



Residential Subdivision 52 Hawkesville Road, St. Jacobs

Transportation Impact Study

Paradigm Transportation Solutions Limited

2025-05
240600



Project Summary



Project Number:

240600

Date and Version:

2025-05

2.0

Client:

Schlegel Urban Developments

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Executive Summary

Content

Schlegel Urban Developments retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study for a proposed residential development located at 52 Hawkesville Road, 110 and 118 Northside Drive in St. Jacobs, Ontario.

This Transportation Impact Study (TIS) includes an analysis of existing traffic conditions, a description of the proposed development, traffic forecasts for a five year horizon from the date the study is commissioned, and any recommendations required to manage future traffic conditions.

Development Concept

The subject site is proposed to be developed into a residential development with up to 409 residential units, mixed between detached houses, townhouses, and apartments.

Vehicle access is proposed via a total of two all-moves accesses with one connection to Hawkesville Road and one connection to Northside Drive.

Conclusions

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

- ▶ **Existing Traffic Conditions:** The study area intersections are currently operating within acceptable levels of service and no critical movements during the AM and PM peak hours.
- ▶ **Development Trip Generation:** The development is forecast to generate approximately 228 and 278 trips during the AM and PM peak hours respectively.
- ▶ **Sight Distance Assessment:** The site access locations to both Hawkesville Road and Northside Drive are expected to meet all of the minimum sight distances defined by the Transportation Association of Canada.
- ▶ **Background and Total Traffic Conditions:** The study area intersections are forecast to operate at acceptable levels of service similar to existing traffic conditions with no critical movements noted.
- ▶ **Left-Turn Lane Warrant:** Left-turn lanes are not warranted at the site access intersections.



Recommendations

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



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1 Introduction

1.1 Overview

Schlegel Urban Developments retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study for a proposed residential development located at 52 Hawkesville Road, 110 and 118 Northside Drive in St. Jacobs, Ontario. **Figure 1.1** illustrates the location of the subject site.

This study reviews the forecast impacts of the site-generated traffic on the surrounding road network and identifies any required remedial measures. The scope of the study includes:

- ▶ Assessing current traffic and site conditions within the study area;
- ▶ Forecasting future non-development (background) traffic growth;
- ▶ Forecasting site-generated traffic;
- ▶ Analysing future traffic impacts on the surrounding road network for five-years after the date the study is commissioned; and
- ▶ Recommending any necessary mitigation.

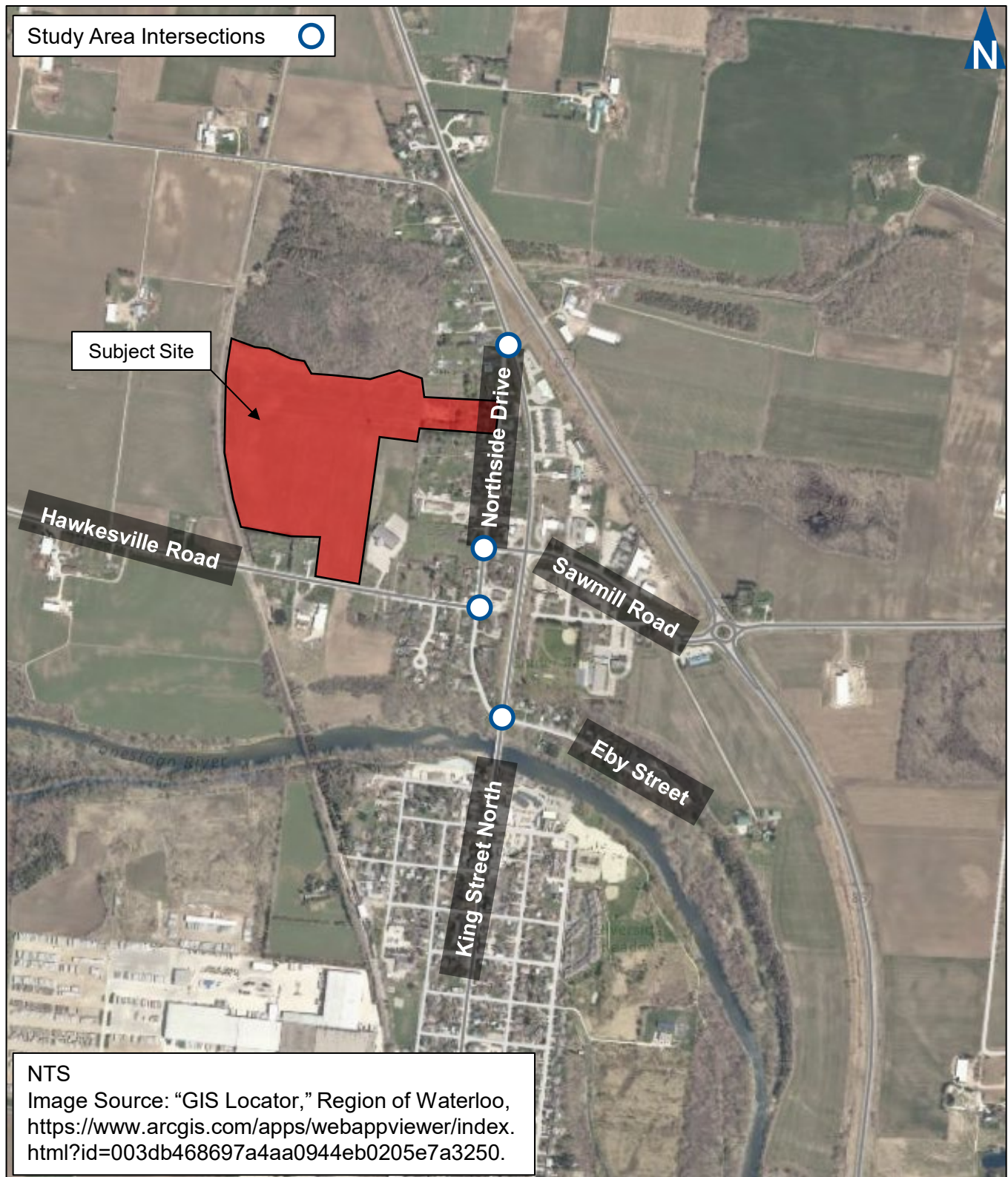
The study scope was developed in consultation with Waterloo Region and the Woolwich Township in December 2024.

1.2 Study Area

The intersections assessed in this study include:

- ▶ Northside Drive and Sawmill Road (unsignalized);
- ▶ Northside Drive and Hawkesville Road (unsignalized);
- ▶ Northside Drive/Eby Street and King Street North (unsignalized);
- ▶ King Street North (Township Road 24) and Northside Drive (unsignalized);
- ▶ A new street connection to Northside Drive (assumed unsignalized); and
- ▶ A new street connection to Hawkesville Road (assumed unsignalized).





2 Existing Conditions

2.1 Road Characteristics

The roadways of interest within the study area include Northside Drive, Sawmill Road, Hawkesville Road, King Street North, and Eby Street. These roadways are generally described as follows¹²:

- ▶ **King Street North** is a two-lane, 50 km/h road within the study area. North of Sawmill Road, the roadway is classified as a collector and there are no sidewalks provided on either side of the roadway. Between Sawmill Road and Northside Drive/Eby Street, the roadway is classified as regional and there is a sidewalk provided on the east side of the roadway. South of Northside Drive/Eby Street, the roadway remains classified as regional and sidewalks are provided on both sides of the roadway;
- ▶ **Hawkesville Road** is a two-lane, 50 km/h regional road within the study area. Between Northside Drive and the Calvary United Church Driveway, sidewalks are provided on both sides of the roadway. West of the Calvary United Church Driveway, there are no sidewalks on either side of the roadway;
- ▶ **Sawmill Road** is a two-lane, 50 km/h regional road within the study area. East of the bus stop in front of the Woolwich Community Health Centre, there are no sidewalks on either side of the roadway. Between Northside Drive and the bus stop in front of the Woolwich Community Health Centre, there is a sidewalk on the south side of the roadway;
- ▶ **Northside Drive** is a two-lane, 50 km/h road within the study area. North of Sawmill Road, the roadway is classified as local and there are no sidewalks provided on either side of the roadway. Between Hawkesville Road and Sawmill Road, the roadway is classified as regional and there are sidewalks provided on both sides of the roadway. South of Hawkesville Road, the roadway is classified as local and there is a sidewalk provided on the west side of the roadway; and
- ▶ **Eby Street** is a two-lane, 50 km/h local road within the study area. There is a sidewalk provided only on one side of the roadway.

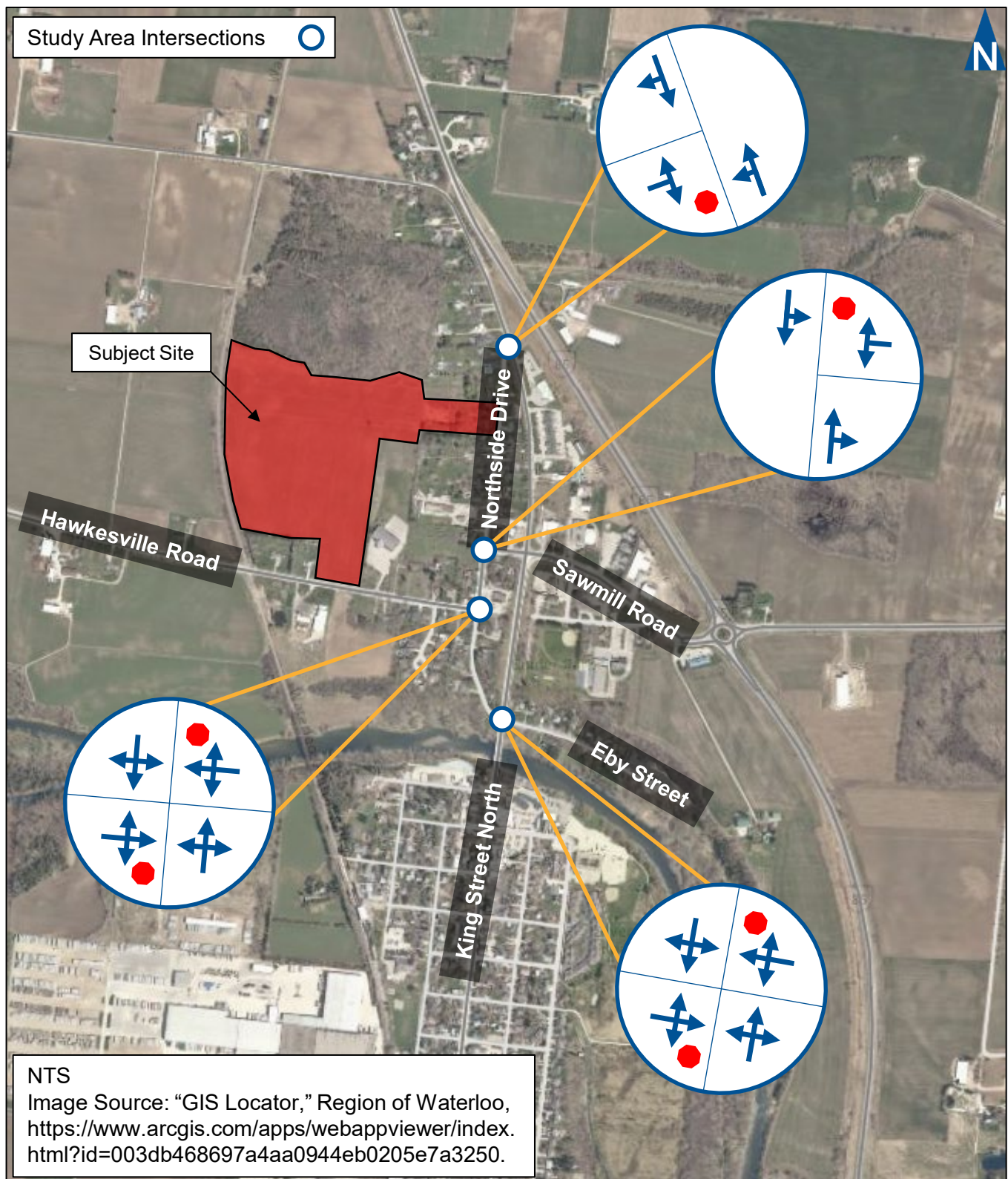
¹ Township of Woolwich, *Official Plan: Map 15.1 – Township of Woolwich Road Hierarchy*, (Elmira: Township of Woolwich, 2022).

² Region of Waterloo, *Official Plan: Map 3b – Township of Woolwich Urban Area*, (Kitchener: Region of Waterloo, 2015).



Figure 2.1 details the existing traffic control and lane configurations at the study area intersections.





2.2 Active Transportation

Figure 2.2 and **Figure 2.3** illustrate the existing and proposed cycling network in the vicinity of the subject site, respectively.

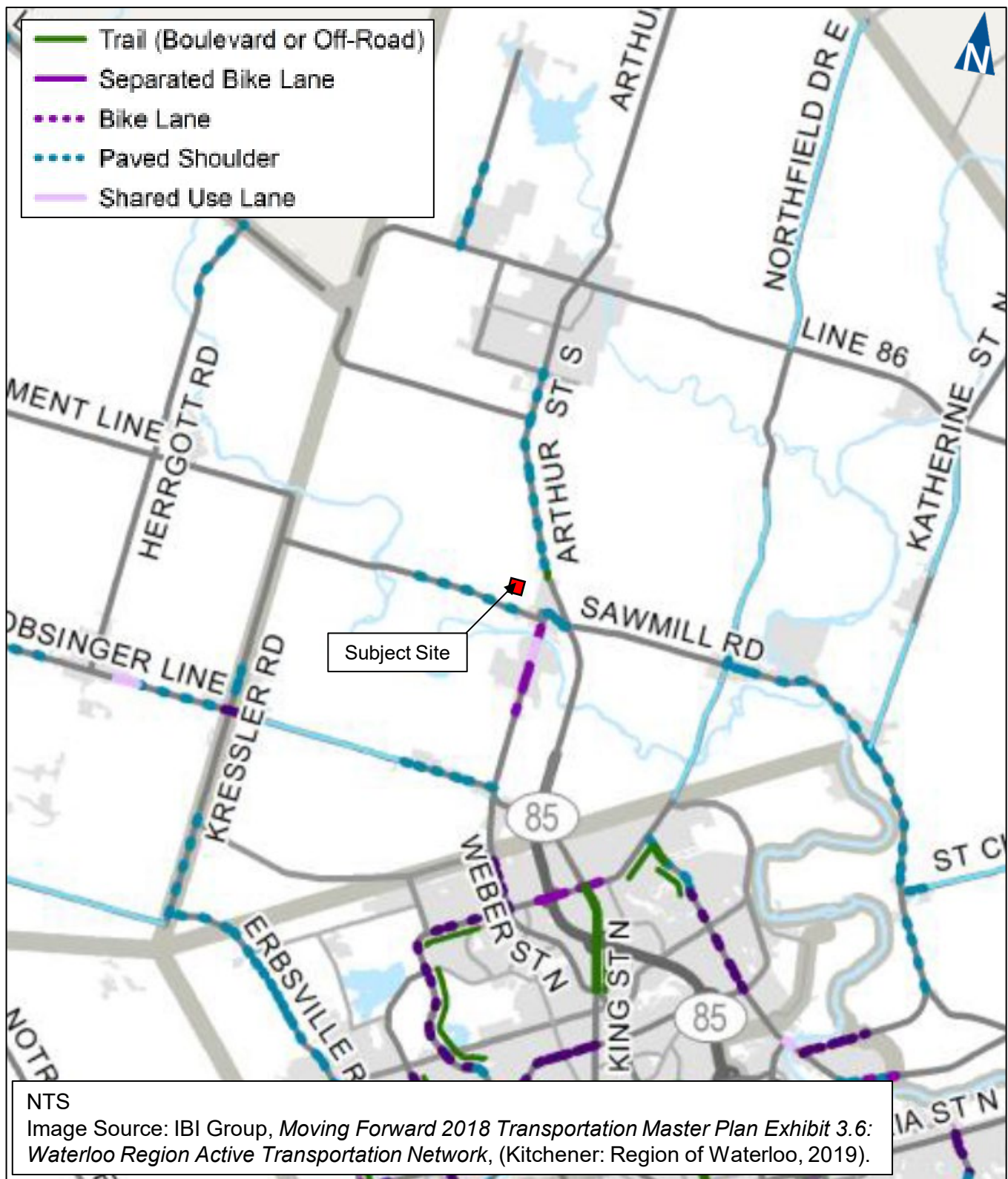
The existing infrastructure includes:

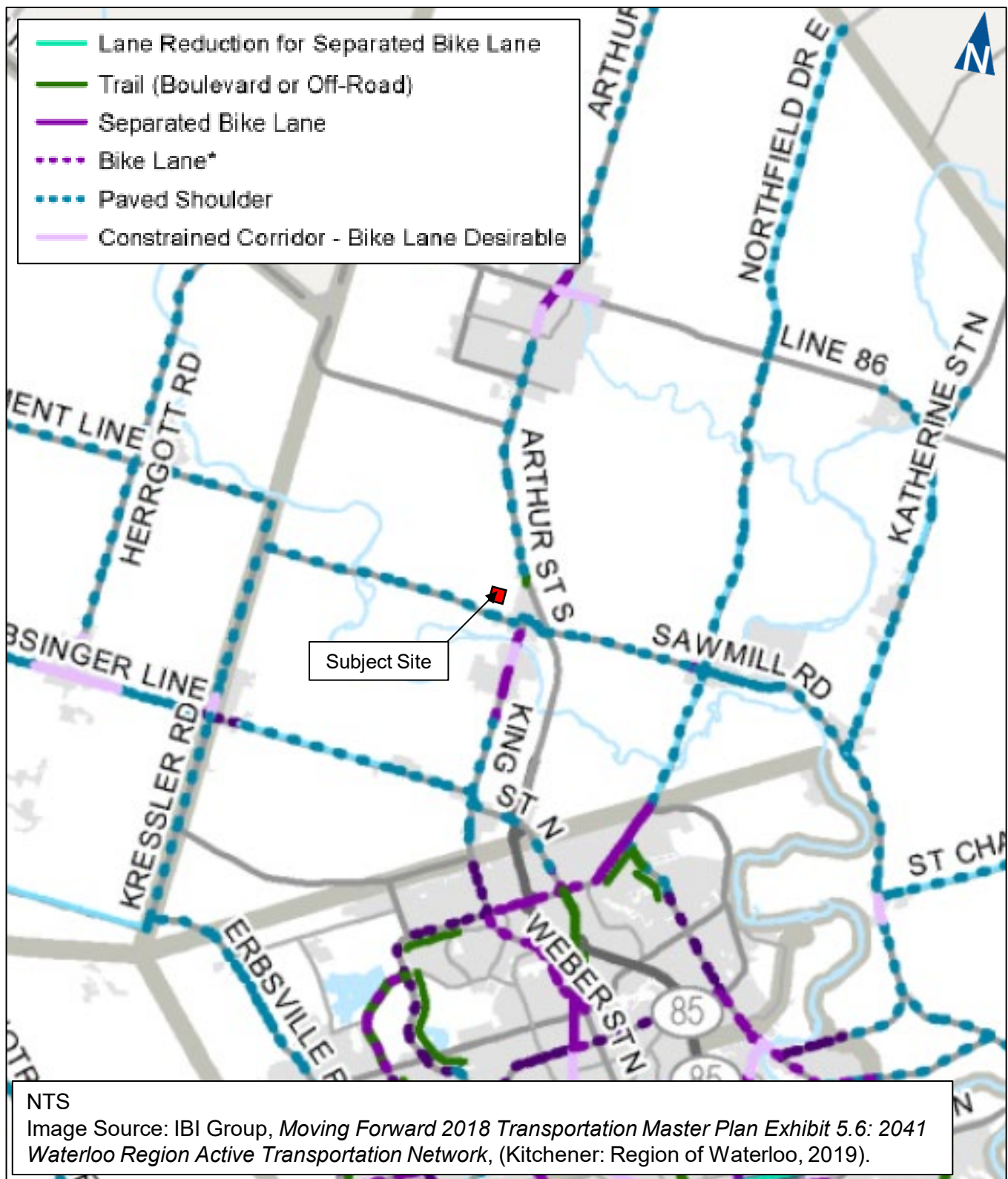
- ▶ Cycle lanes running along King Street North; and
- ▶ Paved shoulders running along Hawkesville Road, Sawmill Road, and Northside Drive between Hawkesville Road and Sawmill Road.

The identified improvements include:

- ▶ An extension of the paved shoulders running along Hawkesville Road approximately between the Conestogo River crossing and Kressler Road/Ament Line.







2.3 Transit Service

Grand River Transit³ operates one route near the study area:

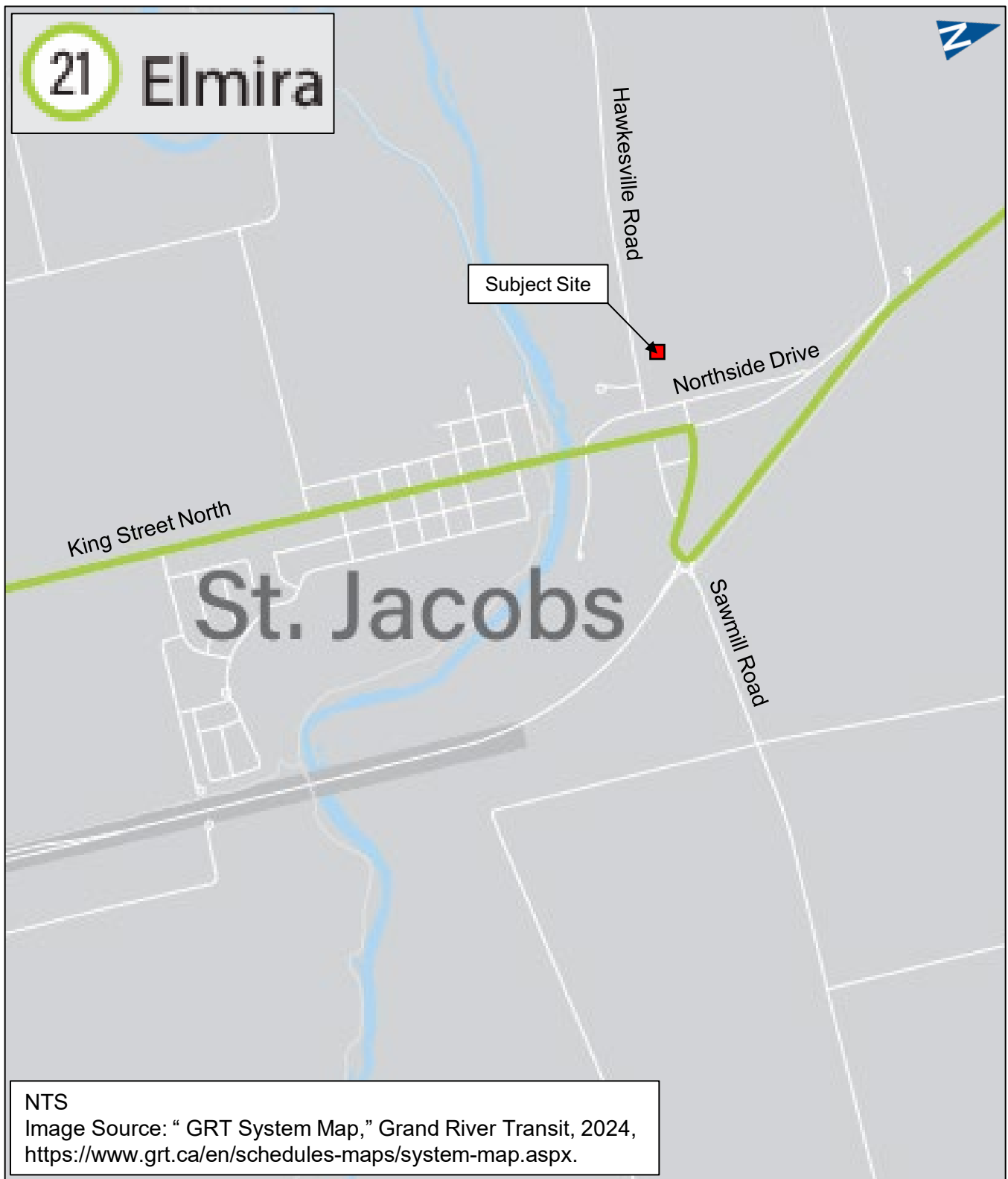
- ▶ **Route 21 (Elmira)** operates between Conestoga Mall in Waterloo and the intersection of Church Street and Arthur Street in Elmira. On weekdays, This route operates from 5:55 AM to 10:15 PM with headways approximately between 25 to 45 minutes. On Saturday, this route operates from 6:35 AM to 7:45 PM with 30-minute headways. On Sunday, this route operates from 6:55 AM to 7:15 PM with headways between 25 to 30 minutes.

The closest transit stop to the subject site are located on the north and south sides of Sawmill Road in front of the Woolwich Community Health Centre (about an 8-minute walk).

Figure 2.4 illustrates the existing transit network.

³ "Grand River Transit System Map," Region of Waterloo, 2023, <https://www.grt.ca/en/schedules-maps/system-map.aspx>.





2.4 Traffic Volumes

Paradigm undertook turning movement counts at the study area intersections in January 2024 and November 2024.

Table 2.1 summarizes the location and dates of the existing TMC data that was collected for use in the analysis.

Appendix A contains the observed traffic counts for the study area intersections.

