Acorn Valley Development
83 Christie Drive
Dorchester
Transportation Impact Assessment Update

Paradigm Transportation Solutions Limited

2025-12
230556 (190317)

ptsl.com

Project Summary

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83 Christie Drive, Dorchester
Transportation Impact Assessment Update

Rajan Phillips, P.Eng.

Disclaimer

Executive Summary

Background

Paradigm Transportation Solutions Limited (Paradigm) completed a Transportation Impact Assessment (TIA) in June 2020 for a proposed Residential Subdivision at 83 Christie Drive in Dorchester, Ontario.

The June 2020 TIA was based on a Draft Plan of Subdivision that included areas north and south of Christie Drive and accommodating 466 single family units, 72 townhouse units, and a high-density block with approximately 488 apartment units. 288 of the total number of units were located north of Christie Drive and 738 units were located south of Christie Drive.

The access to the subdivision was based on the westerly extension of Christie Drive from its current terminus at Wheeler Avenue to terminate in a three-leg intersection at Harris Road. Three four-leg accesses were proposed on Christie Drive, with one of them aligned with Wheeler Avenue.

Traffic forecasting and analysis were based on a ten-year horizon, i.e., 2030, with 2019 as the base year.

An update to the June 2020 TIA was completed in April 2025 to reflect the changes in the Draft Plan of Subdivision which provided for accommodating 311 single family homes, 56 semi-detached homes, 34 street townhouse units, 204 medium-density apartment units, and 588 high-density apartment units.

The 2020 TIA was based on traffic counts conducted in August 2019 at five study area intersections. As part of updating the 2020 TIA, new traffic counts were conducted in September 2023 at three outer intersections to identify changes in roadway traffic volumes. The 2023 traffic counts indicate that roadway traffic volumes are generally about the same or lower than the traffic volumes in 2019.

Accordingly, the same timeframe for forecasting and analysis was used in the April 2025 TIA as in the 2020 TIA, viz., 2020 as base year and 2030 as horizon year.

Since the April 2025 TIA, public comments were received regarding the subject subdivision. **Appendix A** summarizes the comments and our responses and clarification thereto.

The subdivision plan has also been updated to provide for accommodating 147 single family homes, 46 semi-detached homes,

21 street townhouse units, 540 low/medium density residential units and 589 high-density apartment units. The distribution of dwelling units provides for 586 units to be located north of Christie Drive and 757 units south of Christe Drive.

The access arrangement will be the same as in the earlier plans, with the addition of proposed roundabouts on Christie Drive at Street D and Street B which were previously proposed as two-way stop-controlled intersections. A new road connection (i.e., Boardwalk Way) between Mill Road and Dorchester Road to the south of Christie Drive is assumed in the current update as in the 2020 and 2025 TIAs.

It is noted that the TIA corresponds to the full development of the subdivision comprising areas both north and south of Christie Drive. The actual development may proceed in phases based on registration of different areas of the subdivision.

TIA Scope

The scope of the Transportation Impact Assessment includes:

- **Study Area Intersections:**
  - Harris Road and Hamilton Road;
  - Wheeler Avenue and Hamilton Road;
  - Westchester Bourne and Donnybrook Drive;
  - Mill Road and Donnybrook Drive;
  - Dorchester Road and Donnybrook Drive;
  - “New Road” (i.e., Boardwalk Way) and Dorchester Road (future);
  - Harris Road and Christie Drive (future);
  - Christie Drive and Wheeler Avenue (future); and
  - Three access intersections (future).
- **Analysis Periods:** Weekday AM and PM peak hours.
- **Traffic Conditions:** Base Year (2019); Horizon Year (2030).
- **Access Arrangement:** Development is based on the westerly extension of Christie Drive to Harris Road and providing three full access points on Christie Drive, one of them aligned with Wheeler Avenue to the north.
- **Other Area Developments:** The following developments in the area are included in estimating future background traffic volumes.

Boardwalk at Millpond – Located southeast of the subject site, the development includes 580 units to be completed after 2021.

187 Dorchester Road – Located south of Byron Avenue between Dorchester Road and Oakwood Drive, the development includes 191 units and commercial uses to be completed by 2023.

- **New Road (i.e., Boardwalk Way):** A new road connection between Mill Road and Dorchester Road to the south of Christie Drive.

Conclusions

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

- Under existing conditions, all study area intersections are operating at acceptable levels of service and queue lengths during the AM and PM peak hours.
- When completed, the site is forecast to generate a total of 448 AM peak hour trips and 587 PM peak hour trips.
- Under 2030 background traffic conditions, all study area intersections are forecast to operate with acceptable levels of service and queue lengths.
- Under 2030 total traffic conditions, all study area intersections are forecast to operate with acceptable levels of service and queue lengths.
- The proposed site access intersections of Christie Drive with Street D and Street B are forecast to operate with acceptable levels of service.
- No left-turn lanes are warranted on Christie Drive at the High-Density Block Driveway and at Street A / Wheeler Avenue. Additionally, all site access intersections are adequately spaced from one another.
- The proposed multi-use trail (MUT) within the subdivision should be provided with adequate lighting and convenient access locations for pedestrians and cyclists.

Recommendations

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

Contents

Appendices

Figures

Tables

1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) completed a Transportation Impact Assessment (TIA) in June 2020 for a proposed Residential Subdivision at 83 Christie Drive in Dorchester, Ontario. The subject site consists of about 100 acres of vacant land and is located north and south of Christie Drive between Harris Road and Mill Road. **Figure 1.1** details the location of the subject development.

The June 2020 TIA was based on a Draft Plan of Subdivision that included areas north and south of Christie Drive and accommodating 466 single family units, 72 townhouse units, and a high-density block with approximately 488 apartment units. 288 of the total number of units were located north of Christie Drive and 738 units were located south of Christie Drive.

The access to the subdivision was based on the westerly extension of Christie Drive from its current terminus at Wheeler Avenue to terminate in a three-leg intersection at Harris Road. Three four-leg accesses were proposed on Christie Drive, with one of them aligned with Wheeler Avenue.

Traffic forecasting and analysis were based on a ten-year horizon, i.e., 2030, with 2019 as the base year.

An update to the June 2020 TIA was completed in April 2025 to reflect the changes in the Draft Plan of Subdivision which provided for accommodating 311 single family homes, 56 semi-detached homes, 34 street townhouse units, 204 medium-density apartment units, and 588 high-density apartment units.

The 2020 TIA was based on traffic counts conducted in August 2019 at five study area intersections. As part of updating the 2020 TIA, new traffic counts were conducted in September 2023 at three outer intersections to identify changes in roadway traffic volumes. The 2023 traffic counts indicate that roadway traffic volumes are generally about the same or lower than the traffic volumes in 2019.

Accordingly, the same timeframe for forecasting and analysis was used in the April 2025 TIA as in the 2020 TIA, viz., 2019 as base year and 2030 as horizon year.

Since the April 2025 TIA, public comments were received regarding the subject subdivision. **Appendix A** summarizes the comments and our responses and clarification thereto.

The subdivision plan has also been updated to provide for accommodating 147 single family homes, 46 semi-detached homes, 21 street townhouse units, 540 low/medium density residential units and 589 high-density apartment units. The distribution of dwelling units provides for 586 units to be located north of Christie Drive and 757 units south of Christe Drive.

The access arrangement will be the same as in the earlier plans, with the addition of proposed roundabouts on Christie Drive at Street D and Street B which were previously proposed as two-way stop-controlled intersections. A new road connection (i.e., Boardwalk Way) between Mill Road and Dorchester Road to the south of Christie Drive is assumed in the current update as in the 2020 and 2025 TIAs.

It is noted that the TIA corresponds to the full development of the subdivision comprising areas both north and south of Christie Drive. The actual development may proceed in phases based on registration of different areas of the subdivision.

1.2 Purpose and Scope

The purpose of this report is to identify and assess the potential traffic impact resulting from the proposed development. The scope of the study developed in consultation with Middlesex County staff via e-mail in August 2019, includes:

- Document current traffic and site conditions in the vicinity of the proposed development;
- Estimate the background traffic growth in the area including both road traffic and traffic from other new developments in the study area;
- Estimate the additional traffic forecast to be generated by the proposed development;
- Assign the traffic forecasts to the surrounding road network based on existing traffic patterns within the study area;
- Assess future traffic conditions, with and without the development, at the ten-year horizon (2030); and
- Identify any operational concerns and/or mitigation measures that may be required to improve operations.

Based on pre-study consultation with County staff in August 2019, the following intersections were identified for investigation in this study:

- Harris Road and Hamilton Road;
- Wheeler Avenue and Hamilton Road;

- Westchester Bourne and Donnybrook Drive;
- Mill Road and Donnybrook Drive;
- Dorchester Road and Donnybrook Drive;
- “New Road” (i.e., Boardwalk Way) and Dorchester Road (future);
- Harris Road and Christie Drive (future);
- Christie Drive and Wheeler Avenue (future); and
- Three access intersections (future).

Correspondence with the County regarding the scope of work is included in **Appendix B**.

Study Area and Subject Development Location

2 Existing Conditions

2.1 Road Network

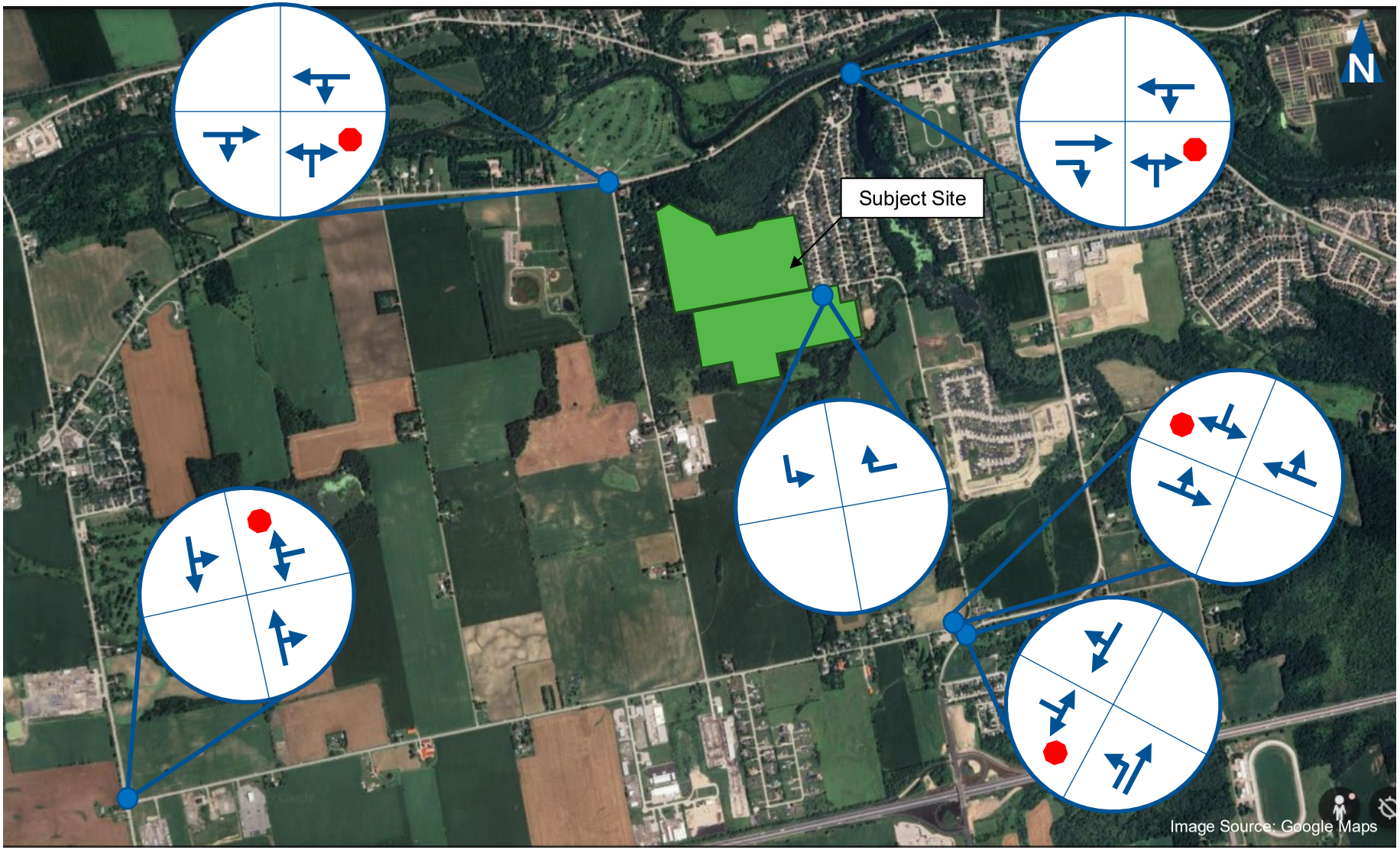
The roadways in the study area are described as follows:

- **Hamilton Road (County Road 29)** is an east-west arterial roadway with a two-lane cross-section. Parking is not permitted on either side of the roadway. West of Wheeler Avenue, the roadway has a rural cross-section. East of Wheeler Avenue, a curb and gutter are provided, and sidewalks are provided on the south side of the roadway. Also east of Wheeler Avenue, the posted speed limit is 50 kilometres per hour. West of Wheeler Avenue, sidewalks are not provided, and the posted speed limit is 80 kilometres per hour.
- **Harris Road** is a north-south roadway with a two-lane rural cross-section. The posted speed limit is 60 kilometres per hour.
- **Wheeler Avenue** is a north-south local roadway with a two-lane urban cross-section. Parking is permitted on both sides of the roadway. East of Mill Road, sidewalks are provided on the east side of the roadway. The speed limit is not posted and assumed to be 50 kilometres per hour.
- **Christie Drive** is an east-west local roadway with a two-lane rural cross-section. Parking is permitted on both sides of the roadway. The speed limit is not posted and assumed to be 50 kilometres per hour. The roadway currently terminates at Wheeler Avenue and will be extended to Harris Road as part of the proposed development.
- **Mill Road** is a north-south local roadway with a two-lane rural cross-section. The posted speed limit is 50 kilometres per hour.
- **Westchester Bourne** is a north-south arterial roadway with a two-lane cross-section. In Nilestown, the roadway has an urban cross-section, south of Nilestown, the roadway has a rural cross-section. Sidewalks are not provided on either side of the roadway. The posted speed limit is 80 kilometres per hour.
- **Donnybrook Road** is an east-west local roadway with a two-lane rural cross-section. The speed limit is not posted and assumed to be 50 kilometres per hour.
- **Dorchester Road (County Road 32)** is a north-south arterial roadway. North of The Parkway, a three-lane cross-section is provided with a centre two-way left-turn lane. Sidewalks are provided on both sides of the roadway. From Byron Avenue to The Parkway a sidewalk is provided only on the east side. South of Byron Avenue, no sidewalks are provided. The posted speed limit north of Byron Avenue is 50 kilometres per hour.

South of Byron Avenue the speed limit increases to 80 kilometres per hour.

It is noted that on-street parking is not permitted on any roadways in Thames Centre between 2:00 AM and 7:00 AM. Hamilton Road, Westchester Bourne and Dorchester Road are under the jurisdiction of Middlesex County. All other roadways in the study area are under the jurisdiction of the Municipality of Thames Centre.

Figure 2.1 illustrates the existing lane configurations and traffic controls at the study area intersections. As shown, all study area intersections operate under unsignalized traffic control.



Existing Lane Configuration and Traffic Control

2.2 Traffic Volumes

Weekday eight-hour turning movement counts for the study area intersections were conducted by Paradigm on 27, August 2019 using Paradigm's Miovision cameras. Because traffic volumes during typical AM and PM peak hours in August tend to be different than non-summer months, a seasonal adjustment factor was applied to the August counts. This adjustment factor was determined based on a count collected by Paradigm in May 2018 at the intersection of Dorchester Road and Hamilton Road. The two-way volumes in August 2019 and May 2018 on Hamilton Road between Wheeler Avenue and Dorchester Road were compared and a seasonal adjustment factor of 1.2 was determined. **Table 2.1** summarizes the AM and PM peak hour two-way volumes on Hamilton Road for both TMCs. To be conservative, the higher adjustment factor was used (1.2).

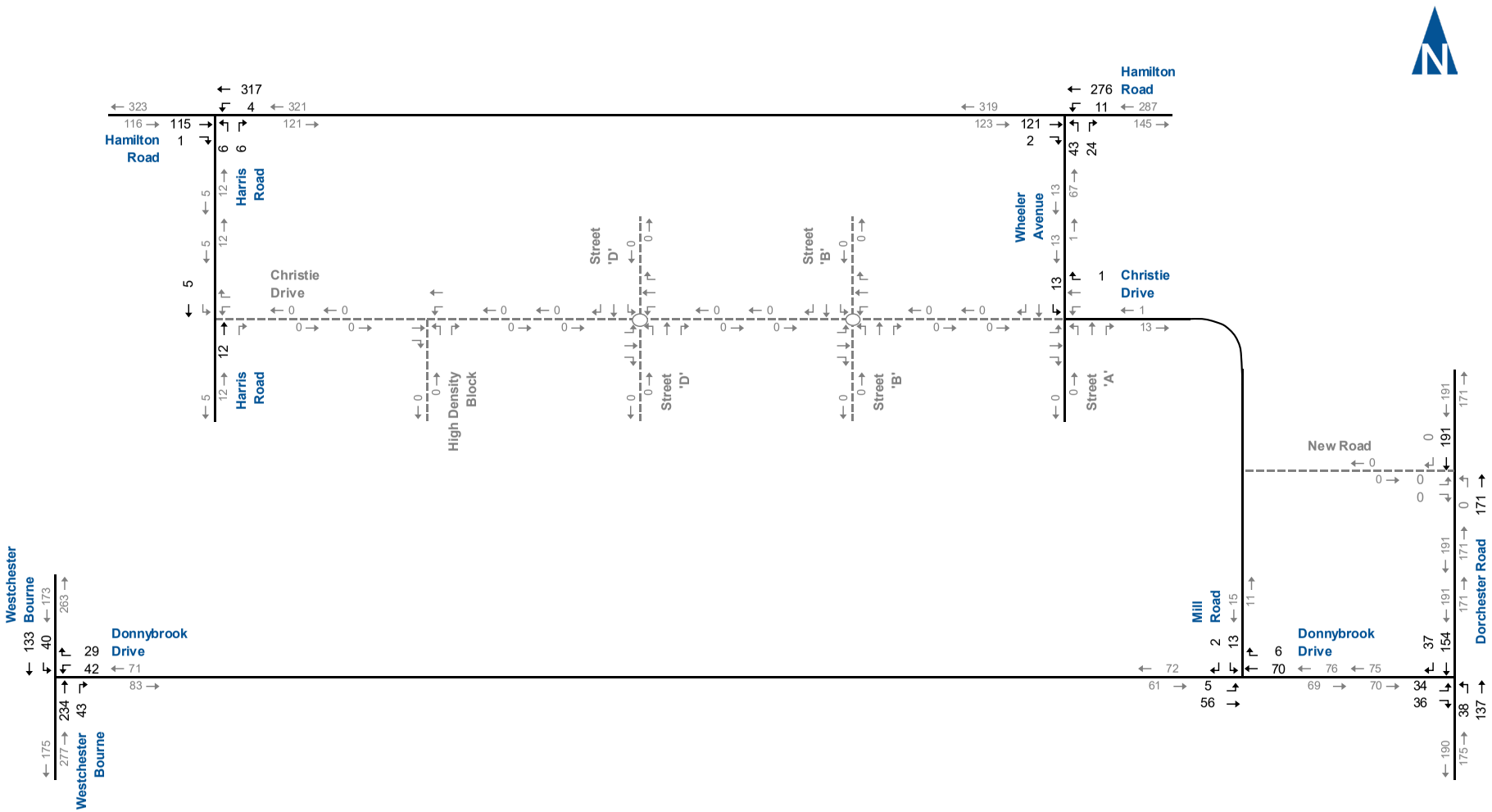
TABLE 2.1: SEASONAL ADJUSTMENT FACTOR

Count	AM Peak Hour	PM Peak Hour
	Two-way Volume	Two-way Volume
May 2018	452	558
August 2019	360	503
Difference	**92**	**55**
Factor	**1.2**	**1.1**

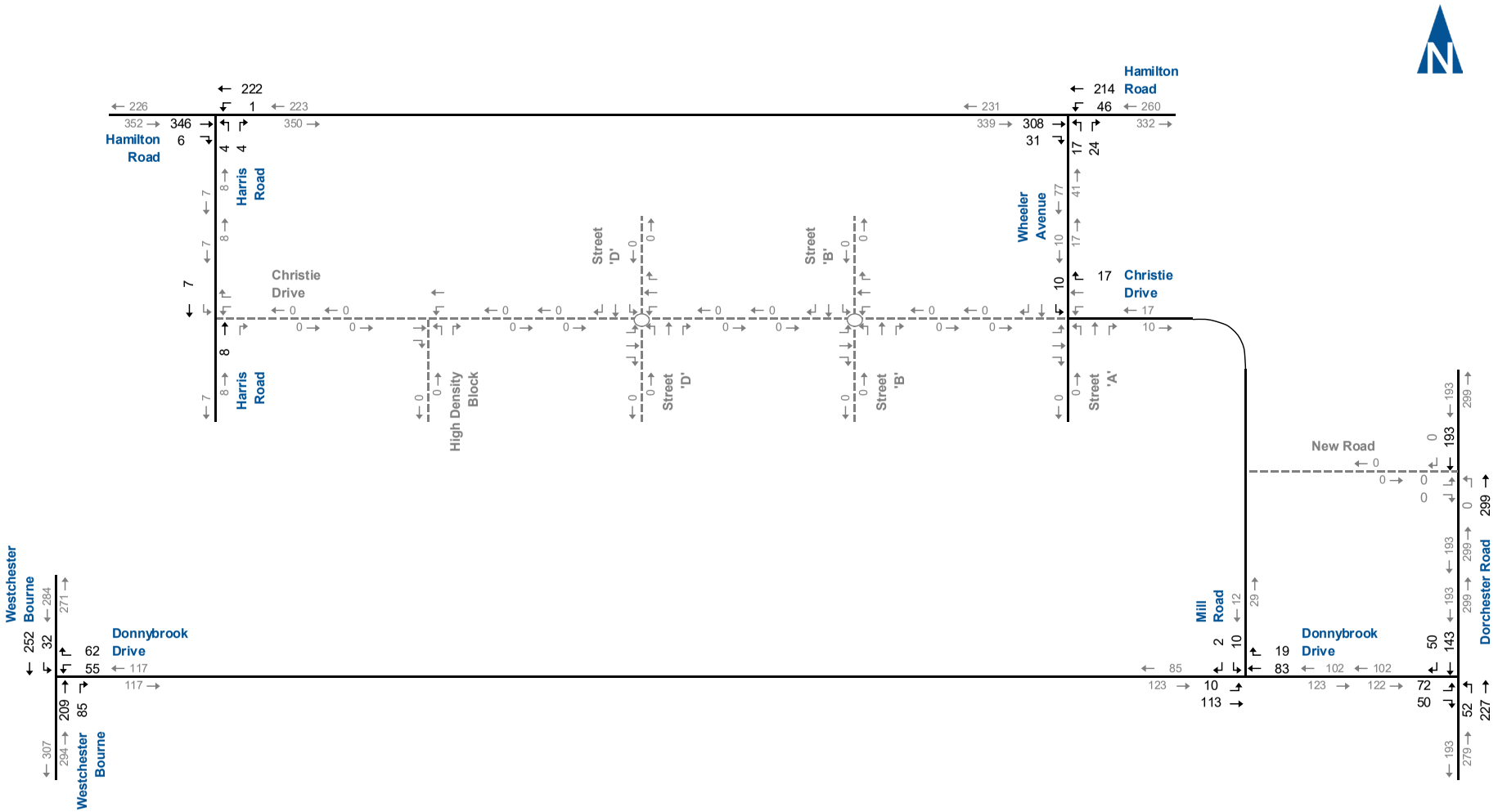
The resulting Base Year traffic volumes for the AM/PM peak hours are illustrated in **Figure 2.2** and **Figure 2.3**, respectively. The detailed TMC data is included in **Appendix C-1**.

New traffic counts were conducted on 12 September 2023 at the intersections of 1) Hamilton Road and Wheeler Avenue; 2) Westchester Bourne and Donnybrook Drive; and 3) Dorchester Road and Donnybrook Drive, to identify changes in roadway traffic volumes. The 2023 traffic counts indicate that roadway traffic volumes are generally about the same or lower than the traffic volumes in 2019.

The September 2023 traffic count data and AM/PM peak hour traffic volumes at the three intersections are included in **Appendix C-2.**



Base Year (2019) Traffic Volumes
AM Peak Hour



Base Year (2019) Traffic Volumes
PM Peak Hour

2.3 Traffic Operations

The operations of the study area intersections were evaluated using Synchro 12. The peak hour factor (PHF) used in the Synchro analysis are derived from the turning movement counts to reflect existing traffic conditions. The intersection analysis considered three separate measures of performance:

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

Intersection level of service (LOS) is a recognized method of quantifying the delay experienced by drivers at intersections. The term "Level of Service" denotes how well a traffic movement operates under given traffic demands, lane arrangements, and traffic controls. Each level is determined by the average amount of control delay per vehicle. Control delay is the total delay associated with stopping for a signal or stop sign, and includes four components: deceleration delay, stopped delay, queue move up time and final acceleration delay.

Table 2.2 contains the level of service criteria for signalized roundabouts and stop-controlled intersections. As shown, LOS A indicates small average control delays (less than 10 second per vehicle) whereas LOS F indicates intersection failure, which results in extensive vehicular queues and long delays (over 50 seconds per vehicle at an unsignalized intersection, and over 80 seconds per vehicle at a signalized intersection). LOS D is typically considered acceptable peak-hour performance in an urban setting and lower LOS values are tolerable for short time periods during peak hours when heavier traffic volumes are expected.

TABLE 2.2: VEHICLE LEVEL OF SERVICE DEFINITIONS

LOS	Signalized Intersections Average Total Delay (sec/veh)	Roundabouts Average Total Delay (sec/veh)	Stop-Controlled Intersections Average Total Delay (sec/veh)
A	≤ 10	≤ 10	≤ 10
B	> 10 & ≤ 20	> 10 & ≤ 15	> 10 & ≤ 15
C	> 20 & ≤ 35	> 15 & ≤ 25	> 15 & ≤ 25
D	> 35 & ≤ 55	> 25 & ≤ 35	> 25 & ≤ 35
E	> 55 & ≤ 80	> 35 & ≤ 50	> 35 & ≤ 50
F	> 80	> 50	> 50

The existing intersection operations for the AM and PM peak hours are summarized in **Table 2.3**. As shown, all study area intersections are operating with acceptable levels of service.

Detailed Synchro reports are provided in **Appendix D**.

TABLE 2.3: EXISTING TRAFFIC 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	Harris Rd & Hamilton Rd	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					
			Delay		0	>	**0**	<	8		**0**	11		>	**11**					
			V/C		0.00	>		<	0.00			0.02		>						
			Q		0	>		<	0			1		>						
	Wheeler Ave & Hamilton Rd	TWSC	LOS		A	A	**A**	<	A		**A**	B		>	**B**					
			Delay		0	0	**0**	<	8		**0**	12		>	**12**					
			V/C		0.00	0.00		<	0.01			0.12		>						
			Q		0	0		<	0			3		>						
			Stor.		-	30		<	-			-		>						
			Avail.		-	30		<	-			-		>						
	Westchester Bourne & Donnybrook Dr	TWSC	LOS					B		>	**B**		A	>	**A**	<	A		**A**	
			Delay					13		>	**13**		0	>	**0**	<	8		**2**	
			V/C					0.15		>			0.00	>		<	0.04			
			Q					4		>			0	>		<	1			
	Donnybrook Dr & Mill Rd	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	
			Delay	<	7		**1**		0	>	**0**					9		>	**9**	
			V/C	<	0.00				0.00	>						0.02		>		
			Q	<	0				0	>						1		>		
	Dorchester Rd & Donnybrook Dr	TWSC	LOS	B		>	**B**					A	A		**A**		A	>	**A**	
			Delay	11		>	**11**					8	0		**2**		0	>	**0**	
			V/C	0.12		>						0.03	0.00				0.00	>		
			Q	3		>						1	0				0	>		
			Stor.	-		>						45	-				-	>		
			Avail.	-		>						44	-				-	>		
PM Peak Hour	Harris Rd & Hamilton Rd	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					
			Delay		0	>	**0**	<	8		**0**	12		>	**12**					
			V/C		0.00	>		<	0.00			0.01		>						
			Q		0	>		<	0			0		>						
	Wheeler Ave & Hamilton Rd	TWSC	LOS		A	A	**A**	<	A		**A**	B		>	**B**					
			Delay		0	0	**0**	<	8		**1**	12		>	**12**					
			V/C		0.00	0.00		<	0.04			0.08		>						
			Q		0	0		<	1			2		>						
			Stor.		-	30		<	-			-		>						
			Avail.		-	30		<	-			-		>						
	Westchester Bourne & Donnybrook Dr	TWSC	LOS					B		>	**B**		A	>	**A**	<	A		**A**	
			Delay					14		>	**14**		0	>	**0**	<	8		**1**	
			V/C					0.24		>			0.00	>		<	0.03			
			Q					8		>			0	>		<	1			
	Donnybrook Dr & Mill Rd	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	
			Delay	<	8		**1**		0	>	**0**					10		>	**10**	
			V/C	<	0.01				0.00	>						0.02		>		
			Q	<	0				0	>						1		>		
	Dorchester Rd & Donnybrook Dr	TWSC	LOS	B		>	**B**					A	A		**A**		A	>	**A**	
			Delay	14		>	**15**					8	0		**1**		0	>	**0**	
			V/C	0.29		>						0.05	0.00				0.00	>		
			Q	9		>						2	0				0	>		
			Stor.	-		>						45	-				-	>		
			Avail.	-		>						43	-				-	>		

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

3 Development Concept

3.1 Description

The proposed residential subdivision is located to the north and south of Christie Drive between Wheeler Avenue and Harris Road. The development is sized to potentially include:

- 147 single family units;
- 46 semi-detached homes;
- 21 street townhouse units;
- 540 low/medium-density residential units; and
- 589 high-density apartment units.

Of the total unit count of 1,343 units, 586 units are located north of Christie Drive and 757 are located to the south.

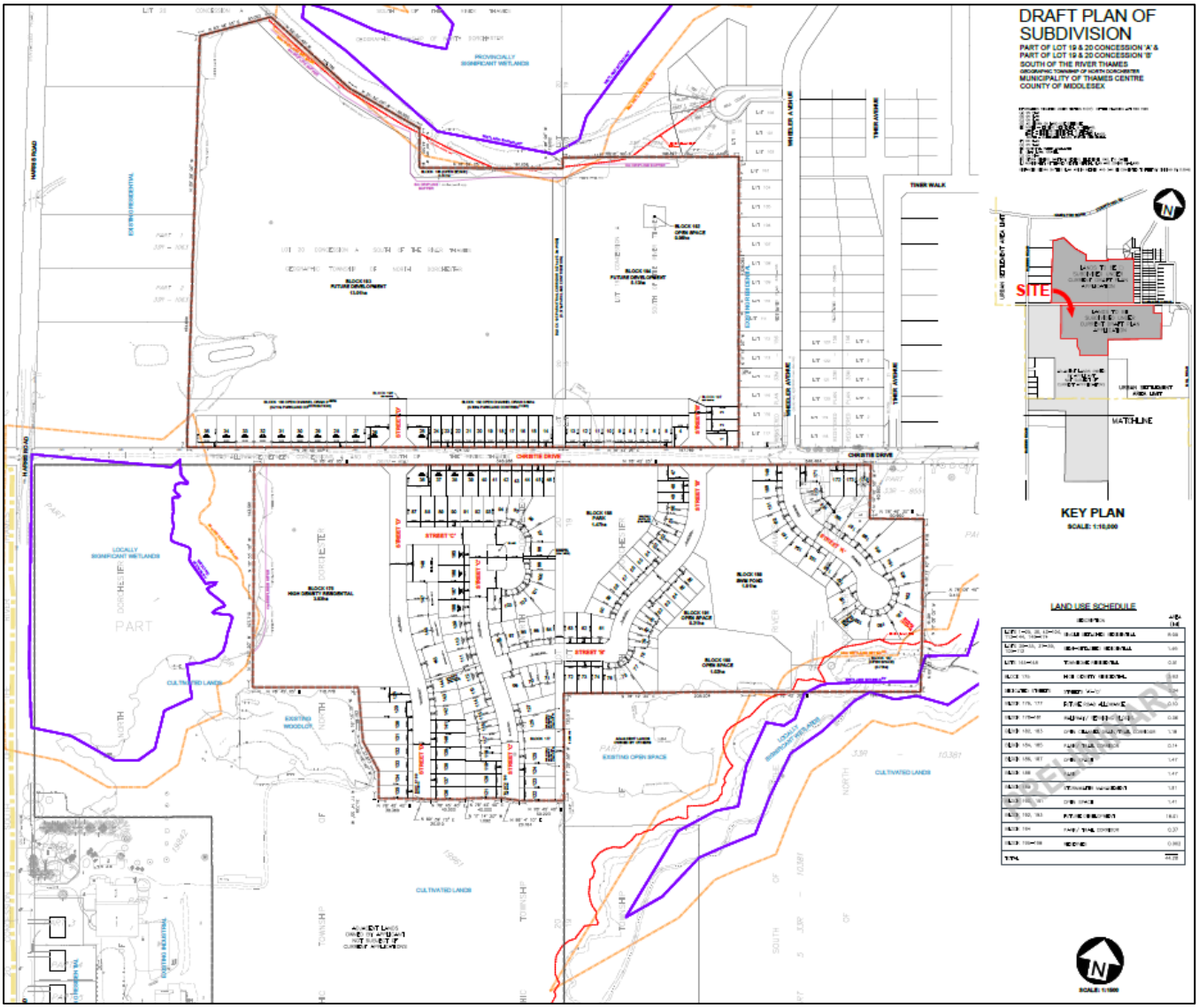
The development will provide for the extension of Christie Drive from its current terminus at Wheeler Avenue to Harris Road. Three vehicular accesses to the development are proposed. All accesses are four-leg intersections on Christie Drive. One of the accesses will be in line with Wheeler Avenue and the remaining two accesses are proposed as single-lane roundabouts.

The subdivision plan also provides for a green space corridor behind the row of residential lots on the north side of Christie Drive.

It is noted that the TIA corresponds to the full development of the subdivision comprising areas both north and south of Christie Drive. The actual development may proceed in phases based on registration of different areas of the subdivision.

The proposed subdivision plan is illustrated in **Figure 3.1**.

It is also noted that at the southerly limit of the development, the subdivision road system provides for extending two north-south roads to connect with a potential future development of the vacant lands to the south.



Draft Plan of Subdivision

83 Christie Drive, Dorchester TIA Update
230556 (190317)

Figure 3.1

3.2 Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Manual[1] equations were used to estimate the peak hour traffic volumes generated by the subject development based on the following ITE Land Use Codes:

- 210, Single Family Detached Housing;
- 215, Single Family Attached Housing;
- 221, Multifamily Housing (Mid Rise); and
- 222, Multifamily Housing (High Rise).

