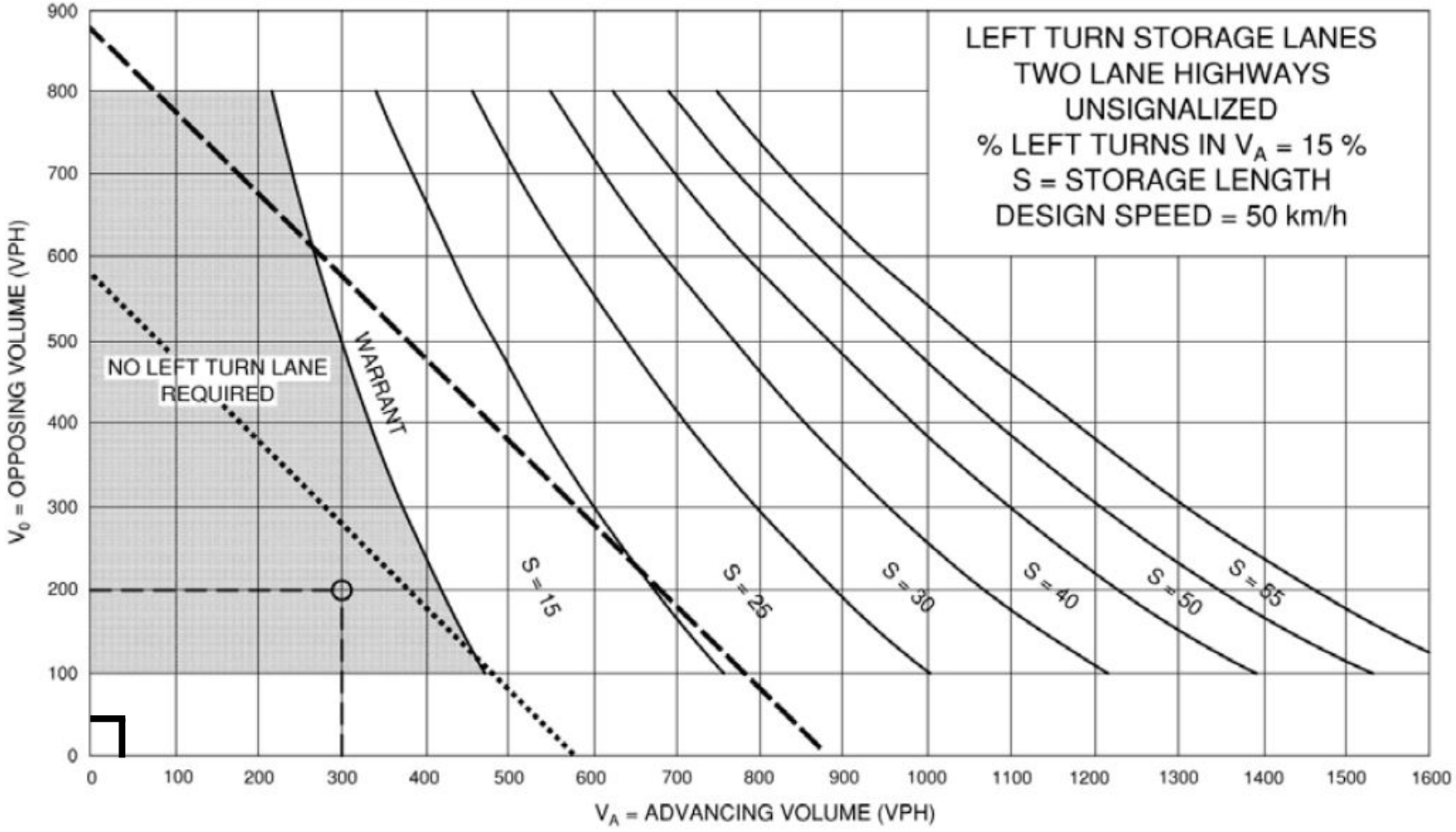
MTO Left-Turn Lane Nomograph
Driveway 1 – Total Traffic – AM Peak Hour

