



paradigm
TRANSPORTATION SOLUTIONS LIMITED

255 Lark Street, Chatham

**Transportation Impact
Study**

Paradigm Transportation Solutions Limited

2024-09
240216



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255 Lark Street, Chatham Transportation Impact Study



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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct this Transportation Impact Study (TIS) for a proposed Residential development located at 255 Lark Street in the community of Chatham, Municipality of Chatham-Kent.

This TIS includes an analysis of existing traffic conditions, a description of the proposed development, analysis of future traffic conditions, and assessment of development traffic impacts with recommendations as appropriate to accommodate the proposed development.

Proposed Development

The subject lands are in a compact residential area bounded by McNaughton Avenue W to the north, Keil Drive N to the west, and Baldoon Road to the south and east. The area includes a network of 11 local roads providing both access and traffic dispersal functions.

The site is located on the south side of Lark Street and to the west of Partridge Crescent. The subject site was formerly occupied by the Monsignor Uyen Catholic School with approximately 300 students. The site is also adjacent to an existing complex of townhouse buildings to the south.

The proposed development will include eight stacked townhouse buildings comprising 160 units. Access will be provided via two all-moves driveways, one to Lark Street and one to Partridge Crescent. Both roadways in turn connect to Baldoon Road at three intersections.

The development is assumed to be completed by 2026.

TIS Scope

The scope of the Transportation Impact Study for the proposed development includes:

- ▶ **Study Area Intersections:**
 - Baldoon Road and McNaughton Avenue West (signalized);
 - Baldoon Road and Lark Street/Courthouse Lane (unsignalized);
 - Crane Drive and McNaughton Avenue West (unsignalized);
 - Baldoon Road and Keil Drive North (unsignalized); and



- Access intersections.
- ▶ **Analysis Periods:** Weekday AM and PM and Saturday peak hours.
- ▶ **Traffic Conditions:** Existing (2024) and five years after build-out (2031).

Conclusions

Based on the investigations carried out, it is concluded that:

- ▶ **Existing Traffic Conditions:** All study area intersections are currently operating at acceptable levels of service.
- ▶ **Development Trip Generation:** The development is forecast to generate 72 trips during the AM peak hour, 89 trips during the PM peak hour, and 66 trips during the Saturday peak hour.
- ▶ **2031 Background Traffic Conditions:** All study area intersections are forecast to operate at acceptable levels of service.
- ▶ **2031 Total Traffic Conditions:** All study area intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours.
- ▶ **Site Driveways:** The Site Driveway intersections on Lark Street and on Partridge Crescent are forecast to operate satisfactory levels of service (LOS A) during the weekday AM and PM and Saturday peak hours.

Auxiliary turn lanes are not required on Lark Street or on Partridge Crescent at either of the two site driveways.

- ▶ **Development Traffic & Neighbourhood Traffic:** The proposed development and development generated traffic are compatible with the surrounding land uses and can be accommodated by the existing road system. In the immediate vicinity of the development, the new development traffic is distributed between three local roads, viz., Lark Street and the two sections of Partridge Crescent, thereby minimizing the impact on the individual road sections. The changes in traffic volumes are well within typical local road volumes.

Recommendations

Based on the findings and conclusions of this study, it is recommended that the development be considered for approval as proposed.



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1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct this Transportation Impact Study (TIS) for a proposed Residential development located at 255 Lark Street in the community of Chatham, Municipality of Chatham-Kent. **Figure 1.1** details the subject development location.

The subject lands are in a compact residential area bounded by McNaughton Avenue W to the north, Keil Drive N to the west, and Baldoon Road to the south and east. The area includes a network of 11 local roads providing both access and traffic dispersal functions.

The site is located on the south side of Lark Street and to the west of Partridge Crescent. The subject site was formerly occupied by the Monsignor Uyen Catholic School with approximately 300 students. The site is also adjacent to an existing complex of townhouse buildings to the south.

The proposed development will include eight stacked townhouse buildings comprising 160 units. Access will be provided via two all-moves driveways, one to Lark Street and one to Partridge Crescent. Both roadways in turn connect to Baldoon Road at three intersections.

The development is assumed to be completed by 2026.

1.2 Purpose and Scope

The purpose of this report is to identify and assess the potential traffic impact resulting from the proposed development. The scope of the study, developed in consultation with Municipality of Chatham-Kent staff via e-mail in April 2024, includes:

- ▶ assessment of the current traffic and site conditions within the study area;
- ▶ estimates of background traffic growth for five years after build-out (2031);
- ▶ estimates of additional traffic generated by the subject site;
- ▶ analyses of the impact of the future traffic on the surrounding road network, including the following study area intersections:
 - Baldoon Road and McNaughton Avenue West (signalized);



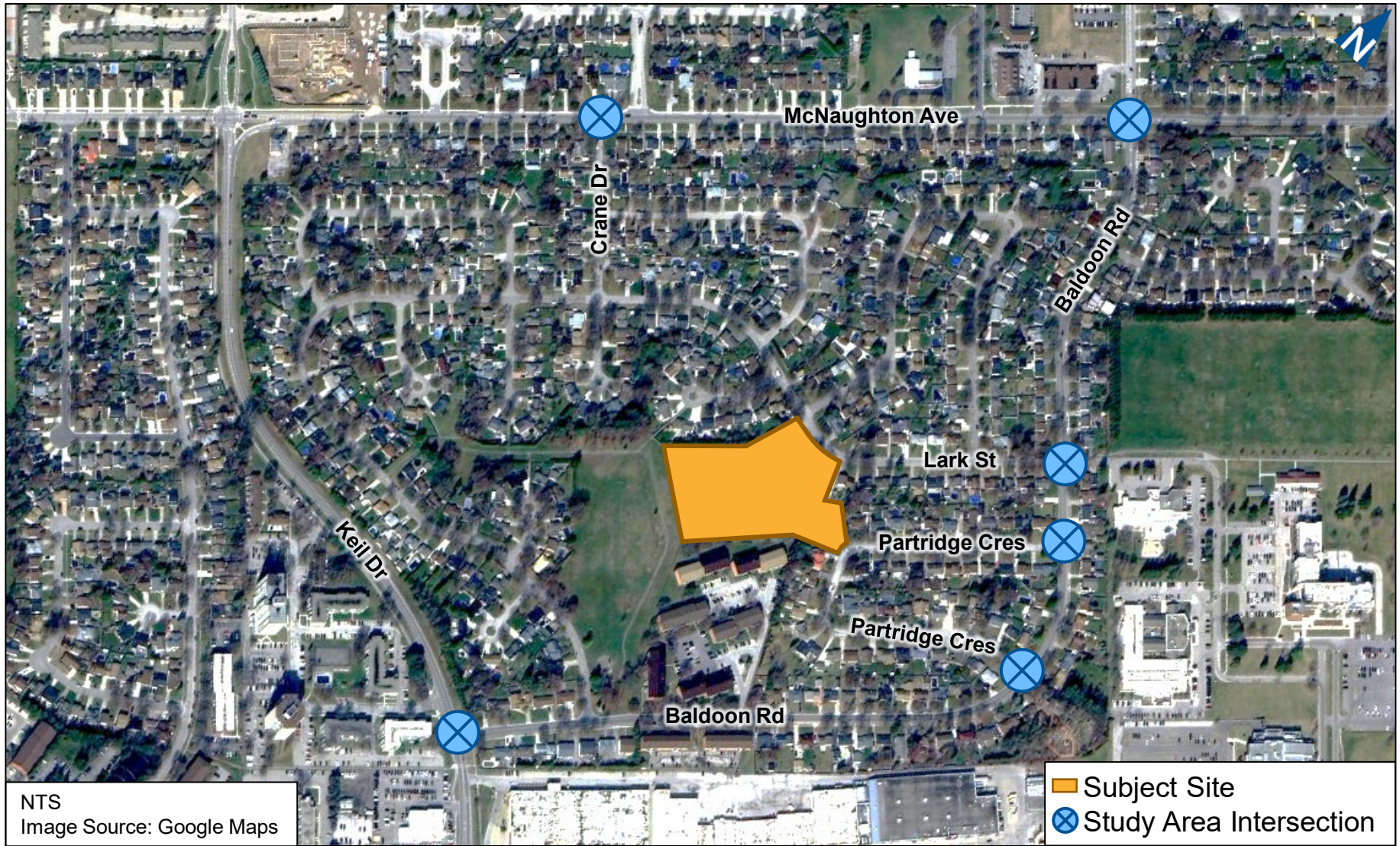
- Baldoon Road and Lark Street/Courthouse Lane (unsignalized);
 - Crane Drive and McNaughton Avenue West (unsignalized);
 - Baldoon Road and Keil Drive North (unsignalized); and
 - site accesses.
- ▶ recommendations, if necessary, to mitigate the site generated traffic in a satisfactory manner.

Appendix A contains the pre-study consultation material from the Municipality of Chatham-Kent.

This study has been prepared in accordance with the requirements detailed by the Municipality of Chatham-Kent Transportation Impact Study Guidelines¹.

¹ Guidelines for the Preparation of Transportation Impact Studies, Municipality of Chatham-Kent, March 2009.





2 Existing Conditions

2.1 Existing Roadways

The subject lands are in a compact residential area bounded by McNaughton Avenue W to the north, Keil Drive N to the west, and Baldoon Road to the south and east. The area includes a network of 11 local roads providing both access and traffic dispersal functions.

The main roadways in the study area include:

- ▶ **McNaughton Avenue West** is an east-west urban arterial² road with a two-lane cross-section. Sidewalks are provided on both sides of the roadway. The posted speed limit is 50 km/h.
- ▶ **Keil Drive** is a north-south urban arterial road with a two-lane cross-section. A multi-use path is provided on the west side of the roadway, and a sidewalk is also provided on the east side of the roadway south of Baldoon Road. The posted speed limit is 50 km/h.

There is a pedestrian crossing on Keil Drive south of Baldoon Road connecting the apartment complex on the west side to the commercial-retail area on the east.

- ▶ **Baldoon Road** is a north-south urban collector road with a two-lane cross-section. Sidewalks are provided on both sides of the roadway north of McNaughton Avenue and on the east side of the roadway south of McNaughton Avenue. The posted speed limit is 50 km/h.
- ▶ **Lark Street** is an east-west local road with a two-lane cross-section. The assumed speed limit is 50 km/h.
- ▶ **Partridge Crescent** is a local road that connects to Baldoon Road at two locations.
- ▶ **Courthouse Lane** is an east-west local road with a two-lane cross-section. Sidewalks are provided on the north side of the roadway. The assumed speed limit is 50 km/h.
- ▶ **Crane Drive** is a north-south local road with a two-lane cross section. The assumed speed limit is 50 km/h.

Traffic signals are provided at the intersection of Baldoon Road and McNaughton Avenue West. All-way stop-control is provided at the intersection of Baldoon Road and Lark Street/Courthouse Lane, and

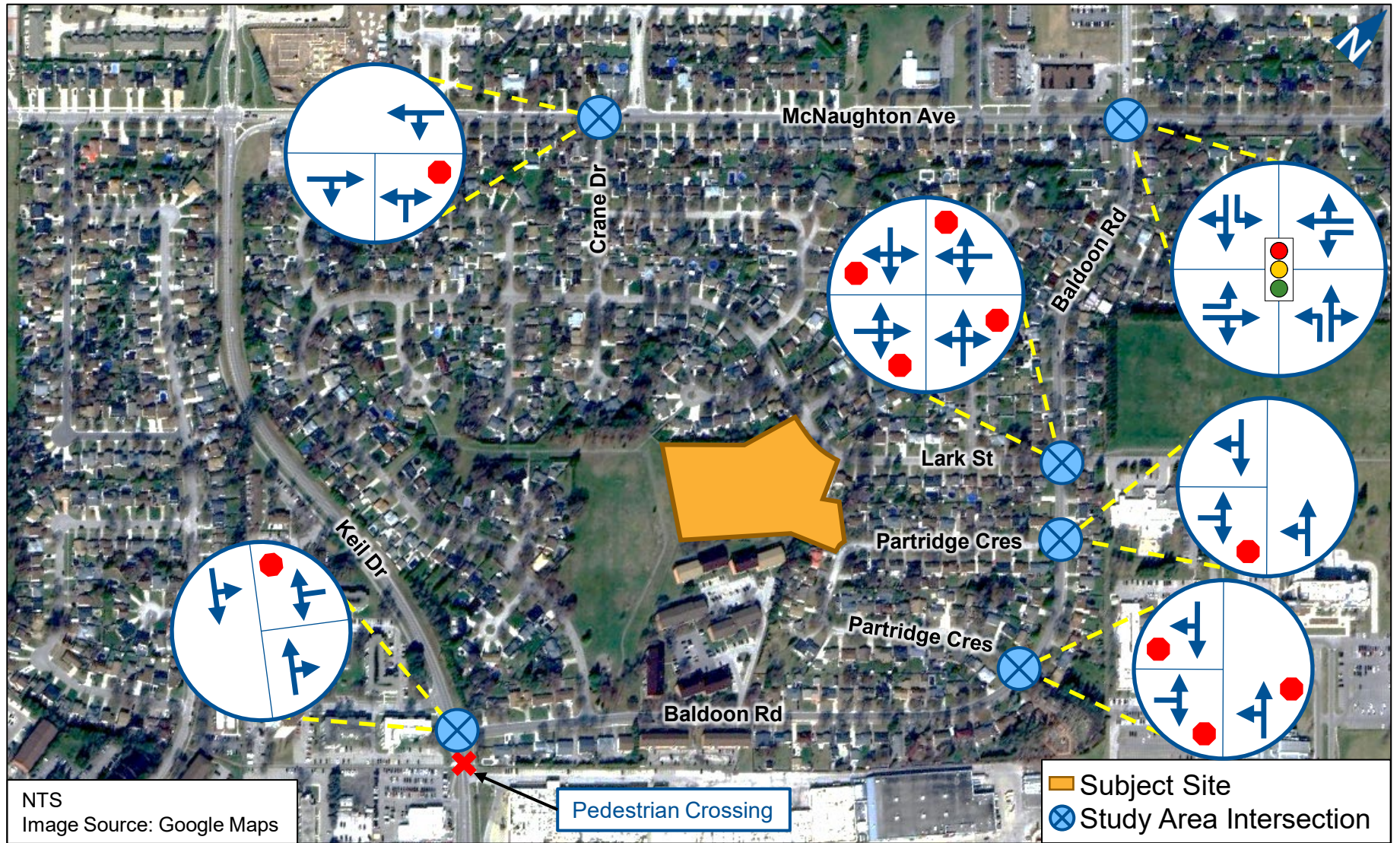
² *Chatham-Kent Official Plan*, Schedule B5: Community of Chatham, 22 January 2016.



side-street stop-control is provided at the balance of the study area intersections.

Figure 2.1 illustrates the traffic control and lane configuration at the study area intersections, and the location of the existing pedestrian crossing on Keil Drive.





2.2 Transit Service

Chatham-Kent Transit, Ride CK operates three routes within the study area. The three routes include:

- ▶ **Route 1 (Northwest Loop)** operates between the Thames Lea Plaza, St. Clair College Thames Campus, Nortown Centre, and Downtown Chatham. The route provides service Monday to Saturday from 6:15 AM to 7:15 PM with 30-minute headways.
- ▶ **Route 5 (Round the River Loop)** operates between the Chatham Hospital, Health and Family Services, St. Clair College Thames Campus, Cascades Casino, VIA Rail, and Downtown Chatham. The route provides service Monday to Saturday from 6:15 AM to 7:15 PM with 45-minute headways.
- ▶ **Route A** provides service between the Chatham Terminal and the Ken Houston Centre. The route provides service five times per day Monday to Saturday from 6:15 AM to 9:15 PM.

Figure 2.2 illustrates the existing transit service.

2.3 Traffic Volumes

Paradigm conducted turning movement counts at the study area intersections on Thursday, 09 May and Saturday, 11 May 2024. Table 2.1 summarizes the peak hours at each intersection.

TABLE 2.1: INTERSECTION PEAK HOURS

Intersection	AM Peak Hour	PM Peak Hour	Saturday Peak Hour
Baldoon Road and McNaughton Avenue	8:00 – 9:00	4:15 – 5:15	11:00 – 12:00
Baldoon Road and Lark Street/Courthouse Lane	8:00 – 9:00	4:00 – 5:00	1:15 – 2:15
Crane Drive and McNaughton Avenue	8:00 – 9:00	3:30 – 4:30	11:00 – 12:00
Baldoon Road and Keil Drive	8:00 – 9:00	3:30 – 4:30	1:15 – 2:15

Figure 2.3a, Figure 2.3b, and Figure 2.3c respectively illustrates the existing AM and PM weekday peak hour turning movement traffic volumes.

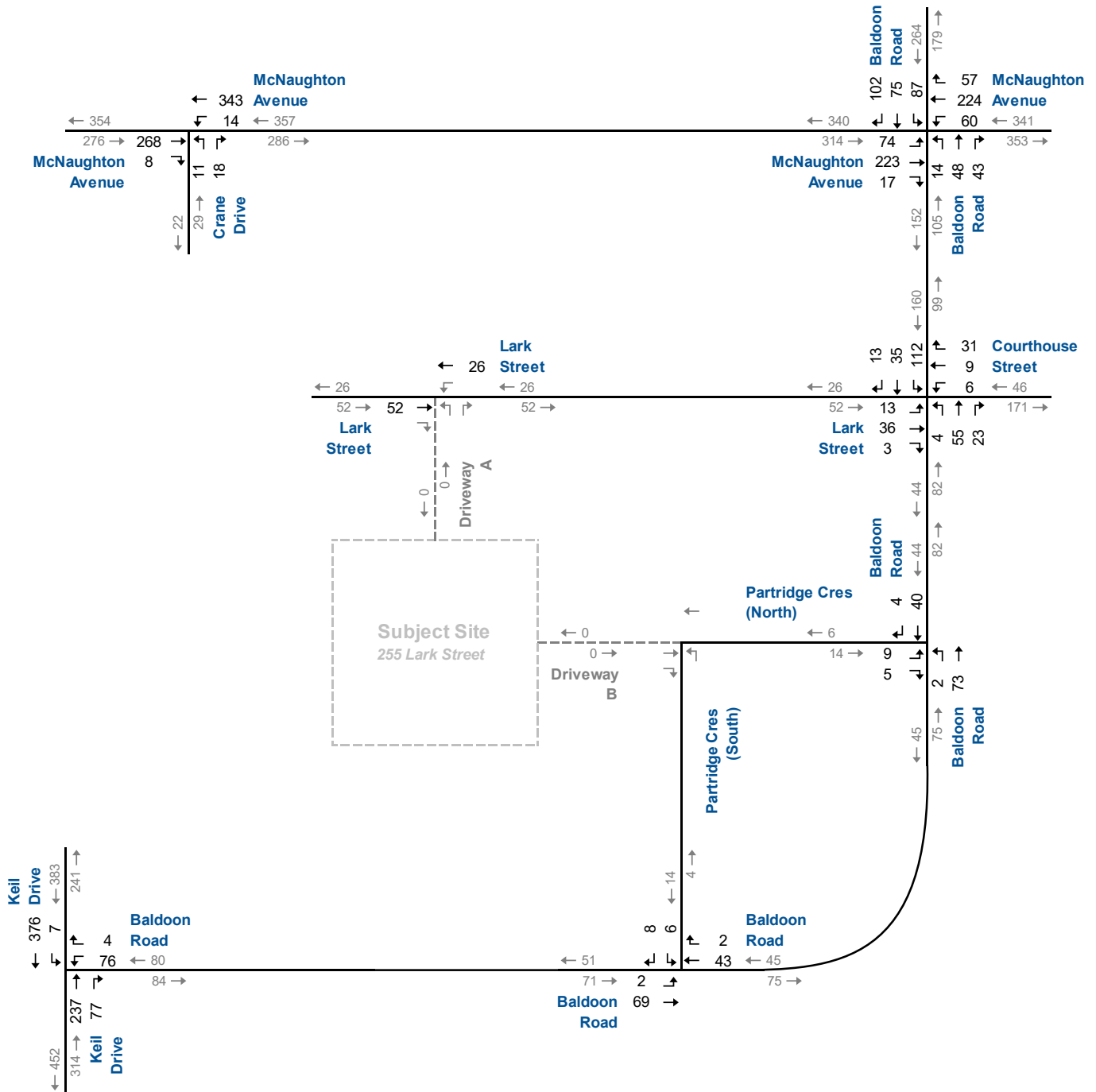
Appendix B contains the detailed traffic counts and signal timings for the study area intersections.







AM Peak Hour



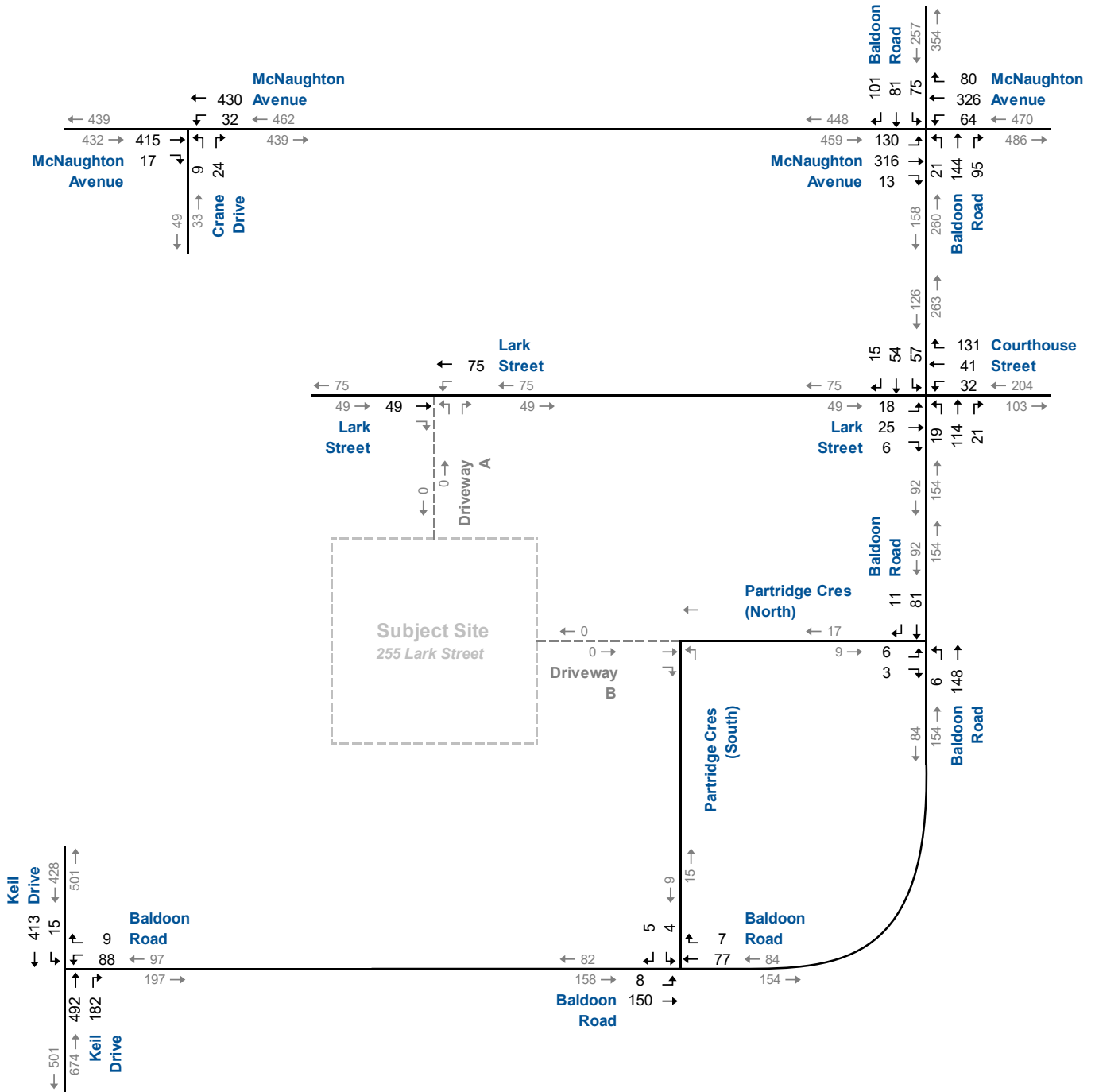
*Turning movements at both Baldoon Rd and Partridge Cres intersections are estimated based on ITE Trip Generation rates



Existing Traffic Volumes AM Peak Hour



PM Peak Hour



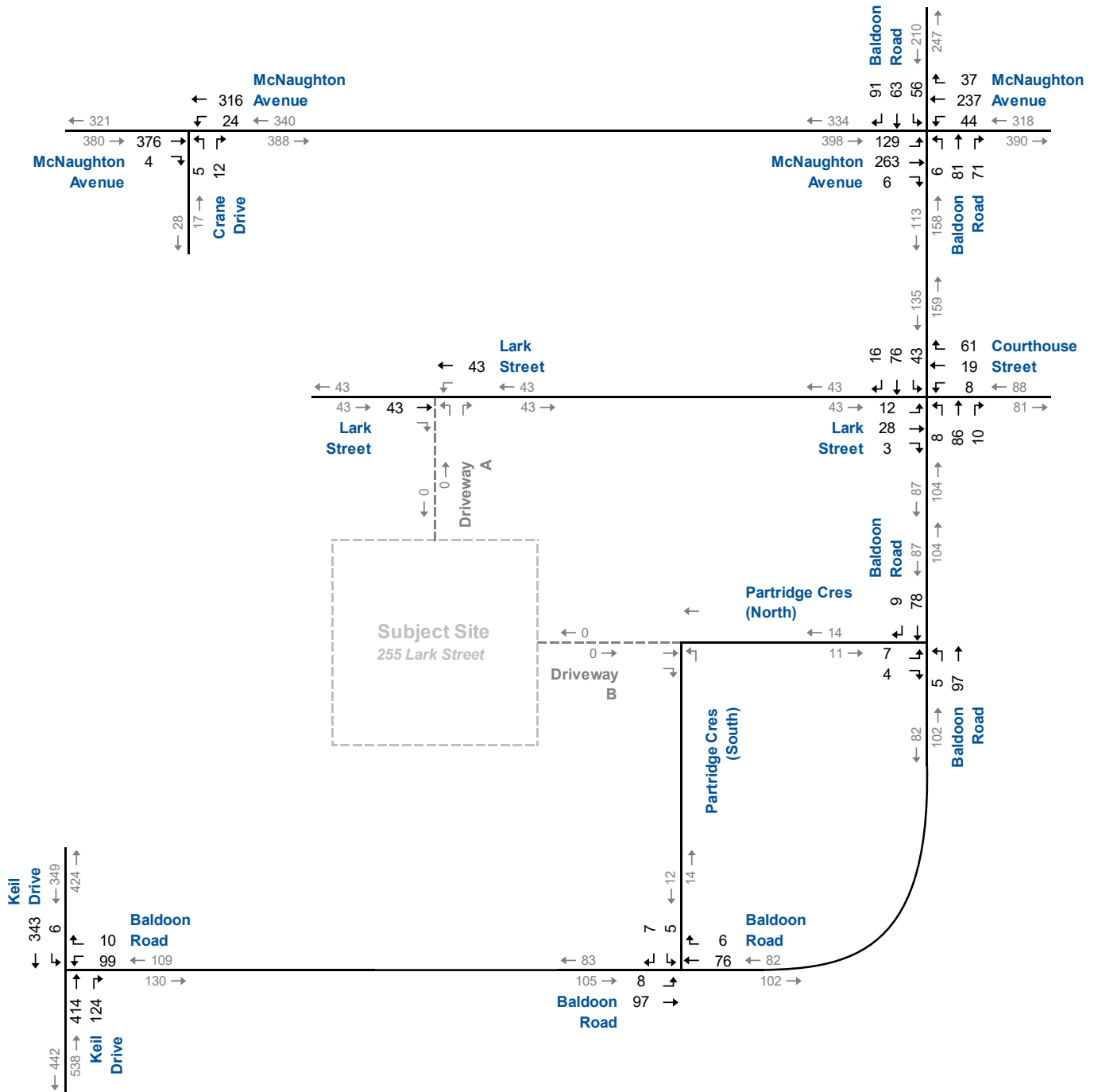
*Turning movements at both Baldoon Rd and Partridge Cres intersections are estimated based on ITE Trip Generation rates



Existing Traffic Volumes PM Peak Hour



Saturday Peak Hour



*Turning movements at both Baldoon Rd and Partridge Cres intersections are estimated based on ITE Trip Generation rates



Existing Traffic Volumes Saturday Peak Hour

2.4 Traffic Operations

The level of service conditions at the study area intersections have been assessed through intersection operational analysis using Synchro 11.

Intersection level of service (LOS) is a recognized method of quantifying the average delay experienced by drivers 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 intending to make a particular movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows and intersection geometry.

The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds for signalized intersections, 50 seconds for unsignalized intersections or when the volume to capacity (v/c) ratio is greater than 1.00, the movement is classed as LOS F and remedial measures are usually implemented if they are feasible. LOS E is usually used as a guideline for the determination of road improvement needs on through lanes, while LOS F may be acceptable for left-turn movements at peak times, depending on delays.

Movements are considered critical under the following conditions:

- ▶ v/c ratio of an overall intersection exceeds 0.85;
- ▶ v/c ratios of an individual through movement or shared through/turning movement exceeds 0.85;
- ▶ v/c ratio of an exclusive turning movement exceeds 1.0; or
- ▶ 95th percentile queue lengths for individual movements exceeds available lane storage.

Table 2.2 summarizes the results of the intersection operational analysis under existing conditions, including the AM and PM peak hour LOS, v/c ratios, and 95th percentile queues experienced.

The results indicate that the study area intersections are operating at acceptable levels of service, and with no problem movements.

Appendix C contains the detailed Synchro 11 reports.



TABLE 2.2: EXISTING TRAFFIC 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	Crane Drive & McNaughton Avenue	TWSC	LOS Delay V/C Q	A 0 0	> > >	A 0	< < <	A 8 0	> > >	A 0	B 12 2	> > >	B 12							
	Baldoon Road & McNaughton Avenue	TCS	LOS Delay V/C Q Stor. Avail.	A 8 1 40 -	> > > > >	A 7	A 7 1 40 39	> > > > >	A 7	C 22 1 30 29	B 19 2 20 -	> > > > >	B 19	C 21 2 20 18	C 21 4 -	> > > > >	C 21	B 12		
	Baldoon Road & Lark Street/Courthouse Lane	AWSC	LOS Delay V/C Q	< < <	A 8 0	> > >	A 8	< < <	A 8 0	> > >	A 8	< < <	A 8 0	> > >	A 8	< < <	A 9 0.21 1	> > >	A 8.5	
	Keil Drive & Baldoon Road	TWSC	LOS Delay V/C Q				C 17 0.22 6	> > >	C 17		A 0 0	> > >	A 0	< < <	A 8 0.01 0	> > >	A 0			
PM Peak Hour	Crane Drive & McNaughton Avenue	TWSC	LOS Delay V/C Q	A 0 0	> > >	A 0	< < <	A 8 1	> > >	A 1	B 14 0.08 2	> > >	B 14							
	Baldoon Road & McNaughton Avenue	TCS	LOS Delay V/C Q Stor. Avail.	C 21 4 40 36	B 12 3 -	> > > > >	B 14	B 15 1 40 39	> > > > >	B 14	C 20 1 30 29	B 20 4 -	> > > > >	B 20	C 25 3 20 17	B 18 3 -	> > > > >	C 20	B 16	
	Baldoon Road & Lark Street/Courthouse Lane	AWSC	LOS Delay V/C Q	< < <	A 8 0	> > >	A 8	< < <	A 9 1	> > >	A 9	< < <	A 9 0.22 1	> > >	A 9	< < <	A 9 0.18 1	> > >	A 9	
	Keil Drive & Baldoon Road	TWSC	LOS Delay V/C Q				D 33 0.45 16	> > >	D 33		A 0 0	> > >	A 0	< < <	A 9 0.02 1	> > >	A 0			
Saturday Peak Hour	Crane Drive & McNaughton Avenue	TWSC	LOS Delay V/C Q	A 0 0	> > >	A 0	< < <	A 8 1	> > >	A 1	B 12 0.04 1	> > >	B 12							
	Baldoon Road & McNaughton Avenue	TCS	LOS Delay V/C Q Stor. Avail.	B 11 0.25 2 40 38	A 8 2 -	> > > > >	A 9	A 9 0 40 40	> > > > >	A 8	C 21 0.03 0 30 30	B 20 3 -	> > > > >	C 20	C 22 2 20 18	C 20 3 -	> > > > >	C 21	B 13	
	Baldoon Road & Lark Street/Courthouse Lane	AWSC	LOS Delay V/C Q	< < <	A 8 0	> > >	A 8	< < <	A 8 0	> > >	A 8	< < <	A 8 0.14 1	> > >	A 8	< < <	A 8 0.18 1	> > >	A 8	
	Keil Drive & Baldoon Road	TWSC	LOS Delay V/C Q				C 23 0.37 13	> > >	C 23		A 0 0	> > >	A 0	< < <	A 9 0.01 0	> > >	A 0			

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



2.5 Existing Partridge Crescent Traffic

Partridge Crescent is a local road intersecting Baldoon Road at two locations. The proposed development will have access to both Lark Street and Partridge Crescent.

Partridge Crescent currently provides access to approximately 48 residential properties that are located along the two halves of the crescent road (24 on the north half and 24 on the south).

The peak hour traffic volumes on Partridge Crescent corresponding to 48 units have been estimated using the Institute of Transportation Engineers (ITE) Trip Generation Rates, and are illustrated in **Figures 2.3a, 2.3b, and 2.3c**.

The daily average traffic volumes on Partridge Crescent have also been estimated based on the PM peak hour traffic volumes using the conservative multiplier of 10.

Table 2.3 summarizes the existing weekday peak hour and daily traffic volume on the two sections of Partridge Crescent. It is noted that the daily average volumes are well within the typical daily volume of 1,000 vpd on a residential local road³. These volumes are compared to the traffic volumes added by the proposed development in **Section 3**.

TABLE 2.3: PARTRIDGE CRESCENT EXISTING TRAFFIC VOLUMES

Road Section	Peak Hour (Two-Way)		Daily Average
	AM	PM	
Partridge Crescent (North)	20	26	260
Partridge Crescent (South)	18	24	240

³ Transportation Association of Canada, *Geometric Design Guide for Canadian Roads*, Table 2.6.5: Characteristics of Urban Roads, June 2017.



3 Development Concept

3.1 Development Description

The subject lands are in a compact residential area bounded by McNaughton Avenue W to the north, Keil Drive N to the west, and Baldoon Road to the south and east. The area includes a network of 11 local roads providing both access and traffic dispersal functions.

The site is located on the south side of Lark Street and to the west of Partridge Crescent. The subject site was formerly occupied by the Monsignor Uyen Catholic School with approximately 300 students. The site is also adjacent to an existing complex of townhouse buildings to the south.

The proposed development will include eight stacked townhouse buildings comprising 160 units. Access will be provided via two all-moves driveways, one to Lark Street and one to Partridge Crescent. Both roadways in turn connect to Baldoon Road at three intersections.

The development is assumed to be completed by 2026.

Figure 3.1 shows the preliminary site plan.





ZONING RM2 (160 UNITS)		
REGULATION	REQUIRED	PROPOSED
LOT AREA	104	16,218 (11,750 x 1,418)
FRONT YARD SETBACK	2.0m	4.0m
REAR YARD SETBACK	0.9m	4.0m
LOT COVERAGE	32.1% (40% MAX)	4,000.7% (40% (24,000))
MAXIMUM HEIGHT	0.7m	1.2m
COVER	22.0% (14% MIN / 24% MAX)	4.2% (14% MIN / 14% MAX)
PERMITTED USES	RESIDENTIAL	RESIDENTIAL

PARKING REQUIREMENTS	
REQUIRED PARKING	220 SPACES
TOTAL PROVIDED	220 SPACES
REQUIRED PARKING	220 SPACES
TOTAL PROVIDED	220 SPACES

LEGEND	
PERMITS	□
PROPOSED USE	▨
WALKWAY / DRIVEWAY / DRIVE	▬
EXISTING DRIVE ROUTE	▬
PROPOSED DRIVE ROUTE	▬
EXISTING DRIVE	▬
PROPOSED DRIVE	▬
EXISTING DRIVEWAY	▬
PROPOSED DRIVEWAY	▬
EXISTING DRIVEWAY	▬
PROPOSED DRIVEWAY	▬

North Arrow

ORCHARD DESIGN STUDIO INC.
 1000 Highway 104, Unit 104, Chatham, ON N7M 2L5
 Tel: 519-351-1111

Designer Information
 I, **AZHAR CHOUDRY**, review and take responsibility for the design work on behalf of Orchard Design Studio Incorporated registered under Part 33(1) of the O.A.R.