The resulting trip generation is summarized in **Table 3.1**. As shown, the development will generate 448 AM peak hour trips and 587 PM peak hour trips (previously 476 and 595) at full build-out.

TABLE 3.1: TRIP GENERATION

Land Use Code	Units	Rate	AM Peak Hour			Rate	PM Peak Hour		
			In	Out	Total		In	Out	Total
North of Christie Drive									
LUC 220 - Multifamily Housing (Low-Rise)	540	Eq	48	154	**202**	Eq	165	102	**267**
Facing Christie Drive									
LUC 210 - Single Family Detached Housing	37	Eq	7	19	**26**	Eq	21	13	**34**
LUC 215 - Single Family Attached Housing	30	Eq	3	8	**11**	Eq	8	6	**14**
LUC 222 - Multifamily Housing (High-Rise)	589	0.20	34	84	**118**	0.26	93	60	**153**
South of Christie Drive									
LUC 210 - Single Family Detached Housing	110	Eq	21	57	**78**	Eq	64	39	**102**
LUC 215 - Single Family Attached Housing	37	Eq	3	10	**13**	Eq	9	7	**17**
Total Trip Generation	**1,343**		**116**	**332**	**448**		**360**	**227**	**587**

LUC 210 | **AM:** T = 0.67(X) + 5.59 | **PM:** Ln(T) = 0.92 Ln(X) + 0.33
LUC 215 | **AM:** T = 0.59(X) - 15.25 | **PM:** T = 0.57(X) - 7.84
LUC 220 | **AM:** T = 0.35(X) + 12.93 | **PM:** T = 0.48(X) + 7.35

3.3 Trip Distribution and Assignment

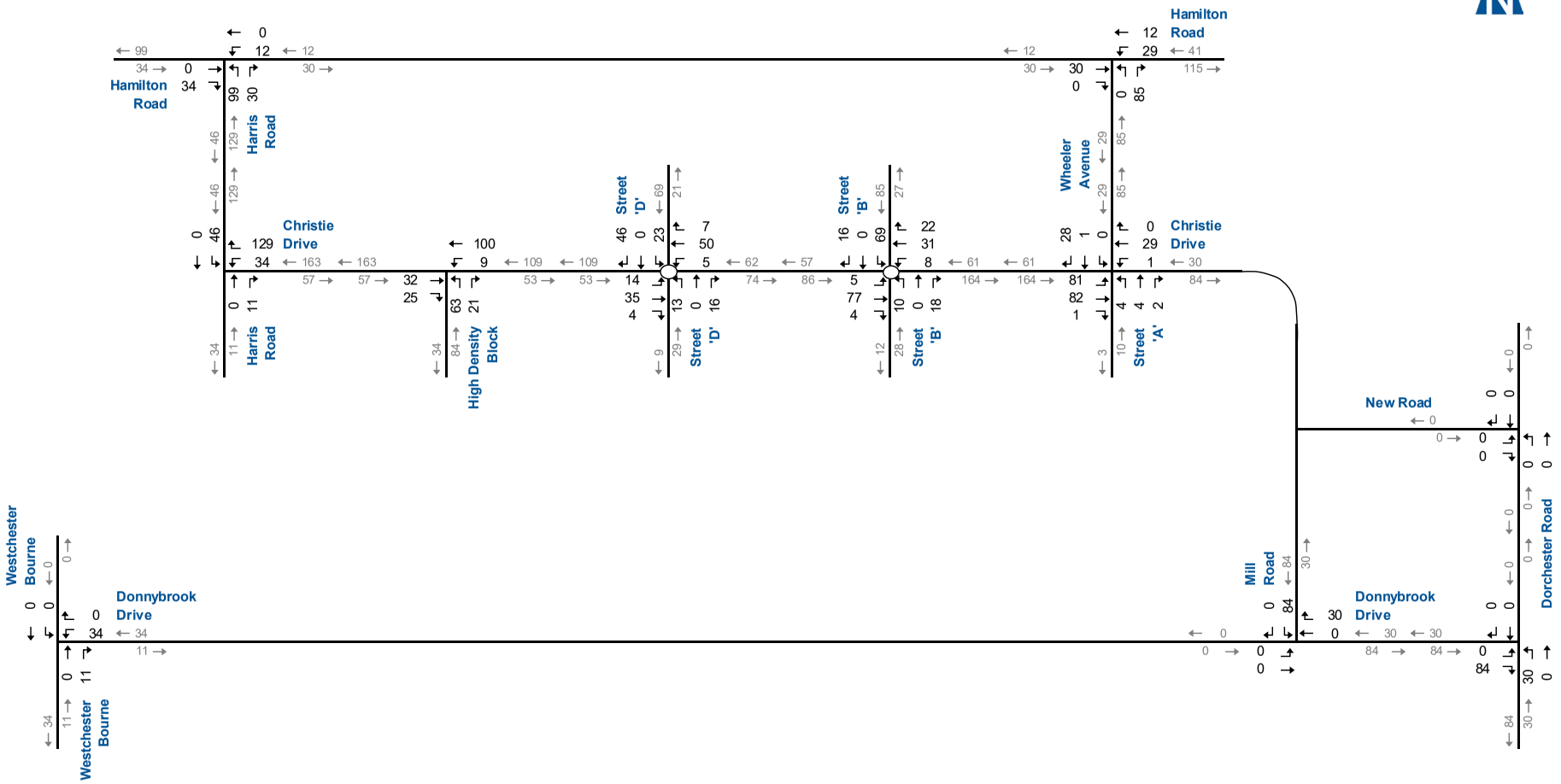
The estimated site generated trips were assigned to the road network based on the existing distribution of traffic within the study area. Trips to/from each site access were assigned separately for units north and south of Christie Drive and fronting onto Christie Drive. The distribution took into consideration the driver convenience of using the shortest travel path. **Table 3.2** summarizes the trip distribution proportions applied to development traffic volumes.

[1] Institute of Transportation Engineers, *Trip Generation Manual,* 12th ed., (Washington, DC: ITE, 2025).

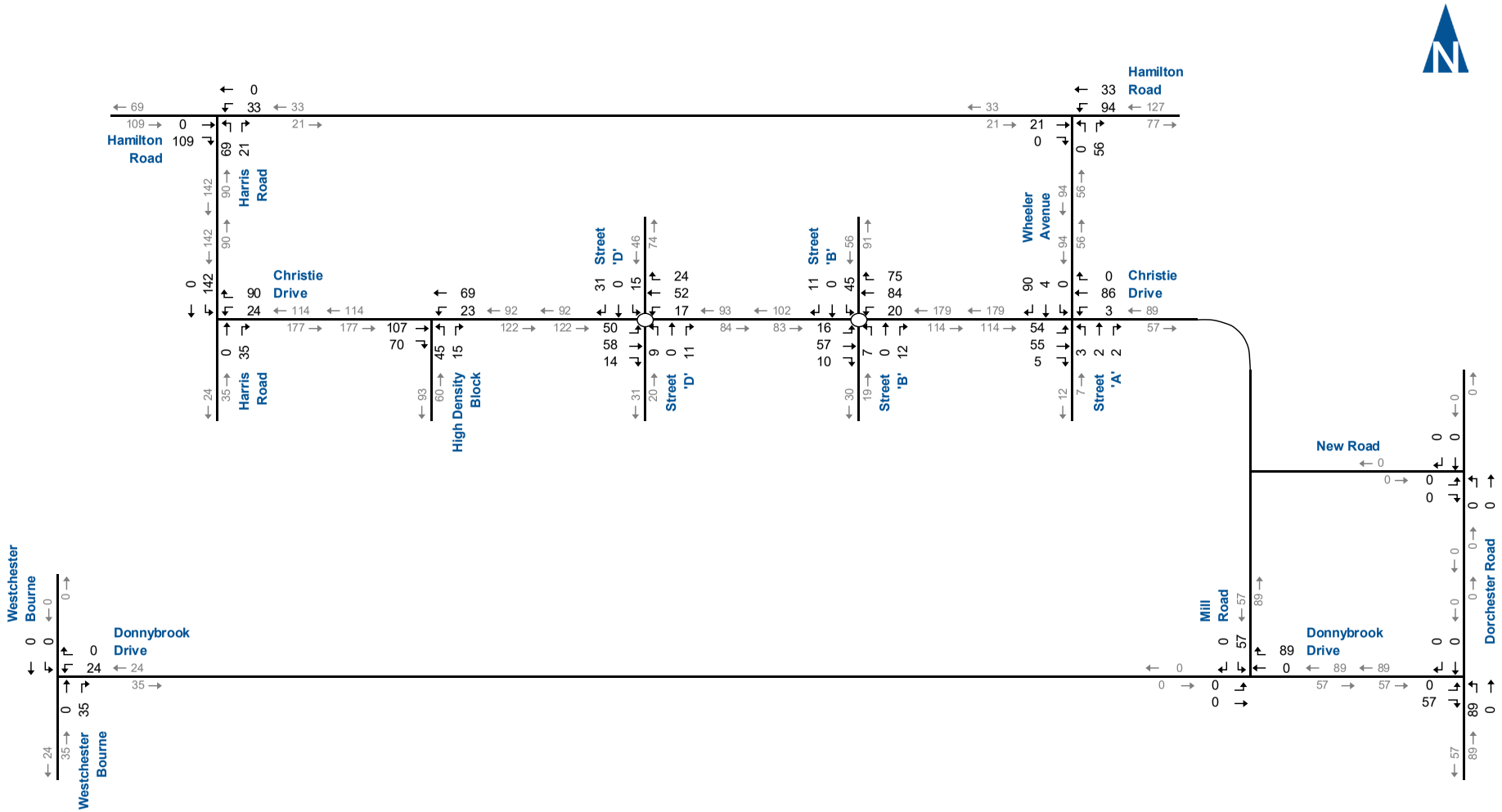
TABLE 3.2: TRIP DISTRIBUTION

Direction	Route	Distribution
East	Hamilton Road	35%
West	Hamilton Road	30%
South	Dorchester Road	25%
	Westchester Bourne	10%
Total		**100%**

Using the trip generation and trip distribution estimates, the site traffic was assigned to the road network. **Figure 3.2** and **Figure 3.3** illustrate the trip assignment for the site generated trips.



Site Generated Traffic
AM Peak Hour



Site Generated Traffic
PM Peak Hour

4 Evaluation of Future Traffic Conditions

The assessment of future traffic conditions contained in this section includes estimates of future background and total traffic and analysis for the 2030 horizon.

4.1 2030 Future Background Traffic Operations

4.1.1 Road Network Improvements

As shown in **Figure 2.1**, Donnybrook Drive and Westchester Bourne operates with a shared southbound through/left-turn lane under base year traffic conditions. Starting in 2023, a designated southbound left-turn lane has been provided at the intersection. The change in lane configuration has been captured in the following 2030 analyses.

Additionally, the 2030 background analysis includes the addition of a "New Road" (i.e., Boardwalk Way) connecting Mill Road with Dorchester Road approximately 670 metres south of Christie Drive/Bryon Avenue.

4.1.2 Generalized Background Traffic Volumes

To derive the 2030 generalized background road traffic volumes, a growth rate of 2% per annum compounded for 11 years (total growth of 24.3%) was applied to the existing traffic volumes. This growth rate was developed using historical traffic counts available on Middlesex County's website. Traffic counts on Westchester Bourne from 2015 were compared with the 2019 TMC conducted by Paradigm.

It is noted that previous TIAs for developments in the area used growth rates of 0.5% and 1%. However, to remain conservative, the growth rate of 2% was used.

4.1.3 Other Area Developments

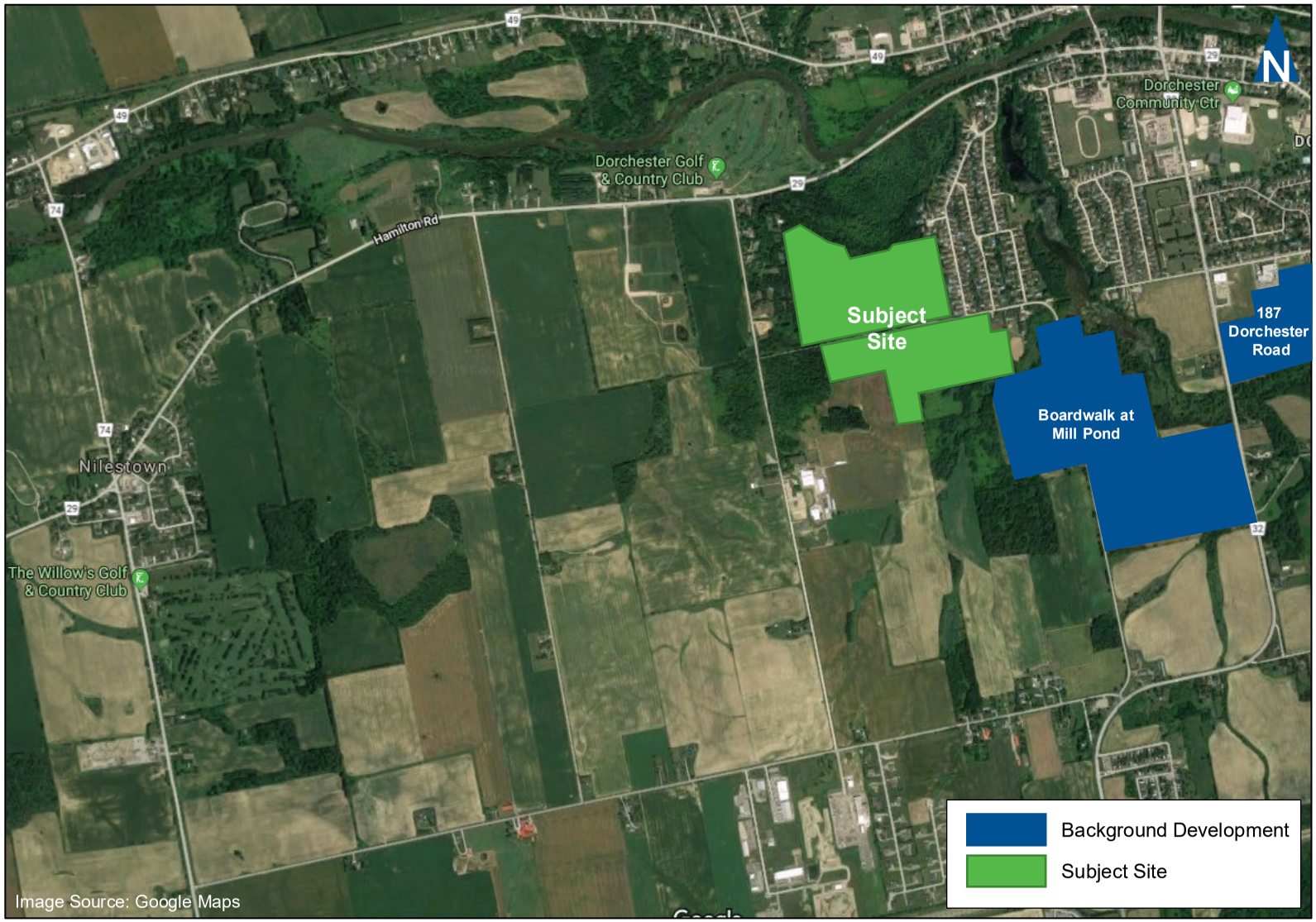
Several nearby future developments were included in the background traffic forecast over and above the generalized background traffic growth. The following is a summary of these developments:

- **Boardwalk at Millpond** – Located southeast of the subject site, south of Christie Drive with most units east of Mill Road and west of Dorchester Road. The development is proposed to yield approximately 580 units, including single family units and townhouses, with a build-out year beyond 2021; and
- **187 Dorchester Road** – Located south of Byron Avenue between Dorchester Road and Oakwood Drive. The

development is proposed to yield 191 units with some commercial space and expected to be fully build-out by 2023.

The other area development traffic was assigned to the study road network using the trip assignment detailed in the other area development TIAs. The location of each development is shown in **Figure 4.1**. The site trip assignment for each background development is included in **Appendix E.**

The background development traffic was added to the generalized traffic volume increase to achieve the total background traffic volumes. **Figure 4.2** and **Figure 4.3** illustrate the 2030 background AM and PM peak hour traffic volumes, respectively.



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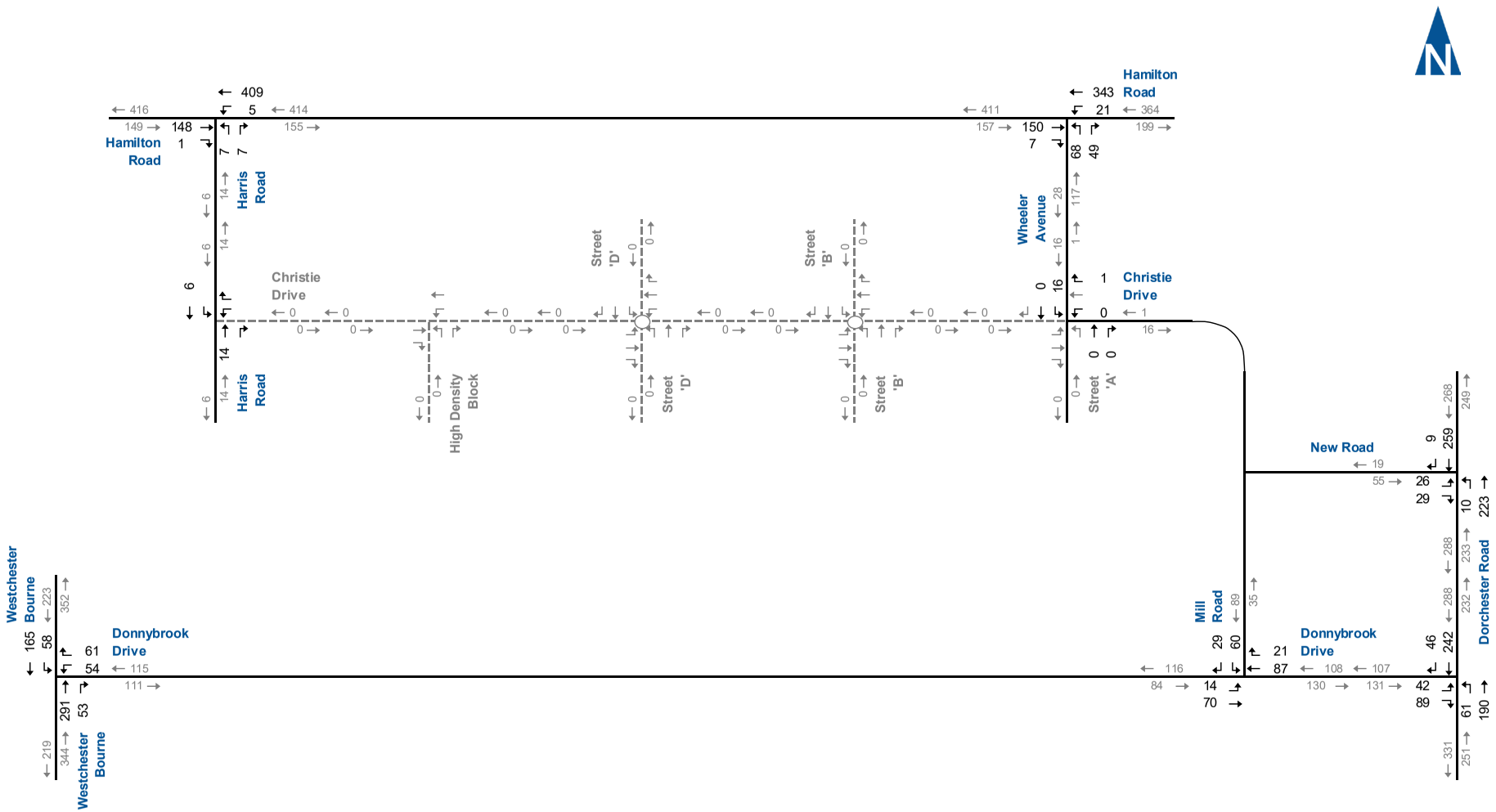
Background Development Locations

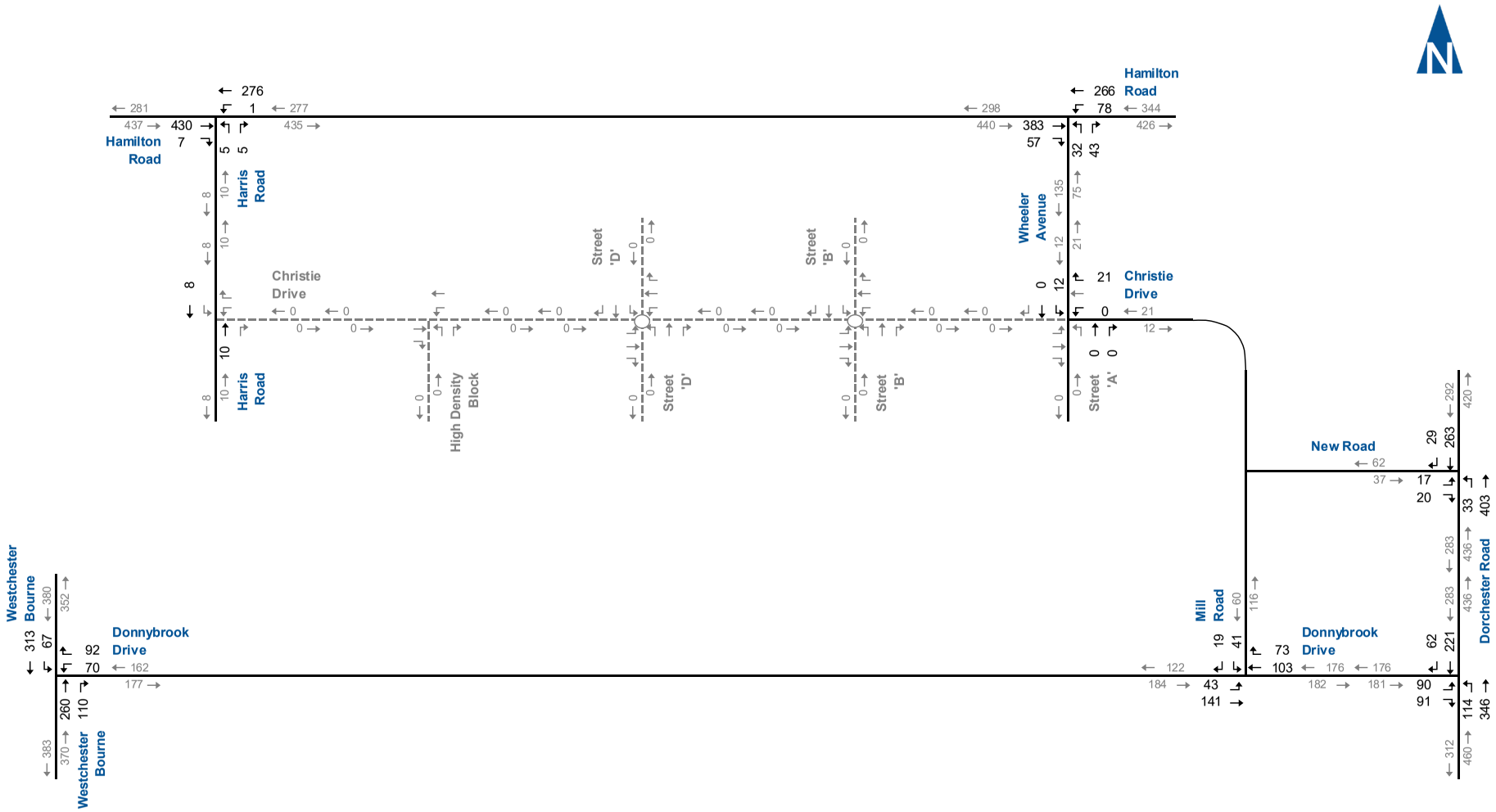
83 Christie Drive, Dorchester TIA Update
230556 (190317)

Figure 4.1



2030 Background Traffic Forecasts
AM Peak Hour

Figure 4.2



2030 Background Traffic Forecasts
PM Peak Hour

4.1.4 Traffic Operations

Based on the forecast 2030 background traffic volumes, operational analyses have been conducted using Synchro 12 to determine the weekday AM and PM peak hour operational performance of the study area intersections. It is noted that the default PHF of 0.92 was used in the Synchro analyses for future scenarios as opposed to the PHFs from the existing turning movement counts as they may not accurately reflect future traffic conditions.

The results of the 2030 background traffic analyses are summarized in **Table 4.1**.

As shown, all intersections are forecast to operate with acceptable levels of service and queue lengths.

The Synchro 12 reports are included in **Appendix F**.

TABLE 4.1: 2030 BACKGROUND OPERATIONS SUMMARY

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	Harris Rd & Hamilton Rd	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					
			Delay		0	>	**0**	<	8		**0**	11		>	**11**					
			V/C		0.00	>		<	0.00			0.03		>						
			Q		0	>		<	0			1		>						
	Wheeler Ave & Hamilton Rd	TWSC	LOS		A	A	**A**	<	A		**A**	B		>	**B**					
			Delay		0	0	**0**	<	8		**0**	13		>	**13**					
			V/C		0.00	0.00		<	0.02			0.22		>						
			Q		0	0		<	0			6		>						
			Stor.		-	30		<	-			-		>						
			Avail.		-	30		<	-			-		>						
	Westchester Bourne & Donnybrook Dr	TWSC	LOS					B		>	**B**		A	>	**A**	A	A		**A**	
			Delay					14		>	**14**		0	>	**0**	8	0		**2**	
			V/C					0.24		>			0.00	>		0.06	0.00			
			Q					8		>			0	>		2	0			
			Stor.					-		>			-	>		55	-			
			Avail.					-		>			-	>		53	-			
	Donnybrook Dr & Mill Rd	TWSC	LOS	<	A		**A**		A	>	**A**					A		>	**A**	
			Delay	<	8		**1**		0	>	**0**					10		>	**10**	
			V/C	<	0.01				0.00	>						0.12		>		
			Q	<	0				0	>						3		>		
	Dorchester Rd & Donnybrook Dr	TWSC	LOS	B		>	**B**					A	A		**A**		A	>	**A**	
			Delay	13		>	**13**					8	0		**2**		0	>	**0**	
			V/C	0.24		>						0.06	0.00				0.00	>		
			Q	8		>						2	0				0	>		
			Stor.	-		>						45	-				-	>		
			Avail.	-		>						43	-				-	>		
	Dorchester Road & "New Road"	TWSC	LOS	B		>	**B**					A	A		**A**		A	A	**A**	
			Delay	12		>	**12**					8	0		**0**		0	0	**0**	
			V/C	0.10		>						0.01	0.00				0.00	0.00		
			Q	2		>						0	0				0	0		
			Stor.	-		>						120	-				-	60		
			Avail.	-		>						120	-				-	60		
PM Peak Hour	Harris Rd & Hamilton Rd	TWSC	LOS		A	>	**A**	<	A		**A**	B		>	**B**					
			Delay		0	>	**0**	<	8		**0**	13		>	**13**					
			V/C		0.00	>		<	0.00			0.02		>						
			Q		0	>		<	0			1		>						
	Wheeler Ave & Hamilton Rd	TWSC	LOS		A	A	**A**	<	A		**A**	C		>	**C**					
			Delay		0	0	**0**	<	9		**2**	16		>	**15**					
			V/C		0.00	0.00		<	0.08			0.19		>						
			Q		0	0		<	2			5		>						
			Stor.		-	30		<	-			-		>						
			Avail.		-	30		<	-			-		>						
	Westchester Bourne & Donnybrook Dr	TWSC	LOS					C		>	**C**		A	>	**A**	A	A		**A**	
			Delay					18		>	**18**		0	>	**0**	8	0		**1**	
			V/C					0.39		>			0.00	>		0.06	0.00			
			Q					14		>			0	>		2	0			
			Stor.					-		>			-	>		55	-			
			Avail.					-		>			-	>		53	-			
	Donnybrook Dr & Mill Rd	TWSC	LOS	<	A		**A**		A	>	**A**					B		>	**B**	
			Delay	<	8		**2**		0	>	**0**					11		>	**11**	
			V/C	<	0.03				0.00	>						0.10		>		
			Q	<	1				0	>						2		>		
	Dorchester Rd & Donnybrook Dr	TWSC	LOS	C		>	**C**					A	A		**A**		A	>	**A**	
			Delay	22		>	**22**					8	0		**2**		0	>	**0**	
			V/C	0.48		>						0.10	0.00				0.00	>		
			Q	20		>						2	0				0	>		
			Stor.	-		>						45	-				-	>		
			Avail.	-		>						43	-				-	>		
	Dorchester Road & "New Road"	TWSC	LOS	B		>	**B**					A	A		**A**		A	A	**A**	
			Delay	13		>	**13**					8	0		**1**		0	0	**0**	
			V/C	0.08		>						0.03	0.00				0.00	0.00		
			Q	2		>						1	0				0	0		
			Stor.	-		>						120	-				-	60		
			Avail.	-		>						119	-				-	60		

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

4.2 2030 Future Total Traffic Operations

4.2.1 Road Network Improvements

In addition to the change in lane configuration at Westchester Bourne and Donnybrook Drive as well as the “New Road” (i.e., Boardwalk Way) between Mill Road and Dorchester Road, as included in the 2030 background analysis, the 2030 total traffic analysis includes the extension of Christie Drive from Wheeler Avenue to Harris Road. The three proposed site accesses connect to this extension.

4.2.2 Traffic Volumes

To establish the 2030 total traffic volumes, the traffic generated by the subject site at full development was added to the 2030 background traffic volumes.

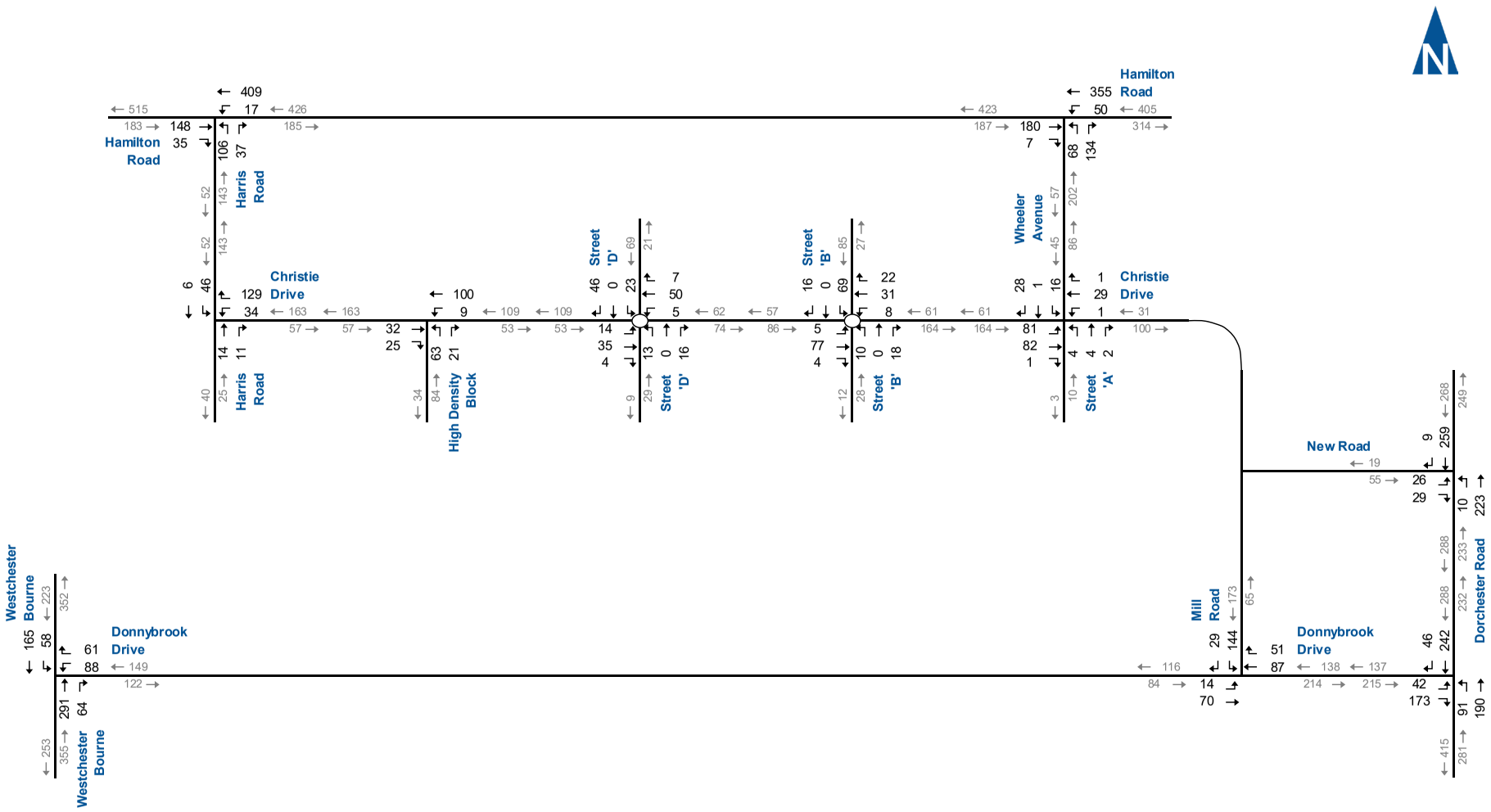
Figure 4.4 and **Figure 4.5** illustrate the AM and PM peak hour total traffic volumes for the 2030 horizon year, respectively.

4.2.3 Traffic Operations

Level of service analyses were conducted using Synchro 12 for the AM and PM peak hour total traffic conditions at the study area intersections. Additionally, ARCADY software was used to assess the operations of the internal roundabouts.