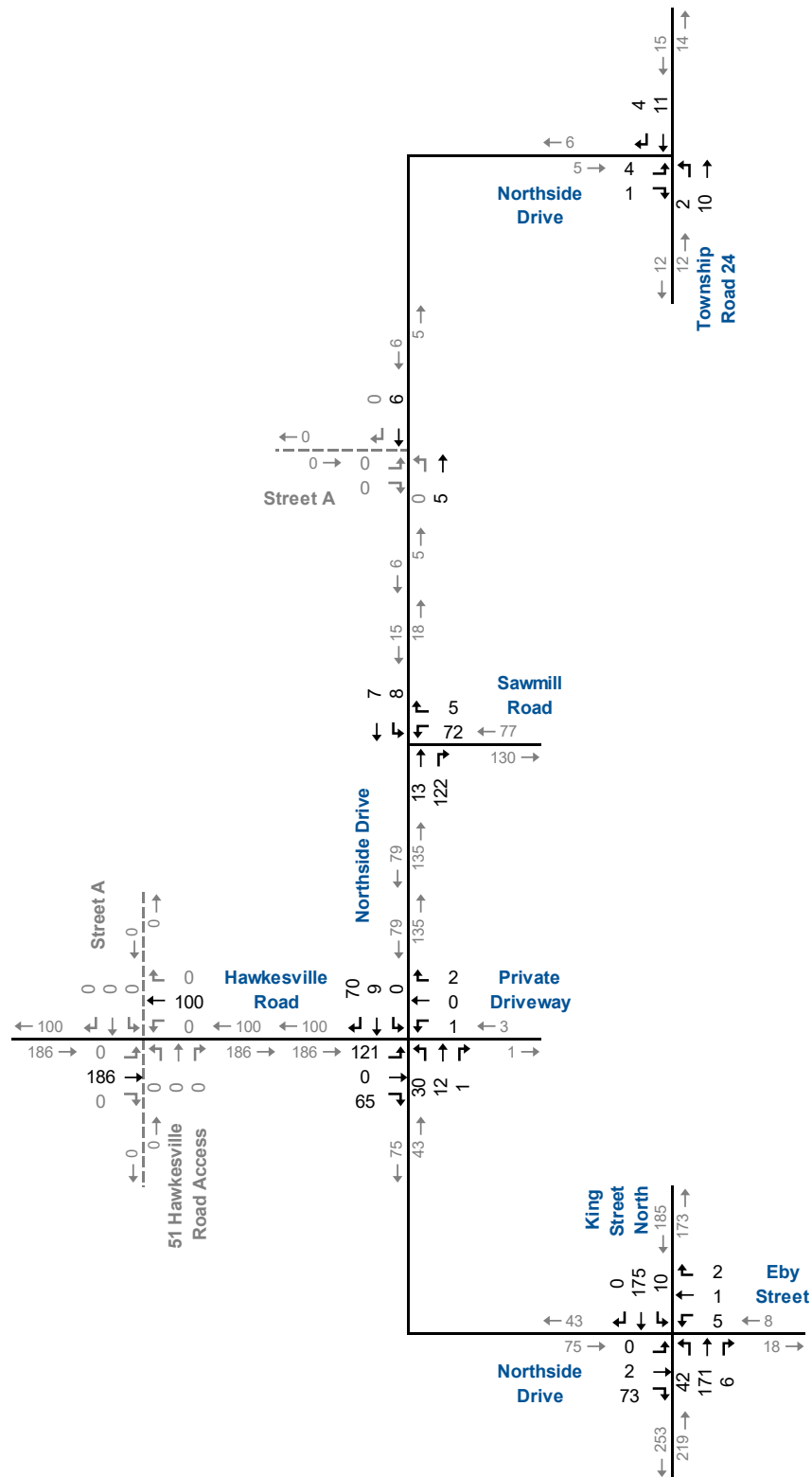
TABLE 2.1: TMC DATA SUMMARY

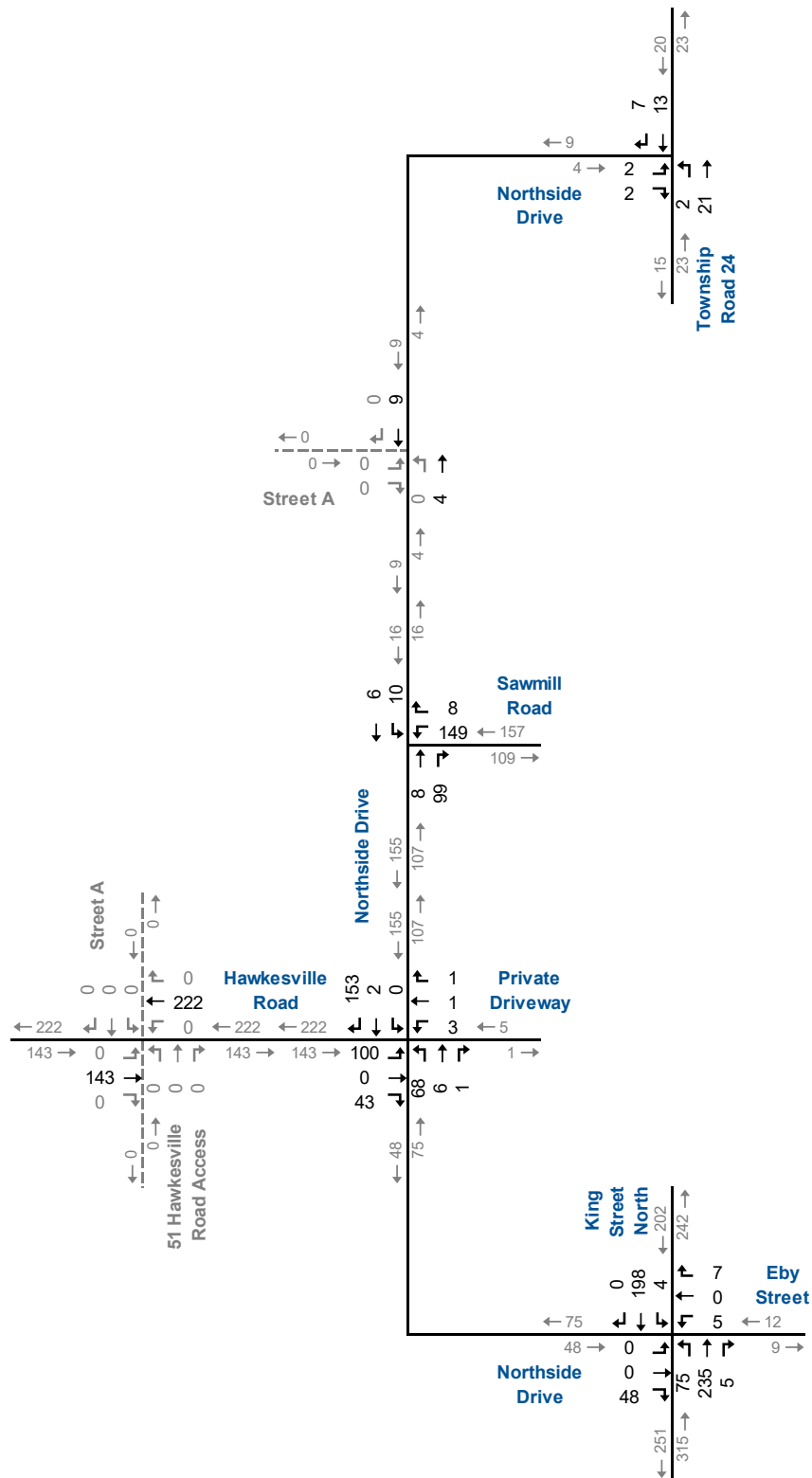
Intersection	Count Date
Hawkesville Road at Northside Drive	Thursday, January 11, 2024
Sawmill Road at Northside Drive	Thursday, January 11, 2024
King Street North at Northside Drive/Eby Street	Thursday, January 11, 2024
Township Road 24 at Northside Drive	Wednesday, November 6, 2024

Volume balancing was completed along Northside Drive south of Sawmill Road.

Figure 2.5a and **Figure 2.5b** illustrate the adjusted base year weekday AM and PM peak hour traffic volumes.







2.5 Traffic Operations

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 a number of 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 ratio is greater than 1.0, 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.

The operations of the study intersections were evaluated using the existing lane configurations, traffic controls, and the base year traffic peak hour volumes.

The level of service conditions on the existing road network have been assessed using Synchro 12. As noted in the Region of Waterloo TIS guidelines⁴, movements are considered critical under the following conditions:

- ▶ Estimated 95th percentile queue length for an exclusive movement exceeds the available storage space;
- ▶ Exclusive turning lanes are inaccessible because of queue lengths in adjacent through lanes;
- ▶ Estimated 95th percentile queue length for an individual movement will block an existing access; and
- ▶ The average control delay for individual movements is greater than 55 seconds.

Intersections are considered critical under the following conditions:

- ▶ An unsignalized intersection has an average control delay larger than 35 seconds (LOS E or F); and

⁴ Region of Waterloo, *Transportation Impact Study Guidelines*, (Kitchener: Region of Waterloo, 2014).



- ▶ A signalized intersection has an average control delay larger than 55 seconds (LOS E or F).

Table 2.2 summarizes the existing intersection operations. The entries in the table indicating the AM and PM peak hour level of service (LOS), volume to capacity ratios (V/C), and 95th percentile queues experienced.

All study area intersections are currently operating at acceptable levels of service with no specific problem movements during the AM and PM peak hours. **Appendix B** contains the detailed Synchro reports.



TABLE 2.2: BASE YEAR OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Township Road 24 & Northside Drive	TWSC	LOS Delay V/C Q	A 9 0.010	> > >	A 9	> > >	> > >	> > >	A 9	A 7 0.000	A 0 0.000	> > >	A 1	> > >	A 0 0.000	A 0 0.000	A 0	> > >	
	Northside Drive & Hawkesville Road/Private Driveway	TWSC	LOS Delay V/C Q	< < <	B 10 0.216	> > >	B 10	< < <	A 9 0.000	> > >	A 9	A 8 0.021	A 0 0.000	A 0 0.000	A 5	A 0 0.000	A 0 0.000	A 0	> > >	
	Northside Drive & Sawmill Road	TWSC	LOS Delay V/C Q	> > >	> > >	> > >	> > >	A 10 0.092	> > >	> > >	A 10	A 0 0.000	A 0 0.000	A 0 0.000	A 0	A 8 0.010	A 0 0.000	> > >	A 4	
	King Street North & Northside Drive/Eby Street	TWSC	LOS Delay V/C Q	< < <	A 10 0.092	> > >	A 10	< < <	B 12 0.020	> > >	B 12	A 8 0.031	A 0 0.000	A 0 0.000	A 1	A 8 0.010	A 0 0.000	A 0	A 0	
PM Peak Hour	Township Road 24 & Northside Drive	TWSC	LOS Delay V/C Q	A 9 0.000	> > >	A 9	> > >	> > >	> > >	> > >	A 7 0.000	A 0 0.000	> > >	A 1	> > >	A 0 0.000	A 0 0.000	A 0	> > >	
	Northside Drive & Hawkesville Road/Private Driveway	TWSC	LOS Delay V/C Q	< < <	B 11 0.195	> > >	B 11	< < <	A 10 0.010	> > >	A 10	A 8 0.052	A 0 0.000	A 0 0.000	A 7	A 0 0.000	A 0 0.000	A 0	> > >	
	Northside Drive & Sawmill Road	TWSC	LOS Delay V/C Q	> > >	> > >	> > >	> > >	A 10 0.174	> > >	> > >	A 10	> > >	A 0 0.000	A 0 0.000	A 0	A 8 0.010	A 0 0.000	> > >	A 5	
	King Street North & Northside Drive/Eby Street	TWSC	LOS Delay V/C Q	< < <	A 10 0.062	> > >	A 10	< < <	B 12 0.021	> > >	B 12	A 8 0.062	A 0 0.000	A 0 0.000	A 2	A 8 0.000	A 0 0.000	A 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)

TWSC - Two-Way Stop Control

</> - Shared Movement



3 Development Concept

3.1 Development Description

The subject site is located at 52 Hawkesville Road, 110 and 118 Northside Drive in St. Jacobs, Ontario.

The subject site is proposed to be developed into a residential development with up to 409 residential units, mixed between detached houses, townhouses, and apartments.

Vehicle access is proposed via a total of two all-moves accesses with one connection to Hawkesville Road and one connection to Northside Drive.

Figure 3.1 shows the draft plan of subdivision.

It is noted that the internal site roadways should provide opportunities for future residents and visitors to park on-street.

Sidewalks should also be installed along the internal site roadways to provide opportunities for future residents to connect with the existing municipal sidewalk network.

In pre-study consultation, the Region of Waterloo indicated that the developer will be required to extend the existing sidewalk on Hawkesville Road to Street A. The existing sidewalk currently terminates at the driveway into Calvary United Church, which is adjacent to the subject site.





3.2 Site Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation manual⁵ methods forecast site-generated trips. The following Land Use Codes (LUC) were used to estimate the site trip generation:

- ▶ LUC 210 (Single-Family Detached Housing);
- ▶ LUC 215 (Single-Family Attached Housing); and
- ▶ LUC 220 (Multi-Family Housing, Low-Rise).

Table 3.1 summarizes the forecast site-generated trips indicating 228 AM peak hour and 278 PM peak hour trips. No reductions for alternative modes of transportation were used in the calculation.

TABLE 3.1: FORECAST SITE-GENERATED TRIPS

LUC	Unit Type	Unit Count	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
210	Detached Home	78	15	44	59	50	29	79
215	Townhome	236	29	88	117	81	57	138
220	Multi-Family	95	13	39	52	39	22	61
Total Trip Generation			57	171	228	170	108	278

LUC 210 – AM: $\ln(T) = 0.91 \ln(X) + 0.12$ | PM: $\ln(T) = 0.94 \ln(X) + 0.27$

LUC 215 – AM: $T = 0.52(X) - 5.70$ | PM: $T = 0.60(X) - 3.93$

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

The trip distribution used for this study was based on the existing distribution and 2016 Transportation Tomorrow Survey (TTS) data.⁶ The trip distribution for this study is appropriate because 70% of trips travel along Sawmill Road leading to Highway 85 that conveniently connects future residents to urbanized development in Kitchener-Waterloo. The trip distribution is summarized in **Table 3.2**.

TABLE 3.2: TRIP DISTRIBUTION

Origin/Destination	In/Out
North via King Street North (Township Road 24)	1%
South via King Street North	20%
East via Sawmill Road	70%
West via Hawkesville Road	9%
Total	100%

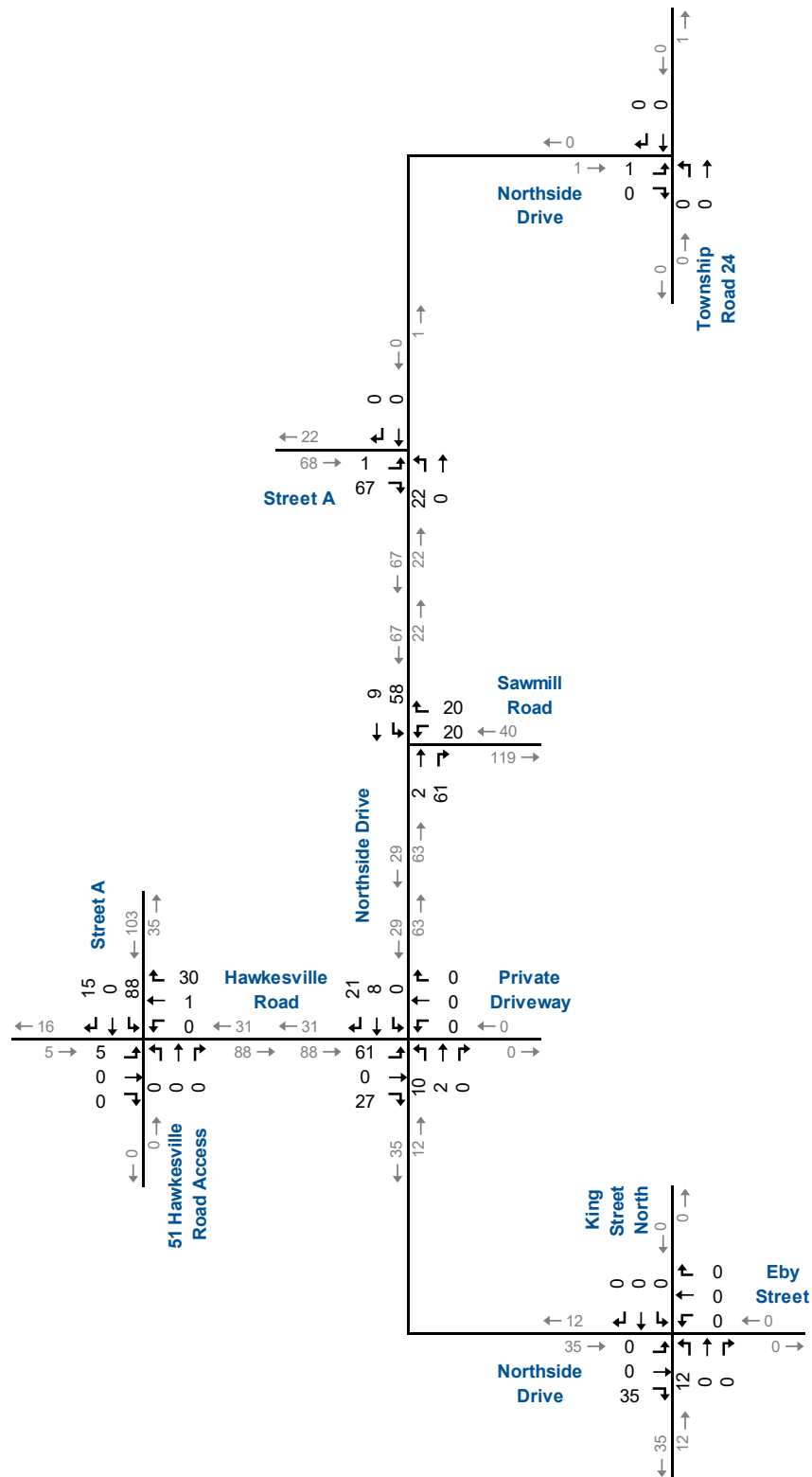
⁵ Institute of Transportation Engineers, *Trip Generation Manual*, 11th ed., (Washington DC: ITE, 2021).

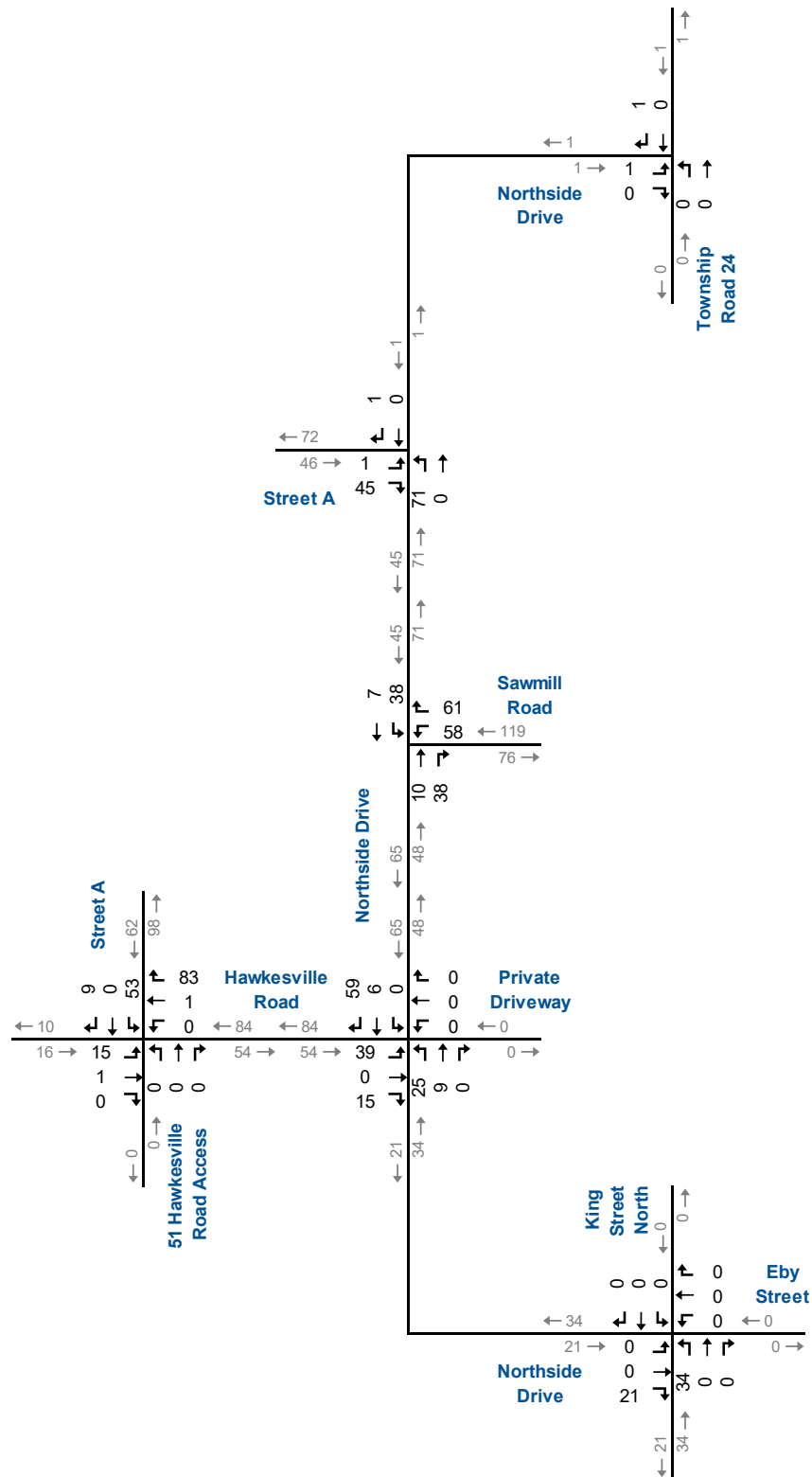
⁶ Data Management Group, *Transportation Tomorrow Survey 2016*, University of Toronto, 2016, <http://www.transportationtomorrow.on.ca/>



Figure 3.2a and **Figure 3.2b** illustrate the AM and PM peak hour trip assignment.







3.3 Site Distance Assessment

The Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads*⁷ defines recommended sight distances based on the design speed of the road. TAC also defines the following parameters for the assessment of sight distance:

- ▶ Object Height (Vehicle tail or brake light) – 0.60 m;
- ▶ Driver Eye Height – 1.08 m; and
- ▶ Top of Car – 1.30 m.

Paradigm reviewed the available sight distance at the proposed driveway connections to Hawkesville Road and Northside Drive. The assessment reflects a design speed of 60 km/h, which is 10 km/h above the posted speed limit on both Hawkesville Road and Northside Drive.

Table 3.3 summarizes the minimum recommended sight distances defined by TAC at a design speed of 60 km/h.

TABLE 3.3: RECOMMENDED SIGHT DISTANCES

Sight Distance Measurement	Recommended Sight Distance (60 km/h Design Speed)
Minimum Stopping Sight Distance ⁸	85 m
Intersection Sight Distance ⁹ (Left Turn from Stop)	130 m
Intersection Sight Distance ¹⁰ (Right Turn from Stop)	110 m

Hawkesville Road is relatively straight and flat near the site access and provides adequate sight distance.

Northside Drive is also relatively straight and flat near the site access and provides adequate sight distance.

3.4 Traffic Calming

While speeding within the subdivision is not expected to be a concern, the design of the road network interior to the draft plan of subdivision present potential traffic calming opportunities. In particular, Street A, which provides connections to Hawkesville Road and Northside Drive,

⁷ TAC, "Intersections," Chap. 9 in *Geometric Design Guide for Canadian Roads*, (Ottawa: TAC, 2017).

⁸ Ibid. Table 2.5.2: *Stopping Sight Distance on Level Roadways for Automobiles*.

⁹ Ibid. Table 9.9.4: *Design Intersection Sight Distance – Case B1, Left Turn from Stop*.

¹⁰ Ibid. Table 9.9.6: *Design Intersection Sight Distance – Case B2, Right Turn from Stop*.



would be the most likely candidate for traffic calming treatments. Such treatments could include pedestrian crossing treatments (e.g., curb extensions, raised crosswalks, etc.) at likely pedestrian demand locations such as the park blocks, or speed humps.

If traffic calming is installed, it is recommended that pre- and post-monitoring programs be conducted to review the need and effectiveness of the traffic calming.



4 Evaluation of Future Traffic Conditions

The assessment of the future traffic conditions contained in this section includes the future traffic forecasts as an intersection operational analysis. A five-year horizon following the date the study is commissioned (2030) has been assessed to determine the impact of the subject site.

4.1 Background Horizon

4.1.1 Background Traffic Volumes

The background traffic volumes reflect an annual growth rate of 2.5% per annum applied to the existing volumes.

In addition, the following development was included in the background traffic volumes:

- ▶ 51 Hawkesville Road¹¹: The residential development is located south of the subject site. The development consists of 151 units and is forecast to generate 85 and 103 trips during the AM and PM peak hours, respectively. It is also noted that the primary site access for 51 Hawkesville Road will align with the Street A connection (an access for 52 Hawkesville Road) forming a four-legged intersection on Hawkesville Road.

Appendix C contains the background development traffic volumes.

Figure 4.1a and **Figure 4.1b** illustrate the forecast background traffic volumes for the weekday AM and PM peak hours.

4.1.2 Background Traffic Operations

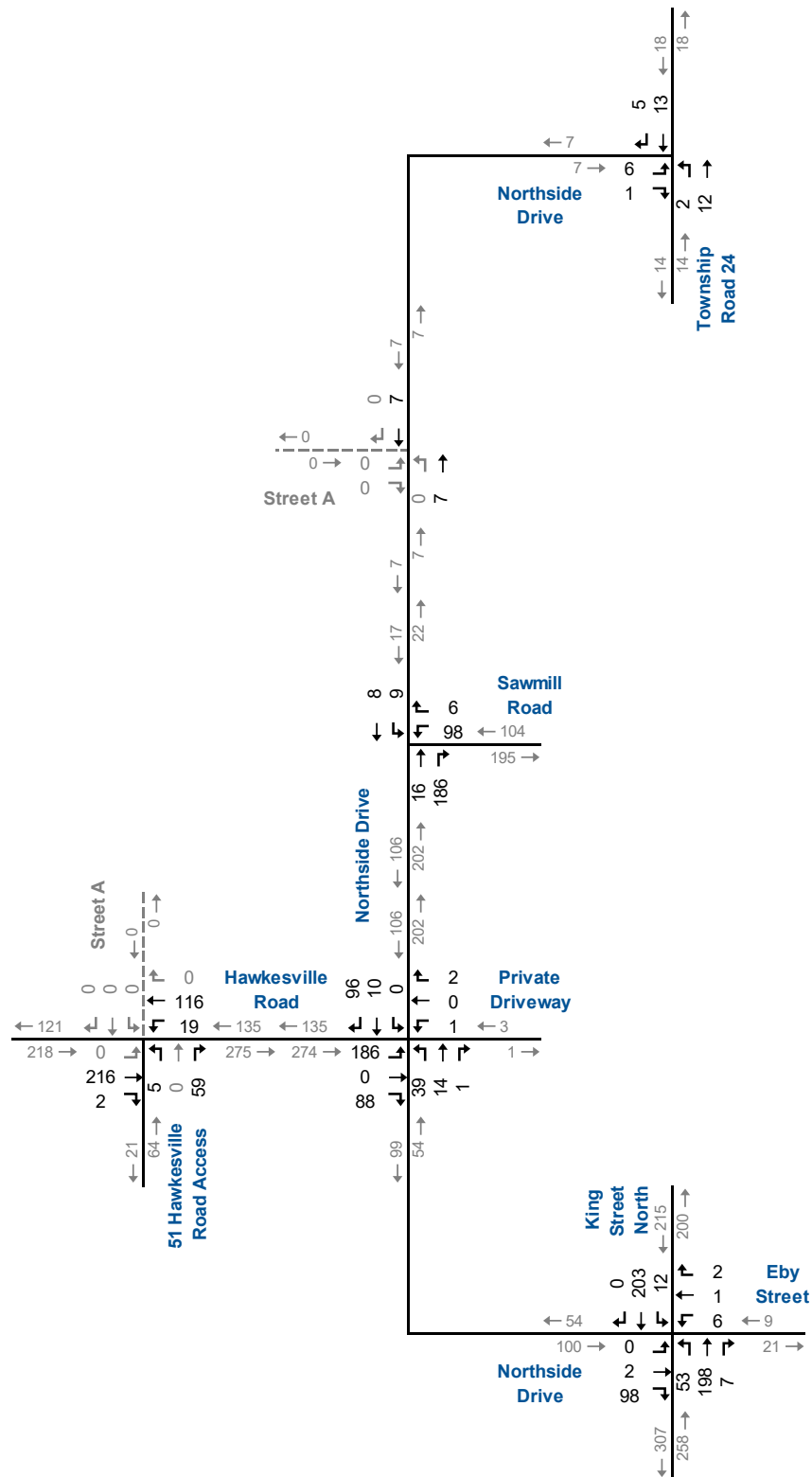
The study area intersection operations analysis for the forecast background traffic scenario followed the same methodology used for the existing traffic conditions. **Table 4.1** details the level of service conditions.

All study area intersections are forecast to operate at acceptable levels of service with no critical movements during the weekday AM and PM peak hours.

Appendix D contains the supporting detailed Synchro 12 reports.

¹¹ Paradigm Transportation Solutions Limited, 51 Hawkesville Road, St. Jacobs, ON Transportation Impact Study, (Cambridge: PTSL, 2025).