Signature: _____

Project Information

AZHAR CHOUDRY
STACKED TOWNS
 255 Lark Street, Chatham, ON

Site Information		
No.	Date	Description

Sheet Information

SITE PLAN

Project No: 13707
 Project Start Date: 2024.05.10
 File: 255 Lark Street - Site Plan.dwg
 Drawn by: MCL
 Scale: 1:500

PRELIMINARY
A1.01
 Plot Date/Time: 2024.05.14 11:20:10 AM



Preliminary Site Plan

255 Lark Street, Chatham TIS
240216

Figure 3.1

3.2 Development Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Manual⁴ equations were used to estimate the peak hour traffic volumes generated by the subject development based on the ITE Land Use Code 220, Multifamily Housing (Low Rise).

Table 3.1 summarizes the forecast number of net new trips generated by the proposed development.

TABLE 3.1: TRIP GENERATION

Land Use Code	Units	AM Peak Hour				PM Peak Hour				Saturday Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total	Rate	In	Out	Total
220: Multifamily Housing (Low-Rise)	160	Eq	17	55	72	Eq	56	33	89	0.41	42	24	66
Total Trip Generation			17	55	72		56	33	89		42	24	66

LUC 220 | AM: $T = 0.31(X) + 22.85$ | PM: $T = 0.43(X) + 20.55$

3.3 Development Trip Distribution and Assignment

The trip distribution was determined based on existing traffic patterns within the study area. **Table 3.2** displays the breakdown of trip distributions used in this study.

TABLE 3.2: ESTIMATED TRIP DISTRIBUTION

Origin/Destination	Distribution
North via Baldoon Road	5%
South/Southeast via Keil Drive	45%
East via McNaughton Avenue	25%
East via Courthouse Street/Grand Avenue	15%
West via McNaughton Avenue	10%
Total	100%

Figure 3.2a, **Figure 3.2b**, and **Figure 3.2c** illustrate the site-generated traffic volumes for the weekday AM and PM and Saturday peak hours, respectively.

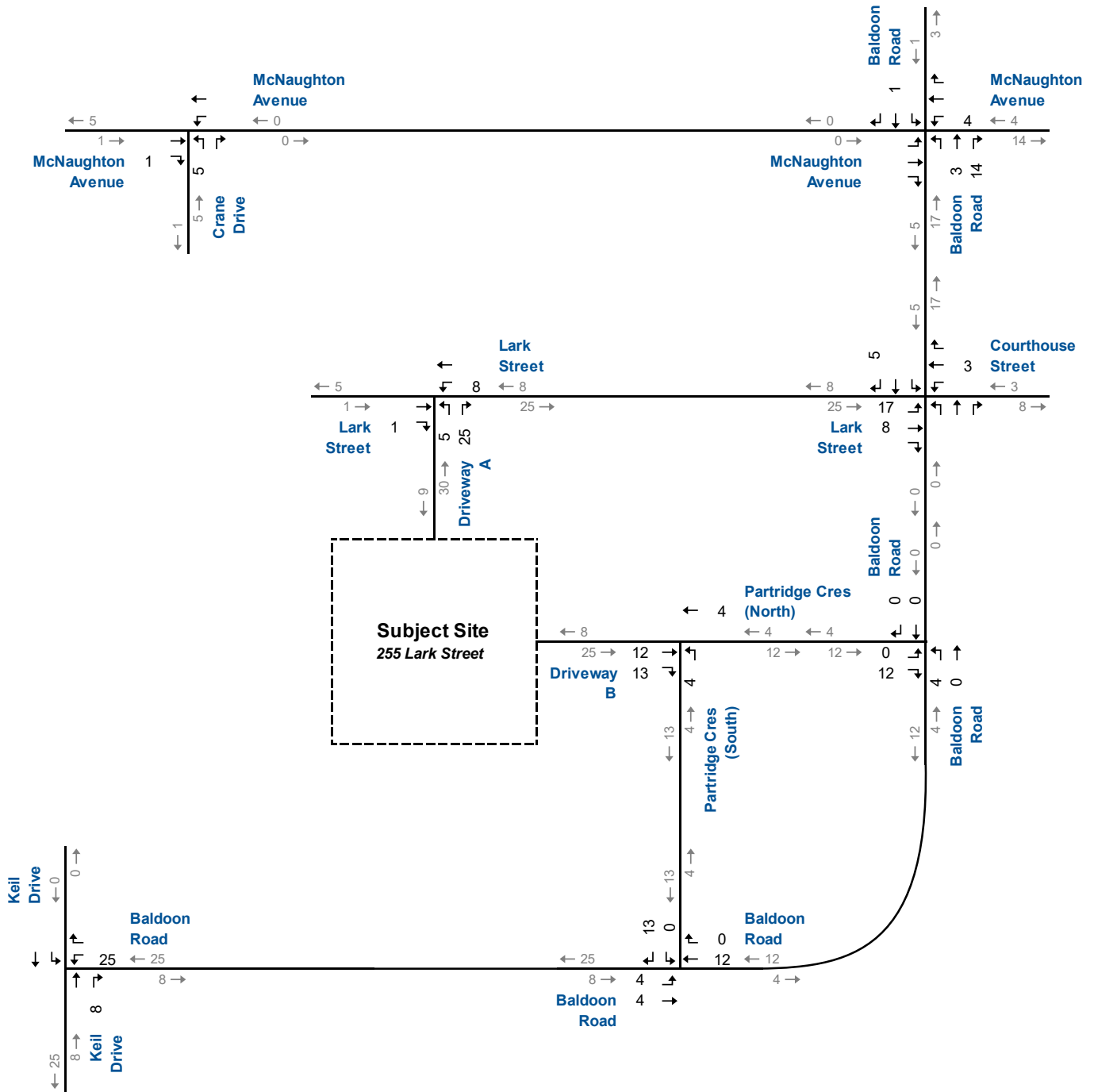
As can be seen, the development traffic volumes in the immediate vicinity of the site are distributed between Lark Street and the two sections of Partridge Crescent, thereby minimizing the traffic added to each road section. Also, the site traffic using Partridge Crescent is expected to travel primarily to/from the south via the intersection of Baldoon Road and Keil Drive.

⁴ Institute of Transportation Engineers, *Trip Generation Manual*, 11th ed., (Washington, DC: ITE, 2021).





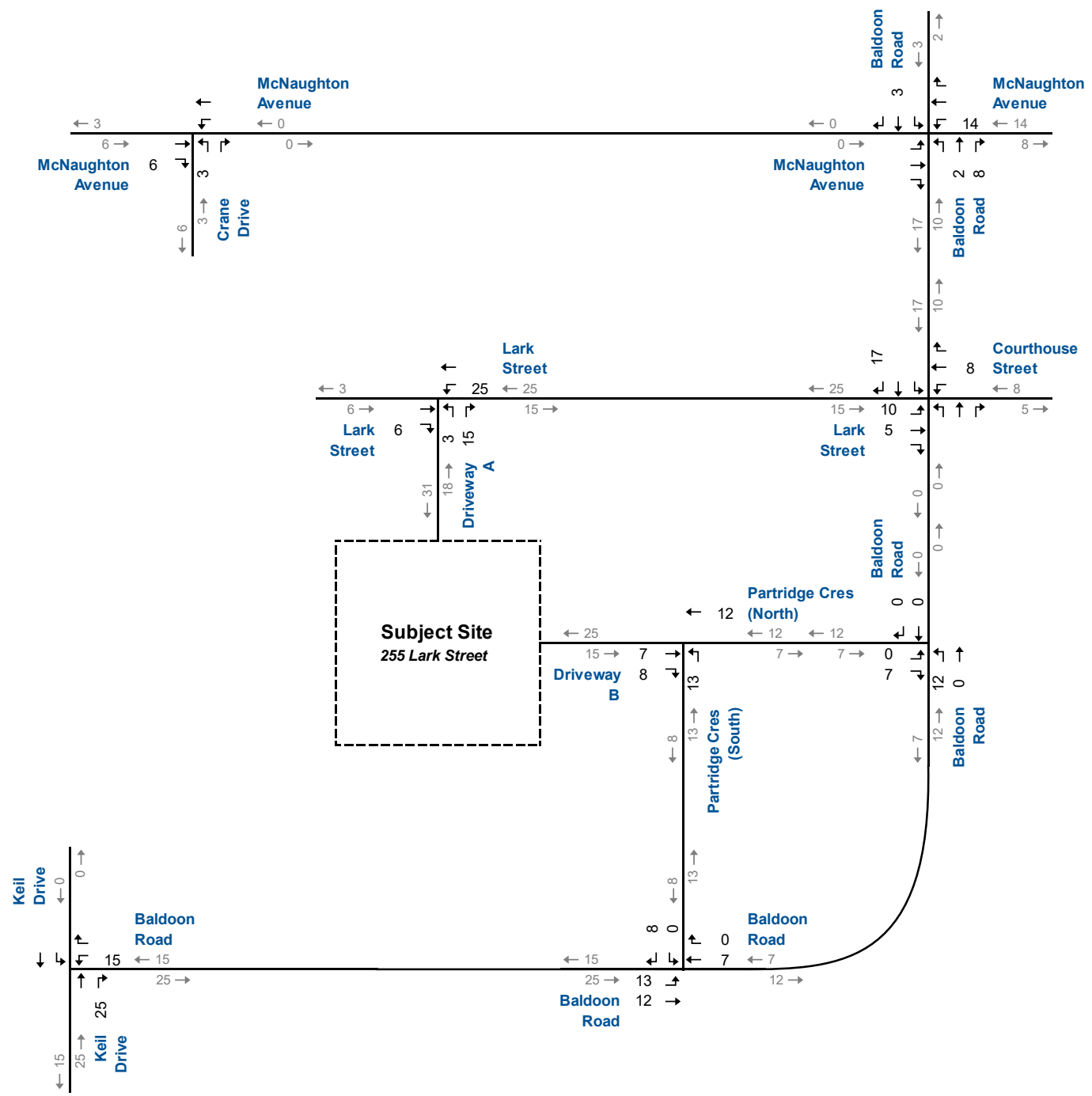
AM Peak Hour



Site-Generated Traffic Volumes AM Peak Hour



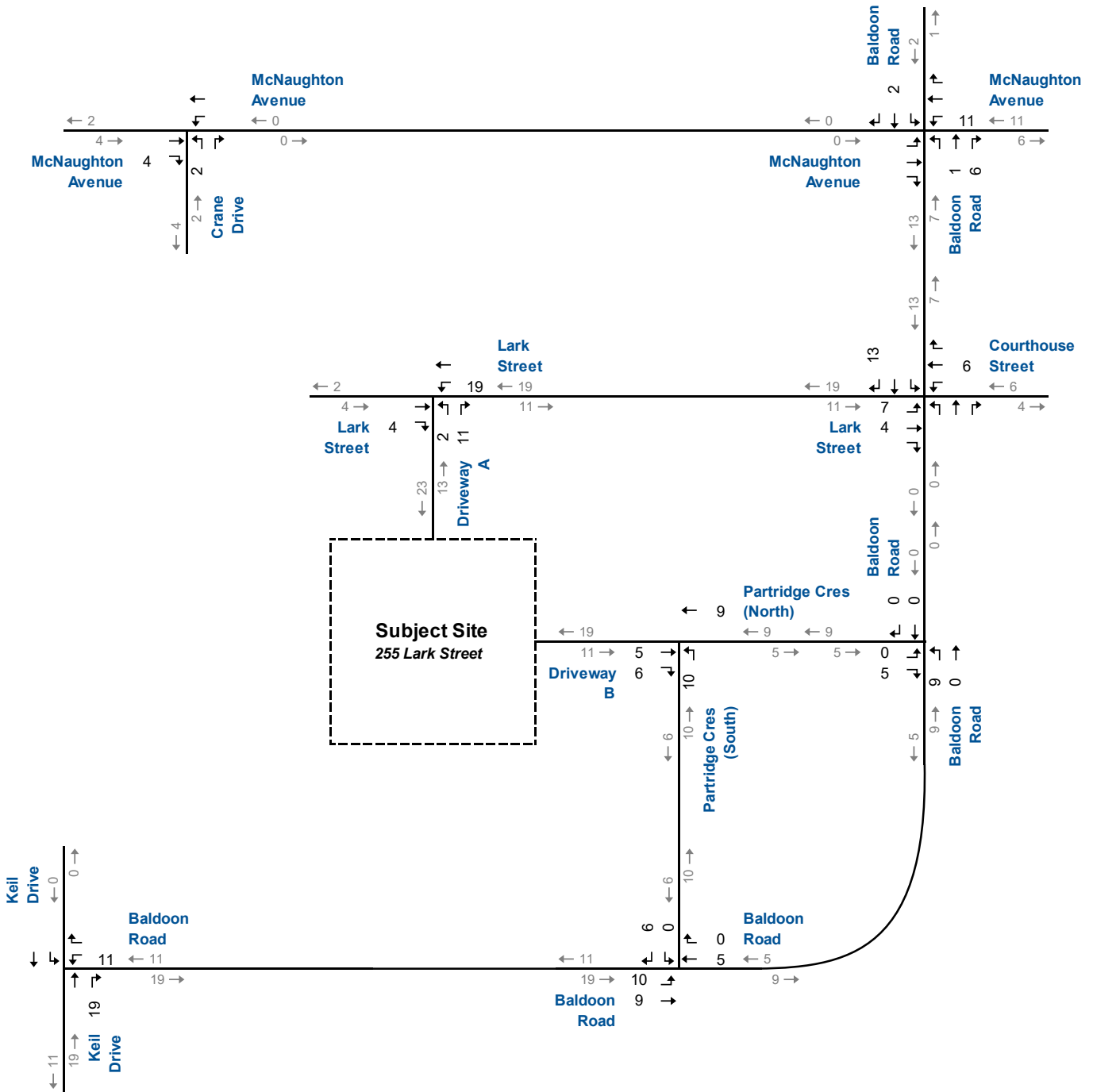
PM Peak Hour



Site-Generated Traffic Volumes PM Peak Hour



Saturday Peak Hour



Site-Generated Traffic Volumes Saturday Peak Hour

3.4 Total Partridge Crescent Traffic

The existing traffic volumes on Partridge Crescent were reviewed in **Section 2.5**.

The new development traffic volumes using Partridge Crescent are illustrated in **Figures 3.2a, 3.2b, and 3.2c**.

Table 3.3 provides a comparison of the existing, development, and total traffic volumes on each section of Partridge Crescent, for the AM/PM peak hours and the daily average. As noted, the daily average volumes are estimated based on the PM peak hour traffic volumes using the conservative multiplier of 10.

TABLE 3.3: PARTRIDGE CRESCENT TRAFFIC VOLUMES

Road Section	Peak Hour (Two-Way)		Daily Average
	AM	PM	
Existing Traffic			
Partridge Crescent (North)	20	26	260
Partridge Crescent (South)	18	24	240
Development Traffic			
Partridge Crescent (North)	16	19	190
Partridge Crescent (South)	17	21	210
Total Traffic			
Partridge Crescent (North)	36	45	450
Partridge Crescent (South)	35	45	450

As shown in **Table 3.3** the two-way total peak hour traffic volumes are less than 50 vph, and the daily average volume is less than 500.



4 Evaluation of Future Traffic Conditions

The assessment of future traffic conditions contained in this section includes estimates of future background and total traffic volumes, and the analyses for the traffic conditions five years after build-out (2031).

4.1 Background Traffic Forecasts

In order to derive the 2031 generalized background traffic volumes, a growth rate of 2.0% per annum was applied to the existing roadway traffic volumes. This growth rate was confirmed with Municipality during the pre-study consultation.

No other area developments were identified for consideration in estimating background traffic.

4.2 2031 Background Traffic Operations

Figure 4.1a, **Figure 4.1b**, and **Figure 4.1c** illustrate the 2031 background traffic volumes, including road traffic growth.

The 2031 background traffic volumes have been analyzed using the same methodology as under existing traffic conditions. Signal timings have not been optimized.

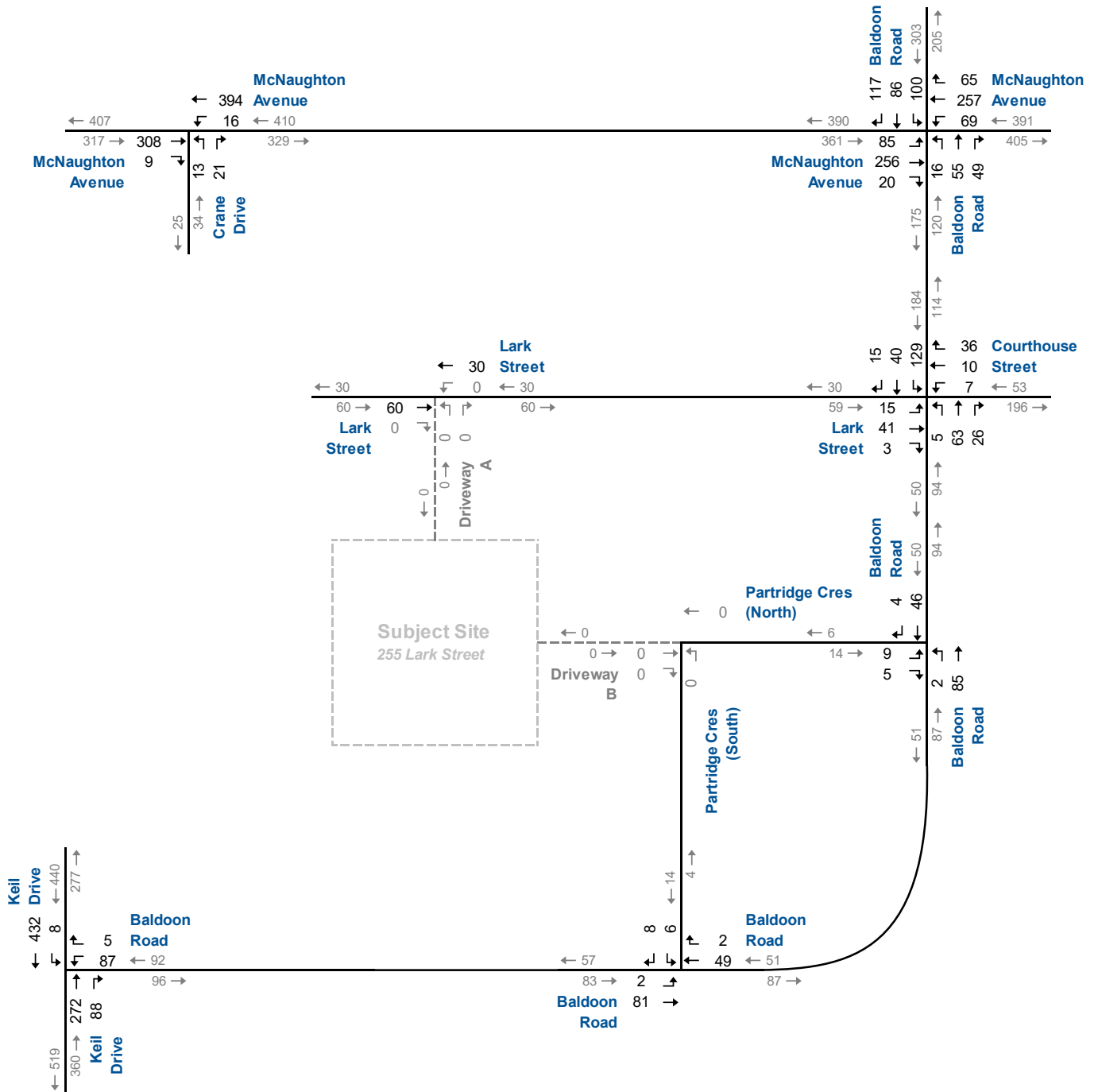
Table 4.1 summarizes the results of the 2031 background traffic operations. The results indicate that the study area intersections are forecast to operate at acceptable levels of service during the weekday AM and PM and Saturday peak hours, except for delays to side street traffic on Baldoon Road at Keil Drive during the PM peak hour.

Appendix D contains the supporting detailed Synchro 11 reports.





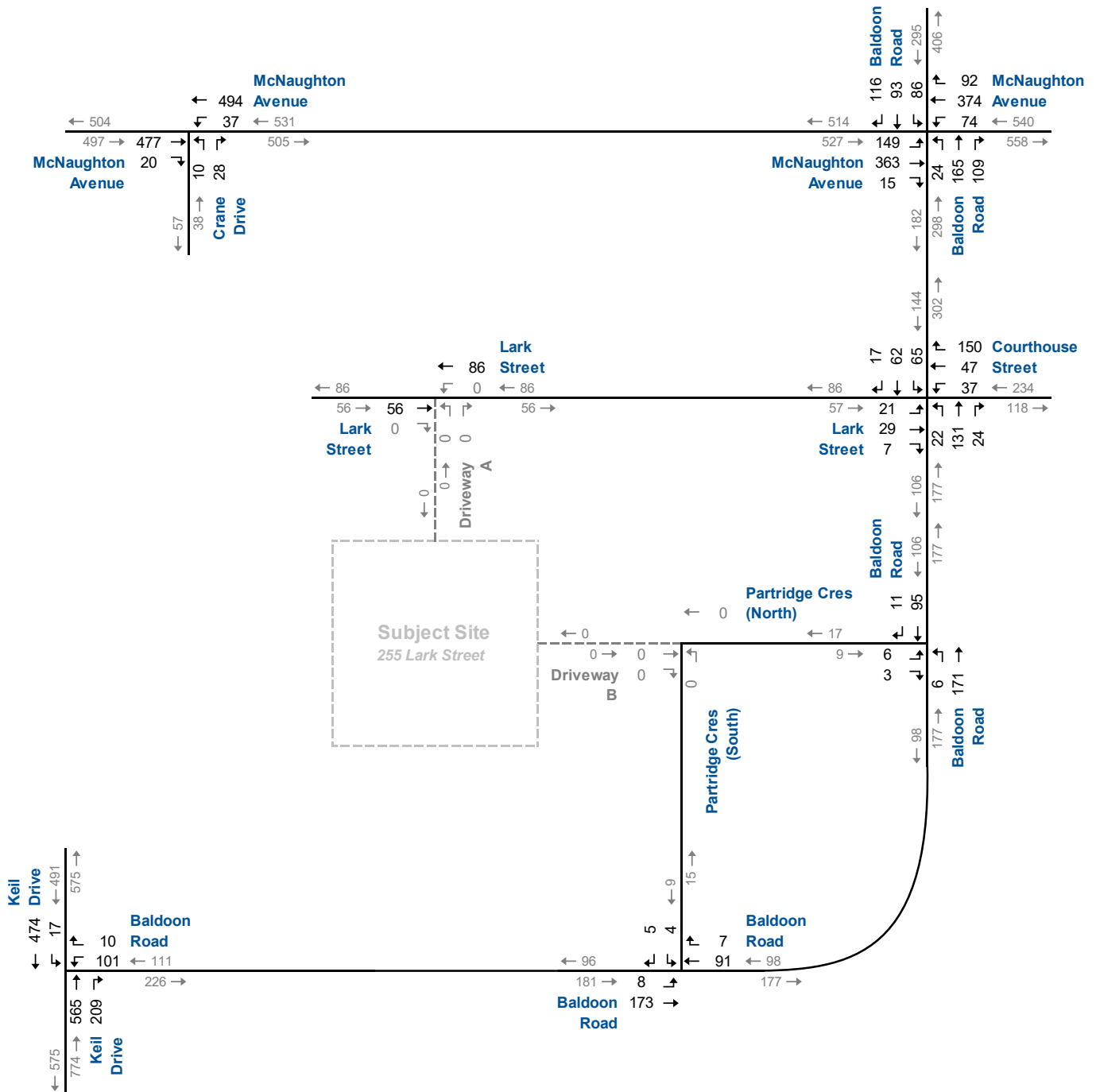
AM Peak Hour



2031 Background Traffic Volumes AM Peak Hour



PM Peak Hour



2031 Background Traffic Volumes PM Peak Hour

TABLE 4.1: 2031 BACKGROUND TRAFFIC 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	Crane Drive & McNaughton Avenue	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < < <	A 8 0.01 0			A 0	B 13 0.08 2	> > > >	B 13					
	Baldoon Road & McNaughton Avenue	TCS	LOS Delay V/C Q Stor. Avail.	B 12 0.19 1 40 39	A 9 0.36 2 - -	> > > > >	A 10	B 11 0.14 1 40 39	A 10 0.43 3 - -	> > > > >	A 10	C 23 0.07 1 30 29	B 18 0.32 2 - -	> > > > >	B 18	C 21 0.32 2 20 18	C 21 0.61 4 - -	> > > > >	C 21	B 14
	Baldoon Road & Lark Street/Courthouse Lane	AWSC	LOS Delay V/C Q	< < <	A 8 0.09 0	> > > >	A 8	< < <	A 8 0.07 0	> > > >	A 8	< < <	A 8 0.13 1	> > > >	A 8	< < <	A 9 0.24 1	> > > >	A 9	
	Keil Drive & Baldoon Road	TWSC	LOS Delay V/C Q					C 20 0.30 9				C 20		A 0 0.00 0	> > > >	A 0	< < <	A 8 0.01 0	> > > >	A 0
PM Peak Hour	Crane Drive & McNaughton Avenue	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < <	A 9 0.04 1			A 1	C 16 0.11 3	> > > >	C 16					
	Baldoon Road & McNaughton Avenue	TCS	LOS Delay V/C Q Stor. Avail.	C 31 0.55 9 40 31	B 14 0.54 4 - -	> > > > >	B 19	B 18 0.21 2 40 38	B 18 0.69 8 - -	> > > > >	B 18	C 21 0.08 1 30 29	B 20 0.62 5 - -	> > > > >	B 20	C 26 0.35 4 20 16	B 18 0.49 3 - -	> > > > >	C 20	B 19
	Baldoon Road & Lark Street/Courthouse Lane	AWSC	LOS Delay V/C Q	< < <	A 9 0.09 0	> > > >	A 9	< < <	A 10 0.32 1	> > > >	A 10	< < <	A 10 0.26 1	> > > >	A 10	< < <	A 9 0.21 1	> > > >	A 9	
	Keil Drive & Baldoon Road	TWSC	LOS Delay V/C Q					F 56 0.66 29				F 56		A 0 0.00 0	> > > >	A 0	< < <	A 10 0.02 1	> > > >	A 0
Saturday Peak Hour	Crane Drive & McNaughton Avenue	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < <	A 8 0.03 1			A 1	B 13 0.05 2	> > > >	B 13					
	Baldoon Road & McNaughton Avenue	TCS	LOS Delay V/C Q Stor. Avail.	B 14 0.32 2 40 38	A 9 0.40 2 - -	> > > > >	B 11	B 11 0.11 1 40 39	A 9 0.41 2 - -	> > > > >	A 10	C 21 0.03 0 30 30	B 20 0.52 3 - -	> > > > >	B 20	C 23 0.25 2 20 18	B 20 0.54 3 - -	> > > > >	C 21	B 14
	Baldoon Road & Lark Street/Courthouse Lane	AWSC	LOS Delay V/C Q	< < <	A 8 0.07 0	> > > >	A 8	< < <	A 8 0.13 0	> > > >	A 8	< < <	A 8 0.16 1	> > > >	A 8	< < <	A 9 0.2 1	> > > >	A 9	
	Keil Drive & Baldoon Road	TWSC	LOS Delay V/C Q					D 32 0.51 20				D 32		A 0 0.00 0	> > > >	A 0	< < <	A 9 0.01 0	> > > >	A 0

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

< / > - Shared with through movement



4.3 2031 Total Traffic Operations

Figure 4.2a, **Figure 4.2b**, and **Figure 4.2c** illustrate the 2031 total traffic volumes, including trips generated by the proposed development.

The 2031 total traffic volumes have been analyzed using the same methodology as under existing and background traffic conditions. Signal timings have not been optimized.

Table 4.2a and **Table 4.2b** summarize the results of the 2031 total traffic operations during the weekday and Saturday peak hours, respectively. The results indicate that the study area intersections are forecast to operate at acceptable levels of service during the weekday AM and PM and Saturday peak hours, except for delays to side street traffic on Baldoon Road at Keil Drive during the PM peak hour as under background traffic conditions.

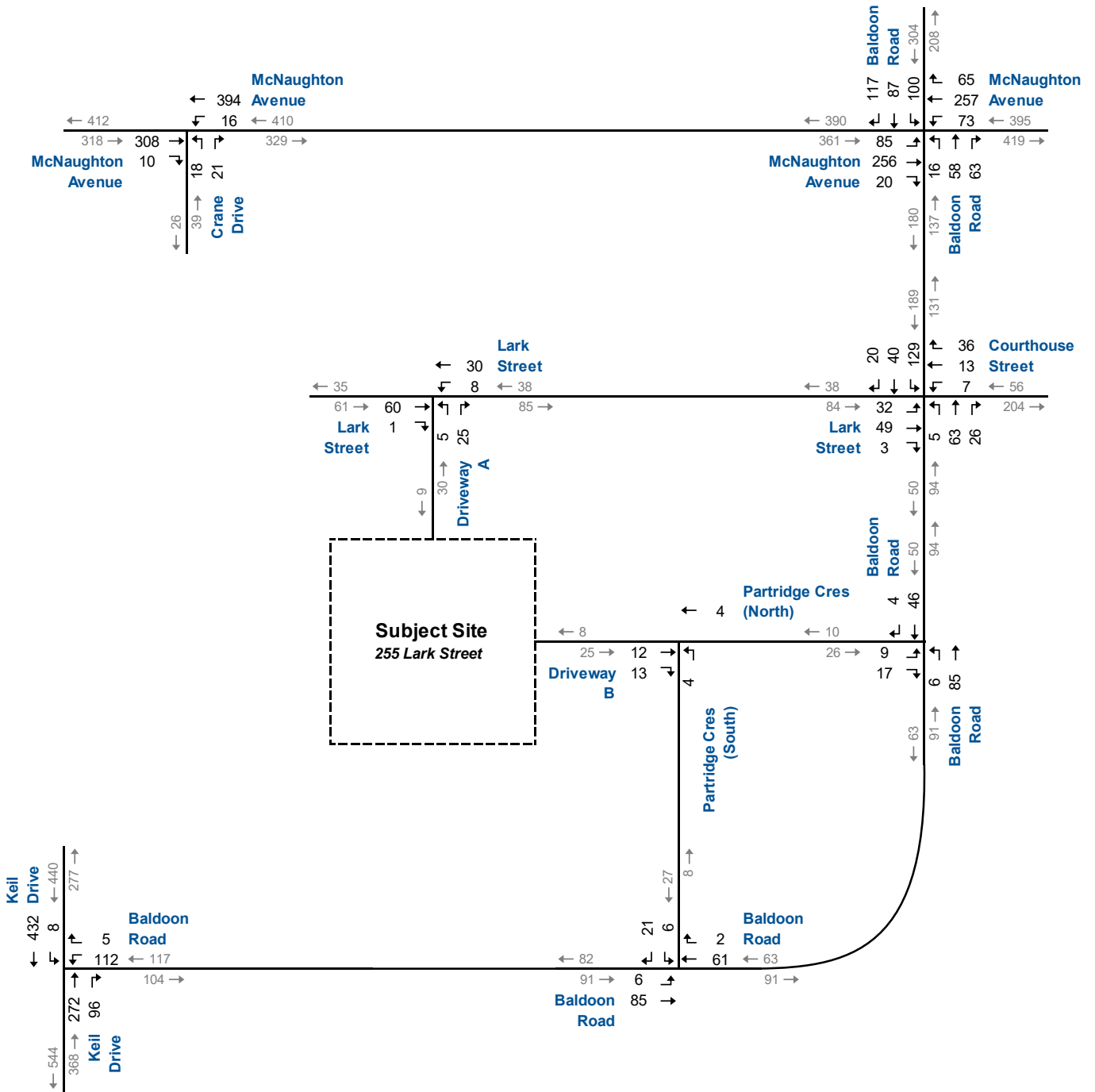
The Site Driveway intersections on Lark Street and Partridge Crescent are forecast to operate satisfactory levels of service (LOS A) during the weekday AM and PM and Saturday peak hours.

Appendix E contains the supporting detailed Synchro 11 reports.





AM Peak Hour



**2031 Total Traffic Volumes
AM Peak Hour**

TABLE 4.2B: 2031 TOTAL TRAFFIC OPERATIONS – SATURDAY PEAK HOUR

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	
Saturday Peak Hour	Crane Drive & McNaughton Avenue	TWSC	LOS Delay V/C Q	A 0 0.00 0	> > > >	A 0 > 0	< < < <	A 8 0.03 1	> > > >	A 1 > >	B 14 0.06 2	> > > >	B 14 > >	< < < <	< < < <	< < < <	< < < <	< < < <		
	Baldoon Road & McNaughton Avenue	TCS	LOS Delay V/C Q Stor. Avail.	B 14 0.32 2 40 38	A > > > > >	A > > > > >	B 11 0.13 1 40 39	< < < < <	A > > > > >	A 10 > > > >	C 21 0.03 0 30 30	B > > > > >	B 20 > > > >	C 23 0.25 2 20 18	B > > > > >	B 20 > > > >	> > > > >	C 21 > > > >	B 14 > > > >	
	Baldoon Road & Lark Street/Courthouse Lane	AWSC	LOS Delay V/C Q	< < < <	A > > >	A > > >	A 8 0.14 1	< < < <	A > > >	A 8 > >	< < < <	A > > >	A 8 > >	< < < <	A > > >	A 9 0.22 1	> > > >	A 9 > >	< < < <	A 9 > >
	Keil Drive & Baldoon Road	TWSC	LOS Delay V/C Q				E 36 0.57 24	> > > >	E 36 > >	> > > >	A 0 0.00 0	> > > >	A 0 > >	< < < <	A 9 0.01 0	> > > >	A 9 > >	< < < <	A 9 > >	A 0 > >
	Driveway A & Lark Street	TWSC	LOS Delay V/C Q	A 0 0.00 0	> > > >	A > > >	< < < <	A 7 0.01 0	> > > >	A 2 > >	A 9 0.01 0	> > > >	A 9 > >	< < < <	< < < <	< < < <	< < < <	< < < <	< < < <	
	Partridge Crescent & Driveway B	TWSC	LOS Delay V/C Q	A 8 0.01 0	> > > >	A > > >	< < < <	A 0 0.00 0	> > > >	A 8 > >	A 0 0.00 0	> > > >	A 0 > >	< < < <	< < < <	< < < <	< < < <	< < < <	< < < <	

MOE - Measure of Effectiveness
 LOS - Level of Service
 Delay - Average Delay per Vehicle in Seconds
 V/C - Volume to Capacity Ratio
 Q - 95th Percentile Queue Length (m)
 Stor. - Existing Storage (m)
 Avail. - Available Storage (m)
 TCS - Traffic Control Signal
 TWSC - Two-Way Stop Control
 </> - Shared with through movement



4.4 Neighbourhood Traffic Volumes

The subject development is expected to minimally increase the traffic volumes on the surrounding local roadways of Crane Drive, Lark Street, and Partridge Crescent (both north and south legs).

Table 4.3 summarizes the existing and future total average daily traffic volumes, which are estimated based on the PM peak hour traffic volumes using the conservative multiplier of 10.

The existing traffic volumes are based on **Figure 2.3b**, and the total traffic volumes are based on **Figure 4.2b**.

TABLE 4.3: DAILY TRAFFIC VOLUMES

Road Section	Existing	Future Total
Partridge Crescent (North)	260	450
Partridge Crescent (South)	240	450
Lark Street	1240	1830
Crane Drive	820	1040

4.5 Left-Turn Lanes

The need for an auxiliary westbound left-turn turning lane on Lark Street at the proposed driveway and a northbound left-turn turning lane on Partridge Crescent at the proposed driveway was assessed based on the requirements and procedures detailed in the Ministry of Transportation Design Supplement for the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads⁵. The assessment is based on the nomographs for left-turn lanes on a two-lane undivided highway at an unsignalized intersection with a design speed of 10 kilometres per hour over the assumed speed limits (60 km/h).

It is noted that both the opposing and approaching volumes on Lark Street and Partridge Crescent at either driveway do not exceed 100 vph. Therefore, auxiliary turn lanes are not required at either driveway.