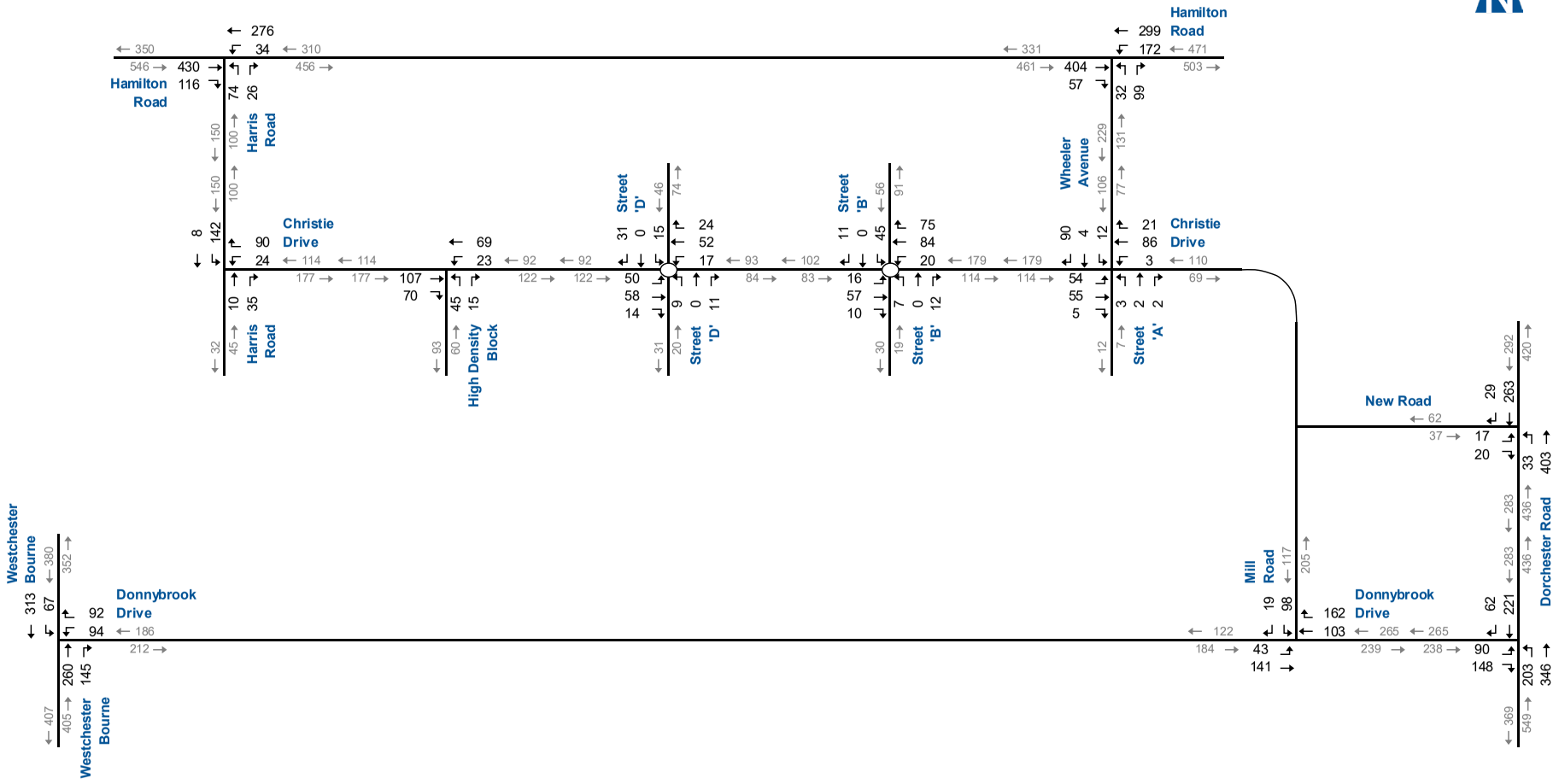
Table 4.2 and **Table 4.3** summarize the results of the AM and PM peak hour analysis, respectively. As shown, all intersections are forecast to operate with acceptable levels of service and queue lengths.

The Synchro 12 and ARCADY reports are included in **Appendix G**.



2030 Total Traffic Forecasts
AM Peak Hour

Figure 4.4



2030 Total Traffic Forecasts
PM Peak Hour

TABLE 4.2: 2030 TOTAL TRAFFIC OPERATIONS SUMMARY – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Harris Rd & Hamilton Rd	TWSC	LOS		A	>	A	<	A		A	C		>	C					
			Delay		0	>	0	<	8		0	16		>	16					
			V/C		0.00	>		<	0.01			0.33		>						
			Q		0	>		<	0			10		>						
	Wheeler Ave & Hamilton Rd	TWSC	LOS		A	A	A	<	A		A	B		>	B					
			Delay		0	0	0	<	8		1	14		>	14					
			V/C		0.00	0.00		<	0.04			0.36		>						
			Q		0	0		<	1			12		>						
			Stor.		-	30		<	-			-		>						
			Avail.		-	30		<	-			-		>						
	Street A/Wheeler Ave & Christie Dr	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	A	>	A	
			Delay	<	7	>	4	<	7	>	0	<	11	>	11	<	10	>	10	
			V/C	<	0.06	>		<	0.00	>		<	0.02	>		<	0.06	>		
			Q	<	2	>		<	0	>		<	1	>		<	2	>		
	Westchester Bourne & Donnybrook Dr	TWSC	LOS					C		>	C		A	>	A	A	A		A	
			Delay					16		>	16		0	>	0	8	0		2	
			V/C					0.34		>			0.00	>		0.06	0.00			
			Q					11		>			0	>		2	0			
			Stor.					-		>			-	>		55	-			
			Avail.					-		>			-	>		53	-			
	Donnybrook Dr & Mill Rd	TWSC	LOS	<	A		A		A	>	A					B		>	B	
			Delay	<	8		1		0	>	0					11		>	11	
			V/C	<	0.01				0.00	>						0.24		>		
			Q	<	0				0	>						7		>		
	Dorchester Rd & Donnybrook Dr	TWSC	LOS	B		>	B					A	A		A		A	>	A	
			Delay	15		>	15					8	0		3		0	>	0	
			V/C	0.39		>						0.09	0.00				0.00	>		
			Q	14		>						2	0				0	>		
			Stor.	-		>						45	-				-	>		
			Avail.	-		>						43	-				-	>		
	Dorchester Road & "New Road"	TWSC	LOS	B		>	B					A	A		A		A	A	A	
			Delay	12		>	12					8	0		0		0	0	0	
			V/C	0.10		>						0.01	0.00				0.00	0.00		
			Q	2		>						0	0				0	0		
			Stor.	-		>						120	-				-	60		
			Avail.	-		>						120	-				-	60		
	Harris Rd & Christie Dr	TWSC	LOS					A		>	A		A	>	A	<	A		A	
			Delay					9		>	9		0	>	0	<	7		6	
			V/C					0.18		>			0.00	>		<	0.03			
			Q					4		>			0	>		<	1			
	Street D & Christie Dr	RBT	LOS	<	A	>	A	<	A	>	A	<	A	>	A	<	A	>	A	A
			Delay	<	3	>	3	<	3	>	3	<	3	>	3	<	3	>	3	3
			V/C	<	0.04	>		<	0.05	>		<	0.02	>		<	0.06	>		
			Q	<	8	>		<	8	>		<	8	>		<	8	>		
	Street B & Christie Dr	RBT	LOS	<	A	>	A	<	A	>	A	<	A	>	A	<	A	>	A	A
			Delay	<	3	>	3	<	3	>	3	<	3	>	3	<	3	>	3	3
			V/C	<	0.07	>		<	0.05	>		<	0.02	>		<	0.07	>		
			Q	<	8	>		<	8	>		<	8	>		<	8	>		
	High Density Block & Christie Dr	TWSC	LOS		A	>	A	<	A		A	A		>	A					
			Delay		0	>	0	<	7		1	10		>	10					
			V/C		0.00	>		<	0.01			0.11		>						
			Q		0	>		<	0			3		>						

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

TABLE 4.3: 2030 TOTAL TRAFFIC OPERATIONS SUMMARY – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Harris Rd & Hamilton Rd	TWSC	LOS		A	>	A	<	A		A	C		>	C					
			Delay		0	>	0	<	9		1	21		>	21					
			V/C		0.00	>		<	0.04			0.32		>						
			Q		0	>		<	1			10		>						
	Wheeler Ave & Hamilton Rd	TWSC	LOS		A	A	A	<	A		A	C		>	C					
			Delay		0	0	0	<	9		3	20		>	20					
			V/C		0.00	0.00		<	0.17			0.37		>						
			Q		0	0		<	4			13		>						
			Stor.		-	30		<	-			-		>						
			Avail.		-	30		<	-			-		>						
	Street A/Wheeler Ave & Christie Dr	TWSC	LOS	<	A	>	A	<	A	>	A	<	B	>	B	<	A	>	A	
			Delay	<	8	>	4	<	7	>	0	<	11	>	11	<	10	>	10	
			V/C	<	0.04	>		<	0.00	>		<	0.01	>		<	0.13	>		
			Q	<	1	>		<	0	>		<	0	>		<	4	>		
	Westchester Bourne & Donnybrook Dr	TWSC	LOS					C		>	C		A	>	A	A	A		A	
			Delay					21		>	21		0	>	0	8	0		1	
			V/C					0.48		>			0.00	>		0.06	0.00			
			Q					20		>			0	>		2	0			
			Stor.					-		>			-	>		55	-			
			Avail.					-		>			-	>		53	-			
	Donnybrook Dr & Mill Rd	TWSC	LOS	<	A		A		A	>	A					B		>	B	
			Delay	<	8		2		0	>	0					13		>	13	
			V/C	<	0.04				0.00	>						0.22		>		
			Q	<	1				0	>						6		>		
	Dorchester Rd & Donnybrook Dr	TWSC	LOS	E		>	E					A	A		A		A	>	A	
			Delay	37		>	37					9	0		3		0	>	0	
			V/C	0.72		>						0.18	0.00				0.00	>		
			Q	40		>						5	0				0	>		
			Stor.	-		>						45	-				-	>		
			Avail.	-		>						40	-				-	>		
	Dorchester Road & "New Road"	TWSC	LOS	B		>	B					A	A		A		A	A	A	
			Delay	13		>	13					8	0		1		0	0	0	
			V/C	0.08		>						0.03	0.00				0.00	0.00		
			Q	2		>						1	0				0	0		
			Stor.	-		>						120	-				-	60		
			Avail.	-		>						119	-				-	60		
	Harris Rd & Christie Dr	TWSC	LOS					A		>	A		A	>	A	<	A		A	
			Delay					10		>	10		0	>	0	<	8		7	
			V/C					0.14		>			0.00	>		<	0.10			
			Q					4		>			0	>		<	2			
	Street D & Christie Dr	RBT	LOS	<	A	>	A	<	A	>	A	<	A	>	A	<	A	>	A	A
			Delay	<	3	>	3	<	3	>	3	<	3	>	3	<	3	>	3	3
			V/C	<	0.10	>		<	0.08	>		<	0.02	>		<	0.04	>		
			Q	<	8	>		<	8	>		<	8	>		<	8	>		
	Street B & Christie Dr	RBT	LOS	<	A	>	A	<	A	>	A	<	A	>	A	<	A	>	A	A
			Delay	<	3	>	3	<	3	>	3	<	3	>	3	<	3	>	3	3
			V/C	<	0.07	>		<	0.14	>		<	0.02	>		<	0.05	>		
			Q	<	8	>		<	8	>		<	8	>		<	8	>		
	High Density Block & Christie Dr	TWSC	LOS		A	>	A	<	A		A	B		>	B					
			Delay		0	>	0	<	8		2	10		>	10					
			V/C		0.00	>		<	0.02			0.09		>						
			Q		0	>		<	1			2		>						

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

5 Access Review and Active Transportation

5.1 Site Accesses

5.1.1 Left-Turn Lanes

The intersections of Christie Drive with the High-Density Block Driveway and Street A / Wheeler Avenue were assessed for the need for left-turn lanes on Christie Drive.

The intersections were assessed using MTO's left-turn lane warrant[2] for a two-lane cross-section at an unsignalized intersection with a design speed of 60 kilometres per hour (10 kilometres per hour over the posted speed limit). The need for a left-turn lane is a function of the number of left-turning vehicles, and the number of advancing and opposing vehicles. The warrant analysis indicated that left-turn lanes are not warranted on Christie Drive at the High-Density Block Driveway and Street A / Wheeler Avenue.

Appendix H contains the left-turn lane warrants.

5.1.2 Intersection Spacing

The Transportation Association of Canada's (TAC) Geometric Design Guidelines for Canadian Roads[3] (GDGCR) specifies that "along local roads, the minimum spacing between four-legged intersections is normally 60 m. Where the adjacent intersections are three-legged, a minimum spacing of 40 m is acceptable".

All site access intersections are spaced greater than 60 metres from their adjacent intersections on Christie Drive.

5.2 Active Transportation

The proposed multi-use trail (MUT) behind the residential lots facing Christie Drive, on north side, will provide a connection for cyclists and pedestrians traveling through the development. Within the development, the trail should be provided with adequate lighting and convenient access locations for pedestrians and cyclists.

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[2] Ontario Ministry of Transportation. 2017. *Ministry of Transportation of Ontario Design Supplement for Transportation Association of Canada's Geometric Design Guide for Canadian Roads.* October 2023.

[3] Transportation Association of Canada. 2017. *Geometric Design Guide for Canadian Roads. Section 9.4.2.3*. June 2017.

6 Conclusions and Recommendations

6.1 Conclusions

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

- Under existing conditions, all study area intersections are operating at acceptable levels of service and queue lengths during the AM and PM peak hours.
- When completed, the site is forecast to generate a total of 448 AM peak hour trips and 587 PM peak hour trips.
- Under 2030 background traffic conditions, all study area intersections are forecast to operate with acceptable levels of service and queue lengths.
- Under 2030 total traffic conditions, all study area intersections are forecast to operate with acceptable levels of service and queue lengths.
- The proposed site access intersections of Christie Drive with Street D and Street B are forecast to operate with acceptable levels of service.
- No left-turn lanes are warranted on Christie Drive at the High-Density Block Driveway and at Street A / Wheeler Avenue. Additionally, all site access intersections are adequately spaced from one another.
- The proposed multi-use trail (MUT) within the subdivision should be provided with adequate lighting and convenient access locations for pedestrians and cyclists.

6.2 Recommendations

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

Appendix A

Summary of Public Comments and Responses

Summary of Public Comments	Stantec's Response	Paradigm's Clarifications/Responses
The build-out of the development will result in increased traffic on nearby roads including Wheeler Avenue, Christie Drive, Mill Street, Tiner Street, and Boardwalk Way, all of which were not designed to handle high volumes. Has consideration been given to route traffic away from Tiner Estates and the Boardwalk Subdivision?		As shown in the TIA, the study area road system is conducive to distributing traffic from this development among multiple roadways, thereby reducing the impact on any specific road. Overall, the total traffic volumes are within roadway capacities, and traffic operations show acceptable levels of service. It is also noted that Street D and Street B in the development will be extended to connect with a future development to the south. This will provide an alternative route to the south and divert some traffic away from Christie Drive and Mill Road.
The projected daily Annual Average Daily Traffic (AADT) was not included in the TIA, which is concerning given the ~40-year-old infrastructure in our community, where such data is critical for planning and assessing the impact on aging roads and water mains. Wheeler Avenue is expected to carry ~40% of the total subdivision traffic, equivalent to 1,794-2,242 vehicles per day, compared to about 300 today – an increase of 7-8.5 times current volumes.	The resident's calculations are reasonable and directionally consistent with expected daily traffic for a development of this scale. However, it is important to clarify that AADT is not the basis for evaluating capacity, operations or required road improvements associated with developments. Standard practice – and the basis of all provincial and municipal traffic guidelines – is to assess peak-hour conditions, not total daily volumes. While daily volumes can help with communicating impacts to residents,	As Stantec have indicated in their response, while the AADTs may be useful in providing a broader context for comparison, the peak-hour analysis in the TIA, is the basis for evaluating road capacity and identifying potential need for road improvements. AADTs are calculated by multiplying two-way PM peak hour traffic volume by a factor of 10. The AADT estimates for Wheeler Avenue are: - Existing Traffic Conditions: 270 – 1180 - 2030 Background Traffic Conditions: 330 – 2100 - 2030 Total Traffic Conditions: 1830 – 3600

Why was the AADT not apart of the TIA when it illustrates the daily impact of the full project on our existing streets and infrastructure?	they do not change the technical conclusions regarding the function of Wheeler Avenue or the adequacy of the road network. To improve clarity and address the resident's concerns, the applicant could provide a simple AADT summary using the trip generation and assignment assumptions already applied in the TIA but note clearly that the road and intersection design recommendations remain grounded in peak-hour analysis, consistent with accepted practice.	In Section 3.3, the traffic distribution between Wheeler Avenue and Christie Drive has been adjusted to be almost equal based on the east/west split of development traffic assigned to Hamilton Road.
The TIA does not predict any increase traffic on the Christie Drive extension to Harris Road from the neighbouring Boardwalk housing development. This is a significant oversight since the Boardwalk development will likely add traffic on Harris Road and use the Christie Drive extension as a throughfare.		The background development traffic has been added to the study road network according to the trip assignment used in their respective TIAs.
Traffic calming measures within the Acorn Valley development and surrounding neighbourhoods are needed to protect		Traffic measures will be implemented as appropriate in consultation with the Municipality.

residents from the increased traffic.		
The number of units presented in the TIA is not consistent with the FSR. Please clarify if the FSR and TIA are based on the latest Draft Plan.	To remove any confusion, the TIA could be updated to align with the FSR, or alternatively, the TIA could assume a land use scenario generating the highest number of units possible and could then be characterized as a significantly conservative estimate of traffic operations in the future build conditions. Build out phasing and associated analysis should be provided with any update of the TIA.	This TIA Update reflects the latest Draft Plan which consists of 147 single family units, 46 semi-detached units, 21 street townhouse units, 540 low/medium-density residential units, and 589 high-density apartment units.
The projected 1,904-2,380 daily ADT on Wheeler Avenue from Acorn Valley will significantly increase vibrational stress and exacerbate existing cracks, hastening infrastructure failure. A Pavement Condition Index for Wheeler Avenue and a Watermain Condition Assessment for the line from Mill Road to Christie Drive, including Wheeler Avenue should be completed.	The resident's request for a Pavement Condition Index, a Watermain Condition Assessment and other long-term infrastructure renewal needs falls outside the scope of a TIA and are more appropriately addressed through the Municipality's asset management and capital planning process.	We agree that these requests fall outside the scope of a TIA and would be better addressed through the Municipality's asset management and capital planning processes.
The proposed 588-unit, 6-storey apartment block is not a policy-compliant intensification. The high-density block will add a total of 740 daily trips on		As noted, the assignment of traffic to Wheeler Avenue has been revised in this update. As noted in the TIA and in this matrix, the study road system

Wheeler Avenue (a local road (vs. arterial, connector)). Tiner Road and Wheeler Avenue should be permanently removed as access points for the high-density block. All traffic must be redirected to a new, funded arterial/collector road (in addition to Harris Road) with full municipal acceptance. Local roads cannot support the daily traffic from high-density alone. Direct arterial access is needed.		provides an appropriate road network for efficiently distributing both existing and new development traffic. While new development traffic benefit from existing roads, existing developments also benefit from intersection improvements undertaken as part of the development.

Appendix B

Pre-Study Consultation

Kayla Royce

From: Chris Traini <ctraini@middlesex.ca>
Sent: August 16, 2019 11:13 AM
To: Kayla Royce; Mike LeBlanc
Cc: Rajan Philips; Deren Lyle
Subject: RE: 190317 (83 Christie Dr) - Scope Request

That would be my preference, both for the intersection analysis and the traffic counts. Thank you Kayla.
Chris

From: Kayla Royce [mailto:kroyce@ptsl.com]
Sent: Friday, August 16, 2019 11:12 AM
To: Chris Traini <ctraini@middlesex.ca>; Mike LeBlanc <mleblanc@thamescentre.on.ca>
Cc: Rajan Philips <rphilips@ptsl.com>; Deren Lyle <dlyle@cjdleng.com>
Subject: [EXTERNAL] RE: 190317 (83 Christie Dr) - Scope Request

Hi Chris,

Thank you for the quick response.

We will include the intersection of **Donnybrook Road and Westchester Bourne** in our analysis (and exclude Hamilton Road and Wester Bourne Road). – **please advise if this is acceptable**

Would it be acceptable to the County if we conducted the counts in August? If needed, we could apply a seasonal adjustment.

Kayla Royce, MEng, P.Eng.
Transportation Engineer

Paradigm Transportation Solutions Limited
p: 416.479.9684 x508

From: Chris Traini <ctraini@middlesex.ca>
Sent: August 16, 2019 10:17 AM
To: Kayla Royce <kroyce@ptsl.com>; Mike LeBlanc <mleblanc@thamescentre.on.ca>
Cc: Rajan Philips <rphilips@ptsl.com>; Deren Lyle <dlyle@cjdleng.com>
Subject: RE: 190317 (83 Christie Dr) - Scope Request

Hi Kayla,

Since Hamilton Road and Westchester Bourne is a signalized intersection I would prefer that the analysis include Donnybrook Road and Westchester Bourne as originally proposed.

The approximate ten year planning window of 2030 is acceptable, as long as the full build subdivision traffic is being considered.

The County would rely on Paradigm to estimate a reasonable traffic growth rate.

The County traffic count data is available on our website www.middlesex.ca and we do not collect traffic counts at specific intersections.

If you have any other questions please let me know.

Chris Traini, P.Eng.
County Engineer
County of Middlesex
ctraini@middlesex.ca
(519) 434-7321 ext. 2264

From: Kayla Royce [mailto:kroyce@ptsl.com]
Sent: Thursday, August 15, 2019 3:07 PM
To: Mike LeBlanc <mleblanc@thamescentre.on.ca>; Chris Traini <ctraini@middlesex.ca>
Cc: Rajan Philips <rphilips@ptsl.com>; Deren Lyle <dlyle@cjdleng.com>
Subject: [EXTERNAL] 190317 (83 Christie Dr) - Scope Request

Hi Chris and Mike,

Paradigm has been retained to conduct a Transportation Impact Assessment for a proposed residential subdivision development located north and south of Christie Drive to the east of Harris Road in Dorchester (83 Christie Drive).
500 residential units are proposed along with three accesses to the development– all accesses are to be four-legged intersections on Christie Drive. One access will be in line with the existing Wheeler Ave.
See **attached** for the proposed development concept plan.

Our proposed scope was developed using the City of London TIA Guidelines and takes into account the following:

-

Proposed TIS Scope (for your review and approval)

Study Area Intersections:

- County staff have suggested seven intersections (per **attached** sketch) for analysis. Based on our preliminary review, the subject lands are likely to have significant trip distribution to/from west on Hamilton Road (29) rather than west on Hwy 401 via Donnybrook/Westchester Bourne (74). For this

reason, we are suggesting to include the intersection of Hamilton Road & Westchester Bourne in the analysis and exclude the Westchester/Donnybrook intersection and Westchester/Hwy 401 ramp intersection. **Please advise if this is acceptable.**

The proposed **existing** study area intersections are:

- Wheeler Ave and Hamilton Rd (unsignalized)
- Harris Road and Hamilton Rd (unsignalized)
- Donnybrook Dr and Dorchester Rd (unsignalized)
- Donnybrook Dr and Mill Rd?? (unsignalized) (can this be counted along with Donnybrook and Dorchester?
- Hamilton Road (County Road 29) and Westchester Bourne (County rd 74) (unsignalized)
- Christie Dr and Wheeler Ave – a future access (unsignalized)

- Two future roadway intersections:
  - Street A and Dorchester (south of Christie and north of Donnybrook – see intersection 4 on attached intersection sketch)
  - Harris Road and Christie Drive
- Two proposed site accesses along Christie Dr

Transportation Data:

- **Please advise** of available traffic data for the study area intersections.
- If no recent count data is available, we will conduct 8-hour TMCs at the study area intersections.

Traffic Forecasting:

- Forecasting will be done for weekday AM and PM peak hours.
- The ten year horizon (2029 or 2030) is suggested for horizon year for analysis. (The development is in preliminary planning stages. So, we are suggesting a single 10-year (2029 or 2030) horizon for long term traffic forecasting and analysis. Interim TIS updates can be provided later once development phasing is known.) **Please advise if this is acceptable.**
- **Please advise** regarding an annual growth rate to be applied to represent general traffic growth,
- We will include traffic from the Boardwalk development (Mill Pond lands) and the 187 Dorchester Rd development in our background traffic analysis
- **Please advise** if there are any other proposed or in-stream developments that impact our study area intersections that should also be included in our background analysis.
- Trip generation will be based on the appropriate land use categories and data in the 10th Edition of the ITE Trip Generation Manual (relevant data sheets from the manual will be included in the appendices).
- Trip distribution will be estimated based on the existing traffic patterns in the study area.
- Background traffic will be combined with site traffic to estimate total traffic forecasts for the horizon year.

Analysis:

- Synchro 9 software will be used to conduct an operational analysis for the AM and PM peak hours at the study area intersections for existing conditions, horizon year background and total forecasts.
- The need for road improvements (e.g. provision of auxiliary turn lanes) and/or modifications to traffic control devices) to address any deficiencies will be determined. An assessment of whether these measures are required due to non-site traffic (i.e. Existing or Future Background) or the increase in traffic resulting from the proposed development will be completed.

Documentation:

- Hard copies and PDF of TIA report with technical appendices. Synchro files provided as necessary.

In addition to the information requests included in the points above, please advise if the scope is sufficient or where it should be modified.

Regards,

Kayla Royce, MEng, P.Eng.
Transportation Engineer

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Appendix C-1

2019 Turning Movement Count Data

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Christie Drive & Wheeler Avenue
Site Code:
Start Date: 08/27/2019

Direction (Westbound)

Start Time	Lights	Mediums	Articulated Trucks	Bicycles on Road	Total
6:00 AM	0	0	0	0	0
6:15 AM	0	0	0	0	0
6:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	0	0	0	0
7:15 AM	1	0	0	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1
8:45 AM	0	0	0	0	0
12:00 PM	0	0	0	0	0
12:15 PM	2	0	0	0	2
12:30 PM	0	1	0	0	1
12:45 PM	0	0	0	0	0
1:00 PM	1	0	0	0	1
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	2	0	0	0	2
3:00 PM	1	0	0	0	1
3:15 PM	1	0	0	0	1
3:30 PM	3	0	0	0	3
3:45 PM	6	0	0	0	6
4:00 PM	1	0	0	0	1
4:15 PM	6	0	0	0	6
4:30 PM	1	0	0	0	1
4:45 PM	2	0	0	0	2
5:00 PM	2	0	0	0	2
5:15 PM	0	0	0	0	0
5:30 PM	3	0	0	0	3
5:45 PM	2	0	0	0	2
Total	35	1	0	0	36
Total %	97.2	2.8	0.0	0.0	100.0
AM Times	7:00 AM	6:00 AM	6:00 AM	6:00 AM	7:00 AM
AM Peaks	1	0	0	0	1
PM Times	3:30 PM	12:00 PM	12:00 PM	3:45 PM	3:45 PM
PM Peaks	16	1	0	0	14

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Christie Drive & Wheeler Avenue
Site Code:
Start Date: 08/27/2019

Direction (Eastbound)

Start Time	Lights	Mediums	Articulated Trucks	Bicycles on Road	Total
6:00 AM	1	0	0	0	1
6:15 AM	1	0	0	0	1
6:30 AM	1	0	0	0	1
6:45 AM	1	0	0	0	1
7:00 AM	5	0	0	0	5
7:15 AM	2	0	0	0	2
7:30 AM	2	0	0	0	2
7:45 AM	2	0	0	0	2
8:00 AM	1	0	0	0	1
8:15 AM	1	0	0	0	1
8:30 AM	2	0	0	0	2
8:45 AM	2	0	0	0	2
12:00 PM	1	0	0	0	1
12:15 PM	2	0	0	0	2
12:30 PM	2	0	0	0	2
12:45 PM	0	0	0	0	0
1:00 PM	1	0	0	0	1
1:15 PM	0	0	0	0	0
1:30 PM	2	0	0	0	2
1:45 PM	0	0	0	0	0
3:00 PM	2	0	0	0	2
3:15 PM	1	0	0	0	1
3:30 PM	2	0	0	0	2
3:45 PM	1	0	0	0	1
4:00 PM	2	0	0	0	2
4:15 PM	0	0	0	0	0
4:30 PM	3	0	0	2	5
4:45 PM	0	0	0	0	0
5:00 PM	2	0	0	0	2
5:15 PM	3	0	0	0	3
5:30 PM	1	0	0	0	1
5:45 PM	1	0	0	0	1
Total	47	0	0	2	49
Total %	95.9	0.0	0.0	4.1	100.0
AM Times	7:00 AM	6:00 AM	6:00 AM	6:00 AM	7:00 AM
AM Peaks	11	0	0	0	11
PM Times	3:30 PM	12:00 PM	12:00 PM	3:45 PM	3:45 PM
PM Peaks	5	0	0	2	8

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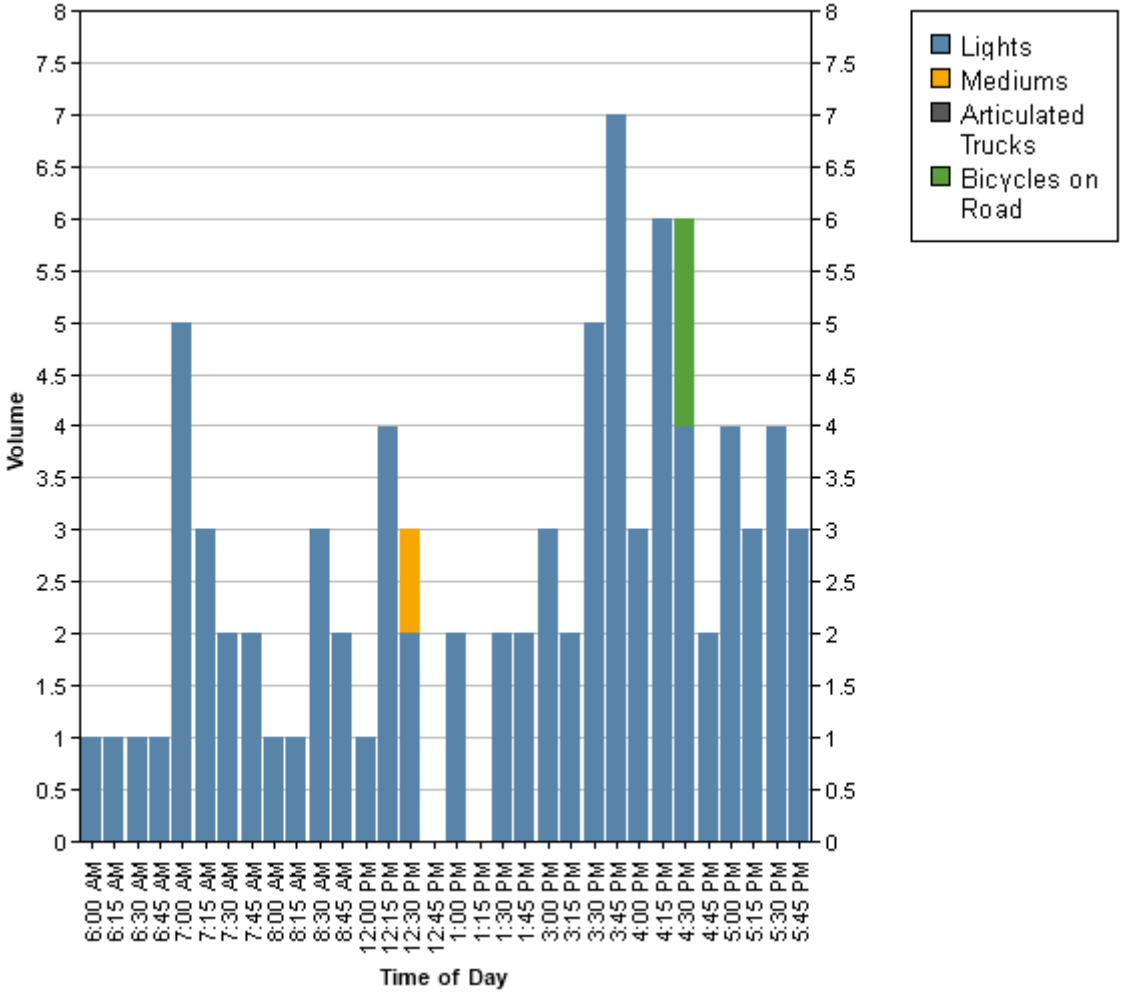
5A-150 Pinebush Rd

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

Count Name: Christie Drive & Wheeler Avenue
Site Code:
Start Date: 08/27/2019



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Christie Drive & Wheeler Avenue
Site Code:
Start Date: 08/27/2019

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019

Turning Movement Data

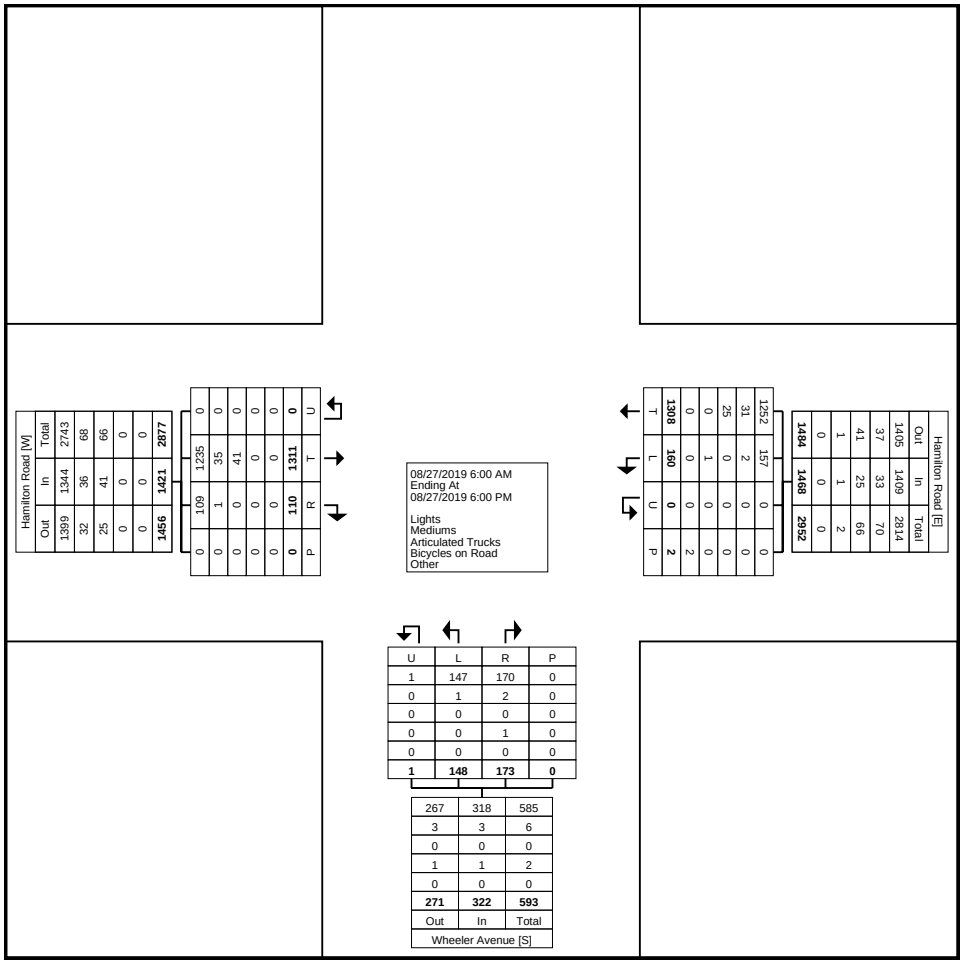
Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Wheeler Avenue Northbound					Int. Total
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
6:00 AM	13	1	0	0	14	0	13	0	0	13	3	0	0	0	3	30
6:15 AM	30	0	0	0	30	1	17	0	0	18	8	3	1	0	12	60
6:30 AM	26	1	0	0	27	2	31	0	0	33	9	3	0	0	12	72
6:45 AM	13	1	0	0	14	0	33	0	0	33	5	2	0	0	7	54
Hourly Total	82	3	0	0	85	3	94	0	0	97	25	8	1	0	34	216
7:00 AM	18	1	0	0	19	2	38	0	0	40	7	6	0	0	13	72
7:15 AM	34	1	0	0	35	3	68	0	0	71	7	3	0	0	10	116
7:30 AM	16	0	0	0	16	1	70	0	0	71	14	8	0	0	22	109
7:45 AM	31	0	0	0	31	1	33	0	0	34	10	5	0	0	15	80
Hourly Total	99	2	0	0	101	7	209	0	0	216	38	22	0	0	60	377
8:00 AM	20	1	0	0	21	4	59	0	0	63	5	4	0	0	9	93
8:15 AM	35	3	0	0	38	1	43	0	0	44	9	6	0	0	15	97
8:30 AM	23	1	0	0	24	6	46	0	0	52	5	8	0	0	13	89
8:45 AM	39	0	0	0	39	3	41	0	0	44	1	10	0	0	11	94
Hourly Total	117	5	0	0	122	14	189	0	0	203	20	28	0	0	48	373
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	34	1	0	0	35	3	43	0	0	46	4	5	0	0	9	90
12:15 PM	41	3	0	0	44	5	38	0	0	43	2	8	0	0	10	97
12:30 PM	33	5	0	0	38	5	39	0	0	44	2	6	0	0	8	90
12:45 PM	32	4	0	0	36	3	27	0	0	30	6	4	0	0	10	76
Hourly Total	140	13	0	0	153	16	147	0	0	163	14	23	0	0	37	353
1:00 PM	31	2	0	0	33	7	37	0	0	44	2	4	0	0	6	83
1:15 PM	40	1	0	0	41	1	36	0	0	37	3	8	0	0	11	89
1:30 PM	49	4	0	0	53	7	32	0	0	39	4	3	0	0	7	99
1:45 PM	39	3	0	0	42	6	48	0	0	54	3	4	0	0	7	103
Hourly Total	159	10	0	0	169	21	153	0	0	174	12	19	0	0	31	374
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	40	3	0	0	43	2	33	0	0	35	5	8	0	0	13	91
3:15 PM	45	3	0	0	48	8	63	0	0	71	1	4	0	0	5	124
3:30 PM	55	8	0	0	63	9	38	0	0	47	4	7	0	0	11	121
3:45 PM	75	3	0	0	78	7	46	0	0	53	0	4	0	0	4	135
Hourly Total	215	17	0	0	232	26	180	0	0	206	10	23	0	0	33	471
4:00 PM	45	6	0	0	51	13	47	0	0	60	3	8	0	0	11	122
4:15 PM	59	11	0	0	70	3	48	0	1	51	3	8	0	0	11	132
4:30 PM	70	7	0	0	77	12	35	0	1	47	7	9	0	0	16	140
4:45 PM	60	11	0	0	71	9	45	0	0	54	4	5	0	0	9	134