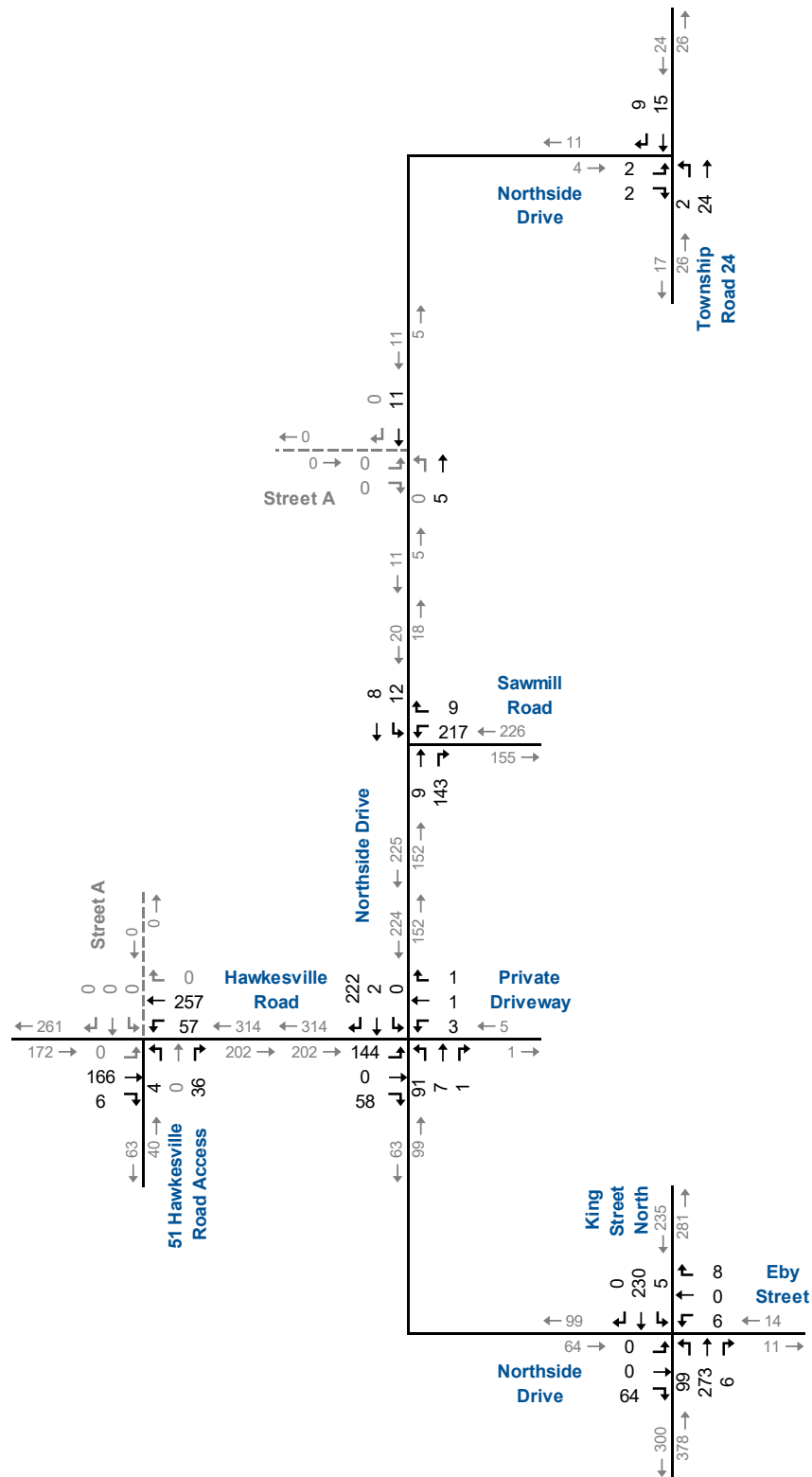


TABLE 4.1: BACKGROUND OPERATIONS

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																Overall
				Eastbound				Westbound				Northbound				Southbound				
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Township Road 24 & Northside Drive	TWSC	LOS Delay V/C Q	A 9 0.01 0	> > >	> > >	A 9	> > >	> > >	> > >	> > >	A 7 0.00 0	A 0 0.00 0	> > >	A 1	> > >	A 0 0.00 0	A 0 0.00 0	A 0	
	Northside Drive & Hawkesville Road/Private Driveway	TWSC	LOS Delay V/C Q	< < <	B 11 0.33 10	> > >	B 11	< < <	A 9 0.00 0	> > >	A 9	A 8 0.03 1	A 0 0.00 0	A 0 0.00 0	A 5	A 0 0.00 0	A 0 0.00 0	A 0 0.00 0	A 0	
	Northside Drive & Sawmill Road	TWSC	LOS Delay V/C Q					A 10 0.12 3	> > >	> > >	A 10		A 0 0.00 0	A 0 0.00 0	A 0	A 8 0.01 0	A 0 0.00 0		A 4	
	King Street North & Northside Drive/Eby Street	TWSC	LOS Delay V/C Q	< < <	A 10 0.12 3	> > >	B 10	< < <	B 14 0.02 1	> > >	B 14	A 8 0.04 1	A 0 0.00 0	A 0 0.00 0	A 2	A 8 0.01 0	A 0 0.00 0	A 0 0.00 0	A 0	
	51 Hawkesville Road Access & Hawkesville Road	TWSC	LOS Delay V/C Q		A 0 0.00 0	A 0 0.00 0	A 0	A 8 0.01 0	A 0 0.00 0		A 1	A 10 0.08 2	> > >	> > >	A 10					
PM Peak Hour	Township Road 24 & Northside Drive	TWSC	LOS Delay V/C Q	A 9 0.00 0	> > >	> > >	A 9	> > >	> > >	> > >		A 7 0.00 0	A 0 0.00 0	> > >	A 1	> > >	A 0 0.00 0	A 0 0.00 0	A 0	
	Northside Drive & Hawkesville Road/Private Driveway	TWSC	LOS Delay V/C Q	< < <	B 13 0.30 10	> > >	B 13	< < <	B 10 0.01 0	> > >	B 10	A 8 0.07 2	A 0 0.00 0	A 0 0.00 0	A 7	A 0 0.00 0	A 0 0.00 0	A 0 0.00 0	A 0	
	Northside Drive & Sawmill Road	TWSC	LOS Delay V/C Q					B 11 0.26 8	> > >	> > >	B 11		A 0 0.00 0	A 0 0.00 0	A 0	A 8 0.01 0	A 0 0.00 0		A 5	
	King Street North & Northside Drive/Eby Street	TWSC	LOS Delay V/C Q	< < <	A 10 0.08 2	> > >	A 10	< < <	B 13 0.03 1	> > >	B 13	A 8 0.07 2	A 0 0.00 0	A 0 0.00 0	A 2	A 8 0.00 0	A 0 0.00 0	A 0 0.00 0	A 0	
	51 Hawkesville Road Access & Hawkesville Road	TWSC	LOS Delay V/C Q		A 0 0.00 0	A 0 0.00 0	A 0	A 8 0.04 1	A 0 0.00 0		A 1	A 10 0.05 2	> > >	> > >	A 10					

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)

TWSC - Two-Way Stop Control

</> - Shared Movement



4.2 Total Traffic Horizon

4.2.1 Total Traffic Volumes

Figure 4.2a and **Figure 4.2b** illustrate the forecast total (background + site traffic) traffic volumes.

4.2.2 Total Traffic Operations

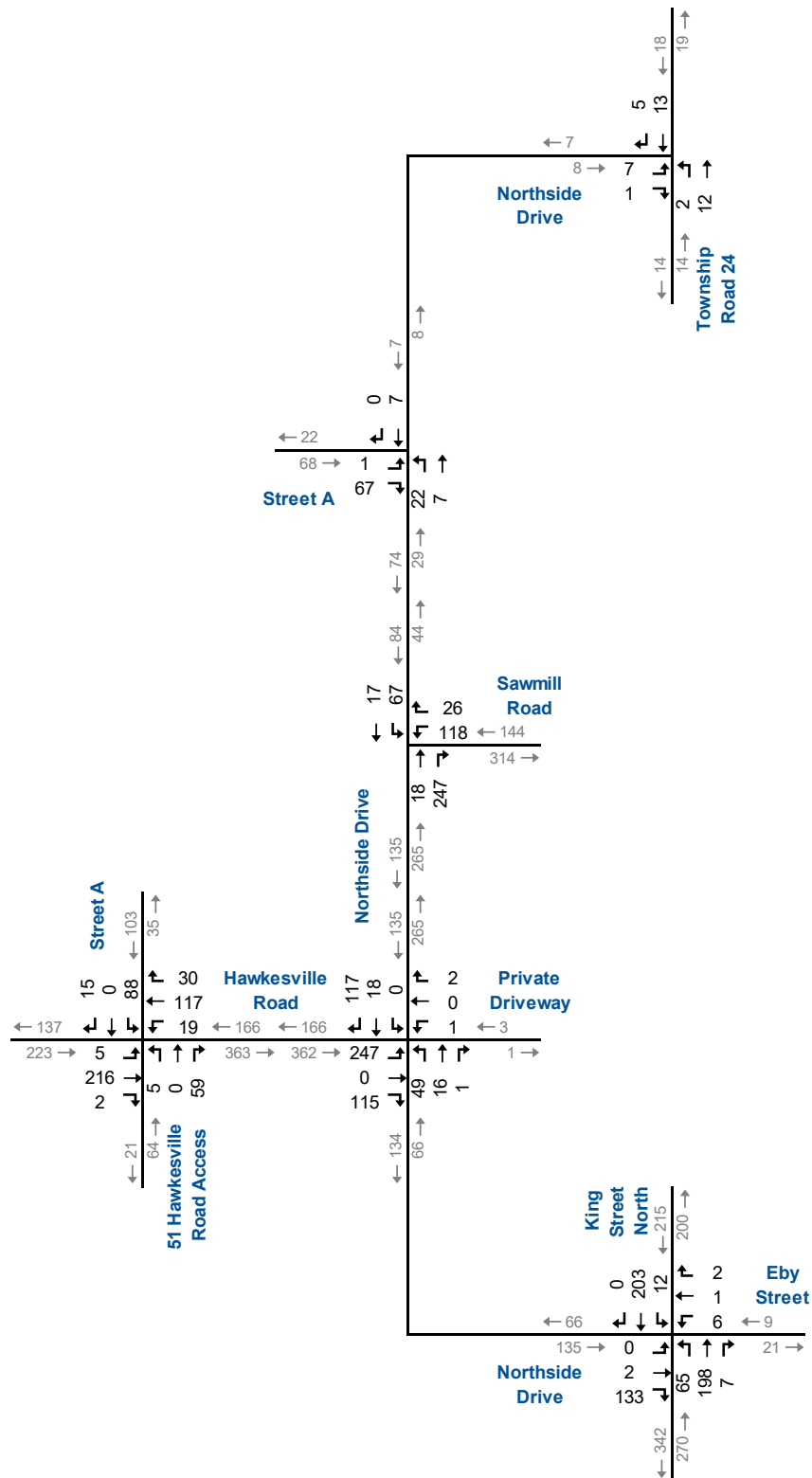
The study area intersection operations analysis for the future total traffic scenario followed the same methodology used for the existing and background traffic conditions. **Table 4.2** details the level of service conditions for the weekday AM and PM peak hours.

All study area intersections are forecast to operate at acceptable levels of service with no critical movements during the weekday AM and PM peak hours.

With the addition of the site generated traffic volumes, the approach delays at the existing study area intersections increase by three seconds or less during the AM and PM peak hours.

Appendix E contains the supporting detailed Synchro 12 reports.





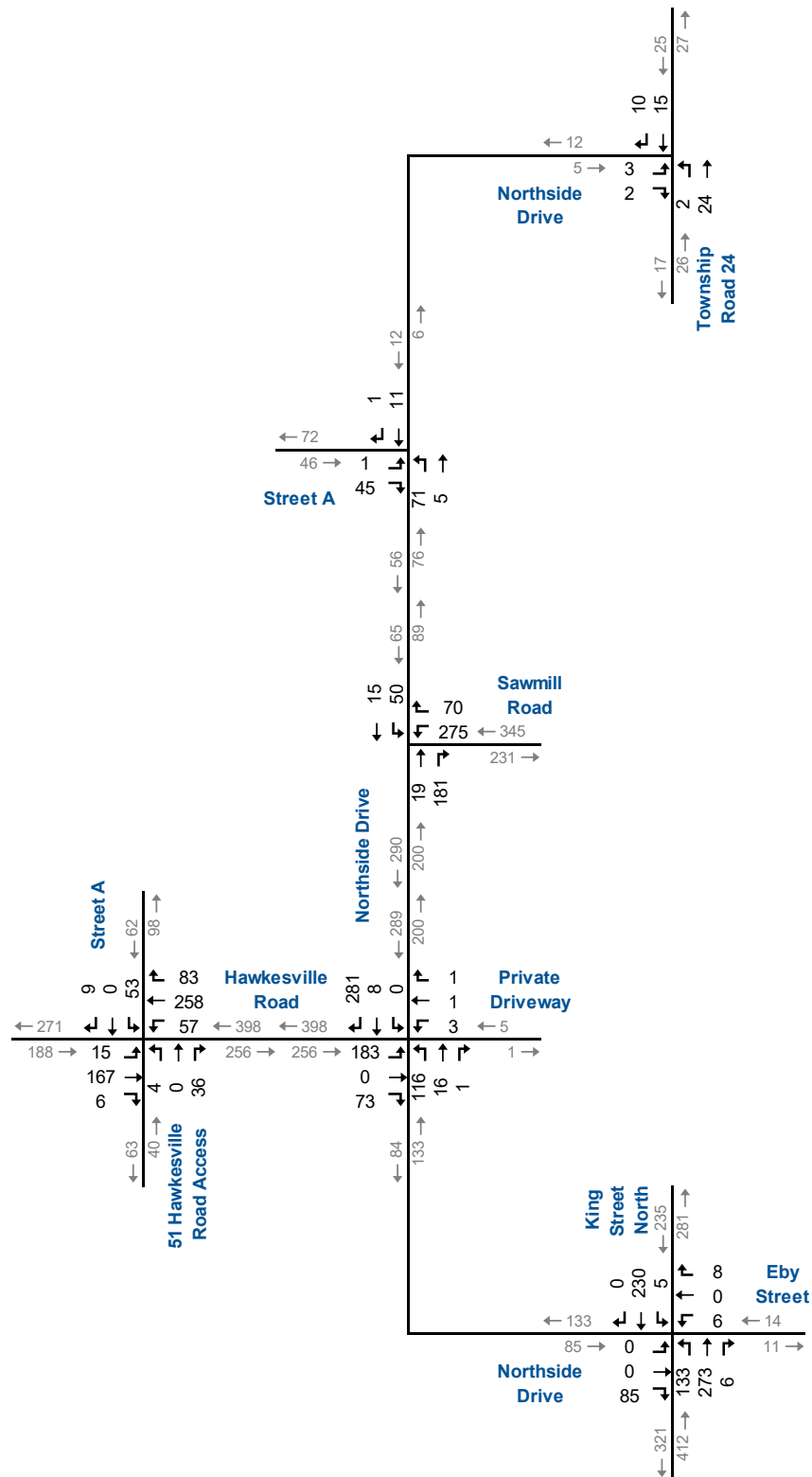


TABLE 4.2: TOTAL OPERATIONS

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	Township Road 24 & Northside Drive	TWSC	LOS Delay V/C Q	A 9 0.01 0	>	>	A 9	>	>	>	>	A 7 0.00 0	A 0 0.00 0	>	A 1	>	A 0 0.00 0	A 0 0.00 0	A 0	>
	Northside Drive & Hawkesville Road/Private Driveway	TWSC	LOS Delay V/C Q	< < <	B 13 0.46 18	>	B 13	< < <	A 9 0.00 0	>	A 9	A 8 0.04 1	A 0 0.00 0	A 0 0.00 0	A 6	A 0 0.00 0	A 0 0.00 0	A 0 0.00 0	A 0	>
	Northside Drive & Sawmill Road	TWSC	LOS Delay V/C Q					B 12 0.21 6	>	>	B 12		A 0 0.00 0	A 0 0.00 0	A 0	A 8 0.05 2	A 0 0.00 0		A 6	>
	King Street North & Northside Drive/Eby Street	TWSC	LOS Delay V/C Q	< < <	B 10 0.17 4	>	B 10	< < <	B 15 0.02 1	>	B 15	A 8 0.05 2	A 0 0.00 0	A 0 0.00 0	A 2	A 8 0.01 0	A 0 0.00 0	A 0 0.00 0	A 0	>
	51 Hawkesville Road Access/Street A & Hawkesville Road	TWSC	LOS Delay V/C Q	A 8 0.00 0	A 0 0.00 0	A 0 0.00 0	A 0	A 8 0.01 0	A 0 0.00 0	A 0 0.00 0	A 1	< < <	A 10 0.08 2	>	A 10	< < <	B 13 0.19 5	>	B 13	>
	Northside Drive & Street A	TWSC	LOS Delay V/C Q	A 9 0.06 2	>	>	A 9	>	>	>		A 7 0.01 0	A 0 0.00 0	>	A 6		A 0 0.00 0	A 0 0.00 0	A 0	>
PM Peak Hour	Township Road 24 & Northside Drive	TWSC	LOS Delay V/C Q	A 9 0.01 0	>	>	A 9	>	>	>		A 7 0.00 0	A 0 0.00 0	>	A 1		A 0 0.00 0	A 0 0.00 0	A 0	>
	Northside Drive & Hawkesville Road/Private Driveway	TWSC	LOS Delay V/C Q	< < <	C 16 0.44 16	>	C 16	< < <	B 11 0.01 0	>	B 11	A 8 0.09 2	A 0 0.00 0	A 0 0.00 0	A 7	A 0 0.00 0	A 0 0.00 0	A 0 0.00 0	A 0	>
	Northside Drive & Sawmill Road	TWSC	LOS Delay V/C Q					B 14 0.45 18	>	>	B 14		A 0 0.00 0	A 0 0.00 0	A 0	A 8 0.04 1	A 0 0.00 0		A 6	>
	King Street North & Northside Drive/Eby Street	TWSC	LOS Delay V/C Q	< < <	A 10 0.11 3	>	B 10	< < <	B 14 0.04 1	>	B 14	A 8 0.10 2	A 0 0.00 0	A 0 0.00 0	A 3	A 8 0.00 0	A 0 0.00 0	A 0 0.00 0	A 0	>
	51 Hawkesville Road Access/Street A & Hawkesville Road	TWSC	LOS Delay V/C Q	A 8 0.01 0	A 0 0.00 0	A 0 0.00 0	A 1	A 8 0.04 1	A 0 0.00 0	A 0 0.00 0	A 1	< < <	A 10 0.05 2	>	A 10	< < <	C 16 0.16 4	>	C 16	>
	Northside Drive & Street A	TWSC	LOS Delay V/C Q	A 8 0.04 1	>	>	A 9	>	>	>		A 7 0.04 1	A 0 0.00 0	>	A 7		A 0 0.00 0	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)

TWSC - Two-Way Stop Control

</> - Shared Movement



4.3 Capacity for Additional Development

Block 34 on the Draft Plan of Subdivision provides potential access to lands directly north of Calvary United Church. These lands provide space for potential additional uses.

Under total traffic conditions, all study area intersection movements (existing and proposed) are forecast to operate in the LOS A to LOS C range during the AM and PM peak hours with the following:

- ▶ Delays do not surpass 20 seconds;
- ▶ v/c ratios are less than 0.50; and
- ▶ 95th percentile queue lengths don't reach 20 m.

Therefore, there is forecast to be surplus capacity on Street A and at the intersections of Street A with Northside Drive and Hawkesville Road to accommodate additional uses.

While it is unknown whether these lands would be developed, or what type of development could be built, based on the size of the parcel and the density of the rest of the proposed development, potential uses include (but are not limited to): 30-40 residential units, a long-term care facility, or other uses that would be appropriate for these lands. That level of development would be much less than the proposed development overall and is expected that traffic would be able to be accommodated while maintaining acceptable levels of service at all intersections.



5 Remedial Measures

The intersections of Hawkesville Road at Street A and Northside Drive at Street A were assessed to determine if the projected traffic volumes warrant installation of left-turn lanes. The warrants for left-turn lanes follow the requirements in the Ministry of Transportation's (MTO) Geometric Design Standards¹². A design speed of 60 km/h (10 km/h over the posted speed limit) was used for both Hawkesville Road and Northside Drive.

The percentages of left-turning vehicles in the approaching volume were rounded to the nearest 5%, as nomographs are only provided for 5% increments. This apparent requirement is due to the nature of the warrant procedure that assumes a minimum of 5% of left turning vehicles in the advancing volume. Therefore, left-turn lanes are automatically not warranted for any left turning volume less than 5%.

Table 5.1 and **Table 5.2** summarize the left-turn lane warrant for the intersections of Hawkesville Road at Street A and Northside Drive at Street A, respectively. The analysis suggests that left-turn lanes are not warranted at the site access intersections.

TABLE 5.1: LEFT-TURN LANE WARRANT – HAWKESVILLE ROAD

Roadway	Hawkesville Road	
Intersection	Street A	
Approach Direction	Eastbound	
Design Speed	60 km/h	
Horizon	Total 2030	
Peak Hour	AM	PM
Advancing Volume	223	188
Opposing Volume	166	398
Left Turning Traffic	5	15
% of Left Turning Traffic	2%	8%
Figure Used*	NA	9A-7
Warranted	No	No
Storage Length Required	-	-

*Ontario Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*, (Toronto: Queens Printer for Ontario, 2020).

¹² Ontario Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*, (Toronto: Queen's Printer for Ontario, 2020).



TABLE 5.2: LEFT-TURN LANE WARRANT– NORTHSIDE DRIVE

Roadway	Northside Drive	
Intersection	Street A	
Approach Direction	Northbound	
Design Speed	60 km/h	
Horizon	Total 2030	
Peak Hour	AM	PM
Advancing Volume	29	76
Opposing Volume	7	12
Left Turning Traffic	22	71
% of Left Turning Traffic	76%	93%
Figure Used*	9A-10	9A-10
Warranted	No	No
Storage Length Required	-	-

*Ontario Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*, (Toronto: Queens Printer for Ontario, 2020).

Appendix F contains the left-turn lane warrant nomographs.



6 Conclusions and Recommendations

6.1 Conclusions

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

- ▶ **Existing Traffic Conditions:** The study area intersections are currently operating within acceptable levels of service and no critical movements during the AM and PM peak hours.
- ▶ **Development Trip Generation:** The development is forecast to generate approximately 228 and 278 trips during the AM and PM peak hours respectively.
- ▶ **Sight Distance Assessment:** The site access locations to both Hawkesville Road and Northside Drive are expected to meet all of the minimum sight distances defined by the Transportation Association of Canada.
- ▶ **Background and Total Traffic Conditions:** The study area intersections are forecast to operate at acceptable levels of service similar to existing traffic conditions with no critical movements noted.
- ▶ **Left-Turn Lane Warrant:** Left-turn lanes are not warranted at the site access intersections.

6.2 Recommendations

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



Appendix A

Traffic Data





Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Northside Drive & Hawkesville Road
Site Code: 230598
Start Date: 01/11/2024
Page No: 1

Turning Movement Data

Start Time	Hawkesville Road Eastbound						Driveway Westbound						Northside Drive Northbound						Northside Drive 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	12	0	6	0	0	18	0	0	0	0	0	0	10	4	0	0	0	14	0	0	12	0	0	12	44
7:15 AM	26	0	9	0	3	35	0	0	0	0	0	0	9	4	0	0	0	13	1	0	11	0	0	12	60
7:30 AM	31	2	21	0	0	54	0	0	1	0	0	1	5	2	1	0	1	8	0	0	15	0	0	15	78
7:45 AM	31	0	23	0	1	54	0	0	0	0	0	0	9	1	0	0	0	10	0	2	21	0	0	23	87
Hourly Total	100	2	59	0	4	161	0	0	1	0	0	1	33	11	1	0	1	45	1	2	59	0	0	62	269
8:00 AM	27	0	19	0	0	46	0	0	1	0	1	1	3	3	1	0	1	7	0	0	9	0	0	9	63
8:15 AM	31	0	16	0	0	47	1	0	0	0	1	1	4	2	0	0	0	6	0	4	10	0	0	14	68
8:30 AM	32	0	10	0	0	42	0	0	0	0	0	0	5	3	0	0	0	8	0	4	20	0	0	24	74
8:45 AM	29	0	20	0	0	49	0	0	1	0	0	1	13	4	0	0	0	17	0	1	25	0	0	26	93
Hourly Total	119	0	65	0	0	184	1	0	2	0	2	3	25	12	1	0	1	38	0	9	64	0	0	73	298
9:00 AM	20	1	9	0	3	30	0	0	2	0	0	2	7	2	2	0	0	11	0	5	10	0	0	15	58
9:15 AM	16	0	8	0	0	24	0	0	1	0	0	1	6	1	1	0	0	8	1	3	21	0	0	25	58
9:30 AM	26	0	8	0	0	34	0	1	1	0	0	2	8	1	2	0	0	11	0	5	13	0	0	18	65
9:45 AM	13	0	7	0	2	20	0	0	0	0	0	0	6	0	1	0	0	7	0	0	16	0	0	16	43
Hourly Total	75	1	32	0	5	108	0	1	4	0	0	5	27	4	6	0	0	37	1	13	60	0	0	74	224
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	18	1	5	0	3	24	0	0	1	0	1	1	5	2	0	0	0	7	0	2	18	0	0	20	52
11:45 AM	16	0	9	0	0	25	0	2	1	0	0	3	6	0	1	0	0	7	1	0	14	0	0	15	50
Hourly Total	34	1	14	0	3	49	0	2	2	0	1	4	11	2	1	0	0	14	1	2	32	0	0	35	102
12:00 PM	17	0	5	0	2	22	2	0	0	0	1	2	8	2	0	0	0	10	1	1	15	0	0	17	51
12:15 PM	14	0	15	0	0	29	0	0	1	0	0	1	7	3	2	0	0	12	0	3	16	0	0	19	61
12:30 PM	21	0	6	0	0	27	0	0	0	0	1	0	11	5	0	0	0	16	0	4	20	0	0	24	67
12:45 PM	14	1	6	0	0	21	0	0	1	0	0	1	5	2	0	0	0	7	3	2	10	0	0	15	44
Hourly Total	66	1	32	0	2	99	2	0	2	0	2	4	31	12	2	0	0	45	4	10	61	0	0	75	223
1:00 PM	12	0	5	0	0	17	0	1	0	0	0	1	3	4	0	0	0	7	0	2	9	0	0	11	36
1:15 PM	18	1	7	0	0	26	0	0	0	0	0	0	5	3	0	0	0	8	0	2	20	0	0	22	56
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	30	1	12	0	0	43	0	1	0	0	0	1	8	7	0	0	0	15	0	4	29	0	0	33	92
3:00 PM	19	0	9	0	0	28	1	0	2	0	0	3	24	7	1	0	0	32	1	2	5	0	0	8	71
3:15 PM	17	1	4	0	1	22	0	0	0	0	0	0	11	4	0	0	0	15	0	2	20	0	0	22	59
3:30 PM	16	0	5	0	2	21	0	0	0	0	0	0	12	2	0	0	0	14	0	2	21	0	0	23	58
3:45 PM	19	0	9	0	0	28	0	1	1	0	0	2	17	1	1	0	0	19	0	0	26	1	2	27	76
Hourly Total	71	1	27	0	3	99	1	1	3	0	0	5	64	14	2	0	0	80	1	6	72	1	2	80	264
4:00 PM	28	1	9	0	0	38	0	0	1	0	0	1	15	1	0	0	0	16	0	5	23	0	0	28	83
4:15 PM	21	1	5	0	0	27	1	1	2	0	0	4	14	1	2	0	0	17	0	0	29	0	0	29	77

4:30 PM	19	0	10	0	0	29	1	0	0	0	1	1	25	0	1	0	1	26	0	0	32	0	0	32	88
4:45 PM	19	0	7	0	2	26	0	0	0	0	3	0	18	2	0	0	1	20	0	1	48	0	0	49	95
Hourly Total	87	2	31	0	2	120	2	1	3	0	4	6	72	4	3	0	2	79	0	6	132	0	0	138	343
5:00 PM	23	0	14	0	0	37	0	1	0	0	1	1	13	3	0	0	0	16	0	1	27	0	0	28	82
5:15 PM	33	0	12	0	0	45	2	0	1	0	0	3	11	1	0	0	0	12	0	0	44	0	0	44	104
5:30 PM	20	0	6	0	0	26	0	0	0	0	0	0	14	0	0	0	0	14	0	0	30	0	0	30	70
5:45 PM	14	0	5	0	0	19	0	0	0	0	0	0	4	1	0	0	0	5	0	0	14	0	0	14	38
Hourly Total	90	0	37	0	0	127	2	1	1	0	1	4	42	5	0	0	0	47	0	1	115	0	0	116	294
Grand Total	672	9	309	0	19	990	8	7	18	0	10	33	313	71	16	0	4	400	8	53	624	1	2	686	2109
Approach %	67.9	0.9	31.2	0.0	-	-	24.2	21.2	54.5	0.0	-	-	78.3	17.8	4.0	0.0	-	-	1.2	7.7	91.0	0.1	-	-	-
Total %	31.9	0.4	14.7	0.0	-	46.9	0.4	0.3	0.9	0.0	-	1.6	14.8	3.4	0.8	0.0	-	19.0	0.4	2.5	29.6	0.0	-	32.5	-
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	0.0
Cars & Light Goods	606	7	295	0	-	908	8	6	17	0	-	31	300	66	16	0	-	382	7	51	568	1	-	627	1948
% Cars & Light Goods	90.2	77.8	95.5	-	-	91.7	100.0	85.7	94.4	-	-	93.9	95.8	93.0	100.0	-	-	95.5	87.5	96.2	91.0	100.0	-	91.4	92.4
Buses	6	1	2	0	-	9	0	1	0	0	-	1	3	3	0	0	-	6	1	0	1	0	-	2	18
% Buses	0.9	11.1	0.6	-	-	0.9	0.0	14.3	0.0	-	-	3.0	1.0	4.2	0.0	-	-	1.5	12.5	0.0	0.2	0.0	-	0.3	0.9
Single-Unit Trucks	42	1	10	0	-	53	0	0	1	0	-	1	7	2	0	0	-	9	0	2	40	0	-	42	105
% Single-Unit Trucks	6.3	11.1	3.2	-	-	5.4	0.0	0.0	5.6	-	-	3.0	2.2	2.8	0.0	-	-	2.3	0.0	3.8	6.4	0.0	-	6.1	5.0
Articulated Trucks	17	0	1	0	-	18	0	0	0	0	-	0	1	0	0	0	-	1	0	0	15	0	-	15	34
% Articulated Trucks	2.5	0.0	0.3	-	-	1.8	0.0	0.0	0.0	-	-	0.0	0.3	0.0	0.0	-	-	0.3	0.0	0.0	2.4	0.0	-	2.2	1.6
Bicycles on Road	1	0	1	0	-	2	0	0	0	0	-	0	2	0	0	0	-	2	0	0	0	0	-	0	4
% Bicycles on Road	0.1	0.0	0.3	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.6	0.0	0.0	-	-	0.5	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	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	19	-	-	-	-	-	10	-	-	-	-	-	4	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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: Northside Drive & Hawkesville Road
Site Code: 230598
Start Date: 01/11/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