⁵ MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads, June 2017.



5 Conclusions and Recommendations

5.1 Conclusions

Based on the investigations carried out, it is concluded that:

- ▶ **Existing Traffic Conditions:** All study area intersections are currently operating at acceptable levels of service.
- ▶ **Development Trip Generation:** The development is forecast to generate 72 trips during the AM peak hour, 89 trips during the PM peak hour, and 66 trips during the Saturday peak hour.
- ▶ **2031 Background Traffic Conditions:** All study area intersections are forecast to operate at acceptable levels of service.
- ▶ **2031 Total Traffic Conditions:** All study area intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours.
- ▶ **Site Driveways:** The Site Driveway intersections on Lark Street and on Partridge Crescent are forecast to operate satisfactory levels of service (LOS A) during the weekday AM and PM and Saturday peak hours.

Auxiliary turn lanes are not required on Lark Street or on Partridge Crescent at either of the two site driveways.

- ▶ **Development Traffic & Neighbourhood Traffic:** The proposed development and development generated traffic are compatible with the surrounding land uses and can be accommodated by the existing road system. In the immediate vicinity of the development, the new development traffic is distributed between three local roads, viz., Lark Street and the two sections of Partridge Crescent, thereby minimizing the impact on the individual road sections. The changes in traffic volumes are well within typical local road volumes.

5.2 Recommendations

Based on the findings and conclusions of this study, it is recommended that the development be considered for approval as proposed.



Appendix A

Pre-Study Consultation



From: [Mark McFadden](#)
To: [Rajan Philips](#); [Chris McGuigan](#)
Cc: [Patrick Neal](#); [Allison Lambing](#)
Subject: RE: (240216) - 255 Lark St - Traffic Counts
Date: April 24, 2024 4:17:35 PM
Attachments: [image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)
[image007.png](#)
[image008.png](#)
[image009.png](#)
[Chatham-Kent TIS Guidelines - 2009-03.PDF](#)

Good Afternoon Rajan,

The scope of the TIS came from our Traffic team. They provide the following previously:

Please find the TIS scope/guidelines attached.

Kindly note there is no background development taking place at this time, we would also like to see Saturday peak hours traffic apart from Weekdays AM and PM peak hours, and the intersections that needs to be studied are as follows:

- *Site accesses*
- *Baldoon Rd and Lark St/Courthouse Ln*
- *Baldoon Rd and McNaughton Ave W*
- *Crane Dr and McNaughton Ave W*
- *Baldoon Rd and Keil Dr N*

Reach out in case of any further clarification.

If you would like to discuss this in more detail, please contact Siddarth Dhiman at siddharthd@chatham-kent.ca. Please copy me in any correspondence.

Thanks,

Mark McFadden, P.Eng
Manager, Engineering
Infrastructure & Engineering Services
Municipality of Chatham-Kent

P 519-360-1998 x 3307
E mark.mcfadden@chatham-kent.ca
www.chatham-kent.ca





From: Rajan Philips <rphilips@ptsl.com>
Sent: Wednesday, April 24, 2024 3:41 PM
To: Chris McGuigan <chris@mcguiganeng.ca>; Mark McFadden <markmc@chatham-kent.ca>
Cc: Patrick Neal <pneal@ptsl.com>; Allison Lambing <allisonl@chatham-kent.ca>
Subject: (240216) - 255 Lark St - Traffic Counts

Hi All,

Thanks Chris for the intro.

Mark and Allison, Nice to meet you both even if virtually.

We will be sending you our pre-consultation correspondence for your review and approval.

In the scope of work you sent to Chris, we notice the requirement for Saturday traffic counts and Saturday peak hour analysis.

We will of course do both weekday and Saturday counts & analysis if that is the City's requirement.

But I thought I will check with you, because Saturday counts/analyses are usually done for commercial uses that generate high Saturday trips.

For residential developments weekday peak hour trip generation and road traffic are both higher than Saturday volumes.

As the proposed development is a residential development located in a very residential area, I though I will confirm with you if Saturday counts and analysis are needed.

Thank you for your consideration.

Regards,

Rajan Philips, M.Sc. (PI), P.Eng.
Senior Transportation Consultant

Paradigm Transportation Solutions Limited

5A-150 Pinebush Road, Cambridge ON N1R 8J8
p: 519.896.3163 x207
e: rphilips@ptsl.com
w: www.ptsl.com

Office Hours: 07:30 – 17:30 M-T, closed Fridays



Employee-owned | Client-centric | Solution-focused



From: Chris McGuigan <chris@mcguiganeng.ca>
Sent: Wednesday, April 24, 2024 3:14 PM
To: Mark McFadden <markmc@chatham-kent.ca>
Cc: Rajan Philips <rphilips@ptsl.com>; Patrick Neal <pneal@ptsl.com>; Allison Lambing <allisonl@chatham-kent.ca>
Subject: 255 Lark St

Hi Mark, we have been retained by the owner of 255 Lark st to complete the consulting services for their proposed residential development of the site.

From my understanding the developer was previously working with another firm on some preliminary work but have decided to move forward with my team, so I apologize if at the start we are repeating some of the questions already asked.

I have cc'd Rajan and Patrick from Paradigm Traffic Solutions as they will be completing the TIS required for the development who will be contacting you regarding the scope of the TIS required.

Please let us know if there is someone else in the engineering dept that should answer questions on TIS scope.

Thanks,

Chris McGuigan, P.Eng.
Engineer, President
McGuigan Engineering Inc.
P: 226 291 0122
E: chris@mcguiganeng.ca
NEW ADDRESS: 20 Talbot St W Blenheim

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This communication may be confidential and subject to the Municipal Freedom of Information

From: Chris McGuigan <chris@mcguiganeng.ca>
Sent: Wednesday, April 24, 2024 2:40 PM
To: Rajan Philips <rphilips@ptsl.com>
Cc: Jim Mallett <jmallett@ptsl.com>
Subject: RE: (Q-240216) - TIS Proposal - 255 Lark St, Chatham

The Municipality of Chatham-Kent requires a Traffic Impact Study to be completed concurrently with the planning applications. The scope agreed to with the Municipality consists of the following:

- 1. Describe the general study area (land uses, intersections, roadways, etc.);*
- 2. Focus the study analyses on the weekday AM, weekday PM and Saturday peak hours during the anticipated existing (2024) year, and a future horizon year of 2031 (five years after the assumed build-out year);*
- 3. Undertake peak hour analyses at the following three existing intersections, as identified and directed by Municipal staff:
.1 Baldoon Road and Lark Street/Courthouse Lane - unsignalized (AWSC);
.2 Baldoon Road and McNaughton Avenue West – signalized;
.3 Crane Drive and McNaughton Avenue West - unsignalized (TWSC); and
.4 Baldoon Road and Keil Drive North - unsignalized (TWSC).*
- 4. New turning movement count (TMC) data will be collected in the field at the four study area intersections between 7 - 9 AM & 12-6 PM on a typical weekday and between 12 - 3 PM on a typical Saturday;*
- 5. Determine the existing operations at the four study area intersections using the methodology outlined in the Highway Capacity Manual. This will be facilitated through the use of Synchro software. Intersection levels of service, vehicle delays, 95th percentile queues as well as critical movements will be identified and documented;*
- 6. Grow the existing traffic volumes by a 2.0% per annum growth rate to the single horizon year;*
- 7. Future background operations at the four study area intersections will be assessed during the single horizon year using the same methodology as for existing conditions. Future intersection levels of service, vehicle delays, 95th percentile queues as well as critical movements will be identified and documented;*
- 8. Trips generated by the proposed residential development will be estimated based on rates published in the ITE document Trip Generation Manual, 11th Edition;*
- 9. The new vehicle trips generated by the proposed residential development will be distributed and assigned to the road network in a manner that considers the existing travel patterns as well as professional judgement;*
- 10. Total future operations (with the subject residential development in place) at the four study area intersections and at the two proposed driveways will be assessed*

Appendix B

Existing Traffic Data





Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & Keil Drive
Site Code: 240216
Start Date: 05/09/2024
Page No: 1

Turning Movement Data

Start Time	Baldoon Road Westbound					Keil Drive Northbound					Keil Drive Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:00 AM	10	0	0	0	10	34	7	0	1	41	0	60	0	0	60	111
7:15 AM	16	0	0	0	16	38	8	0	2	46	2	62	0	0	64	126
7:30 AM	18	0	0	0	18	43	13	0	2	56	2	98	0	0	100	174
7:45 AM	23	1	0	0	24	52	18	0	1	70	1	104	0	0	105	199
Hourly Total	67	1	0	0	68	167	46	0	6	213	5	324	0	0	329	610
8:00 AM	15	0	0	0	15	50	17	0	4	67	3	89	0	0	92	174
8:15 AM	23	1	0	0	24	51	16	0	2	67	2	111	0	0	113	204
8:30 AM	12	3	0	0	15	49	14	0	3	63	0	75	0	0	75	153
8:45 AM	26	0	0	0	26	87	30	0	4	117	2	101	1	0	104	247
Hourly Total	76	4	0	0	80	237	77	0	13	314	7	376	1	0	384	778
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	26	0	0	0	26	127	49	0	7	176	2	92	0	0	94	296
12:15 PM	20	2	0	0	22	99	44	0	5	143	1	95	0	0	96	261
12:30 PM	31	2	0	0	33	99	24	0	6	123	0	78	0	0	78	234
12:45 PM	22	1	0	1	23	83	39	0	3	122	0	106	0	0	106	251
Hourly Total	99	5	0	1	104	408	156	0	21	564	3	371	0	0	374	1042
1:00 PM	22	1	0	0	23	94	40	0	0	134	4	107	0	0	111	268
1:15 PM	15	3	0	0	18	110	35	0	0	145	5	88	0	0	93	256
1:30 PM	21	2	0	0	23	83	42	0	0	125	1	94	0	0	95	243
1:45 PM	25	1	0	0	26	97	35	0	0	132	1	90	0	0	91	249
Hourly Total	83	7	0	0	90	384	152	0	0	536	11	379	0	0	390	1016
2:00 PM	22	3	0	0	25	98	29	0	0	127	1	91	0	0	92	244
2:15 PM	23	1	0	0	24	81	33	0	0	114	1	91	0	0	92	230
2:30 PM	32	3	0	0	35	111	26	0	0	137	2	89	0	0	91	263
2:45 PM	26	1	0	0	27	103	35	0	0	138	2	91	0	0	93	258
Hourly Total	103	8	0	0	111	393	123	0	0	516	6	362	0	0	368	995
3:00 PM	20	4	0	0	24	130	44	0	0	174	6	70	0	0	76	274
3:15 PM	20	0	0	0	20	129	39	0	0	168	1	93	0	0	94	282
3:30 PM	23	1	0	0	24	110	38	0	0	148	6	103	0	4	109	281
3:45 PM	28	3	0	0	31	124	42	0	0	166	4	110	0	0	114	311
Hourly Total	91	8	0	0	99	493	163	0	0	656	17	376	0	4	393	1148
4:00 PM	14	1	0	0	15	126	54	0	1	180	3	108	0	0	111	306
4:15 PM	23	4	0	0	27	132	48	0	5	180	2	92	0	0	94	301
4:30 PM	17	1	0	0	18	101	43	0	3	144	3	94	0	0	97	259
4:45 PM	17	1	0	0	18	130	44	0	0	174	4	77	0	0	81	273
Hourly Total	71	7	0	0	78	489	189	0	9	678	12	371	0	0	383	1139

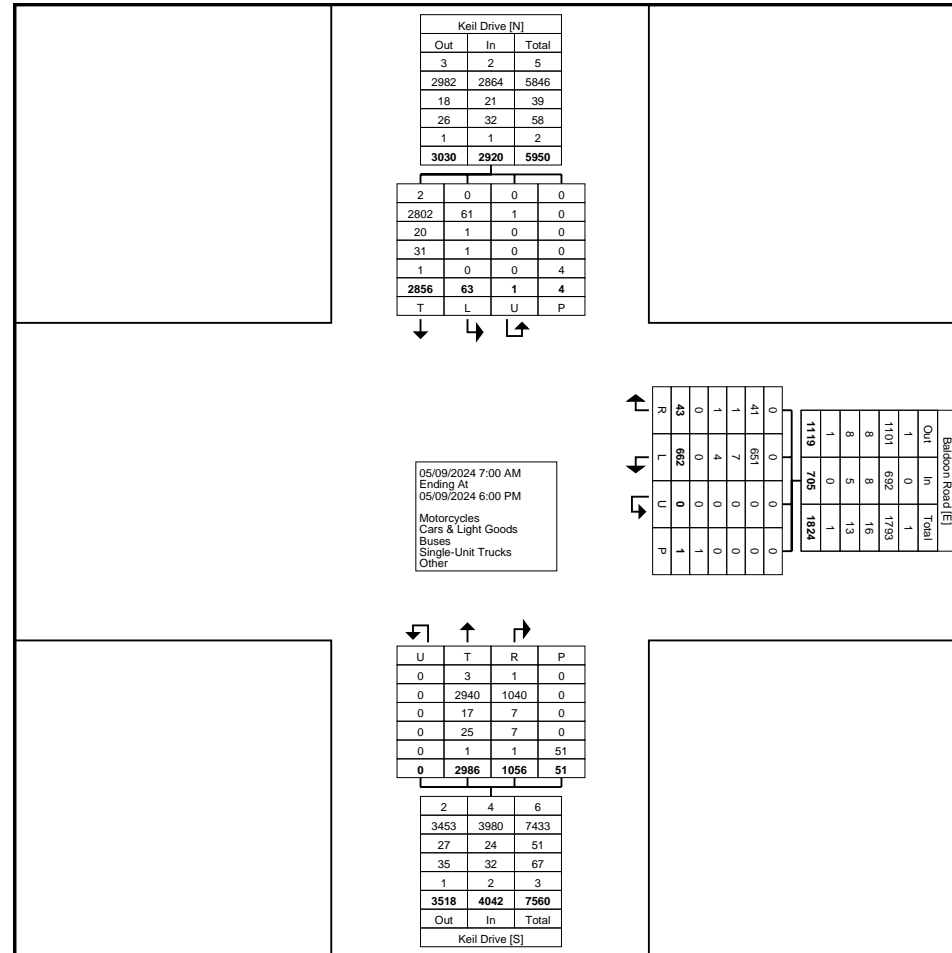
5:00 PM	24	2	0	0	26	130	52	0	0	182	1	89	0	0	90	298
5:15 PM	13	0	0	0	13	118	35	0	1	153	1	65	0	0	66	232
5:30 PM	23	1	0	0	24	103	36	0	0	139	0	79	0	0	79	242
5:45 PM	12	0	0	0	12	64	27	0	1	91	0	64	0	0	64	167
Hourly Total	72	3	0	0	75	415	150	0	2	565	2	297	0	0	299	939
Grand Total	662	43	0	1	705	2986	1056	0	51	4042	63	2856	1	4	2920	7667
Approach %	93.9	6.1	0.0	-	-	73.9	26.1	0.0	-	-	2.2	97.8	0.0	-	-	-
Total %	8.6	0.6	0.0	-	9.2	38.9	13.8	0.0	-	52.7	0.8	37.3	0.0	-	38.1	-
Motorcycles	0	0	0	-	0	3	1	0	-	4	0	2	0	-	2	6
% Motorcycles	0.0	0.0	-	-	0.0	0.1	0.1	-	-	0.1	0.0	0.1	0.0	-	0.1	0.1
Cars & Light Goods	651	41	0	-	692	2940	1040	0	-	3980	61	2802	1	-	2864	7536
% Cars & Light Goods	98.3	95.3	-	-	98.2	98.5	98.5	-	-	98.5	96.8	98.1	100.0	-	98.1	98.3
Buses	7	1	0	-	8	17	7	0	-	24	1	20	0	-	21	53
% Buses	1.1	2.3	-	-	1.1	0.6	0.7	-	-	0.6	1.6	0.7	0.0	-	0.7	0.7
Single-Unit Trucks	4	1	0	-	5	25	7	0	-	32	1	31	0	-	32	69
% Single-Unit Trucks	0.6	2.3	-	-	0.7	0.8	0.7	-	-	0.8	1.6	1.1	0.0	-	1.1	0.9
Articulated Trucks	0	0	0	-	0	1	1	0	-	2	0	1	0	-	1	3
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.1	-	-	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
% 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
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	2.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	1	-	-	-	-	50	-	-	-	-	4	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	98.0	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & Keil Drive
Site Code: 240216
Start Date: 05/09/2024
Page No: 3



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: Baldoon Road & Keil Drive
Site Code: 240216
Start Date: 05/09/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

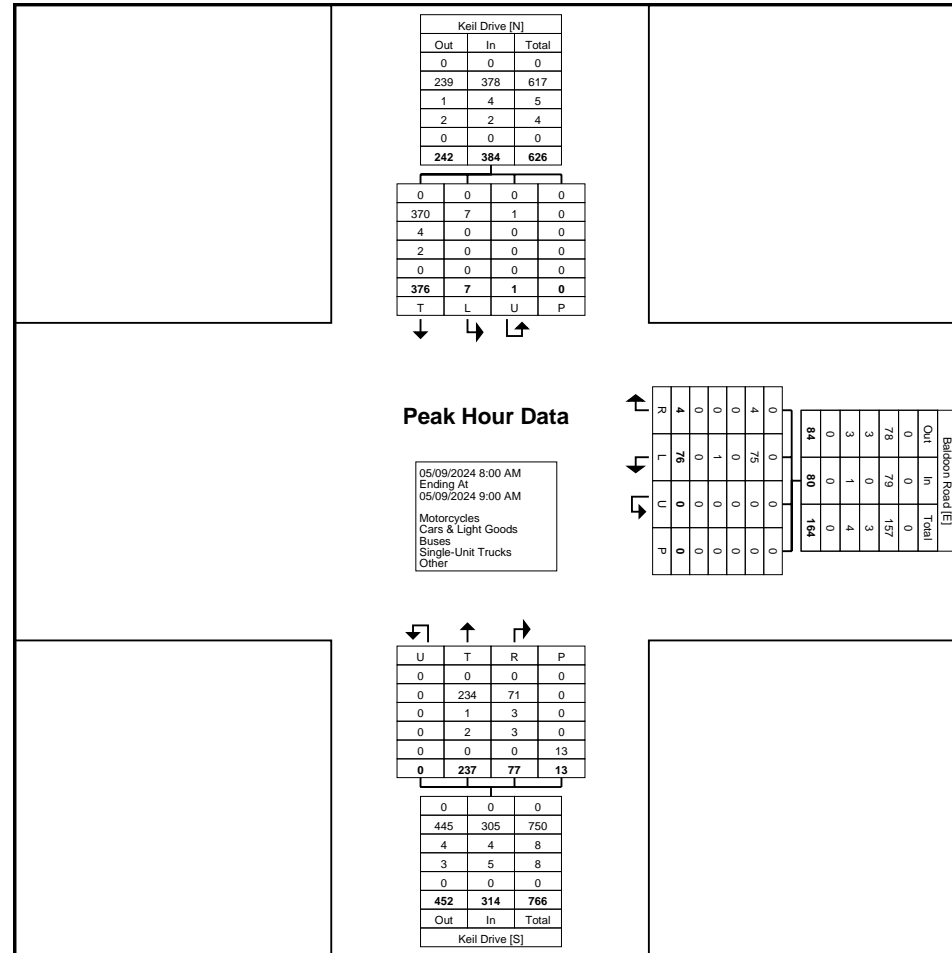
Start Time	Baldoon Road Westbound					Keil Drive Northbound					Keil Drive Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
8:00 AM	15	0	0	0	15	50	17	0	4	67	3	89	0	0	92	174
8:15 AM	23	1	0	0	24	51	16	0	2	67	2	111	0	0	113	204
8:30 AM	12	3	0	0	15	49	14	0	3	63	0	75	0	0	75	153
8:45 AM	26	0	0	0	26	87	30	0	4	117	2	101	1	0	104	247
Total	76	4	0	0	80	237	77	0	13	314	7	376	1	0	384	778
Approach %	95.0	5.0	0.0	-	-	75.5	24.5	0.0	-	-	1.8	97.9	0.3	-	-	-
Total %	9.8	0.5	0.0	-	10.3	30.5	9.9	0.0	-	40.4	0.9	48.3	0.1	-	49.4	-
PHF	0.731	0.333	0.000	-	0.769	0.681	0.642	0.000	-	0.671	0.583	0.847	0.250	-	0.850	0.787
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	0.0
Cars & Light Goods	75	4	0	-	79	234	71	0	-	305	7	370	1	-	378	762
% Cars & Light Goods	98.7	100.0	-	-	98.8	98.7	92.2	-	-	97.1	100.0	98.4	100.0	-	98.4	97.9
Buses	0	0	0	-	0	1	3	0	-	4	0	4	0	-	4	8
% Buses	0.0	0.0	-	-	0.0	0.4	3.9	-	-	1.3	0.0	1.1	0.0	-	1.0	1.0
Single-Unit Trucks	1	0	0	-	1	2	3	0	-	5	0	2	0	-	2	8
% Single-Unit Trucks	1.3	0.0	-	-	1.3	0.8	3.9	-	-	1.6	0.0	0.5	0.0	-	0.5	1.0
Articulated Trucks	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
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	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	13	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Baldoon Road & Keil Drive
Site Code: 240216
Start Date: 05/09/2024
Page No: 5



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Baldoon Road & Keil Drive
Site Code: 240216
Start Date: 05/09/2024
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Turning Movement Peak Hour Data (3:30 PM)

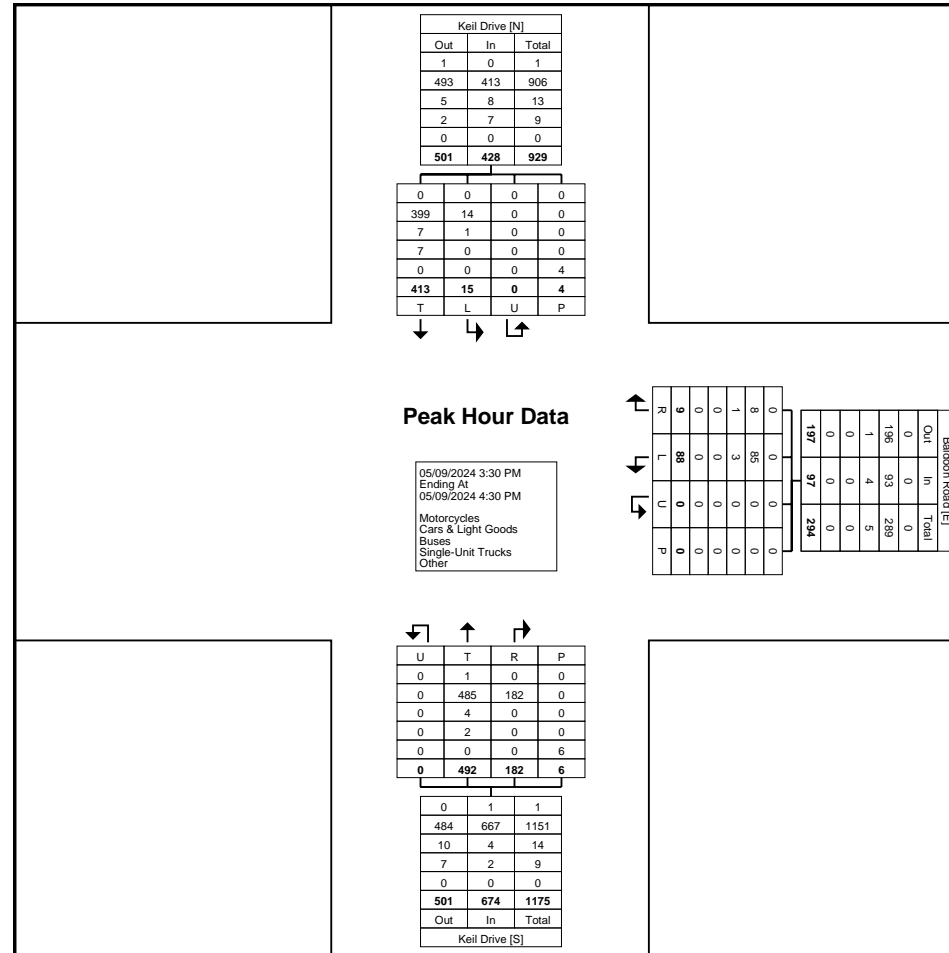
Start Time	Baldoon Road Westbound					Keil Drive Northbound					Keil Drive Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
3:30 PM	23	1	0	0	24	110	38	0	0	148	6	103	0	4	109	281
3:45 PM	28	3	0	0	31	124	42	0	0	166	4	110	0	0	114	311
4:00 PM	14	1	0	0	15	126	54	0	1	180	3	108	0	0	111	306
4:15 PM	23	4	0	0	27	132	48	0	5	180	2	92	0	0	94	301
Total	88	9	0	0	97	492	182	0	6	674	15	413	0	4	428	1199
Approach %	90.7	9.3	0.0	-	-	73.0	27.0	0.0	-	-	3.5	96.5	0.0	-	-	-
Total %	7.3	0.8	0.0	-	8.1	41.0	15.2	0.0	-	56.2	1.3	34.4	0.0	-	35.7	-
PHF	0.786	0.563	0.000	-	0.782	0.932	0.843	0.000	-	0.936	0.625	0.939	0.000	-	0.939	0.964
Motorcycles	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Motorcycles	0.0	0.0	-	-	0.0	0.2	0.0	-	-	0.1	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	85	8	0	-	93	485	182	0	-	667	14	399	0	-	413	1173
% Cars & Light Goods	96.6	88.9	-	-	95.9	98.6	100.0	-	-	99.0	93.3	96.6	-	-	96.5	97.8
Buses	3	1	0	-	4	4	0	0	-	4	1	7	0	-	8	16
% Buses	3.4	11.1	-	-	4.1	0.8	0.0	-	-	0.6	6.7	1.7	-	-	1.9	1.3
Single-Unit Trucks	0	0	0	-	0	2	0	0	-	2	0	7	0	-	7	9
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.4	0.0	-	-	0.3	0.0	1.7	-	-	1.6	0.8
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	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	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	16.7	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	5	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	83.3	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Baldoon Road & Keil Drive
Site Code: 240216
Start Date: 05/09/2024
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Turning Movement Peak Hour Data Plot (3:30 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & Keil Drive -
Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 1

Turning Movement Data

Start Time	Baldoon Road Westbound					Keil Drive Northbound					Keil Drive Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
11:00 AM	22	1	0	0	23	75	14	0	0	89	0	92	0	0	92	204
11:15 AM	23	3	0	0	26	94	31	0	0	125	0	95	0	0	95	246
11:30 AM	23	0	0	1	23	108	32	0	0	140	0	88	0	0	88	251
11:45 AM	22	4	0	0	26	105	25	0	0	130	1	88	0	0	89	245
Hourly Total	90	8	0	1	98	382	102	0	0	484	1	363	0	0	364	946
12:00 PM	26	1	0	0	27	83	30	0	0	113	0	90	0	0	90	230
12:15 PM	24	1	0	0	25	97	22	0	0	119	2	81	0	0	83	227
12:30 PM	26	1	0	0	27	94	34	0	1	128	2	87	0	0	89	244
12:45 PM	18	3	0	1	21	93	29	0	0	122	1	70	0	1	71	214
Hourly Total	94	6	0	1	100	367	115	0	1	482	5	328	0	1	333	915
1:00 PM	24	1	0	0	25	79	25	0	0	104	5	76	0	0	81	210
1:15 PM	32	4	0	0	36	110	38	0	0	148	1	73	0	0	74	258
1:30 PM	30	3	0	0	33	97	30	0	0	127	1	97	0	0	98	258
1:45 PM	24	1	0	0	25	98	32	0	0	130	2	93	0	0	95	250
Hourly Total	110	9	0	0	119	384	125	0	0	509	9	339	0	0	348	976
2:00 PM	13	2	0	0	15	109	24	0	0	133	2	80	0	0	82	230
2:15 PM	17	2	0	0	19	75	25	0	0	100	2	85	0	0	87	206
2:30 PM	24	1	0	0	25	93	32	0	0	125	0	74	0	0	74	224
2:45 PM	24	2	0	0	26	112	31	0	0	143	0	82	0	0	82	251
Hourly Total	78	7	0	0	85	389	112	0	0	501	4	321	0	0	325	911
Grand Total	372	30	0	2	402	1522	454	0	1	1976	19	1351	0	1	1370	3748
Approach %	92.5	7.5	0.0	-	-	77.0	23.0	0.0	-	-	1.4	98.6	0.0	-	-	-
Total %	9.9	0.8	0.0	-	10.7	40.6	12.1	0.0	-	52.7	0.5	36.0	0.0	-	36.6	-
Motorcycles	1	0	0	-	1	1	0	0	-	1	0	1	0	-	1	3
% Motorcycles	0.3	0.0	-	-	0.2	0.1	0.0	-	-	0.1	0.0	0.1	-	-	0.1	0.1
Cars & Light Goods	369	30	0	-	399	1517	453	0	-	1970	19	1348	0	-	1367	3736
% Cars & Light Goods	99.2	100.0	-	-	99.3	99.7	99.8	-	-	99.7	100.0	99.8	-	-	99.8	99.7
Buses	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
Single-Unit Trucks	2	0	0	-	2	4	1	0	-	5	0	2	0	-	2	9
% Single-Unit Trucks	0.5	0.0	-	-	0.5	0.3	0.2	-	-	0.3	0.0	0.1	-	-	0.1	0.2
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	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	-	-

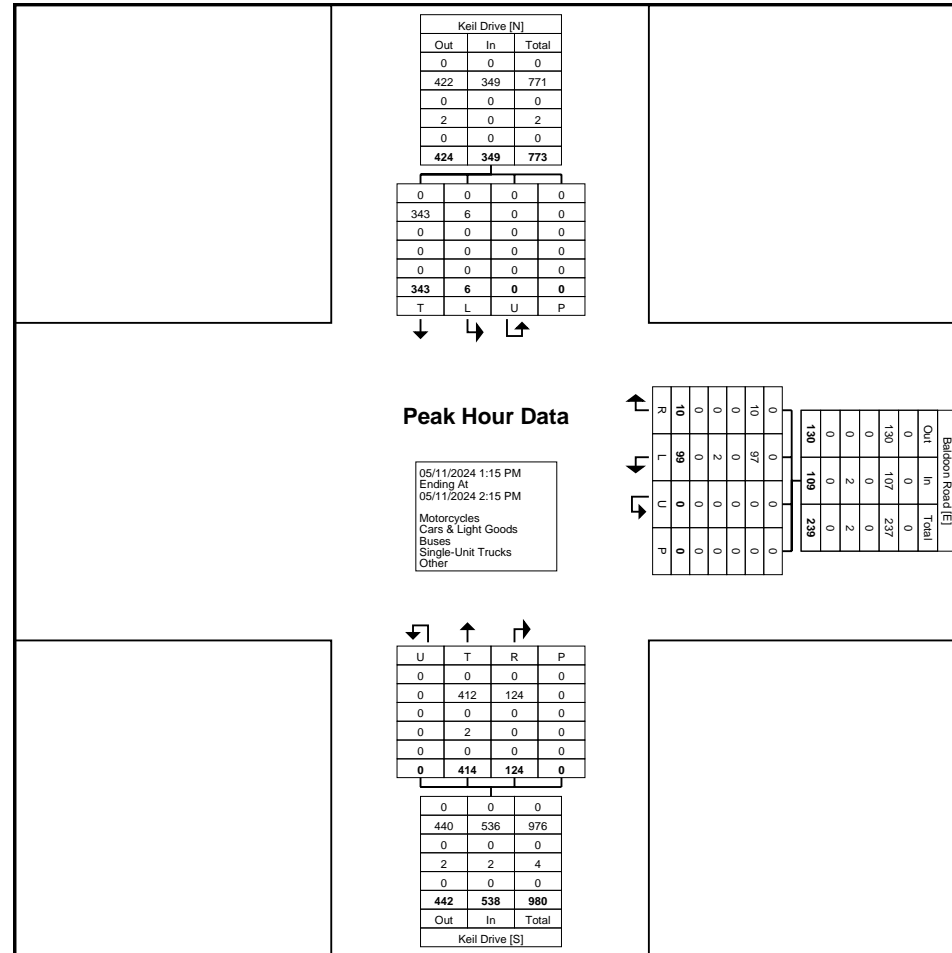
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	2	-	-	-	-	1	-	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & Keil Drive -
Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 5



Turning Movement Peak Hour Data Plot (1:15 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Crane Drive & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 1

Turning Movement Data

Start Time	McNaughton Ave Eastbound					McNaughton Ave Westbound					Crane Drive Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
7:00 AM	29	2	0	1	31	0	55	0	0	55	2	2	0	1	4	90
7:15 AM	35	0	0	1	35	1	57	0	0	58	0	4	0	0	4	97
7:30 AM	49	0	0	0	49	5	71	0	0	76	2	6	0	1	8	133
7:45 AM	59	1	0	0	60	2	104	0	0	106	3	7	0	2	10	176
Hourly Total	172	3	0	2	175	8	287	0	0	295	7	19	0	4	26	496
8:00 AM	58	2	0	0	60	3	71	0	0	74	3	4	0	1	7	141
8:15 AM	64	1	0	0	65	4	95	0	0	99	1	4	0	0	5	169
8:30 AM	56	2	0	0	58	3	76	0	0	79	2	4	0	2	6	143
8:45 AM	90	3	0	0	93	4	101	0	0	105	5	6	0	0	11	209
Hourly Total	268	8	0	0	276	14	343	0	0	357	11	18	0	3	29	662
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	106	1	0	0	107	6	78	0	0	84	1	6	0	1	7	198
12:15 PM	85	2	0	0	87	2	92	0	0	94	3	1	0	2	4	185
12:30 PM	89	0	0	0	89	3	66	0	0	69	1	6	0	0	7	165
12:45 PM	83	2	0	0	85	5	123	0	0	128	0	3	0	1	3	216
Hourly Total	363	5	0	0	368	16	359	0	0	375	5	16	0	4	21	764
1:00 PM	85	1	0	0	86	6	97	0	0	103	4	10	0	0	14	203
1:15 PM	86	4	0	0	90	3	78	0	0	81	4	2	0	0	6	177
1:30 PM	74	0	0	0	74	5	98	0	0	103	1	5	0	2	6	183
1:45 PM	81	3	0	0	84	2	70	0	0	72	3	8	0	2	11	167
Hourly Total	326	8	0	0	334	16	343	0	0	359	12	25	0	4	37	730
2:00 PM	78	2	0	0	80	5	69	0	0	74	1	4	0	1	5	159
2:15 PM	76	1	0	0	77	8	93	0	1	101	3	3	0	0	6	184
2:30 PM	100	3	0	1	103	6	78	0	0	84	2	5	0	0	7	194
2:45 PM	83	3	0	0	86	5	83	0	0	88	3	5	0	1	8	182
Hourly Total	337	9	0	1	346	24	323	0	1	347	9	17	0	2	26	719
3:00 PM	102	3	0	0	105	5	83	0	0	88	0	7	0	1	7	200
3:15 PM	118	0	0	0	118	2	95	0	0	97	2	3	0	0	5	220
3:30 PM	127	6	0	0	133	10	93	0	0	103	2	6	0	2	8	244
3:45 PM	89	5	0	0	94	6	112	0	0	118	0	4	0	0	4	216
Hourly Total	436	14	0	0	450	23	383	0	0	406	4	20	0	3	24	880
4:00 PM	100	3	0	0	103	8	123	0	0	131	3	7	0	1	10	244
4:15 PM	99	3	0	1	102	8	102	0	0	110	4	7	0	1	11	223
4:30 PM	105	4	0	0	109	7	105	0	0	112	2	2	0	0	4	225
4:45 PM	103	5	0	0	108	9	91	0	0	100	2	10	0	0	12	220
Hourly Total	407	15	0	1	422	32	421	0	0	453	11	26	0	2	37	912