Hourly Total	234	35	0	0	269	37	175	0	2	212	17	30	0	0	47	528
5:00 PM	59	3	0	0	62	12	38	0	0	50	4	5	0	0	9	121
5:15 PM	68	4	0	0	72	5	47	0	0	52	4	7	0	0	11	135
5:30 PM	70	8	0	0	78	12	48	0	0	60	2	3	0	0	5	143
5:45 PM	68	10	0	0	78	7	28	0	0	35	2	5	0	0	7	120
Hourly Total	265	25	0	0	290	36	161	0	0	197	12	20	0	0	32	519
Grand Total	1311	110	0	0	1421	160	1308	0	2	1468	148	173	1	0	322	3211
Approach %	92.3	7.7	0.0	-	-	10.9	89.1	0.0	-	-	46.0	53.7	0.3	-	-	-
Total %	40.8	3.4	0.0	-	44.3	5.0	40.7	0.0	-	45.7	4.6	5.4	0.0	-	10.0	-
Lights	1235	109	0	-	1344	157	1252	0	-	1409	147	170	1	-	318	3071
% Lights	94.2	99.1	-	-	94.6	98.1	95.7	-	-	96.0	99.3	98.3	100.0	-	98.8	95.6
Mediums	35	1	0	-	36	2	31	0	-	33	1	2	0	-	3	72
% Mediums	2.7	0.9	-	-	2.5	1.3	2.4	-	-	2.2	0.7	1.2	0.0	-	0.9	2.2
Articulated Trucks	41	0	0	-	41	0	25	0	-	25	0	0	0	-	0	66
% Articulated Trucks	3.1	0.0	-	-	2.9	0.0	1.9	-	-	1.7	0.0	0.0	0.0	-	0.0	2.1
Bicycles on Road	0	0	0	-	0	1	0	0	-	1	0	1	0	-	1	2
% Bicycles on Road	0.0	0.0	-	-	0.0	0.6	0.0	-	-	0.1	0.0	0.6	0.0	-	0.3	0.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	2	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019



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: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019

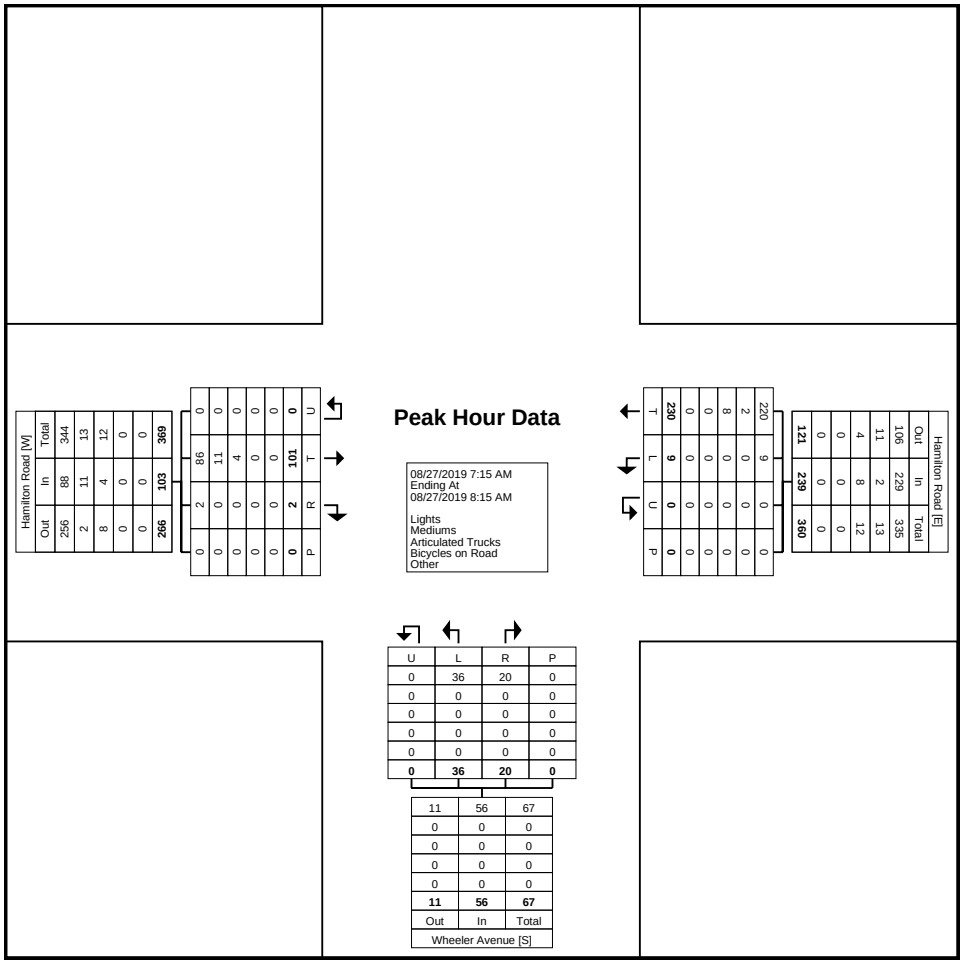
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Wheeler Avenue Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
7:15 AM	34	1	0	0	35	3	68	0	0	71	7	3	0	0	10	116
7:30 AM	16	0	0	0	16	1	70	0	0	71	14	8	0	0	22	109
7:45 AM	31	0	0	0	31	1	33	0	0	34	10	5	0	0	15	80
8:00 AM	20	1	0	0	21	4	59	0	0	63	5	4	0	0	9	93
Total	101	2	0	0	103	9	230	0	0	239	36	20	0	0	56	398
Approach %	98.1	1.9	0.0	-	-	3.8	96.2	0.0	-	-	64.3	35.7	0.0	-	-	-
Total %	25.4	0.5	0.0	-	25.9	2.3	57.8	0.0	-	60.1	9.0	5.0	0.0	-	14.1	-
PHF	0.743	0.500	0.000	-	0.736	0.563	0.821	0.000	-	0.842	0.643	0.625	0.000	-	0.636	0.858
Lights	86	2	0	-	88	9	220	0	-	229	36	20	0	-	56	373
% Lights	85.1	100.0	-	-	85.4	100.0	95.7	-	-	95.8	100.0	100.0	-	-	100.0	93.7
Mediums	11	0	0	-	11	0	2	0	-	2	0	0	0	-	0	13
% Mediums	10.9	0.0	-	-	10.7	0.0	0.9	-	-	0.8	0.0	0.0	-	-	0.0	3.3
Articulated Trucks	4	0	0	-	4	0	8	0	-	8	0	0	0	-	0	12
% Articulated Trucks	4.0	0.0	-	-	3.9	0.0	3.5	-	-	3.3	0.0	0.0	-	-	0.0	3.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019



Turning Movement Peak Hour Data Plot (7:15 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019

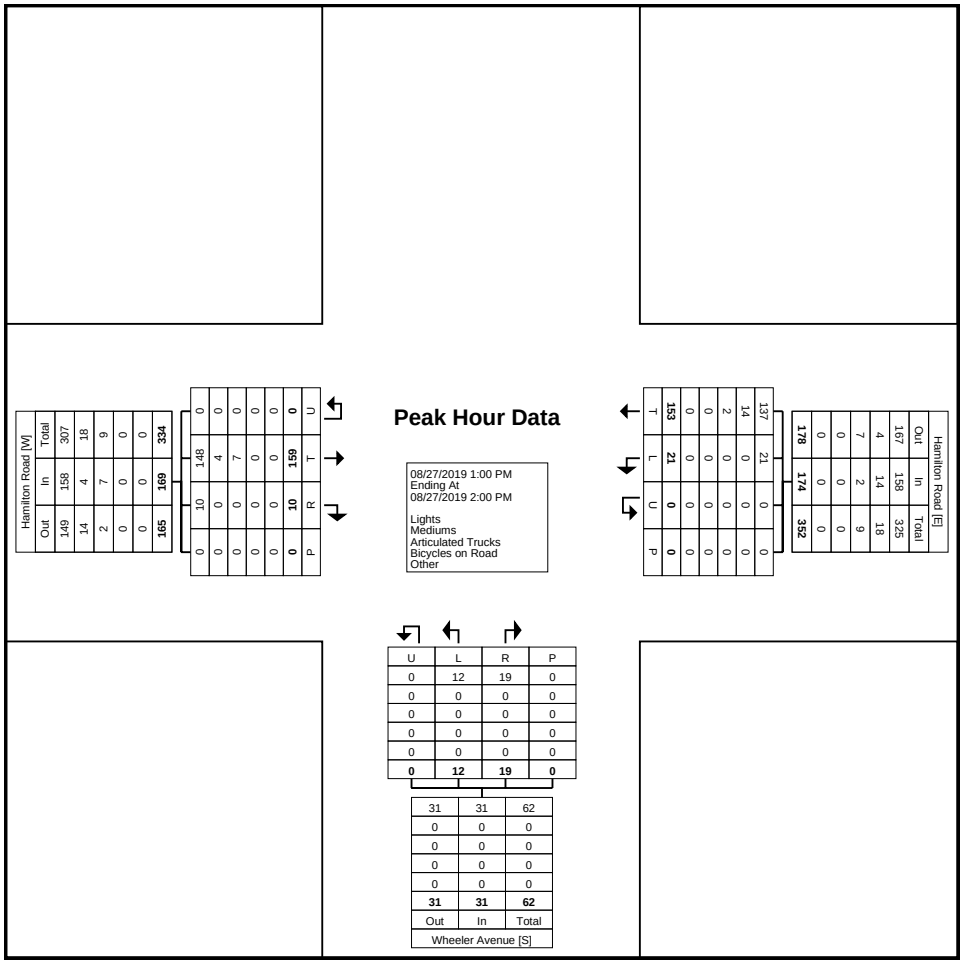
Turning Movement Peak Hour Data (1:00 PM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Wheeler Avenue Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
1:00 PM	31	2	0	0	33	7	37	0	0	44	2	4	0	0	6	83
1:15 PM	40	1	0	0	41	1	36	0	0	37	3	8	0	0	11	89
1:30 PM	49	4	0	0	53	7	32	0	0	39	4	3	0	0	7	99
1:45 PM	39	3	0	0	42	6	48	0	0	54	3	4	0	0	7	103
Total	159	10	0	0	169	21	153	0	0	174	12	19	0	0	31	374
Approach %	94.1	5.9	0.0	-	-	12.1	87.9	0.0	-	-	38.7	61.3	0.0	-	-	-
Total %	42.5	2.7	0.0	-	45.2	5.6	40.9	0.0	-	46.5	3.2	5.1	0.0	-	8.3	-
PHF	0.811	0.625	0.000	-	0.797	0.750	0.797	0.000	-	0.806	0.750	0.594	0.000	-	0.705	0.908
Lights	148	10	0	-	158	21	137	0	-	158	12	19	0	-	31	347
% Lights	93.1	100.0	-	-	93.5	100.0	89.5	-	-	90.8	100.0	100.0	-	-	100.0	92.8
Mediums	4	0	0	-	4	0	14	0	-	14	0	0	0	-	0	18
% Mediums	2.5	0.0	-	-	2.4	0.0	9.2	-	-	8.0	0.0	0.0	-	-	0.0	4.8
Articulated Trucks	7	0	0	-	7	0	2	0	-	2	0	0	0	-	0	9
% Articulated Trucks	4.4	0.0	-	-	4.1	0.0	1.3	-	-	1.1	0.0	0.0	-	-	0.0	2.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019



Turning Movement Peak Hour Data Plot (1:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019

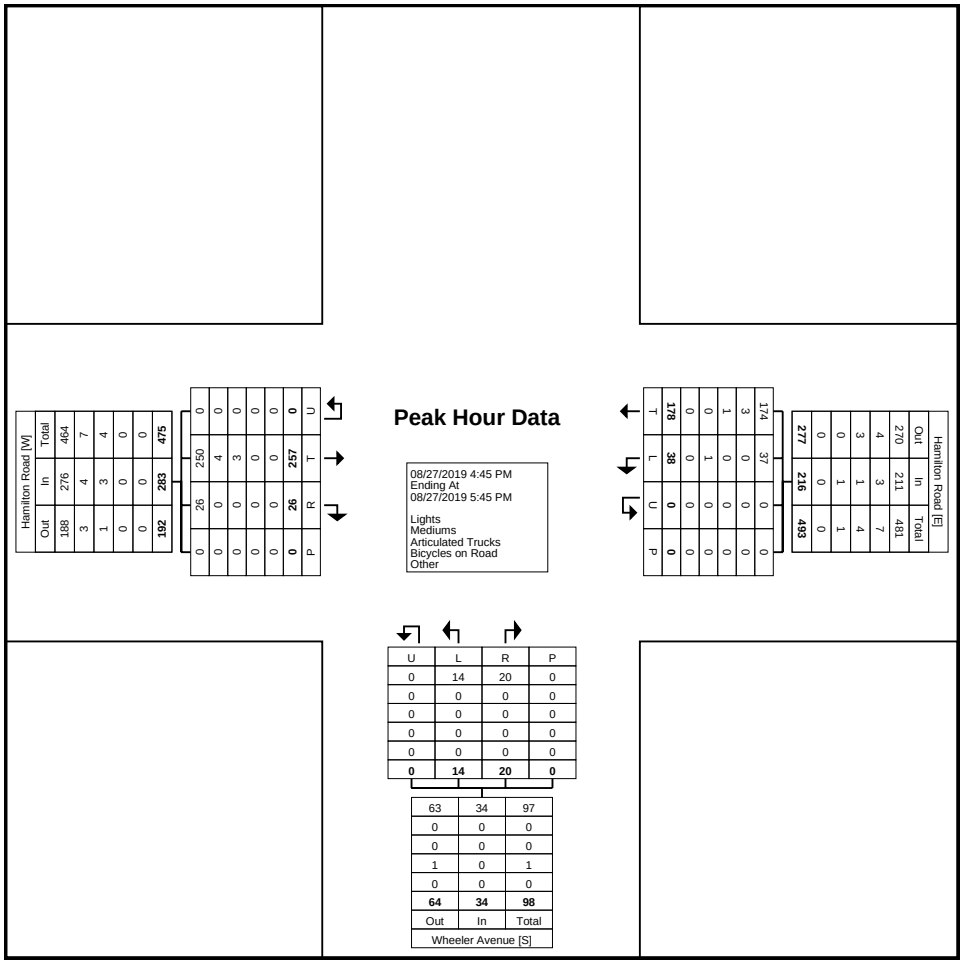
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Wheeler Avenue Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
4:45 PM	60	11	0	0	71	9	45	0	0	54	4	5	0	0	9	134
5:00 PM	59	3	0	0	62	12	38	0	0	50	4	5	0	0	9	121
5:15 PM	68	4	0	0	72	5	47	0	0	52	4	7	0	0	11	135
5:30 PM	70	8	0	0	78	12	48	0	0	60	2	3	0	0	5	143
Total	257	26	0	0	283	38	178	0	0	216	14	20	0	0	34	533
Approach %	90.8	9.2	0.0	-	-	17.6	82.4	0.0	-	-	41.2	58.8	0.0	-	-	-
Total %	48.2	4.9	0.0	-	53.1	7.1	33.4	0.0	-	40.5	2.6	3.8	0.0	-	6.4	-
PHF	0.918	0.591	0.000	-	0.907	0.792	0.927	0.000	-	0.900	0.875	0.714	0.000	-	0.773	0.932
Lights	250	26	0	-	276	37	174	0	-	211	14	20	0	-	34	521
% Lights	97.3	100.0	-	-	97.5	97.4	97.8	-	-	97.7	100.0	100.0	-	-	100.0	97.7
Mediums	4	0	0	-	4	0	3	0	-	3	0	0	0	-	0	7
% Mediums	1.6	0.0	-	-	1.4	0.0	1.7	-	-	1.4	0.0	0.0	-	-	0.0	1.3
Articulated Trucks	3	0	0	-	3	0	1	0	-	1	0	0	0	-	0	4
% Articulated Trucks	1.2	0.0	-	-	1.1	0.0	0.6	-	-	0.5	0.0	0.0	-	-	0.0	0.8
Bicycles on Road	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	-	-	0.0	2.6	0.0	-	-	0.5	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019



Turning Movement Peak Hour Data Plot (4:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Wheeler Avenue & Hamilton Road
Site Code:
Start Date: 08/27/2019

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Dorchester Road
Site Code:
Start Date: 08/27/2019

Turning Movement Data

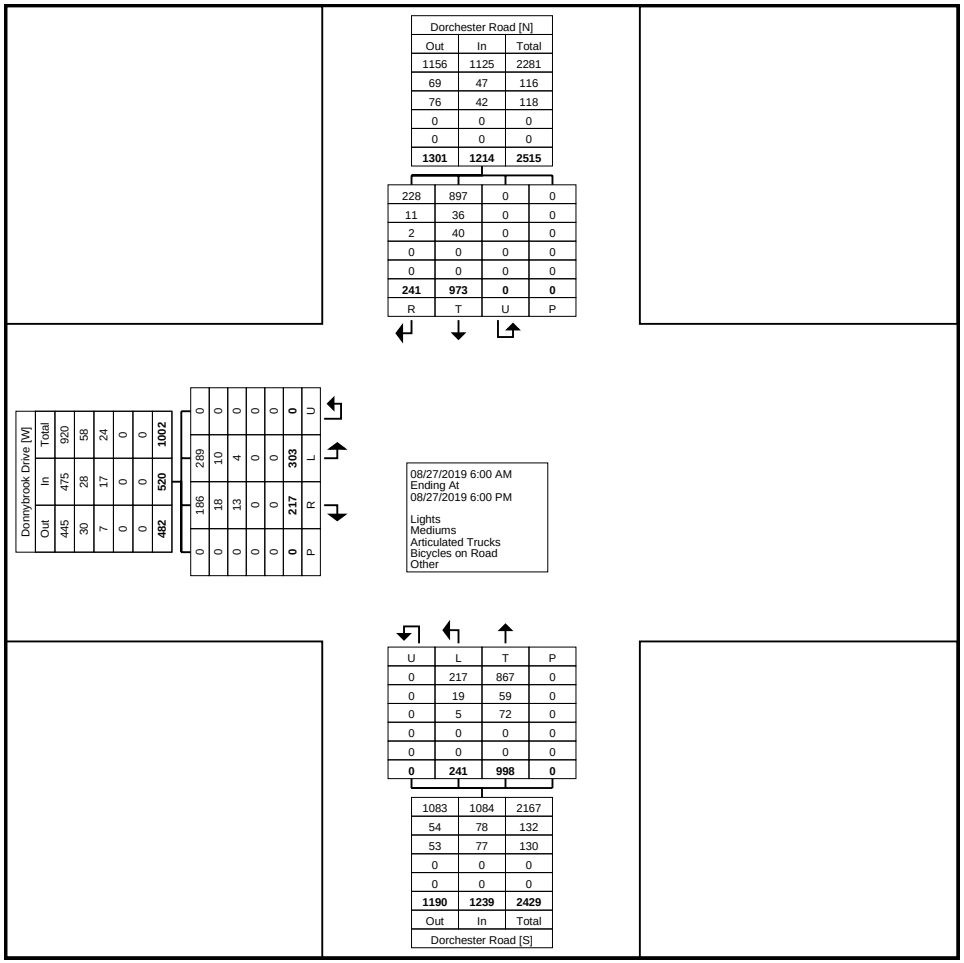
Start Time	Donnybrook Drive Eastbound					Dorchester Road Northbound					Dorchester Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
6:00 AM	3	6	0	0	9	6	7	0	0	13	16	2	0	0	18	40
6:15 AM	1	6	0	0	7	7	9	0	0	16	23	3	0	0	26	49
6:30 AM	7	2	0	0	9	5	16	0	0	21	34	5	0	0	39	69
6:45 AM	4	7	0	0	11	10	18	0	0	28	27	5	0	0	32	71
Hourly Total	15	21	0	0	36	28	50	0	0	78	100	15	0	0	115	229
7:00 AM	2	10	0	0	12	6	16	0	0	22	27	3	0	0	30	64
7:15 AM	2	5	0	0	7	15	19	0	0	34	29	14	0	0	43	84
7:30 AM	3	8	0	0	11	4	21	0	0	25	56	8	0	0	64	100
7:45 AM	5	10	0	0	15	8	27	0	0	35	30	9	0	0	39	89
Hourly Total	12	33	0	0	45	33	83	0	0	116	142	34	0	0	176	337
8:00 AM	4	6	0	0	10	3	33	0	0	36	39	9	0	0	48	94
8:15 AM	6	7	0	0	13	9	26	0	0	35	35	4	0	0	39	87
8:30 AM	6	11	0	0	17	14	20	0	0	34	26	5	0	0	31	82
8:45 AM	12	6	0	0	18	6	35	0	0	41	28	13	0	0	41	100
Hourly Total	28	30	0	0	58	32	114	0	0	146	128	31	0	0	159	363
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	20	9	0	0	29	4	24	0	0	28	28	7	0	0	35	92
12:15 PM	11	5	0	0	16	12	26	0	0	38	28	18	0	0	46	100
12:30 PM	9	5	0	0	14	3	31	0	0	34	31	8	0	0	39	87
12:45 PM	9	6	0	0	15	5	31	0	0	36	24	4	0	0	28	79
Hourly Total	49	25	0	0	74	24	112	0	0	136	111	37	0	0	148	358
1:00 PM	10	7	0	0	17	6	26	0	0	32	27	12	0	0	39	88
1:15 PM	4	5	0	0	9	6	32	0	0	38	33	4	0	0	37	84
1:30 PM	14	6	0	0	20	7	25	0	0	32	23	5	0	0	28	80
1:45 PM	8	3	0	0	11	7	30	0	0	37	17	8	0	0	25	73
Hourly Total	36	21	0	0	57	26	113	0	0	139	100	29	0	0	129	325
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	10	5	0	0	15	5	33	0	0	38	30	7	0	0	37	90
3:15 PM	10	5	0	0	15	6	45	0	0	51	27	11	0	0	38	104
3:30 PM	17	6	0	0	23	11	30	0	0	41	38	6	0	0	44	108
3:45 PM	14	9	0	0	23	12	37	0	0	49	27	11	0	0	38	110
Hourly Total	51	25	0	0	76	34	145	0	0	179	122	35	0	0	157	412
4:00 PM	14	7	0	0	21	9	41	0	0	50	26	8	0	0	34	105
4:15 PM	15	10	0	0	25	9	53	0	0	62	28	9	0	0	37	124
4:30 PM	16	16	0	0	32	13	58	0	0	71	38	14	0	0	52	155
4:45 PM	14	6	0	0	20	4	44	0	0	48	35	7	0	0	42	110

Hourly Total	59	39	0	0	98	35	196	0	0	231	127	38	0	0	165	494
5:00 PM	13	5	0	0	18	6	36	0	0	42	41	3	0	0	44	104
5:15 PM	17	5	0	0	22	9	48	0	0	57	26	12	0	0	38	117
5:30 PM	12	7	0	0	19	6	53	0	0	59	39	4	0	0	43	121
5:45 PM	11	6	0	0	17	8	48	0	0	56	37	3	0	0	40	113
Hourly Total	53	23	0	0	76	29	185	0	0	214	143	22	0	0	165	455
Grand Total	303	217	0	0	520	241	998	0	0	1239	973	241	0	0	1214	2973
Approach %	58.3	41.7	0.0	-	-	19.5	80.5	0.0	-	-	80.1	19.9	0.0	-	-	-
Total %	10.2	7.3	0.0	-	17.5	8.1	33.6	0.0	-	41.7	32.7	8.1	0.0	-	40.8	-
Lights	289	186	0	-	475	217	867	0	-	1084	897	228	0	-	1125	2684
% Lights	95.4	85.7	-	-	91.3	90.0	86.9	-	-	87.5	92.2	94.6	-	-	92.7	90.3
Mediums	10	18	0	-	28	19	59	0	-	78	36	11	0	-	47	153
% Mediums	3.3	8.3	-	-	5.4	7.9	5.9	-	-	6.3	3.7	4.6	-	-	3.9	5.1
Articulated Trucks	4	13	0	-	17	5	72	0	-	77	40	2	0	-	42	136
% Articulated Trucks	1.3	6.0	-	-	3.3	2.1	7.2	-	-	6.2	4.1	0.8	-	-	3.5	4.6
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Dorchester Road
Site Code:
Start Date: 08/27/2019



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: Donnybrook Drive & Dorchester Road
Site Code:
Start Date: 08/27/2019

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Donnybrook Drive Eastbound					Dorchester Road Northbound					Dorchester Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:30 AM	3	8	0	0	11	4	21	0	0	25	56	8	0	0	64	100
7:45 AM	5	10	0	0	15	8	27	0	0	35	30	9	0	0	39	89
8:00 AM	4	6	0	0	10	3	33	0	0	36	39	9	0	0	48	94
8:15 AM	6	7	0	0	13	9	26	0	0	35	35	4	0	0	39	87
Total	18	31	0	0	49	24	107	0	0	131	160	30	0	0	190	370
Approach %	36.7	63.3	0.0	-	-	18.3	81.7	0.0	-	-	84.2	15.8	0.0	-	-	-
Total %	4.9	8.4	0.0	-	13.2	6.5	28.9	0.0	-	35.4	43.2	8.1	0.0	-	51.4	-
PHF	0.750	0.775	0.000	-	0.817	0.667	0.811	0.000	-	0.910	0.714	0.833	0.000	-	0.742	0.925
Lights	17	26	0	-	43	20	84	0	-	104	146	26	0	-	172	319
% Lights	94.4	83.9	-	-	87.8	83.3	78.5	-	-	79.4	91.3	86.7	-	-	90.5	86.2
Mediums	1	4	0	-	5	4	12	0	-	16	10	3	0	-	13	34
% Mediums	5.6	12.9	-	-	10.2	16.7	11.2	-	-	12.2	6.3	10.0	-	-	6.8	9.2
Articulated Trucks	0	1	0	-	1	0	11	0	-	11	4	1	0	-	5	17
% Articulated Trucks	0.0	3.2	-	-	2.0	0.0	10.3	-	-	8.4	2.5	3.3	-	-	2.6	4.6
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Donnybrook Drive & Dorchester Road
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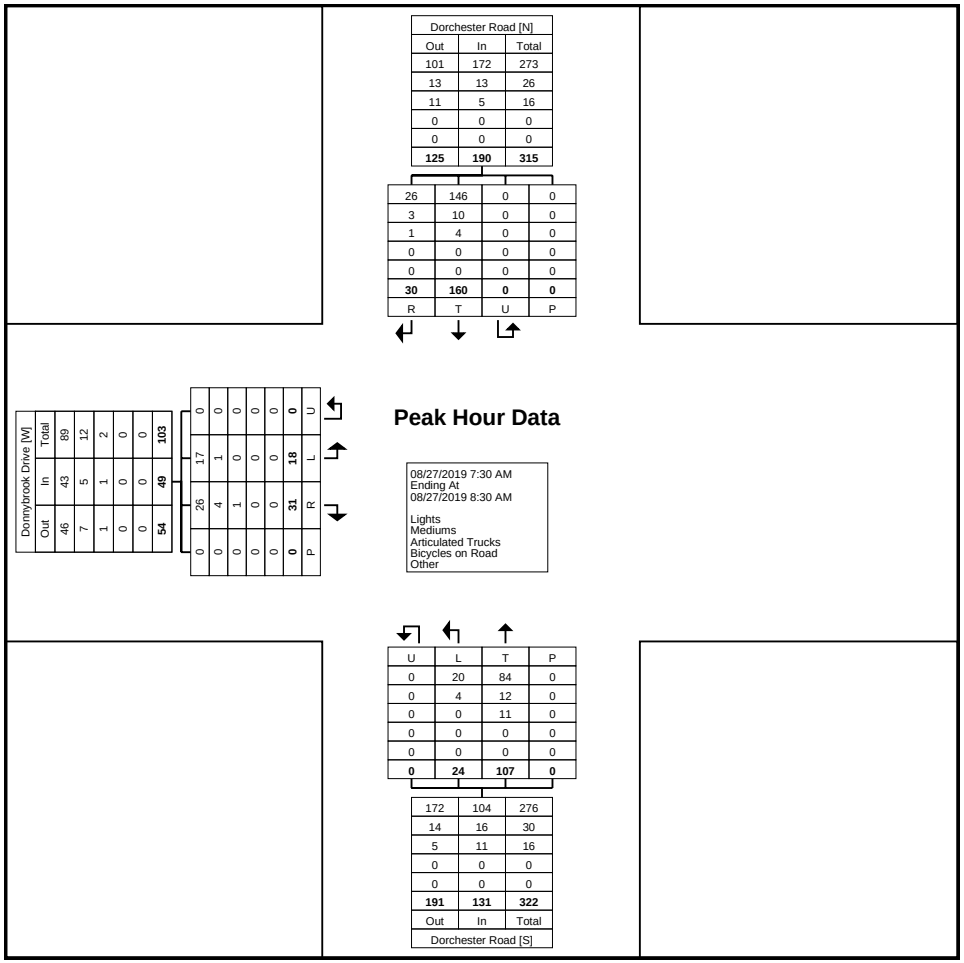
Start Date: 08/27/2019



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

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Dorchester Road
Site Code:
Start Date: 08/27/2019

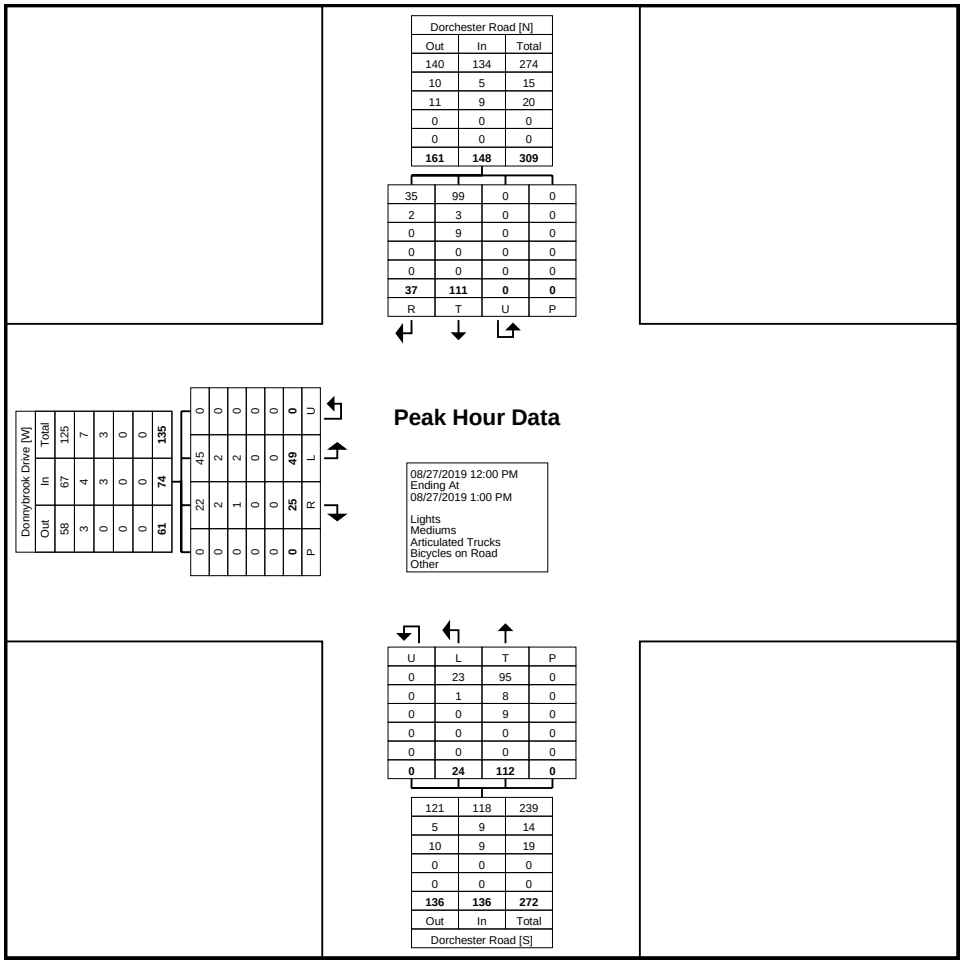
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Donnybrook Drive Eastbound					Dorchester Road Northbound					Dorchester Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
12:00 PM	20	9	0	0	29	4	24	0	0	28	28	7	0	0	35	92
12:15 PM	11	5	0	0	16	12	26	0	0	38	28	18	0	0	46	100
12:30 PM	9	5	0	0	14	3	31	0	0	34	31	8	0	0	39	87
12:45 PM	9	6	0	0	15	5	31	0	0	36	24	4	0	0	28	79
Total	49	25	0	0	74	24	112	0	0	136	111	37	0	0	148	358
Approach %	66.2	33.8	0.0	-	-	17.6	82.4	0.0	-	-	75.0	25.0	0.0	-	-	-
Total %	13.7	7.0	0.0	-	20.7	6.7	31.3	0.0	-	38.0	31.0	10.3	0.0	-	41.3	-
PHF	0.613	0.694	0.000	-	0.638	0.500	0.903	0.000	-	0.895	0.895	0.514	0.000	-	0.804	0.895
Lights	45	22	0	-	67	23	95	0	-	118	99	35	0	-	134	319
% Lights	91.8	88.0	-	-	90.5	95.8	84.8	-	-	86.8	89.2	94.6	-	-	90.5	89.1
Mediums	2	2	0	-	4	1	8	0	-	9	3	2	0	-	5	18
% Mediums	4.1	8.0	-	-	5.4	4.2	7.1	-	-	6.6	2.7	5.4	-	-	3.4	5.0
Articulated Trucks	2	1	0	-	3	0	9	0	-	9	9	0	0	-	9	21
% Articulated Trucks	4.1	4.0	-	-	4.1	0.0	8.0	-	-	6.6	8.1	0.0	-	-	6.1	5.9
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Dorchester Road
Site Code:
Start Date: 08/27/2019