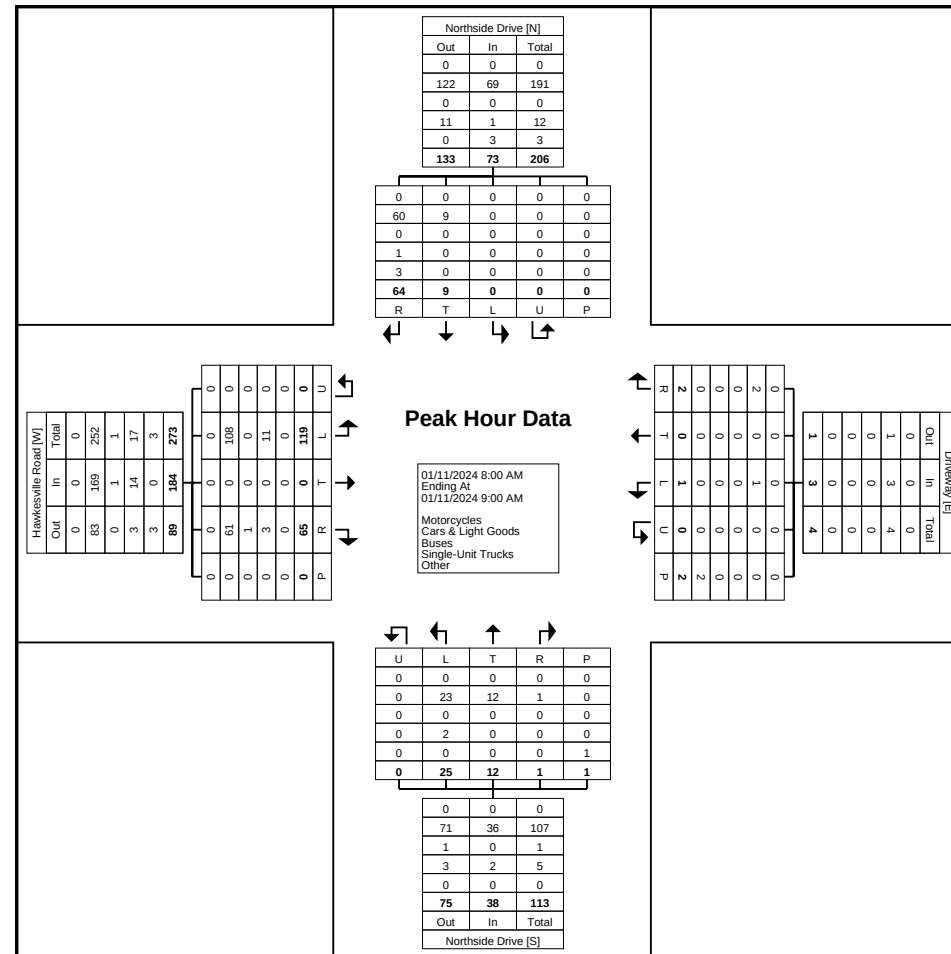
Start Time	Hawkesville Road Eastbound						Driveway Westbound						Northside Drive Northbound						Northside Drive Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	27	0	19	0	0	46	0	0	1	0	1	1	3	3	1	0	1	7	0	0	9	0	0	9	63
8:15 AM	31	0	16	0	0	47	1	0	0	0	1	1	4	2	0	0	0	6	0	4	10	0	0	14	68
8:30 AM	32	0	10	0	0	42	0	0	0	0	0	0	5	3	0	0	0	8	0	4	20	0	0	24	74
8:45 AM	29	0	20	0	0	49	0	0	1	0	0	1	13	4	0	0	0	17	0	1	25	0	0	26	93
Total	119	0	65	0	0	184	1	0	2	0	2	3	25	12	1	0	1	38	0	9	64	0	0	73	298
Approach %	64.7	0.0	35.3	0.0	-	-	33.3	0.0	66.7	0.0	-	-	65.8	31.6	2.6	0.0	-	-	0.0	12.3	87.7	0.0	-	-	-
Total %	39.9	0.0	21.8	0.0	-	61.7	0.3	0.0	0.7	0.0	-	1.0	8.4	4.0	0.3	0.0	-	12.8	0.0	3.0	21.5	0.0	-	24.5	-
PHF	0.930	0.000	0.813	0.000	-	0.939	0.250	0.000	0.500	0.000	-	0.750	0.481	0.750	0.250	0.000	-	0.559	0.000	0.563	0.640	0.000	-	0.702	0.801
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	108	0	61	0	-	169	1	0	2	0	-	3	23	12	1	0	-	36	0	9	60	0	-	69	277
% Cars & Light Goods	90.8	-	93.8	-	-	91.8	100.0	-	100.0	-	-	100.0	92.0	100.0	100.0	-	-	94.7	-	100.0	93.8	-	-	94.5	93.0
Buses	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	0.0	-	1.5	-	-	0.5	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	11	0	3	0	-	14	0	0	0	0	-	0	2	0	0	0	-	2	0	0	1	0	-	1	17
% Single-Unit Trucks	9.2	-	4.6	-	-	7.6	0.0	-	0.0	-	-	0.0	8.0	0.0	0.0	-	-	5.3	-	0.0	1.6	-	-	1.4	5.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	3	0	-	3	3
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	4.7	-	-	4.1	1.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

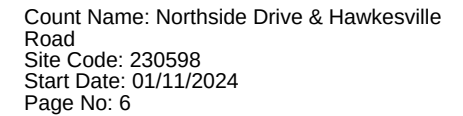


Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Northside Drive & Hawkesville Road
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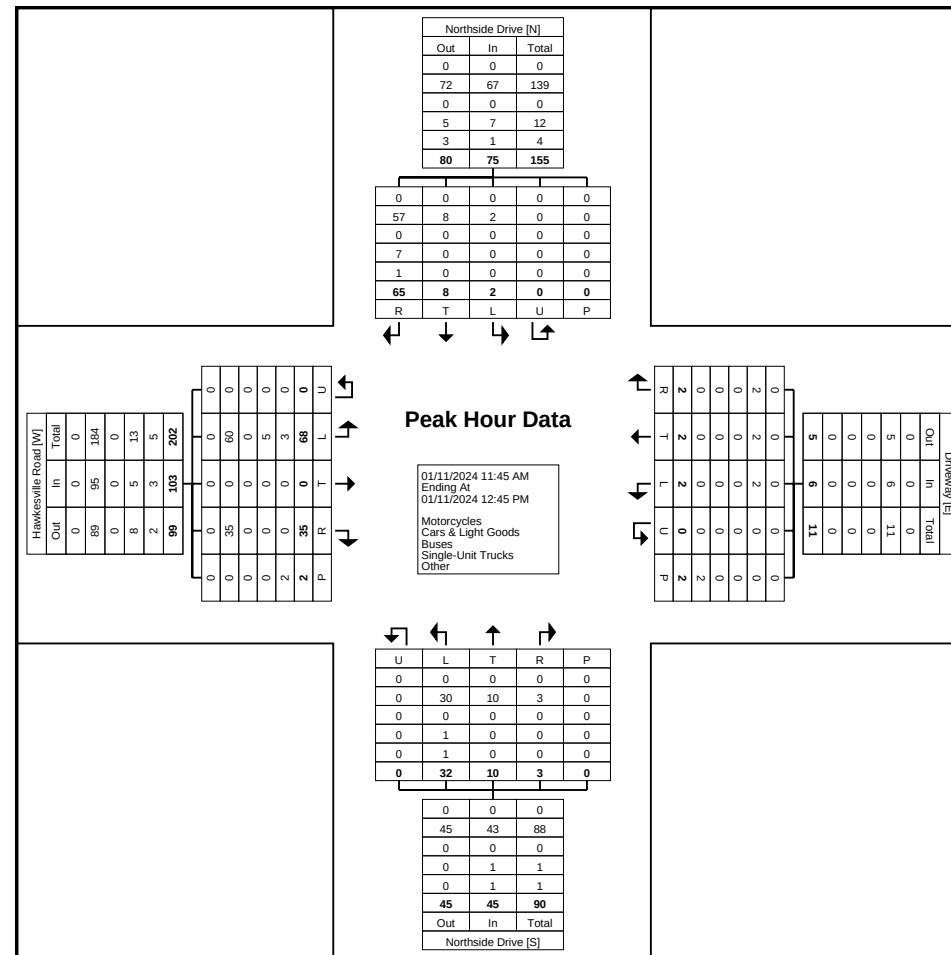
Start Time	Hawkesville Road Eastbound						Driveway Westbound						Northside Drive Northbound						Northside Drive Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	16	0	9	0	0	25	0	2	1	0	0	3	6	0	1	0	0	7	1	0	14	0	0	15	50
12:00 PM	17	0	5	0	2	22	2	0	0	0	1	2	8	2	0	0	0	10	1	1	15	0	0	17	51
12:15 PM	14	0	15	0	0	29	0	0	1	0	0	1	7	3	2	0	0	12	0	3	16	0	0	19	61
12:30 PM	21	0	6	0	0	27	0	0	0	0	1	0	11	5	0	0	0	16	0	4	20	0	0	24	67
Total	68	0	35	0	2	103	2	2	2	0	2	6	32	10	3	0	0	45	2	8	65	0	0	75	229
Approach %	66.0	0.0	34.0	0.0	-	-	33.3	33.3	33.3	0.0	-	-	71.1	22.2	6.7	0.0	-	-	2.7	10.7	86.7	0.0	-	-	-
Total %	29.7	0.0	15.3	0.0	-	45.0	0.9	0.9	0.9	0.0	-	2.6	14.0	4.4	1.3	0.0	-	19.7	0.9	3.5	28.4	0.0	-	32.8	-
PHF	0.810	0.000	0.583	0.000	-	0.888	0.250	0.250	0.500	0.000	-	0.500	0.727	0.500	0.375	0.000	-	0.703	0.500	0.500	0.813	0.000	-	0.781	0.854
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	60	0	35	0	-	95	2	2	2	0	-	6	30	10	3	0	-	43	2	8	57	0	-	67	211
% Cars & Light Goods	88.2	-	100.0	-	-	92.2	100.0	100.0	100.0	-	-	100.0	93.8	100.0	100.0	-	-	95.6	100.0	100.0	87.7	-	-	89.3	92.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	5	0	0	0	-	5	0	0	0	0	-	0	1	0	0	0	-	1	0	0	7	0	-	7	13
% Single-Unit Trucks	7.4	-	0.0	-	-	4.9	0.0	0.0	0.0	-	-	0.0	3.1	0.0	0.0	-	-	2.2	0.0	0.0	10.8	-	-	9.3	5.7
Articulated Trucks	3	0	0	0	-	3	0	0	0	0	-	0	1	0	0	0	-	1	0	0	1	0	-	1	5
% Articulated Trucks	4.4	-	0.0	-	-	2.9	0.0	0.0	0.0	-	-	0.0	3.1	0.0	0.0	-	-	2.2	0.0	0.0	1.5	-	-	1.3	2.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Northside Drive & Hawkesville Road
Site Code: 230598
Start Date: 01/11/2024
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Turning Movement Peak Hour Data Plot (11:45 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Northside Drive & Hawkesville Road
Site Code: 230598
Start Date: 01/11/2024
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Turning Movement Peak Hour Data (4:30 PM)

Start Time	Hawkesville Road Eastbound						Driveway Westbound						Northside Drive Northbound						Northside Drive 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	
4:30 PM	19	0	10	0	0	29	1	0	0	0	1	1	25	0	1	0	1	26	0	0	32	0	0	32	88
4:45 PM	19	0	7	0	2	26	0	0	0	0	3	0	18	2	0	0	1	20	0	1	48	0	0	49	95
5:00 PM	23	0	14	0	0	37	0	1	0	0	1	1	13	3	0	0	0	16	0	1	27	0	0	28	82
5:15 PM	33	0	12	0	0	45	2	0	1	0	0	3	11	1	0	0	0	12	0	0	44	0	0	44	104
Total	94	0	43	0	2	137	3	1	1	0	5	5	67	6	1	0	2	74	0	2	151	0	0	153	369
Approach %	68.6	0.0	31.4	0.0	-	-	60.0	20.0	20.0	0.0	-	-	90.5	8.1	1.4	0.0	-	-	0.0	1.3	98.7	0.0	-	-	-
Total %	25.5	0.0	11.7	0.0	-	37.1	0.8	0.3	0.3	0.0	-	1.4	18.2	1.6	0.3	0.0	-	20.1	0.0	0.5	40.9	0.0	-	41.5	-
PHF	0.712	0.000	0.768	0.000	-	0.761	0.375	0.250	0.250	0.000	-	0.417	0.670	0.500	0.250	0.000	-	0.712	0.000	0.500	0.786	0.000	-	0.781	0.887
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	93	0	40	0	-	133	3	1	1	0	-	5	65	5	1	0	-	71	0	2	145	0	-	147	356
% Cars & Light Goods	98.9	-	93.0	-	-	97.1	100.0	100.0	100.0	-	-	100.0	97.0	83.3	100.0	-	-	95.9	-	100.0	96.0	-	-	96.1	96.5
Buses	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	1
% Buses	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	1.5	0.0	0.0	-	-	1.4	-	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	0	0	2	0	-	2	0	0	0	0	-	0	1	1	0	0	-	2	0	0	5	0	-	5	9
% Single-Unit Trucks	0.0	-	4.7	-	-	1.5	0.0	0.0	0.0	-	-	0.0	1.5	16.7	0.0	-	-	2.7	-	0.0	3.3	-	-	3.3	2.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	1
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.7	-	-	0.7	0.3
Bicycles on Road	1	0	1	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2
% Bicycles on Road	1.1	-	2.3	-	-	1.5	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	2	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Turning Movement Peak Hour Data Plot (4:30 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cdowness@pts1.com

Count Name: Northside Drive & King Street N
Site Code: 230598
Start Date: 01/11/2024
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Turning Movement Data

Start Time	Northside Drive Eastbound						Eby Street Westbound						King Street N Northbound						King Street N Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	5	0	0	5	1	0	0	0	0	1	11	41	1	0	0	53	0	26	1	0	0	27	86
7:15 AM	0	0	10	0	0	10	0	0	2	0	0	2	14	31	0	0	1	45	1	33	0	0	0	34	91
7:30 AM	0	1	18	0	0	19	0	0	0	0	0	0	6	28	0	0	0	34	0	24	0	0	0	24	77
7:45 AM	0	0	25	0	0	25	2	0	1	0	0	3	10	38	0	0	0	48	3	48	0	0	0	51	127
Hourly Total	0	1	58	0	0	59	3	0	3	0	0	6	41	138	1	0	1	180	4	131	1	0	0	136	381
8:00 AM	0	0	19	0	0	19	0	0	0	0	0	0	6	37	2	0	0	45	2	38	0	0	0	40	104
8:15 AM	0	0	21	0	0	21	0	0	1	0	0	1	4	34	0	0	0	38	1	37	0	0	0	38	98
8:30 AM	0	1	11	0	0	12	0	0	0	0	0	0	6	49	2	0	0	57	4	36	0	0	0	40	109
8:45 AM	0	1	18	0	0	19	2	1	1	0	1	4	16	37	2	0	0	55	2	54	0	0	0	56	134
Hourly Total	0	2	69	0	0	71	2	1	2	0	1	5	32	157	6	0	0	195	9	165	0	0	0	174	445
9:00 AM	0	0	15	0	0	15	1	0	1	0	0	2	11	44	1	0	0	56	3	51	0	0	0	54	127
9:15 AM	0	0	12	0	0	12	2	0	0	0	0	2	9	41	1	0	0	51	1	34	0	0	0	35	100
9:30 AM	0	0	13	0	0	13	3	0	0	0	0	3	11	34	1	0	0	46	0	42	0	0	0	42	104
9:45 AM	0	0	7	0	0	7	2	0	2	0	0	4	8	36	2	0	0	46	2	48	0	0	0	50	107
Hourly Total	0	0	47	0	0	47	8	0	3	0	0	11	39	155	5	0	0	199	6	175	0	0	0	181	438
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	0	1	6	0	0	7	1	0	0	0	2	1	7	44	1	0	0	52	2	30	0	0	0	32	92
11:45 AM	0	0	9	0	0	9	0	0	2	0	2	2	6	37	0	0	0	43	0	38	1	0	0	39	93
Hourly Total	0	1	15	0	0	16	1	0	2	0	4	3	13	81	1	0	0	95	2	68	1	0	0	71	185
12:00 PM	0	0	9	0	1	9	1	0	2	0	0	3	10	38	1	1	1	50	2	35	0	0	0	37	99
12:15 PM	0	0	19	0	0	19	1	0	5	0	0	6	14	41	1	0	0	56	1	47	0	0	0	48	129
12:30 PM	0	0	11	1	0	12	0	0	3	0	1	3	13	35	1	0	0	49	0	37	0	0	0	37	101
12:45 PM	0	0	8	0	0	8	0	0	1	0	1	1	7	49	0	0	0	56	1	35	0	0	0	36	101
Hourly Total	0	0	47	1	1	48	2	0	11	0	2	13	44	163	3	1	1	211	4	154	0	0	0	158	430
1:00 PM	0	0	8	0	1	8	4	0	1	0	0	5	3	50	0	0	1	53	3	28	1	0	0	32	98
1:15 PM	0	0	9	0	0	9	2	0	1	0	0	3	8	41	0	0	0	49	0	43	0	0	0	43	104
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	0	0	17	0	1	17	6	0	2	0	0	8	11	91	0	0	1	102	3	71	1	0	0	75	202
3:00 PM	1	0	12	0	0	13	0	0	1	0	1	1	30	91	1	0	0	122	0	39	0	0	0	39	175
3:15 PM	0	0	5	0	0	5	0	0	0	0	0	0	12	56	1	0	0	69	0	42	0	0	0	42	116
3:30 PM	0	0	8	0	0	8	1	0	1	0	0	2	15	53	1	0	2	69	1	37	0	0	0	38	117
3:45 PM	0	0	8	0	0	8	0	0	2	0	4	2	16	53	1	1	1	71	2	49	0	0	0	51	132
Hourly Total	1	0	33	0	0	34	1	0	4	0	5	5	73	253	4	1	3	331	3	167	0	0	0	170	540
4:00 PM	0	1	13	0	0	14	1	0	3	0	1	4	14	56	3	0	0	73	0	39	0	0	0	39	130
4:15 PM	0	0	7	0	0	7	1	1	1	0	2	3	16	54	2	0	0	72	3	44	0	0	0	47	129

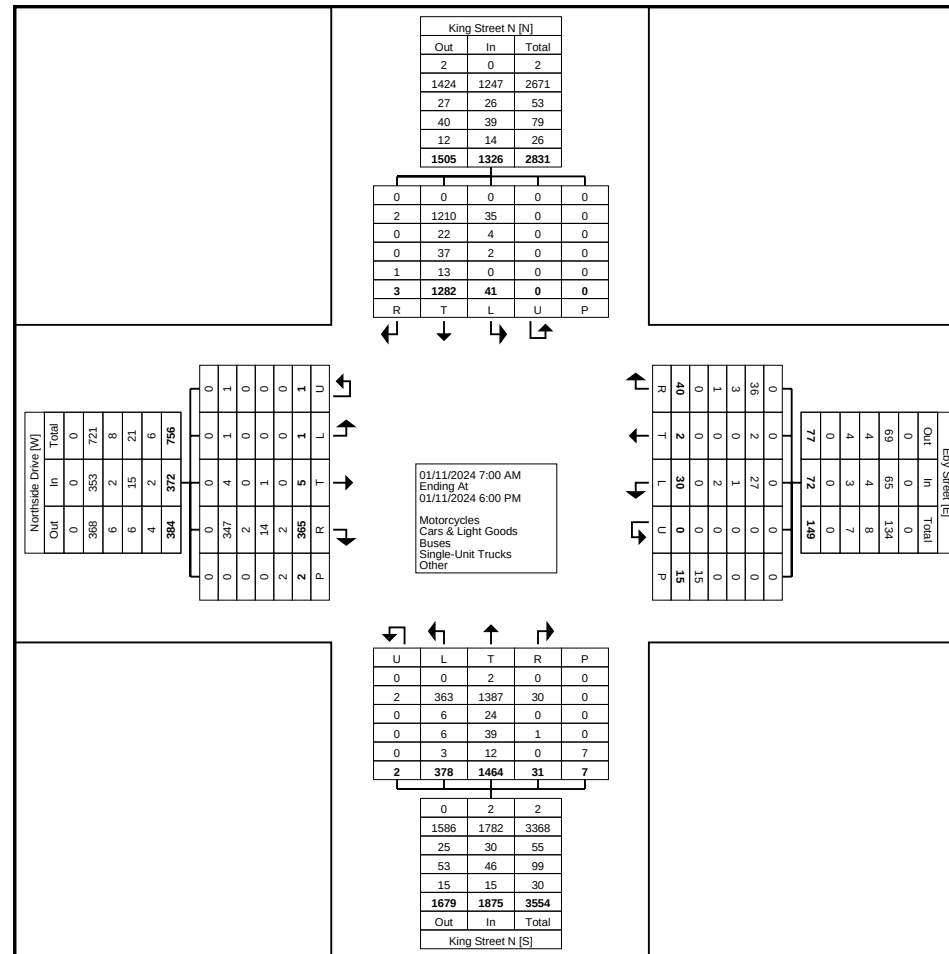
4:30 PM	0	0	8	0	0	8	1	0	3	0	0	4	26	74	2	0	0	102	1	46	0	0	0	47	161
4:45 PM	0	0	10	0	0	10	0	0	3	0	0	3	21	45	0	0	0	66	2	46	0	0	0	48	127
Hourly Total	0	1	38	0	0	39	3	1	10	0	3	14	77	229	7	0	0	313	6	175	0	0	0	181	547
5:00 PM	0	0	15	0	0	15	2	0	0	0	0	2	16	67	0	0	0	83	0	55	0	0	0	55	155
5:15 PM	0	0	14	0	0	14	2	0	1	0	0	3	12	49	3	0	1	64	1	51	0	0	0	52	133
5:30 PM	0	0	7	0	0	7	0	0	1	0	0	1	14	44	1	0	0	59	3	31	0	0	0	34	101
5:45 PM	0	0	5	0	0	5	0	0	1	0	0	1	6	37	0	0	0	43	0	39	0	0	0	39	88
Hourly Total	0	0	41	0	0	41	4	0	3	0	0	7	48	197	4	0	1	249	4	176	0	0	0	180	477
Grand Total	1	5	365	1	2	372	30	2	40	0	15	72	378	1464	31	2	7	1875	41	1282	3	0	0	1326	3645
Approach %	0.3	1.3	98.1	0.3	-	-	41.7	2.8	55.6	0.0	-	-	20.2	78.1	1.7	0.1	-	-	3.1	96.7	0.2	0.0	-	-	-
Total %	0.0	0.1	10.0	0.0	-	10.2	0.8	0.1	1.1	0.0	-	2.0	10.4	40.2	0.9	0.1	-	51.4	1.1	35.2	0.1	0.0	-	36.4	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	2
% Motorcycles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	-	-	0.0	0.1
Cars & Light Goods	1	4	347	1	-	353	27	2	36	0	-	65	363	1387	30	2	-	1782	35	1210	2	0	-	1247	3447
% Cars & Light Goods	100.0	80.0	95.1	100.0	-	94.9	90.0	100.0	90.0	-	-	90.3	96.0	94.7	96.8	100.0	-	95.0	85.4	94.4	66.7	-	-	94.0	94.6
Buses	0	0	2	0	-	2	1	0	3	0	-	4	6	24	0	0	-	30	4	22	0	0	-	26	62
% Buses	0.0	0.0	0.5	0.0	-	0.5	3.3	0.0	7.5	-	-	5.6	1.6	1.6	0.0	0.0	-	1.6	9.8	1.7	0.0	-	-	2.0	1.7
Single-Unit Trucks	0	1	14	0	-	15	2	0	1	0	-	3	6	39	1	0	-	46	2	37	0	0	-	39	103
% Single-Unit Trucks	0.0	20.0	3.8	0.0	-	4.0	6.7	0.0	2.5	-	-	4.2	1.6	2.7	3.2	0.0	-	2.5	4.9	2.9	0.0	-	-	2.9	2.8
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	1	10	0	0	-	11	0	10	1	0	-	11	23
% Articulated Trucks	0.0	0.0	0.3	0.0	-	0.3	0.0	0.0	0.0	-	-	0.0	0.3	0.7	0.0	0.0	-	0.6	0.0	0.8	33.3	-	-	0.8	0.6
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	2	2	0	0	-	4	0	3	0	0	-	3	8
% Bicycles on Road	0.0	0.0	0.3	0.0	-	0.3	0.0	0.0	0.0	-	-	0.0	0.5	0.1	0.0	0.0	-	0.2	0.0	0.2	0.0	-	-	0.2	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	15	-	-	-	-	-	7	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



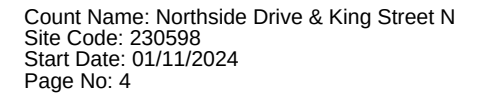
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Northside Drive & King Street N
Site Code: 230598
Start Date: 01/11/2024
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Turning Movement Data Plot

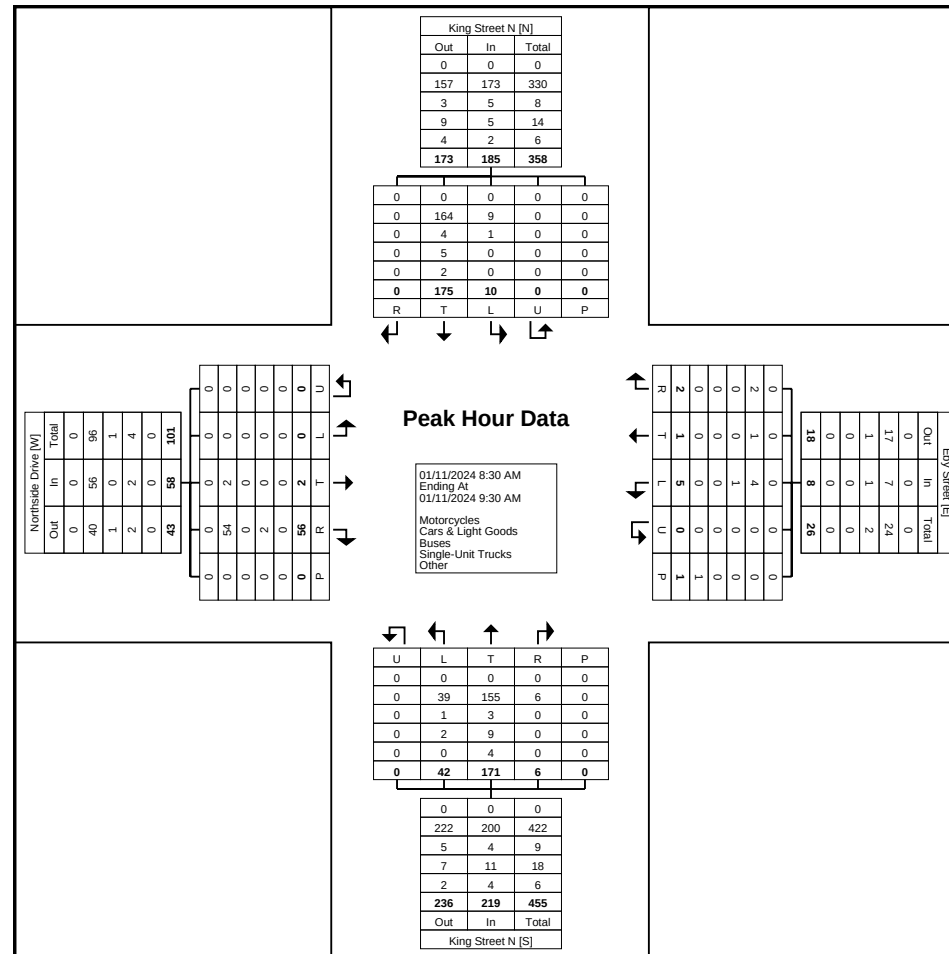
[illegible]



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Count Name: Northside Drive & King Street N
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Count Name: Northside Drive & King Street N
Site Code: 230598
Start Date: 01/11/2024
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Turning Movement Peak Hour Data (12:00 PM)