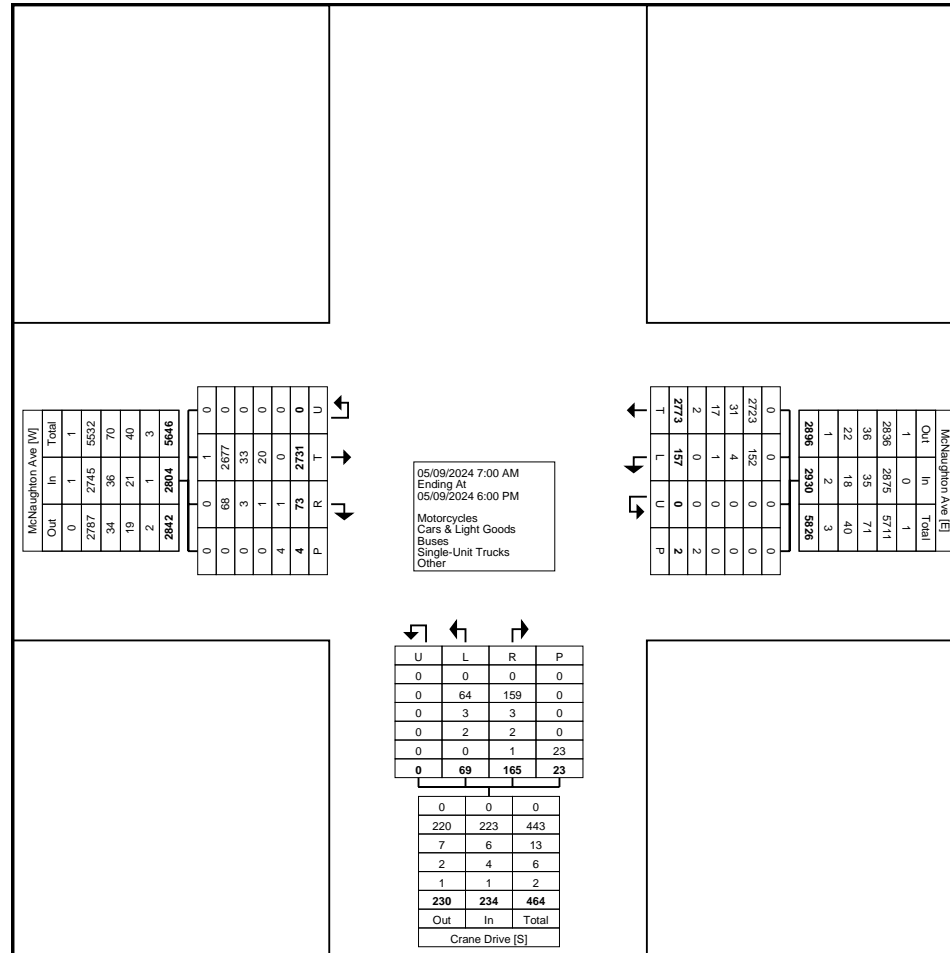
5:00 PM	129	3	0	0	132	7	96	0	1	103	2	5	0	0	7	242
5:15 PM	114	3	0	0	117	6	66	0	0	72	3	6	0	1	9	198
5:30 PM	87	1	0	0	88	8	82	0	0	90	0	3	0	0	3	181
5:45 PM	92	4	0	0	96	3	70	0	0	73	5	10	0	0	15	184
Hourly Total	422	11	0	0	433	24	314	0	1	338	10	24	0	1	34	805
Grand Total	2731	73	0	4	2804	157	2773	0	2	2930	69	165	0	23	234	5968
Approach %	97.4	2.6	0.0	-	-	5.4	94.6	0.0	-	-	29.5	70.5	0.0	-	-	-
Total %	45.8	1.2	0.0	-	47.0	2.6	46.5	0.0	-	49.1	1.2	2.8	0.0	-	3.9	-
Motorcycles	1	0	0	-	1	0	0	0	-	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	0.0
Cars & Light Goods	2677	68	0	-	2745	152	2723	0	-	2875	64	159	0	-	223	5843
% Cars & Light Goods	98.0	93.2	-	-	97.9	96.8	98.2	-	-	98.1	92.8	96.4	-	-	95.3	97.9
Buses	33	3	0	-	36	4	31	0	-	35	3	3	0	-	6	77
% Buses	1.2	4.1	-	-	1.3	2.5	1.1	-	-	1.2	4.3	1.8	-	-	2.6	1.3
Single-Unit Trucks	20	1	0	-	21	1	17	0	-	18	2	2	0	-	4	43
% Single-Unit Trucks	0.7	1.4	-	-	0.7	0.6	0.6	-	-	0.6	2.9	1.2	-	-	1.7	0.7
Articulated Trucks	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	1	0	-	1	0	1	0	-	1	0	1	0	-	1	3
% Bicycles on Road	0.0	1.4	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.6	-	-	0.4	0.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	17.4	-	-
Pedestrians	-	-	-	4	-	-	-	-	2	-	-	-	-	19	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	82.6	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Crane Drive & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Crane Drive & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

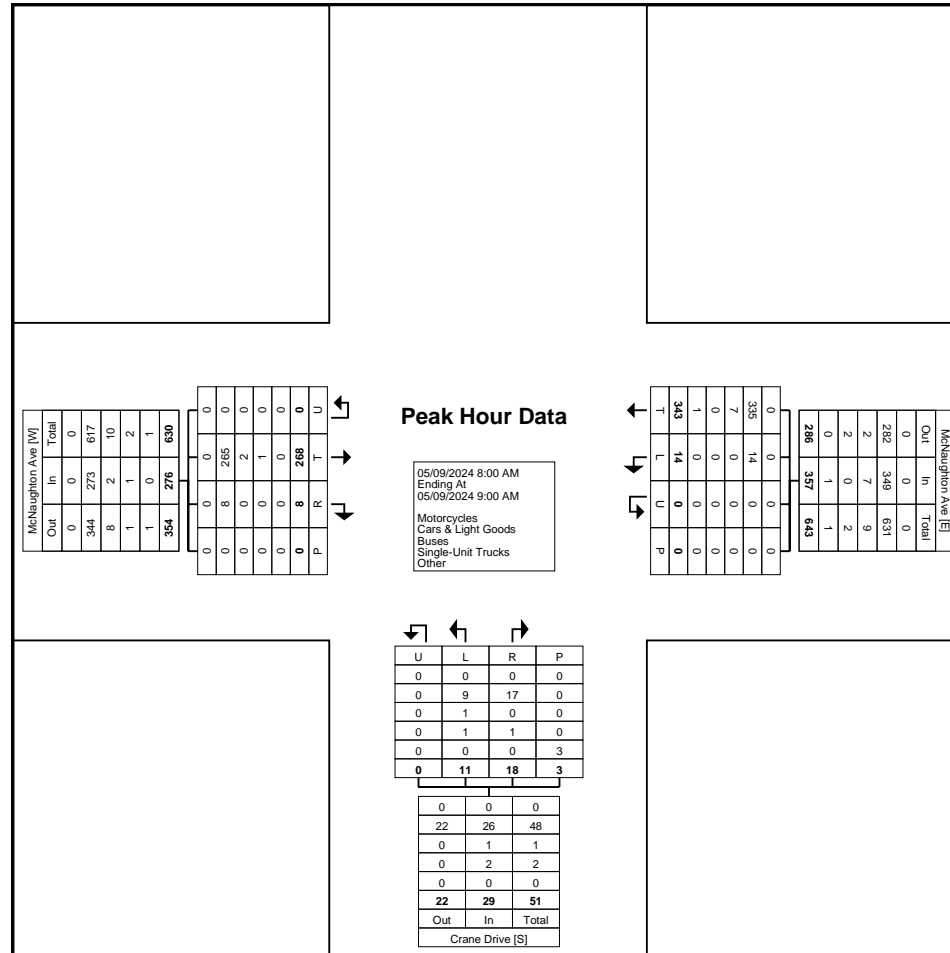
Start Time	McNaughton Ave Eastbound					McNaughton Ave Westbound					Crane Drive Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
8:00 AM	58	2	0	0	60	3	71	0	0	74	3	4	0	1	7	141
8:15 AM	64	1	0	0	65	4	95	0	0	99	1	4	0	0	5	169
8:30 AM	56	2	0	0	58	3	76	0	0	79	2	4	0	2	6	143
8:45 AM	90	3	0	0	93	4	101	0	0	105	5	6	0	0	11	209
Total	268	8	0	0	276	14	343	0	0	357	11	18	0	3	29	662
Approach %	97.1	2.9	0.0	-	-	3.9	96.1	0.0	-	-	37.9	62.1	0.0	-	-	-
Total %	40.5	1.2	0.0	-	41.7	2.1	51.8	0.0	-	53.9	1.7	2.7	0.0	-	4.4	-
PHF	0.744	0.667	0.000	-	0.742	0.875	0.849	0.000	-	0.850	0.550	0.750	0.000	-	0.659	0.792
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	265	8	0	-	273	14	335	0	-	349	9	17	0	-	26	648
% Cars & Light Goods	98.9	100.0	-	-	98.9	100.0	97.7	-	-	97.8	81.8	94.4	-	-	89.7	97.9
Buses	2	0	0	-	2	0	7	0	-	7	1	0	0	-	1	10
% Buses	0.7	0.0	-	-	0.7	0.0	2.0	-	-	2.0	9.1	0.0	-	-	3.4	1.5
Single-Unit Trucks	1	0	0	-	1	0	0	0	-	0	1	1	0	-	2	3
% Single-Unit Trucks	0.4	0.0	-	-	0.4	0.0	0.0	-	-	0.0	9.1	5.6	-	-	6.9	0.5
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	1	0	-	1	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.3	-	-	0.3	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Crane Drive & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 5



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: Crane Drive & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 6

Turning Movement Peak Hour Data (3:30 PM)

Start Time	McNaughton Ave Eastbound					McNaughton Ave Westbound					Crane Drive Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
3:30 PM	127	6	0	0	133	10	93	0	0	103	2	6	0	2	8	244
3:45 PM	89	5	0	0	94	6	112	0	0	118	0	4	0	0	4	216
4:00 PM	100	3	0	0	103	8	123	0	0	131	3	7	0	1	10	244
4:15 PM	99	3	0	1	102	8	102	0	0	110	4	7	0	1	11	223
Total	415	17	0	1	432	32	430	0	0	462	9	24	0	4	33	927
Approach %	96.1	3.9	0.0	-	-	6.9	93.1	0.0	-	-	27.3	72.7	0.0	-	-	-
Total %	44.8	1.8	0.0	-	46.6	3.5	46.4	0.0	-	49.8	1.0	2.6	0.0	-	3.6	-
PHF	0.817	0.708	0.000	-	0.812	0.800	0.874	0.000	-	0.882	0.563	0.857	0.000	-	0.750	0.950
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	402	16	0	-	418	30	415	0	-	445	9	23	0	-	32	895
% Cars & Light Goods	96.9	94.1	-	-	96.8	93.8	96.5	-	-	96.3	100.0	95.8	-	-	97.0	96.5
Buses	11	1	0	-	12	1	10	0	-	11	0	0	0	-	0	23
% Buses	2.7	5.9	-	-	2.8	3.1	2.3	-	-	2.4	0.0	0.0	-	-	0.0	2.5
Single-Unit Trucks	2	0	0	-	2	1	5	0	-	6	0	0	0	-	0	8
% Single-Unit Trucks	0.5	0.0	-	-	0.5	3.1	1.2	-	-	1.3	0.0	0.0	-	-	0.0	0.9
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	4.2	-	-	3.0	0.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	4	-	-
% Pedestrians	-	-	-	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: Crane Drive & McNaughton Ave -
Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 1

Turning Movement Data

Start Time	McNaughton Ave Eastbound					McNaughton Ave Westbound					Crane Drive Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
11:00 AM	93	1	0	0	94	2	81	0	0	83	1	2	0	0	3	180
11:15 AM	81	1	0	0	82	5	87	0	0	92	2	3	0	0	5	179
11:30 AM	108	1	0	0	109	8	79	0	1	87	1	2	0	3	3	199
11:45 AM	94	1	0	0	95	9	69	0	0	78	1	5	0	0	6	179
Hourly Total	376	4	0	0	380	24	316	0	1	340	5	12	0	3	17	737
12:00 PM	85	1	0	1	86	2	85	0	0	87	0	5	0	0	5	178
12:15 PM	82	2	0	0	84	3	77	0	0	80	2	4	0	0	6	170
12:30 PM	73	1	0	0	74	10	87	0	1	97	3	6	0	0	9	180
12:45 PM	79	0	0	0	79	4	85	0	0	89	1	2	0	0	3	171
Hourly Total	319	4	0	1	323	19	334	0	1	353	6	17	0	0	23	699
1:00 PM	73	2	0	0	75	4	58	0	0	62	2	6	0	0	8	145
1:15 PM	94	0	0	2	94	1	59	0	0	60	2	4	0	0	6	160
1:30 PM	78	2	0	0	80	10	79	0	0	89	2	8	0	0	10	179
1:45 PM	95	3	0	2	98	3	74	0	0	77	1	3	0	0	4	179
Hourly Total	340	7	0	4	347	18	270	0	0	288	7	21	0	0	28	663
2:00 PM	87	0	0	1	87	6	83	0	0	89	1	4	0	0	5	181
2:15 PM	82	1	0	0	83	4	86	0	0	90	0	4	0	0	4	177
2:30 PM	75	1	0	0	76	4	76	0	0	80	4	6	0	1	10	166
2:45 PM	89	0	0	0	89	6	74	0	0	80	1	2	0	0	3	172
Hourly Total	333	2	0	1	335	20	319	0	0	339	6	16	0	1	22	696
Grand Total	1368	17	0	6	1385	81	1239	0	2	1320	24	66	0	4	90	2795
Approach %	98.8	1.2	0.0	-	-	6.1	93.9	0.0	-	-	26.7	73.3	0.0	-	-	-
Total %	48.9	0.6	0.0	-	49.6	2.9	44.3	0.0	-	47.2	0.9	2.4	0.0	-	3.2	-
Motorcycles	1	0	0	-	1	0	1	0	-	1	0	0	0	-	0	2
% Motorcycles	0.1	0.0	-	-	0.1	0.0	0.1	-	-	0.1	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	1357	17	0	-	1374	81	1233	0	-	1314	24	66	0	-	90	2778
% Cars & Light Goods	99.2	100.0	-	-	99.2	100.0	99.5	-	-	99.5	100.0	100.0	-	-	100.0	99.4
Buses	8	0	0	-	8	0	5	0	-	5	0	0	0	-	0	13
% Buses	0.6	0.0	-	-	0.6	0.0	0.4	-	-	0.4	0.0	0.0	-	-	0.0	0.5
Single-Unit Trucks	2	0	0	-	2	0	0	0	-	0	0	0	0	-	0	2
% Single-Unit Trucks	0.1	0.0	-	-	0.1	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.1
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	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	-	-

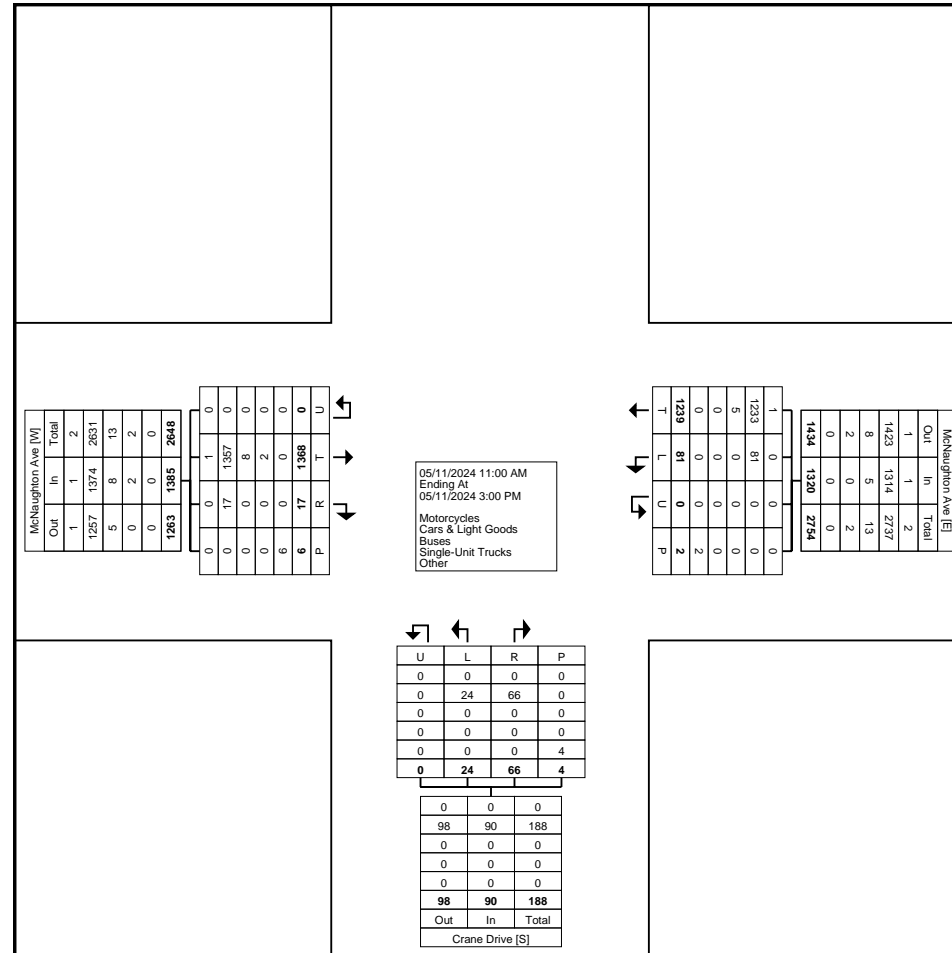
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	6	-	-	-	-	2	-	-	-	-	4	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Crane Drive & McNaughton Ave -
Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 3



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: Crane Drive & McNaughton Ave -
Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 4

Turning Movement Peak Hour Data (11:00 AM)

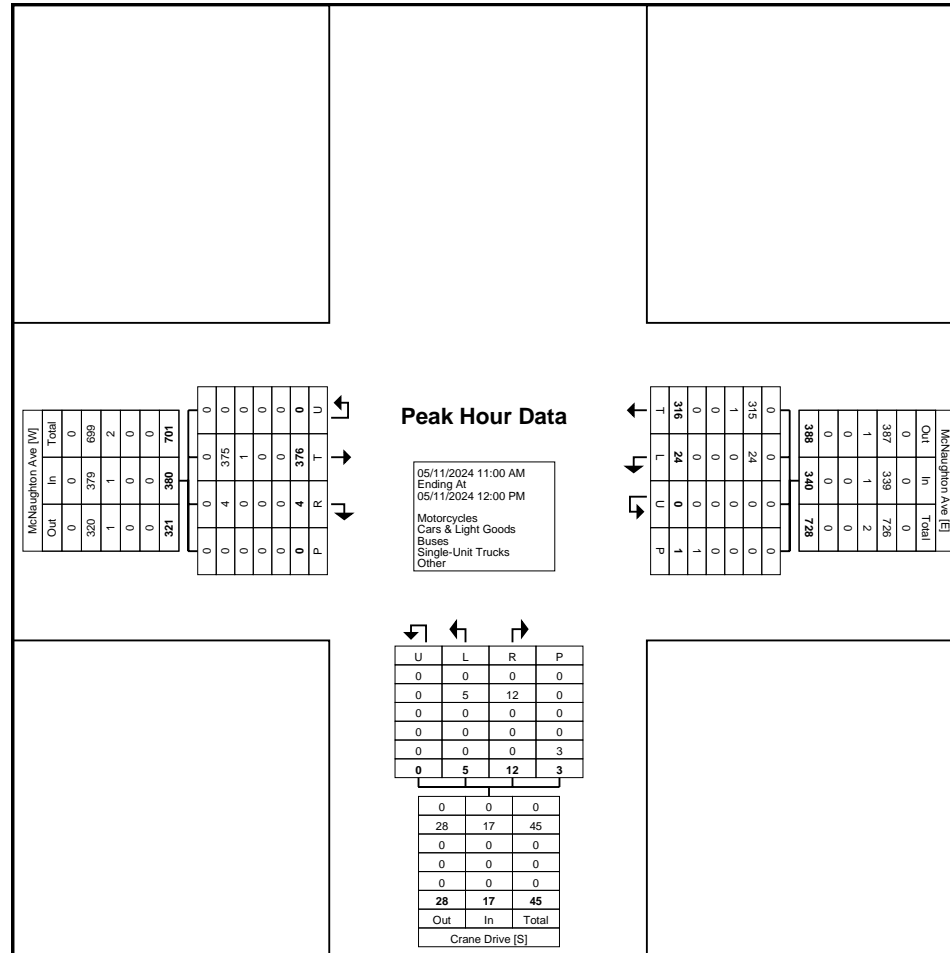
Start Time	McNaughton Ave Eastbound					McNaughton Ave Westbound					Crane Drive Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
11:00 AM	93	1	0	0	94	2	81	0	0	83	1	2	0	0	3	180
11:15 AM	81	1	0	0	82	5	87	0	0	92	2	3	0	0	5	179
11:30 AM	108	1	0	0	109	8	79	0	1	87	1	2	0	3	3	199
11:45 AM	94	1	0	0	95	9	69	0	0	78	1	5	0	0	6	179
Total	376	4	0	0	380	24	316	0	1	340	5	12	0	3	17	737
Approach %	98.9	1.1	0.0	-	-	7.1	92.9	0.0	-	-	29.4	70.6	0.0	-	-	-
Total %	51.0	0.5	0.0	-	51.6	3.3	42.9	0.0	-	46.1	0.7	1.6	0.0	-	2.3	-
PHF	0.870	1.000	0.000	-	0.872	0.667	0.908	0.000	-	0.924	0.625	0.600	0.000	-	0.708	0.926
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	375	4	0	-	379	24	315	0	-	339	5	12	0	-	17	735
% Cars & Light Goods	99.7	100.0	-	-	99.7	100.0	99.7	-	-	99.7	100.0	100.0	-	-	100.0	99.7
Buses	1	0	0	-	1	0	1	0	-	1	0	0	0	-	0	2
% Buses	0.3	0.0	-	-	0.3	0.0	0.3	-	-	0.3	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	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	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	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	-	-	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	1	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	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: Crane Drive & McNaughton Ave -
Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 5



Turning Movement Peak Hour Data Plot (11:00 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & Lark Street
Courthouse Road
Site Code: 240216
Start Date: 05/09/2024
Page No: 1

Turning Movement Data

Start Time	Lark Street Eastbound						Lark Street Courthouse Lane Westbound						Baldoon Road Northbound						Baldoon 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	4	4	0	0	0	8	0	0	3	0	3	3	0	5	3	0	0	8	3	3	1	0	2	7	26
7:15 AM	3	4	2	0	0	9	3	1	3	0	1	7	1	7	2	0	0	10	11	7	0	0	2	18	44
7:30 AM	2	9	2	0	0	13	0	2	3	0	0	5	2	12	4	0	0	18	10	9	1	0	2	20	56
7:45 AM	7	9	6	0	0	22	2	1	4	0	1	7	1	13	13	0	1	27	22	11	3	0	1	36	92
Hourly Total	16	26	10	0	0	52	5	4	13	0	5	22	4	37	22	0	1	63	46	30	5	0	7	81	218
8:00 AM	1	8	0	0	0	9	1	4	3	0	2	8	2	10	5	0	0	17	27	6	3	0	2	36	70
8:15 AM	4	4	2	0	0	10	0	2	7	0	1	9	1	10	8	0	0	19	35	10	4	0	2	49	87
8:30 AM	3	12	0	0	0	15	4	2	12	0	0	18	1	14	7	0	0	22	25	6	1	0	2	32	87
8:45 AM	5	12	1	0	0	18	1	1	9	0	3	11	0	21	3	0	1	24	25	13	5	0	0	43	96
Hourly Total	13	36	3	0	0	52	6	9	31	0	6	46	4	55	23	0	1	82	112	35	13	0	6	160	340
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	2	5	1	0	0	8	4	7	26	0	0	37	3	34	6	0	0	43	9	13	0	1	1	23	111
12:15 PM	4	3	1	0	0	8	4	9	20	0	0	33	3	25	2	0	1	30	9	18	4	0	2	31	102
12:30 PM	4	6	3	0	0	13	2	5	11	0	1	18	0	29	6	0	0	35	14	14	3	0	3	31	97
12:45 PM	1	3	2	0	0	6	2	2	21	0	2	25	1	29	11	0	0	41	26	12	1	0	0	39	111
Hourly Total	11	17	7	0	0	35	12	23	78	0	3	113	7	117	25	0	1	149	58	57	8	1	6	124	421
1:00 PM	3	6	1	0	0	10	4	6	21	0	0	31	5	23	1	0	2	29	19	10	3	0	1	32	102
1:15 PM	4	7	2	0	0	13	2	3	11	0	0	16	3	27	3	0	0	33	19	13	4	0	0	36	98
1:30 PM	6	4	4	0	0	14	2	5	15	0	0	22	3	30	1	0	0	34	15	16	4	0	0	35	105
1:45 PM	3	12	1	0	0	16	6	8	20	0	1	34	1	28	2	0	0	31	13	20	2	0	0	35	116
Hourly Total	16	29	8	0	0	53	14	22	67	0	1	103	12	108	7	0	2	127	66	59	13	0	1	138	421
2:00 PM	3	7	1	0	0	11	0	9	9	0	4	18	2	23	4	0	0	29	12	17	3	0	0	32	90
2:15 PM	5	3	3	0	1	11	5	5	18	0	1	28	4	20	4	0	1	28	7	18	4	0	0	29	96
2:30 PM	3	5	5	0	0	13	3	2	14	0	3	19	5	16	4	0	0	25	14	19	6	0	0	39	96
2:45 PM	7	2	2	0	0	11	2	5	16	0	2	23	3	21	5	0	0	29	7	18	4	0	1	29	92
Hourly Total	18	17	11	0	1	46	10	21	57	0	10	88	14	80	17	0	1	111	40	72	17	0	1	129	374
3:00 PM	6	3	1	0	0	10	2	8	17	0	4	27	2	31	3	0	0	36	11	17	2	0	1	30	103
3:15 PM	7	2	1	0	0	10	8	7	23	1	3	39	1	28	5	0	0	34	12	17	4	0	1	33	116
3:30 PM	1	7	0	0	0	8	4	9	15	0	4	28	1	24	7	0	0	32	17	19	6	0	0	42	110
3:45 PM	6	3	2	0	0	11	3	4	17	0	2	24	6	34	2	0	0	42	14	24	8	0	2	46	123
Hourly Total	20	15	4	0	0	39	17	28	72	1	13	118	10	117	17	0	0	144	54	77	20	0	4	151	452
4:00 PM	4	2	2	0	0	8	8	11	37	0	2	56	7	27	6	0	0	40	14	6	3	0	2	23	127
4:15 PM	3	7	2	0	0	12	8	11	26	0	2	45	7	32	6	0	0	45	10	16	4	0	1	30	132
4:30 PM	3	9	1	0	0	13	7	9	47	0	1	63	1	24	7	0	0	32	17	17	6	0	1	40	148
4:45 PM	8	7	1	0	0	16	9	10	21	0	2	40	4	31	2	0	0	37	16	15	2	0	0	33	126

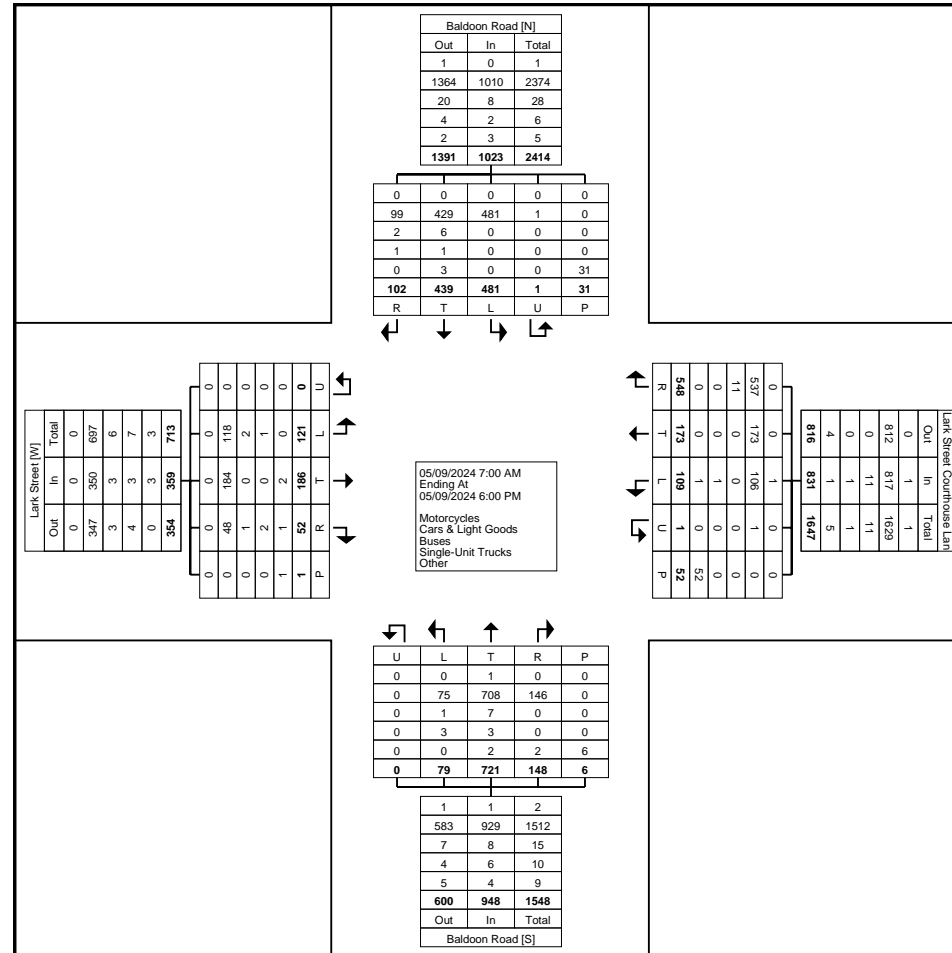
Hourly Total	18	25	6	0	0	49	32	41	131	0	7	204	19	114	21	0	0	154	57	54	15	0	4	126	533
5:00 PM	3	4	1	0	0	8	2	10	28	0	0	40	2	29	4	0	0	35	12	20	4	0	1	36	119
5:15 PM	1	6	2	0	0	9	6	4	24	0	4	34	5	17	7	0	0	29	12	12	3	0	0	27	99
5:30 PM	1	7	0	0	0	8	2	6	22	0	2	30	1	19	5	0	0	25	13	14	3	0	0	30	93
5:45 PM	4	4	0	0	0	8	3	5	25	0	1	33	1	28	0	0	0	29	11	9	1	0	1	21	91
Hourly Total	9	21	3	0	0	33	13	25	99	0	7	137	9	93	16	0	0	118	48	55	11	0	2	114	402
Grand Total	121	186	52	0	1	359	109	173	548	1	52	831	79	721	148	0	6	948	481	439	102	1	31	1023	3161
Approach %	33.7	51.8	14.5	0.0	-	-	13.1	20.8	65.9	0.1	-	-	8.3	76.1	15.6	0.0	-	-	47.0	42.9	10.0	0.1	-	-	-
Total %	3.8	5.9	1.6	0.0	-	11.4	3.4	5.5	17.3	0.0	-	26.3	2.5	22.8	4.7	0.0	-	30.0	15.2	13.9	3.2	0.0	-	32.4	-
Motorcycles	0	0	0	0	-	0	1	0	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	2
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.9	0.0	0.0	0.0	-	0.1	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	0.0	-	0.0	0.1
Cars & Light Goods	118	184	48	0	-	350	106	173	537	1	-	817	75	708	146	0	-	929	481	429	99	1	-	1010	3106
% Cars & Light Goods	97.5	98.9	92.3	-	-	97.5	97.2	100.0	98.0	100.0	-	98.3	94.9	98.2	98.6	-	-	98.0	100.0	97.7	97.1	100.0	-	98.7	98.3
Buses	2	0	1	0	-	3	0	0	11	0	-	11	1	7	0	0	-	8	0	6	2	0	-	8	30
% Buses	1.7	0.0	1.9	-	-	0.8	0.0	0.0	2.0	0.0	-	1.3	1.3	1.0	0.0	-	-	0.8	0.0	1.4	2.0	0.0	-	0.8	0.9
Single-Unit Trucks	1	0	2	0	-	3	1	0	0	0	-	1	3	3	0	0	-	6	0	1	1	0	-	2	12
% Single-Unit Trucks	0.8	0.0	3.8	-	-	0.8	0.9	0.0	0.0	0.0	-	0.1	3.8	0.4	0.0	-	-	0.6	0.0	0.2	1.0	0.0	-	0.2	0.4
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.0	1.9	-	-	0.3	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	0.1
Bicycles on Road	0	2	0	0	-	2	1	0	0	0	-	1	0	1	2	0	-	3	0	3	0	0	-	3	9
% Bicycles on Road	0.0	1.1	0.0	-	-	0.6	0.9	0.0	0.0	0.0	-	0.1	0.0	0.1	1.4	-	-	0.3	0.0	0.7	0.0	0.0	-	0.3	0.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	7.7	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	48	-	-	-	-	-	6	-	-	-	-	-	31	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	92.3	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Baldoon Road & Lark Street
Courthouse Road
Site Code: 240216
Start Date: 05/09/2024
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & Lark Street
Courthouse Road
Site Code: 240216
Start Date: 05/09/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

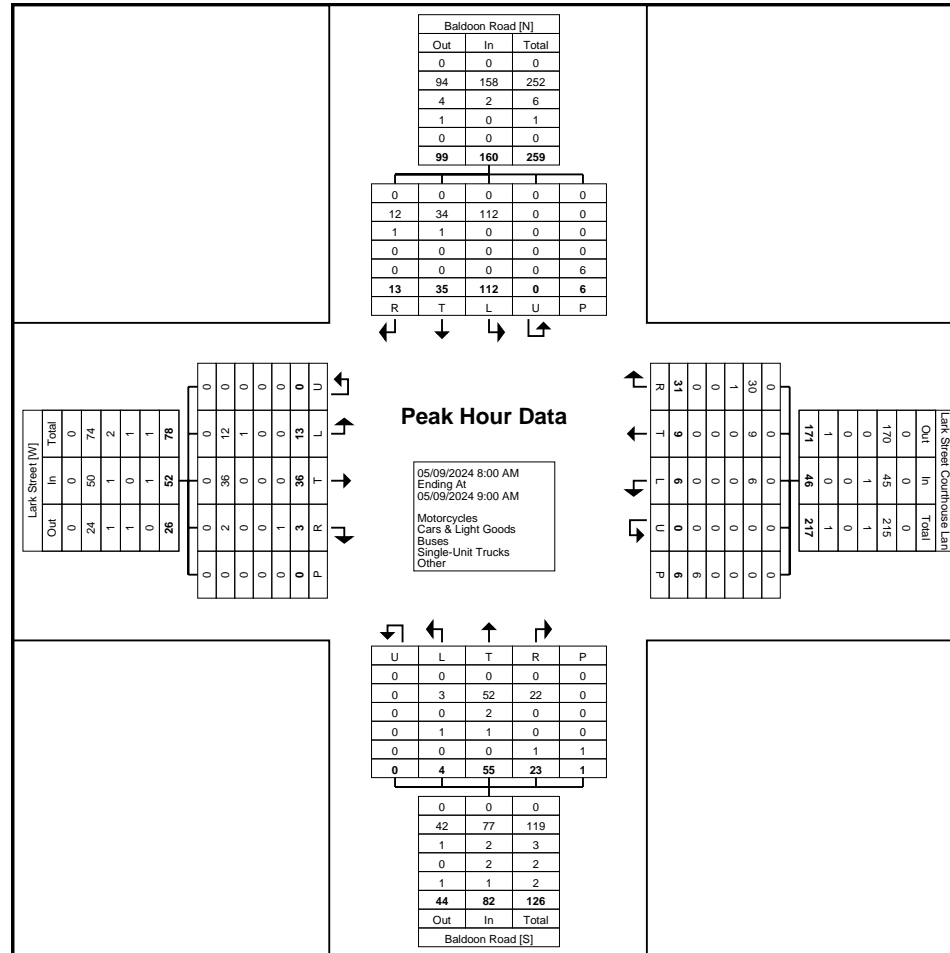
Start Time	Lark Street Eastbound						Lark Street Courthouse Lane Westbound						Baldoon Road Northbound						Baldoon Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	1	8	0	0	0	9	1	4	3	0	2	8	2	10	5	0	0	17	27	6	3	0	2	36	70
8:15 AM	4	4	2	0	0	10	0	2	7	0	1	9	1	10	8	0	0	19	35	10	4	0	2	49	87
8:30 AM	3	12	0	0	0	15	4	2	12	0	0	18	1	14	7	0	0	22	25	6	1	0	2	32	87
8:45 AM	5	12	1	0	0	18	1	1	9	0	3	11	0	21	3	0	1	24	25	13	5	0	0	43	96
Total	13	36	3	0	0	52	6	9	31	0	6	46	4	55	23	0	1	82	112	35	13	0	6	160	340
Approach %	25.0	69.2	5.8	0.0	-	-	13.0	19.6	67.4	0.0	-	-	4.9	67.1	28.0	0.0	-	-	70.0	21.9	8.1	0.0	-	-	-
Total %	3.8	10.6	0.9	0.0	-	15.3	1.8	2.6	9.1	0.0	-	13.5	1.2	16.2	6.8	0.0	-	24.1	32.9	10.3	3.8	0.0	-	47.1	-
PHF	0.650	0.750	0.375	0.000	-	0.722	0.375	0.563	0.646	0.000	-	0.639	0.500	0.655	0.719	0.000	-	0.854	0.800	0.673	0.650	0.000	-	0.816	0.885
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	12	36	2	0	-	50	6	9	30	0	-	45	3	52	22	0	-	77	112	34	12	0	-	158	330
% Cars & Light Goods	92.3	100.0	66.7	-	-	96.2	100.0	100.0	96.8	-	-	97.8	75.0	94.5	95.7	-	-	93.9	100.0	97.1	92.3	-	-	98.8	97.1
Buses	1	0	0	0	-	1	0	0	1	0	-	1	0	2	0	0	-	2	0	1	1	0	-	2	6
% Buses	7.7	0.0	0.0	-	-	1.9	0.0	0.0	3.2	-	-	2.2	0.0	3.6	0.0	-	-	2.4	0.0	2.9	7.7	-	-	1.3	1.8
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	1	1	0	0	-	2	0	0	0	0	-	0	2
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	25.0	1.8	0.0	-	-	2.4	0.0	0.0	0.0	-	-	0.0	0.6
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	33.3	-	-	1.9	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	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	0.0	4.3	-	-	1.2	0.0	0.0	0.0	-	-	0.0	0.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	1	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & Lark Street
Courthouse Road
Site Code: 240216
Start Date: 05/09/2024
Page No: 5