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: Donnybrook Drive & Dorchester Road
Site Code:
Start Date: 08/27/2019

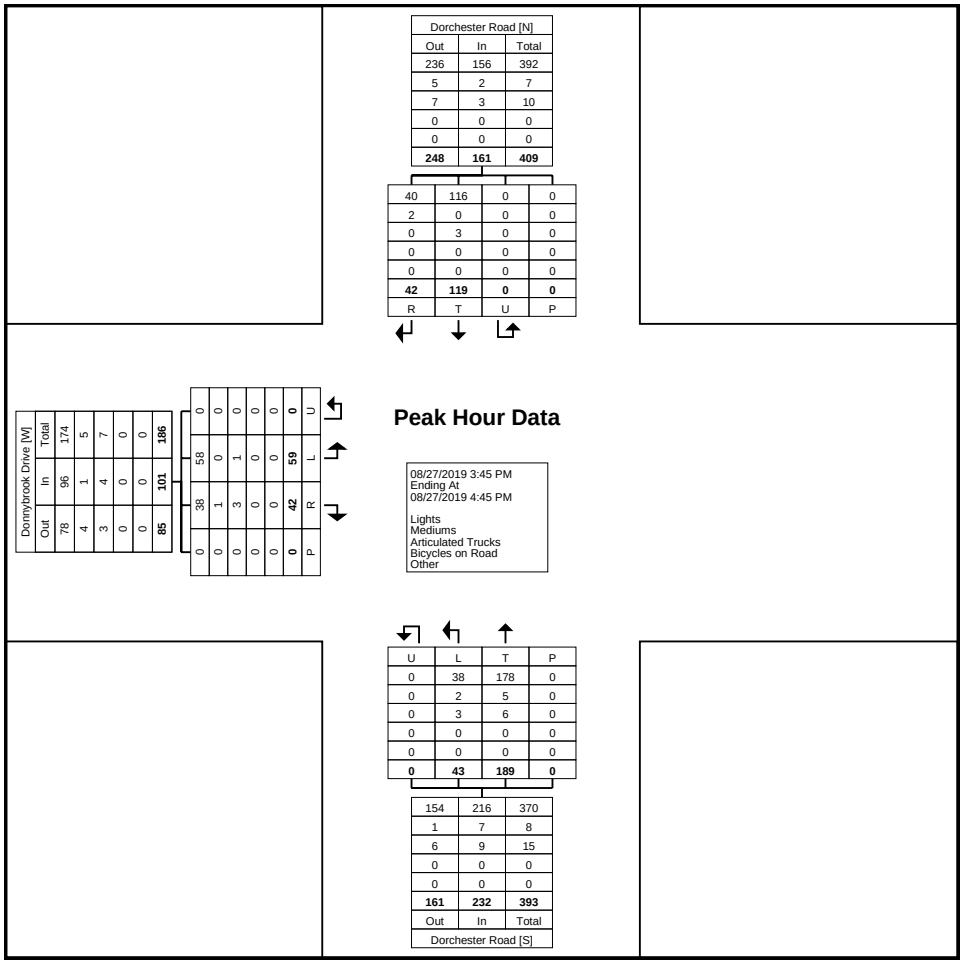
Turning Movement Peak Hour Data (3:45 PM)

Start Time	Donnybrook Drive Eastbound					Dorchester Road Northbound					Dorchester Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
3:45 PM	14	9	0	0	23	12	37	0	0	49	27	11	0	0	38	110
4:00 PM	14	7	0	0	21	9	41	0	0	50	26	8	0	0	34	105
4:15 PM	15	10	0	0	25	9	53	0	0	62	28	9	0	0	37	124
4:30 PM	16	16	0	0	32	13	58	0	0	71	38	14	0	0	52	155
Total	59	42	0	0	101	43	189	0	0	232	119	42	0	0	161	494
Approach %	58.4	41.6	0.0	-	-	18.5	81.5	0.0	-	-	73.9	26.1	0.0	-	-	-
Total %	11.9	8.5	0.0	-	20.4	8.7	38.3	0.0	-	47.0	24.1	8.5	0.0	-	32.6	-
PHF	0.922	0.656	0.000	-	0.789	0.827	0.815	0.000	-	0.817	0.783	0.750	0.000	-	0.774	0.797
Lights	58	38	0	-	96	38	178	0	-	216	116	40	0	-	156	468
% Lights	98.3	90.5	-	-	95.0	88.4	94.2	-	-	93.1	97.5	95.2	-	-	96.9	94.7
Mediums	0	1	0	-	1	2	5	0	-	7	0	2	0	-	2	10
% Mediums	0.0	2.4	-	-	1.0	4.7	2.6	-	-	3.0	0.0	4.8	-	-	1.2	2.0
Articulated Trucks	1	3	0	-	4	3	6	0	-	9	3	0	0	-	3	16
% Articulated Trucks	1.7	7.1	-	-	4.0	7.0	3.2	-	-	3.9	2.5	0.0	-	-	1.9	3.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Dorchester Road
Site Code:
Start Date: 08/27/2019



Turning Movement Peak Hour Data Plot (3:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Dorchester Road
Site Code:
Start Date: 08/27/2019

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Harris Road & Hamilton Road
Site Code:
Start Date: 08/27/2019

Turning Movement Data

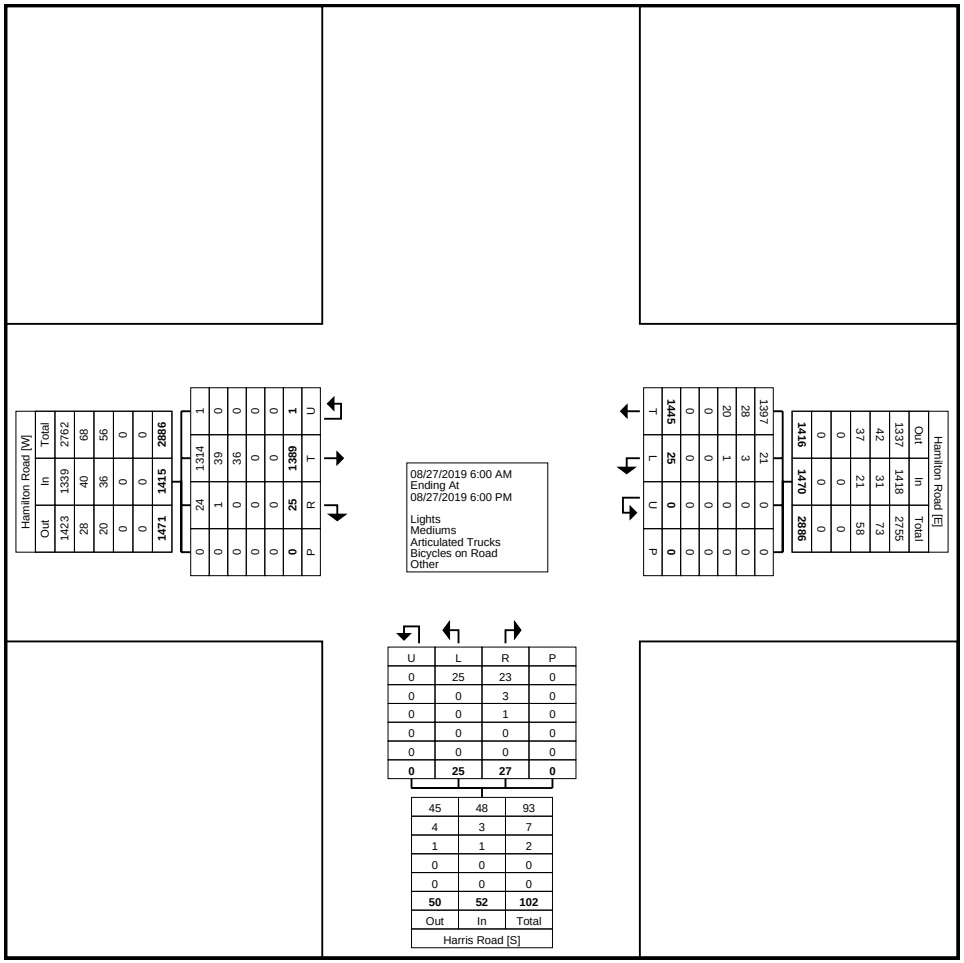
Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Harris Road Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
6:00 AM	11	0	0	0	11	0	13	0	0	13	0	1	0	0	1	25
6:15 AM	24	0	0	0	24	0	21	0	0	21	0	0	0	0	0	45
6:30 AM	29	0	0	0	29	0	45	0	0	45	0	0	0	0	0	74
6:45 AM	14	0	0	0	14	2	42	0	0	44	0	0	0	0	0	58
Hourly Total	78	0	0	0	78	2	121	0	0	123	0	1	0	0	1	202
7:00 AM	19	0	0	0	19	0	39	0	0	39	0	0	0	0	0	58
7:15 AM	32	1	0	0	33	2	74	0	0	76	0	2	0	0	2	111
7:30 AM	15	0	0	0	15	0	81	0	0	81	4	0	0	0	4	100
7:45 AM	29	0	0	0	29	0	48	0	0	48	0	1	0	0	1	78
Hourly Total	95	1	0	0	96	2	242	0	0	244	4	3	0	0	7	347
8:00 AM	20	0	0	0	20	1	61	0	0	62	1	2	0	0	3	85
8:15 AM	39	1	1	0	41	1	54	0	0	55	2	1	0	0	3	99
8:30 AM	22	0	0	0	22	0	51	0	0	51	2	1	0	0	3	76
8:45 AM	41	1	0	0	42	2	43	0	0	45	1	1	0	0	2	89
Hourly Total	122	2	1	0	125	4	209	0	0	213	6	5	0	0	11	349
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	30	2	0	0	32	1	45	0	0	46	0	1	0	0	1	79
12:15 PM	42	2	0	0	44	0	39	0	0	39	1	2	0	0	3	86
12:30 PM	38	0	0	0	38	1	38	0	0	39	3	1	0	0	4	81
12:45 PM	35	0	0	0	35	1	29	0	0	30	0	2	0	0	2	67
Hourly Total	145	4	0	0	149	3	151	0	0	154	4	6	0	0	10	313
1:00 PM	31	2	0	0	33	1	40	0	0	41	1	0	0	0	1	75
1:15 PM	40	1	0	0	41	1	37	0	0	38	0	1	0	0	1	80
1:30 PM	53	1	0	0	54	0	35	0	0	35	1	2	0	0	3	92
1:45 PM	38	2	0	0	40	0	52	0	0	52	0	0	0	0	0	92
Hourly Total	162	6	0	0	168	2	164	0	0	166	2	3	0	0	5	339
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	38	0	0	0	38	0	37	0	0	37	1	1	0	0	2	77
3:15 PM	55	3	0	0	58	0	69	0	0	69	1	0	0	0	1	128
3:30 PM	57	0	0	0	57	4	45	0	0	49	1	0	0	0	1	107
3:45 PM	76	0	0	0	76	1	49	0	0	50	2	3	0	0	5	131
Hourly Total	226	3	0	0	229	5	200	0	0	205	5	4	0	0	9	443
4:00 PM	57	0	0	0	57	1	48	0	0	49	1	0	0	0	1	107
4:15 PM	62	1	0	0	63	1	51	0	0	52	0	1	0	0	1	116
4:30 PM	80	0	0	0	80	1	43	0	0	44	0	1	0	0	1	125
4:45 PM	66	2	0	0	68	0	49	0	0	49	1	0	0	0	1	118

Hourly Total	265	3	0	0	268	3	191	0	0	194	2	2	0	0	4	466
5:00 PM	67	3	0	0	70	0	44	0	0	44	0	1	0	0	1	115
5:15 PM	75	0	0	0	75	0	49	0	0	49	2	1	0	0	3	127
5:30 PM	75	3	0	0	78	3	43	0	0	46	0	1	0	0	1	125
5:45 PM	79	0	0	0	79	1	31	0	0	32	0	0	0	0	0	111
Hourly Total	296	6	0	0	302	4	167	0	0	171	2	3	0	0	5	478
Grand Total	1389	25	1	0	1415	25	1445	0	0	1470	25	27	0	0	52	2937
Approach %	98.2	1.8	0.1	-	-	1.7	98.3	0.0	-	-	48.1	51.9	0.0	-	-	-
Total %	47.3	0.9	0.0	-	48.2	0.9	49.2	0.0	-	50.1	0.9	0.9	0.0	-	1.8	-
Lights	1314	24	1	-	1339	21	1397	0	-	1418	25	23	0	-	48	2805
% Lights	94.6	96.0	100.0	-	94.6	84.0	96.7	-	-	96.5	100.0	85.2	-	-	92.3	95.5
Mediums	39	1	0	-	40	3	28	0	-	31	0	3	0	-	3	74
% Mediums	2.8	4.0	0.0	-	2.8	12.0	1.9	-	-	2.1	0.0	11.1	-	-	5.8	2.5
Articulated Trucks	36	0	0	-	36	1	20	0	-	21	0	1	0	-	1	58
% Articulated Trucks	2.6	0.0	0.0	-	2.5	4.0	1.4	-	-	1.4	0.0	3.7	-	-	1.9	2.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Harris Road & Hamilton Road
Site Code:
Start Date: 08/27/2019



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: Harris Road & Hamilton Road
Site Code:
Start Date: 08/27/2019

Turning Movement Peak Hour Data (7:15 AM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Harris Road Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
7:15 AM	32	1	0	0	33	2	74	0	0	76	0	2	0	0	2	111
7:30 AM	15	0	0	0	15	0	81	0	0	81	4	0	0	0	4	100
7:45 AM	29	0	0	0	29	0	48	0	0	48	0	1	0	0	1	78
8:00 AM	20	0	0	0	20	1	61	0	0	62	1	2	0	0	3	85
Total	96	1	0	0	97	3	264	0	0	267	5	5	0	0	10	374
Approach %	99.0	1.0	0.0	-	-	1.1	98.9	0.0	-	-	50.0	50.0	0.0	-	-	-
Total %	25.7	0.3	0.0	-	25.9	0.8	70.6	0.0	-	71.4	1.3	1.3	0.0	-	2.7	-
PHF	0.750	0.250	0.000	-	0.735	0.375	0.815	0.000	-	0.824	0.313	0.625	0.000	-	0.625	0.842
Lights	84	1	0	-	85	3	254	0	-	257	5	3	0	-	8	350
% Lights	87.5	100.0	-	-	87.6	100.0	96.2	-	-	96.3	100.0	60.0	-	-	80.0	93.6
Mediums	9	0	0	-	9	0	3	0	-	3	0	1	0	-	1	13
% Mediums	9.4	0.0	-	-	9.3	0.0	1.1	-	-	1.1	0.0	20.0	-	-	10.0	3.5
Articulated Trucks	3	0	0	-	3	0	7	0	-	7	0	1	0	-	1	11
% Articulated Trucks	3.1	0.0	-	-	3.1	0.0	2.7	-	-	2.6	0.0	20.0	-	-	10.0	2.9
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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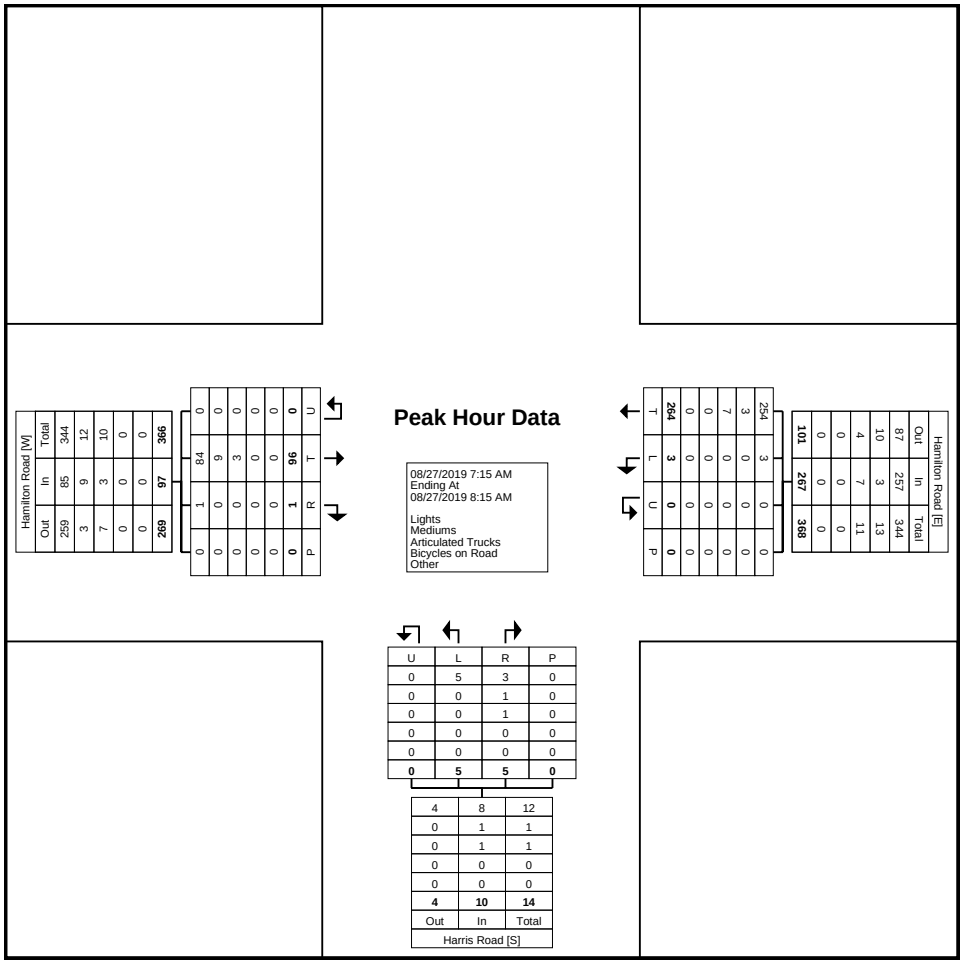
Count Name: Harris Road & Hamilton Road
Site Code:
Start Date: 08/27/2019



Turning Movement Peak Hour Data Plot (7:15 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Harris Road & Hamilton Road
Site Code:
Start Date: 08/27/2019

Turning Movement Peak Hour Data (1:00 PM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Harris Road Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
1:00 PM	31	2	0	0	33	1	40	0	0	41	1	0	0	0	1	75
1:15 PM	40	1	0	0	41	1	37	0	0	38	0	1	0	0	1	80
1:30 PM	53	1	0	0	54	0	35	0	0	35	1	2	0	0	3	92
1:45 PM	38	2	0	0	40	0	52	0	0	52	0	0	0	0	0	92
Total	162	6	0	0	168	2	164	0	0	166	2	3	0	0	5	339
Approach %	96.4	3.6	0.0	-	-	1.2	98.8	0.0	-	-	40.0	60.0	0.0	-	-	-
Total %	47.8	1.8	0.0	-	49.6	0.6	48.4	0.0	-	49.0	0.6	0.9	0.0	-	1.5	-
PHF	0.764	0.750	0.000	-	0.778	0.500	0.788	0.000	-	0.798	0.500	0.375	0.000	-	0.417	0.921
Lights	152	5	0	-	157	0	152	0	-	152	2	2	0	-	4	313
% Lights	93.8	83.3	-	-	93.5	0.0	92.7	-	-	91.6	100.0	66.7	-	-	80.0	92.3
Mediums	4	1	0	-	5	2	10	0	-	12	0	1	0	-	1	18
% Mediums	2.5	16.7	-	-	3.0	100.0	6.1	-	-	7.2	0.0	33.3	-	-	20.0	5.3
Articulated Trucks	6	0	0	-	6	0	2	0	-	2	0	0	0	-	0	8
% Articulated Trucks	3.7	0.0	-	-	3.6	0.0	1.2	-	-	1.2	0.0	0.0	-	-	0.0	2.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
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Count Name: Harris Road & Hamilton Road
Site Code:
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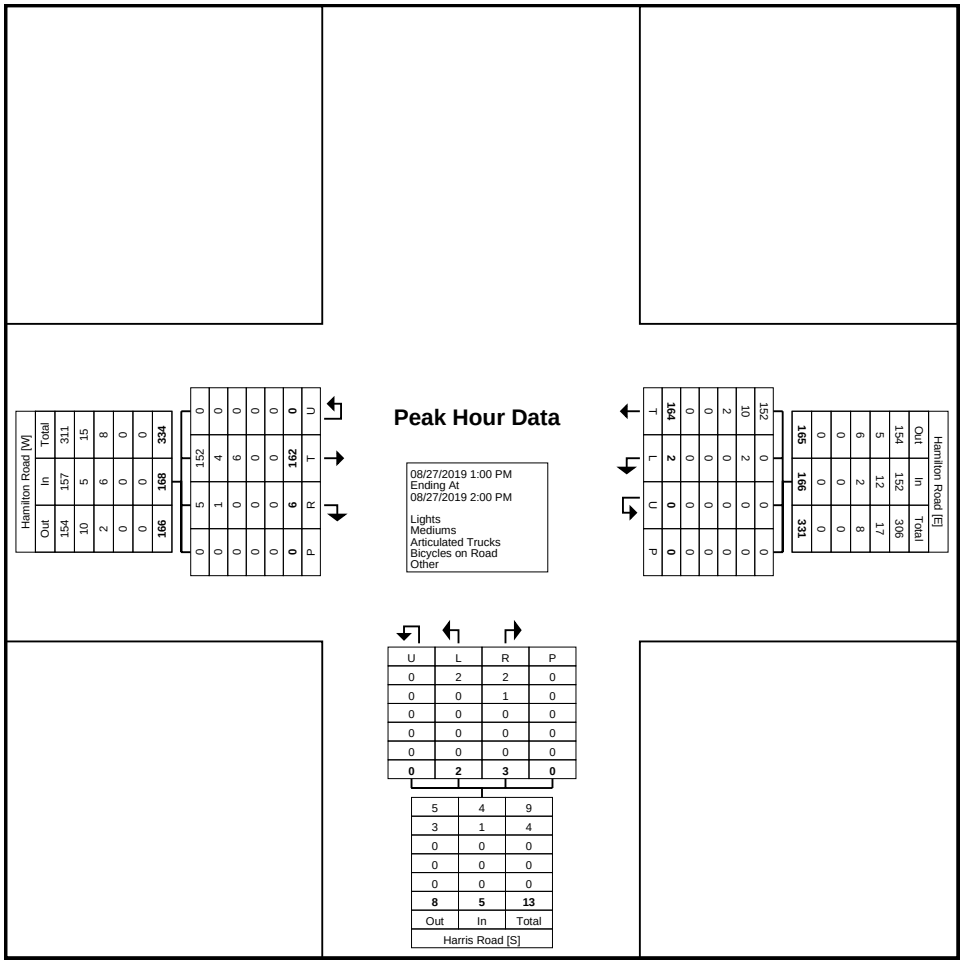


Turning Movement Peak Hour Data Plot (1:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Harris Road & Hamilton Road
Site Code:
Start Date: 08/27/2019

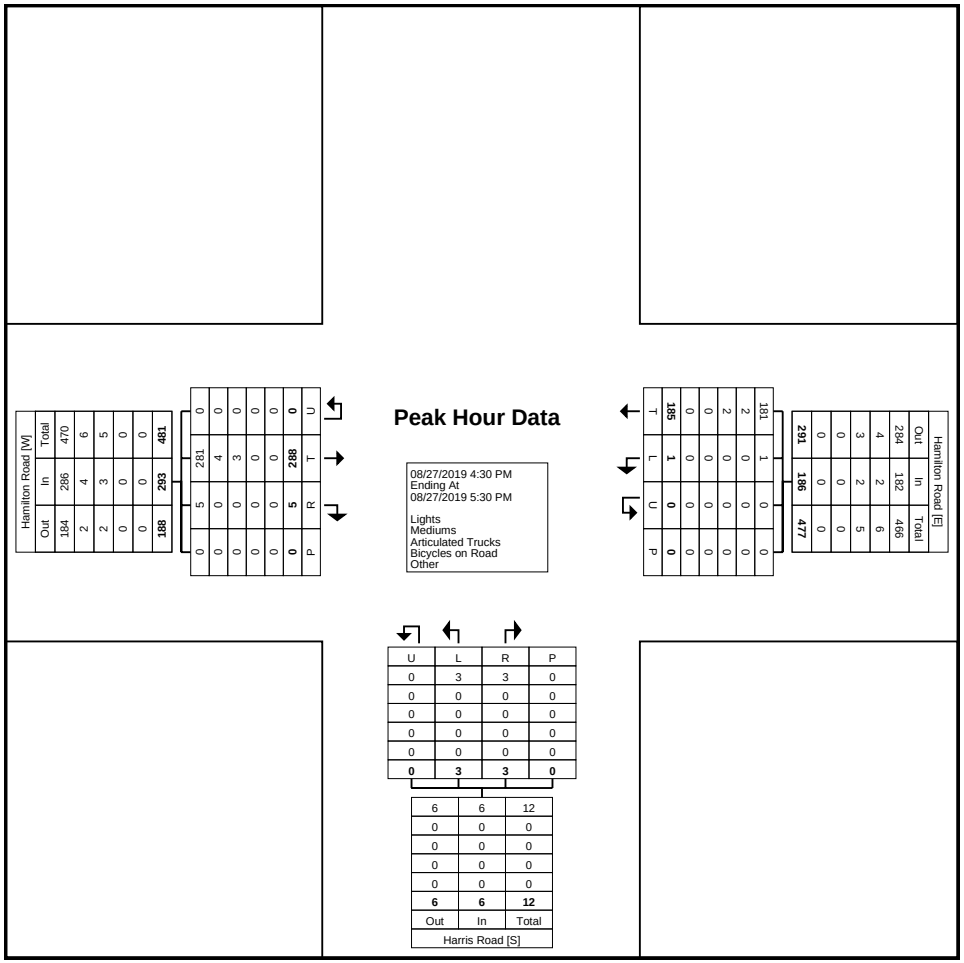
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Harris Road Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
4:30 PM	80	0	0	0	80	1	43	0	0	44	0	1	0	0	1	125
4:45 PM	66	2	0	0	68	0	49	0	0	49	1	0	0	0	1	118
5:00 PM	67	3	0	0	70	0	44	0	0	44	0	1	0	0	1	115
5:15 PM	75	0	0	0	75	0	49	0	0	49	2	1	0	0	3	127
Total	288	5	0	0	293	1	185	0	0	186	3	3	0	0	6	485
Approach %	98.3	1.7	0.0	-	-	0.5	99.5	0.0	-	-	50.0	50.0	0.0	-	-	-
Total %	59.4	1.0	0.0	-	60.4	0.2	38.1	0.0	-	38.4	0.6	0.6	0.0	-	1.2	-
PHF	0.900	0.417	0.000	-	0.916	0.250	0.944	0.000	-	0.949	0.375	0.750	0.000	-	0.500	0.955
Lights	281	5	0	-	286	1	181	0	-	182	3	3	0	-	6	474
% Lights	97.6	100.0	-	-	97.6	100.0	97.8	-	-	97.8	100.0	100.0	-	-	100.0	97.7
Mediums	4	0	0	-	4	0	2	0	-	2	0	0	0	-	0	6
% Mediums	1.4	0.0	-	-	1.4	0.0	1.1	-	-	1.1	0.0	0.0	-	-	0.0	1.2
Articulated Trucks	3	0	0	-	3	0	2	0	-	2	0	0	0	-	0	5
% Articulated Trucks	1.0	0.0	-	-	1.0	0.0	1.1	-	-	1.1	0.0	0.0	-	-	0.0	1.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Harris Road & Hamilton Road
Site Code:
Start Date: 08/27/2019



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@ptsl.com

Count Name: Harris Road & Hamilton Road
Site Code:
Start Date: 08/27/2019

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019

Turning Movement Data

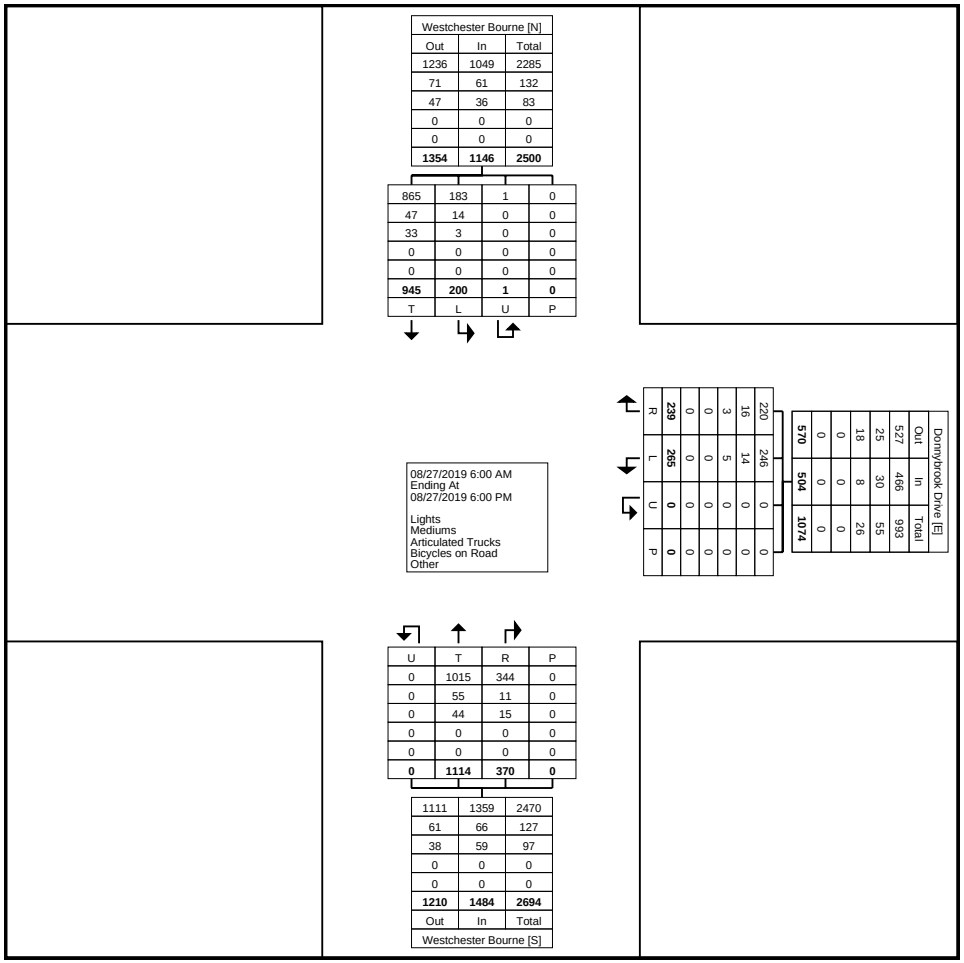
Start Time	Donnybrook Drive Westbound					Westchester Bourne Northbound					Westchester Bourne Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
6:00 AM	2	4	0	0	6	25	2	0	0	27	6	10	0	0	16	49
6:15 AM	4	4	0	0	8	36	15	0	0	51	13	17	0	0	30	89
6:30 AM	5	4	0	0	9	34	11	0	0	45	9	29	0	0	38	92
6:45 AM	3	7	0	0	10	39	15	0	0	54	9	17	0	0	26	90
Hourly Total	14	19	0	0	33	134	43	0	0	177	37	73	0	0	110	320
7:00 AM	9	5	0	0	14	28	5	0	0	33	10	16	0	0	26	73
7:15 AM	10	10	0	0	20	52	10	0	0	62	11	24	0	0	35	117
7:30 AM	10	4	0	0	14	45	14	0	0	59	6	29	0	0	35	108
7:45 AM	12	5	0	0	17	52	7	0	0	59	10	38	0	0	48	124
Hourly Total	41	24	0	0	65	177	36	0	0	213	37	107	0	0	144	422
8:00 AM	3	5	0	0	8	46	5	0	0	51	6	20	0	0	26	85
8:15 AM	5	6	0	0	11	46	9	0	0	55	5	23	0	0	28	94
8:30 AM	9	6	0	0	15	29	6	0	0	35	4	24	0	0	28	78
8:45 AM	11	11	0	0	22	33	9	0	0	42	2	22	0	0	24	88
Hourly Total	28	28	0	0	56	154	29	0	0	183	17	89	0	0	106	345
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	6	3	0	0	9	34	9	0	0	43	3	15	0	0	18	70
12:15 PM	11	4	0	0	15	25	11	0	0	36	3	14	0	0	17	68
12:30 PM	10	8	0	0	18	24	13	0	0	37	6	20	0	0	26	81
12:45 PM	6	3	0	0	9	23	10	0	0	33	4	25	0	0	29	71
Hourly Total	33	18	0	0	51	106	43	0	0	149	16	74	0	0	90	290
1:00 PM	10	9	0	0	19	33	8	0	0	41	8	23	0	0	31	91
1:15 PM	2	8	0	0	10	18	10	0	0	28	3	14	0	0	17	55
1:30 PM	8	5	0	0	13	33	10	0	0	43	8	18	0	0	26	82
1:45 PM	3	6	0	0	9	28	16	0	0	44	5	29	0	0	34	87
Hourly Total	23	28	0	0	51	112	44	0	0	156	24	84	0	0	108	315
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	5	9	0	0	14	33	16	0	0	49	8	23	0	0	31	94
3:15 PM	7	3	0	0	10	34	14	0	0	48	10	39	0	0	49	107
3:30 PM	11	10	0	0	21	42	16	0	0	58	4	42	0	0	46	125
3:45 PM	10	12	0	0	22	34	16	0	0	50	9	40	0	0	49	121
Hourly Total	33	34	0	0	67	143	62	0	0	205	31	144	0	0	175	447
4:00 PM	17	17	0	0	34	41	14	0	0	55	4	40	0	0	44	133
4:15 PM	17	11	0	0	28	22	12	0	0	34	4	44	0	0	48	110
4:30 PM	17	11	0	0	28	43	26	0	0	69	10	59	0	0	69	166
4:45 PM	6	15	0	0	21	29	10	0	0	39	5	50	0	0	55	115