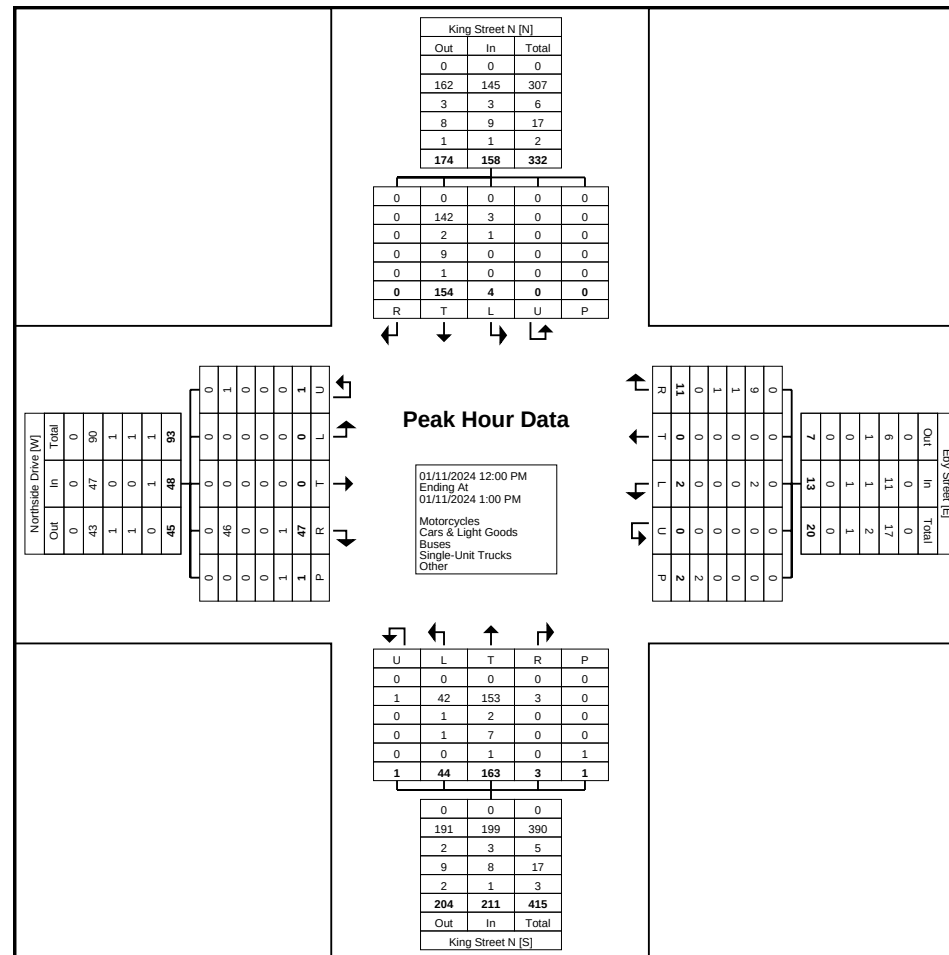
Start Time	Northside Drive Eastbound						Eby Street Westbound						King Street N Northbound						King Street N Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	0	0	9	0	1	9	1	0	2	0	0	3	10	38	1	1	1	50	2	35	0	0	0	37	99
12:15 PM	0	0	19	0	0	19	1	0	5	0	0	6	14	41	1	0	0	56	1	47	0	0	0	48	129
12:30 PM	0	0	11	1	0	12	0	0	3	0	1	3	13	35	1	0	0	49	0	37	0	0	0	37	101
12:45 PM	0	0	8	0	0	8	0	0	1	0	1	1	7	49	0	0	0	56	1	35	0	0	0	36	101
Total	0	0	47	1	1	48	2	0	11	0	2	13	44	163	3	1	1	211	4	154	0	0	0	158	430
Approach %	0.0	0.0	97.9	2.1	-	-	15.4	0.0	84.6	0.0	-	-	20.9	77.3	1.4	0.5	-	-	2.5	97.5	0.0	0.0	-	-	-
Total %	0.0	0.0	10.9	0.2	-	11.2	0.5	0.0	2.6	0.0	-	3.0	10.2	37.9	0.7	0.2	-	49.1	0.9	35.8	0.0	0.0	-	36.7	-
PHF	0.000	0.000	0.618	0.250	-	0.632	0.500	0.000	0.550	0.000	-	0.542	0.786	0.832	0.750	0.250	-	0.942	0.500	0.819	0.000	0.000	-	0.823	0.833
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	-	0.0	0.0	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	-	0.0	0.0
Cars & Light Goods	0	0	46	1	-	47	2	0	9	0	-	11	42	153	3	1	-	199	3	142	0	0	-	145	402
% Cars & Light Goods	-	-	97.9	100.0	-	97.9	100.0	-	81.8	-	-	84.6	95.5	93.9	100.0	100.0	-	94.3	75.0	92.2	-	-	-	91.8	93.5
Buses	0	0	0	0	-	0	0	0	1	0	-	1	1	2	0	0	-	3	1	2	0	0	-	3	7
% Buses	-	-	0.0	0.0	-	0.0	0.0	-	9.1	-	-	7.7	2.3	1.2	0.0	0.0	-	1.4	25.0	1.3	-	-	-	1.9	1.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	1	7	0	0	-	8	0	9	0	0	-	9	18
% Single-Unit Trucks	-	-	0.0	0.0	-	0.0	0.0	-	9.1	-	-	7.7	2.3	4.3	0.0	0.0	-	3.8	0.0	5.8	-	-	-	5.7	4.2
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	1	0	0	-	1	3
% Articulated Trucks	-	-	2.1	0.0	-	2.1	0.0	-	0.0	-	-	0.0	0.0	0.6	0.0	0.0	-	0.5	0.0	0.6	-	-	-	0.6	0.7
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
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	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@pts1.com

Count Name: Northside Drive & King Street N
Site Code: 230598
Start Date: 01/11/2024
Page No: 7



Turning Movement Peak Hour Data Plot (12:00 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Northside Drive & King Street N
Site Code: 230598
Start Date: 01/11/2024
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Turning Movement Peak Hour Data (4:30 PM)

Start Time	Northside Drive Eastbound						Eby Street Westbound						King Street N Northbound						King Street N Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	0	0	8	0	0	8	1	0	3	0	0	4	26	74	2	0	0	102	1	46	0	0	0	47	161
4:45 PM	0	0	10	0	0	10	0	0	3	0	0	3	21	45	0	0	0	66	2	46	0	0	0	48	127
5:00 PM	0	0	15	0	0	15	2	0	0	0	0	2	16	67	0	0	0	83	0	55	0	0	0	55	155
5:15 PM	0	0	14	0	0	14	2	0	1	0	0	3	12	49	3	0	1	64	1	51	0	0	0	52	133
Total	0	0	47	0	0	47	5	0	7	0	0	12	75	235	5	0	1	315	4	198	0	0	0	202	576
Approach %	0.0	0.0	100.0	0.0	-	-	41.7	0.0	58.3	0.0	-	-	23.8	74.6	1.6	0.0	-	-	2.0	98.0	0.0	0.0	-	-	-
Total %	0.0	0.0	8.2	0.0	-	8.2	0.9	0.0	1.2	0.0	-	2.1	13.0	40.8	0.9	0.0	-	54.7	0.7	34.4	0.0	0.0	-	35.1	-
PHF	0.000	0.000	0.783	0.000	-	0.783	0.625	0.000	0.583	0.000	-	0.750	0.721	0.794	0.417	0.000	-	0.772	0.500	0.900	0.000	0.000	-	0.918	0.894
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
Cars & Light Goods	0	0	45	0	-	45	5	0	7	0	-	12	72	229	5	0	-	306	4	190	0	0	-	194	557
% Cars & Light Goods	-	-	95.7	-	-	95.7	100.0	-	100.0	-	-	100.0	96.0	97.4	100.0	-	-	97.1	100.0	96.0	-	-	-	96.0	96.7
Buses	0	0	0	0	-	0	0	0	0	0	-	0	1	2	0	0	-	3	0	2	0	0	-	2	5
% Buses	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	1.3	0.9	0.0	-	-	1.0	0.0	1.0	-	-	-	1.0	0.9
Single-Unit Trucks	0	0	2	0	-	2	0	0	0	0	-	0	2	3	0	0	-	5	0	3	0	0	-	3	10
% Single-Unit Trucks	-	-	4.3	-	-	4.3	0.0	-	0.0	-	-	0.0	2.7	1.3	0.0	-	-	1.6	0.0	1.5	-	-	-	1.5	1.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	1	0	0	-	1	2
% Articulated Trucks	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.3	0.0	0.5	-	-	-	0.5	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	2
% Bicycles on Road	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.0	-	-	-	1.0	0.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Turning Movement Peak Hour Data Plot (4:30 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Northside Drive & Sawmill Road
Site Code: 230598
Start Date: 01/11/2024
Page No: 1

Turning Movement Data

Start Time	Sawmill Road Westbound					Northside Drive Northbound					Northside 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	11	1	0	0	12	1	16	1	0	18	3	0	0	0	3	33
7:15 AM	12	0	0	0	12	4	25	0	1	29	1	1	0	0	2	43
7:30 AM	15	0	0	0	15	2	32	0	0	34	1	1	0	0	2	51
7:45 AM	23	0	0	2	23	0	32	0	0	32	2	2	0	0	4	59
Hourly Total	61	1	0	2	62	7	105	1	1	113	7	4	0	0	11	186
8:00 AM	10	1	0	0	11	2	30	0	0	32	0	1	0	0	1	44
8:15 AM	12	2	0	1	14	2	32	0	0	34	1	4	0	0	5	53
8:30 AM	21	1	0	0	22	4	29	0	0	33	4	2	0	0	6	61
8:45 AM	29	1	0	0	30	5	31	0	0	36	3	0	0	0	3	69
Hourly Total	72	5	0	1	77	13	122	0	0	135	8	7	0	0	15	227
9:00 AM	12	1	0	0	13	3	20	0	0	23	0	2	0	2	2	38
9:15 AM	22	0	0	0	22	1	17	0	0	18	2	3	0	0	5	45
9:30 AM	18	3	0	0	21	1	28	0	0	29	1	2	0	0	3	53
9:45 AM	16	2	0	0	18	1	12	0	0	13	3	0	0	0	3	34
Hourly Total	68	6	0	0	74	6	77	0	0	83	6	7	0	2	13	170
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	18	2	0	0	20	2	19	0	0	21	4	1	0	0	5	46
11:45 AM	17	4	0	0	21	0	19	0	0	19	1	2	0	0	3	43
Hourly Total	35	6	0	0	41	2	38	0	0	40	5	3	0	0	8	89
12:00 PM	18	1	0	0	19	2	20	0	0	22	5	0	0	0	5	46
12:15 PM	16	3	0	0	19	3	17	0	0	20	0	3	0	0	3	42
12:30 PM	24	1	1	1	26	3	22	0	0	25	5	0	0	0	5	56
12:45 PM	13	0	0	0	13	1	15	0	0	16	2	3	0	0	5	34
Hourly Total	71	5	1	1	77	9	74	0	0	83	12	6	0	0	18	178
1:00 PM	11	2	0	0	13	2	14	0	0	16	0	1	0	0	1	30
1:15 PM	18	1	0	0	19	1	20	0	0	21	0	2	0	0	2	42
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	29	3	0	0	32	3	34	0	0	37	0	3	0	0	3	72
3:00 PM	7	3	0	0	10	2	25	0	0	27	1	0	0	0	1	38
3:15 PM	21	2	0	0	23	2	20	0	0	22	1	1	0	0	2	47
3:30 PM	22	0	0	0	22	1	16	0	0	17	1	1	0	0	2	41
3:45 PM	29	4	0	0	33	1	21	0	0	22	1	2	0	2	3	58
Hourly Total	79	9	0	0	88	6	82	0	0	88	4	4	0	2	8	184
4:00 PM	24	2	0	0	26	0	26	0	0	26	3	1	0	0	4	56
4:15 PM	29	0	0	0	29	1	24	0	0	25	3	0	0	0	3	57
4:30 PM	31	1	0	1	32	0	18	0	0	18	4	1	0	0	5	55

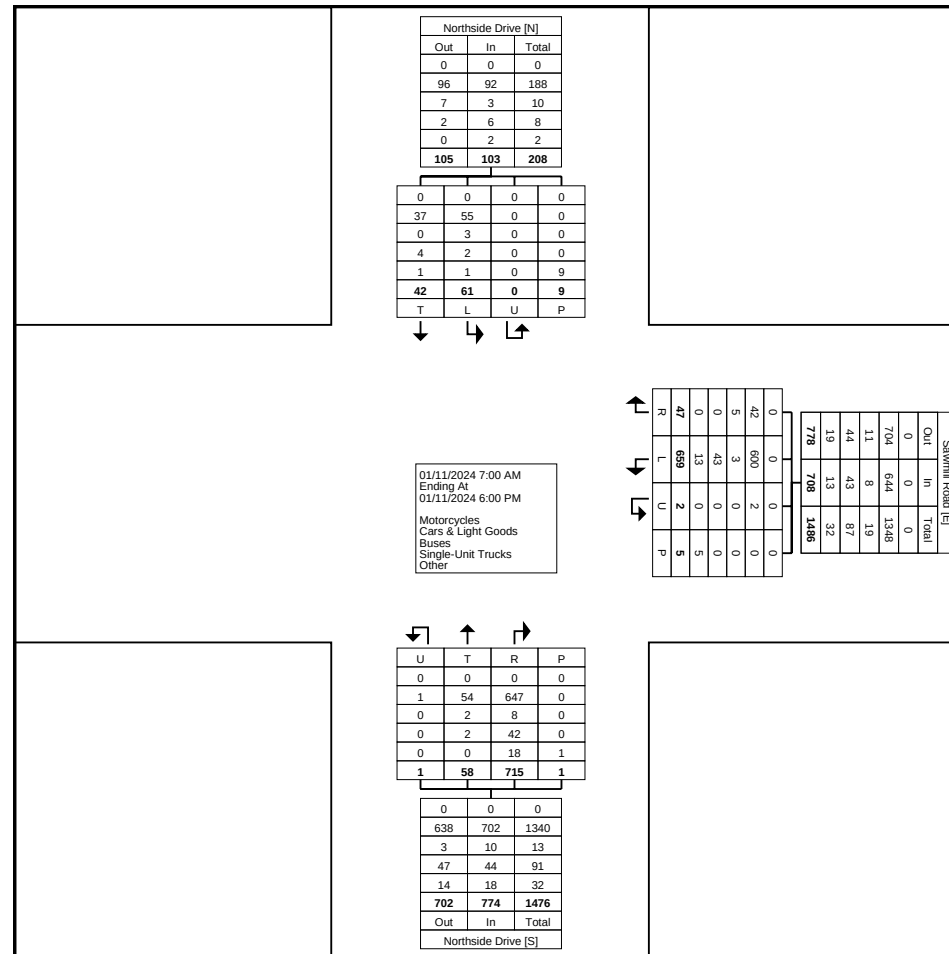
4:45 PM	48	1	1	0	50	2	22	0	0	24	2	1	0	1	3	77
Hourly Total	132	4	1	1	137	3	90	0	0	93	12	3	0	1	15	245
5:00 PM	29	4	0	0	33	3	25	0	0	28	0	3	0	0	3	64
5:15 PM	40	2	0	0	42	3	34	0	0	37	4	1	0	0	5	84
5:30 PM	29	0	0	0	29	0	22	0	0	22	0	1	0	2	1	52
5:45 PM	14	2	0	0	16	3	12	0	0	15	3	0	0	2	3	34
Hourly Total	112	8	0	0	120	9	93	0	0	102	7	5	0	4	12	234
Grand Total	659	47	2	5	708	58	715	1	1	774	61	42	0	9	103	1585
Approach %	93.1	6.6	0.3	-	-	7.5	92.4	0.1	-	-	59.2	40.8	0.0	-	-	-
Total %	41.6	3.0	0.1	-	44.7	3.7	45.1	0.1	-	48.8	3.8	2.6	0.0	-	6.5	-
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	0.0
Cars & Light Goods	600	42	2	-	644	54	647	1	-	702	55	37	0	-	92	1438
% Cars & Light Goods	91.0	89.4	100.0	-	91.0	93.1	90.5	100.0	-	90.7	90.2	88.1	-	-	89.3	90.7
Buses	3	5	0	-	8	2	8	0	-	10	3	0	0	-	3	21
% Buses	0.5	10.6	0.0	-	1.1	3.4	1.1	0.0	-	1.3	4.9	0.0	-	-	2.9	1.3
Single-Unit Trucks	43	0	0	-	43	2	42	0	-	44	2	4	0	-	6	93
% Single-Unit Trucks	6.5	0.0	0.0	-	6.1	3.4	5.9	0.0	-	5.7	3.3	9.5	-	-	5.8	5.9
Articulated Trucks	13	0	0	-	13	0	17	0	-	17	0	1	0	-	1	31
% Articulated Trucks	2.0	0.0	0.0	-	1.8	0.0	2.4	0.0	-	2.2	0.0	2.4	-	-	1.0	2.0
Bicycles on Road	0	0	0	-	0	0	1	0	-	1	1	0	0	-	1	2
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	-	0.1	1.6	0.0	-	-	1.0	0.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	0.0	-
Pedestrians	-	-	-	5	-	-	-	-	1	-	-	-	-	9	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



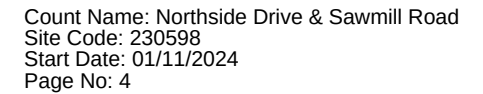
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Northside Drive & Sawmill Road
Site Code: 230598
Start Date: 01/11/2024
Page No: 3



Turning Movement Data Plot



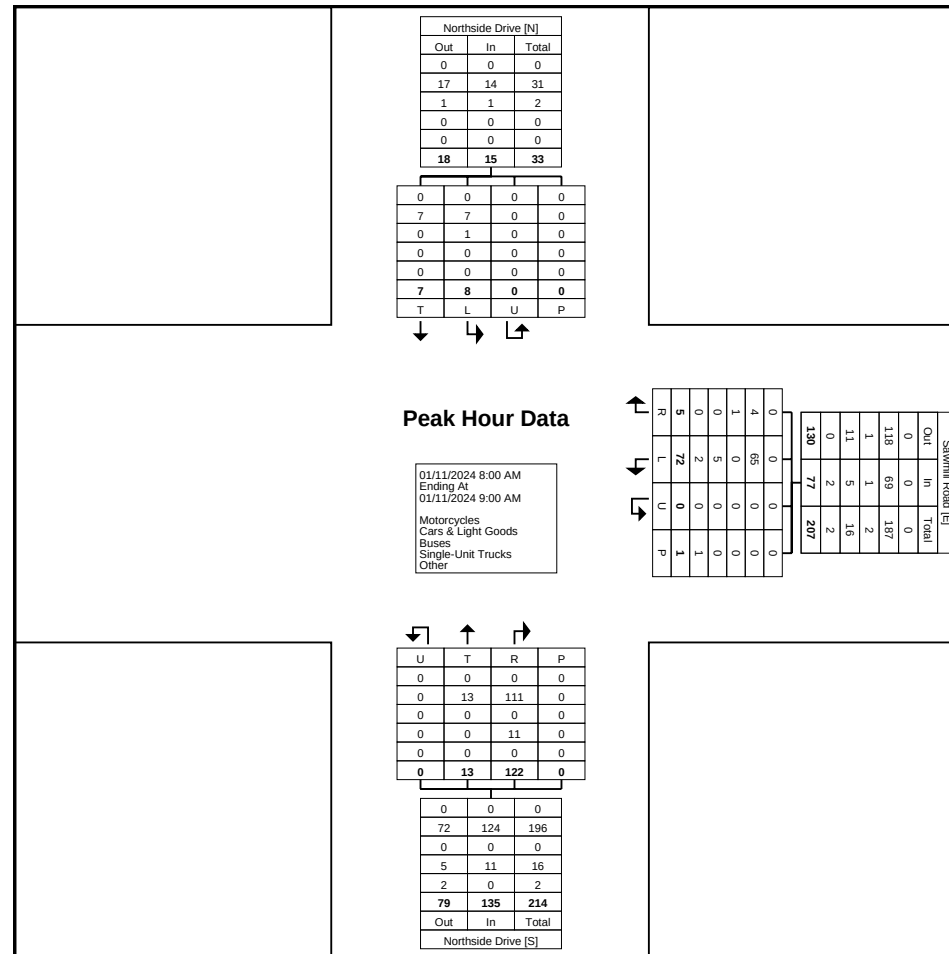
Start Time	Sawmill Road Westbound					Northside Drive Northbound					Northside Drive Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
8:00 AM	10	1	0	0	11	2	30	0	0	32	0	1	0	0	1	44
8:15 AM	12	2	0	1	14	2	32	0	0	34	1	4	0	0	5	53
8:30 AM	21	1	0	0	22	4	29	0	0	33	4	2	0	0	6	61
8:45 AM	29	1	0	0	30	5	31	0	0	36	3	0	0	0	3	69
Total	72	5	0	1	77	13	122	0	0	135	8	7	0	0	15	227
Approach %	93.5	6.5	0.0	-	-	9.6	90.4	0.0	-	-	53.3	46.7	0.0	-	-	-
Total %	31.7	2.2	0.0	-	33.9	5.7	53.7	0.0	-	59.5	3.5	3.1	0.0	-	6.6	-
PHF	0.621	0.625	0.000	-	0.642	0.650	0.953	0.000	-	0.938	0.500	0.438	0.000	-	0.625	0.822
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	65	4	0	-	69	13	111	0	-	124	7	7	0	-	14	207
% Cars & Light Goods	90.3	80.0	-	-	89.6	100.0	91.0	-	-	91.9	87.5	100.0	-	-	93.3	91.2
Buses	0	1	0	-	1	0	0	0	-	0	1	0	0	-	1	2
% Buses	0.0	20.0	-	-	1.3	0.0	0.0	-	-	0.0	12.5	0.0	-	-	6.7	0.9
Single-Unit Trucks	5	0	0	-	5	0	11	0	-	11	0	0	0	-	0	16
% Single-Unit Trucks	6.9	0.0	-	-	6.5	0.0	9.0	-	-	8.1	0.0	0.0	-	-	0.0	7.0
Articulated Trucks	2	0	0	-	2	0	0	0	-	0	0	0	0	-	0	2
% Articulated Trucks	2.8	0.0	-	-	2.6	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.9
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	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Northside Drive & Sawmill Road
Site Code: 230598
Start Date: 01/11/2024
Page No: 5



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

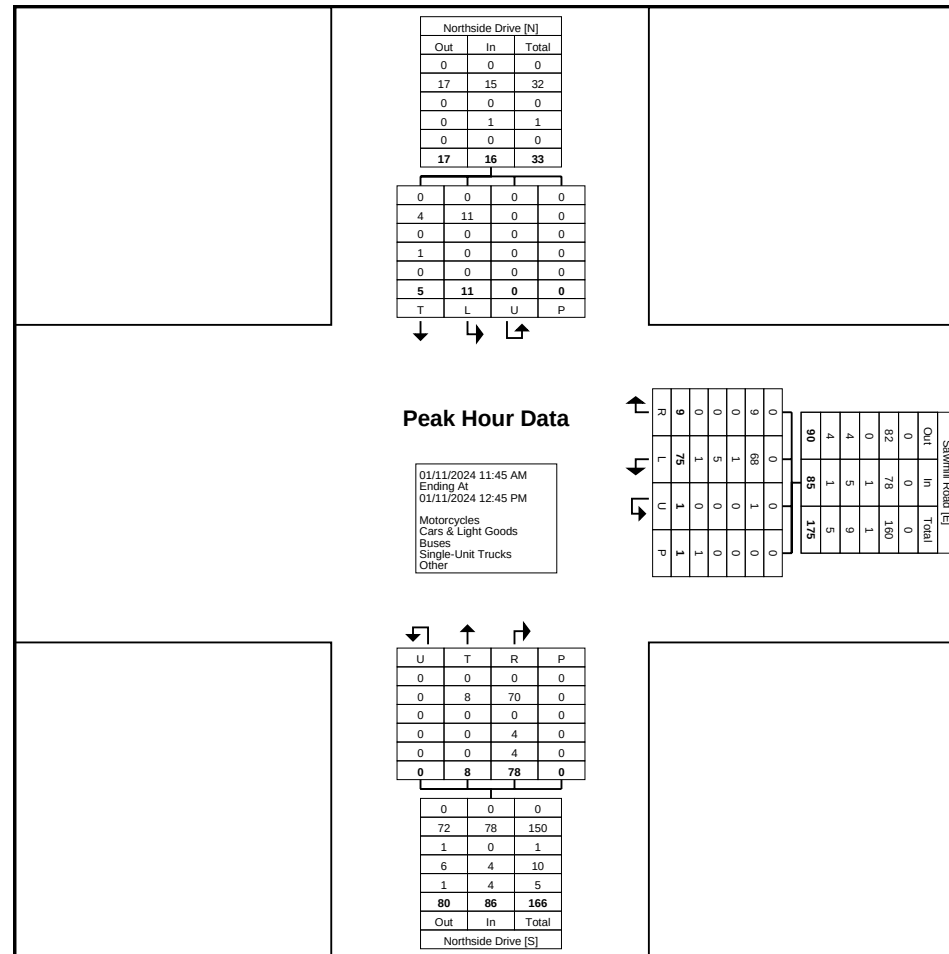
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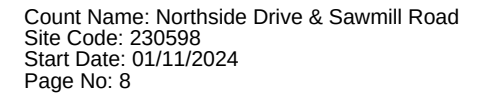
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Northside Drive & Sawmill Road
Site Code: 230598
Start Date: 01/11/2024
Page No: 7



Turning Movement Peak Hour Data Plot (11:45 AM)

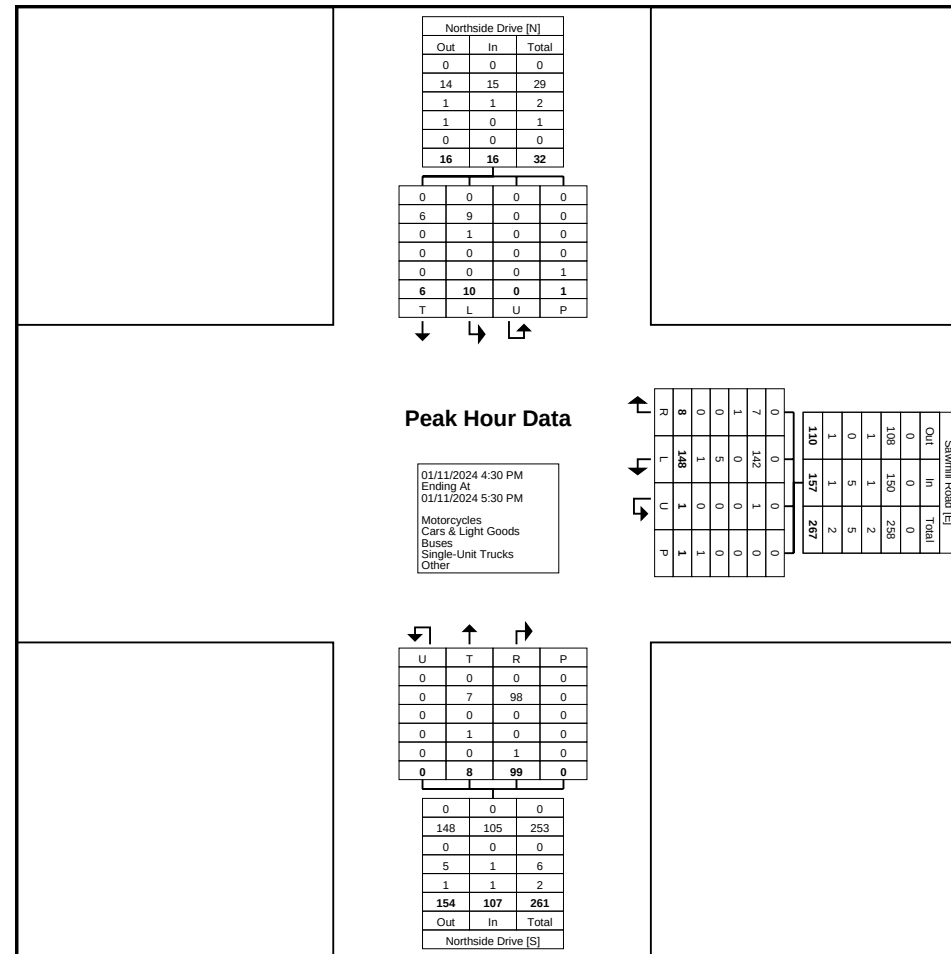




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Count Name: Northside Drive & Sawmill Road
Site Code: 230598
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5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: King Street North & Northside
Drive
Site Code: 240600
Start Date: 11/06/2024
Page No: 1