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: Baldoon Road & Lark Street
Courthouse Road
Site Code: 240216
Start Date: 05/09/2024
Page No: 6

Turning Movement Peak Hour Data (4:00 PM)

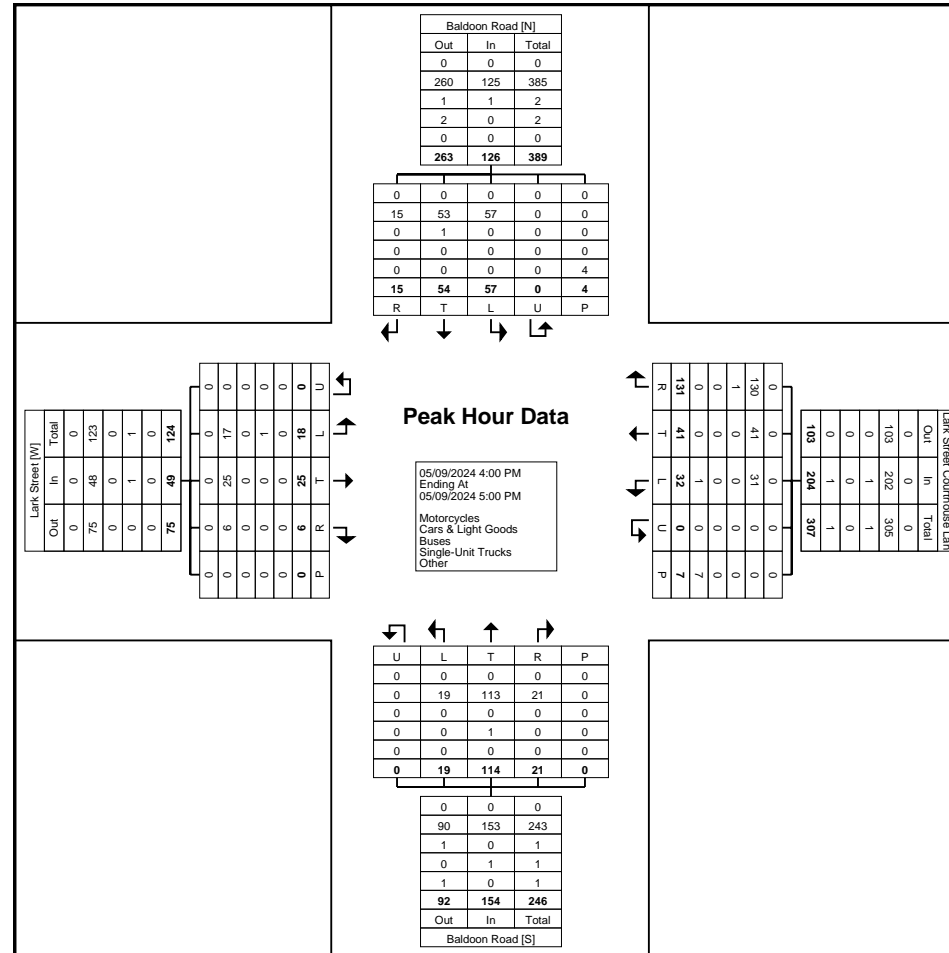
Start Time	Lark Street Eastbound						Lark Street Courthouse Lane Westbound						Baldoon Road Northbound						Baldoon Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	4	2	2	0	0	8	8	11	37	0	2	56	7	27	6	0	0	40	14	6	3	0	2	23	127
4:15 PM	3	7	2	0	0	12	8	11	26	0	2	45	7	32	6	0	0	45	10	16	4	0	1	30	132
4:30 PM	3	9	1	0	0	13	7	9	47	0	1	63	1	24	7	0	0	32	17	17	6	0	1	40	148
4:45 PM	8	7	1	0	0	16	9	10	21	0	2	40	4	31	2	0	0	37	16	15	2	0	0	33	126
Total	18	25	6	0	0	49	32	41	131	0	7	204	19	114	21	0	0	154	57	54	15	0	4	126	533
Approach %	36.7	51.0	12.2	0.0	-	-	15.7	20.1	64.2	0.0	-	-	12.3	74.0	13.6	0.0	-	-	45.2	42.9	11.9	0.0	-	-	-
Total %	3.4	4.7	1.1	0.0	-	9.2	6.0	7.7	24.6	0.0	-	38.3	3.6	21.4	3.9	0.0	-	28.9	10.7	10.1	2.8	0.0	-	23.6	-
PHF	0.563	0.694	0.750	0.000	-	0.766	0.889	0.932	0.697	0.000	-	0.810	0.679	0.891	0.750	0.000	-	0.856	0.838	0.794	0.625	0.000	-	0.788	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	0.0	-	-	0.0	0.0
Cars & Light Goods	17	25	6	0	-	48	31	41	130	0	-	202	19	113	21	0	-	153	57	53	15	0	-	125	528
% Cars & Light Goods	94.4	100.0	100.0	-	-	98.0	96.9	100.0	99.2	-	-	99.0	100.0	99.1	100.0	-	-	99.4	100.0	98.1	100.0	-	-	99.2	99.1
Buses	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	2
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.8	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	1.9	0.0	-	-	0.8	0.4
Single-Unit Trucks	1	0	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	2
% Single-Unit Trucks	5.6	0.0	0.0	-	-	2.0	0.0	0.0	0.0	-	-	0.0	0.0	0.9	0.0	-	-	0.6	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	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	3.1	0.0	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Baldoon Road & Lark Street
Courthouse Road
Site Code: 240216
Start Date: 05/09/2024
Page No: 7



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@ptsI.com

Count Name: Baldoon Road & Lark Street
Courthouse Road - Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 1

Turning Movement Data

Start Time	Lark Street Eastbound						Lark Street Courthouse Lane Westbound						Baldoon Road Northbound						Baldoon 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	
11:00 AM	2	4	0	0	0	6	0	5	15	0	0	20	0	15	3	0	0	18	12	21	3	0	1	36	80
11:15 AM	6	4	2	0	0	12	2	5	18	0	0	25	1	20	6	0	0	27	7	14	1	0	0	22	86
11:30 AM	4	3	2	0	0	9	7	7	11	0	3	25	2	17	4	0	0	23	11	16	7	0	0	34	91
11:45 AM	4	3	1	0	0	8	1	10	25	0	3	36	2	17	1	0	0	20	6	11	4	0	2	21	85
Hourly Total	16	14	5	0	0	35	10	27	69	0	6	106	5	69	14	0	0	88	36	62	15	0	3	113	342
12:00 PM	4	3	0	0	0	7	6	4	18	0	2	28	0	24	3	0	0	27	11	13	4	0	2	28	90
12:15 PM	2	8	0	0	0	10	5	2	11	0	0	18	0	14	3	0	0	17	6	11	5	0	0	22	67
12:30 PM	4	8	1	0	0	13	5	3	14	0	1	22	2	17	6	0	0	25	5	14	4	0	0	23	83
12:45 PM	5	4	4	0	0	13	2	5	7	0	1	14	2	23	4	0	0	29	7	14	1	0	0	22	78
Hourly Total	15	23	5	0	0	43	18	14	50	0	4	82	4	78	16	0	0	98	29	52	14	0	2	95	318
1:00 PM	2	2	1	0	0	5	2	4	16	0	0	22	1	25	3	0	0	29	12	16	0	0	0	28	84
1:15 PM	2	6	1	0	0	9	3	7	17	0	1	27	2	23	1	0	0	26	14	23	5	0	0	42	104
1:30 PM	4	6	1	0	0	11	1	5	16	0	0	22	3	23	3	0	0	29	7	18	4	0	1	29	91
1:45 PM	3	6	0	0	0	9	2	3	12	0	0	17	2	20	6	0	0	28	9	19	5	0	0	33	87
Hourly Total	11	20	3	0	0	34	8	19	61	0	1	88	8	91	13	0	0	112	42	76	14	0	1	132	366
2:00 PM	3	10	1	0	0	14	2	4	16	0	0	22	1	20	0	0	0	21	13	16	2	0	3	31	88
2:15 PM	1	5	3	0	0	9	4	4	12	0	0	20	1	12	3	0	0	16	6	10	1	0	2	17	62
2:30 PM	2	2	1	0	0	5	4	5	11	0	1	20	1	28	4	0	0	33	10	16	1	0	2	27	85
2:45 PM	1	3	0	0	0	4	1	2	10	0	3	13	1	15	5	0	0	21	11	11	1	0	1	23	61
Hourly Total	7	20	5	0	0	32	11	15	49	0	4	75	4	75	12	0	0	91	40	53	5	0	8	98	296
Grand Total	49	77	18	0	0	144	47	75	229	0	15	351	21	313	55	0	0	389	147	243	48	0	14	438	1322
Approach %	34.0	53.5	12.5	0.0	-	-	13.4	21.4	65.2	0.0	-	-	5.4	80.5	14.1	0.0	-	-	33.6	55.5	11.0	0.0	-	-	-
Total %	3.7	5.8	1.4	0.0	-	10.9	3.6	5.7	17.3	0.0	-	26.6	1.6	23.7	4.2	0.0	-	29.4	11.1	18.4	3.6	0.0	-	33.1	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% 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	0.4	0.0	-	-	0.2	0.1
Cars & Light Goods	49	75	18	0	-	142	46	75	224	0	-	345	21	312	54	0	-	387	147	239	48	0	-	434	1308
% Cars & Light Goods	100.0	97.4	100.0	-	-	98.6	97.9	100.0	97.8	-	-	98.3	100.0	99.7	98.2	-	-	99.5	100.0	98.4	100.0	-	-	99.1	98.9
Buses	0	0	0	0	-	0	0	0	5	0	-	5	0	1	0	0	-	1	0	0	0	0	-	0	6
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	2.2	-	-	1.4	0.0	0.3	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.5
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	2
% 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	0.8	0.0	-	-	0.5	0.2
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	2	0	0	-	2	1	0	0	0	-	1	0	0	1	0	-	1	0	1	0	0	-	1	5
% Bicycles on Road	0.0	2.6	0.0	-	-	1.4	2.1	0.0	0.0	-	-	0.3	0.0	0.0	1.8	-	-	0.3	0.0	0.4	0.0	-	-	0.2	0.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	20.0	-	-	-	-	-	-	-	-	-	-	-	7.1	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	12	-	-	-	-	-	0	-	-	-	-	-	13	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	80.0	-	-	-	-	-	-	-	-	-	-	-	92.9	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & Lark Street
Courthouse Road - Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 4

Turning Movement Peak Hour Data (1:15 PM)

Start Time	Lark Street Eastbound						Lark Street Courthouse Lane Westbound						Baldoon Road Northbound						Baldoon 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	
1:15 PM	2	6	1	0	0	9	3	7	17	0	1	27	2	23	1	0	0	26	14	23	5	0	0	42	104
1:30 PM	4	6	1	0	0	11	1	5	16	0	0	22	3	23	3	0	0	29	7	18	4	0	1	29	91
1:45 PM	3	6	0	0	0	9	2	3	12	0	0	17	2	20	6	0	0	28	9	19	5	0	0	33	87
2:00 PM	3	10	1	0	0	14	2	4	16	0	0	22	1	20	0	0	0	21	13	16	2	0	3	31	88
Total	12	28	3	0	0	43	8	19	61	0	1	88	8	86	10	0	0	104	43	76	16	0	4	135	370
Approach %	27.9	65.1	7.0	0.0	-	-	9.1	21.6	69.3	0.0	-	-	7.7	82.7	9.6	0.0	-	-	31.9	56.3	11.9	0.0	-	-	-
Total %	3.2	7.6	0.8	0.0	-	11.6	2.2	5.1	16.5	0.0	-	23.8	2.2	23.2	2.7	0.0	-	28.1	11.6	20.5	4.3	0.0	-	36.5	-
PHF	0.750	0.700	0.750	0.000	-	0.768	0.667	0.679	0.897	0.000	-	0.815	0.667	0.935	0.417	0.000	-	0.897	0.768	0.826	0.800	0.000	-	0.804	0.889
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	12	28	3	0	-	43	8	19	60	0	-	87	8	86	9	0	-	103	43	73	16	0	-	132	365
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	100.0	100.0	98.4	-	-	98.9	100.0	100.0	90.0	-	-	99.0	100.0	96.1	100.0	-	-	97.8	98.6
Buses	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	1.6	-	-	1.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	2
% 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	2.6	0.0	-	-	1.5	0.5
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	1	0	-	1	0	1	0	0	-	1	2
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	10.0	-	-	1.0	0.0	1.3	0.0	-	-	0.7	0.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 1

Turning Movement Data

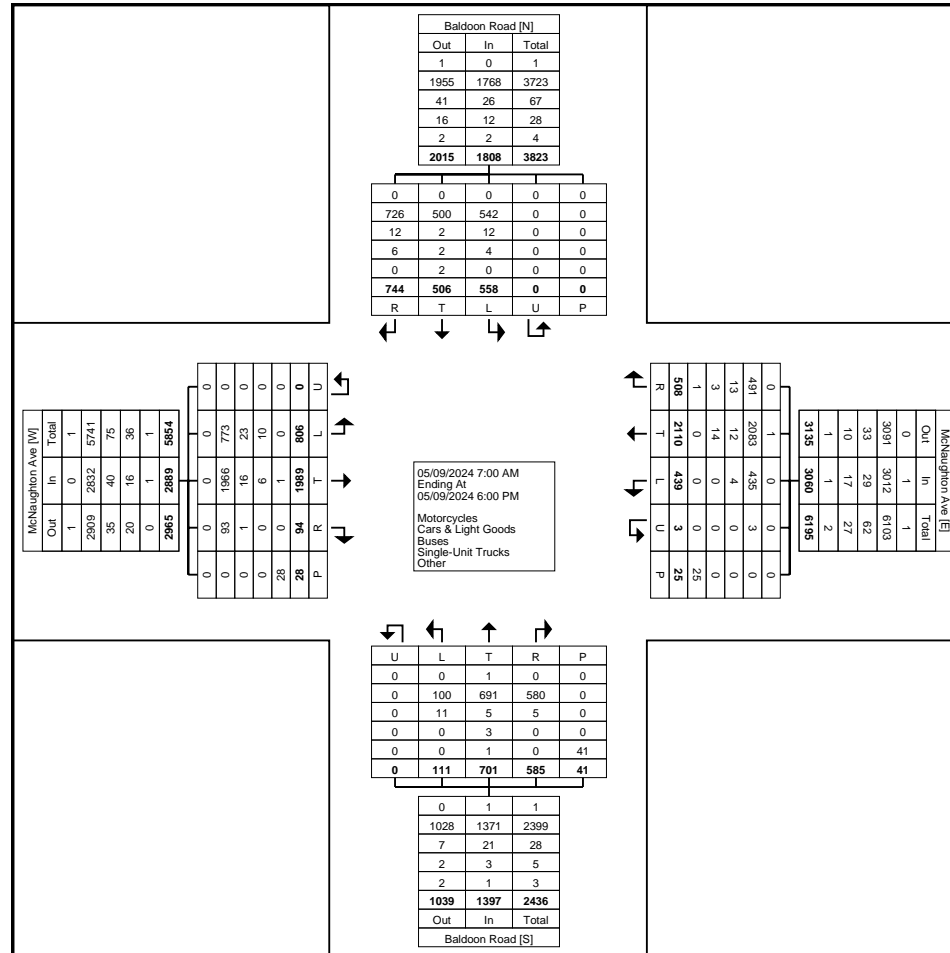
Start Time	McNaughton Ave Eastbound						McNaughton Ave Westbound						Baldoon Road Northbound						Baldoon Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	7	24	1	0	0	32	4	39	8	0	1	51	1	5	6	0	1	12	11	4	11	0	0	26	121
7:15 AM	16	23	3	0	0	42	5	38	5	0	0	48	1	6	8	0	0	15	17	8	16	0	0	41	146
7:30 AM	11	46	2	0	1	59	6	46	6	0	1	58	1	9	9	0	2	19	20	10	17	0	0	47	183
7:45 AM	14	57	5	0	0	76	13	73	15	0	2	101	5	12	7	0	1	24	28	10	19	0	0	57	258
Hourly Total	48	150	11	0	1	209	28	196	34	0	4	258	8	32	30	0	4	70	76	32	63	0	0	171	708
8:00 AM	15	54	6	0	3	75	10	52	16	0	1	78	1	8	9	0	2	18	23	18	18	0	0	59	230
8:15 AM	21	44	6	0	1	71	23	53	13	0	0	89	1	8	11	0	1	20	24	22	31	0	0	77	257
8:30 AM	15	42	3	0	2	60	11	52	13	0	1	76	4	16	7	0	0	27	20	16	17	0	0	53	216
8:45 AM	23	83	2	0	0	108	16	67	15	0	0	98	8	16	16	0	2	40	20	19	36	0	0	75	321
Hourly Total	74	223	17	0	6	314	60	224	57	0	2	341	14	48	43	0	5	105	87	75	102	0	0	264	1024
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	36	64	3	0	1	103	5	63	14	0	0	82	4	30	25	0	4	59	8	14	28	0	0	50	294
12:15 PM	35	61	3	0	0	99	14	66	14	0	0	94	2	21	23	0	0	46	16	14	20	0	0	50	289
12:30 PM	26	63	4	0	0	93	14	52	12	0	0	78	3	21	26	0	2	50	13	15	23	0	0	51	272
12:45 PM	24	61	3	0	0	88	11	88	25	0	0	124	5	22	22	0	1	49	17	19	33	0	0	69	330
Hourly Total	121	249	13	0	1	383	44	269	65	0	0	378	14	94	96	0	7	204	54	62	104	0	0	220	1185
1:00 PM	22	67	2	0	1	91	16	68	7	0	0	91	4	24	19	0	0	47	18	14	30	0	0	62	291
1:15 PM	35	46	2	0	0	83	17	59	13	0	0	89	1	28	15	0	0	44	16	15	19	0	0	50	266
1:30 PM	21	59	3	0	0	83	18	66	16	0	1	100	8	26	20	0	3	54	21	15	22	0	0	58	295
1:45 PM	20	68	1	0	1	89	12	45	16	0	0	73	1	29	21	0	1	51	18	22	18	0	0	58	271
Hourly Total	98	240	8	0	2	346	63	238	52	0	1	353	14	107	75	0	4	196	73	66	89	0	0	228	1123
2:00 PM	33	46	2	0	1	81	16	51	16	0	0	83	0	17	16	0	1	33	12	13	29	0	0	54	251
2:15 PM	21	51	2	0	0	74	16	68	14	0	3	98	6	22	18	0	1	46	21	18	24	0	0	63	281
2:30 PM	30	72	3	0	1	105	16	62	24	0	1	102	3	12	19	0	0	34	19	16	18	0	0	53	294
2:45 PM	23	63	4	0	1	90	15	71	17	0	0	103	2	16	21	0	2	39	21	13	15	0	0	49	281
Hourly Total	107	232	11	0	3	350	63	252	71	0	4	386	11	67	74	0	4	152	73	60	86	0	0	219	1107
3:00 PM	29	70	5	0	0	104	12	65	22	0	3	99	2	28	25	0	1	55	12	19	30	0	0	61	319
3:15 PM	35	90	4	0	2	129	14	70	16	0	2	100	3	25	34	0	1	62	12	15	26	0	0	53	344
3:30 PM	37	74	3	0	4	114	23	82	20	0	2	125	2	21	17	0	0	40	26	22	29	0	0	77	356
3:45 PM	23	75	2	0	1	100	23	86	17	0	0	126	3	23	27	0	2	53	20	24	35	0	0	79	358
Hourly Total	124	309	14	0	7	447	72	303	75	0	7	450	10	97	103	0	4	210	70	80	120	0	0	270	1377
4:00 PM	32	63	1	0	1	96	9	101	13	0	3	123	9	34	23	0	1	66	9	12	38	0	0	59	344
4:15 PM	30	70	4	0	0	104	10	85	17	0	3	112	7	35	18	0	1	60	13	18	28	0	0	59	335
4:30 PM	33	78	1	0	4	112	16	85	29	0	0	130	2	48	22	0	3	72	29	28	28	0	0	85	399
4:45 PM	29	80	6	0	0	115	13	80	16	0	0	109	7	33	24	0	0	64	20	17	21	0	0	58	346



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

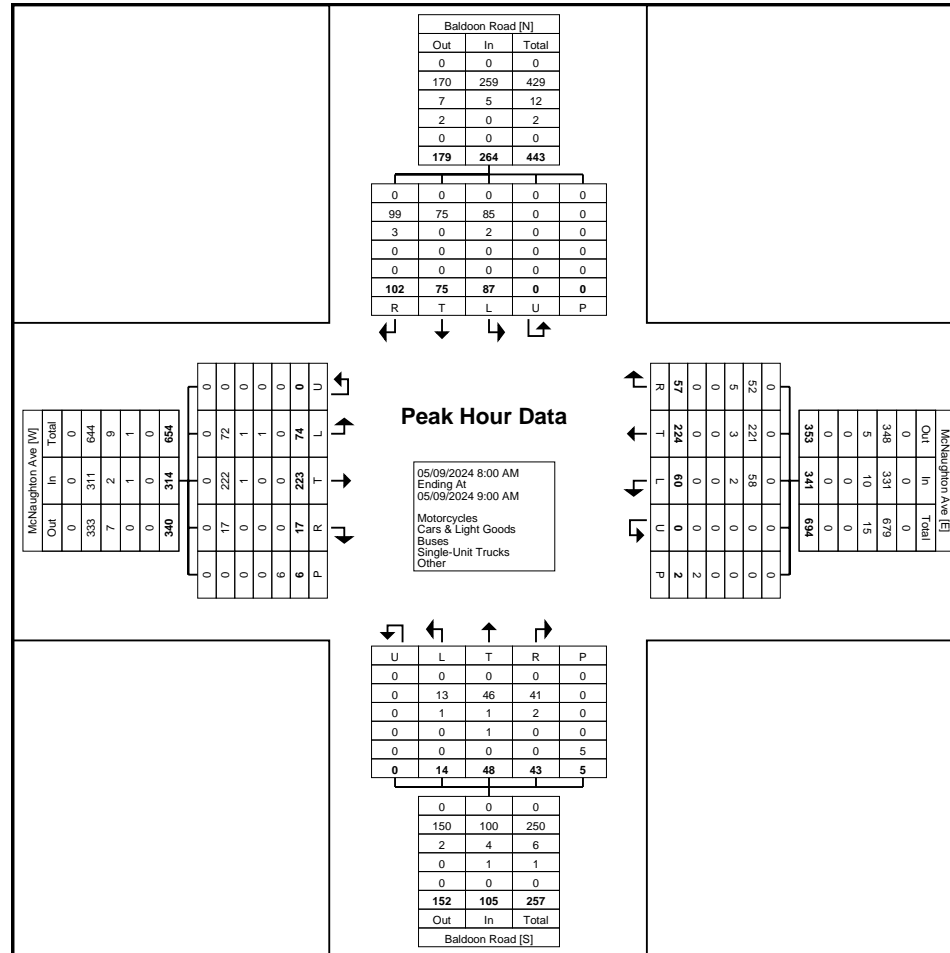
Start Time	McNaughton Ave Eastbound						McNaughton Ave Westbound						Baldoon Road Northbound						Baldoon Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	15	54	6	0	3	75	10	52	16	0	1	78	1	8	9	0	2	18	23	18	18	0	0	59	230
8:15 AM	21	44	6	0	1	71	23	53	13	0	0	89	1	8	11	0	1	20	24	22	31	0	0	77	257
8:30 AM	15	42	3	0	2	60	11	52	13	0	1	76	4	16	7	0	0	27	20	16	17	0	0	53	216
8:45 AM	23	83	2	0	0	108	16	67	15	0	0	98	8	16	16	0	2	40	20	19	36	0	0	75	321
Total	74	223	17	0	6	314	60	224	57	0	2	341	14	48	43	0	5	105	87	75	102	0	0	264	1024
Approach %	23.6	71.0	5.4	0.0	-	-	17.6	65.7	16.7	0.0	-	-	13.3	45.7	41.0	0.0	-	-	33.0	28.4	38.6	0.0	-	-	-
Total %	7.2	21.8	1.7	0.0	-	30.7	5.9	21.9	5.6	0.0	-	33.3	1.4	4.7	4.2	0.0	-	10.3	8.5	7.3	10.0	0.0	-	25.8	-
PHF	0.804	0.672	0.708	0.000	-	0.727	0.652	0.836	0.891	0.000	-	0.870	0.438	0.750	0.672	0.000	-	0.656	0.906	0.852	0.708	0.000	-	0.857	0.798
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	72	222	17	0	-	311	58	221	52	0	-	331	13	46	41	0	-	100	85	75	99	0	-	259	1001
% Cars & Light Goods	97.3	99.6	100.0	-	-	99.0	96.7	98.7	91.2	-	-	97.1	92.9	95.8	95.3	-	-	95.2	97.7	100.0	97.1	-	-	98.1	97.8
Buses	1	1	0	0	-	2	2	3	5	0	-	10	1	1	2	0	-	4	2	0	3	0	-	5	21
% Buses	1.4	0.4	0.0	-	-	0.6	3.3	1.3	8.8	-	-	2.9	7.1	2.1	4.7	-	-	3.8	2.3	0.0	2.9	-	-	1.9	2.1
Single-Unit Trucks	1	0	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	2
% Single-Unit Trucks	1.4	0.0	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0	2.1	0.0	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.2
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	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	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	6	-	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Baldoon Road & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 5



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@ptsI.com

Count Name: Baldoon Road & McNaughton Ave
Site Code: 240216
Start Date: 05/09/2024
Page No: 6

Turning Movement Peak Hour Data (4:15 PM)

Start Time	McNaughton Ave Eastbound						McNaughton Ave Westbound						Baldoon Road Northbound						Baldoon 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	
4:15 PM	30	70	4	0	0	104	10	85	17	0	3	112	7	35	18	0	1	60	13	18	28	0	0	59	335
4:30 PM	33	78	1	0	4	112	16	85	29	0	0	130	2	48	22	0	3	72	29	28	28	0	0	85	399
4:45 PM	29	80	6	0	0	115	13	80	16	0	0	109	7	33	24	0	0	64	20	17	21	0	0	58	346
5:00 PM	38	88	2	0	3	128	25	76	18	1	0	120	5	28	31	0	5	64	13	18	24	0	0	55	367
Total	130	316	13	0	7	459	64	326	80	1	3	471	21	144	95	0	9	260	75	81	101	0	0	257	1447
Approach %	28.3	68.8	2.8	0.0	-	-	13.6	69.2	17.0	0.2	-	-	8.1	55.4	36.5	0.0	-	-	29.2	31.5	39.3	0.0	-	-	-
Total %	9.0	21.8	0.9	0.0	-	31.7	4.4	22.5	5.5	0.1	-	32.6	1.5	10.0	6.6	0.0	-	18.0	5.2	5.6	7.0	0.0	-	17.8	-
PHF	0.855	0.898	0.542	0.000	-	0.896	0.640	0.959	0.690	0.250	-	0.906	0.750	0.750	0.766	0.000	-	0.903	0.647	0.723	0.902	0.000	-	0.756	0.907
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	0.0	0.7	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	128	314	13	0	-	455	64	325	80	1	-	470	19	141	95	0	-	255	73	80	100	0	-	253	1433
% Cars & Light Goods	98.5	99.4	100.0	-	-	99.1	100.0	99.7	100.0	100.0	-	99.8	90.5	97.9	100.0	-	-	98.1	97.3	98.8	99.0	-	-	98.4	99.0
Buses	2	0	0	0	-	2	0	0	0	0	-	0	2	0	0	0	-	2	1	0	1	0	-	2	6
% Buses	1.5	0.0	0.0	-	-	0.4	0.0	0.0	0.0	0.0	-	0.0	9.5	0.0	0.0	-	-	0.8	1.3	0.0	1.0	-	-	0.8	0.4
Single-Unit Trucks	0	2	0	0	-	2	0	1	0	0	-	1	0	2	0	0	-	2	1	1	0	0	-	2	7
% Single-Unit Trucks	0.0	0.6	0.0	-	-	0.4	0.0	0.3	0.0	0.0	-	0.2	0.0	1.4	0.0	-	-	0.8	1.3	1.2	0.0	-	-	0.8	0.5
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	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	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	3	-	-	-	-	-	9	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Baldoon Road & McNaughton Ave
- Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 1

Turning Movement Data

Start Time	McNaughton Ave Eastbound						McNaughton Ave Westbound						Baldoon Road Northbound						Baldoon 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	
11:00 AM	31	68	2	0	0	101	13	59	9	0	0	81	1	20	13	0	1	34	8	19	27	0	0	54	270
11:15 AM	33	57	2	0	0	92	11	62	11	0	3	84	4	18	22	0	0	44	15	10	21	0	0	46	266
11:30 AM	34	72	0	0	0	106	15	60	7	0	0	82	0	23	8	0	0	31	16	15	22	0	0	53	272
11:45 AM	31	66	2	0	0	99	5	56	10	0	0	71	1	20	28	0	0	49	17	19	21	0	0	57	276
Hourly Total	129	263	6	0	0	398	44	237	37	0	3	318	6	81	71	0	1	158	56	63	91	0	0	210	1084
12:00 PM	22	53	2	0	0	77	10	63	17	0	0	90	4	22	22	0	0	48	17	13	16	0	0	46	261
12:15 PM	29	58	0	0	0	87	10	59	11	0	0	80	4	12	12	0	2	28	9	12	21	0	0	42	237
12:30 PM	26	58	1	0	0	85	7	69	7	0	0	83	1	14	18	0	0	33	12	14	28	0	0	54	255
12:45 PM	36	57	0	0	0	93	11	56	14	0	0	81	2	18	17	0	0	37	14	7	27	0	0	48	259
Hourly Total	113	226	3	0	0	342	38	247	49	0	0	334	11	66	69	0	2	146	52	46	92	0	0	190	1012
1:00 PM	26	50	2	0	0	78	13	42	10	0	1	65	3	24	15	0	0	42	8	15	15	0	0	38	223
1:15 PM	39	51	5	0	0	95	18	44	10	0	0	72	0	19	19	0	0	38	14	16	20	0	0	50	255
1:30 PM	41	45	2	0	0	88	11	51	9	0	1	71	2	29	13	0	0	44	9	17	24	0	0	50	253
1:45 PM	30	56	1	0	1	87	16	56	11	0	0	83	1	19	17	0	0	37	8	17	20	0	0	45	252
Hourly Total	136	202	10	0	1	348	58	193	40	0	2	291	6	91	64	0	0	161	39	65	79	0	0	183	983
2:00 PM	36	53	2	0	0	91	15	60	8	0	0	83	2	19	14	0	0	35	15	18	23	0	0	56	265
2:15 PM	24	65	0	0	1	89	9	69	14	0	1	92	3	16	10	0	0	29	8	9	21	0	0	38	248
2:30 PM	24	52	1	0	0	77	14	59	8	0	0	81	1	22	20	0	2	43	7	13	24	0	0	44	245
2:45 PM	39	54	0	0	0	93	5	57	11	0	2	73	1	17	11	0	0	29	10	14	13	0	0	37	232
Hourly Total	123	224	3	0	1	350	43	245	41	0	3	329	7	74	55	0	2	136	40	54	81	0	0	175	990
Grand Total	501	915	22	0	2	1438	183	922	167	0	8	1272	30	312	259	0	5	601	187	228	343	0	0	758	4069
Approach %	34.8	63.6	1.5	0.0	-	-	14.4	72.5	13.1	0.0	-	-	5.0	51.9	43.1	0.0	-	-	24.7	30.1	45.3	0.0	-	-	-
Total %	12.3	22.5	0.5	0.0	-	35.3	4.5	22.7	4.1	0.0	-	31.3	0.7	7.7	6.4	0.0	-	14.8	4.6	5.6	8.4	0.0	-	18.6	-
Motorcycles	0	1	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	3
% Motorcycles	0.0	0.1	0.0	-	-	0.1	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.1	0.1
Cars & Light Goods	493	911	22	0	-	1426	181	921	167	0	-	1269	25	312	258	0	-	595	187	226	343	0	-	756	4046
% Cars & Light Goods	98.4	99.6	100.0	-	-	99.2	98.9	99.9	100.0	-	-	99.8	83.3	100.0	99.6	-	-	99.0	100.0	99.1	100.0	-	-	99.7	99.4
Buses	8	1	0	0	-	9	0	0	0	0	-	0	5	0	0	0	-	5	0	0	0	0	-	0	14
% Buses	1.6	0.1	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	16.7	0.0	0.0	-	-	0.8	0.0	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	0	2	0	0	-	2	2	0	0	0	-	2	0	0	1	0	-	1	0	0	0	0	-	0	5
% Single-Unit Trucks	0.0	0.2	0.0	-	-	0.1	1.1	0.0	0.0	-	-	0.2	0.0	0.0	0.4	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	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	0	1	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	0.0	0.4	0.0	-	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	12.5	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	7	-	-	-	-	-	5	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	87.5	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
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Count Name: Baldoon Road & McNaughton Ave
- Saturday
Site Code: 240216
Start Date: 05/11/2024
Page No: 4

Turning Movement Peak Hour Data (11:00 AM)