Hourly Total	57	54	0	0	111	135	62	0	0	197	23	193	0	0	216	524
5:00 PM	11	16	0	0	27	43	15	0	0	58	4	53	0	0	57	142
5:15 PM	12	10	0	0	22	59	20	0	0	79	8	48	1	0	57	158
5:30 PM	6	2	0	0	8	17	8	0	0	25	0	47	0	0	47	80
5:45 PM	7	6	0	0	13	34	8	0	0	42	3	33	0	0	36	91
Hourly Total	36	34	0	0	70	153	51	0	0	204	15	181	1	0	197	471
Grand Total	265	239	0	0	504	1114	370	0	0	1484	200	945	1	0	1146	3134
Approach %	52.6	47.4	0.0	-	-	75.1	24.9	0.0	-	-	17.5	82.5	0.1	-	-	-
Total %	8.5	7.6	0.0	-	16.1	35.5	11.8	0.0	-	47.4	6.4	30.2	0.0	-	36.6	-
Lights	246	220	0	-	466	1015	344	0	-	1359	183	865	1	-	1049	2874
% Lights	92.8	92.1	-	-	92.5	91.1	93.0	-	-	91.6	91.5	91.5	100.0	-	91.5	91.7
Mediums	14	16	0	-	30	55	11	0	-	66	14	47	0	-	61	157
% Mediums	5.3	6.7	-	-	6.0	4.9	3.0	-	-	4.4	7.0	5.0	0.0	-	5.3	5.0
Articulated Trucks	5	3	0	-	8	44	15	0	-	59	3	33	0	-	36	103
% Articulated Trucks	1.9	1.3	-	-	1.6	3.9	4.1	-	-	4.0	1.5	3.5	0.0	-	3.1	3.3
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019



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: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019

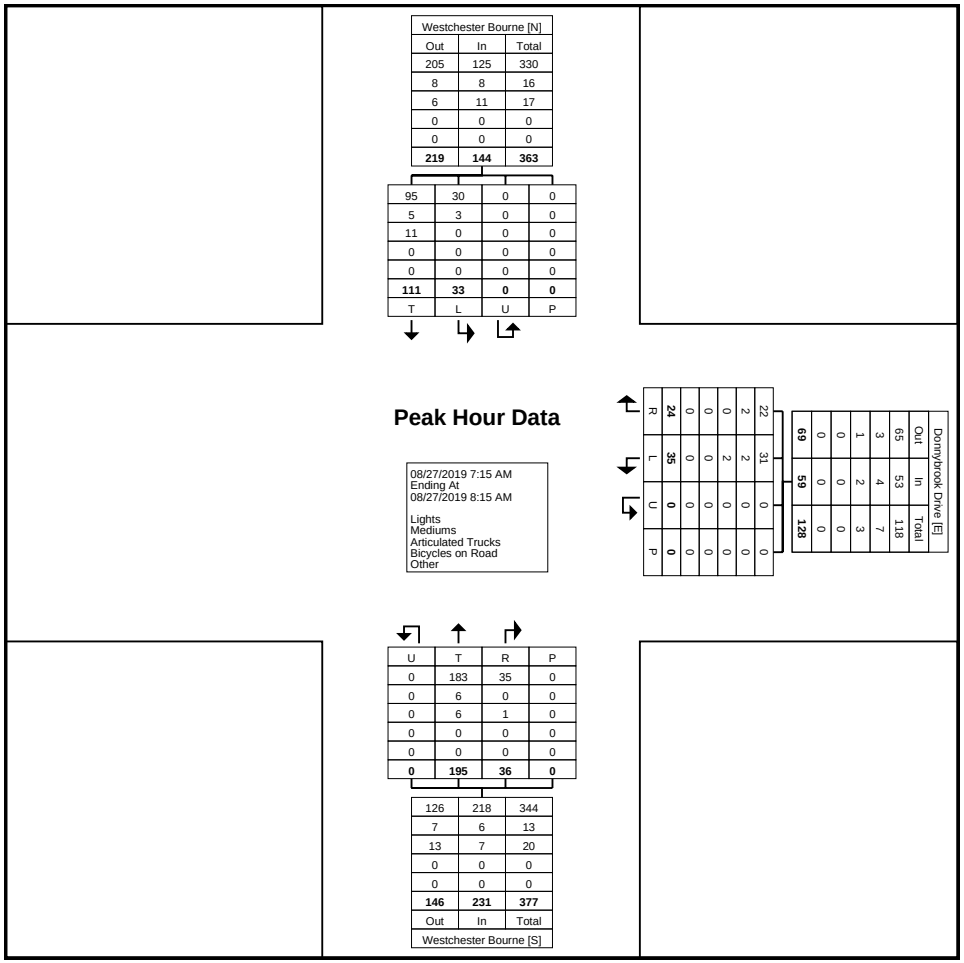
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Donnybrook Drive Westbound					Westchester Bourne Northbound					Westchester Bourne Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
7:15 AM	10	10	0	0	20	52	10	0	0	62	11	24	0	0	35	117
7:30 AM	10	4	0	0	14	45	14	0	0	59	6	29	0	0	35	108
7:45 AM	12	5	0	0	17	52	7	0	0	59	10	38	0	0	48	124
8:00 AM	3	5	0	0	8	46	5	0	0	51	6	20	0	0	26	85
Total	35	24	0	0	59	195	36	0	0	231	33	111	0	0	144	434
Approach %	59.3	40.7	0.0	-	-	84.4	15.6	0.0	-	-	22.9	77.1	0.0	-	-	-
Total %	8.1	5.5	0.0	-	13.6	44.9	8.3	0.0	-	53.2	7.6	25.6	0.0	-	33.2	-
PHF	0.729	0.600	0.000	-	0.738	0.938	0.643	0.000	-	0.931	0.750	0.730	0.000	-	0.750	0.875
Lights	31	22	0	-	53	183	35	0	-	218	30	95	0	-	125	396
% Lights	88.6	91.7	-	-	89.8	93.8	97.2	-	-	94.4	90.9	85.6	-	-	86.8	91.2
Mediums	2	2	0	-	4	6	0	0	-	6	3	5	0	-	8	18
% Mediums	5.7	8.3	-	-	6.8	3.1	0.0	-	-	2.6	9.1	4.5	-	-	5.6	4.1
Articulated Trucks	2	0	0	-	2	6	1	0	-	7	0	11	0	-	11	20
% Articulated Trucks	5.7	0.0	-	-	3.4	3.1	2.8	-	-	3.0	0.0	9.9	-	-	7.6	4.6
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019



Turning Movement Peak Hour Data Plot (7:15 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019

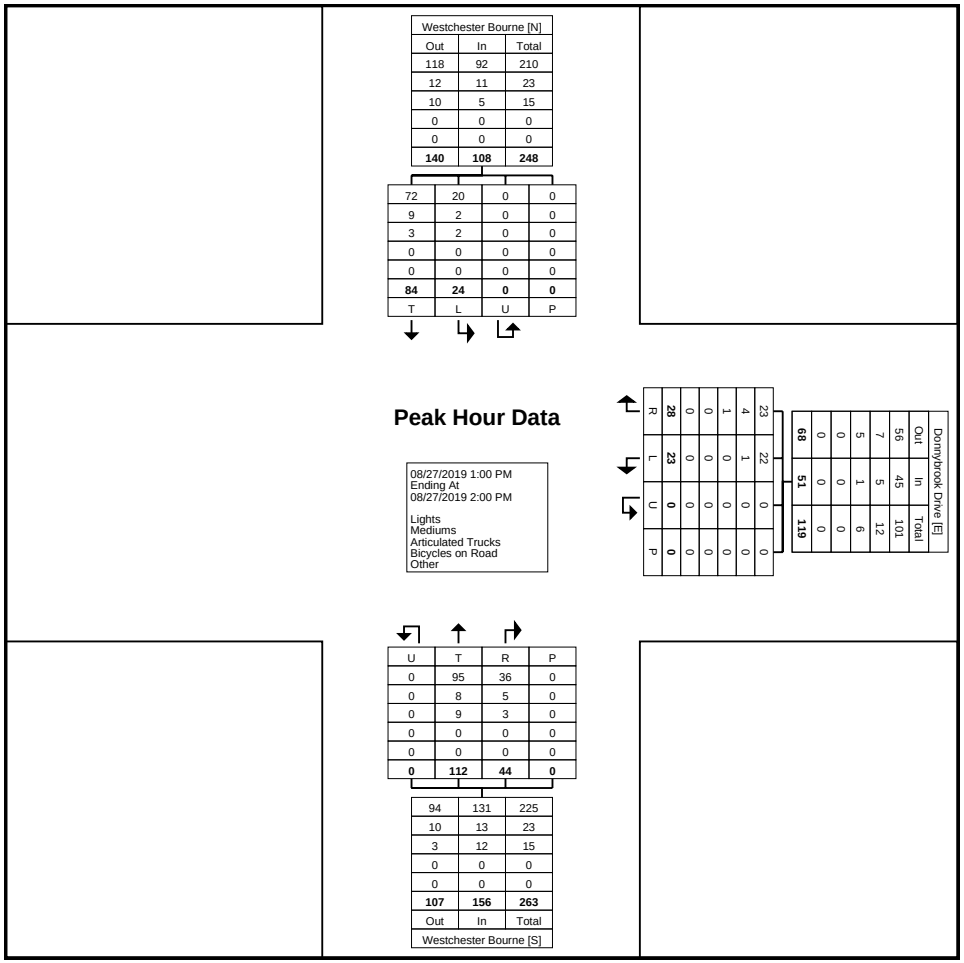
Turning Movement Peak Hour Data (1:00 PM)

Start Time	Donnybrook Drive Westbound					Westchester Bourne Northbound					Westchester Bourne Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
1:00 PM	10	9	0	0	19	33	8	0	0	41	8	23	0	0	31	91
1:15 PM	2	8	0	0	10	18	10	0	0	28	3	14	0	0	17	55
1:30 PM	8	5	0	0	13	33	10	0	0	43	8	18	0	0	26	82
1:45 PM	3	6	0	0	9	28	16	0	0	44	5	29	0	0	34	87
Total	23	28	0	0	51	112	44	0	0	156	24	84	0	0	108	315
Approach %	45.1	54.9	0.0	-	-	71.8	28.2	0.0	-	-	22.2	77.8	0.0	-	-	-
Total %	7.3	8.9	0.0	-	16.2	35.6	14.0	0.0	-	49.5	7.6	26.7	0.0	-	34.3	-
PHF	0.575	0.778	0.000	-	0.671	0.848	0.688	0.000	-	0.886	0.750	0.724	0.000	-	0.794	0.865
Lights	22	23	0	-	45	95	36	0	-	131	20	72	0	-	92	268
% Lights	95.7	82.1	-	-	88.2	84.8	81.8	-	-	84.0	83.3	85.7	-	-	85.2	85.1
Mediums	1	4	0	-	5	8	5	0	-	13	2	9	0	-	11	29
% Mediums	4.3	14.3	-	-	9.8	7.1	11.4	-	-	8.3	8.3	10.7	-	-	10.2	9.2
Articulated Trucks	0	1	0	-	1	9	3	0	-	12	2	3	0	-	5	18
% Articulated Trucks	0.0	3.6	-	-	2.0	8.0	6.8	-	-	7.7	8.3	3.6	-	-	4.6	5.7
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019



Turning Movement Peak Hour Data Plot (1:00 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019

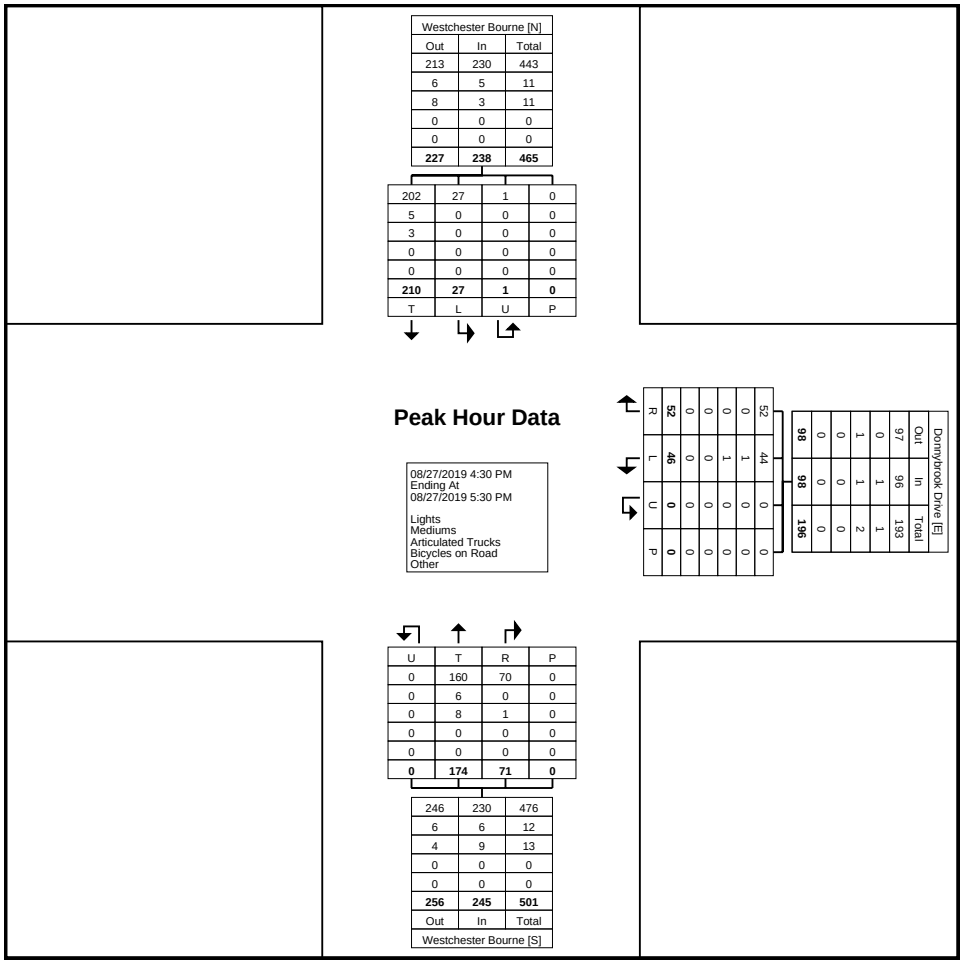
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Donnybrook Drive Westbound					Westchester Bourne Northbound					Westchester Bourne Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
4:30 PM	17	11	0	0	28	43	26	0	0	69	10	59	0	0	69	166
4:45 PM	6	15	0	0	21	29	10	0	0	39	5	50	0	0	55	115
5:00 PM	11	16	0	0	27	43	15	0	0	58	4	53	0	0	57	142
5:15 PM	12	10	0	0	22	59	20	0	0	79	8	48	1	0	57	158
Total	46	52	0	0	98	174	71	0	0	245	27	210	1	0	238	581
Approach %	46.9	53.1	0.0	-	-	71.0	29.0	0.0	-	-	11.3	88.2	0.4	-	-	-
Total %	7.9	9.0	0.0	-	16.9	29.9	12.2	0.0	-	42.2	4.6	36.1	0.2	-	41.0	-
PHF	0.676	0.813	0.000	-	0.875	0.737	0.683	0.000	-	0.775	0.675	0.890	0.250	-	0.862	0.875
Lights	44	52	0	-	96	160	70	0	-	230	27	202	1	-	230	556
% Lights	95.7	100.0	-	-	98.0	92.0	98.6	-	-	93.9	100.0	96.2	100.0	-	96.6	95.7
Mediums	1	0	0	-	1	6	0	0	-	6	0	5	0	-	5	12
% Mediums	2.2	0.0	-	-	1.0	3.4	0.0	-	-	2.4	0.0	2.4	0.0	-	2.1	2.1
Articulated Trucks	1	0	0	-	1	8	1	0	-	9	0	3	0	-	3	13
% Articulated Trucks	2.2	0.0	-	-	1.0	4.6	1.4	-	-	3.7	0.0	1.4	0.0	-	1.3	2.2
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019



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@ptsl.com

Count Name: Donnybrook Drive & Westchester Bourne
Site Code:
Start Date: 08/27/2019

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019

Turning Movement Data

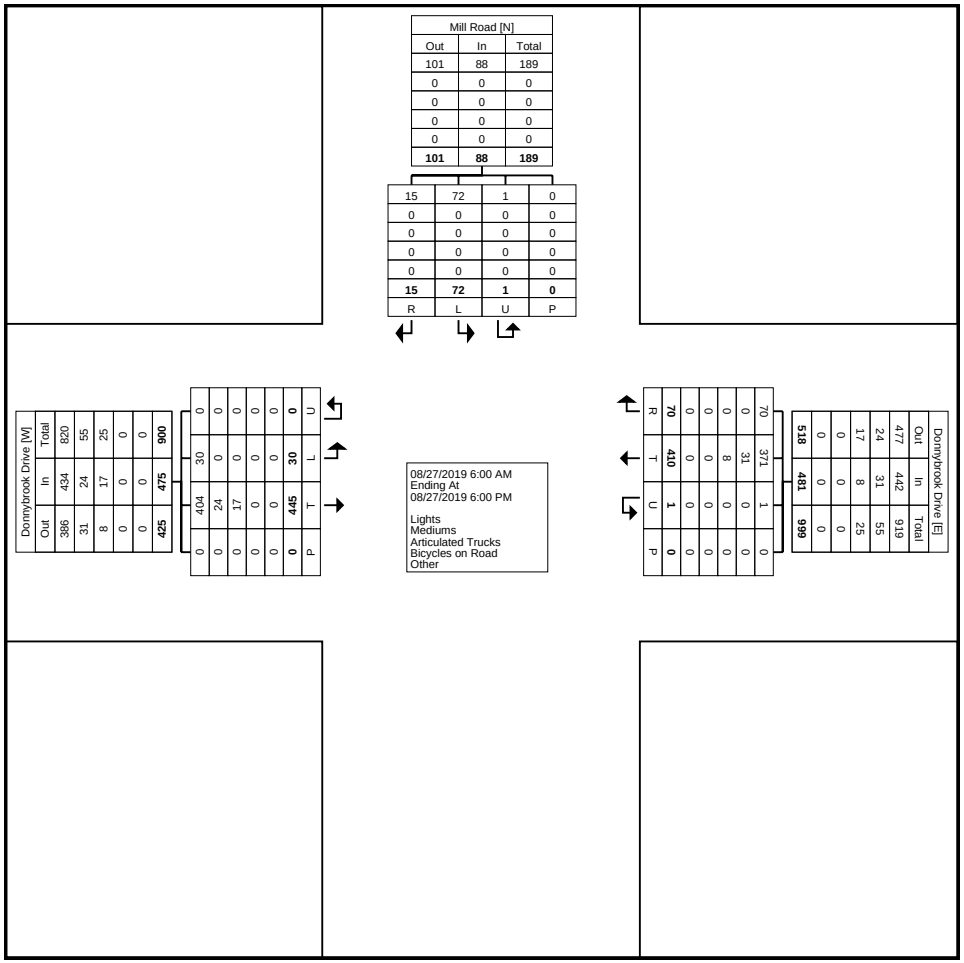
Start Time	Donnybrook Drive Eastbound					Donnybrook Drive Westbound					Mill Road Southbound					Int. Total
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	
6:00 AM	0	8	0	0	8	6	0	0	0	6	1	0	0	0	1	15
6:15 AM	0	3	0	0	3	10	0	0	0	10	3	1	0	0	4	17
6:30 AM	0	8	0	0	8	10	0	0	0	10	1	1	0	0	2	20
6:45 AM	0	8	0	0	8	17	0	0	0	17	3	0	0	0	3	28
Hourly Total	0	27	0	0	27	43	0	0	0	43	8	2	0	0	10	80
7:00 AM	0	7	0	0	7	9	0	0	0	9	6	1	0	0	7	23
7:15 AM	0	4	0	0	4	25	3	0	0	28	3	1	1	0	5	37
7:30 AM	0	7	0	0	7	13	0	0	0	13	2	0	0	0	2	22
7:45 AM	1	11	0	0	12	16	0	0	0	16	3	2	0	0	5	33
Hourly Total	1	29	0	0	30	63	3	0	0	66	14	4	1	0	19	115
8:00 AM	0	8	0	0	8	12	0	0	0	12	3	0	0	0	3	23
8:15 AM	2	12	0	0	14	13	1	0	0	14	2	0	0	0	2	30
8:30 AM	1	13	0	0	14	17	2	0	0	19	4	1	0	0	5	38
8:45 AM	1	14	0	0	15	16	2	0	0	18	2	1	0	0	3	36
Hourly Total	4	47	0	0	51	58	5	0	0	63	11	2	0	0	13	127
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	0	27	0	0	27	10	1	0	0	11	2	1	0	0	3	41
12:15 PM	2	14	0	0	16	24	6	0	0	30	2	0	0	0	2	48
12:30 PM	1	11	0	0	12	10	1	0	0	11	4	0	0	0	4	27
12:45 PM	1	12	0	0	13	10	1	0	0	11	2	0	0	0	2	26
Hourly Total	4	64	0	0	68	54	9	0	0	63	10	1	0	0	11	142
1:00 PM	0	16	0	0	16	15	3	0	0	18	1	0	0	0	1	35
1:15 PM	1	8	0	0	9	7	1	0	0	8	2	0	0	0	2	19
1:30 PM	2	16	0	0	18	10	2	0	0	12	3	0	0	0	3	33
1:45 PM	0	11	0	0	11	13	3	0	0	16	1	0	0	0	1	28
Hourly Total	3	51	0	0	54	45	9	0	0	54	7	0	0	0	7	115
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	17	0	0	18	8	2	0	0	10	1	0	0	0	1	29
3:15 PM	1	13	0	0	14	15	2	0	0	17	1	0	0	0	1	32
3:30 PM	1	20	0	0	21	13	4	0	0	17	1	0	0	0	1	39
3:45 PM	4	22	0	0	26	19	4	0	0	23	1	2	0	0	3	52
Hourly Total	7	72	0	0	79	55	12	0	0	67	4	2	0	0	6	152
4:00 PM	0	20	0	0	20	13	4	0	0	17	2	0	0	0	2	39
4:15 PM	3	22	0	0	25	13	5	0	0	18	2	0	0	0	2	45
4:30 PM	1	30	0	0	31	24	3	0	0	27	3	0	0	0	3	61
4:45 PM	2	17	0	0	19	7	4	0	0	11	2	1	0	0	3	33

Hourly Total	6	89	0	0	95	57	16	0	0	73	9	1	0	0	10	178
5:00 PM	1	17	0	0	18	6	4	0	0	10	2	0	0	0	2	30
5:15 PM	2	18	0	0	20	18	2	0	0	20	4	2	0	0	6	46
5:30 PM	0	15	0	0	15	5	4	1	0	10	2	0	0	0	2	27
5:45 PM	2	16	0	0	18	6	6	0	0	12	1	1	0	0	2	32
Hourly Total	5	66	0	0	71	35	16	1	0	52	9	3	0	0	12	135
Grand Total	30	445	0	0	475	410	70	1	0	481	72	15	1	0	88	1044
Approach %	6.3	93.7	0.0	-	-	85.2	14.6	0.2	-	-	81.8	17.0	1.1	-	-	-
Total %	2.9	42.6	0.0	-	45.5	39.3	6.7	0.1	-	46.1	6.9	1.4	0.1	-	8.4	-
Lights	30	404	0	-	434	371	70	1	-	442	72	15	1	-	88	964
% Lights	100.0	90.8	-	-	91.4	90.5	100.0	100.0	-	91.9	100.0	100.0	100.0	-	100.0	92.3
Mediums	0	24	0	-	24	31	0	0	-	31	0	0	0	-	0	55
% Mediums	0.0	5.4	-	-	5.1	7.6	0.0	0.0	-	6.4	0.0	0.0	0.0	-	0.0	5.3
Articulated Trucks	0	17	0	-	17	8	0	0	-	8	0	0	0	-	0	25
% Articulated Trucks	0.0	3.8	-	-	3.6	2.0	0.0	0.0	-	1.7	0.0	0.0	0.0	-	0.0	2.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019



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: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019

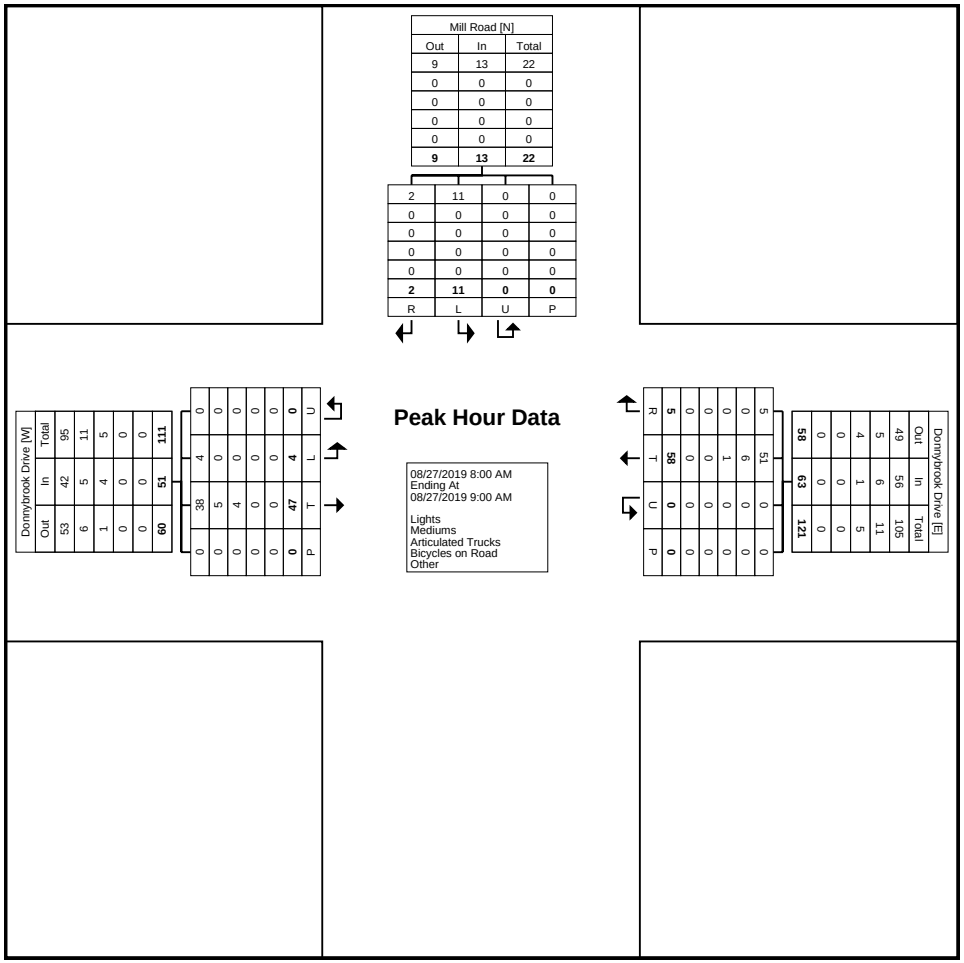
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Donnybrook Drive Eastbound					Donnybrook Drive Westbound					Mill Road Southbound					
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
8:00 AM	0	8	0	0	8	12	0	0	0	12	3	0	0	0	3	23
8:15 AM	2	12	0	0	14	13	1	0	0	14	2	0	0	0	2	30
8:30 AM	1	13	0	0	14	17	2	0	0	19	4	1	0	0	5	38
8:45 AM	1	14	0	0	15	16	2	0	0	18	2	1	0	0	3	36
Total	4	47	0	0	51	58	5	0	0	63	11	2	0	0	13	127
Approach %	7.8	92.2	0.0	-	-	92.1	7.9	0.0	-	-	84.6	15.4	0.0	-	-	-
Total %	3.1	37.0	0.0	-	40.2	45.7	3.9	0.0	-	49.6	8.7	1.6	0.0	-	10.2	-
PHF	0.500	0.839	0.000	-	0.850	0.853	0.625	0.000	-	0.829	0.688	0.500	0.000	-	0.650	0.836
Lights	4	38	0	-	42	51	5	0	-	56	11	2	0	-	13	111
% Lights	100.0	80.9	-	-	82.4	87.9	100.0	-	-	88.9	100.0	100.0	-	-	100.0	87.4
Mediums	0	5	0	-	5	6	0	0	-	6	0	0	0	-	0	11
% Mediums	0.0	10.6	-	-	9.8	10.3	0.0	-	-	9.5	0.0	0.0	-	-	0.0	8.7
Articulated Trucks	0	4	0	-	4	1	0	0	-	1	0	0	0	-	0	5
% Articulated Trucks	0.0	8.5	-	-	7.8	1.7	0.0	-	-	1.6	0.0	0.0	-	-	0.0	3.9
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019



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

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019

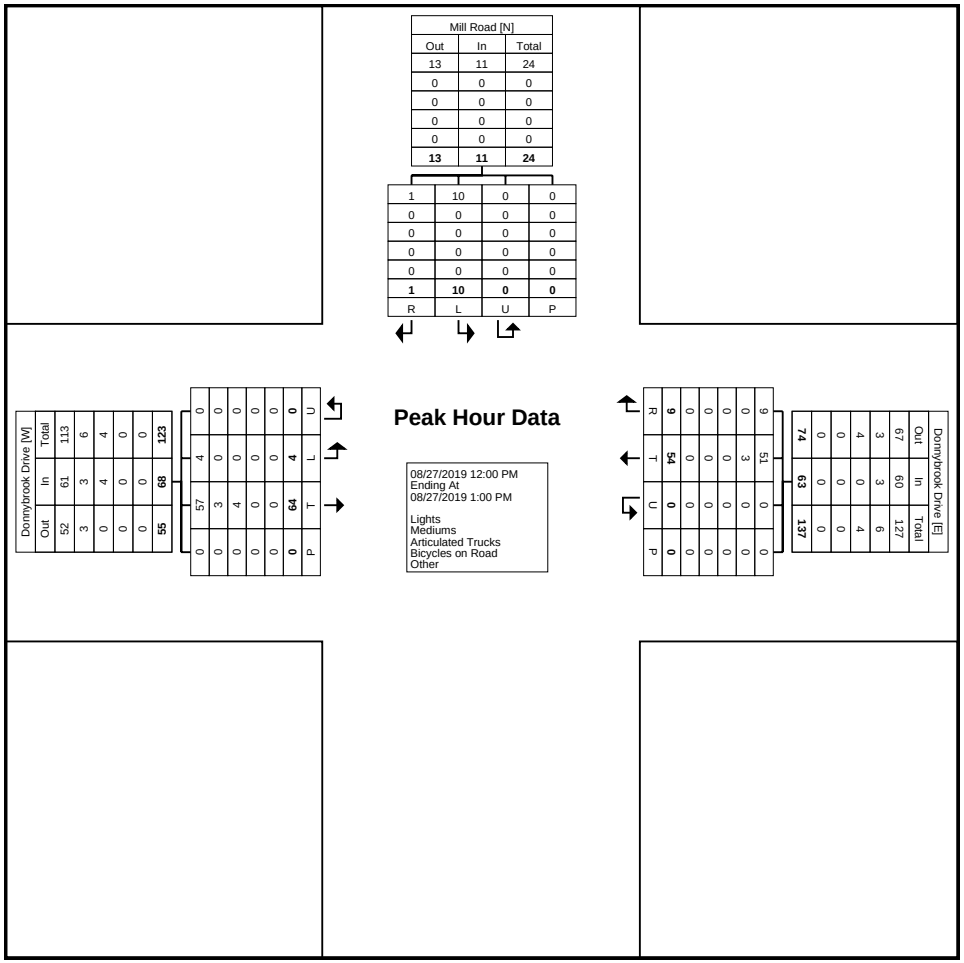
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Donnybrook Drive Eastbound					Donnybrook Drive Westbound					Mill Road Southbound					
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
12:00 PM	0	27	0	0	27	10	1	0	0	11	2	1	0	0	3	41
12:15 PM	2	14	0	0	16	24	6	0	0	30	2	0	0	0	2	48
12:30 PM	1	11	0	0	12	10	1	0	0	11	4	0	0	0	4	27
12:45 PM	1	12	0	0	13	10	1	0	0	11	2	0	0	0	2	26
Total	4	64	0	0	68	54	9	0	0	63	10	1	0	0	11	142
Approach %	5.9	94.1	0.0	-	-	85.7	14.3	0.0	-	-	90.9	9.1	0.0	-	-	-
Total %	2.8	45.1	0.0	-	47.9	38.0	6.3	0.0	-	44.4	7.0	0.7	0.0	-	7.7	-
PHF	0.500	0.593	0.000	-	0.630	0.563	0.375	0.000	-	0.525	0.625	0.250	0.000	-	0.688	0.740
Lights	4	57	0	-	61	51	9	0	-	60	10	1	0	-	11	132
% Lights	100.0	89.1	-	-	89.7	94.4	100.0	-	-	95.2	100.0	100.0	-	-	100.0	93.0
Mediums	0	3	0	-	3	3	0	0	-	3	0	0	0	-	0	6
% Mediums	0.0	4.7	-	-	4.4	5.6	0.0	-	-	4.8	0.0	0.0	-	-	0.0	4.2
Articulated Trucks	0	4	0	-	4	0	0	0	-	0	0	0	0	-	0	4
% Articulated Trucks	0.0	6.3	-	-	5.9	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	2.8
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019



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: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019