Turning Movement Data

Start Time	Northside Drive Eastbound					King Street N Northbound					King Street N Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	1	0	0	0	1	0	2	0	0	2	2	0	0	0	2	5
7:15 AM	0	1	0	0	1	0	1	0	0	1	2	0	0	0	2	4
7:30 AM	1	0	0	1	1	0	0	0	0	0	2	0	0	0	2	3
7:45 AM	0	0	0	0	0	0	0	0	0	0	3	1	0	0	4	4
Hourly Total	2	1	0	1	3	0	3	0	0	3	9	1	0	0	10	16
8:00 AM	0	1	0	0	1	1	1	0	0	2	2	0	0	0	2	5
8:15 AM	0	0	0	0	0	2	1	0	0	3	2	1	0	0	3	6
8:30 AM	1	0	0	0	1	1	2	0	0	3	1	0	0	0	1	5
8:45 AM	3	0	0	0	3	0	4	0	0	4	4	1	0	0	5	12
Hourly Total	4	1	0	0	5	4	8	0	0	12	9	2	0	0	11	28
9:00 AM	0	0	0	0	0	1	1	0	0	2	2	2	0	0	4	6
9:15 AM	0	1	0	0	1	0	2	0	0	2	3	0	0	0	3	6
9:30 AM	1	0	0	1	1	1	3	0	0	4	2	1	0	0	3	8
9:45 AM	1	0	0	2	1	1	3	0	0	4	5	1	0	0	6	11
Hourly Total	2	1	0	3	3	3	9	0	0	12	12	4	0	0	16	31
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	2	0	0	0	2	0	3	0	0	3	1	1	0	0	2	7
11:45 AM	0	1	0	2	1	0	2	0	0	2	4	0	0	0	4	7
Hourly Total	2	1	0	2	3	0	5	0	0	5	5	1	0	0	6	14
12:00 PM	0	0	0	0	0	0	4	0	0	4	2	1	0	0	3	7
12:15 PM	2	0	0	0	2	2	4	0	0	6	1	0	0	0	1	9
12:30 PM	2	0	0	0	2	0	1	0	0	1	3	0	0	0	3	6
12:45 PM	0	0	0	0	0	0	3	0	2	3	4	2	0	0	6	9
Hourly Total	4	0	0	0	4	2	12	0	2	14	10	3	0	0	13	31
1:00 PM	2	0	0	2	2	0	3	0	0	3	2	1	0	0	3	8
1:15 PM	0	1	0	0	1	1	3	0	0	4	5	1	0	0	6	11
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	2	1	0	2	3	1	6	0	0	7	7	2	0	0	9	19
3:00 PM	1	0	0	0	1	0	3	0	0	3	2	0	0	0	2	6
3:15 PM	4	1	0	0	5	2	7	0	0	9	3	0	0	0	3	17
3:30 PM	1	1	0	0	2	0	3	0	0	3	4	0	0	0	4	9
3:45 PM	3	1	0	0	4	0	2	0	0	2	0	1	0	0	1	7
Hourly Total	9	3	0	0	12	2	15	0	0	17	9	1	0	0	10	39
4:00 PM	0	0	0	0	0	2	5	0	0	7	4	0	0	0	4	11
4:15 PM	0	1	0	0	1	0	1	0	0	1	2	0	0	0	2	4
4:30 PM	1	1	0	0	2	1	7	0	0	8	2	2	0	0	4	14

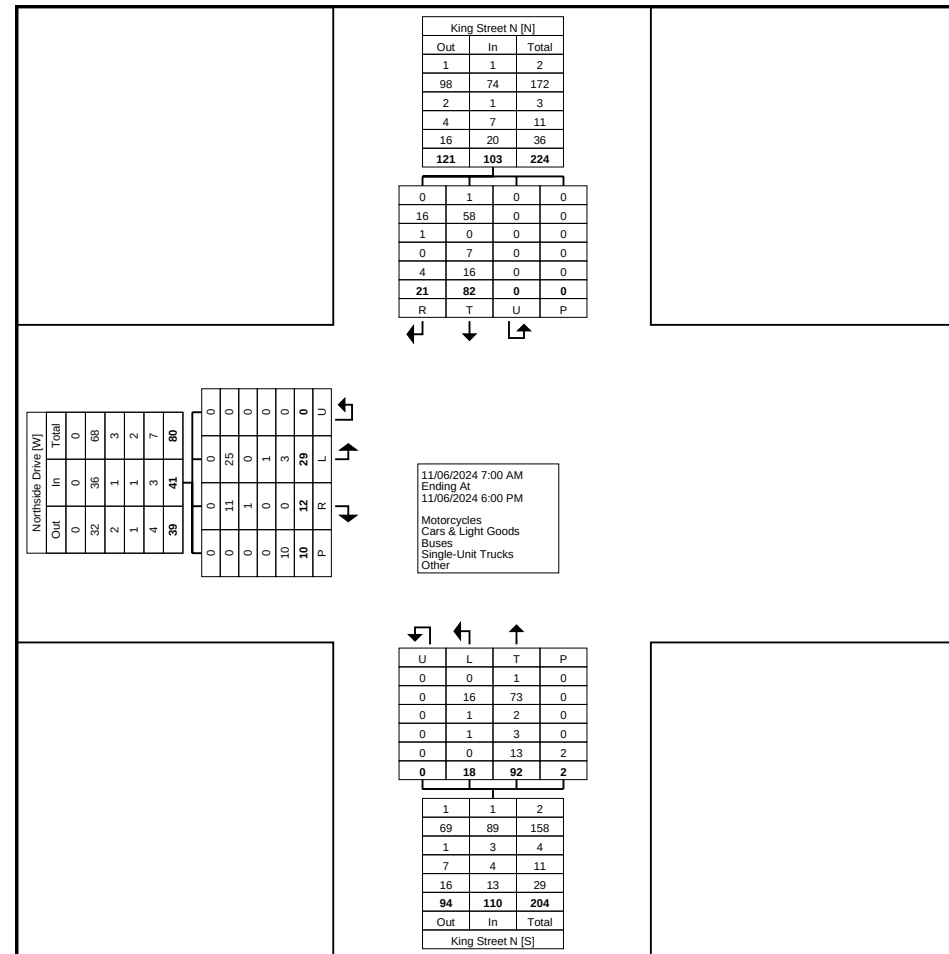
4:45 PM	0	1	0	2	1	0	4	0	0	4	3	0	0	0	3	8
Hourly Total	1	3	0	2	4	3	17	0	0	20	11	2	0	0	13	37
5:00 PM	1	0	0	0	1	0	6	0	0	6	2	5	0	0	7	14
5:15 PM	0	0	0	0	0	1	4	0	0	5	6	0	0	0	6	11
5:30 PM	1	1	0	0	2	1	7	0	0	8	0	0	0	0	0	10
5:45 PM	1	0	0	0	1	1	0	0	0	1	2	0	0	0	2	4
Hourly Total	3	1	0	0	4	3	17	0	0	20	10	5	0	0	15	39
Grand Total	29	12	0	10	41	18	92	0	2	110	82	21	0	0	103	254
Approach %	70.7	29.3	0.0	-	-	16.4	83.6	0.0	-	-	79.6	20.4	0.0	-	-	-
Total %	11.4	4.7	0.0	-	16.1	7.1	36.2	0.0	-	43.3	32.3	8.3	0.0	-	40.6	-
Motorcycles	0	0	0	-	0	0	1	0	-	1	1	0	0	-	1	2
% Motorcycles	0.0	0.0	-	-	0.0	0.0	1.1	-	-	0.9	1.2	0.0	-	-	1.0	0.8
Cars & Light Goods	25	11	0	-	36	16	73	0	-	89	58	16	0	-	74	199
% Cars & Light Goods	86.2	91.7	-	-	87.8	88.9	79.3	-	-	80.9	70.7	76.2	-	-	71.8	78.3
Buses	0	1	0	-	1	1	2	0	-	3	0	1	0	-	1	5
% Buses	0.0	8.3	-	-	2.4	5.6	2.2	-	-	2.7	0.0	4.8	-	-	1.0	2.0
Single-Unit Trucks	1	0	0	-	1	1	3	0	-	4	7	0	0	-	7	12
% Single-Unit Trucks	3.4	0.0	-	-	2.4	5.6	3.3	-	-	3.6	8.5	0.0	-	-	6.8	4.7
Articulated Trucks	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Articulated Trucks	3.4	0.0	-	-	2.4	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.4
Bicycles on Road	2	0	0	-	2	0	9	0	-	9	12	3	0	-	15	26
% Bicycles on Road	6.9	0.0	-	-	4.9	0.0	9.8	-	-	8.2	14.6	14.3	-	-	14.6	10.2
Horse and Buggy	0	0	0	-	0	0	4	0	-	4	4	1	0	-	5	9
% Horse and Buggy	0.0	0.0	-	-	0.0	0.0	4.3	-	-	3.6	4.9	4.8	-	-	4.9	3.5
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	10.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	9	-	-	-	-	2	-	-	-	-	0	-	-
% Pedestrians	-	-	-	90.0	-	-	-	-	100.0	-	-	-	-	-	-	-



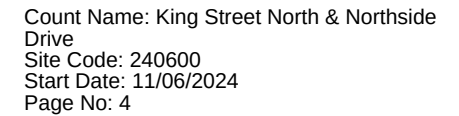
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: King Street North & Northside
Drive
Site Code: 240600
Start Date: 11/06/2024
Page No: 3



Turning Movement Data Plot

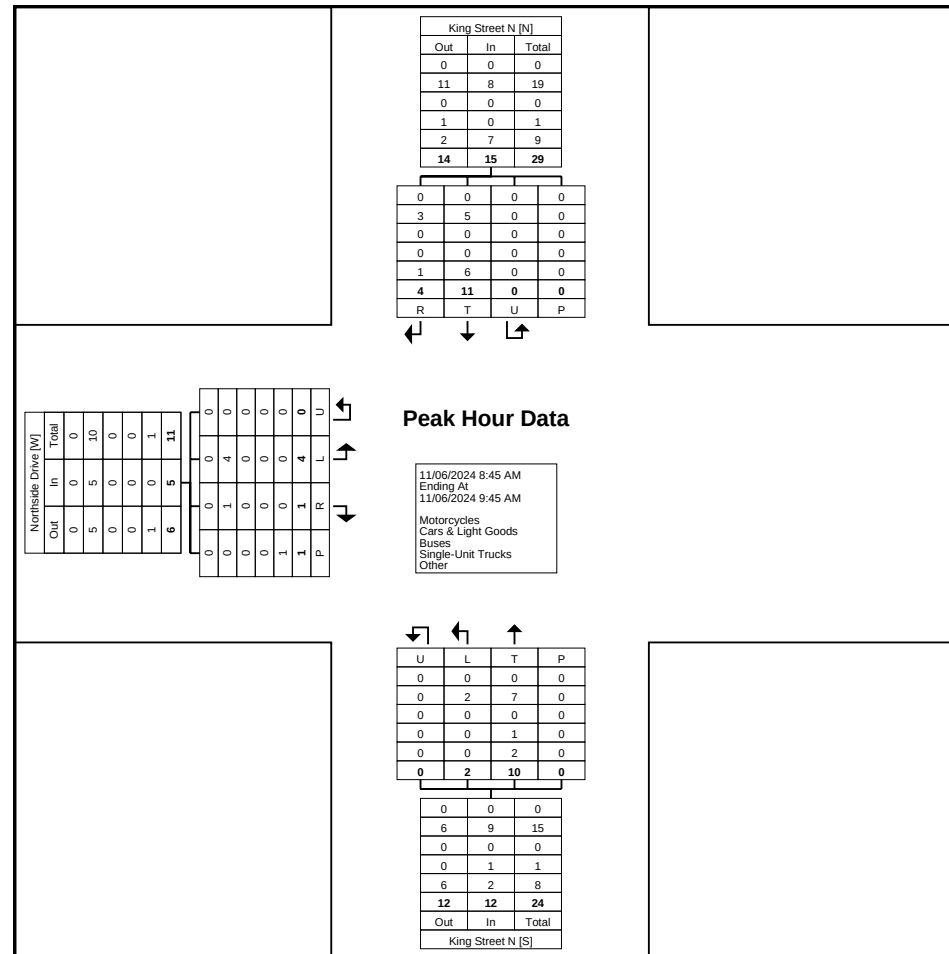
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5A-150 Pinebush Rd

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519-896-3163 cbowness@pts1.com

Count Name: King Street North & Northside
Drive
Site Code: 240600
Start Date: 11/06/2024
Page No: 5



Turning Movement Peak Hour Data Plot (8:45 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: King Street North & Northside
Drive
Site Code: 240600
Start Date: 11/06/2024
Page No: 6

Turning Movement Peak Hour Data (12:30 PM)

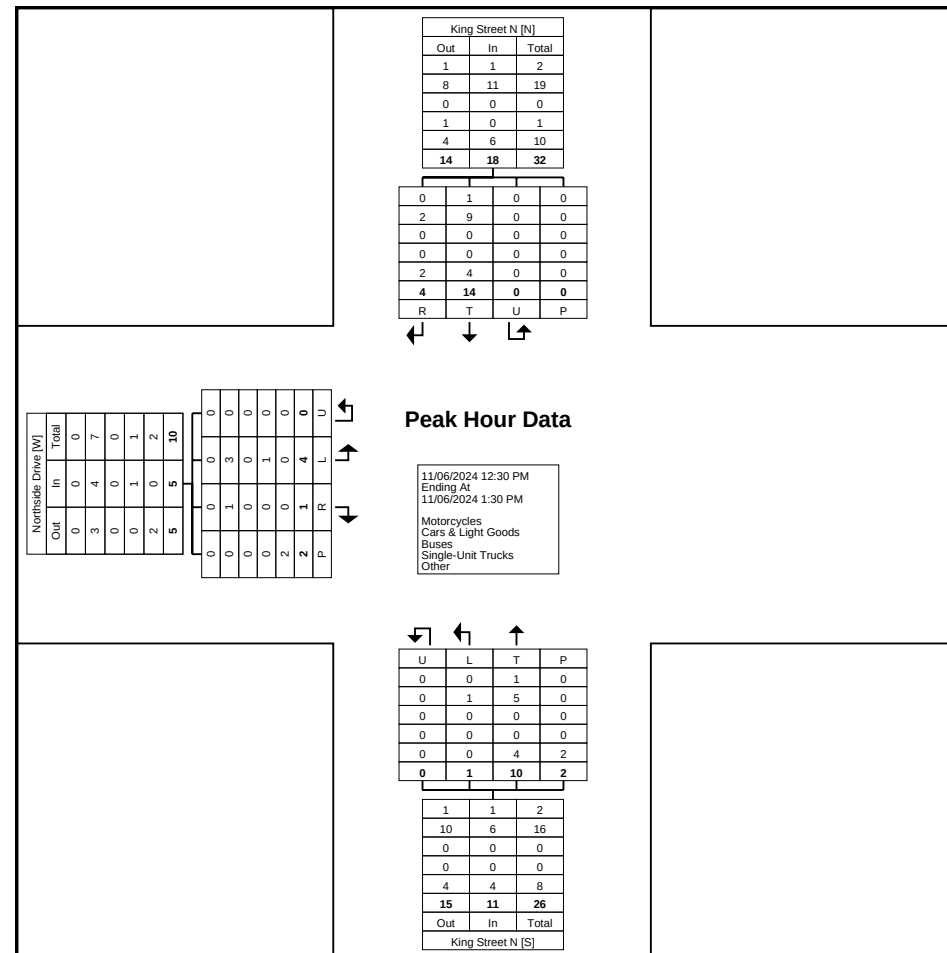
Start Time	Northside Drive Eastbound					King Street N Northbound					King Street N Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
12:30 PM	2	0	0	0	2	0	1	0	0	1	3	0	0	0	3	6
12:45 PM	0	0	0	0	0	0	3	0	2	3	4	2	0	0	6	9
1:00 PM	2	0	0	2	2	0	3	0	0	3	2	1	0	0	3	8
1:15 PM	0	1	0	0	1	1	3	0	0	4	5	1	0	0	6	11
Total	4	1	0	2	5	1	10	0	2	11	14	4	0	0	18	34
Approach %	80.0	20.0	0.0	-	-	9.1	90.9	0.0	-	-	77.8	22.2	0.0	-	-	-
Total %	11.8	2.9	0.0	-	14.7	2.9	29.4	0.0	-	32.4	41.2	11.8	0.0	-	52.9	-
PHF	0.500	0.250	0.000	-	0.625	0.250	0.833	0.000	-	0.688	0.700	0.500	0.000	-	0.750	0.773
Motorcycles	0	0	0	-	0	0	1	0	-	1	1	0	0	-	1	2
% Motorcycles	0.0	0.0	-	-	0.0	0.0	10.0	-	-	9.1	7.1	0.0	-	-	5.6	5.9
Cars & Light Goods	3	1	0	-	4	1	5	0	-	6	9	2	0	-	11	21
% Cars & Light Goods	75.0	100.0	-	-	80.0	100.0	50.0	-	-	54.5	64.3	50.0	-	-	61.1	61.8
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	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Single-Unit Trucks	25.0	0.0	-	-	20.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	2.9
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	2	0	-	2	3	2	0	-	5	7
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	20.0	-	-	18.2	21.4	50.0	-	-	27.8	20.6
Horse and Buggy	0	0	0	-	0	0	2	0	-	2	1	0	0	-	1	3
% Horse and Buggy	0.0	0.0	-	-	0.0	0.0	20.0	-	-	18.2	7.1	0.0	-	-	5.6	8.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	2	-	-	-	-	2	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-



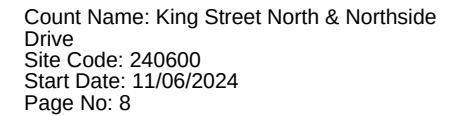
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: King Street North & Northside
Drive
Site Code: 240600
Start Date: 11/06/2024
Page No: 7



Turning Movement Peak Hour Data Plot (12:30 PM)



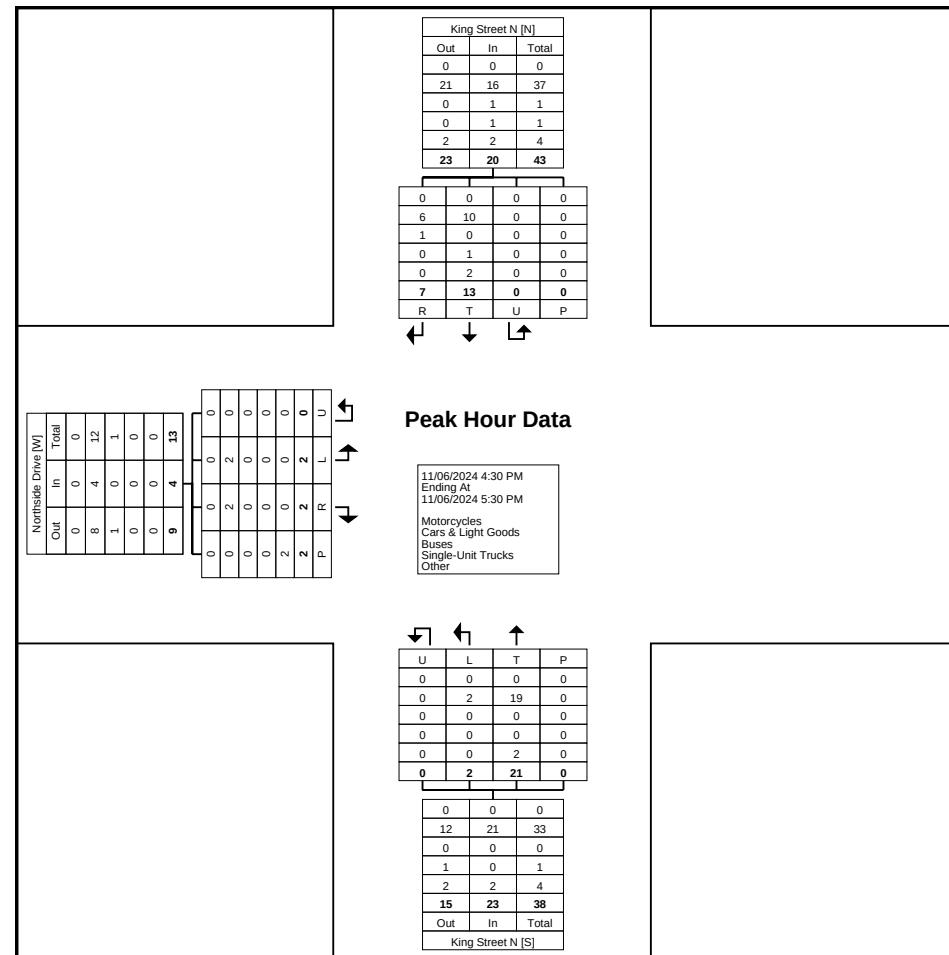
Start Time	Northside Drive Eastbound					King Street N Northbound					King Street N Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	1	1	0	0	2	1	7	0	0	8	2	2	0	0	4	14
4:45 PM	0	1	0	2	1	0	4	0	0	4	3	0	0	0	3	8
5:00 PM	1	0	0	0	1	0	6	0	0	6	2	5	0	0	7	14
5:15 PM	0	0	0	0	0	1	4	0	0	5	6	0	0	0	6	11
Total	2	2	0	2	4	2	21	0	0	23	13	7	0	0	20	47
Approach %	50.0	50.0	0.0	-	-	8.7	91.3	0.0	-	-	65.0	35.0	0.0	-	-	-
Total %	4.3	4.3	0.0	-	8.5	4.3	44.7	0.0	-	48.9	27.7	14.9	0.0	-	42.6	-
PHF	0.500	0.500	0.000	-	0.500	0.500	0.750	0.000	-	0.719	0.542	0.350	0.000	-	0.714	0.839
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	2	2	0	-	4	2	19	0	-	21	10	6	0	-	16	41
% Cars & Light Goods	100.0	100.0	-	-	100.0	100.0	90.5	-	-	91.3	76.9	85.7	-	-	80.0	87.2
Buses	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	14.3	-	-	5.0	2.1
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	7.7	0.0	-	-	5.0	2.1
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	2	0	-	2	2	0	0	-	2	4
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	9.5	-	-	8.7	15.4	0.0	-	-	10.0	8.5
Horse and Buggy	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Horse and Buggy	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	50.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	50.0	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: King Street North & Northside
Drive
Site Code: 240600
Start Date: 11/06/2024
Page No: 9



Turning Movement Peak Hour Data Plot (4:30 PM)

Appendix B

Base Year Traffic Operations



Lanes, Volumes, Timings

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Base Year AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	1	2	10	11	4
Future Volume (vph)	4	1	2	10	11	4
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.973				0.964	
Flt Protected	0.962			0.992		
Satd. Flow (prot)	1634	0	0	1494	1573	0
Flt Permitted	0.962			0.992		
Satd. Flow (perm)	1634	0	0	1494	1573	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	152.2			141.1	163.8	
Travel Time (s)	11.0			10.2	11.8	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	10%	0%	0%
Adj. Flow (vph)	4	1	2	10	11	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	0	12	15	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.7%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Base Year AM

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	1	2	10	11	4
Future Vol, veh/h	4	1	2	10	11	4
Conflicting Peds, #/hr	0	0	1	0	0	1
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	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	10	0	0
Mvmt Flow	4	1	2	10	11	4
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	28	14	16	0	-	0
Stage 1	14	-	-	-	-	-
Stage 2	14	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	992	1072	1615	-	-	-
Stage 1	1014	-	-	-	-	-
Stage 2	1014	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	989	1071	1613	-	-	-
Mov Cap-2 Maneuver	989	-	-	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	1013	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Ctrl Dly, s/v	8.6	1.21	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBL	NBTEBLn1	SBT	SBR			
Capacity (veh/h)	300	-	1005	-	-	-
HCM Lane V/C Ratio	0.001	-	0.005	-	-	-
HCM Ctrl Dly (s/v)	7.2	0	8.6	-	-	-
HCM Lane LOS	A	A	A	-	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-	-

Lanes, Volumes, Timings
2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS
Base Year AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	121	0	65	1	0	2	30	12	1	0	9	70
Future Volume (vph)	121	0	65	1	0	2	30	12	1	0	9	70
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.953			0.910			0.997			0.880	
Flt Protected		0.968			0.984			0.966				
Satd. Flow (prot)	0	1310	0	0	1373	0	0	1398	0	0	1281	0
Flt Permitted		0.968			0.984			0.966				
Satd. Flow (perm)	0	1310	0	0	1373	0	0	1398	0	0	1281	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.3			56.8			107.9			137.6	
Travel Time (s)		22.4			4.1			7.8			9.9	
Confl. Peds. (#/hr)			1	1					2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	9%	0%	6%	0%	0%	0%	8%	0%	0%	0%	0%	6%
Adj. Flow (vph)	121	0	65	1	0	2	30	12	1	0	9	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	186	0	0	3	0	0	43	0	0	79	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	36.3%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM 7th TWSC
2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS
Base Year AM

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	121	0	65	1	0	2	30	12	1	0	9	70
Future Vol, veh/h	121	0	65	1	0	2	30	12	1	0	9	70
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	9	0	6	0	0	0	8	0	0	0	0	6
Mvmt Flow	121	0	65	1	0	2	30	12	1	0	9	70

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	116	119	45	85
Stage 1	44	44	-	75
Stage 2	72	75	-	10
Critical Hdwy	7.19	6.5	6.26	7.1
Critical Hdwy Stg 1	6.19	5.5	-	6.1
Critical Hdwy Stg 2	6.19	5.5	-	6.1
Follow-up Hdwy	3.581	4	3.354	3.5
Pot Cap-1 Maneuver	844	775	1014	907
Stage 1	953	862	-	940
Stage 2	920	836	-	1016
Platoon blocked, %				
Mov Cap-1 Maneuver	826	758	1013	829
Mov Cap-2 Maneuver	826	758	-	829
Stage 1	953	862	-	919
Stage 2	900	818	-	950

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.17	8.7	5.22	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1237	-	-	883	975	1614	-	-
HCM Lane V/C Ratio	0.02	-	-	0.211	0.003	-	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	10.2	8.7	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0	0	-	-

Lanes, Volumes, Timings
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Base Year AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Volume (vph)	72	5	13	122	8	7
Future Volume (vph)	72	5	13	122	8	7
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.991		0.878			
Flt Protected	0.955					0.974
Satd. Flow (prot)	1493	0	1325	0	0	1486
Flt Permitted	0.955					0.974
Satd. Flow (perm)	1493	0	1325	0	0	1486
Link Speed (k/h)	50		50			50
Link Distance (m)	200.0		137.6			300.5
Travel Time (s)	14.4		9.9			21.6
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	20%	0%	9%	13%	0%
Adj. Flow (vph)	72	5	13	122	8	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	77	0	135	0	0	15
Sign Control	Stop		Free			Free

Intersection Summary

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

HCM 7th TWSC
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Base Year AM

Intersection

Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	72	5	13	122	8	7
Future Vol, veh/h	72	5	13	122	8	7
Conflicting Peds, #/hr	0	0	0	1	1	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	100	100	100	100	100	100
Heavy Vehicles, %	10	20	0	9	13	0
Mvmt Flow	72	5	13	122	8	7

Major/Minor

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	98	75	0
Stage 1	75	-	-
Stage 2	23	-	-
Critical Hdwy	6.5	6.4	-
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.48	-
Pot Cap-1 Maneuver	882	939	-
Stage 1	928	-	-
Stage 2	979	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	876	938	-
Mov Cap-2 Maneuver	876	-	-
Stage 1	927	-	-
Stage 2	974	-	-

Approach

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.48	0	4.06
HCM LOS	A		

Minor Lane/Major Mvmt

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	880	960
HCM Lane V/C Ratio	-	-	0.088	0.006
HCM Ctrl Dly (s/v)	-	-	9.5	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Lanes, Volumes, Timings
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS
Base Year AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	0	2	73	5	1	2	42	171	6	10	175	0
Future Volume (vph)	0	2	73	5	1	2	42	171	6	10	175	0
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.869			0.966			0.996				
Flt Protected					0.970			0.991			0.997	
Satd. Flow (prot)	0	1282	0	0	1277	0	0	1396	0	0	1439	0
Flt Permitted					0.970			0.991			0.997	
Satd. Flow (perm)	0	1282	0	0	1277	0	0	1396	0	0	1439	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.3			149.2			149.7			236.4	
Travel Time (s)		11.6			10.7			10.8			17.0	
Confl. Peds. (#/hr)								1	1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	4%	20%	0%	0%	7%	9%	0%	10%	6%	0%
Adj. Flow (vph)	0	2	73	5	1	2	42	171	6	10	175	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	75	0	0	8	0	0	219	0	0	185	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.1%											
ICU Level of Service	A											
Analysis Period (min)	15											

HCM 7th TWSC
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS
Base Year AM

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	2	73	5	1	2	42	171	6	10	175	0
Future Vol, veh/h	0	2	73	5	1	2	42	171	6	10	175	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	4	20	0	0	7	9	0	10	6	0
Mvmt Flow	0	2	73	5	1	2	42	171	6	10	175	0

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	451	457	175	455
Stage 1	195	195	-	259
Stage 2	256	262	-	196
Critical Hdwy	7.1	6.5	6.24	7.3
Critical Hdwy Stg 1	6.1	5.5	-	6.3
Critical Hdwy Stg 2	6.1	5.5	-	6.3
Follow-up Hdwy	3.5	4	3.336	3.68
Pot Cap-1 Maneuver	522	503	863	486
Stage 1	811	743	-	708
Stage 2	753	695	-	766
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	498	481	863	424
Mov Cap-2 Maneuver	498	481	-	424
Stage 1	805	737	-	683
Stage 2	725	671	-	694

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.67	12.38	1.48	0.42
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	343	-	-	845	496	97	-	-
HCM Lane V/C Ratio	0.031	-	-	0.089	0.016	0.007	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	9.7	12.4	7.7	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0	0	-	-