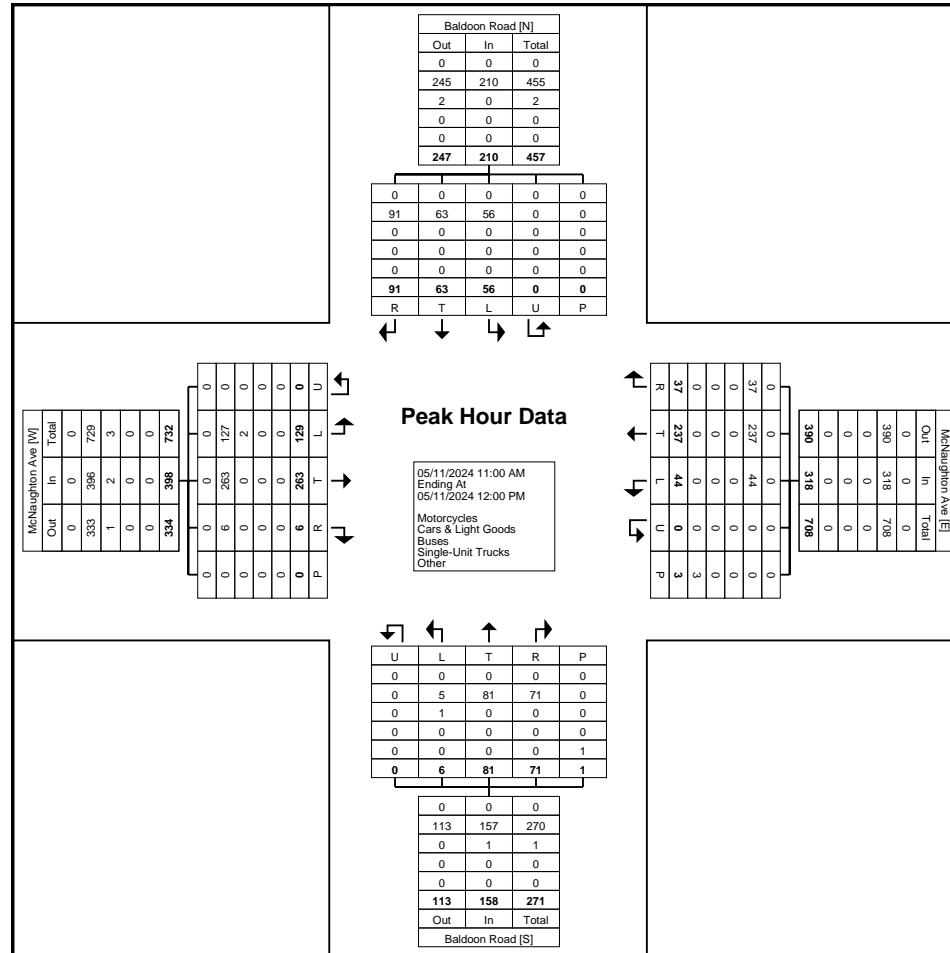
Start Time	McNaughton Ave Eastbound						McNaughton Ave Westbound						Baldoon Road Northbound						Baldoon Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:00 AM	31	68	2	0	0	101	13	59	9	0	0	81	1	20	13	0	1	34	8	19	27	0	0	54	270
11:15 AM	33	57	2	0	0	92	11	62	11	0	3	84	4	18	22	0	0	44	15	10	21	0	0	46	266
11:30 AM	34	72	0	0	0	106	15	60	7	0	0	82	0	23	8	0	0	31	16	15	22	0	0	53	272
11:45 AM	31	66	2	0	0	99	5	56	10	0	0	71	1	20	28	0	0	49	17	19	21	0	0	57	276
Total	129	263	6	0	0	398	44	237	37	0	3	318	6	81	71	0	1	158	56	63	91	0	0	210	1084
Approach %	32.4	66.1	1.5	0.0	-	-	13.8	74.5	11.6	0.0	-	-	3.8	51.3	44.9	0.0	-	-	26.7	30.0	43.3	0.0	-	-	-
Total %	11.9	24.3	0.6	0.0	-	36.7	4.1	21.9	3.4	0.0	-	29.3	0.6	7.5	6.5	0.0	-	14.6	5.2	5.8	8.4	0.0	-	19.4	-
PHF	0.949	0.913	0.750	0.000	-	0.939	0.733	0.956	0.841	0.000	-	0.946	0.375	0.880	0.634	0.000	-	0.806	0.824	0.829	0.843	0.000	-	0.921	0.982
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	127	263	6	0	-	396	44	237	37	0	-	318	5	81	71	0	-	157	56	63	91	0	-	210	1081
% Cars & Light Goods	98.4	100.0	100.0	-	-	99.5	100.0	100.0	100.0	-	-	100.0	83.3	100.0	100.0	-	-	99.4	100.0	100.0	100.0	-	-	100.0	99.7
Buses	2	0	0	0	-	2	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	3
% Buses	1.6	0.0	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	16.7	0.0	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.3
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	-	-	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	-	-	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	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



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Count Name: Baldoon Road & McNaughton Ave
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Site Code: 240216
Start Date: 05/11/2024
Page No: 5



Turning Movement Peak Hour Data Plot (11:00 AM)

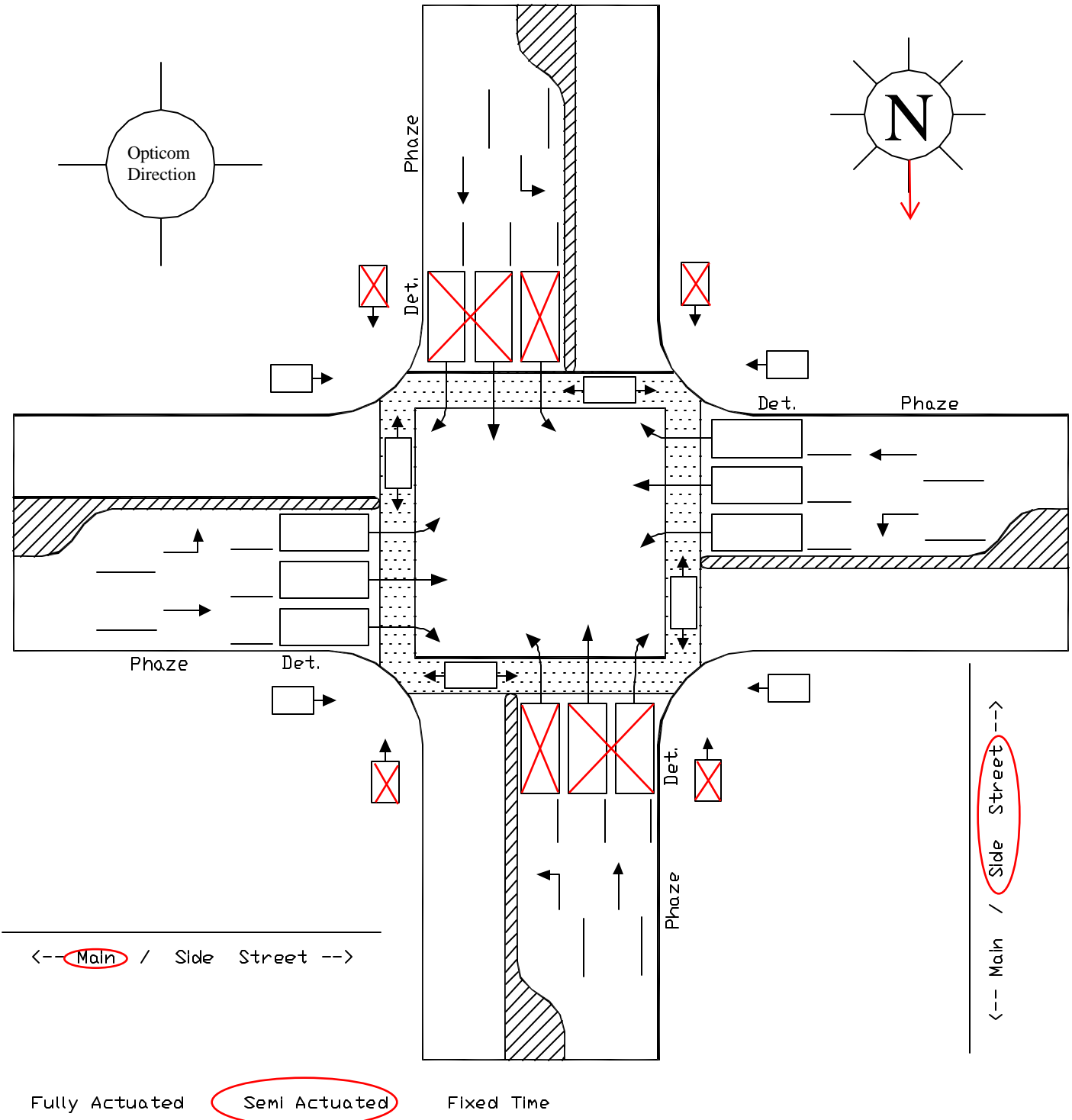
Municipality of Chatham-Kent Signal Operation Diagram

Community: _____

Location: _____

Location No.: _____

Date: _____



ASC/3 (Actual Controller is Cobalt)

PROGRAM REFERENCE CARD

Intersection: McNaughton Avenue West & Baldoon Road # 27

Date: 2019-10-25 **Entered By:** M.Ceppi

MM-2-1 CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8
MIN GRN		30		10				
BIKE GRN								
CS MGRN								
WALK		8		8				
PED CLR		11		17				
VEH EXT				4.0				
VEH EXT 2								
MAX1								
MAX2								
MAX3								
DYM MAX								
DYN STP								
YELLOW		4.1		4.1				
RED CLR		2.0		2.0				
RED MAX								
RED RVT								

MM-2-8 CONTROLLER RECALL DATA

PHASE	1	2	3	4	5	6	7	8
LOCKING MEMORY								
VEHICLE RECALL		X						
PED RECALL		X						
RECALL TO MAX		X						
SOFT RECALL								
DON'T REST HERE								
AI CALC								

MM-2-6-1 CONTROLLER OPTION DATA

PED CLEAR PROT		UNIT RED REVERT	
3s DON'T Walk			

PHASE	1	2	3	4	5	6	7	8
FLASHING GRN PH								
GUAR PASSAGE								
NONACTUATED I		x						
NONACTUATED II				x				
DUAL ENTRY								
COND SERVICE								
COND RESERVICE								
PED RESERVICE								
REST IN WALK		x						
FLASHING WALK								
PD CLEAR>YELLOW								
PD CLEAR> RED								
IGRN + VEH EXT								

MM-2-5 CONTROLLER START/FLASH DATA

START UP	1	2	3	4	5	6	7	8
PHASE		R						
	A	B	C	D	E	F	G	H
OVERLAP	x	x	x	x				
FLASH>MON.	NO		FLASH TIME			0.0		
PWR START SEQ.	1		ALL RED TIME			2.0		

AUTO FLASH	1	2	3	4	5	6	7	8
ENTRY								
EXIT								
OVERLAP	A	B	C	D	E	F	G	H
EXIT								
FLASH>MON.				EXIT FLASH				
MIN FLASH				MIN RECALL				
CYCLE THROUGH PHASES								

MM-6-1 DETECTOR PHASE ASSIGNMENT

DETECTOR	PH	PHASES							
		1	2	3	4	5	6	7	8
1	1								
2	2								
3	3								
4	4				x				
5	5								
6	6								
7	7								
8	8								

MM-6-2 DETECTOR TYPE/TIMERS

DET	TYPE	EXTEND	DELAY	CROSS SWITCH	LOCK IN RED	LOCK IN YELLOW
1						
2						
3						
4						
5						
6						
7						
8						

Appendix C

Existing Traffic Operations Reports



Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

Existing AM Peak Hour
(240216) 255 Lark St, Chatham TIS



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	268	8	14	343	11	18
Future Volume (vph)	268	8	14	343	11	18
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.996			0.916		
Flt Protected				0.998	0.982	
Satd. Flow (prot)	1578	0	0	1567	1221	0
Flt Permitted				0.998	0.982	
Satd. Flow (perm)	1578	0	0	1567	1221	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	18%	6%
Adj. Flow (vph)	291	9	15	373	12	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	300	0	0	388	32	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.9%
ICU Level of Service A	
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

Existing AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	268	8	14	343	11	18
Future Vol, veh/h	268	8	14	343	11	18
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	0	0	2	18	6
Mvmt Flow	291	9	15	373	12	20

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	303
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1269
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1266
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	536	-	-	1266	-
HCM Lane V/C Ratio	0.059	-	-	0.012	-
HCM Control Delay (s)	12.1	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

Existing AM Peak Hour

(240216) 255 Lark St, Chatham TIS

	←	→	↙	↘	←	→	↙	↘	←	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	74	223	17	60	224	57	14	48	43	87	75	102
Future Volume (vph)	74	223	17	60	224	57	14	48	43	87	75	102
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0			50.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99		0.99	0.99		0.99	1.00		0.98
Fit		0.990		0.970		0.929		0.929		0.914		0.914
Fit Protected	0.950			0.950		0.950		0.950		0.950		0.950
Satd. Flow (prot)	1568	1581	0	1568	1512	0	1509	1407	0	1583	1415	0
Fit Permitted	0.574			0.599		0.636		0.693		0.693		0.693
Satd. Flow (perm)	947	1581	0	983	1512	0	1004	1407	0	1152	1415	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			25			47			111	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		534.6			166.1			369.5			112.5	
Travel Time (s)		38.5			12.0			26.6			8.1	
Confl. Peds. (#/hr)			5	5			6		2	2		6
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
Heavy Vehicles (%)	3%	0%	0%	3%	1%	9%	7%	4%	5%	2%	0%	3%
Adj. Flow (vph)	80	242	18	65	243	62	15	52	47	95	82	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	260	0	65	305	0	15	99	0	95	193	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases		2			6			4			8	
Detector Phase		2			6			4			8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	32.8	32.8		32.8	32.8		11.7	11.7		11.7	11.7	
Actuated g/C Ratio	0.58	0.58		0.58	0.58		0.21	0.21		0.21	0.21	
v/c Ratio	0.15	0.28		0.11	0.35		0.07	0.30		0.40	0.51	

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

Existing AM Peak Hour

(240216) 255 Lark St, Chatham TIS

	←	→	↙	↘	←	→	↙	↘	←	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	7.2	7.4		6.9	7.6		17.4	13.1		23.6	13.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.2	7.4		6.9	7.6		17.4	13.1		23.6	13.7	
LOS	A	A		A	A		B	B		C	B	
Approach Delay		7.4			7.5			13.7			16.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	3.3	11.2		2.6	12.8		1.2	4.4		8.3	7.0	
Queue Length 95th (m)	10.3	26.8		8.6	31.1		5.0	14.4		19.4	22.0	
Internal Link Dist (m)		510.6			142.1			345.5			88.5	
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	547	916		567	884		446	651		511	690	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.15	0.28		0.11	0.35		0.03	0.15		0.19	0.28	

Intersection Summary

Area Type: Other

Cycle Length: 67.2

Actuated Cycle Length: 56.8

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 10.5

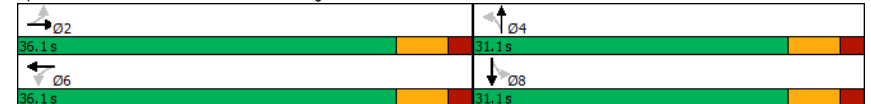
Intersection LOS: B

Intersection Capacity Utilization 79.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Baldoon Road & McNaughton Avenue



HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

Existing AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	74	223	17	60	224	57	14	48	43	87	75	102
Future Volume (veh/h)	74	223	17	60	224	57	14	48	43	87	75	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1660	1600	1600	1660	1588	1488	1607	1550	1538	1673	1600	1563
Adj Flow Rate, veh/h	80	242	18	65	243	62	15	52	47	95	82	111
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
Percent Heavy Veh, %	3	0	0	3	1	9	7	4	5	2	0	3
Cap, veh/h	544	804	60	585	667	170	244	172	155	330	141	191
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	952	1470	109	991	1219	311	1015	745	673	1148	611	827
Grp Volume(v), veh/h	80	0	260	65	0	305	15	0	99	95	0	193
Grp Sat Flow(s), veh/h/ln	952	0	1580	991	0	1530	1015	0	1418	1148	0	1438
Q Serve(g_s), s	2.8	0.0	4.9	2.1	0.0	6.2	0.7	0.0	3.2	4.1	0.0	6.5
Cycle Q Clear(g_c), s	9.0	0.0	4.9	7.0	0.0	6.2	7.3	0.0	3.2	7.3	0.0	6.5
Prop In Lane	1.00		0.07	1.00		0.20	1.00		0.47	1.00		0.58
Lane Grp Cap(c), veh/h	544	0	864	585	0	837	244	0	327	330	0	332
V/C Ratio(X)	0.15	0.00	0.30	0.11	0.00	0.36	0.06	0.00	0.30	0.29	0.00	0.58
Avail Cap(c_a), veh/h	544	0	864	585	0	837	473	0	647	588	0	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.6	0.0	6.7	8.6	0.0	7.0	22.0	0.0	17.5	20.5	0.0	18.8
Incr Delay (d2), s/veh	0.6	0.0	0.9	0.4	0.0	1.2	0.1	0.0	0.7	0.7	0.0	2.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.1	0.0	0.2	0.1	0.0	0.3	0.1	0.0	0.2	0.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.2	0.0	7.6	9.0	0.0	8.3	22.1	0.0	18.2	21.1	0.0	21.1
LnGrp LOS	B	A	A	A	A	A	C	A	B	C	A	C
Approach Vol, veh/h	340			370			114			288		
Approach Delay, s/veh	8.2			8.4			18.7			21.1		
Approach LOS	A			A			B			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	36.1			18.7			36.1			18.7		
Change Period (Y+Rc), s	6.1			6.1			6.1			6.1		
Max Green Setting (Gmax), s	30.0			25.0			30.0			25.0		
Max Q Clear Time (g_c+I1), s	11.0			9.3			9.0			9.3		
Green Ext Time (p_c), s	2.2			0.7			2.6			2.2		

Intersection Summary		
HCM 6th Ctrl Delay	12.7	
HCM 6th LOS	B	

Lanes, Volumes, Timings
3: Baldoon Road & Lark Street/Courthouse Lane

Existing AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	13	36	3	6	9	31	4	55	23	112	35	13
Future Volume (vph)	13	36	3	6	9	31	4	55	23	112	35	13
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.993			0.910			0.962			0.989		
Flt Protected	0.988			0.993			0.998			0.966		
Satd. Flow (prot)	0	1418	0	0	1329	0	0	1378	0	0	1415	0
Flt Permitted	0.988			0.993			0.998			0.966		
Satd. Flow (perm)	0	1418	0	0	1329	0	0	1378	0	0	1415	0
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	238.7			134.6			199.8			369.5		
Travel Time (s)	17.2			9.7			14.4			26.6		
Confl. Peds. (#/hr)	6		1	1		6			6	6		
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
Heavy Vehicles (%)	8%	0%	33%	0%	0%	3%	25%	5%	0%	0%	3%	8%
Adj. Flow (vph)	14	39	3	7	10	34	4	60	25	122	38	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	56	0	0	51	0	0	89	0	0	174	0
Sign Control	Stop			Stop			Stop			Stop		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.9%
Analysis Period (min)	15
ICU Level of Service A	

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

Existing AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection												
Intersection Delay, s/veh	8.2											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	13	36	3	6	9	31	4	55	23	112	35	13
Future Vol, veh/h	13	36	3	6	9	31	4	55	23	112	35	13
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
Heavy Vehicles, %	8	0	33	0	0	3	25	5	0	0	3	8
Mvmt Flow	14	39	3	7	10	34	4	60	25	122	38	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	7.5	8.2	8.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	25%	13%	70%
Vol Thru, %	67%	69%	20%	22%
Vol Right, %	28%	6%	67%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	52	46	160
LT Vol	4	13	6	112
Through Vol	55	36	9	35
RT Vol	23	3	31	13
Lane Flow Rate	89	57	50	174
Geometry Grp	1	1	1	1
Degree of Util (X)	0.114	0.074	0.058	0.21
Departure Headway (Hd)	4.597	4.711	4.193	4.349
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	782	762	856	830
Service Time	2.611	2.729	2.212	2.349
HCM Lane V/C Ratio	0.114	0.075	0.058	0.21
HCM Control Delay	8.2	8.1	7.5	8.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.2	0.8

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

Existing AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↕		↕			↕
Traffic Volume (vph)	76	4	237	77	7	376
Future Volume (vph)	76	4	237	77	7	376
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.994		0.967			
Fit Protected	0.954					0.999
Satd. Flow (prot)	1409	0	1506	0	0	1568
Fit Permitted	0.954					0.999
Satd. Flow (perm)	1409	0	1506	0	0	1568
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Conf. Peds. (#/hr)	13					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	1%	8%	0%	2%
Adj. Flow (vph)	83	4	258	84	8	409
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	0	342	0	0	417
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

Existing AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	T	T	T	T	T
Traffic Vol, veh/h	76	4	237	77	7	376
Future Vol, veh/h	76	4	237	77	7	376
Conflicting Peds, #/hr	13	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	0	1	8	0	2
Mvmt Flow	83	4	258	84	8	409

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	738	300	0	0	342
Stage 1	300	-	-	-	-
Stage 2	438	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2
Pot Cap-1 Maneuver	387	744	-	-	1228
Stage 1	754	-	-	-	-
Stage 2	653	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	380	744	-	-	1228
Mov Cap-2 Maneuver	380	-	-	-	-
Stage 1	754	-	-	-	-
Stage 2	641	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.9	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	390	1228
HCM Lane V/C Ratio	-	-	0.223	0.006
HCM Control Delay (s)	-	-	16.9	8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.8	0

Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

Existing PM Peak Hour
(240216) 255 Lark St, Chatham TIS



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	415	17	32	430	9	24
Future Volume (vph)	415	17	32	430	9	24
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.995				0.902	
Fit Protected				0.997	0.986	
Satd. Flow (prot)	1544	0	0	1532	1334	0
Fit Permitted				0.997	0.986	
Satd. Flow (perm)	1544	0	0	1532	1334	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		4	4		1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	6%	4%	0%	0%
Adj. Flow (vph)	451	18	35	467	10	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	469	0	0	502	36	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	68.2%
ICU Level of Service	C
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

Existing PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	415	17	32	430	9	24
Future Vol, veh/h	415	17	32	430	9	24
Conflicting Peds, #/hr	0	4	4	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	6	6	4	0	0
Mvmt Flow	451	18	35	467	10	26

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	473
Stage 1	-	-	464
Stage 2	-	-	538
Critical Hdwy	-	4.16	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.254	3.5
Pot Cap-1 Maneuver	-	1068	271
Stage 1	-	-	637
Stage 2	-	-	589
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1064	258
Mov Cap-2 Maneuver	-	-	258
Stage 1	-	-	635
Stage 2	-	-	562

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	441	-	-	1064	-
HCM Lane V/C Ratio	0.081	-	-	0.033	-
HCM Control Delay (s)	13.9	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

Existing PM Peak Hour

(240216) 255 Lark St, Chatham TIS

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	130	316	13	64	326	80	21	144	95	75	81	101
Future Volume (vph)	130	316	13	64	326	80	21	144	95	75	81	101
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0		50.0			60.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99		0.99		0.99		1.00		0.98
Fit		0.994		0.970		0.941		0.917				
Fit Protected	0.950			0.950		0.950		0.950				
Satd. Flow (prot)	1583	1573	0	1615	1552	0	1468	1482	0	1568	1429	0
Fit Permitted	0.464			0.538		0.633		0.556				
Satd. Flow (perm)	773	1573	0	906	1552	0	971	1482	0	915	1429	0
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	
Satd. Flow (RTOR)		4			24			56			107	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		534.6			166.1			369.5			112.5	
Travel Time (s)		38.5			12.0			26.6			8.1	
Confl. Peds. (#/hr)			9	9			7		3	3		7
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
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	10%	1%	0%	3%	1%	1%
Adj. Flow (vph)	141	343	14	70	354	87	23	157	103	82	88	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	357	0	70	441	0	23	260	0	82	198	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases		2			6			4			8	
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	30.2	30.2		30.2	30.2		14.5	14.5		14.5	14.5	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.25	0.25		0.25	0.25	
v/c Ratio	0.34	0.43		0.15	0.53		0.09	0.62		0.35	0.45	

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

Existing PM Peak Hour

(240216) 255 Lark St, Chatham TIS

	↖	→	↘	↙	←	↖	↙	↘	↗	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	12.1	11.0		9.2	12.1		16.3	21.3		21.5	11.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.1	11.0		9.2	12.1		16.3	21.3		21.5	11.9	
LOS	B	B		A	B		B	C		C	B	
Approach Delay		11.3			11.7			20.9			14.7	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	7.7	20.4		3.4	25.6		1.9	19.1		7.3	7.9	
Queue Length 95th (m)	23.8	48.7		11.6	61.9		6.5	39.0		17.4	22.1	
Internal Link Dist (m)		510.6			142.1			345.5			88.5	
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	409	836		480	834		429	686		404	691	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.43		0.15	0.53		0.05	0.38		0.20	0.29	
Intersection Summary												
Area Type:	Other											
Cycle Length:	67.2											
Actuated Cycle Length:	56.9											
Natural Cycle:	70											
Control Type:	Semi Act-Uncoord											
Maximum v/c Ratio:	0.62											
Intersection Signal Delay:	13.8						Intersection LOS: B					
Intersection Capacity Utilization:	96.3%						ICU Level of Service F					
Analysis Period (min):	15											
Splits and Phases: 2: Baldoon Road & McNaughton Avenue												
↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
↘	↘	↘	↘	↘	↘	↘	↘	↘	↘	↘	↘	↘
↙	↙	↙	↙	↙	↙	↙	↙	↙	↙	↙	↙	↙
↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s
31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s
36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s	36.1 s
31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s	31.1 s

HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

Existing PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	130	316	13	64	326	80	21	144	95	75	81	101
Future Volume (veh/h)	130	316	13	64	326	80	21	144	95	75	81	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1673	1588	1600	1700	1600	1600	1567	1588	1600	1660	1588	1588
Adj Flow Rate, veh/h	141	343	14	70	354	87	23	157	103	82	88	110
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
Percent Heavy Veh, %	2	1	0	0	0	0	10	1	0	3	1	1
Cap, veh/h	370	752	31	444	615	151	305	268	176	269	192	240
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	847	1514	62	928	1238	304	986	890	584	988	637	796
Grp Volume(v), veh/h	141	0	357	70	0	441	23	0	260	82	0	198
Grp Sat Flow(s),veh/h/ln	847	0	1576	928	0	1542	986	0	1474	988	0	1433
Q Serve(g_s), s	8.5	0.0	8.9	3.2	0.0	12.2	1.2	0.0	9.0	4.6	0.0	6.8
Cycle Q Clear(g_c), s	20.7	0.0	8.9	12.1	0.0	12.2	7.9	0.0	9.0	13.7	0.0	6.8
Prop In Lane	1.00		0.04	1.00		0.20	1.00		0.40	1.00		0.56
Lane Grp Cap(c), veh/h	370	0	783	444	0	766	305	0	444	269	0	431
V/C Ratio(X)	0.38	0.00	0.46	0.16	0.00	0.58	0.08	0.00	0.59	0.31	0.00	0.46
Avail Cap(c_a), veh/h	370	0	783	444	0	766	417	0	611	380	0	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	9.9	13.8	0.0	10.7	20.3	0.0	17.9	23.7	0.0	17.1
Incr Delay (d2), s/veh	3.0	0.0	1.9	0.8	0.0	3.1	0.1	0.0	1.8	0.9	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.4	0.1	0.0	0.7	0.1	0.0	0.6	0.4	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.9	0.0	11.8	14.6	0.0	13.8	20.5	0.0	19.7	24.6	0.0	18.2
LnGrp LOS	C	A	B	B	A	B	C	A	B	C	A	B
Approach Vol, veh/h	498			511			283			280		
Approach Delay, s/veh	14.4			13.9			19.7			20.1		
Approach LOS	B			B			B			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	36.1			24.3			36.1			24.3		
Change Period (Y+Rc), s	6.1			6.1			6.1			6.1		
Max Green Setting (Gmax), s	30.0			25.0			30.0			25.0		
Max Q Clear Time (g_c+I1), s	22.7			11.0			14.2			15.7		
Green Ext Time (p_c), s	2.1			2.2			3.5			1.6		
Intersection Summary												
HCM 6th Ctrl Delay	16.2											
HCM 6th LOS	B											

Lanes, Volumes, Timings
3: Baldoon Road & Lark Street/Courthouse Lane

Existing PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	18	25	6	32	41	131	19	114	21	57	54	15
Future Volume (vph)	18	25	6	32	41	131	19	114	21	57	54	15
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.982			0.914			0.982			0.984		
Flt Protected	0.982			0.992			0.994			0.978		
Satd. Flow (prot)	0	1415	0	0	1351	0	0	1453	0	0	1431	0
Flt Permitted	0.982			0.992			0.994			0.978		
Satd. Flow (perm)	0	1415	0	0	1351	0	0	1453	0	0	1431	0
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	238.7			134.6			199.8			369.5		
Travel Time (s)	17.2			9.7			14.4			26.6		
Confl. Peds. (#/hr)	4			4			7			7		
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
Heavy Vehicles (%)	6%	0%	0%	0%	0%	1%	0%	1%	0%	0%	2%	0%
Adj. Flow (vph)	20	27	7	35	45	142	21	124	23	62	59	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	54	0	0	222	0	0	168	0	0	137	0
Sign Control	Stop			Stop			Stop			Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 46.6%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

Existing PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	18	25	6	32	41	131	19	114	21	57	54	15
Future Vol, veh/h	18	25	6	32	41	131	19	114	21	57	54	15
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
Heavy Vehicles, %	6	0	0	0	0	1	0	1	0	0	2	0
Mvmt Flow	20	27	7	35	45	142	21	124	23	62	59	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.4	9	9	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	37%	16%	45%
Vol Thru, %	74%	51%	20%	43%
Vol Right, %	14%	12%	64%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	49	204	126
LT Vol	19	18	32	57
Through Vol	114	25	41	54
RT Vol	21	6	131	15
Lane Flow Rate	167	53	222	137
Geometry Grp	1	1	1	1
Degree of Util (X)	0.215	0.074	0.267	0.18
Departure Headway (Hd)	4.634	4.98	4.332	4.744
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	772	717	827	753
Service Time	2.677	3.029	2.368	2.789
HCM Lane V/C Ratio	0.216	0.074	0.268	0.182
HCM Control Delay	9	8.4	9	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.2	1.1	0.7

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

Existing PM Peak Hour
(240216) 255 Lark St, Chatham TIS



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Volume (vph)	88	9	492	182	15	413
Future Volume (vph)	88	9	492	182	15	413
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.987		0.964			
Fit Protected	0.957					0.998
Satd. Flow (prot)	1366	0	1531	0	0	1548
Fit Permitted	0.957					0.998
Satd. Flow (perm)	1366	0	1531	0	0	1548
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Confl. Peds. (#/hr)	4	6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	11%	1%	0%	7%	3%
Adj. Flow (vph)	96	10	535	198	16	449
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	733	0	0	465
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	58.7% ICU Level of Service B
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

Existing PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Vol, veh/h	88	9	492	182	15	413
Future Vol, veh/h	88	9	492	182	15	413
Conflicting Peds, #/hr	4	6	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	11	1	0	7	3
Mvmt Flow	96	10	535	198	16	449

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1119	640	0	0	733
Stage 1	634	-	-	-	-
Stage 2	485	-	-	-	-
Critical Hdwy	6.43	6.31	-	-	4.17
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.399	-	-	2.263
Pot Cap-1 Maneuver	228	460	-	-	849
Stage 1	527	-	-	-	-
Stage 2	617	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	222	458	-	-	849
Mov Cap-2 Maneuver	222	-	-	-	-
Stage 1	527	-	-	-	-
Stage 2	600	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.6	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	233	849
HCM Lane V/C Ratio	-	-	0.453	0.019
HCM Control Delay (s)	-	-	32.6	9.3
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	2.2	0.1

Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

Existing Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

	→	↖	↙	←	↘	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↘	↙
Traffic Volume (vph)	376	4	24	316	5	12
Future Volume (vph)	376	4	24	316	5	12
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999			0.902		
Fit Protected				0.996	0.986	
Satd. Flow (prot)	1598	0	0	1594	1334	0
Fit Permitted				0.996	0.986	
Satd. Flow (perm)	1598	0	0	1594	1334	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		3	3			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	409	4	26	343	5	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	413	0	0	369	18	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.6%
ICU Level of Service A	
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

Existing Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↘	↙
Traffic Vol, veh/h	376	4	24	316	5	12
Future Vol, veh/h	376	4	24	316	5	12
Conflicting Peds, #/hr	0	3	3	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	409	4	26	343	5	13

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	416
Stage 1	-	-	414
Stage 2	-	-	395
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1154	353
Stage 1	-	-	671
Stage 2	-	-	685
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1151	342
Mov Cap-2 Maneuver	-	-	342
Stage 1	-	-	669
Stage 2	-	-	666

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	509	-	-	1151	-
HCM Lane V/C Ratio	0.036	-	-	0.023	-
HCM Control Delay (s)	12.3	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

Existing Saturday Peak Hour

(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (vph)	129	263	6	44	237	37	6	81	71	56	63	91
Future Volume (vph)	129	263	6	44	237	37	6	81	71	56	63	91
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0			50.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			0.99			1.00		
Fit	0.996			0.980			0.930			0.911		
Fit Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1583	1593	0	1615	1568	0	1380	1471	0	1615	1458	0
Fit Permitted	0.578			0.581			0.651			0.653		
Satd. Flow (perm)	963	1593	0	987	1568	0	946	1471	0	1107	1458	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	2				15		75				99	
Link Speed (k/h)	50				50		50				50	
Link Distance (m)	534.6			166.1			369.5			112.5		
Travel Time (s)	38.5			12.0			26.6			8.1		
Conf. Peds. (#/hr)			1	1					3	3		
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
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%
Adj. Flow (vph)	140	286	7	48	258	40	7	88	77	61	68	99
Shared Lane Traffic (%)												
Lane Group Flow (vph)	140	293	0	48	298	0	7	165	0	61	167	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	2				6		4				8	
Permitted Phases	2				6		4				8	
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	34.4	34.4		34.4	34.4		11.1	11.1		11.1	11.1	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.21	0.21		0.21	0.21	
v/c Ratio	0.22	0.28		0.08	0.29		0.04	0.45		0.26	0.44	

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

Existing Saturday Peak Hour

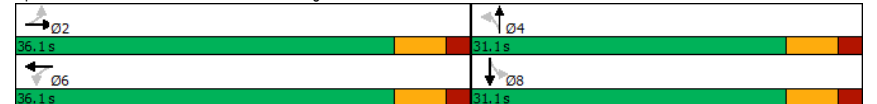
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	7.6	7.2		6.3	7.0		17.0	15.0		20.8	12.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	7.6	7.2		6.3	7.0		17.0	15.0		20.8	12.5	
LOS	A	A		A	A		B	B		C	B	
Approach Delay	7.3			6.9			15.1			14.7		
Approach LOS	A			A			B			B		
Queue Length 50th (m)	5.9	12.9		1.8	12.4		0.6	7.7		5.2	5.8	
Queue Length 95th (m)	16.9	30.1		6.6	29.7		3.2	21.6		13.7	19.1	
Internal Link Dist (m)	510.6			142.1			345.5			88.5		
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	623	1032		639	1021		445	732		521	738	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.28		0.08	0.29		0.02	0.23		0.12	0.23	

Intersection Summary

Area Type:	Other
Cycle Length:	67.2
Actuated Cycle Length:	53.1
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.45
Intersection Signal Delay:	9.8
Intersection Capacity Utilization:	90.0%
Intersection LOS:	A
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 2: Baldoon Road & McNaughton Avenue



HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

Existing Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	129	263	6	44	237	37	6	81	71	56	63	91
Future Volume (veh/h)	129	263	6	44	237	37	6	81	71	56	63	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1673	1600	1600	1700	1600	1600	1475	1600	1600	1700	1600	1600
Adj Flow Rate, veh/h	140	286	7	48	258	40	7	88	77	61	68	99
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
Percent Heavy Veh, %	2	0	0	0	0	0	17	0	0	0	0	0
Cap, veh/h	561	855	21	575	744	115	251	177	155	274	133	193
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	967	1555	38	987	1352	210	957	785	686	1105	586	853
Grp Volume(v), veh/h	140	0	293	48	0	298	7	0	165	61	0	167
Grp Sat Flow(s), veh/h/ln	967	0	1593	987	0	1562	957	0	1471	1105	0	1440
Q Serve(g_s), s	5.1	0.0	5.5	1.5	0.0	5.8	0.4	0.0	5.3	2.8	0.0	5.5
Cycle Q Clear(g_c), s	10.9	0.0	5.5	7.1	0.0	5.8	5.9	0.0	5.3	8.1	0.0	5.5
Prop In Lane	1.00		0.02	1.00		0.13	1.00		0.47	1.00		0.59
Lane Grp Cap(c), veh/h	561	0	876	575	0	859	251	0	333	274	0	326
V/C Ratio(X)	0.25	0.00	0.33	0.08	0.00	0.35	0.03	0.00	0.50	0.22	0.00	0.51
Avail Cap(c_a), veh/h	561	0	876	575	0	859	473	0	674	530	0	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.9	0.0	6.8	8.7	0.0	6.8	21.0	0.0	18.4	21.9	0.0	18.5
Incr Delay (d2), s/veh	1.1	0.0	1.0	0.3	0.0	1.1	0.1	0.0	1.6	0.6	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.4	0.2	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	0.0	7.8	9.0	0.0	7.9	21.1	0.0	20.0	22.5	0.0	20.2
LnGrp LOS	B	A	A	A	A	A	C	A	C	C	A	C
Approach Vol, veh/h	433			346			172			228		
Approach Delay, s/veh	8.8			8.1			20.1			20.8		
Approach LOS	A			A			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	36.1			18.4			36.1			18.4		
Change Period (Y+Rc), s	6.1			6.1			6.1			6.1		
Max Green Setting (Gmax), s	30.0			25.0			30.0			25.0		
Max Q Clear Time (g_c+I1), s	12.9			7.9			9.1			10.1		
Green Ext Time (p_c), s	2.8			1.3			2.4			1.7		