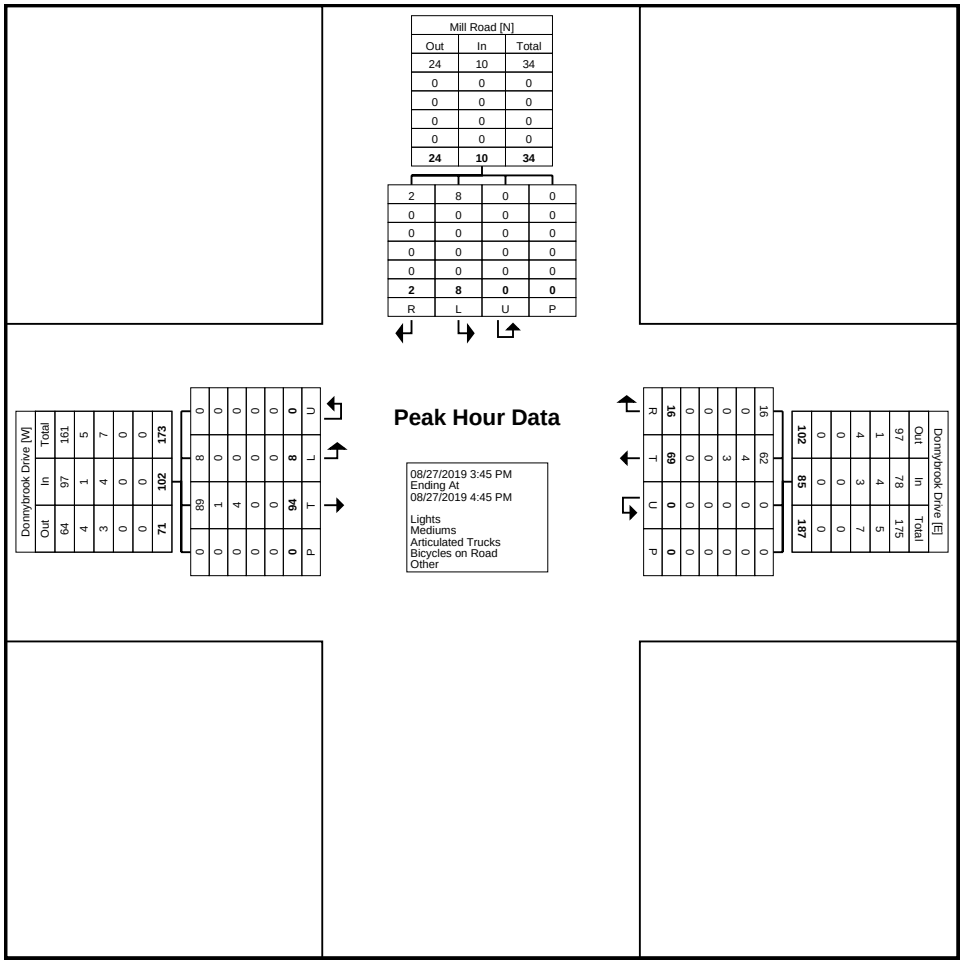
Turning Movement Peak Hour Data (3:45 PM)

Start Time	Donnybrook Drive Eastbound					Donnybrook Drive Westbound					Mill Road Southbound					
	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
3:45 PM	4	22	0	0	26	19	4	0	0	23	1	2	0	0	3	52
4:00 PM	0	20	0	0	20	13	4	0	0	17	2	0	0	0	2	39
4:15 PM	3	22	0	0	25	13	5	0	0	18	2	0	0	0	2	45
4:30 PM	1	30	0	0	31	24	3	0	0	27	3	0	0	0	3	61
Total	8	94	0	0	102	69	16	0	0	85	8	2	0	0	10	197
Approach %	7.8	92.2	0.0	-	-	81.2	18.8	0.0	-	-	80.0	20.0	0.0	-	-	-
Total %	4.1	47.7	0.0	-	51.8	35.0	8.1	0.0	-	43.1	4.1	1.0	0.0	-	5.1	-
PHF	0.500	0.783	0.000	-	0.823	0.719	0.800	0.000	-	0.787	0.667	0.250	0.000	-	0.833	0.807
Lights	8	89	0	-	97	62	16	0	-	78	8	2	0	-	10	185
% Lights	100.0	94.7	-	-	95.1	89.9	100.0	-	-	91.8	100.0	100.0	-	-	100.0	93.9
Mediums	0	1	0	-	1	4	0	0	-	4	0	0	0	-	0	5
% Mediums	0.0	1.1	-	-	1.0	5.8	0.0	-	-	4.7	0.0	0.0	-	-	0.0	2.5
Articulated Trucks	0	4	0	-	4	3	0	0	-	3	0	0	0	-	0	7
% Articulated Trucks	0.0	4.3	-	-	3.9	4.3	0.0	-	-	3.5	0.0	0.0	-	-	0.0	3.6
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019



Turning Movement Peak Hour Data Plot (3:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Donnybrook Drive & Mill Road
Site Code:
Start Date: 08/27/2019

Appendix C-2

2023 Turning Movement Count Data

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Dorchetser Road & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023

Turning Movement Data

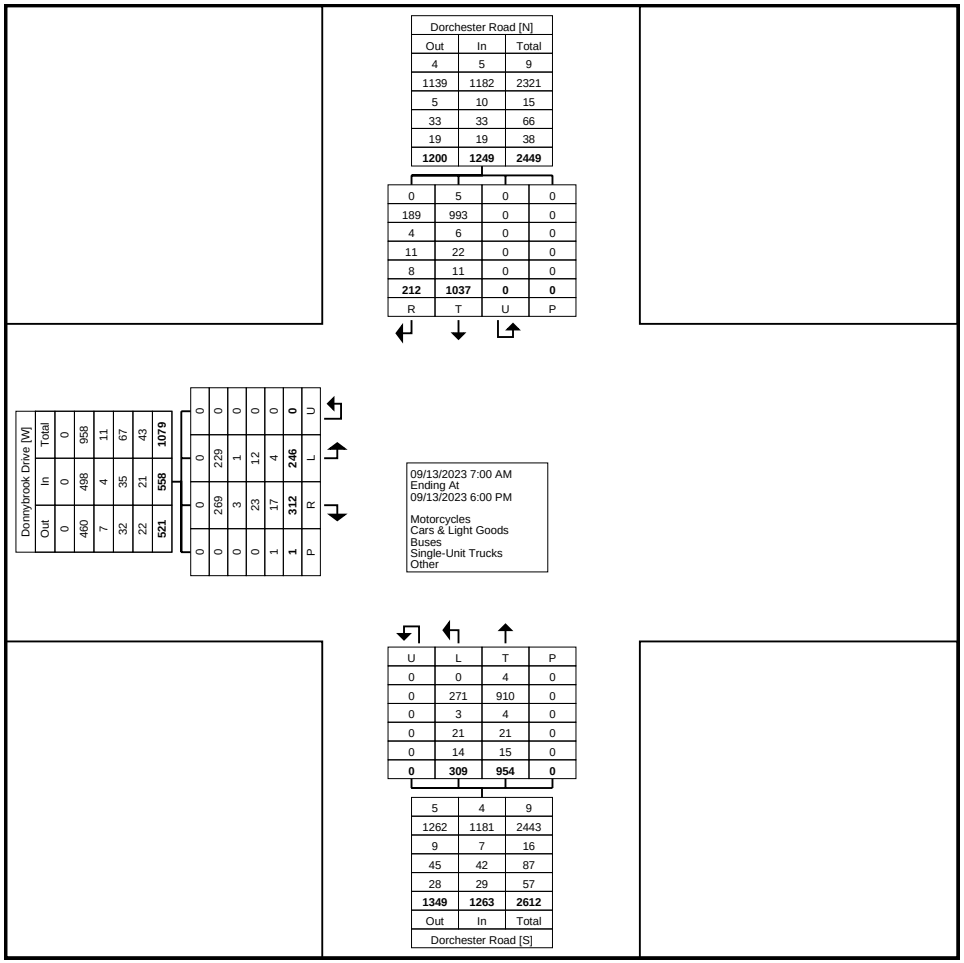
Start Time	Donnybrook Drive Eastbound					Dorchester Road Northbound					Dorchester Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	4	4	0	0	8	9	12	0	0	21	30	4	0	0	34	63
7:15 AM	3	10	0	0	13	3	15	0	0	18	27	3	0	0	30	61
7:30 AM	5	13	0	0	18	8	25	0	0	33	37	5	0	0	42	93
7:45 AM	4	11	0	0	15	10	35	0	0	45	27	9	0	0	36	96
Hourly Total	16	38	0	0	54	30	87	0	0	117	121	21	0	0	142	313
8:00 AM	3	10	0	0	13	6	40	0	0	46	34	3	0	0	37	96
8:15 AM	2	17	0	0	19	9	32	0	0	41	52	8	0	0	60	120
8:30 AM	9	15	0	0	24	9	28	0	0	37	36	8	0	0	44	105
8:45 AM	6	18	0	0	24	10	37	0	0	47	37	5	0	0	42	113
Hourly Total	20	60	0	0	80	34	137	0	0	171	159	24	0	0	183	434
9:00 AM	5	7	0	0	12	9	21	0	0	30	32	4	0	0	36	78
9:15 AM	12	13	0	0	25	6	11	0	0	17	32	6	0	0	38	80
9:30 AM	6	9	0	0	15	4	24	0	0	28	24	1	0	0	25	68
9:45 AM	2	7	0	0	9	3	21	0	0	24	27	10	0	0	37	70
Hourly Total	25	36	0	0	61	22	77	0	0	99	115	21	0	0	136	296
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	8	10	0	0	18	11	26	0	0	37	24	11	0	0	35	90
12:15 PM	16	9	0	0	25	6	24	0	0	30	16	8	0	0	24	79
12:30 PM	10	6	0	0	16	12	27	0	0	39	29	14	0	0	43	98
12:45 PM	5	2	0	0	7	6	33	0	0	39	32	9	0	0	41	87
Hourly Total	39	27	0	0	66	35	110	0	0	145	101	42	0	0	143	354
1:00 PM	9	10	0	0	19	10	24	0	0	34	26	5	0	0	31	84
1:15 PM	11	2	0	0	13	9	26	0	0	35	29	3	0	0	32	80
1:30 PM	4	3	0	1	7	7	20	0	0	27	33	7	0	0	40	74
1:45 PM	5	11	0	0	16	10	18	0	0	28	20	6	0	0	26	70
Hourly Total	29	26	0	1	55	36	88	0	0	124	108	21	0	0	129	308
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	13	10	0	0	23	7	31	0	0	38	34	7	0	0	41	102
3:15 PM	15	7	0	0	22	9	40	0	0	49	34	9	0	0	43	114
3:30 PM	8	11	0	0	19	9	35	0	0	44	42	7	0	0	49	112
3:45 PM	13	10	0	0	23	10	38	0	0	48	35	6	0	0	41	112
Hourly Total	49	38	0	0	87	35	144	0	0	179	145	29	0	0	174	440
4:00 PM	12	12	0	0	24	8	45	0	0	53	41	5	0	0	46	123
4:15 PM	12	12	0	0	24	19	44	0	0	63	40	10	0	0	50	137
4:30 PM	12	13	0	0	25	18	32	0	0	50	48	8	0	0	56	131
4:45 PM	9	11	0	0	20	13	31	0	0	44	33	6	0	0	39	103

Hourly Total	45	48	0	0	93	58	152	0	0	210	162	29	0	0	191	494
5:00 PM	4	13	0	0	17	17	39	0	0	56	42	6	0	0	48	121
5:15 PM	6	5	0	0	11	14	47	0	0	61	28	5	0	0	33	105
5:30 PM	5	8	0	0	13	16	35	0	0	51	27	10	0	0	37	101
5:45 PM	8	13	0	0	21	12	38	0	0	50	29	4	0	0	33	104
Hourly Total	23	39	0	0	62	59	159	0	0	218	126	25	0	0	151	431
Grand Total	246	312	0	1	558	309	954	0	0	1263	1037	212	0	0	1249	3070
Approach %	44.1	55.9	0.0	-	-	24.5	75.5	0.0	-	-	83.0	17.0	0.0	-	-	-
Total %	8.0	10.2	0.0	-	18.2	10.1	31.1	0.0	-	41.1	33.8	6.9	0.0	-	40.7	-
Motorcycles	0	0	0	-	0	0	4	0	-	4	5	0	0	-	5	9
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.4	-	-	0.3	0.5	0.0	-	-	0.4	0.3
Cars & Light Goods	229	269	0	-	498	271	910	0	-	1181	993	189	0	-	1182	2861
% Cars & Light Goods	93.1	86.2	-	-	89.2	87.7	95.4	-	-	93.5	95.8	89.2	-	-	94.6	93.2
Buses	1	3	0	-	4	3	4	0	-	7	6	4	0	-	10	21
% Buses	0.4	1.0	-	-	0.7	1.0	0.4	-	-	0.6	0.6	1.9	-	-	0.8	0.7
Single-Unit Trucks	12	23	0	-	35	21	21	0	-	42	22	11	0	-	33	110
% Single-Unit Trucks	4.9	7.4	-	-	6.3	6.8	2.2	-	-	3.3	2.1	5.2	-	-	2.6	3.6
Articulated Trucks	4	14	0	-	18	14	15	0	-	29	11	8	0	-	19	66
% Articulated Trucks	1.6	4.5	-	-	3.2	4.5	1.6	-	-	2.3	1.1	3.8	-	-	1.5	2.1
Bicycles on Road	0	3	0	-	3	0	0	0	-	0	0	0	0	-	0	3
% Bicycles on Road	0.0	1.0	-	-	0.5	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.1
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@ptsl.com

Count Name: Dorchetser Road & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023



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: Dorchetser Road & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023

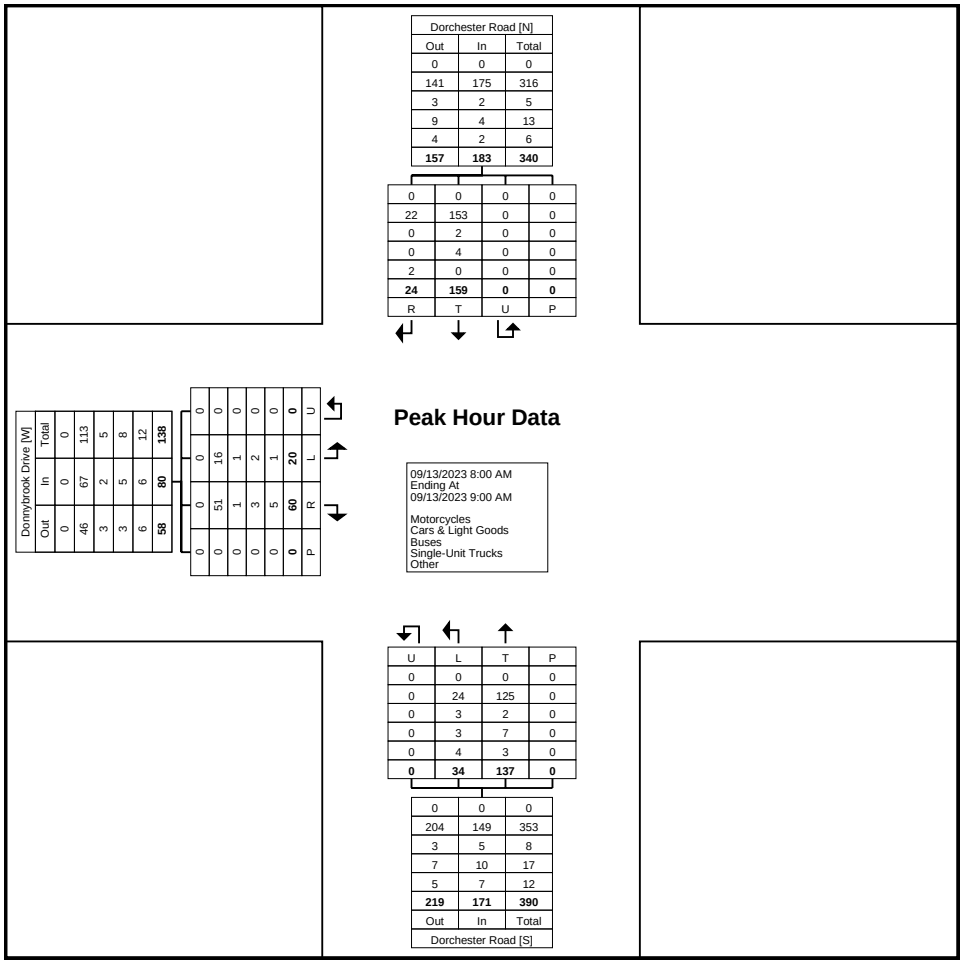
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Donnybrook Drive Eastbound					Dorchester Road Northbound					Dorchester Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
8:00 AM	3	10	0	0	13	6	40	0	0	46	34	3	0	0	37	96
8:15 AM	2	17	0	0	19	9	32	0	0	41	52	8	0	0	60	120
8:30 AM	9	15	0	0	24	9	28	0	0	37	36	8	0	0	44	105
8:45 AM	6	18	0	0	24	10	37	0	0	47	37	5	0	0	42	113
Total	20	60	0	0	80	34	137	0	0	171	159	24	0	0	183	434
Approach %	25.0	75.0	0.0	-	-	19.9	80.1	0.0	-	-	86.9	13.1	0.0	-	-	-
Total %	4.6	13.8	0.0	-	18.4	7.8	31.6	0.0	-	39.4	36.6	5.5	0.0	-	42.2	-
PHF	0.556	0.833	0.000	-	0.833	0.850	0.856	0.000	-	0.910	0.764	0.750	0.000	-	0.763	0.904
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	16	51	0	-	67	24	125	0	-	149	153	22	0	-	175	391
% Cars & Light Goods	80.0	85.0	-	-	83.8	70.6	91.2	-	-	87.1	96.2	91.7	-	-	95.6	90.1
Buses	1	1	0	-	2	3	2	0	-	5	2	0	0	-	2	9
% Buses	5.0	1.7	-	-	2.5	8.8	1.5	-	-	2.9	1.3	0.0	-	-	1.1	2.1
Single-Unit Trucks	2	3	0	-	5	3	7	0	-	10	4	0	0	-	4	19
% Single-Unit Trucks	10.0	5.0	-	-	6.3	8.8	5.1	-	-	5.8	2.5	0.0	-	-	2.2	4.4
Articulated Trucks	1	4	0	-	5	4	3	0	-	7	0	2	0	-	2	14
% Articulated Trucks	5.0	6.7	-	-	6.3	11.8	2.2	-	-	4.1	0.0	8.3	-	-	1.1	3.2
Bicycles on Road	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	0.0	1.7	-	-	1.3	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Dorchetser Road & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023



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

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Dorchetser Road & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023

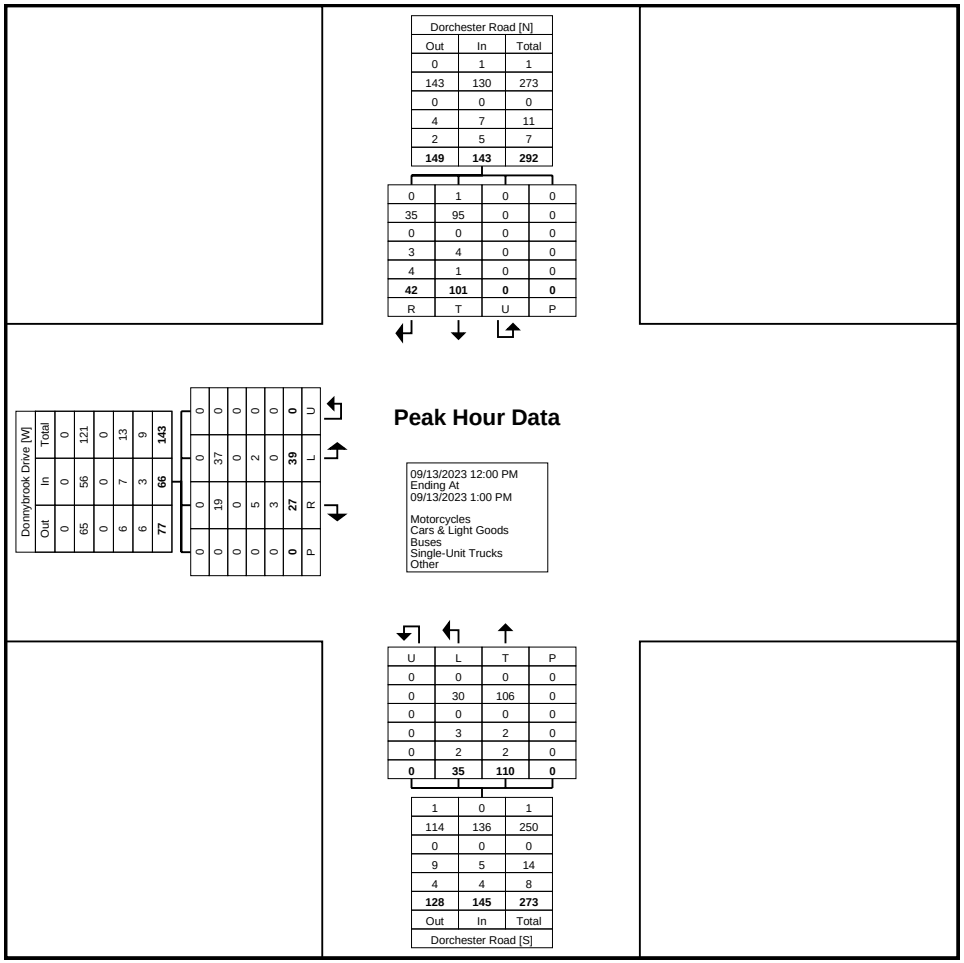
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Donnybrook Drive Eastbound					Dorchester Road Northbound					Dorchester Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
12:00 PM	8	10	0	0	18	11	26	0	0	37	24	11	0	0	35	90
12:15 PM	16	9	0	0	25	6	24	0	0	30	16	8	0	0	24	79
12:30 PM	10	6	0	0	16	12	27	0	0	39	29	14	0	0	43	98
12:45 PM	5	2	0	0	7	6	33	0	0	39	32	9	0	0	41	87
Total	39	27	0	0	66	35	110	0	0	145	101	42	0	0	143	354
Approach %	59.1	40.9	0.0	-	-	24.1	75.9	0.0	-	-	70.6	29.4	0.0	-	-	-
Total %	11.0	7.6	0.0	-	18.6	9.9	31.1	0.0	-	41.0	28.5	11.9	0.0	-	40.4	-
PHF	0.609	0.675	0.000	-	0.660	0.729	0.833	0.000	-	0.929	0.789	0.750	0.000	-	0.831	0.903
Motorcycles	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	1.0	0.0	-	-	0.7	0.3
Cars & Light Goods	37	19	0	-	56	30	106	0	-	136	95	35	0	-	130	322
% Cars & Light Goods	94.9	70.4	-	-	84.8	85.7	96.4	-	-	93.8	94.1	83.3	-	-	90.9	91.0
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	2	5	0	-	7	3	2	0	-	5	4	3	0	-	7	19
% Single-Unit Trucks	5.1	18.5	-	-	10.6	8.6	1.8	-	-	3.4	4.0	7.1	-	-	4.9	5.4
Articulated Trucks	0	3	0	-	3	2	2	0	-	4	1	4	0	-	5	12
% Articulated Trucks	0.0	11.1	-	-	4.5	5.7	1.8	-	-	2.8	1.0	9.5	-	-	3.5	3.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Dorchetser Road & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023



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: Dorchetser Road & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023

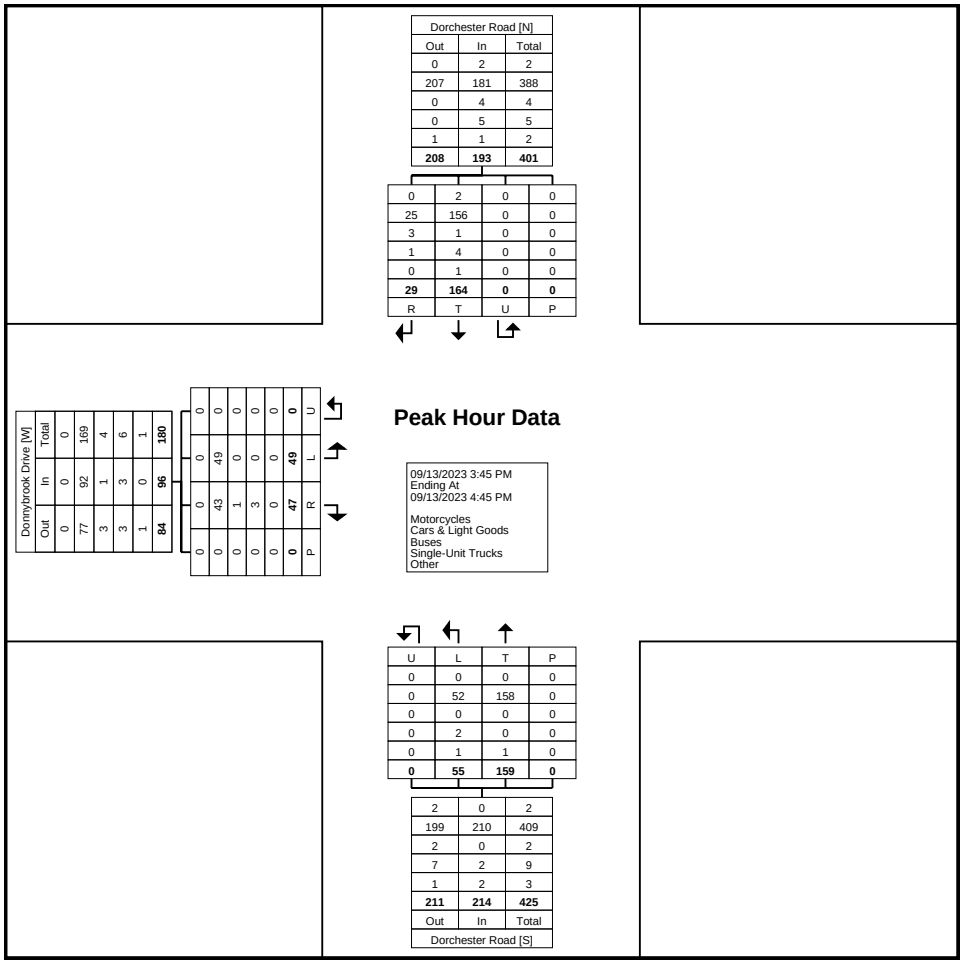
Turning Movement Peak Hour Data (3:45 PM)

Start Time	Donnybrook Drive Eastbound					Dorchester Road Northbound					Dorchester Road Southbound					
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Int. Total
3:45 PM	13	10	0	0	23	10	38	0	0	48	35	6	0	0	41	112
4:00 PM	12	12	0	0	24	8	45	0	0	53	41	5	0	0	46	123
4:15 PM	12	12	0	0	24	19	44	0	0	63	40	10	0	0	50	137
4:30 PM	12	13	0	0	25	18	32	0	0	50	48	8	0	0	56	131
Total	49	47	0	0	96	55	159	0	0	214	164	29	0	0	193	503
Approach %	51.0	49.0	0.0	-	-	25.7	74.3	0.0	-	-	85.0	15.0	0.0	-	-	-
Total %	9.7	9.3	0.0	-	19.1	10.9	31.6	0.0	-	42.5	32.6	5.8	0.0	-	38.4	-
PHF	0.942	0.904	0.000	-	0.960	0.724	0.883	0.000	-	0.849	0.854	0.725	0.000	-	0.862	0.918
Motorcycles	0	0	0	-	0	0	0	0	-	0	2	0	0	-	2	2
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	1.2	0.0	-	-	1.0	0.4
Cars & Light Goods	49	43	0	-	92	52	158	0	-	210	156	25	0	-	181	483
% Cars & Light Goods	100.0	91.5	-	-	95.8	94.5	99.4	-	-	98.1	95.1	86.2	-	-	93.8	96.0
Buses	0	1	0	-	1	0	0	0	-	0	1	3	0	-	4	5
% Buses	0.0	2.1	-	-	1.0	0.0	0.0	-	-	0.0	0.6	10.3	-	-	2.1	1.0
Single-Unit Trucks	0	3	0	-	3	2	0	0	-	2	4	1	0	-	5	10
% Single-Unit Trucks	0.0	6.4	-	-	3.1	3.6	0.0	-	-	0.9	2.4	3.4	-	-	2.6	2.0
Articulated Trucks	0	0	0	-	0	1	1	0	-	2	1	0	0	-	1	3
% Articulated Trucks	0.0	0.0	-	-	0.0	1.8	0.6	-	-	0.9	0.6	0.0	-	-	0.5	0.6
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Dorchetser Road & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023



Turning Movement Peak Hour Data Plot (3:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Hamilton Road & Wheeler Avenue
Site Code: 230556
Start Date: 09/13/2023

Turning Movement Data

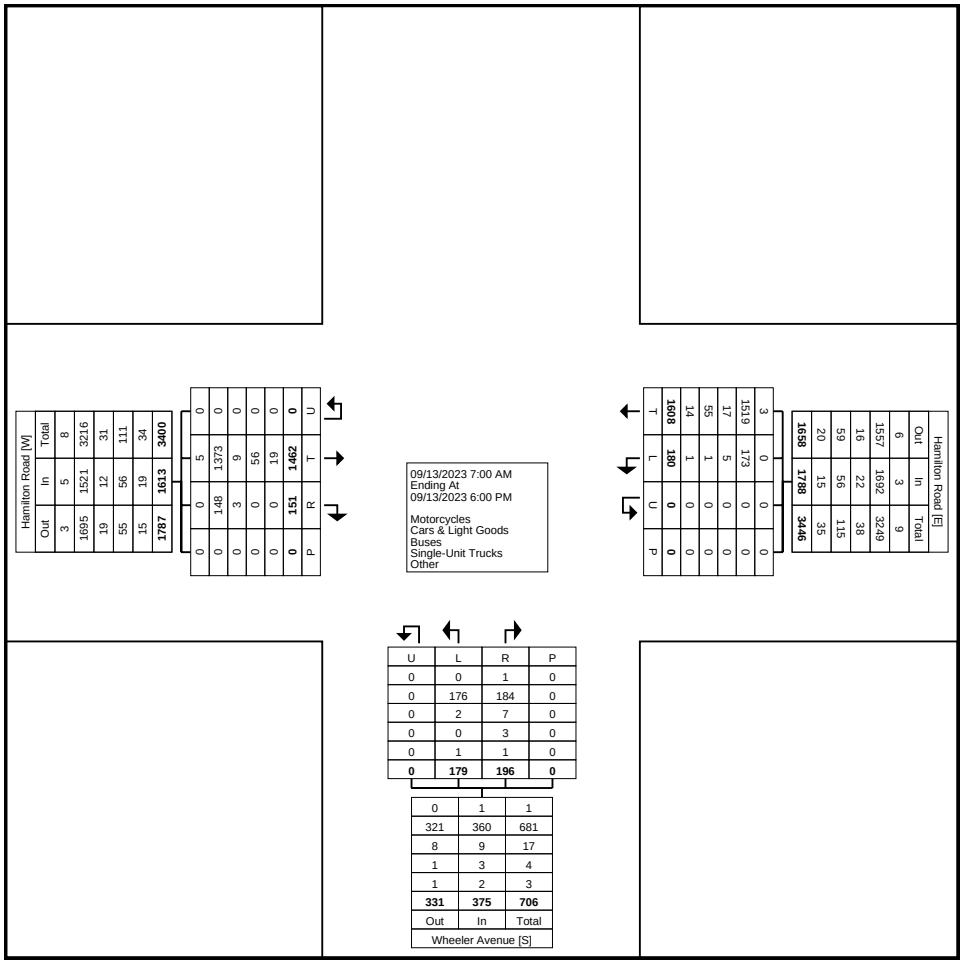
Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Wheeler Avenue Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
7:00 AM	31	1	0	0	32	1	56	0	0	57	12	6	0	0	18	107
7:15 AM	26	1	0	0	27	0	50	0	0	50	12	4	0	0	16	93
7:30 AM	28	0	0	0	28	0	74	0	0	74	19	4	0	0	23	125
7:45 AM	46	0	0	0	46	5	67	0	0	72	5	3	0	0	8	126
Hourly Total	131	2	0	0	133	6	247	0	0	253	48	17	0	0	65	451
8:00 AM	64	2	0	0	66	2	76	0	0	78	11	7	0	0	18	162
8:15 AM	37	4	0	0	41	2	56	0	0	58	10	9	0	0	19	118
8:30 AM	26	4	0	0	30	4	52	0	0	56	5	8	0	0	13	99
8:45 AM	54	2	0	0	56	7	42	0	0	49	3	11	0	0	14	119
Hourly Total	181	12	0	0	193	15	226	0	0	241	29	35	0	0	64	498
9:00 AM	35	2	0	0	37	7	46	0	0	53	7	8	0	0	15	105
9:15 AM	33	3	0	0	36	3	40	0	0	43	4	4	0	0	8	87
9:30 AM	23	3	0	0	26	12	36	0	0	48	1	8	0	0	9	83
9:45 AM	40	4	0	0	44	2	36	0	0	38	4	7	0	0	11	93
Hourly Total	131	12	0	0	143	24	158	0	0	182	16	27	0	0	43	368
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	28	1	0	0	29	7	53	0	0	60	7	14	0	0	21	110
12:15 PM	39	5	0	0	44	2	46	0	0	48	3	4	0	0	7	99
12:30 PM	29	5	0	0	34	6	38	0	0	44	5	3	0	0	8	86
12:45 PM	35	4	0	0	39	2	36	0	0	38	1	8	0	0	9	86
Hourly Total	131	15	0	0	146	17	173	0	0	190	16	29	0	0	45	381
1:00 PM	39	5	0	0	44	5	42	0	0	47	3	8	0	0	11	102
1:15 PM	44	3	0	0	47	7	39	0	0	46	4	5	0	0	9	102
1:30 PM	25	4	0	0	29	4	52	0	0	56	6	4	0	0	10	95
1:45 PM	31	3	0	0	34	1	27	0	0	28	3	4	0	0	7	69
Hourly Total	139	15	0	0	154	17	160	0	0	177	16	21	0	0	37	368
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	54	4	0	0	58	5	43	0	0	48	1	3	0	0	4	110
3:15 PM	63	9	0	0	72	10	51	0	0	61	3	7	0	0	10	143
3:30 PM	56	8	0	0	64	10	49	0	0	59	2	6	0	0	8	131
3:45 PM	57	14	0	0	71	13	51	0	0	64	6	2	0	0	8	143
Hourly Total	230	35	0	0	265	38	194	0	0	232	12	18	0	0	30	527
4:00 PM	61	5	0	0	66	6	78	0	0	84	4	4	0	0	8	158
4:15 PM	79	4	0	0	83	10	39	0	0	49	8	4	0	0	12	144
4:30 PM	59	14	0	0	73	7	69	0	0	76	4	5	0	0	9	158
4:45 PM	64	9	0	0	73	8	52	0	0	60	6	3	0	0	9	142

Hourly Total	263	32	0	0	295	31	238	0	0	269	22	16	0	0	38	602
5:00 PM	66	11	0	0	77	8	61	0	0	69	3	5	0	0	8	154
5:15 PM	73	6	0	0	79	5	57	0	0	62	7	12	0	0	19	160
5:30 PM	63	5	0	0	68	11	54	0	0	65	5	5	0	0	10	143
5:45 PM	54	6	0	0	60	8	40	0	0	48	5	11	0	0	16	124
Hourly Total	256	28	0	0	284	32	212	0	0	244	20	33	0	0	53	581
Grand Total	1462	151	0	0	1613	180	1608	0	0	1788	179	196	0	0	375	3776
Approach %	90.6	9.4	0.0	-	-	10.1	89.9	0.0	-	-	47.7	52.3	0.0	-	-	-
Total %	38.7	4.0	0.0	-	42.7	4.8	42.6	0.0	-	47.4	4.7	5.2	0.0	-	9.9	-
Motorcycles	5	0	0	-	5	0	3	0	-	3	0	1	0	-	1	9
% Motorcycles	0.3	0.0	-	-	0.3	0.0	0.2	-	-	0.2	0.0	0.5	-	-	0.3	0.2
Cars & Light Goods	1373	148	0	-	1521	173	1519	0	-	1692	176	184	0	-	360	3573
% Cars & Light Goods	93.9	98.0	-	-	94.3	96.1	94.5	-	-	94.6	98.3	93.9	-	-	96.0	94.6
Buses	9	3	0	-	12	5	17	0	-	22	2	7	0	-	9	43
% Buses	0.6	2.0	-	-	0.7	2.8	1.1	-	-	1.2	1.1	3.6	-	-	2.4	1.1
Single-Unit Trucks	56	0	0	-	56	1	55	0	-	56	0	3	0	-	3	115
% Single-Unit Trucks	3.8	0.0	-	-	3.5	0.6	3.4	-	-	3.1	0.0	1.5	-	-	0.8	3.0
Articulated Trucks	19	0	0	-	19	0	13	0	-	13	1	0	0	-	1	33
% Articulated Trucks	1.3	0.0	-	-	1.2	0.0	0.8	-	-	0.7	0.6	0.0	-	-	0.3	0.9
Bicycles on Road	0	0	0	-	0	1	1	0	-	2	0	1	0	-	1	3
% Bicycles on Road	0.0	0.0	-	-	0.0	0.6	0.1	-	-	0.1	0.0	0.5	-	-	0.3	0.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Hamilton Road & Wheeler Avenue
Site Code: 230556
Start Date: 09/13/2023