Lanes, Volumes, Timings

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Base Year PM

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Volume (vph)	2	2	2	21	13	7
Future Volume (vph)	2	2	2	21	13	7
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932				0.953	
Flt Protected	0.976			0.996		
Satd. Flow (prot)	1588	0	0	1625	1412	0
Flt Permitted	0.976			0.996		
Satd. Flow (perm)	1588	0	0	1625	1412	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	152.2			141.1	163.8	
Travel Time (s)	11.0			10.2	11.8	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	8%	14%
Adj. Flow (vph)	2	2	2	21	13	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	23	20	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 14.0%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Base Year PM

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	2	2	2	21	13	7
Future Vol, veh/h	2	2	2	21	13	7
Conflicting Peds, #/hr	0	0	2	0	0	2
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	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	8	14
Mvmt Flow	2	2	2	21	13	7
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	44	19	22	0	-	0
Stage 1	19	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	972	1066	1607	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1003	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	968	1064	1604	-	-	-
Mov Cap-2 Maneuver	968	-	-	-	-	-
Stage 1	1007	-	-	-	-	-
Stage 2	1001	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	8.57	0.63		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	157	-	1014	-	-	
HCM Lane V/C Ratio	0.001	-	0.004	-	-	
HCM Ctrl Dly (s/v)	7.2	0	8.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Lanes, Volumes, Timings
2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS
Base Year PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	100	0	43	3	1	1	68	6	1	0	2	153
Future Volume (vph)	100	0	43	3	1	1	68	6	1	0	2	153
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt		0.959			0.973			0.998			0.867	
Flt Protected		0.966			0.971			0.957				
Satd. Flow (prot)	0	1399	0	0	1448	0	0	1407	0	0	1278	0
Flt Permitted		0.966			0.971			0.957				
Satd. Flow (perm)	0	1399	0	0	1448	0	0	1407	0	0	1278	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.3			56.8			107.9			137.6	
Travel Time (s)		22.4			4.1			7.8			9.9	
Confl. Peds. (#/hr)			2	2			2		5	5		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	0%	0%	0%	3%	17%	0%	0%	0%	4%
Adj. Flow (vph)	100	0	43	3	1	1	68	6	1	0	2	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	143	0	0	5	0	0	75	0	0	155	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 41.2%	ICU Level of Service A											
Analysis Period (min)	15											

HCM 7th TWSC

2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS

Base Year PM

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	100	0	43	3	1	1	68	6	1	0	2	153
Future Vol, veh/h	100	0	43	3	1	1	68	6	1	0	2	153
Conflicting Peds, #/hr	0	0	2	2	0	0	2	0	5	5	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	5	0	0	0	3	17	0	0	0	4
Mvmt Flow	100	0	43	3	1	1	68	6	1	0	2	153

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	223	229	83	152
Stage 1	81	81	-	148
Stage 2	143	148	-	4
Critical Hdwy	7.1	6.5	6.25	7.1
Critical Hdwy Stg 1	6.1	5.5	-	6.1
Critical Hdwy Stg 2	6.1	5.5	-	6.1
Follow-up Hdwy	3.5	4	3.345	3.5
Pot Cap-1 Maneuver	737	675	969	820
Stage 1	933	832	-	860
Stage 2	865	779	-	1024
Platoon blocked, %				
Mov Cap-1 Maneuver	699	639	966	742
Mov Cap-2 Maneuver	699	639	-	742
Stage 1	932	831	-	815
Stage 2	822	738	-	977

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.81	9.86	6.96	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1409	-	-	762	746	1614	-
HCM Lane V/C Ratio	0.048	-	-	0.188	0.007	-	-
HCM Ctrl Dly (s/v)	7.7	0	-	10.8	9.9	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	0	0	-

Lanes, Volumes, Timings
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Base Year PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	149	8	8	99	10	6
Future Volume (vph)	149	8	8	99	10	6
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.993		0.875			
Flt Protected	0.955					0.970
Satd. Flow (prot)	1585	0	1414	0	0	1490
Flt Permitted	0.955					0.970
Satd. Flow (perm)	1585	0	1414	0	0	1490
Link Speed (k/h)	50		50			50
Link Distance (m)	200.0		137.6			300.5
Travel Time (s)	14.4		9.9			21.6
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	13%	13%	0%	10%	0%
Adj. Flow (vph)	149	8	8	99	10	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	157	0	107	0	0	16
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Base Year PM

Intersection						
Int Delay, s/veh	5.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			R
Traffic Vol, veh/h	149	8	8	99	10	6
Future Vol, veh/h	149	8	8	99	10	6
Conflicting Peds, #/hr	0	1	0	1	1	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	100	100	100	100	100	100
Heavy Vehicles, %	4	13	13	0	10	0
Mvmt Flow	149	8	8	99	10	6
Major/Minor						
Minor1	Major1		Major2			
Conflicting Flow All	85	60	0	0	108	0
Stage 1	59	-	-	-	-	-
Stage 2	26	-	-	-	-	-
Critical Hdwy	6.44	6.33	-	-	4.2	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.417	-	-	2.29	-
Pot Cap-1 Maneuver	912	976	-	-	1434	-
Stage 1	959	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	905	974	-	-	1433	-
Mov Cap-2 Maneuver	905	-	-	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Approach						
WB	NB		SB			
HCM Ctrl Dly, s/v	9.79	0	4.71			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-	-	908	1125	-	-
HCM Lane V/C Ratio	-	-	0.173	0.007	-	-
HCM Ctrl Dly (s/v)	-	-	9.8	7.5	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0	-	-

Lanes, Volumes, Timings
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS
Base Year PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	0	0	48	5	0	7	75	235	5	4	198	0
Future Volume (vph)	0	0	48	5	0	7	75	235	5	4	198	0
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.865			0.921			0.998				
Flt Protected					0.980			0.988			0.999	
Satd. Flow (prot)	0	1275	0	0	1383	0	0	1465	0	0	1488	0
Flt Permitted					0.980			0.988			0.999	
Satd. Flow (perm)	0	1275	0	0	1383	0	0	1465	0	0	1488	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.3			149.2			149.7			236.4	
Travel Time (s)		11.6			10.7			10.8			17.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	4%	3%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	48	5	0	7	75	235	5	4	198	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	48	0	0	12	0	0	315	0	0	202	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 50.1%	ICU Level of Service A											
Analysis Period (min)	15											

HCM 7th TWSC
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS
Base Year PM

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	0	48	5	0	7	75	235	5	4	198	0
Future Vol, veh/h	0	0	48	5	0	7	75	235	5	4	198	0
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	4	0	0	0	4	3	0	0	3	0
Mvmt Flow	0	0	48	5	0	7	75	235	5	4	198	0

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	591	596	199	595
Stage 1	206	206	-	388
Stage 2	385	390	-	207
Critical Hdwy	7.1	6.5	6.24	7.1
Critical Hdwy Stg 1	6.1	5.5	-	6.1
Critical Hdwy Stg 2	6.1	5.5	-	6.1
Follow-up Hdwy	3.5	4	3.336	3.5
Pot Cap-1 Maneuver	422	420	837	419
Stage 1	801	735	-	640
Stage 2	642	611	-	800
Platoon blocked, %				
Mov Cap-1 Maneuver	390	392	836	369
Mov Cap-2 Maneuver	390	392	-	369
Stage 1	798	733	-	600
Stage 2	596	572	-	751

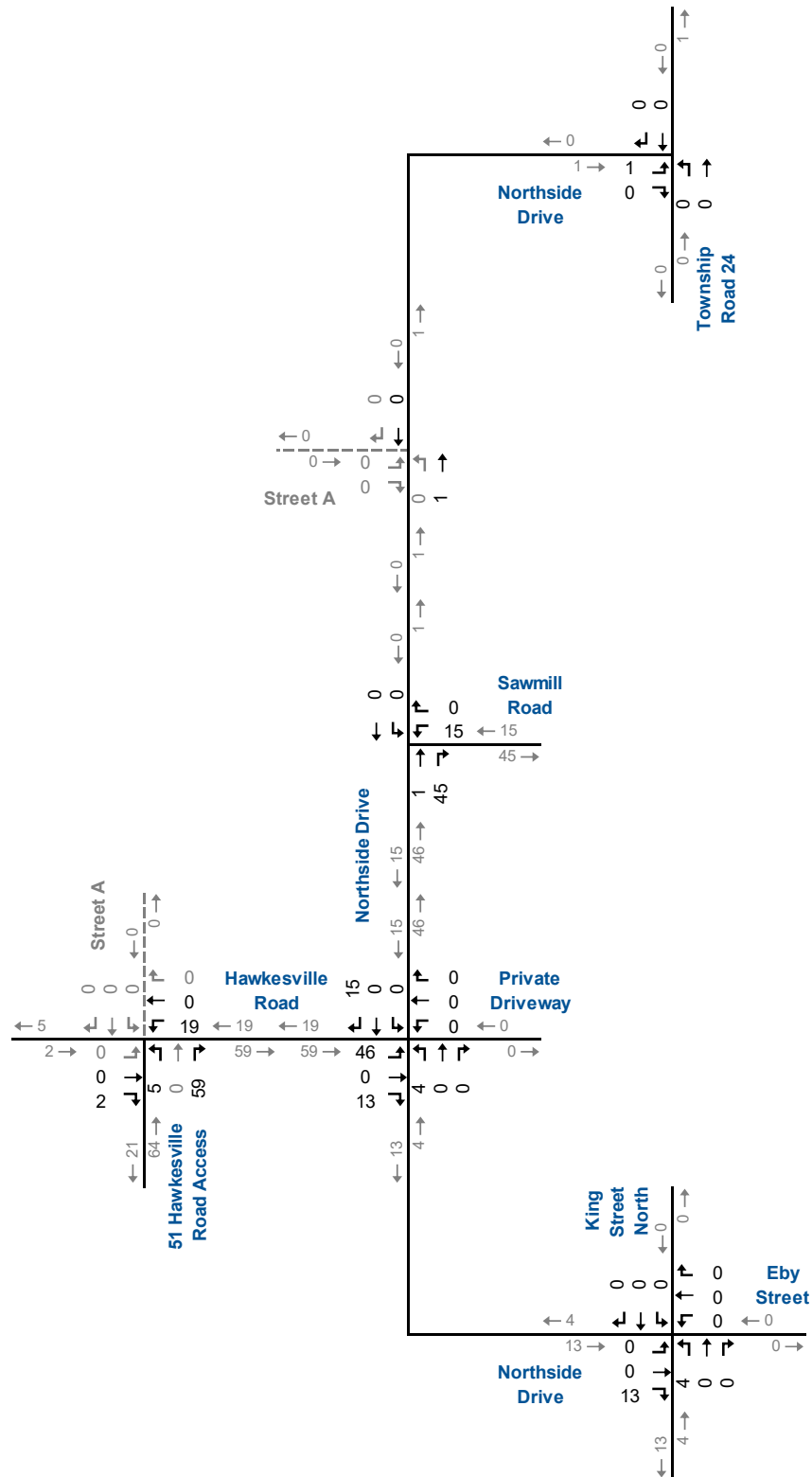
Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.57	11.83	1.86	0.15
HCM LOS	A	B		

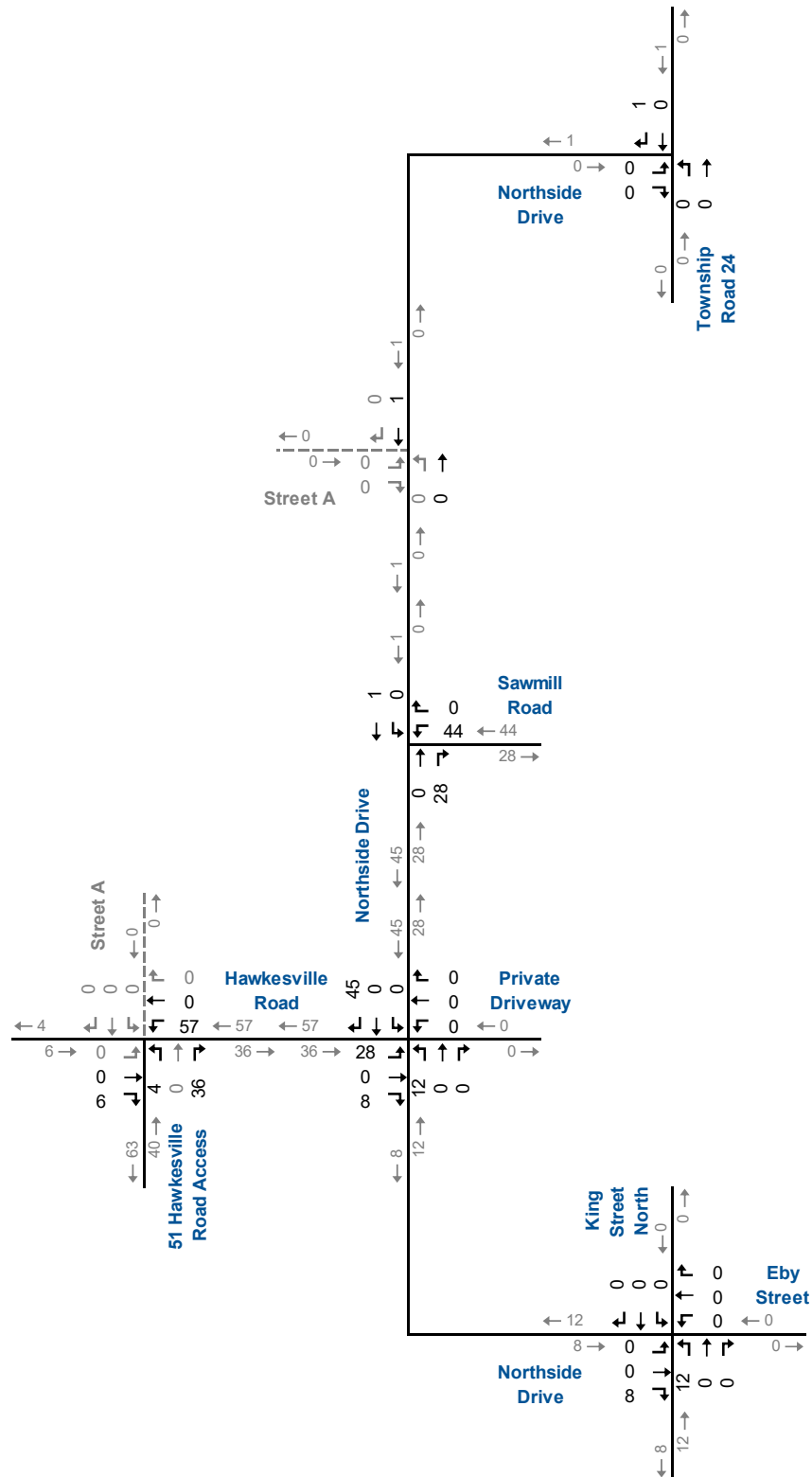
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	427	-	-	836	539	36	-
HCM Lane V/C Ratio	0.055	-	-	0.057	0.022	0.003	-
HCM Ctrl Dly (s/v)	7.8	0	-	9.6	11.8	7.7	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0.1	0	-

Appendix C

Background Development Traffic







Appendix D

Background Traffic Operations



Lanes, Volumes, Timings

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Background AM

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			U	U	
Traffic Volume (vph)	6	1	2	12	13	5
Future Volume (vph)	6	1	2	12	13	5
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.981				0.962	
Flt Protected	0.959			0.993		
Satd. Flow (prot)	1642	0	0	1492	1570	0
Flt Permitted	0.959			0.993		
Satd. Flow (perm)	1642	0	0	1492	1570	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	152.2			141.1	163.8	
Travel Time (s)	11.0			10.2	11.8	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	10%	0%	0%
Adj. Flow (vph)	6	1	2	12	13	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	14	18	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.7%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Background AM

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	1	2	12	13	5
Future Vol, veh/h	6	1	2	12	13	5
Conflicting Peds, #/hr	0	0	1	0	0	1
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	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	10	0	0
Mvmt Flow	6	1	2	12	13	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	33	17	19	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	986	1068	1611	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	983	1068	1609	-	-	-
Mov Cap-2 Maneuver	983	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	8.64	1.03		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	257	-	995	-	-	
HCM Lane V/C Ratio	0.001	-	0.007	-	-	
HCM Ctrl Dly (s/v)	7.2	0	8.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Lanes, Volumes, Timings
2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS
Background AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	186	0	88	1	0	2	39	14	1	0	10	96
Future Volume (vph)	186	0	88	1	0	2	39	14	1	0	10	96
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.957			0.910			0.997			0.878	
Flt Protected		0.967			0.984			0.965				
Satd. Flow (prot)	0	1313	0	0	1373	0	0	1394	0	0	1276	0
Flt Permitted		0.967			0.984			0.965				
Satd. Flow (perm)	0	1313	0	0	1373	0	0	1394	0	0	1276	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.3			56.8			107.9			137.6	
Travel Time (s)		22.4			4.1			7.8			9.9	
Confl. Peds. (#/hr)			1	1					2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	9%	0%	6%	0%	0%	0%	8%	0%	0%	0%	0%	6%
Adj. Flow (vph)	186	0	88	1	0	2	39	14	1	0	10	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	274	0	0	3	0	0	54	0	0	106	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	43.1%											
Analysis Period (min)	15											
	ICU Level of Service A											

HCM 7th TWSC
2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS
Background AM

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	186	0	88	1	0	2	39	14	1	0	10	96
Future Vol, veh/h	186	0	88	1	0	2	39	14	1	0	10	96
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	9	0	6	0	0	0	8	0	0	0	0	6
Mvmt Flow	186	0	88	1	0	2	39	14	1	0	10	96

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	150	153	59	106
Stage 1	58	58	-	95
Stage 2	92	95	-	11
Critical Hdwy	7.19	6.5	6.26	7.1
Critical Hdwy Stg 1	6.19	5.5	-	6.1
Critical Hdwy Stg 2	6.19	5.5	-	6.1
Follow-up Hdwy	3.581	4	3.354	3.5
Pot Cap-1 Maneuver	802	742	996	879
Stage 1	936	851	-	917
Stage 2	898	820	-	1015
Platoon blocked, %				
Mov Cap-1 Maneuver	779	721	995	778
Mov Cap-2 Maneuver	779	721	-	778
Stage 1	936	851	-	891
Stage 2	872	797	-	924

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.38	8.81	5.46	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1283	-	-	837	949	1611	-
HCM Lane V/C Ratio	0.027	-	-	0.327	0.003	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	11.4	8.8	0	-
HCM Lane LOS	A	A	-	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.4	0	0	-

Lanes, Volumes, Timings
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Background AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Volume (vph)	98	6	16	186	9	8
Future Volume (vph)	98	6	16	186	9	8
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992		0.876			
Flt Protected	0.955					0.974
Satd. Flow (prot)	1495	0	1320	0	0	1487
Flt Permitted	0.955					0.974
Satd. Flow (perm)	1495	0	1320	0	0	1487
Link Speed (k/h)	50		50			50
Link Distance (m)	200.0		137.6			300.5
Travel Time (s)	14.4		9.9			21.6
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	20%	0%	9%	13%	0%
Adj. Flow (vph)	98	6	16	186	9	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	0	202	0	0	17
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization 27.2%	ICU Level of Service A
Analysis Period (min)	15

HCM 7th TWSC
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Background AM

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	98	6	16	186	9	8
Future Vol, veh/h	98	6	16	186	9	8
Conflicting Peds, #/hr	0	0	0	1	1	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	100	100	100	100	100	100
Heavy Vehicles, %	10	20	0	9	13	0
Mvmt Flow	98	6	16	186	9	8

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	136	110	0
Stage 1	110	-	-
Stage 2	26	-	-
Critical Hdwy	6.5	6.4	-
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.48	-
Pot Cap-1 Maneuver	839	897	-
Stage 1	895	-	-
Stage 2	976	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	832	896	-
Mov Cap-2 Maneuver	832	-	-
Stage 1	894	-	-
Stage 2	970	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.92	0	4.12
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	836	953
HCM Lane V/C Ratio	-	-	0.124	0.007
HCM Ctrl Dly (s/v)	-	-	9.9	7.8
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0

Lanes, Volumes, Timings
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS
Background AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	0	2	98	6	1	2	53	198	7	12	203	0
Future Volume (vph)	0	2	98	6	1	2	53	198	7	12	203	0
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt		0.868			0.970			0.996				
Flt Protected					0.968			0.990			0.997	
Satd. Flow (prot)	0	1280	0	0	1270	0	0	1395	0	0	1439	0
Flt Permitted					0.968			0.990			0.997	
Satd. Flow (perm)	0	1280	0	0	1270	0	0	1395	0	0	1439	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.3			149.2			149.7			236.4	
Travel Time (s)		11.6			10.7			10.8			17.0	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	4%	20%	0%	0%	7%	9%	0%	10%	6%	0%
Adj. Flow (vph)	0	2	98	6	1	2	53	198	7	12	203	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	0	0	9	0	0	258	0	0	215	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 48.4%	ICU Level of Service A											
Analysis Period (min)	15											

HCM 7th TWSC
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS
Background AM

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	2	98	6	1	2	53	198	7	12	203	0
Future Vol, veh/h	0	2	98	6	1	2	53	198	7	12	203	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	4	20	0	0	7	9	0	10	6	0
Mvmt Flow	0	2	98	6	1	2	53	198	7	12	203	0

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	532	539	203	537
Stage 1	227	227	-	309
Stage 2	305	312	-	228
Critical Hdwy	7.1	6.5	6.24	7.3
Critical Hdwy Stg 1	6.1	5.5	-	6.3
Critical Hdwy Stg 2	6.1	5.5	-	6.3
Follow-up Hdwy	3.5	4	3.336	3.68
Pot Cap-1 Maneuver	462	452	833	428
Stage 1	780	720	-	665
Stage 2	709	661	-	736
Platoon blocked, %				
Mov Cap-1 Maneuver	435	427	833	355
Mov Cap-2 Maneuver	435	427	-	355
Stage 1	772	712	-	635
Stage 2	675	631	-	641

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.02	13.83	1.6	0.43
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	367	-	-	817	417	100	-	-
HCM Lane V/C Ratio	0.04	-	-	0.122	0.022	0.009	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	10	13.8	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.1	0	-	-

Lanes, Volumes, Timings
5: 51 Hawkesville Road Access & Hawkesville Road

52 Hawkesville Road, St. Jacobs TIS
Background AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	↖
Traffic Volume (vph)	216	2	19	116	5	59
Future Volume (vph)	216	2	19	116	5	59
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999			0.876		
Flt Protected				0.993	0.996	
Satd. Flow (prot)	1510	0	0	1524	1493	0
Flt Permitted				0.993	0.996	
Satd. Flow (perm)	1510	0	0	1524	1493	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	110.2			311.3	79.4	
Travel Time (s)	7.9			22.4	5.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	2%	2%	7%	2%	2%
Adj. Flow (vph)	216	2	19	116	5	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	218	0	0	135	64	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	35.7%					
ICU Level of Service A						
Analysis Period (min)	15					

HCM 7th TWSC
5: 51 Hawkesville Road Access & Hawkesville Road

52 Hawkesville Road, St. Jacobs TIS
Background AM

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	216	2	19	116	5	59
Future Vol, veh/h	216	2	19	116	5	59
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	100	100	100	100	100	100
Heavy Vehicles, %	8	2	2	7	2	2
Mvmt Flow	216	2	19	116	5	59

Major/Minor	Major1		Major2	Minor1	
Conflicting Flow All	0	0	218	0	371 217
Stage 1	-	-	-	-	217 -
Stage 2	-	-	-	-	154 -
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	-	-	1352	-	630 823
Stage 1	-	-	-	-	819 -
Stage 2	-	-	-	-	874 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1352	-	620 823
Mov Cap-2 Maneuver	-	-	-	-	620 -
Stage 1	-	-	-	-	819 -
Stage 2	-	-	-	-	861 -

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.08	9.88
HCM LOS	A		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	802	-	-	253	-
HCM Lane V/C Ratio	0.08	-	-	0.014	-
HCM Ctrl Dly (s/v)	9.9	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lanes, Volumes, Timings

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Background PM

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Volume (vph)	2	2	2	24	15	9
Future Volume (vph)	2	2	2	24	15	9
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.932				0.949	
Flt Protected	0.976			0.996		
Satd. Flow (prot)	1588	0	0	1625	1404	0
Flt Permitted	0.976			0.996		
Satd. Flow (perm)	1588	0	0	1625	1404	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	152.2			141.1	163.8	
Travel Time (s)	11.0			10.2	11.8	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	8%	14%
Adj. Flow (vph)	2	2	2	24	15	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	26	24	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 14.0%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Background PM

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	2	2	24	15	9
Future Vol, veh/h	2	2	2	24	15	9
Conflicting Peds, #/hr	0	0	2	0	0	2
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	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	8	14
Mvmt Flow	2	2	2	24	15	9
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	50	22	26	0	-	0
Stage 1	22	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	965	1062	1601	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	1000	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	961	1060	1599	-	-	-
Mov Cap-2 Maneuver	961	-	-	-	-	-
Stage 1	1004	-	-	-	-	-
Stage 2	998	-	-	-	-	-
Approach	EB		NB		SB	
HCM Ctrl Dly, s/v	8.59		0.56		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	138	-	1008	-	-	
HCM Lane V/C Ratio	0.001	-	0.004	-	-	
HCM Ctrl Dly (s/v)	7.3	0	8.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Lanes, Volumes, Timings
2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS
Background PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔				↔			↔	
Traffic Volume (vph)	144	0	58	3	1	1	91	7	1	0	2	222
Future Volume (vph)	144	0	58	3	1	1	91	7	1	0	2	222
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.961			0.973			0.999			0.866	
Flt Protected		0.966			0.971			0.956				
Satd. Flow (prot)	0	1403	0	0	1448	0	0	1408	0	0	1277	0
Flt Permitted		0.966			0.971			0.956				
Satd. Flow (perm)	0	1403	0	0	1448	0	0	1408	0	0	1277	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.3			56.8			107.9			137.6	
Travel Time (s)		22.4			4.1			7.8			9.9	
Confl. Peds. (#/hr)			2	2			2		5	5		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	0%	0%	0%	3%	17%	0%	0%	0%	4%
Adj. Flow (vph)	144	0	58	3	1	1	91	7	1	0	2	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	202	0	0	5	0	0	99	0	0	224	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 53.1%	ICU Level of Service A											
Analysis Period (min)	15											

HCM 7th TWSC

2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS

Background PM

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	144	0	58	3	1	1	91	7	1	0	2	222
Future Vol, veh/h	144	0	58	3	1	1	91	7	1	0	2	222
Conflicting Peds, #/hr	0	0	2	2	0	0	2	0	5	5	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	5	0	0	0	3	17	0	0	0	4
Mvmt Flow	144	0	58	3	1	1	91	7	1	0	2	222

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	305	310	117	199
Stage 1	115	115	-	195
Stage 2	190	195	-	4
Critical Hdwy	7.1	6.5	6.25	7.1
Critical Hdwy Stg 1	6.1	5.5	-	6.1
Critical Hdwy Stg 2	6.1	5.5	-	6.1
Follow-up Hdwy	3.5	4	3.345	3.5
Pot Cap-1 Maneuver	652	608	927	765
Stage 1	895	804	-	812
Stage 2	817	743	-	1024
Platoon blocked, %				
Mov Cap-1 Maneuver	604	563	924	664
Mov Cap-2 Maneuver	604	563	-	664
Stage 1	893	803	-	753
Stage 2	759	690	-	958

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.66	10.44	7.26	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1328	-	-	671	667	1612	-
HCM Lane V/C Ratio	0.068	-	-	0.301	0.008	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	12.7	10.4	0	-
HCM Lane LOS	A	A	-	B	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.3	0	0	-

Lanes, Volumes, Timings
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Background PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			R
Traffic Volume (vph)	217	9	9	143	12	8
Future Volume (vph)	217	9	9	143	12	8
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.995		0.873			
Flt Protected	0.954				0.971	
Satd. Flow (prot)	1588	0	1414	0	0	1495
Flt Permitted	0.954				0.971	
Satd. Flow (perm)	1588	0	1414	0	0	1495
Link Speed (k/h)	50		50			50
Link Distance (m)	200.0		137.6			300.5
Travel Time (s)	14.4		9.9			21.6
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	13%	13%	0%	10%	0%
Adj. Flow (vph)	217	9	9	143	12	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	226	0	152	0	0	20
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM 7th TWSC
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Background PM

Intersection						
Int Delay, s/veh	6.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			R
Traffic Vol, veh/h	217	9	9	143	12	8
Future Vol, veh/h	217	9	9	143	12	8
Conflicting Peds, #/hr	0	1	0	1	1	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	100	100	100	100	100	100
Heavy Vehicles, %	4	13	13	0	10	0
Mvmt Flow	217	9	9	143	12	8