Intersection Summary		
HCM 6th Ctrl Delay	12.6	
HCM 6th LOS	B	

Lanes, Volumes, Timings
3: Baldoon Road & Lark Street/Courthouse Lane

Existing Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	12	28	3	8	19	61	8	86	10	43	76	16
Future Volume (vph)	12	28	3	8	19	61	8	86	10	43	76	16
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.991			0.907			0.987			0.984		
Flt Protected	0.986			0.995			0.996			0.984		
Satd. Flow (prot)	0	1466	0	0	1335	0	0	1475	0	0	1428	0
Flt Permitted	0.986			0.995			0.996			0.984		
Satd. Flow (perm)	0	1466	0	0	1335	0	0	1475	0	0	1428	0
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	238.7			134.6			199.8			369.5		
Travel Time (s)	17.2			9.7			14.4			26.6		
Confl. Peds. (#/hr)	4			4			1			1		
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	13	30	3	9	21	66	9	93	11	47	83	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	96	0	0	113	0	0	147	0
Sign Control	Stop			Stop			Stop			Stop		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.7%
Analysis Period (min)	15
ICU Level of Service A	

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

Existing Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	12	28	3	8	19	61	8	86	10	43	76	16
Future Vol, veh/h	12	28	3	8	19	61	8	86	10	43	76	16
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
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	3	0
Mvmt Flow	13	30	3	9	21	66	9	93	11	47	83	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	7.7	8	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	28%	9%	32%
Vol Thru, %	83%	65%	22%	56%
Vol Right, %	10%	7%	69%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	104	43	88	135
LT Vol	8	12	8	43
Through Vol	86	28	19	76
RT Vol	10	3	61	16
Lane Flow Rate	113	47	96	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.136	0.06	0.11	0.177
Departure Headway (Hd)	4.331	4.601	4.139	4.331
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	830	780	868	831
Service Time	2.348	2.62	2.156	2.345
HCM Lane V/C Ratio	0.136	0.06	0.111	0.177
HCM Control Delay	8	7.9	7.7	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.2	0.4	0.6

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

Existing Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Volume (vph)	99	10	414	124	6	343
Future Volume (vph)	99	10	414	124	6	343
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988		0.969			
Fit Protected	0.957					0.999
Satd. Flow (prot)	1393	0	1539	0	0	1598
Fit Permitted	0.957					0.999
Satd. Flow (perm)	1393	0	1539	0	0	1598
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%
Adj. Flow (vph)	108	11	450	135	7	373
Shared Lane Traffic (%)						
Lane Group Flow (vph)	119	0	585	0	0	380
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

Existing Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑		↑			↑
Traffic Vol, veh/h	99	10	414	124	6	343
Future Vol, veh/h	99	10	414	124	6	343
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	1	0	0	0
Mvmt Flow	108	11	450	135	7	373

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	905	518	0	0	585
Stage 1	518	-	-	-	-
Stage 2	387	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2
Pot Cap-1 Maneuver	307	562	-	-	1000
Stage 1	598	-	-	-	-
Stage 2	686	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	304	562	-	-	1000
Mov Cap-2 Maneuver	304	-	-	-	-
Stage 1	598	-	-	-	-
Stage 2	680	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	317	1000
HCM Lane V/C Ratio	-	-	0.374	0.007
HCM Control Delay (s)	-	-	23	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.7	0

Appendix D

2031 Background Traffic Operations Reports



Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

2031 Background AM Peak Hour
(240216) 255 Lark St, Chatham TIS

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	308	9	16	394	13	21
Future Volume (vph)	308	9	16	394	13	21
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.996			0.916		
Fit Protected				0.998	0.981	
Satd. Flow (prot)	1578	0	0	1567	1219	0
Fit Permitted				0.998	0.981	
Satd. Flow (perm)	1578	0	0	1567	1219	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	18%	6%
Adj. Flow (vph)	335	10	17	428	14	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	345	0	0	445	37	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.0%
ICU Level of Service A	
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

2031 Background AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	308	9	16	394	13	21
Future Vol, veh/h	308	9	16	394	13	21
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	0	0	2	18	6
Mvmt Flow	335	10	17	428	14	23

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	348
Stage 1	-	-	343
Stage 2	-	-	462
Critical Hdwy	-	4.1	6.58
Critical Hdwy Stg 1	-	-	5.58
Critical Hdwy Stg 2	-	-	5.58
Follow-up Hdwy	-	2.2	3.662
Pot Cap-1 Maneuver	-	1222	331
Stage 1	-	-	684
Stage 2	-	-	602
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1219	324
Mov Cap-2 Maneuver	-	-	324
Stage 1	-	-	682
Stage 2	-	-	591

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	482	-	-	1219	-
HCM Lane V/C Ratio	0.077	-	-	0.014	-
HCM Control Delay (s)	13.1	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

2031 Background AM Peak Hour

(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	85	256	20	69	257	65	16	55	49	100	86	117
Future Volume (vph)	85	256	20	69	257	65	16	55	49	100	86	117
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0			50.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00			0.99			0.99			1.00		0.98
Fit	0.989			0.970			0.930			0.913		
Fit Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1579	0	1568	1512	0	1509	1409	0	1583	1413	0
Fit Permitted	0.551			0.577			0.619			0.684		
Satd. Flow (perm)	909	1579	0	947	1512	0	977	1409	0	1137	1413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	8			25			53			116		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	534.6			166.1			369.5			112.5		
Travel Time (s)	38.5			12.0			26.6			8.1		
Conf. Peds. (#/hr)			5	5			6		2	2		6
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
Heavy Vehicles (%)	3%	0%	0%	3%	1%	9%	7%	4%	5%	2%	0%	3%
Adj. Flow (vph)	92	278	22	75	279	71	17	60	53	109	93	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	300	0	75	350	0	17	113	0	109	220	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.7	31.7		31.7	31.7		12.4	12.4		12.4	12.4	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.22	0.22		0.22	0.22	
v/c Ratio	0.18	0.34		0.14	0.41		0.08	0.32		0.44	0.55	

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

2031 Background AM Peak Hour

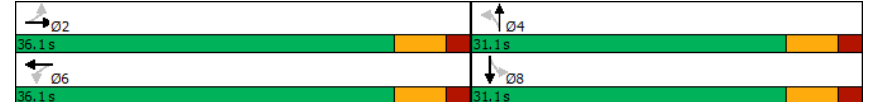
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	8.2	8.5		7.8	9.0		16.9	12.9		23.9	14.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.2	8.5		7.8	9.0		16.9	12.9		23.9	14.7	
LOS	A	A		A	A		B	B		C	B	
Approach Delay		8.4			8.8			13.4				17.7
Approach LOS		A			A			B				B
Queue Length 50th (m)	4.0	13.9		3.2	16.1		1.4	5.1		9.7	9.0	
Queue Length 95th (m)	13.1	34.9		10.8	40.9		5.4	15.6		21.7	25.3	
Internal Link Dist (m)		510.6			142.1			345.5				88.5
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	511	892		533	862		434	656		505	693	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.34		0.14	0.41		0.04	0.17		0.22	0.32	

Intersection Summary

Area Type:	Other
Cycle Length:	67.2
Actuated Cycle Length:	56.4
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	11.4
Intersection Capacity Utilization:	80.7%
Intersection LOS:	B
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 2: Baldoon Road & McNaughton Avenue



HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

2031 Background AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	85	256	20	69	257	65	16	55	49	100	86	117
Future Volume (veh/h)	85	256	20	69	257	65	16	55	49	100	86	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1660	1600	1600	1660	1588	1488	1607	1550	1538	1673	1600	1563
Adj Flow Rate, veh/h	92	278	22	75	279	71	17	60	53	109	93	127
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
Percent Heavy Veh, %	3	0	0	3	1	9	7	4	5	2	0	3
Cap, veh/h	488	780	62	533	650	165	242	189	167	338	152	208
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	913	1463	116	956	1220	310	991	754	666	1135	608	830
Grp Volume(v), veh/h	92	0	300	75	0	350	17	0	113	109	0	220
Grp Sat Flow(s), veh/h/ln	913	0	1579	956	0	1530	991	0	1421	1135	0	1439
Q Serve(g_s), s	3.8	0.0	6.2	2.8	0.0	7.8	0.9	0.0	3.6	4.9	0.0	7.6
Cycle Q Clear(g_c), s	11.6	0.0	6.2	8.9	0.0	7.8	8.5	0.0	3.6	8.5	0.0	7.6
Prop In Lane	1.00		0.07	1.00		0.20	1.00		0.47	1.00		0.58
Lane Grp Cap(c), veh/h	488	0	842	533	0	816	242	0	355	338	0	360
V/C Ratio(X)	0.19	0.00	0.36	0.14	0.00	0.43	0.07	0.00	0.32	0.32	0.00	0.61
Avail Cap(c_a), veh/h	488	0	842	533	0	816	434	0	631	559	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.5	0.0	7.6	10.1	0.0	8.0	22.4	0.0	17.2	20.7	0.0	18.7
Incr Delay (d2), s/veh	0.9	0.0	1.2	0.6	0.0	1.6	0.2	0.0	0.7	0.8	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.3	0.1	0.0	0.4	0.1	0.0	0.2	0.3	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	0.0	8.8	10.7	0.0	9.6	22.6	0.0	17.9	21.4	0.0	21.1
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	A	C
Approach Vol, veh/h	392			425			130			329		
Approach Delay, s/veh	9.6			9.8			18.5			21.2		
Approach LOS	A			A			B			C		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.1		20.2		36.1		20.2					
Change Period (Y+Rc), s	6.1		6.1		6.1		6.1					
Max Green Setting (Gmax), s	30.0		25.0		30.0		25.0					
Max Q Clear Time (g_c+I1), s	13.6		10.5		10.9		10.5					
Green Ext Time (p_c), s	2.5		0.8		3.0		2.5					

Intersection Summary		
HCM 6th Ctrl Delay	13.6	
HCM 6th LOS	B	

Lanes, Volumes, Timings
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Background AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (vph)	15	41	3	7	10	36	5	63	26	129	40	15
Future Volume (vph)	15	41	3	7	10	36	5	63	26	129	40	15
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.994				0.909				0.963		0.989	
Fit Protected	0.988				0.993				0.998		0.966	
Satd. Flow (prot)	0	1423	0	0	1327	0	0	1378	0	0	1415	0
Fit Permitted	0.988				0.993				0.998		0.966	
Satd. Flow (perm)	0	1423	0	0	1327	0	0	1378	0	0	1415	0
Link Speed (k/h)	50				50				50		50	
Link Distance (m)	238.7				134.6				199.8		369.5	
Travel Time (s)	17.2				9.7				14.4		26.6	
Confl. Peds. (#/hr)	6		1	1		6			6	6		
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
Heavy Vehicles (%)	8%	0%	33%	0%	0%	3%	25%	5%	0%	0%	3%	8%
Adj. Flow (vph)	16	45	3	8	11	39	5	68	28	140	43	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	58	0	0	101	0	0	199	0
Sign Control	Stop				Stop				Stop		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.4%
Analysis Period (min)	15
ICU Level of Service A	

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Background AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection												
Intersection Delay, s/veh	8.5											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	41	3	7	10	36	5	63	26	129	40	15
Future Vol, veh/h	15	41	3	7	10	36	5	63	26	129	40	15
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
Heavy Vehicles, %	8	0	33	0	0	3	25	5	0	0	3	8
Mvmt Flow	16	45	3	8	11	39	5	68	28	140	43	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	7.6	8.4	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	25%	13%	70%
Vol Thru, %	67%	69%	19%	22%
Vol Right, %	28%	5%	68%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	59	53	184
LT Vol	5	15	7	129
Through Vol	63	41	10	40
RT Vol	26	3	36	15
Lane Flow Rate	102	64	58	200
Geometry Grp	1	1	1	1
Degree of Util (X)	0.133	0.086	0.069	0.244
Departure Headway (Hd)	4.67	4.822	4.298	4.392
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	768	744	834	818
Service Time	2.692	2.845	2.321	2.412
HCM Lane V/C Ratio	0.133	0.086	0.07	0.244
HCM Control Delay	8.4	8.3	7.6	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.3	0.2	1

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

2031 Background AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↕		↕			↕
Traffic Volume (vph)	87	5	272	88	8	432
Future Volume (vph)	87	5	272	88	8	432
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.993		0.967			
Fit Protected	0.955					0.999
Satd. Flow (prot)	1409	0	1506	0	0	1568
Fit Permitted	0.955					0.999
Satd. Flow (perm)	1409	0	1506	0	0	1568
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Conf. Peds. (#/hr)	13					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	1%	8%	0%	2%
Adj. Flow (vph)	95	5	296	96	9	470
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	392	0	0	479
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.8% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

2031 Background AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	R	S	T
Traffic Vol, veh/h	87	5	272	88	8	432
Future Vol, veh/h	87	5	272	88	8	432
Conflicting Peds, #/hr	13	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	0	1	8	0	2
Mvmt Flow	95	5	296	96	9	470

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	845	344	0	0	392
Stage 1	344	-	-	-	-
Stage 2	501	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2
Pot Cap-1 Maneuver	334	703	-	-	1178
Stage 1	720	-	-	-	-
Stage 2	611	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	327	703	-	-	1178
Mov Cap-2 Maneuver	327	-	-	-	-
Stage 1	720	-	-	-	-
Stage 2	598	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	337	1178
HCM Lane V/C Ratio	-	-	0.297	0.007
HCM Control Delay (s)	-	-	20.1	8.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.2	0

Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

2031 Background PM Peak Hour
(240216) 255 Lark St, Chatham TIS

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	477	20	37	494	10	28
Future Volume (vph)	477	20	37	494	10	28
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.901	
Fit Protected				0.997	0.987	
Satd. Flow (prot)	1542	0	0	1532	1334	0
Fit Permitted				0.997	0.987	
Satd. Flow (perm)	1542	0	0	1532	1334	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		4	4		1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	6%	4%	0%	0%
Adj. Flow (vph)	518	22	40	537	11	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	540	0	0	577	41	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	77.1%
ICU Level of Service	D
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

2031 Background PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	477	20	37	494	10	28
Future Vol, veh/h	477	20	37	494	10	28
Conflicting Peds, #/hr	0	4	4	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	6	6	4	0	0
Mvmt Flow	518	22	40	537	11	30

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	544
Stage 1	-	-	533
Stage 2	-	-	618
Critical Hdwy	-	4.16	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.254	3.5
Pot Cap-1 Maneuver	-	1005	221
Stage 1	-	-	593
Stage 2	-	-	542
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1002	208
Mov Cap-2 Maneuver	-	-	208
Stage 1	-	-	591
Stage 2	-	-	511

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	384	-	-	1002	-
HCM Lane V/C Ratio	0.108	-	-	0.04	-
HCM Control Delay (s)	15.5	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

2031 Background PM Peak Hour

(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	149	363	15	74	374	92	24	165	109	86	93	116
Future Volume (vph)	149	363	15	74	374	92	24	165	109	86	93	116
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0			50.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99			0.99		0.99		1.00	0.98
Flt		0.994			0.970			0.940			0.917	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1583	1573	0	1615	1552	0	1468	1481	0	1568	1429	0
Flt Permitted	0.398			0.482			0.616			0.497		
Satd. Flow (perm)	663	1573	0	813	1552	0	945	1481	0	818	1429	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			24			56			106	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		534.6			166.1			369.5			112.5	
Travel Time (s)		38.5			12.0			26.6			8.1	
Conf. Peds. (#/hr)			9	9			7		3	3		7
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
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	10%	1%	0%	3%	1%	1%
Adj. Flow (vph)	162	395	16	80	407	100	26	179	118	93	101	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	411	0	80	507	0	26	297	0	93	227	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases		2			6			4			8	
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	30.2	30.2		30.2	30.2		16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.27	0.27		0.27	0.27	
v/c Ratio	0.47	0.51		0.19	0.62		0.10	0.67		0.42	0.49	

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

2031 Background PM Peak Hour

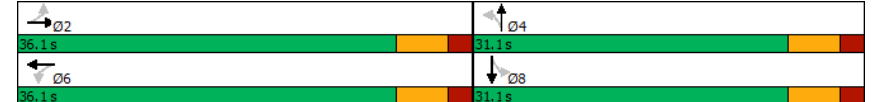
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	17.0	13.3		11.0	15.4		15.8	22.6		22.9	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.0	13.3		11.0	15.4		15.8	22.6		22.9	12.9	
LOS	B	B		B	B		B	C		C	B	
Approach Delay		14.4			14.8			22.0			15.8	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	10.4	26.6		4.3	34.2		2.2	23.3		8.5	10.6	
Queue Length 95th (m)	34.5	64.9		14.8	84.9		6.8	45.1		19.6	26.3	
Internal Link Dist (m)		510.6			142.1			345.5			88.5	
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	342	813		419	812		406	668		351	675	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.47	0.51		0.19	0.62		0.06	0.44		0.26	0.34	

Intersection Summary

Area Type:	Other
Cycle Length:	67.2
Actuated Cycle Length:	58.6
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.67
Intersection Signal Delay:	16.1
Intersection Capacity Utilization:	102.3%
Intersection LOS:	B
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 2: Baldoon Road & McNaughton Avenue



HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

2031 Background PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	149	363	15	74	374	92	24	165	109	86	93	116
Future Volume (veh/h)	149	363	15	74	374	92	24	165	109	86	93	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1673	1588	1600	1700	1600	1600	1567	1588	1600	1660	1588	1588
Adj Flow Rate, veh/h	162	395	16	80	407	100	26	179	118	93	101	126
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
Percent Heavy Veh, %	2	1	0	0	0	0	10	1	0	3	1	1
Cap, veh/h	293	725	29	376	593	146	307	290	191	264	208	260
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	798	1514	61	884	1238	304	961	889	586	956	638	796
Grp Volume(v), veh/h	162	0	411	80	0	507	26	0	297	93	0	227
Grp Sat Flow(s),veh/h/ln	798	0	1576	884	0	1542	961	0	1475	956	0	1434
Q Serve(g_s), s	12.4	0.0	11.5	4.4	0.0	16.0	1.4	0.0	10.6	5.7	0.0	7.9
Cycle Q Clear(g_c), s	28.4	0.0	11.5	15.9	0.0	16.0	9.3	0.0	10.6	16.3	0.0	7.9
Prop In Lane	1.00		0.04	1.00		0.20	1.00		0.40	1.00		0.56
Lane Grp Cap(c), veh/h	293	0	755	376	0	739	307	0	481	264	0	468
V/C Ratio(X)	0.55	0.00	0.54	0.21	0.00	0.69	0.08	0.00	0.62	0.35	0.00	0.49
Avail Cap(c_a), veh/h	293	0	755	376	0	739	377	0	589	334	0	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.7	0.0	11.5	17.1	0.0	12.7	20.6	0.0	17.8	24.7	0.0	16.9
Incr Delay (d2), s/veh	7.3	0.0	2.8	1.3	0.0	5.1	0.2	0.0	1.9	1.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.6	0.3	0.0	1.1	0.1	0.0	0.7	0.5	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	14.3	18.4	0.0	17.8	20.8	0.0	19.7	25.8	0.0	18.0
LnGrp LOS	C	A	B	B	A	B	C	A	B	C	A	B
Approach Vol, veh/h	573			587			323			320		
Approach Delay, s/veh	19.0			17.9			19.8			20.3		
Approach LOS	B			B			B			C		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.1		26.5		36.1		26.5					
Change Period (Y+Rc), s	6.1		6.1		6.1		6.1					
Max Green Setting (Gmax), s	30.0		25.0		30.0		25.0					
Max Q Clear Time (g_c+I1), s	30.4		12.6		18.0		18.3					
Green Ext Time (p_c), s	0.0		2.4		3.6		1.5					

Intersection Summary		
HCM 6th Ctrl Delay	19.0	
HCM 6th LOS	B	

Lanes, Volumes, Timings
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Background PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (vph)	21	29	7	37	47	150	22	131	24	65	62	17
Future Volume (vph)	21	29	7	37	47	150	22	131	24	65	62	17
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.983			0.913			0.982			0.984		
Fit Protected	0.982			0.992			0.994			0.978		
Satd. Flow (prot)	0	1417	0	0	1350	0	0	1453	0	0	1431	0
Fit Permitted	0.982			0.992			0.994			0.978		
Satd. Flow (perm)	0	1417	0	0	1350	0	0	1453	0	0	1431	0
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	238.7			134.6			199.8			369.5		
Travel Time (s)	17.2			9.7			14.4			26.6		
Confl. Peds. (#/hr)	4			4			7			7		
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
Heavy Vehicles (%)	6%	0%	0%	0%	0%	1%	0%	1%	0%	0%	2%	0%
Adj. Flow (vph)	23	32	8	40	51	163	24	142	26	71	67	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	0	0	254	0	0	192	0	0	156	0
Sign Control	Stop			Stop			Stop			Stop		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.6%
Analysis Period (min)	15
ICU Level of Service A	

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Background PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	29	7	37	47	150	22	131	24	65	62	17
Future Vol, veh/h	21	29	7	37	47	150	22	131	24	65	62	17
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
Heavy Vehicles, %	6	0	0	0	0	1	0	1	0	0	2	0
Mvmt Flow	23	32	8	40	51	163	24	142	26	71	67	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	9.6	9.5	9.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	37%	16%	45%
Vol Thru, %	74%	51%	20%	43%
Vol Right, %	14%	12%	64%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	57	234	144
LT Vol	22	21	37	65
Through Vol	131	29	47	62
RT Vol	24	7	150	17
Lane Flow Rate	192	62	254	157
Geometry Grp	1	1	1	1
Degree of Util (X)	0.255	0.089	0.316	0.213
Departure Headway (Hd)	4.774	5.155	4.468	4.893
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	746	690	801	728
Service Time	2.838	3.227	2.521	2.958
HCM Lane V/C Ratio	0.257	0.09	0.317	0.216
HCM Control Delay	9.5	8.7	9.6	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.3	1.4	0.8

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

2031 Background PM Peak Hour
(240216) 255 Lark St, Chatham TIS



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↕		↕			↕
Traffic Volume (vph)	101	10	565	209	17	474
Future Volume (vph)	101	10	565	209	17	474
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.988		0.964			
Fit Protected	0.957					0.998
Satd. Flow (prot)	1367	0	1531	0	0	1548
Fit Permitted	0.957					0.998
Satd. Flow (perm)	1367	0	1531	0	0	1548
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Confl. Peds. (#/hr)	4	6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	11%	1%	0%	7%	3%
Adj. Flow (vph)	110	11	614	227	18	515
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	841	0	0	533
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	66.0% ICU Level of Service C
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

2031 Background PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	4.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	101	10	565	209	17	474
Future Vol, veh/h	101	10	565	209	17	474
Conflicting Peds, #/hr	4	6	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	11	1	0	7	3
Mvmt Flow	110	11	614	227	18	515
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1283	734	0	0	841	0
Stage 1	728	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.43	6.31	-	-	4.17	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.399	-	-	2.263	-
Pot Cap-1 Maneuver	181	406	-	-	773	-
Stage 1	476	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	174	404	-	-	773	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	56.2	0	0.3			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	183	773	-	
HCM Lane V/C Ratio	-	-	0.659	0.024	-	
HCM Control Delay (s)	-	-	56.2	9.8	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	3.9	0.1	-	

Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

2031 Background Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	432	5	28	363	6	14
Future Volume (vph)	432	5	28	363	6	14
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999			0.908		
Fit Protected				0.996	0.984	
Satd. Flow (prot)	1598	0	0	1594	1340	0
Fit Permitted				0.996	0.984	
Satd. Flow (perm)	1598	0	0	1594	1340	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		3	3			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	470	5	30	395	7	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	475	0	0	425	22	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.4%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

2031 Background Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	432	5	28	363	6	14
Future Vol, veh/h	432	5	28	363	6	14
Conflicting Peds, #/hr	0	3	3	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	470	5	30	395	7	15

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	478
Stage 1	-	-	476
Stage 2	-	-	455
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1095	299
Stage 1	-	-	629
Stage 2	-	-	643
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1092	288
Mov Cap-2 Maneuver	-	-	288
Stage 1	-	-	627
Stage 2	-	-	620

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	449	-	-	1092	-
HCM Lane V/C Ratio	0.048	-	-	0.028	-
HCM Control Delay (s)	13.4	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lanes, Volumes, Timings

2031 Background Saturday Peak Hour

2: Baldoon Road & McNaughton Avenue

(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	302	7	51	272	43	7	93	82	64	72	105
Future Volume (vph)	148	302	7	51	272	43	7	93	82	64	72	105
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0		50.0			60.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00				0.99		1.00		
Flt		0.996			0.979			0.930			0.911	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1583	1593	0	1615	1566	0	1380	1471	0	1615	1458	0
Flt Permitted	0.555			0.558			0.637			0.638		
Satd. Flow (perm)	925	1593	0	948	1566	0	926	1471	0	1081	1458	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			15			75			114	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		534.6			166.1			369.5			112.5	
Travel Time (s)		38.5			12.0			26.6			8.1	
Conf. Peds. (#/hr)			1		1				3		3	
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
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%
Adj. Flow (vph)	161	328	8	55	296	47	8	101	89	70	78	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	336	0	55	343	0	8	190	0	70	192	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases		2			6			4			8	
Detector Phase		2			6			4			8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	31.1	31.1		31.1	31.1		11.8	11.8		11.8	11.8	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.21	0.21		0.21	0.21	
v/c Ratio	0.31	0.37		0.10	0.39		0.04	0.51		0.30	0.48	

Lanes, Volumes, Timings

2031 Background Saturday Peak Hour

2: Baldoon Road & McNaughton Avenue

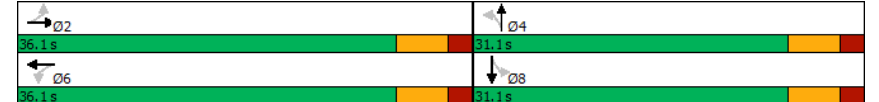
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	9.1	8.7		7.0	8.5		16.7	16.6		21.3	12.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.1	8.7		7.0	8.5		16.7	16.6		21.3	12.6	
LOS	A	A		A	A		B	B		C	B	
Approach Delay		8.8			8.3			16.6			14.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	7.2	15.7		2.2	15.4		0.7	10.0		6.0	6.6	
Queue Length 95th (m)	21.1	37.3		7.8	37.4		3.5	25.3		15.1	21.0	
Internal Link Dist (m)		510.6			142.1			345.5			88.5	
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	521	899		534	890		421	709		491	725	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.37		0.10	0.39		0.02	0.27		0.14	0.26	

Intersection Summary

Area Type:	Other
Cycle Length:	67.2
Actuated Cycle Length:	55.1
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.51
Intersection Signal Delay:	11.0
Intersection Capacity Utilization:	91.4%
Intersection LOS:	B
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 2: Baldoon Road & McNaughton Avenue



HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

2031 Background Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (veh/h)	148	302	7	51	272	43	7	93	82	64	72	105
Future Volume (veh/h)	148	302	7	51	272	43	7	93	82	64	72	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1673	1600	1600	1700	1600	1600	1475	1600	1700	1600	1600	1600
Adj Flow Rate, veh/h	161	328	8	55	296	47	8	101	89	70	78	114
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
Percent Heavy Veh, %	2	0	0	0	0	0	17	0	0	0	0	0
Cap, veh/h	502	830	20	516	719	114	253	195	172	277	146	213
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	928	1555	38	949	1347	214	936	782	689	1081	585	855
Grp Volume(v), veh/h	161	0	336	55	0	343	8	0	190	70	0	192
Grp Sat Flow(s), veh/h/ln	928	0	1593	949	0	1561	936	0	1471	1081	0	1440
Q Serve(g_s), s	7.0	0.0	7.0	2.0	0.0	7.4	0.4	0.0	6.3	3.4	0.0	6.5
Cycle Q Clear(g_c), s	14.4	0.0	7.0	9.0	0.0	7.4	6.9	0.0	6.3	9.6	0.0	6.5
Prop In Lane	1.00		0.02	1.00		0.14	1.00		0.47	1.00		0.59
Lane Grp Cap(c), veh/h	502	0	851	516	0	833	253	0	366	277	0	359
V/C Ratio(X)	0.32	0.00	0.40	0.11	0.00	0.41	0.03	0.00	0.52	0.25	0.00	0.54
Avail Cap(c_a), veh/h	502	0	851	516	0	833	436	0	654	489	0	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.1	0.0	7.7	10.4	0.0	7.8	21.3	0.0	18.2	22.3	0.0	18.3
Incr Delay (d2), s/veh	1.7	0.0	1.4	0.4	0.0	1.5	0.1	0.0	1.6	0.7	0.0	1.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	0.2	0.0	0.3	0.1	0.0	0.3	0.0	0.0	0.4	0.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.8	0.0	9.1	10.8	0.0	9.3	21.3	0.0	19.8	23.0	0.0	20.0
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	A	C
Approach Vol, veh/h	497			398			198			262		
Approach Delay, s/veh	10.6			9.5			19.9			20.8		
Approach LOS	B			A			B			C		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.1		20.1		36.1		20.1					
Change Period (Y+Rc), s	6.1		6.1		6.1		6.1					
Max Green Setting (Gmax), s	30.0		25.0		30.0		25.0					
Max Q Clear Time (g_c+I1), s	16.4		8.9		11.0		11.6					
Green Ext Time (p_c), s	3.0		1.5		2.7		1.9					
Intersection Summary												
HCM 6th Ctrl Delay	13.6											
HCM 6th LOS	B											

Lanes, Volumes, Timings

3: Baldoon Road & Lark Street/Courthouse Lane

2031 Background Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (vph)	14	32	3	9	22	70	9	99	11	49	87	18
Future Volume (vph)	14	32	3	9	22	70	9	99	11	49	87	18
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.992		0.907		0.988		0.984					
Fit Protected	0.986		0.995		0.996		0.984					
Satd. Flow (prot)	0	1467	0	0	1335	0	0	1476	0	0	1428	0
Fit Permitted	0.986		0.995		0.996		0.984					
Satd. Flow (perm)	0	1467	0	0	1335	0	0	1476	0	0	1428	0
Link Speed (k/h)	50		50		50		50					
Link Distance (m)	238.7		134.6		199.8		369.5					
Travel Time (s)	17.2		9.7		14.4		26.6					
Confl. Peds. (#/hr)	4		4		1		1					
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	15	35	3	10	24	76	10	108	12	53	95	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	53	0	0	110	0	0	130	0	0	168	0
Sign Control	Stop		Stop		Stop		Stop					
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.9%						ICU Level of Service A					
Analysis Period (min)	15											

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Background Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection												
Intersection Delay, s/veh	8.3											
Intersection LOS	A											


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	14	32	3	9	22	70	9	99	11	49	87	18
Future Vol, veh/h	14	32	3	9	22	70	9	99	11	49	87	18
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
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	3	0
Mvmt Flow	15	35	3	10	24	76	10	108	12	53	95	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	7.9	8.3	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	29%	9%	32%
Vol Thru, %	83%	65%	22%	56%
Vol Right, %	9%	6%	69%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	49	101	154
LT Vol	9	14	9	49
Through Vol	99	32	22	87
RT Vol	11	3	70	18
Lane Flow Rate	129	53	110	167
Geometry Grp	1	1	1	1
Degree of Util (X)	0.159	0.07	0.129	0.205
Departure Headway (Hd)	4.412	4.717	4.238	4.404
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	814	760	846	817
Service Time	2.433	2.743	2.262	2.425
HCM Lane V/C Ratio	0.158	0.07	0.13	0.204
HCM Control Delay	8.3	8.1	7.9	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.2	0.4	0.8

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

2031 Background Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Volume (vph)	114	11	476	142	7	394
Future Volume (vph)	114	11	476	142	7	394
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988		0.969			
Fit Protected	0.956					0.999
Satd. Flow (prot)	1391	0	1539	0	0	1598
Fit Permitted	0.956					0.999
Satd. Flow (perm)	1391	0	1539	0	0	1598
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%
Adj. Flow (vph)	124	12	517	154	8	428
Shared Lane Traffic (%)						
Lane Group Flow (vph)	136	0	671	0	0	436
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.5%
	ICU Level of Service B
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

2031 Background Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	3.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	114	11	476	142	7	394
Future Vol, veh/h	114	11	476	142	7	394
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	1	0	0	0
Mvmt Flow	124	12	517	154	8	428

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1038	594	0	0	671
Stage 1	594	-	-	-	-
Stage 2	444	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2
Pot Cap-1 Maneuver	256	509	-	-	929
Stage 1	552	-	-	-	-
Stage 2	646	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	253	509	-	-	929
Mov Cap-2 Maneuver	253	-	-	-	-
Stage 1	552	-	-	-	-
Stage 2	639	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.1	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	265	929
HCM Lane V/C Ratio	-	-	0.513	0.008
HCM Control Delay (s)	-	-	32.1	8.9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	2.7	0

Appendix E

2031 Total Traffic Operations Reports



Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↖	↗
Traffic Volume (vph)	308	10	16	394	18	21
Future Volume (vph)	308	10	16	394	18	21
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.996			0.928		
Flt Protected				0.998	0.977	
Satd. Flow (prot)	1578	0	0	1567	1219	0
Flt Permitted				0.998	0.977	
Satd. Flow (perm)	1578	0	0	1567	1219	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		3	3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	0%	2%	18%	6%
Adj. Flow (vph)	335	11	17	428	20	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	346	0	0	445	43	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.0%
ICU Level of Service A	
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↖	↗
Traffic Vol, veh/h	308	10	16	394	18	21
Future Vol, veh/h	308	10	16	394	18	21
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	0	0	2	18	6
Mvmt Flow	335	11	17	428	20	23

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	349
Stage 1	-	-	344
Stage 2	-	-	462
Critical Hdwy	-	4.1	6.58
Critical Hdwy Stg 1	-	-	5.58
Critical Hdwy Stg 2	-	-	5.58
Follow-up Hdwy	-	2.2	3.662
Pot Cap-1 Maneuver	-	1221	330
Stage 1	-	-	684
Stage 2	-	-	602
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1218	323
Mov Cap-2 Maneuver	-	-	323
Stage 1	-	-	682
Stage 2	-	-	591

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	452	-	-	1218	-
HCM Lane V/C Ratio	0.094	-	-	0.014	-
HCM Control Delay (s)	13.8	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

2031 Total AM Peak Hour

(240216) 255 Lark St, Chatham TIS

	←	→	↙	↘	←	→	↙	↘	←	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (vph)	85	256	20	73	257	65	16	58	63	100	87	117
Future Volume (vph)	85	256	20	73	257	65	16	58	63	100	87	117
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0			50.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99		0.99	0.99		0.99	1.00		0.98
Frt		0.989			0.970			0.922			0.914	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1579	0	1568	1512	0	1509	1395	0	1583	1415	0
Flt Permitted	0.551			0.577			0.619			0.673		
Satd. Flow (perm)	909	1579	0	947	1512	0	978	1395	0	1119	1415	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			25			68				114
Link Speed (k/h)		50			50			50				50
Link Distance (m)		534.6			166.1			369.5				112.5
Travel Time (s)		38.5			12.0			26.6				8.1
Conf. Peds. (#/hr)			5	5			6		2	2		6
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
Heavy Vehicles (%)	3%	0%	0%	3%	1%	9%	7%	4%	5%	2%	0%	3%
Adj. Flow (vph)	92	278	22	79	279	71	17	63	68	109	95	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	300	0	79	350	0	17	131	0	109	222	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases		2			6			4			8	
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)	31.3	31.3		31.3	31.3		12.5	12.5		12.5	12.5	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.22	0.22		0.22	0.22	
v/c Ratio	0.18	0.34		0.15	0.41		0.08	0.36		0.44	0.55	