Exhibit 9A-3



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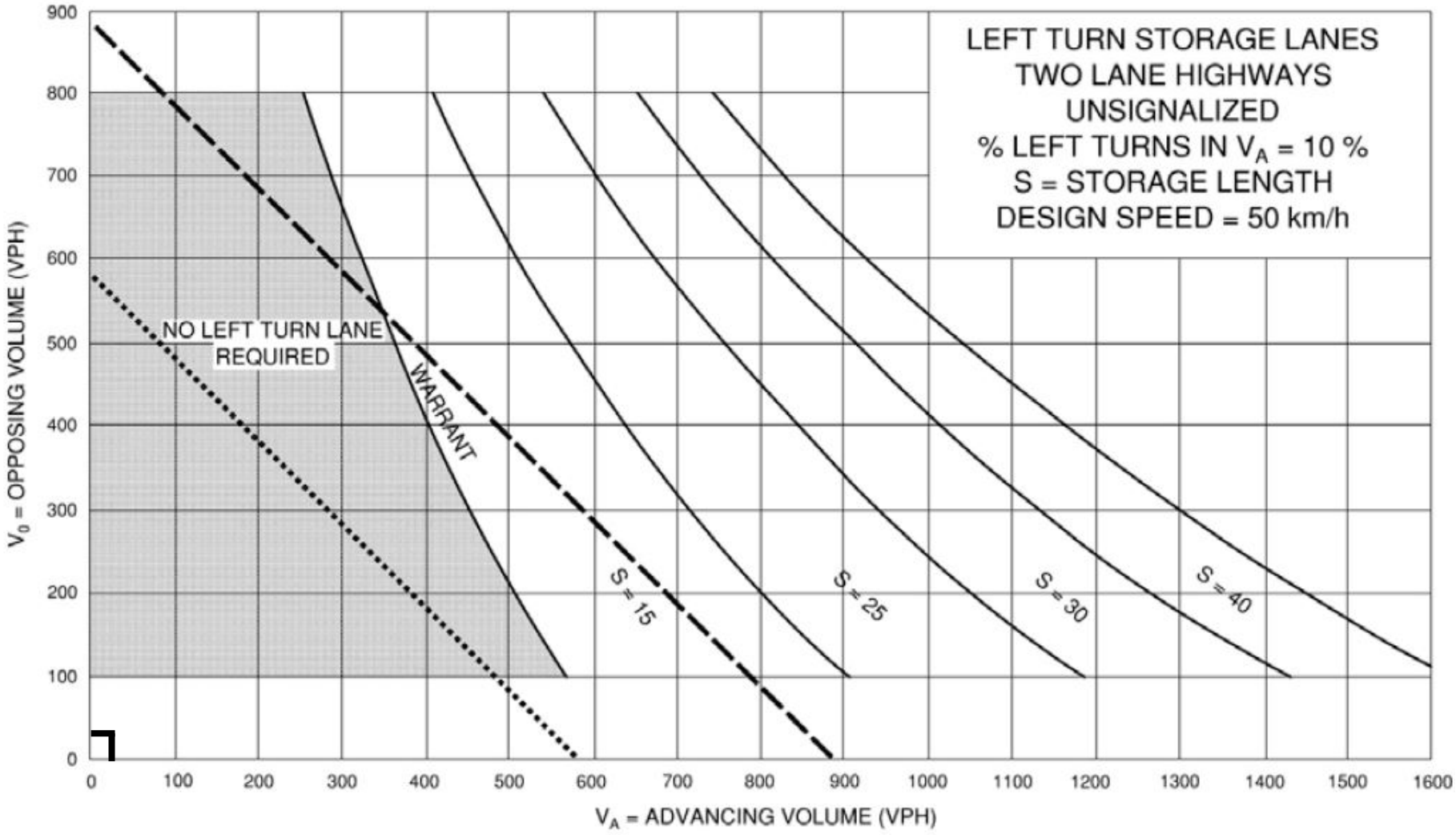
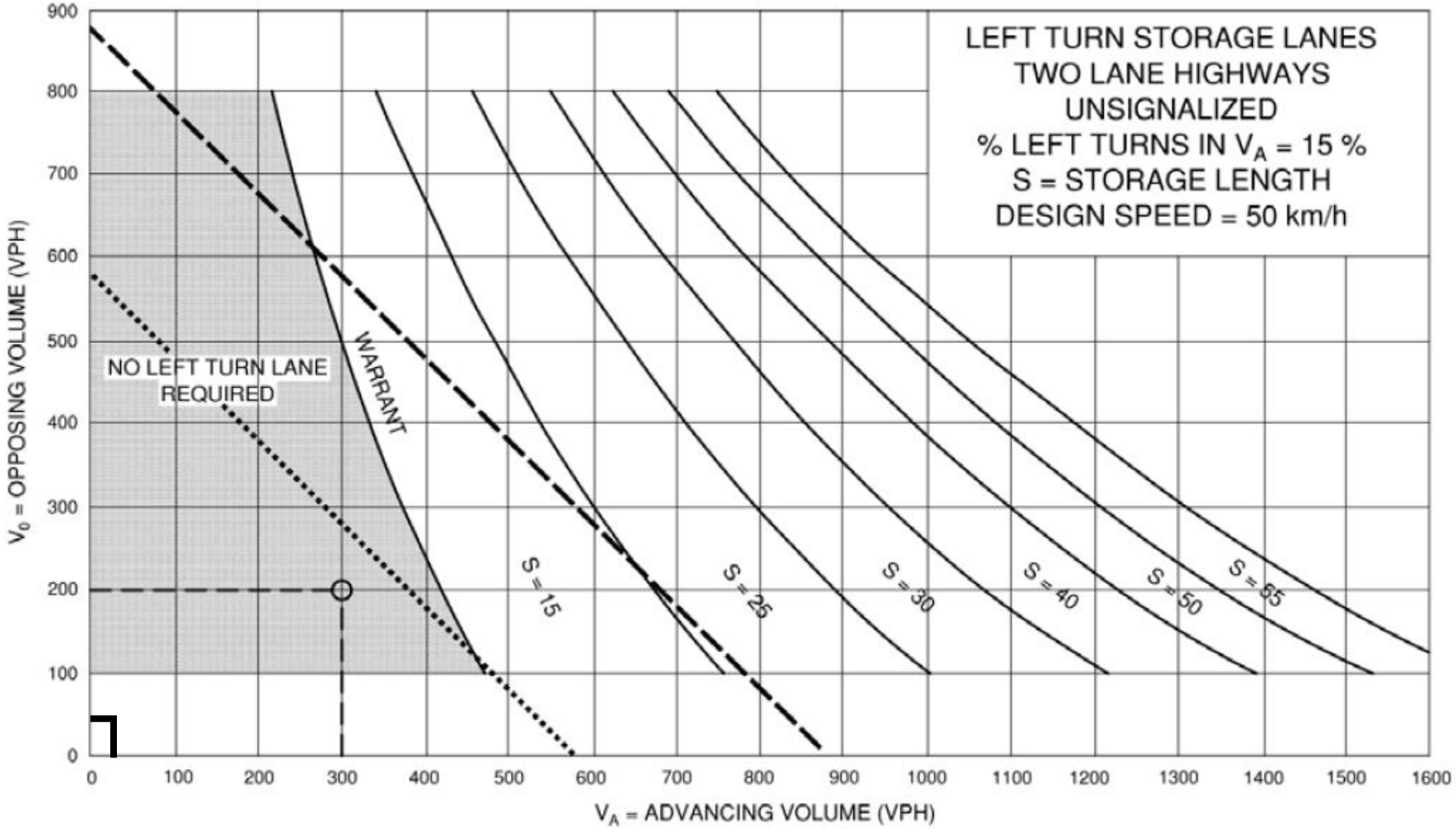
MTO Left-Turn Lane Nomograph
Driveway 1 – Total Traffic – PM Peak Hour



MTO Left-Turn Lane Nomograph
Driveway 2 – Total Traffic – AM Peak Hour

Exhibit 9A-3



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MTO Left-Turn Lane Nomograph
Driveway 2 – Total Traffic – PM Peak Hour