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	114	83	0	0	153
Stage 1	82	-	-	-	-
Stage 2	32	-	-	-	-
Critical Hdwy	6.44	6.33	-	-	4.2
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.417	-	-	2.29
Pot Cap-1 Maneuver	878	947	-	-	1380
Stage 1	937	-	-	-	-
Stage 2	985	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	870	946	-	-	1379
Mov Cap-2 Maneuver	870	-	-	-	-
Stage 1	936	-	-	-	-
Stage 2	977	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.56	0	4.58
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	873	1080
HCM Lane V/C Ratio	-	-	0.259	0.009
HCM Ctrl Dly (s/v)	-	-	10.6	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1	0

Lanes, Volumes, Timings
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS
Background PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	64	6	0	8	99	273	6	5	230	0
Future Volume (vph)	0	0	64	6	0	8	99	273	6	5	230	0
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.865			0.923			0.998					
Flt Protected				0.979			0.987			0.999		
Satd. Flow (prot)	0	1275	0	0	1385	0	0	1463	0	0	1488	0
Flt Permitted				0.979			0.987			0.999		
Satd. Flow (perm)	0	1275	0	0	1385	0	0	1463	0	0	1488	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.3			149.2			149.7			236.4	
Travel Time (s)		11.6			10.7			10.8			17.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	4%	3%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	64	6	0	8	99	273	6	5	230	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	0	0	14	0	0	378	0	0	235	0
Sign Control	Stop			Stop			Free			Free		

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 57.6%	ICU Level of Service B											
Analysis Period (min)	15											

HCM 7th TWSC
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS
Background PM

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	64	6	0	8	99	273	6	5	230	0
Future Vol, veh/h	0	0	64	6	0	8	99	273	6	5	230	0
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	4	0	0	0	4	3	0	0	3	0
Mvmt Flow	0	0	64	6	0	8	99	273	6	5	230	0

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	711	717	231	715
Stage 1	240	240	-	474
Stage 2	471	477	-	241
Critical Hdwy	7.1	6.5	6.24	7.1
Critical Hdwy Stg 1	6.1	5.5	-	6.1
Critical Hdwy Stg 2	6.1	5.5	-	6.1
Follow-up Hdwy	3.5	4	3.336	3.5
Pot Cap-1 Maneuver	351	358	803	348
Stage 1	768	711	-	575
Stage 2	577	559	-	767
Platoon blocked, %				
Mov Cap-1 Maneuver	315	325	803	291
Mov Cap-2 Maneuver	315	325	-	291
Stage 1	765	707	-	524
Stage 2	521	510	-	702

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.87	13.24	2.08	0.17
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	469	-	-	803	451	38	-	-
HCM Lane V/C Ratio	0.075	-	-	0.08	0.031	0.004	-	-
HCM Ctrl Dly (s/v)	7.9	0	-	9.9	13.2	7.8	0	-
HCM Lane LOS	A	A	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.1	0	-	-

Lanes, Volumes, Timings
5: 51 Hawkesville Road Access & Hawkesville Road

52 Hawkesville Road, St. Jacobs TIS
Background PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	↖
Traffic Volume (vph)	166	6	57	257	4	36
Future Volume (vph)	166	6	57	257	4	36
Ideal Flow (vphpl)	1650	1650	1650	1650	1765	1765
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995			0.878		
Flt Protected				0.991	0.995	
Satd. Flow (prot)	1607	0	0	1560	1495	0
Flt Permitted				0.991	0.995	
Satd. Flow (perm)	1607	0	0	1560	1495	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	110.2			311.3	79.4	
Travel Time (s)	7.9			22.4	5.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	2%	4%	2%	2%
Adj. Flow (vph)	166	6	57	257	4	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	172	0	0	314	40	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	43.0%					
ICU Level of Service A						
Analysis Period (min)	15					

HCM 7th TWSC
5: 51 Hawkesville Road Access & Hawkesville Road

52 Hawkesville Road, St. Jacobs TIS
Background PM

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	↖
Traffic Vol, veh/h	166	6	57	257	4	36
Future Vol, veh/h	166	6	57	257	4	36
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	100	100	100	100	100	100
Heavy Vehicles, %	1	2	2	4	2	2
Mvmt Flow	166	6	57	257	4	36
Major/Minor						
Major1	Major2		Minor1			
Conflicting Flow All	0	0	172	0	540	169
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	371	-
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	-	-	1405	-	503	875
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	698	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1405	-	479	875
Mov Cap-2 Maneuver	-	-	-	-	479	-
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	665	-
Approach						
EB	WB		NB			
HCM Ctrl Dly, s/v	0	1.39	9.69			
HCM LOS			A			
Minor Lane/Major Mvmt						
NBLn1	EBT	EBR	WBL	WBT		
Capacity (veh/h)	808	-	-	327	-	
HCM Lane V/C Ratio	0.049	-	-	0.041	-	
HCM Ctrl Dly (s/v)	9.7	-	-	7.7	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-	

Appendix E

Total Traffic Operations



Lanes, Volumes, Timings

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Total AM

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Volume (vph)	7	1	2	12	13	5
Future Volume (vph)	7	1	2	12	13	5
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.983				0.962	
Flt Protected	0.958			0.993		
Satd. Flow (prot)	1644	0	0	1492	1570	0
Flt Permitted	0.958			0.993		
Satd. Flow (perm)	1644	0	0	1492	1570	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	152.2			141.1	163.8	
Travel Time (s)	11.0			10.2	11.8	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	10%	0%	0%
Adj. Flow (vph)	7	1	2	12	13	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	14	18	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.7%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Total AM

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	7	1	2	12	13	5
Future Vol, veh/h	7	1	2	12	13	5
Conflicting Peds, #/hr	0	0	1	0	0	1
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	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	10	0	0
Mvmt Flow	7	1	2	12	13	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	33	17	19	0	-	0
Stage 1	17	-	-	-	-	-
Stage 2	16	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	986	1068	1611	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	1012	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	983	1068	1609	-	-	-
Mov Cap-2 Maneuver	983	-	-	-	-	-
Stage 1	1009	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	8.65	1.03		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	257	-	993	-	-	
HCM Lane V/C Ratio	0.001	-	0.008	-	-	
HCM Ctrl Dly (s/v)	7.2	0	8.7	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Lanes, Volumes, Timings
2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS

Total AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	247	0	115	1	0	2	49	16	1	0	18	117
Future Volume (vph)	247	0	115	1	0	2	49	16	1	0	18	117
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.957			0.910			0.998			0.883	
Flt Protected		0.967			0.984			0.964				
Satd. Flow (prot)	0	1313	0	0	1373	0	0	1392	0	0	1287	0
Flt Permitted		0.967			0.984			0.964				
Satd. Flow (perm)	0	1313	0	0	1373	0	0	1392	0	0	1287	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.3			56.8			107.9			137.6	
Travel Time (s)		22.4			4.1			7.8			9.9	
Confl. Peds. (#/hr)			1	1					2	2		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	9%	0%	6%	0%	0%	0%	8%	0%	0%	0%	0%	6%
Adj. Flow (vph)	247	0	115	1	0	2	49	16	1	0	18	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	362	0	0	3	0	0	66	0	0	135	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization 57.1%	ICU Level of Service B
Analysis Period (min)	15

HCM 7th TWSC

52 Hawkesville Road, St. Jacobs TIS

2: Northside Drive & Hawkesville Road/Private Driveway

Total AM

Intersection												
Int Delay, s/veh	9.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	247	0	115	1	0	2	49	16	1	0	18	117
Future Vol, veh/h	247	0	115	1	0	2	49	16	1	0	18	117
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	2	2	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	9	0	6	0	0	0	8	0	0	0	0	6
Mvmt Flow	247	0	115	1	0	2	49	16	1	0	18	117

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	191	194	78	136
Stage 1	77	77	-	117
Stage 2	114	117	-	19
Critical Hdwy	7.19	6.5	6.26	7.1
Critical Hdwy Stg 1	6.19	5.5	-	6.1
Critical Hdwy Stg 2	6.19	5.5	-	6.1
Follow-up Hdwy	3.581	4	3.354	3.5
Pot Cap-1 Maneuver	754	705	972	840
Stage 1	915	835	-	893
Stage 2	874	803	-	1005
Platoon blocked, %				
Mov Cap-1 Maneuver	727	680	972	713
Mov Cap-2 Maneuver	727	680	-	713
Stage 1	915	835	-	860
Stage 2	842	773	-	886

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.36	8.95	5.67	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1321	-	-	790	914	1608	-	-
HCM Lane V/C Ratio	0.035	-	-	0.458	0.003	-	-	-
HCM Ctrl Dly (s/v)	7.6	0	-	13.4	9	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	0	0	-	-

Lanes, Volumes, Timings
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Total AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Volume (vph)	118	26	18	247	67	17
Future Volume (vph)	118	26	18	247	67	17
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.976		0.874			
Flt Protected	0.961					0.962
Satd. Flow (prot)	1464	0	1316	0	0	1422
Flt Permitted	0.961					0.962
Satd. Flow (perm)	1464	0	1316	0	0	1422
Link Speed (k/h)	50		50			50
Link Distance (m)	200.0		137.6			300.5
Travel Time (s)	14.4		9.9			21.6
Confl. Peds. (#/hr)				1	1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	10%	20%	0%	9%	13%	0%
Adj. Flow (vph)	118	26	18	247	67	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	0	265	0	0	84
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM 7th TWSC
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Total AM

Intersection						
Int Delay, s/veh	4.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	118	26	18	247	67	17
Future Vol, veh/h	118	26	18	247	67	17
Conflicting Peds, #/hr	0	0	0	1	1	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	100	100	100	100	100	100
Heavy Vehicles, %	10	20	0	9	13	0
Mvmt Flow	118	26	18	247	67	17

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	294	143	0
Stage 1	143	-	-
Stage 2	151	-	-
Critical Hdwy	6.5	6.4	-
Critical Hdwy Stg 1	5.5	-	-
Critical Hdwy Stg 2	5.5	-	-
Follow-up Hdwy	3.59	3.48	-
Pot Cap-1 Maneuver	681	860	-
Stage 1	865	-	-
Stage 2	858	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	643	859	-
Mov Cap-2 Maneuver	643	-	-
Stage 1	865	-	-
Stage 2	811	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	11.79	0	6.44
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	674	1224
HCM Lane V/C Ratio	-	-	0.214	0.054
HCM Ctrl Dly (s/v)	-	-	11.8	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.2

Lanes, Volumes, Timings
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS

Total AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	2	133	6	1	2	65	198	7	12	203	0
Future Volume (vph)	0	2	133	6	1	2	65	198	7	12	203	0
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt		0.867			0.970			0.996				
Flt Protected					0.968			0.988			0.997	
Satd. Flow (prot)	0	1279	0	0	1270	0	0	1393	0	0	1439	0
Flt Permitted					0.968			0.988			0.997	
Satd. Flow (perm)	0	1279	0	0	1270	0	0	1393	0	0	1439	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.3			149.2			149.7			236.4	
Travel Time (s)		11.6			10.7			10.8			17.0	
Confl. Peds. (#/hr)									1	1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	4%	20%	0%	0%	7%	9%	0%	10%	6%	0%
Adj. Flow (vph)	0	2	133	6	1	2	65	198	7	12	203	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	135	0	0	9	0	0	270	0	0	215	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization 51.8%	ICU Level of Service A
Analysis Period (min)	15

HCM 7th TWSC

4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS

Total AM

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	133	6	1	2	65	198	7	12	203	0
Future Vol, veh/h	0	2	133	6	1	2	65	198	7	12	203	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	4	20	0	0	7	9	0	10	6	0
Mvmt Flow	0	2	133	6	1	2	65	198	7	12	203	0

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	556	563	203	561
Stage 1	227	227	-	333
Stage 2	329	336	-	228
Critical Hdwy	7.1	6.5	6.24	7.3
Critical Hdwy Stg 1	6.1	5.5	-	6.3
Critical Hdwy Stg 2	6.1	5.5	-	6.3
Follow-up Hdwy	3.5	4	3.336	3.68
Pot Cap-1 Maneuver	445	438	833	412
Stage 1	780	720	-	645
Stage 2	689	645	-	736
Platoon blocked, %				
Mov Cap-1 Maneuver	414	409	833	322
Mov Cap-2 Maneuver	414	409	-	322
Stage 1	772	712	-	609
Stage 2	648	610	-	610

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.25	14.59	1.88	0.43
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	430	-	-	820	384	100	-	-
HCM Lane V/C Ratio	0.049	-	-	0.165	0.023	0.009	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	10.3	14.6	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.1	0	-	-

Lanes, Volumes, Timings
5: 51 Hawkesville Road Access/Street A & Hawkesville Road

52 Hawkesville Road, St. Jacobs TIS

Total AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	216	2	19	117	30	5	0	59	88	0	15
Future Volume (vph)	5	216	2	19	117	30	5	0	59	88	0	15
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1500	1500	1500	1500
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999			0.976			0.876			0.980		
Flt Protected	0.999			0.994			0.996			0.959		
Satd. Flow (prot)	0	1419	0	0	1409	0	0	1311	0	0	1367	0
Flt Permitted	0.999			0.994			0.996			0.959		
Satd. Flow (perm)	0	1419	0	0	1409	0	0	1311	0	0	1367	0
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	110.2			311.3			79.4			104.1		
Travel Time (s)	7.9			22.4			5.7			7.5		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	8%	2%	2%	7%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	5	216	2	19	117	30	5	0	59	88	0	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	223	0	0	166	0	0	64	0	0	103	0
Sign Control	Free			Free			Stop			Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	43.0%											
ICU Level of Service A												
Analysis Period (min)	15											

HCM 7th TWSC

52 Hawkesville Road, St. Jacobs TIS

5: 51 Hawkesville Road Access/Street A & Hawkesville Road

Total AM

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	216	2	19	117	30	5	0	59	88	0	15
Future Vol, veh/h	5	216	2	19	117	30	5	0	59	88	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	8	2	2	7	2	2	2	2	2	2	2
Mvmt Flow	5	216	2	19	117	30	5	0	59	88	0	15
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	147	0	0	218	0	0	382	412	217	396	398	132
Stage 1	-	-	-	-	-	-	227	227	-	170	170	-
Stage 2	-	-	-	-	-	-	155	185	-	226	228	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1435	-	-	1352	-	-	576	530	823	564	540	917
Stage 1	-	-	-	-	-	-	776	716	-	832	758	-
Stage 2	-	-	-	-	-	-	847	747	-	777	715	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1435	-	-	1352	-	-	556	520	823	513	529	917
Mov Cap-2 Maneuver	-	-	-	-	-	-	556	520	-	513	529	-
Stage 1	-	-	-	-	-	-	773	713	-	819	746	-
Stage 2	-	-	-	-	-	-	821	735	-	718	713	-
Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.17			0.88			9.94			13.07		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	793	40	-	-	198	-	-	549				
HCM Lane V/C Ratio	0.081	0.003	-	-	0.014	-	-	0.188				
HCM Ctrl Dly (s/v)	9.9	7.5	0	-	7.7	0	-	13.1				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.7				

Lanes, Volumes, Timings
6: Northside Drive & Street A

52 Hawkesville Road, St. Jacobs TIS
Total AM

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			U	U	
Traffic Volume (vph)	1	67	22	7	7	0
Future Volume (vph)	1	67	22	7	7	0
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.867					
Flt Protected	0.999			0.963		
Satd. Flow (prot)	1482	0	0	1548	1632	0
Flt Permitted	0.999			0.963		
Satd. Flow (perm)	1482	0	0	1548	1632	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	156.2			300.5	152.2	
Travel Time (s)	11.2			21.6	11.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	0%	0%	2%
Adj. Flow (vph)	1	67	22	7	7	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	29	7	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	19.7%					
ICU Level of Service A						
Analysis Period (min)	15					

HCM 7th TWSC
6: Northside Drive & Street A

52 Hawkesville Road, St. Jacobs TIS
Total AM

Intersection						
Int Delay, s/veh	7.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	67	22	7	7	0
Future Vol, veh/h	1	67	22	7	7	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	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	0	0	2
Mvmt Flow	1	67	22	7	7	0
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	58	7	7	0	-	0
Stage 1	7	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	949	1075	1614	-	-	-
Stage 1	1016	-	-	-	-	-
Stage 2	971	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	936	1075	1614	-	-	-
Mov Cap-2 Maneuver	936	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	971	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	8.58	5.51		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1366	-	1073	-	-	
HCM Lane V/C Ratio	0.014	-	0.063	-	-	
HCM Ctrl Dly (s/v)	7.3	0	8.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Lanes, Volumes, Timings

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Total PM

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Volume (vph)	3	2	2	24	15	10
Future Volume (vph)	3	2	2	24	15	10
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.946				0.946	
Flt Protected	0.971			0.996		
Satd. Flow (prot)	1603	0	0	1625	1398	0
Flt Permitted	0.971			0.996		
Satd. Flow (perm)	1603	0	0	1625	1398	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	152.2			141.1	163.8	
Travel Time (s)	11.0			10.2	11.8	
Confl. Peds. (#/hr)			2			2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	8%	14%
Adj. Flow (vph)	3	2	2	24	15	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	0	26	25	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 14.0%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC

1: Township Road 24 & Northside Drive

52 Hawkesville Road, St. Jacobs TIS

Total PM

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	3	2	2	24	15	10
Future Vol, veh/h	3	2	2	24	15	10
Conflicting Peds, #/hr	0	0	2	0	0	2
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	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	8	14
Mvmt Flow	3	2	2	24	15	10
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	50	22	27	0	-	0
Stage 1	22	-	-	-	-	-
Stage 2	28	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	964	1061	1600	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	1000	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	960	1059	1597	-	-	-
Mov Cap-2 Maneuver	960	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	998	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	8.63	0.56		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	138	-	997	-	-	
HCM Lane V/C Ratio	0.001	-	0.005	-	-	
HCM Ctrl Dly (s/v)	7.3	0	8.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Lanes, Volumes, Timings
2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS

Total PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	0	73	3	1	1	116	16	1	0	8	281
Future Volume (vph)	183	0	73	3	1	1	116	16	1	0	8	281
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt		0.962			0.973			0.999			0.869	
Flt Protected		0.965			0.971			0.958				
Satd. Flow (prot)	0	1403	0	0	1448	0	0	1402	0	0	1282	0
Flt Permitted		0.965			0.971			0.958				
Satd. Flow (perm)	0	1403	0	0	1448	0	0	1402	0	0	1282	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		311.3			56.8			107.9			137.6	
Travel Time (s)		22.4			4.1			7.8			9.9	
Confl. Peds. (#/hr)			2	2			2		5	5		2
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	0%	0%	0%	3%	17%	0%	0%	0%	4%
Adj. Flow (vph)	183	0	73	3	1	1	116	16	1	0	8	281
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	256	0	0	5	0	0	133	0	0	289	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization 64.7%	ICU Level of Service C
Analysis Period (min)	15

HCM 7th TWSC

2: Northside Drive & Hawkesville Road/Private Driveway

52 Hawkesville Road, St. Jacobs TIS

Total PM

Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Int Delay, s/veh	7.5											
Movement												
Lane Configurations												
Traffic Vol, veh/h	183	0	73	3	1	1	116	16	1	0	8	281
Future Vol, veh/h	183	0	73	3	1	1	116	16	1	0	8	281
Conflicting Peds, #/hr	0	0	2	2	0	0	2	0	5	5	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	5	0	0	0	0	3	17	0	0	4
Mvmt Flow	183	0	73	3	1	1	116	16	1	0	8	281

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	399	405	153	264
Stage 1	151	151	254	254
Stage 2	249	254	10	291
Critical Hdwy	7.1	6.5	6.25	7.1
Critical Hdwy Stg 1	6.1	5.5	6.1	5.5
Critical Hdwy Stg 2	6.1	5.5	6.1	5.5
Follow-up Hdwy	3.5	4	3.345	3.5
Pot Cap-1 Maneuver	565	538	886	693
Stage 1	857	777	755	701
Stage 2	760	701	1016	675
Platoon blocked, %				
Mov Cap-1 Maneuver	510	486	883	574
Mov Cap-2 Maneuver	510	486	574	405
Stage 1	855	775	683	634
Stage 2	688	633	931	674

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	16.02	11.28	7.1	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1251	-	-	580	579	1600	-	-
HCM Lane V/C Ratio	0.092	-	-	0.441	0.009	-	-	-
HCM Ctrl Dly (s/v)	8.1	0	-	16	11.3	0	-	-
HCM Lane LOS	A	A	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	2.2	0	0	-	-

Lanes, Volumes, Timings
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Total PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	275	70	19	181	50	15
Future Volume (vph)	275	70	19	181	50	15
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.973		0.878			
Flt Protected	0.962					0.963
Satd. Flow (prot)	1544	0	1415	0	0	1459
Flt Permitted	0.962					0.963
Satd. Flow (perm)	1544	0	1415	0	0	1459
Link Speed (k/h)	50		50			50
Link Distance (m)	200.0		137.6			300.5
Travel Time (s)	14.4		9.9			21.6
Confl. Peds. (#/hr)		1		1	1	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	13%	13%	0%	10%	0%
Adj. Flow (vph)	275	70	19	181	50	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	345	0	200	0	0	65
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 7th TWSC
3: Northside Drive & Sawmill Road

52 Hawkesville Road, St. Jacobs TIS
Total PM

Intersection						
Int Delay, s/veh	8.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	275	70	19	181	50	15
Future Vol, veh/h	275	70	19	181	50	15
Conflicting Peds, #/hr	0	1	0	1	1	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	100	100	100	100	100	100
Heavy Vehicles, %	4	13	13	0	10	0
Mvmt Flow	275	70	19	181	50	15
Major/Minor						
Minor1	Major1		Major2			
Conflicting Flow All	226	112	0	0	201	0
Stage 1	111	-	-	-	-	-
Stage 2	115	-	-	-	-	-
Critical Hdwy	6.44	6.33	-	-	4.2	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.417	-	-	2.29	-
Pot Cap-1 Maneuver	758	913	-	-	1325	-
Stage 1	909	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	729	911	-	-	1324	-
Mov Cap-2 Maneuver	729	-	-	-	-	-
Stage 1	908	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Approach						
WB	NB		SB			
HCM Ctrl Dly, s/v	13.62	0	6.02			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBT	NBRWBLn1	SBL	SBT			
Capacity (veh/h)	-	-	760	1313	-	-
HCM Lane V/C Ratio	-	-	0.454	0.038	-	-
HCM Ctrl Dly (s/v)	-	-	13.6	7.8	0	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	2.4	0.1	-	-

Lanes, Volumes, Timings
4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS

Total PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	85	6	0	8	133	273	6	5	230	0
Future Volume (vph)	0	0	85	6	0	8	133	273	6	5	230	0
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550	1550
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Flt	0.865			0.923			0.998					
Flt Protected				0.979			0.984			0.999		
Satd. Flow (prot)	0	1275	0	0	1385	0	0	1457	0	0	1488	0
Flt Permitted				0.979			0.984			0.999		
Satd. Flow (perm)	0	1275	0	0	1385	0	0	1457	0	0	1488	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.3			149.2			149.7			236.4	
Travel Time (s)		11.6			10.7			10.8			17.0	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	4%	0%	0%	0%	4%	3%	0%	0%	3%	0%
Adj. Flow (vph)	0	0	85	6	0	8	133	273	6	5	230	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	14	0	0	412	0	0	235	0
Sign Control	Stop			Stop			Free			Free		

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 59.9%	ICU Level of Service B											
Analysis Period (min)	15											

HCM 7th TWSC

4: King Street North & Northside Drive/Eby Street

52 Hawkesville Road, St. Jacobs TIS

Total PM

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	85	6	0	8	133	273	6	5	230	0
Future Vol, veh/h	0	0	85	6	0	8	133	273	6	5	230	0
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	4	0	0	0	4	3	0	0	3	0
Mvmt Flow	0	0	85	6	0	8	133	273	6	5	230	0

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	779	785	231	783
Stage 1	240	240	-	542
Stage 2	539	545	-	241
Critical Hdwy	7.1	6.5	6.24	7.1
Critical Hdwy Stg 1	6.1	5.5	-	6.1
Critical Hdwy Stg 2	6.1	5.5	-	6.1
Follow-up Hdwy	3.5	4	3.336	3.5
Pot Cap-1 Maneuver	316	327	803	314
Stage 1	768	711	-	528
Stage 2	530	522	-	767
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	274	287	803	246
Mov Cap-2 Maneuver	274	287	-	246
Stage 1	765	707	-	465
Stage 2	462	460	-	682

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.02	14.28	2.59	0.17
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	579	-	-	803	402	38	-	-
HCM Lane V/C Ratio	0.1	-	-	0.106	0.035	0.004	-	-
HCM Ctrl Dly (s/v)	8	0	-	10	14.3	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.4	0.1	0	-	-

Lanes, Volumes, Timings
5: 51 Hawkesville Road Access/Street A & Hawkesville Road

52 Hawkesville Road, St. Jacobs TIS

Total PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	167	6	57	258	83	4	0	36	53	0	9
Future Volume (vph)	15	167	6	57	258	83	4	0	36	53	0	9
Ideal Flow (vphpl)	1550	1550	1550	1550	1550	1550	1550	1550	1500	1500	1500	1500
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996			0.972			0.878			0.980		
Flt Protected	0.996			0.993			0.995			0.959		
Satd. Flow (prot)	0	1504	0	0	1432	0	0	1313	0	0	1367	0
Flt Permitted	0.996			0.993			0.995			0.959		
Satd. Flow (perm)	0	1504	0	0	1432	0	0	1313	0	0	1367	0
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	110.2			311.3			79.4			104.1		
Travel Time (s)	7.9			22.4			5.7			7.5		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	1%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	15	167	6	57	258	83	4	0	36	53	0	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	188	0	0	398	0	0	40	0	0	62	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 60.0%

ICU Level of Service B

Analysis Period (min) 15

HCM 7th TWSC

52 Hawkesville Road, St. Jacobs TIS

5: 51 Hawkesville Road Access/Street A & Hawkesville Road

Total PM

Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	167	6	57	258	83	4	0	36	53	0	9
Future Vol, veh/h	15	167	6	57	258	83	4	0	36	53	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	1	2	2	4	2	2	2	2	2	2	2
Mvmt Flow	15	167	6	57	258	83	4	0	36	53	0	9

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	341	0	0	173	0	0	572	655	170	611	617	300
Stage 1	-	-	-	-	-	-	200	200	-	414	414	-
Stage 2	-	-	-	-	-	-	372	455	-	197	203	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1218	-	-	1404	-	-	431	386	874	406	406	740
Stage 1	-	-	-	-	-	-	802	736	-	616	593	-
Stage 2	-	-	-	-	-	-	648	569	-	805	733	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1218	-	-	1404	-	-	399	361	874	365	380	740
Mov Cap-2 Maneuver	-	-	-	-	-	-	399	361	-	365	380	-
Stage 1	-	-	-	-	-	-	791	726	-	585	563	-
Stage 2	-	-	-	-	-	-	608	540	-	761	723	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.64	1.1	9.86	15.85
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	781	143	-	-	246	-	-	394
HCM Lane V/C Ratio	0.051	0.012	-	-	0.041	-	-	0.157
HCM Ctrl Dly (s/v)	9.9	8	0	-	7.7	0	-	15.8
HCM Lane LOS	A	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.6

Lanes, Volumes, Timings
6: Northside Drive & Street A

52 Hawkesville Road, St. Jacobs TIS
Total PM

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	45	71	5	11	1
Future Volume (vph)	1	45	71	5	11	1
Ideal Flow (vphpl)	1765	1765	1650	1650	1650	1650
Lane Width (m)	3.5	3.5	3.5	3.5	3.5	3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.868				0.989	
Flt Protected	0.999			0.955		
Satd. Flow (prot)	1484	0	0	1530	1464	0
Flt Permitted	0.999			0.955		
Satd. Flow (perm)	1484	0	0	1530	1464	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	156.2			300.5	152.2	
Travel Time (s)	11.2			21.6	11.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	2%	0%	11%	2%
Adj. Flow (vph)	1	45	71	5	11	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	0	76	12	0
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.5%					
ICU Level of Service A						
Analysis Period (min)	15					

HCM 7th TWSC
6: Northside Drive & Street A

52 Hawkesville Road, St. Jacobs TIS
Total PM

Intersection						
Int Delay, s/veh	6.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	45	71	5	11	1
Future Vol, veh/h	1	45	71	5	11	1
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	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	0	11	2
Mvmt Flow	1	45	71	5	11	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	159	12	12	0	-	0
Stage 1	12	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	833	1069	1607	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	796	1069	1607	-	-	-
Mov Cap-2 Maneuver	796	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Approach	EB	NB		SB		
HCM Ctrl Dly, s/v	8.55	6.86		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1602	-	1061	-	-	
HCM Lane V/C Ratio	0.044	-	0.043	-	-	
HCM Ctrl Dly (s/v)	7.3	0	8.5	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-	

Appendix F

Left-Turn Lane Warrant