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

2031 Total AM Peak Hour

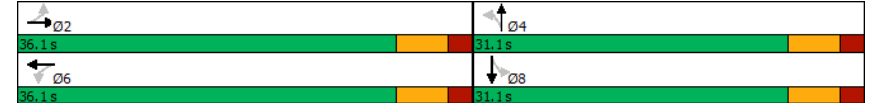
(240216) 255 Lark St, Chatham TIS

	←	→	↙	↘	←	→	↙	↘	←	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	8.3	8.6		7.9	9.1		16.9	12.4		23.9	14.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.3	8.6		7.9	9.1		16.9	12.4		23.9	14.9	
LOS	A	A		A	A		B	B		C	B	
Approach Delay		8.5			8.8			12.9			17.9	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	4.0	13.9		3.4	16.2		1.4	5.3		9.7	9.4	
Queue Length 95th (m)	13.2	35.1		11.4	41.2		5.3	16.8		21.8	26.0	
Internal Link Dist (m)		510.6			142.1			345.5			88.5	
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	508	886		529	856		438	662		500	696	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.34		0.15	0.41		0.04	0.20		0.22	0.32	

Intersection Summary

Area Type:	Other
Cycle Length:	67.2
Actuated Cycle Length:	56
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	11.5
Intersection Capacity Utilization:	94.2%
Intersection LOS:	B
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 2: Baldoon Road & McNaughton Avenue



HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	85	256	20	73	257	65	16	58	63	100	87	117
Future Volume (veh/h)	85	256	20	73	257	65	16	58	63	100	87	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1660	1600	1600	1660	1588	1488	1607	1550	1538	1673	1600	1563
Adj Flow Rate, veh/h	92	278	22	79	279	71	17	63	68	109	95	127
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
Percent Heavy Veh, %	3	0	0	3	1	9	7	4	5	2	0	3
Cap, veh/h	479	770	61	523	642	163	250	176	190	332	160	214
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	913	1463	116	956	1220	310	990	677	731	1117	616	824
Grp Volume(v), veh/h	92	0	300	79	0	350	17	0	131	109	0	222
Grp Sat Flow(s),veh/h/ln	913	0	1579	956	0	1530	990	0	1408	1117	0	1440
Q Serve(g_s), s	3.9	0.0	6.3	3.0	0.0	8.0	0.9	0.0	4.3	5.0	0.0	7.7
Cycle Q Clear(g_c), s	11.9	0.0	6.3	9.3	0.0	8.0	8.6	0.0	4.3	9.4	0.0	7.7
Prop In Lane	1.00		0.07	1.00		0.20	1.00		0.52	1.00		0.57
Lane Grp Cap(c), veh/h	479	0	831	523	0	805	250	0	366	332	0	374
V/C Ratio(X)	0.19	0.00	0.36	0.15	0.00	0.43	0.07	0.00	0.36	0.33	0.00	0.59
Avail Cap(c_a), veh/h	479	0	831	523	0	805	427	0	618	531	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	7.9	10.6	0.0	8.3	22.2	0.0	17.2	21.0	0.0	18.5
Incr Delay (d2), s/veh	0.9	0.0	1.2	0.6	0.0	1.7	0.2	0.0	0.8	0.8	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.3	0.1	0.0	0.4	0.1	0.0	0.2	0.4	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	0.0	9.1	11.2	0.0	10.0	22.4	0.0	18.1	21.9	0.0	20.6
LnGrp LOS	B	A	A	B	A	B	C	A	B	C	A	C
Approach Vol, veh/h	392			429			148			331		
Approach Delay, s/veh	10.0			10.2			18.6			21.0		
Approach LOS	A			B			B			C		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.1		20.9		36.1		20.9					
Change Period (Y+Rc), s	6.1		6.1		6.1		6.1					
Max Green Setting (Gmax), s	30.0		25.0		30.0		25.0					
Max Q Clear Time (g_c+I1), s	13.9		10.6		11.3		11.4					
Green Ext Time (p_c), s	2.5		1.0		3.0		2.4					

Intersection Summary		
HCM 6th Ctrl Delay	13.9	
HCM 6th LOS	B	

Lanes, Volumes, Timings
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	32	49	3	7	13	36	5	63	26	129	40	20
Future Volume (vph)	32	49	3	7	13	36	5	63	26	129	40	20
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.996				0.914				0.963		0.986	
Flt Protected	0.981				0.993				0.998		0.967	
Satd. Flow (prot)	0	1407	0	0	1336	0	0	1378	0	0	1409	0
Flt Permitted	0.981				0.993				0.998		0.967	
Satd. Flow (perm)	0	1407	0	0	1336	0	0	1378	0	0	1409	0
Link Speed (k/h)	50				50				50		50	
Link Distance (m)	238.7				134.6				199.8		369.5	
Travel Time (s)	17.2				9.7				14.4		26.6	
Confl. Peds. (#/hr)	6		1		1		6		6		6	
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
Heavy Vehicles (%)	8%	0%	33%	0%	0%	3%	25%	5%	0%	0%	3%	8%
Adj. Flow (vph)	35	53	3	8	14	39	5	68	28	140	43	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	91	0	0	61	0	0	101	0	0	205	0
Sign Control	Stop				Stop				Stop		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.0%
Analysis Period (min)	15
ICU Level of Service	A

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	32	49	3	7	13	36	5	63	26	129	40	20
Future Vol, veh/h	32	49	3	7	13	36	5	63	26	129	40	20
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
Heavy Vehicles, %	8	0	33	0	0	3	25	5	0	0	3	8
Mvmt Flow	35	53	3	8	14	39	5	68	28	140	43	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	7.8	8.5	9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	38%	12%	68%
Vol Thru, %	67%	58%	23%	21%
Vol Right, %	28%	4%	64%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	84	56	189
LT Vol	5	32	7	129
Through Vol	63	49	13	40
RT Vol	26	3	36	20
Lane Flow Rate	102	91	61	205
Geometry Grp	1	1	1	1
Degree of Util (X)	0.135	0.124	0.074	0.254
Departure Headway (Hd)	4.761	4.879	4.373	4.456
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	753	735	818	807
Service Time	2.789	2.908	2.404	2.48
HCM Lane V/C Ratio	0.135	0.124	0.075	0.254
HCM Control Delay	8.5	8.6	7.8	9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.4	0.2	1

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↕		↕			↕
Traffic Volume (vph)	112	5	272	96	8	432
Future Volume (vph)	112	5	272	96	8	432
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.995		0.965			
Fit Protected	0.954					0.999
Satd. Flow (prot)	1410	0	1502	0	0	1568
Fit Permitted	0.954					0.999
Satd. Flow (perm)	1410	0	1502	0	0	1568
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Conf. Peds. (#/hr)	13					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	0%	1%	8%	0%	2%
Adj. Flow (vph)	122	5	296	104	9	470
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	0	400	0	0	479
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.5% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑		↑			↑
Traffic Vol, veh/h	112	5	272	96	8	432
Future Vol, veh/h	112	5	272	96	8	432
Conflicting Peds, #/hr	13	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	0	1	8	0	2
Mvmt Flow	122	5	296	104	9	470
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	849	348	0	0	400	0
Stage 1	348	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	333	700	-	-	1170	-
Stage 1	717	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	326	700	-	-	1170	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	22.3	0	0.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	334	1170	-	
HCM Lane V/C Ratio	-	-	0.381	0.007	-	
HCM Control Delay (s)	-	-	22.3	8.1	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	1.7	0	-	

Lanes, Volumes, Timings
5: Driveway A & Lark Street

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	↑
Traffic Volume (vph)	60	1	8	30	5	25
Future Volume (vph)	60	1	8	30	5	25
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998		0.886			
Fit Protected			0.989		0.992	
Satd. Flow (prot)	1565		0		0	
Fit Permitted			0.989		0.992	
Satd. Flow (perm)	1565		0		0	
Link Speed (k/h)	50		50		50	
Link Distance (m)	165.0		238.7		125.6	
Travel Time (s)	11.9		17.2		9.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	1	9	33	5	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	66	0	0	42	32	0
Sign Control	Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: Driveway A & Lark Street

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Vol, veh/h	60	1	8	30	5	25
Future Vol, veh/h	60	1	8	30	5	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	1	9	33	5	27

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	66	0
Stage 1	-	-	-	66
Stage 2	-	-	-	51
Critical Hdwy	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-
Pot Cap-1 Maneuver	-	-	1536	-
Stage 1	-	-	-	957
Stage 2	-	-	-	971
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1536	-
Mov Cap-2 Maneuver	-	-	-	874
Stage 1	-	-	-	957
Stage 2	-	-	-	965

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	975	-	-	1536	-
HCM Lane V/C Ratio	0.033	-	-	0.006	-
HCM Control Delay (s)	8.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lanes, Volumes, Timings
6: Partridge Crescent & Driveway B

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (vph)	19	6	0	6	2	0
Future Volume (vph)	19	6	0	6	2	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966					
Fit Protected				0.950		
Satd. Flow (prot)	1515	0	0	1569	1397	0
Fit Permitted	0.950					
Satd. Flow (perm)	1515	0	0	1569	1397	0
Link Speed (k/h)	50			50		
Link Distance (m)	93.7			169.0		
Travel Time (s)	6.7			12.2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	7	0	7	2	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	0	0	7	2	0
Sign Control	Stop			Free		

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

HCM 6th TWSC
6: Partridge Crescent & Driveway B

2031 Total AM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	6.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	19	6	0	6	2	0
Future Vol, veh/h	19	6	0	6	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	7	0	7	2	0

Major/Minor	Minor2	Major2	
Conflicting Flow All	7	7	0
Stage 1	7	-	-
Stage 2	0	-	-
Critical Hdwy	6.52	6.22	4.12
Critical Hdwy Stg 1	5.52	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4.018	3.318	2.218
Pot Cap-1 Maneuver	888	1075	-
Stage 1	890	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	0	1075	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	EB	WB
HCM Control Delay, s	8.4	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1075	-	-
HCM Lane V/C Ratio	0.025	-	-
HCM Control Delay (s)	8.4	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-

Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↖	↗
Traffic Volume (vph)	477	26	37	494	13	28
Future Volume (vph)	477	26	37	494	13	28
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.993				0.908	
Flt Protected				0.997	0.984	
Satd. Flow (prot)	1540	0	0	1532	1340	0
Flt Permitted				0.997	0.984	
Satd. Flow (perm)	1540	0	0	1532	1340	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		4	4		1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	6%	6%	4%	0%	0%
Adj. Flow (vph)	518	28	40	537	14	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	546	0	0	577	44	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	77.1%
ICU Level of Service	D
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↖			↗	↖	↗
Traffic Vol, veh/h	477	26	37	494	13	28
Future Vol, veh/h	477	26	37	494	13	28
Conflicting Peds, #/hr	0	4	4	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	6	6	4	0	0
Mvmt Flow	518	28	40	537	14	30

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	550
Stage 1	-	-	536
Stage 2	-	-	618
Critical Hdwy	-	4.16	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.254	3.5
Pot Cap-1 Maneuver	-	1000	220
Stage 1	-	-	591
Stage 2	-	-	542
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	997	207
Mov Cap-2 Maneuver	-	-	207
Stage 1	-	-	589
Stage 2	-	-	511

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	16.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	360	-	-	997	-
HCM Lane V/C Ratio	0.124	-	-	0.04	-
HCM Control Delay (s)	16.4	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

2031 Total PM Peak Hour

(240216) 255 Lark St, Chatham TIS

	←	→	↙	↘	←	→	↙	↘	←	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	149	363	15	88	374	92	24	167	117	86	96	116
Future Volume (vph)	149	363	15	88	374	92	24	167	117	86	96	116
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0			50.0			60.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.99		0.99	0.99		0.99	1.00		0.98
Fit		0.994		0.970		0.938		0.918				0.918
Fit Protected	0.950			0.950		0.950		0.950				0.950
Satd. Flow (prot)	1583	1573	0	1615	1552	0	1468	1477	0	1568	1431	0
Fit Permitted	0.397			0.481		0.611		0.478				0.478
Satd. Flow (perm)	662	1573	0	811	1552	0	938	1477	0	787	1431	0
Right Turn on Red			Yes		Yes		Yes		Yes		Yes	
Satd. Flow (RTOR)		4			24			60			103	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		534.6			166.1			369.5			112.5	
Travel Time (s)		38.5			12.0			26.6			8.1	
Confl. Peds. (#/hr)			9	9			7	3	3			7
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
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	10%	1%	0%	3%	1%	1%
Adj. Flow (vph)	162	395	16	96	407	100	26	182	127	93	104	126
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	411	0	96	507	0	26	309	0	93	230	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases		2			6			4			8	
Detector Phase		2			6			4			8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	30.2	30.2		30.2	30.2		16.3	16.3		16.3	16.3	
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.28	0.28		0.28	0.28	
v/c Ratio	0.48	0.51		0.23	0.63		0.10	0.68		0.43	0.49	

Lanes, Volumes, Timings

2: Baldoon Road & McNaughton Avenue

2031 Total PM Peak Hour

(240216) 255 Lark St, Chatham TIS

	←	→	↙	↘	←	→	↙	↘	←	→	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	17.3	13.5		11.6	15.6		15.7	23.0		23.3	13.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	17.3	13.5		11.6	15.6		15.7	23.0		23.3	13.2	
LOS	B	B		B	B		B	C		C	B	
Approach Delay		14.6			15.0			22.4			16.1	
Approach LOS		B			B			C			B	
Queue Length 50th (m)	10.6	27.1		5.4	35.0		2.2	24.3		8.5	11.2	
Queue Length 95th (m)	34.5	64.9		17.6	84.9		6.9	47.1		19.9	27.4	
Internal Link Dist (m)		510.6			142.1			345.5			88.5	
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	339	809		416	808		401	666		336	671	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.48	0.51		0.23	0.63		0.06	0.46		0.28	0.34	

Intersection Summary

Area Type: Other

Cycle Length: 67.2

Actuated Cycle Length: 58.9

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 16.4

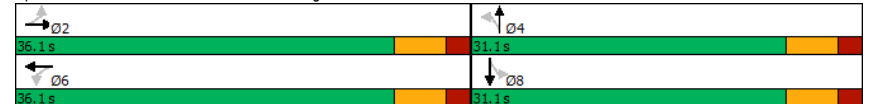
Intersection LOS: B

Intersection Capacity Utilization 102.9%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 2: Baldoon Road & McNaughton Avenue



HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (veh/h)	149	363	15	88	374	92	24	167	117	86	96	116
Future Volume (veh/h)	149	363	15	88	374	92	24	167	117	86	96	116
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99		1.00		0.99		0.99		0.99	
Parking Bus, Adj	1.00		1.00		1.00		1.00		1.00		1.00	
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1673	1588	1600	1700	1600	1600	1567	1588	1600	1660	1588	1588
Adj Flow Rate, veh/h	162	395	16	96	407	100	26	182	127	93	104	126
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
Percent Heavy Veh, %	2	1	0	0	0	0	10	1	0	3	1	1
Cap, veh/h	288	719	29	370	588	144	310	288	201	260	216	261
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	798	1514	61	884	1238	304	958	866	605	945	649	787
Grp Volume(v), veh/h	162	0	411	96	0	507	26	0	309	93	0	230
Grp Sat Flow(s), veh/h/ln	798	0	1576	884	0	1542	958	0	1471	945	0	1436
Q Serve(g_s), s	12.6	0.0	11.7	5.5	0.0	16.3	1.4	0.0	11.2	5.8	0.0	8.0
Cycle Q Clear(g_c), s	28.8	0.0	11.7	17.2	0.0	16.3	9.4	0.0	11.2	17.0	0.0	8.0
Prop In Lane	1.00		0.04	1.00		0.20	1.00		0.41	1.00		0.55
Lane Grp Cap(c), veh/h	288	0	748	370	0	732	310	0	488	260	0	477
V/C Ratio(X)	0.56	0.00	0.55	0.26	0.00	0.69	0.08	0.00	0.63	0.36	0.00	0.48
Avail Cap(c_a), veh/h	288	0	748	370	0	732	371	0	582	320	0	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	11.8	17.9	0.0	13.0	20.5	0.0	17.8	25.1	0.0	16.8
Incr Delay (d2), s/veh	7.8	0.0	2.9	1.7	0.0	5.3	0.2	0.0	2.2	1.2	0.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.3	0.0	0.6	0.4	0.0	1.1	0.1	0.0	0.8	0.5	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	32.0	0.0	14.7	19.6	0.0	18.3	20.7	0.0	20.0	26.2	0.0	17.9
LnGrp LOS	C	A	B	B	A	B	C	A	C	C	A	B
Approach Vol, veh/h	573			603			335			323		
Approach Delay, s/veh	19.6			18.5			20.1			20.3		
Approach LOS	B			B			C			C		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.1		27.1		36.1		27.1					
Change Period (Y+Rc), s	6.1		6.1		6.1		6.1					
Max Green Setting (Gmax), s	30.0		25.0		30.0		25.0					
Max Q Clear Time (g_c+I1), s	30.8		13.2		19.2		19.0					
Green Ext Time (p_c), s	0.0		2.4		3.4		1.4					
Intersection Summary												
HCM 6th Ctrl Delay	19.4											
HCM 6th LOS	B											

Lanes, Volumes, Timings
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (vph)	31	34	7	37	55	150	22	131	24	65	62	34
Future Volume (vph)	31	34	7	37	55	150	22	131	24	65	62	34
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.986				0.916				0.982		0.971	
Fit Protected	0.979				0.992				0.994		0.980	
Satd. Flow (prot)	0	1411	0	0	1355	0	0	1453	0	0	1417	0
Fit Permitted	0.979				0.992				0.994		0.980	
Satd. Flow (perm)	0	1411	0	0	1355	0	0	1453	0	0	1417	0
Link Speed (k/h)	50				50				50		50	
Link Distance (m)	238.7				134.6				199.8		369.5	
Travel Time (s)	17.2				9.7				14.4		26.6	
Confl. Peds. (#/hr)	4				4				7		7	
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
Heavy Vehicles (%)	6%	0%	0%	0%	0%	1%	0%	1%	0%	0%	2%	0%
Adj. Flow (vph)	34	37	8	40	60	163	24	142	26	71	67	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	0	0	263	0	0	192	0	0	175	0
Sign Control	Stop				Stop				Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 52.8%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection												
Intersection Delay, s/veh	9.6											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	31	34	7	37	55	150	22	131	24	65	62	34
Future Vol, veh/h	31	34	7	37	55	150	22	131	24	65	62	34
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
Heavy Vehicles, %	6	0	0	0	0	1	0	1	0	0	2	0
Mvmt Flow	34	37	8	40	60	163	24	142	26	71	67	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	9.9	9.7	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	43%	15%	40%
Vol Thru, %	74%	47%	23%	39%
Vol Right, %	14%	10%	62%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	72	242	161
LT Vol	22	31	37	65
Through Vol	131	34	55	62
RT Vol	24	7	150	34
Lane Flow Rate	192	78	263	175
Geometry Grp	1	1	1	1
Degree of Util (X)	0.26	0.114	0.333	0.238
Departure Headway (Hd)	4.87	5.251	4.552	4.902
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	731	676	784	726
Service Time	2.946	3.334	2.615	2.98
HCM Lane V/C Ratio	0.263	0.115	0.335	0.241
HCM Control Delay	9.7	9	9.9	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.4	1.5	0.9

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Volume (vph)	116	10	565	234	17	474
Future Volume (vph)	116	10	565	234	17	474
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.989		0.960			
Fit Protected	0.956					0.998
Satd. Flow (prot)	1368	0	1525	0	0	1548
Fit Permitted	0.956					0.998
Satd. Flow (perm)	1368	0	1525	0	0	1548
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Confl. Peds. (#/hr)	4	6				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	11%	1%	0%	7%	3%
Adj. Flow (vph)	126	11	614	254	18	515
Shared Lane Traffic (%)						
Lane Group Flow (vph)	137	0	868	0	0	533
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	68.7% ICU Level of Service C
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	6.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	116	10	565	234	17	474
Future Vol, veh/h	116	10	565	234	17	474
Conflicting Peds, #/hr	4	6	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	11	1	0	7	3
Mvmt Flow	126	11	614	254	18	515
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1296	747	0	0	868	0
Stage 1	741	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Critical Hdwy	6.43	6.31	-	-	4.17	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.399	-	-	2.263	-
Pot Cap-1 Maneuver	178	399	-	-	755	-
Stage 1	470	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	172	397	-	-	755	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	470	-	-	-	-	-
Stage 2	552	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	69.9	0	0.3			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	180	755	-	
HCM Lane V/C Ratio	-	-	0.761	0.024	-	
HCM Control Delay (s)	-	-	69.9	9.9	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	5	0.1	-	

Lanes, Volumes, Timings
5: Driveway A & Lark Street

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

	→	↖	↗	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (vph)	56	6	25	86	3	15
Future Volume (vph)	56	6	25	86	3	15
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.986				0.886	
Fit Protected				0.989	0.992	
Satd. Flow (prot)	1547	0	0	1551	1293	0
Fit Permitted				0.989	0.992	
Satd. Flow (perm)	1547	0	0	1551	1293	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	165.0			238.7	125.6	
Travel Time (s)	11.9			17.2	9.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	7	27	93	3	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	120	19	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: Driveway A & Lark Street

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Vol, veh/h	56	6	25	86	3	15
Future Vol, veh/h	56	6	25	86	3	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	61	7	27	93	3	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	68	0	212 65
Stage 1	-	-	-	-	65 -
Stage 2	-	-	-	-	147 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1533	-	776 999
Stage 1	-	-	-	-	958 -
Stage 2	-	-	-	-	880 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1533	-	761 999
Mov Cap-2 Maneuver	-	-	-	-	761 -
Stage 1	-	-	-	-	958 -
Stage 2	-	-	-	-	863 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	950	-	-	1533	-
HCM Lane V/C Ratio	0.021	-	-	0.018	-
HCM Control Delay (s)	8.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Lanes, Volumes, Timings
6: Partridge Crescent & Driveway B

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

	→	↖	↗	←	↙	↘
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (vph)	11	4	0	19	6	0
Future Volume (vph)	11	4	0	19	6	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966					
Fit Protected				0.950		
Satd. Flow (prot)	1515	0	0	1569	1397	0
Fit Permitted	0.950					
Satd. Flow (perm)	1515	0	0	1569	1397	0
Link Speed (k/h)	50			50 50		
Link Distance (m)	93.7			169.0 125.2		
Travel Time (s)	6.7			12.2 9.0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	4	0	21	7	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	0	0	21	7	0
Sign Control	Stop			Free Free		

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

HCM 6th TWSC
6: Partridge Crescent & Driveway B

2031 Total PM Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	3.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	11	4	0	19	6	0
Future Vol, veh/h	11	4	0	19	6	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	4	0	21	7	0

Major/Minor	Minor2	Major2	
Conflicting Flow All	21	21	0
Stage 1	21	-	-
Stage 2	0	-	-
Critical Hdwy	6.52	6.22	4.12
Critical Hdwy Stg 1	5.52	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	4.018	3.318	2.218
Pot Cap-1 Maneuver	873	1056	-
Stage 1	878	-	-
Stage 2	-	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	0	1056	-
Mov Cap-2 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-

Approach	EB	WB
HCM Control Delay, s	8.5	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1056	-	-
HCM Lane V/C Ratio	0.015	-	-
HCM Control Delay (s)	8.5	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0	-	-

Lanes, Volumes, Timings
1: Crane Drive & McNaughton Avenue

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (vph)	432	9	28	363	8	14
Future Volume (vph)	432	9	28	363	8	14
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997			0.916		
Fit Protected				0.996	0.982	
Satd. Flow (prot)	1595	0	0	1594	1349	0
Fit Permitted				0.996	0.982	
Satd. Flow (perm)	1595	0	0	1594	1349	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	157.5			534.6	157.3	
Travel Time (s)	11.3			38.5	11.3	
Confl. Peds. (#/hr)		3	3			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	470	10	30	395	9	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	480	0	0	425	24	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.4%
ICU Level of Service	B
Analysis Period (min)	15

HCM 6th TWSC
1: Crane Drive & McNaughton Avenue

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	432	9	28	363	8	14
Future Vol, veh/h	432	9	28	363	8	14
Conflicting Peds, #/hr	0	3	3	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	470	10	30	395	9	15

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	483
Stage 1	-	-	478
Stage 2	-	-	455
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1090	298
Stage 1	-	-	628
Stage 2	-	-	643
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1087	287
Mov Cap-2 Maneuver	-	-	287
Stage 1	-	-	626
Stage 2	-	-	620

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	14
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	426	-	-	1087	-
HCM Lane V/C Ratio	0.056	-	-	0.028	-
HCM Control Delay (s)	14	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lanes, Volumes, Timings

2031 Total Saturday Peak Hour

2: Baldoon Road & McNaughton Avenue

(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	302	7	62	272	43	7	94	88	64	74	105
Future Volume (vph)	148	302	7	62	272	43	7	94	88	64	74	105
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1600	1600	1700	1600	1600
Storage Length (m)	40.0		0.0	40.0		0.0	30.0		0.0	20.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	50.0			45.0		50.0			60.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00				0.99		1.00		
Flt	0.996			0.979			0.927			0.912		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1583	1593	0	1615	1566	0	1380	1466	0	1615	1459	0
Flt Permitted	0.555			0.558			0.636			0.633		
Satd. Flow (perm)	925	1593	0	948	1566	0	924	1466	0	1073	1459	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	2			15			80			114		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	534.6			166.1			369.5			112.5		
Travel Time (s)	38.5			12.0			26.6			8.1		
Conf. Peds. (#/hr)			1		1				3		3	
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
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%
Adj. Flow (vph)	161	328	8	67	296	47	8	102	96	70	80	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	336	0	67	343	0	8	198	0	70	194	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	2		6		4		8		8		8	
Permitted Phases	2		6		4		8		8		8	
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	30.0	30.0		30.0	30.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (s)	36.1	36.1		36.1	36.1		31.1	31.1		31.1	31.1	
Total Split (%)	53.7%	53.7%		53.7%	53.7%		46.3%	46.3%		46.3%	46.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.1	4.1		4.1	4.1		4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		4.0	4.0		4.0	4.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	30.9	30.9		30.9	30.9		11.9	11.9		11.9	11.9	
Actuated g/C Ratio	0.56	0.56		0.56	0.56		0.22	0.22		0.22	0.22	
v/c Ratio	0.31	0.38		0.13	0.39		0.04	0.52		0.30	0.48	

Lanes, Volumes, Timings

2031 Total Saturday Peak Hour

2: Baldoon Road & McNaughton Avenue

(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	9.2	8.8		7.3	8.6		16.6	16.6		21.2	12.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.2	8.8		7.3	8.6		16.6	16.6		21.2	12.6	
LOS	A	A		A	A		B	B		C	B	
Approach Delay	8.9			8.4			16.6			14.9		
Approach LOS	A			A			B			B		
Queue Length 50th (m)	7.3	15.8		2.7	15.5		0.7	10.4		6.0	6.8	
Queue Length 95th (m)	21.5	38.0		9.4	38.0		3.4	26.1		15.1	21.3	
Internal Link Dist (m)	510.6			142.1			345.5			88.5		
Turn Bay Length (m)	40.0			40.0			30.0			20.0		
Base Capacity (vph)	519	895		532	886		420	711		488	726	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.38		0.13	0.39		0.02	0.28		0.14	0.27	
Intersection Summary												
Area Type:	Other											
Cycle Length:	67.2											
Actuated Cycle Length:	55											
Natural Cycle:	70											
Control Type:	Semi Act-Uncoord											
Maximum v/c Ratio:	0.52											
Intersection Signal Delay:	11.1					Intersection LOS: B						
Intersection Capacity Utilization:	91.9%					ICU Level of Service F						
Analysis Period (min):	15											
Splits and Phases:	2: Baldoon Road & McNaughton Avenue											

HCM 6th Signalized Intersection Summary
2: Baldoon Road & McNaughton Avenue

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (veh/h)	148	302	7	62	272	43	7	94	88	64	74	105
Future Volume (veh/h)	148	302	7	62	272	43	7	94	88	64	74	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1673	1600	1600	1700	1600	1600	1475	1600	1700	1600	1600	1600
Adj Flow Rate, veh/h	161	328	8	67	296	47	8	102	96	70	80	114
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
Percent Heavy Veh, %	2	0	0	0	0	0	17	0	0	0	0	0
Cap, veh/h	497	825	20	512	715	114	256	192	180	275	151	215
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	928	1555	38	949	1347	214	934	756	711	1073	594	847
Grp Volume(v), veh/h	161	0	336	67	0	343	8	0	198	70	0	194
Grp Sat Flow(s),veh/h/ln	928	0	1593	949	0	1561	934	0	1467	1073	0	1442
Q Serve(g_s), s	7.1	0.0	7.1	2.6	0.0	7.5	0.4	0.0	6.6	3.4	0.0	6.6
Cycle Q Clear(g_c), s	14.6	0.0	7.1	9.7	0.0	7.5	7.0	0.0	6.6	10.0	0.0	6.6
Prop In Lane	1.00		0.02	1.00		0.14	1.00		0.48	1.00		0.59
Lane Grp Cap(c), veh/h	497	0	845	512	0	828	256	0	372	275	0	366
V/C Ratio(X)	0.32	0.00	0.40	0.13	0.00	0.41	0.03	0.00	0.53	0.25	0.00	0.53
Avail Cap(c_a), veh/h	497	0	845	512	0	828	432	0	649	477	0	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	7.9	10.8	0.0	8.0	21.2	0.0	18.2	22.5	0.0	18.2
Incr Delay (d2), s/veh	1.7	0.0	1.4	0.5	0.0	1.5	0.1	0.0	1.7	0.7	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	0.1	0.0	0.4	0.0	0.0	0.4	0.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	0.0	9.3	11.3	0.0	9.5	21.3	0.0	19.9	23.2	0.0	19.9
LnGrp LOS	B	A	A	B	A	A	C	A	B	C	A	B
Approach Vol, veh/h	497			410			206			264		
Approach Delay, s/veh	10.9			9.8			19.9			20.8		
Approach LOS	B			A			B			C		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	36.1		20.4		36.1		20.4					
Change Period (Y+Rc), s	6.1		6.1		6.1		6.1					
Max Green Setting (Gmax), s	30.0		25.0		30.0		25.0					
Max Q Clear Time (g_c+I1), s	16.6		9.0		11.7		12.0					
Green Ext Time (p_c), s	3.0		1.6		2.8		1.8					
Intersection Summary												
HCM 6th Ctrl Delay	13.8											
HCM 6th LOS	B											

Lanes, Volumes, Timings

3: Baldoon Road & Lark Street/Courthouse Lane

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (vph)	21	36	3	9	28	70	9	99	11	49	87	31
Future Volume (vph)	21	36	3	9	28	70	9	99	11	49	87	31
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.994			0.912			0.988			0.975		
Flt Protected	0.983			0.996			0.996			0.986		
Satd. Flow (prot)	0	1466	0	0	1345	0	0	1476	0	0	1420	0
Flt Permitted	0.983			0.996			0.996			0.986		
Satd. Flow (perm)	0	1466	0	0	1345	0	0	1476	0	0	1420	0
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	238.7			134.6			199.8			369.5		
Travel Time (s)	17.2			9.7			14.4			26.6		
Conf. Peds. (#/hr)	4			4			1			1		
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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	3%	0%
Adj. Flow (vph)	23	39	3	10	30	76	10	108	12	53	95	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	65	0	0	116	0	0	130	0	0	182	0
Sign Control	Stop			Stop			Stop			Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 35.7%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 6th AWSC
3: Baldoon Road & Lark Street/Courthouse Lane

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection												
Intersection Delay, s/veh	8.4											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	21	36	3	9	28	70	9	99	11	49	87	31
Future Vol, veh/h	21	36	3	9	28	70	9	99	11	49	87	31
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
Heavy Vehicles, %	0	0	0	0	0	2	0	0	0	0	3	0
Mvmt Flow	23	39	3	10	30	76	10	108	12	53	95	34
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	8	8.4	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	35%	8%	29%
Vol Thru, %	83%	60%	26%	52%
Vol Right, %	9%	5%	65%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	60	107	167
LT Vol	9	21	9	49
Through Vol	99	36	28	87
RT Vol	11	3	70	31
Lane Flow Rate	129	65	116	182
Geometry Grp	1	1	1	1
Degree of Util (X)	0.161	0.087	0.139	0.222
Departure Headway (Hd)	4.477	4.779	4.309	4.408
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	802	749	832	815
Service Time	2.503	2.81	2.337	2.433
HCM Lane V/C Ratio	0.161	0.087	0.139	0.223
HCM Control Delay	8.4	8.3	8	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.3	0.5	0.8

Lanes, Volumes, Timings
4: Keil Drive & Baldoon Road

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑		↑			↑
Traffic Volume (vph)	125	11	476	161	7	394
Future Volume (vph)	125	11	476	161	7	394
Ideal Flow (vphpl)	1500	1500	1600	1600	1600	1600
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989		0.966			
Fit Protected	0.956					0.999
Satd. Flow (prot)	1393	0	1534	0	0	1598
Fit Permitted	0.956					0.999
Satd. Flow (perm)	1393	0	1534	0	0	1598
Link Speed (k/h)	50		50			50
Link Distance (m)	250.5		260.3			226.5
Travel Time (s)	18.0		18.7			16.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	1%	0%	0%	0%
Adj. Flow (vph)	136	12	517	175	8	428
Shared Lane Traffic (%)						
Lane Group Flow (vph)	148	0	692	0	0	436
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	57.7%
	ICU Level of Service B
Analysis Period (min)	15

HCM 6th TWSC
4: Keil Drive & Baldoon Road

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	4.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	125	11	476	161	7	394
Future Vol, veh/h	125	11	476	161	7	394
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	1	0	0	0
Mvmt Flow	136	12	517	175	8	428
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1049	605	0	0	692	0
Stage 1	605	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	252	501	-	-	912	-
Stage 1	545	-	-	-	-	-
Stage 2	646	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	249	501	-	-	912	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	35.6	0	0.2			
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	260	912	-	
HCM Lane V/C Ratio	-	-	0.569	0.008	-	
HCM Control Delay (s)	-	-	35.6	9	0	
HCM Lane LOS	-	-	E	A	A	
HCM 95th %tile Q(veh)	-	-	3.2	0	-	

Lanes, Volumes, Timings
5: Driveway A & Lark Street

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	49	4	19	49	2	11
Future Volume (vph)	49	4	19	49	2	11
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991					
Fit Protected	0.986 0.993					
Satd. Flow (prot)	1555	0	0	1547	1291	0
Fit Permitted	0.986 0.993					
Satd. Flow (perm)	1555	0	0	1547	1291	0
Link Speed (k/h)	50					
Link Distance (m)	165.0 238.7 125.6					
Travel Time (s)	11.9 17.2 9.0					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	4	21	53	2	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	74	14	0
Sign Control	Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	21.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 6th TWSC
5: Driveway A & Lark Street

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Vol, veh/h	49	4	19	49	2	11
Future Vol, veh/h	49	4	19	49	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	4	21	53	2	12

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	57	150
Stage 1	-	-	-	55
Stage 2	-	-	-	95
Critical Hdwy	-	-	4.12	6.42
Critical Hdwy Stg 1	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	3.318
Pot Cap-1 Maneuver	-	-	1547	842
Stage 1	-	-	-	968
Stage 2	-	-	-	929
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1547	830
Mov Cap-2 Maneuver	-	-	-	830
Stage 1	-	-	-	968
Stage 2	-	-	-	916

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	979	-	-	1547	-
HCM Lane V/C Ratio	0.014	-	-	0.013	-
HCM Control Delay (s)	8.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lanes, Volumes, Timings
6: Partridge Crescent & Driveway B

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (vph)	8	3	0	14	5	0
Future Volume (vph)	8	3	0	14	5	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966					
Fit Protected	0.950					
Satd. Flow (prot)	1515	0	0	1569	1397	0
Fit Permitted	0.950					
Satd. Flow (perm)	1515	0	0	1569	1397	0
Link Speed (k/h)	50			50		
Link Distance (m)	93.7			169.0		
Travel Time (s)	6.7			12.2		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	3	0	15	5	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	15	5	0
Sign Control	Stop			Free	Free	

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

HCM 6th TWSC
6: Partridge Crescent & Driveway B

2031 Total Saturday Peak Hour
(240216) 255 Lark St, Chatham TIS

Intersection						
Int Delay, s/veh	3.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	8	3	0	14	5	0
Future Vol, veh/h	8	3	0	14	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	3	0	15	5	0

Major/Minor	Minor2	Major2		
Conflicting Flow All	15	15	0	0
Stage 1	15	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	879	1065	-	-
Stage 1	883	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				
Mov Cap-1 Maneuver	0	1065	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	8.4	0
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	1065	-	-
HCM Lane V/C Ratio	0.011	-	-
HCM Control Delay (s)	8.4	0	-
HCM Lane LOS	A	A	-
HCM 95th %tile Q(veh)	0	-	-