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: Hamilton Road & Wheeler Avenue
Site Code: 230556
Start Date: 09/13/2023

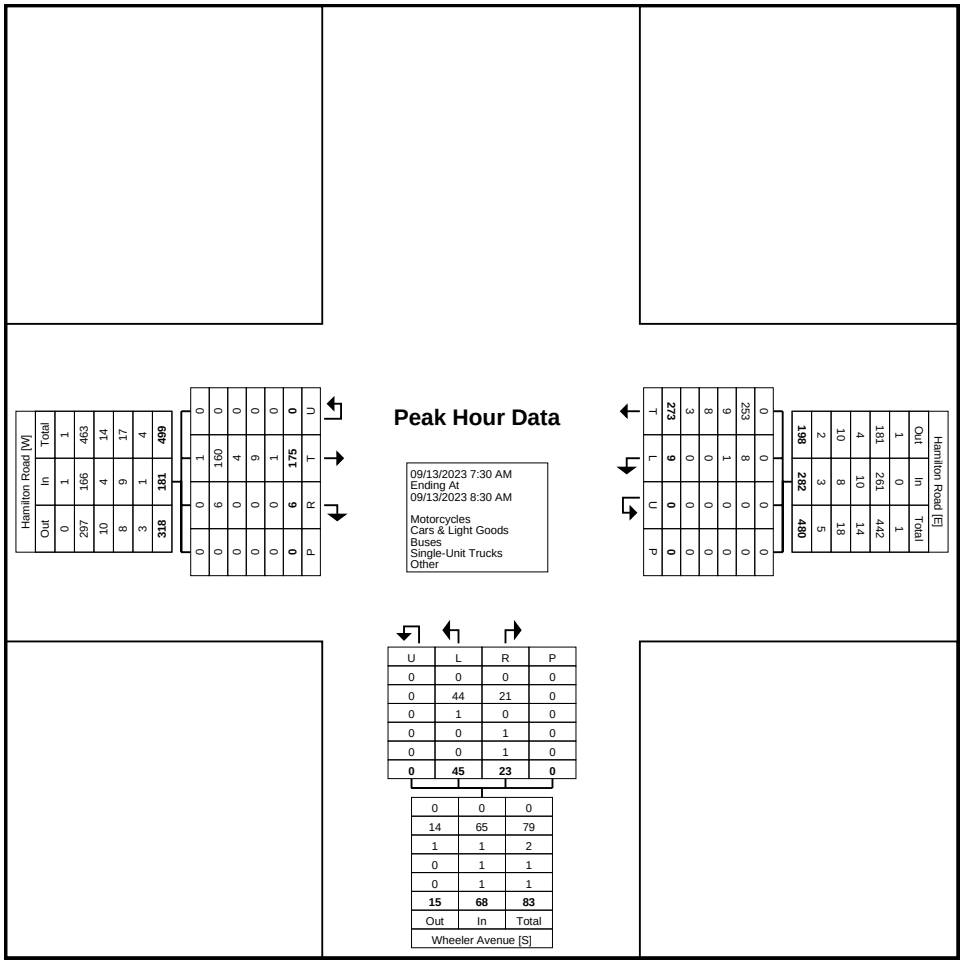
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Wheeler Avenue Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
7:30 AM	28	0	0	0	28	0	74	0	0	74	19	4	0	0	23	125
7:45 AM	46	0	0	0	46	5	67	0	0	72	5	3	0	0	8	126
8:00 AM	64	2	0	0	66	2	76	0	0	78	11	7	0	0	18	162
8:15 AM	37	4	0	0	41	2	56	0	0	58	10	9	0	0	19	118
Total	175	6	0	0	181	9	273	0	0	282	45	23	0	0	68	531
Approach %	96.7	3.3	0.0	-	-	3.2	96.8	0.0	-	-	66.2	33.8	0.0	-	-	-
Total %	33.0	1.1	0.0	-	34.1	1.7	51.4	0.0	-	53.1	8.5	4.3	0.0	-	12.8	-
PHF	0.684	0.375	0.000	-	0.686	0.450	0.898	0.000	-	0.904	0.592	0.639	0.000	-	0.739	0.819
Motorcycles	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Motorcycles	0.6	0.0	-	-	0.6	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.2
Cars & Light Goods	160	6	0	-	166	8	253	0	-	261	44	21	0	-	65	492
% Cars & Light Goods	91.4	100.0	-	-	91.7	88.9	92.7	-	-	92.6	97.8	91.3	-	-	95.6	92.7
Buses	4	0	0	-	4	1	9	0	-	10	1	0	0	-	1	15
% Buses	2.3	0.0	-	-	2.2	11.1	3.3	-	-	3.5	2.2	0.0	-	-	1.5	2.8
Single-Unit Trucks	9	0	0	-	9	0	8	0	-	8	0	1	0	-	1	18
% Single-Unit Trucks	5.1	0.0	-	-	5.0	0.0	2.9	-	-	2.8	0.0	4.3	-	-	1.5	3.4
Articulated Trucks	1	0	0	-	1	0	3	0	-	3	0	0	0	-	0	4
% Articulated Trucks	0.6	0.0	-	-	0.6	0.0	1.1	-	-	1.1	0.0	0.0	-	-	0.0	0.8
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	4.3	-	-	1.5	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Hamilton Road & Wheeler Avenue
Site Code: 230556
Start Date: 09/13/2023



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

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Hamilton Road & Wheeler Avenue
Site Code: 230556
Start Date: 09/13/2023

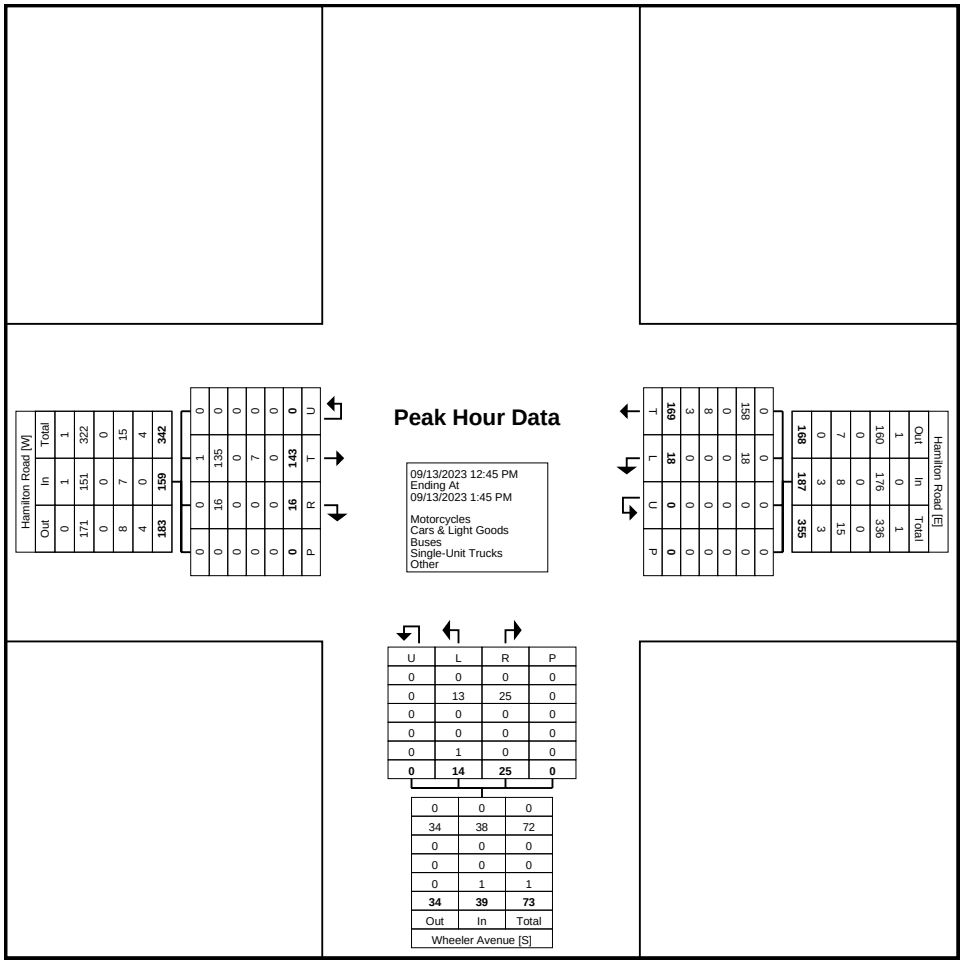
Turning Movement Peak Hour Data (12:45 PM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Wheeler Avenue Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
12:45 PM	35	4	0	0	39	2	36	0	0	38	1	8	0	0	9	86
1:00 PM	39	5	0	0	44	5	42	0	0	47	3	8	0	0	11	102
1:15 PM	44	3	0	0	47	7	39	0	0	46	4	5	0	0	9	102
1:30 PM	25	4	0	0	29	4	52	0	0	56	6	4	0	0	10	95
Total	143	16	0	0	159	18	169	0	0	187	14	25	0	0	39	385
Approach %	89.9	10.1	0.0	-	-	9.6	90.4	0.0	-	-	35.9	64.1	0.0	-	-	-
Total %	37.1	4.2	0.0	-	41.3	4.7	43.9	0.0	-	48.6	3.6	6.5	0.0	-	10.1	-
PHF	0.813	0.800	0.000	-	0.846	0.643	0.813	0.000	-	0.835	0.583	0.781	0.000	-	0.886	0.944
Motorcycles	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Motorcycles	0.7	0.0	-	-	0.6	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.3
Cars & Light Goods	135	16	0	-	151	18	158	0	-	176	13	25	0	-	38	365
% Cars & Light Goods	94.4	100.0	-	-	95.0	100.0	93.5	-	-	94.1	92.9	100.0	-	-	97.4	94.8
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	7	0	0	-	7	0	8	0	-	8	0	0	0	-	0	15
% Single-Unit Trucks	4.9	0.0	-	-	4.4	0.0	4.7	-	-	4.3	0.0	0.0	-	-	0.0	3.9
Articulated Trucks	0	0	0	-	0	0	3	0	-	3	1	0	0	-	1	4
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	1.8	-	-	1.6	7.1	0.0	-	-	2.6	1.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Hamilton Road & Wheeler Avenue
Site Code: 230556
Start Date: 09/13/2023



Hamilton Road [W]	U	T	R	P	Total
Out	0	171	8	4	**183**
In	1	151	0	0	**159**
Total	1	322	0	15	4	**342**

U	L	R	P
0	0	0	0
0	13	25	0
0	0	0	0
0	0	0	0
0	1	0	0
0	**14**	**25**	**0**

Out	In	Total
0	0	0
34	38	72
0	0	0
0	0	0
0	1	1
34	**39**	**73**

Hamilton Road [E]	T	L	U	P	Total
Out	160	1	0	0	1
In	176	0	0	0	0
Total	336	1	0	0	1
	0	7	0	0	7
	3	8	0	0	8
	3	15	0	0	15
	355	**187**	**0**	**0**	**168**

Turning Movement Peak Hour Data Plot (12:45 PM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Hamilton Road & Wheeler Avenue
Site Code: 230556
Start Date: 09/13/2023

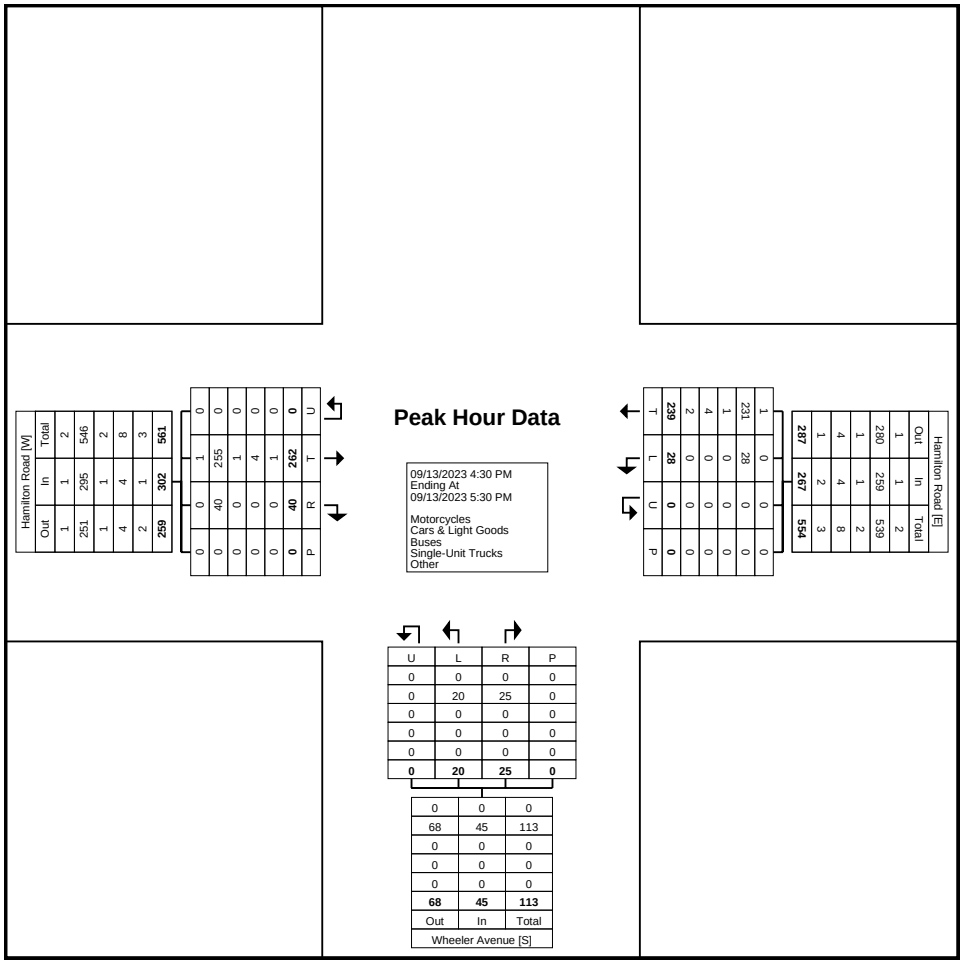
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Hamilton Road Eastbound					Hamilton Road Westbound					Wheeler Avenue Northbound					
	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Left	Right	U-Turn	Peds	App. Total	Int. Total
4:30 PM	59	14	0	0	73	7	69	0	0	76	4	5	0	0	9	158
4:45 PM	64	9	0	0	73	8	52	0	0	60	6	3	0	0	9	142
5:00 PM	66	11	0	0	77	8	61	0	0	69	3	5	0	0	8	154
5:15 PM	73	6	0	0	79	5	57	0	0	62	7	12	0	0	19	160
Total	262	40	0	0	302	28	239	0	0	267	20	25	0	0	45	614
Approach %	86.8	13.2	0.0	-	-	10.5	89.5	0.0	-	-	44.4	55.6	0.0	-	-	-
Total %	42.7	6.5	0.0	-	49.2	4.6	38.9	0.0	-	43.5	3.3	4.1	0.0	-	7.3	-
PHF	0.897	0.714	0.000	-	0.956	0.875	0.866	0.000	-	0.878	0.714	0.521	0.000	-	0.592	0.959
Motorcycles	1	0	0	-	1	0	1	0	-	1	0	0	0	-	0	2
% Motorcycles	0.4	0.0	-	-	0.3	0.0	0.4	-	-	0.4	0.0	0.0	-	-	0.0	0.3
Cars & Light Goods	255	40	0	-	295	28	231	0	-	259	20	25	0	-	45	599
% Cars & Light Goods	97.3	100.0	-	-	97.7	100.0	96.7	-	-	97.0	100.0	100.0	-	-	100.0	97.6
Buses	1	0	0	-	1	0	1	0	-	1	0	0	0	-	0	2
% Buses	0.4	0.0	-	-	0.3	0.0	0.4	-	-	0.4	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	4	0	0	-	4	0	4	0	-	4	0	0	0	-	0	8
% Single-Unit Trucks	1.5	0.0	-	-	1.3	0.0	1.7	-	-	1.5	0.0	0.0	-	-	0.0	1.3
Articulated Trucks	1	0	0	-	1	0	2	0	-	2	0	0	0	-	0	3
% Articulated Trucks	0.4	0.0	-	-	0.3	0.0	0.8	-	-	0.7	0.0	0.0	-	-	0.0	0.5
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Hamilton Road & Wheeler Avenue
Site Code: 230556
Start Date: 09/13/2023



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@ptsl.com

Count Name: Westchester Bourne & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023

Turning Movement Data

Start Time	Donnybrook Drive Westbound					Westchester Bourne Northbound					Westchester Bourne Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
7:00 AM	4	9	0	0	13	26	10	0	0	36	9	35	0	0	44	93
7:15 AM	7	11	0	0	18	28	8	0	0	36	7	33	0	0	40	94
7:30 AM	9	9	0	0	18	26	11	0	0	37	9	27	0	0	36	91
7:45 AM	12	7	0	0	19	43	11	0	0	54	11	29	0	0	40	113
Hourly Total	32	36	0	0	68	123	40	0	0	163	36	124	0	0	160	391
8:00 AM	7	5	0	0	12	28	12	0	0	40	16	15	0	0	31	83
8:15 AM	9	11	1	0	21	28	5	0	0	33	5	10	0	0	15	69
8:30 AM	10	8	0	0	18	29	7	0	0	36	1	22	0	0	23	77
8:45 AM	5	4	0	0	9	31	7	0	0	38	10	15	0	0	25	72
Hourly Total	31	28	1	0	60	116	31	0	0	147	32	62	0	0	94	301
9:00 AM	8	8	0	0	16	18	7	0	0	25	12	24	0	0	36	77
9:15 AM	11	10	0	0	21	19	8	0	0	27	5	19	0	1	24	72
9:30 AM	7	6	0	0	13	25	5	0	0	30	7	31	0	0	38	81
9:45 AM	7	5	1	0	13	15	4	0	0	19	4	19	0	0	23	55
Hourly Total	33	29	1	0	63	77	24	0	0	101	28	93	0	1	121	285
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	9	7	0	0	16	18	7	0	0	25	9	31	0	0	40	81
12:15 PM	3	8	0	0	11	24	17	0	0	41	7	22	0	0	29	81
12:30 PM	11	9	0	0	20	29	8	0	0	37	12	19	0	0	31	88
12:45 PM	3	12	0	0	15	21	9	0	0	30	4	13	0	0	17	62
Hourly Total	26	36	0	0	62	92	41	0	0	133	32	85	0	0	117	312
1:00 PM	7	8	0	0	15	19	4	0	0	23	12	24	0	0	36	74
1:15 PM	2	14	0	0	16	12	10	0	0	22	6	10	0	0	16	54
1:30 PM	10	9	0	0	19	25	2	0	0	27	6	17	0	0	23	69
1:45 PM	10	10	0	0	20	30	9	0	0	39	6	23	0	0	29	88
Hourly Total	29	41	0	0	70	86	25	0	0	111	30	74	0	0	104	285
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	11	8	0	0	19	28	13	0	0	41	13	39	0	0	52	112
3:15 PM	8	10	0	0	18	32	12	0	0	44	7	26	0	0	33	95
3:30 PM	14	10	0	0	24	25	14	0	0	39	8	34	0	0	42	105
3:45 PM	9	8	0	0	17	33	17	0	0	50	3	29	0	0	32	99
Hourly Total	42	36	0	0	78	118	56	0	0	174	31	128	0	0	159	411
4:00 PM	11	11	0	0	22	40	10	0	0	50	7	40	0	0	47	119
4:15 PM	11	5	0	0	16	41	16	0	0	57	7	47	0	0	54	127
4:30 PM	16	9	0	0	25	33	12	0	0	45	4	43	0	0	47	117
4:45 PM	11	7	0	0	18	44	13	0	0	57	4	46	0	0	50	125

Hourly Total	49	32	0	0	81	158	51	0	0	209	22	176	0	0	198	488
5:00 PM	13	10	1	0	24	46	5	0	0	51	7	44	0	0	51	126
5:15 PM	3	5	0	0	8	53	8	0	0	61	5	49	0	0	54	123
5:30 PM	5	4	0	0	9	38	4	0	0	42	11	32	0	0	43	94
5:45 PM	4	6	0	0	10	36	12	0	0	48	7	31	0	0	38	96
Hourly Total	25	25	1	0	51	173	29	0	0	202	30	156	0	0	186	439
Grand Total	267	263	3	0	533	943	297	0	0	1240	241	898	0	1	1139	2912
Approach %	50.1	49.3	0.6	-	-	76.0	24.0	0.0	-	-	21.2	78.8	0.0	-	-	-
Total %	9.2	9.0	0.1	-	18.3	32.4	10.2	0.0	-	42.6	8.3	30.8	0.0	-	39.1	-
Motorcycles	0	3	0	-	3	6	0	0	-	6	1	4	0	-	5	14
% Motorcycles	0.0	1.1	0.0	-	0.6	0.6	0.0	-	-	0.5	0.4	0.4	-	-	0.4	0.5
Cars & Light Goods	209	188	3	-	400	842	245	0	-	1087	173	789	0	-	962	2449
% Cars & Light Goods	78.3	71.5	100.0	-	75.0	89.3	82.5	-	-	87.7	71.8	87.9	-	-	84.5	84.1
Buses	5	3	0	-	8	10	1	0	-	11	1	10	0	-	11	30
% Buses	1.9	1.1	0.0	-	1.5	1.1	0.3	-	-	0.9	0.4	1.1	-	-	1.0	1.0
Single-Unit Trucks	32	59	0	-	91	41	26	0	-	67	62	43	0	-	105	263
% Single-Unit Trucks	12.0	22.4	0.0	-	17.1	4.3	8.8	-	-	5.4	25.7	4.8	-	-	9.2	9.0
Articulated Trucks	20	9	0	-	29	43	25	0	-	68	4	49	0	-	53	150
% Articulated Trucks	7.5	3.4	0.0	-	5.4	4.6	8.4	-	-	5.5	1.7	5.5	-	-	4.7	5.2
Bicycles on Road	1	1	0	-	2	1	0	0	-	1	0	3	0	-	3	6
% Bicycles on Road	0.4	0.4	0.0	-	0.4	0.1	0.0	-	-	0.1	0.0	0.3	-	-	0.3	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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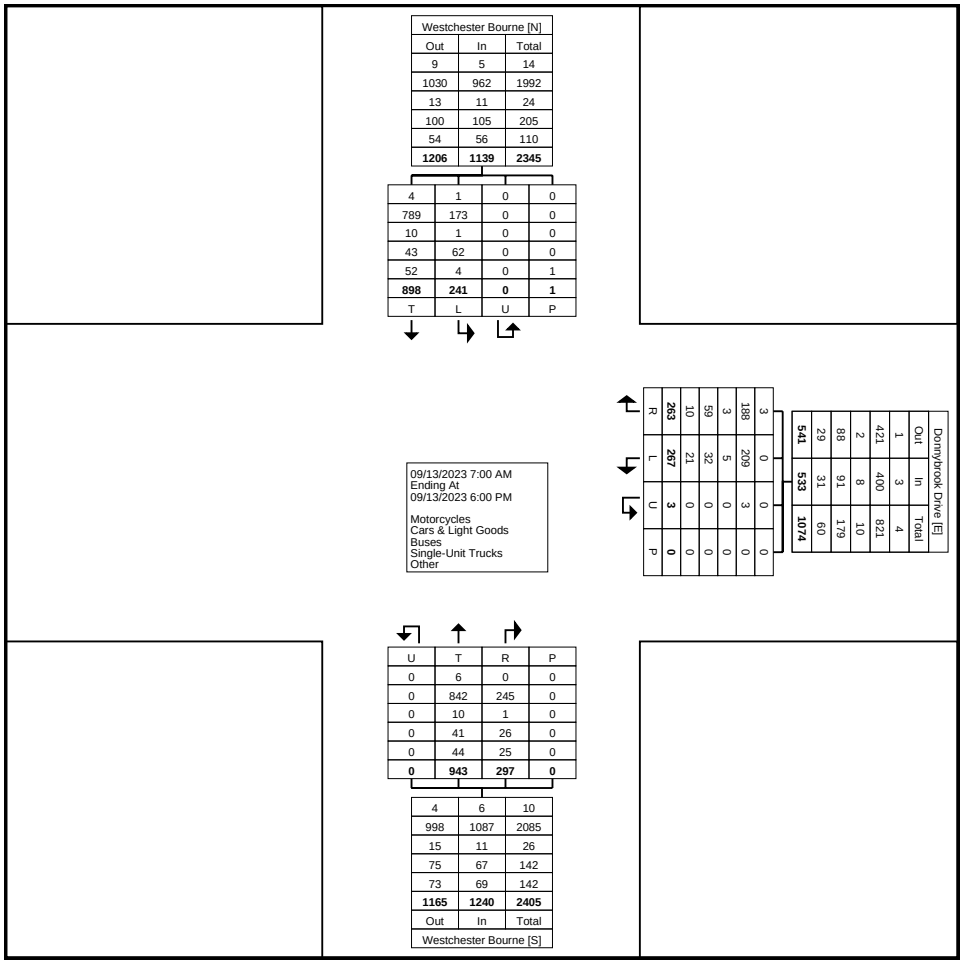
Count Name: Westchester Bourne & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023



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: Westchester Bourne & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023

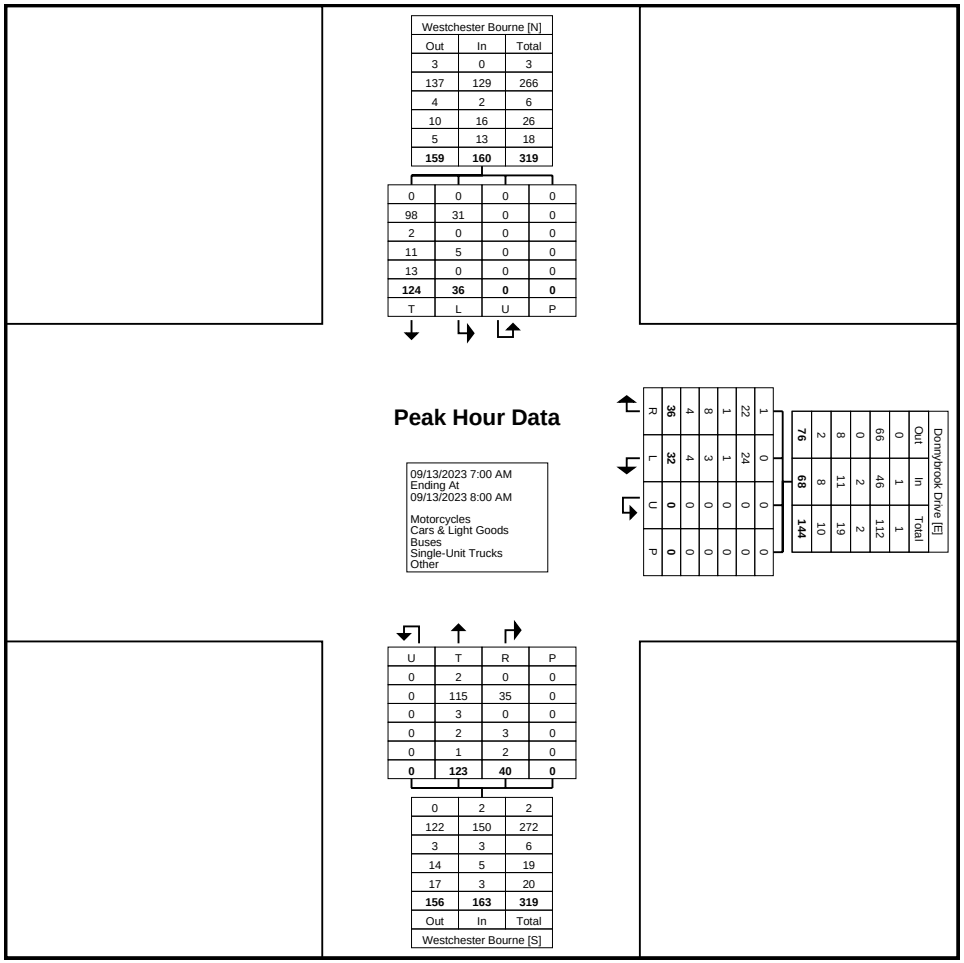
Turning Movement Peak Hour Data (7:00 AM)

Start Time	Donnybrook Drive Westbound					Westchester Bourne Northbound					Westchester Bourne Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
7:00 AM	4	9	0	0	13	26	10	0	0	36	9	35	0	0	44	93
7:15 AM	7	11	0	0	18	28	8	0	0	36	7	33	0	0	40	94
7:30 AM	9	9	0	0	18	26	11	0	0	37	9	27	0	0	36	91
7:45 AM	12	7	0	0	19	43	11	0	0	54	11	29	0	0	40	113
Total	32	36	0	0	68	123	40	0	0	163	36	124	0	0	160	391
Approach %	47.1	52.9	0.0	-	-	75.5	24.5	0.0	-	-	22.5	77.5	0.0	-	-	-
Total %	8.2	9.2	0.0	-	17.4	31.5	10.2	0.0	-	41.7	9.2	31.7	0.0	-	40.9	-
PHF	0.667	0.818	0.000	-	0.895	0.715	0.909	0.000	-	0.755	0.818	0.886	0.000	-	0.909	0.865
Motorcycles	0	1	0	-	1	2	0	0	-	2	0	0	0	-	0	3
% Motorcycles	0.0	2.8	-	-	1.5	1.6	0.0	-	-	1.2	0.0	0.0	-	-	0.0	0.8
Cars & Light Goods	24	22	0	-	46	115	35	0	-	150	31	98	0	-	129	325
% Cars & Light Goods	75.0	61.1	-	-	67.6	93.5	87.5	-	-	92.0	86.1	79.0	-	-	80.6	83.1
Buses	1	1	0	-	2	3	0	0	-	3	0	2	0	-	2	7
% Buses	3.1	2.8	-	-	2.9	2.4	0.0	-	-	1.8	0.0	1.6	-	-	1.3	1.8
Single-Unit Trucks	3	8	0	-	11	2	3	0	-	5	5	11	0	-	16	32
% Single-Unit Trucks	9.4	22.2	-	-	16.2	1.6	7.5	-	-	3.1	13.9	8.9	-	-	10.0	8.2
Articulated Trucks	4	4	0	-	8	1	2	0	-	3	0	13	0	-	13	24
% Articulated Trucks	12.5	11.1	-	-	11.8	0.8	5.0	-	-	1.8	0.0	10.5	-	-	8.1	6.1
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Bourne & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023



Turning Movement Peak Hour Data Plot (7:00 AM)

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Bourne & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023

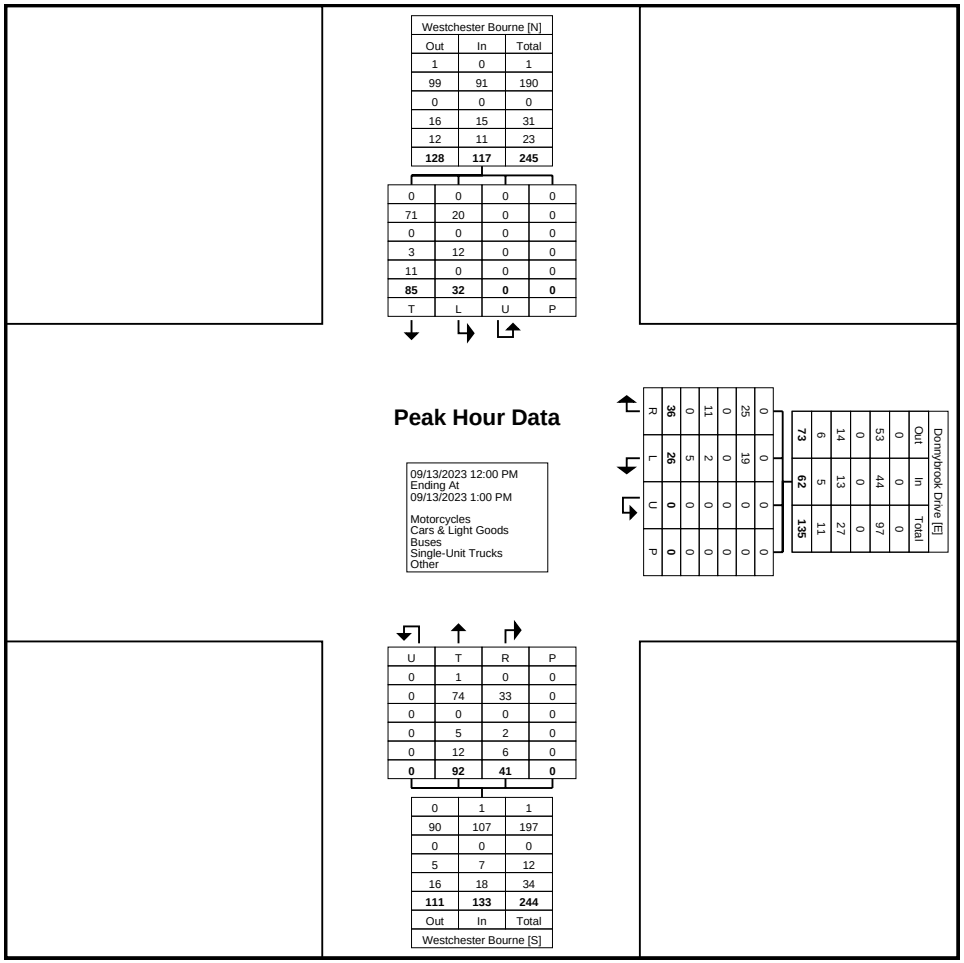
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Donnybrook Drive Westbound					Westchester Bourne Northbound					Westchester Bourne Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
12:00 PM	9	7	0	0	16	18	7	0	0	25	9	31	0	0	40	81
12:15 PM	3	8	0	0	11	24	17	0	0	41	7	22	0	0	29	81
12:30 PM	11	9	0	0	20	29	8	0	0	37	12	19	0	0	31	88
12:45 PM	3	12	0	0	15	21	9	0	0	30	4	13	0	0	17	62
Total	26	36	0	0	62	92	41	0	0	133	32	85	0	0	117	312
Approach %	41.9	58.1	0.0	-	-	69.2	30.8	0.0	-	-	27.4	72.6	0.0	-	-	-
Total %	8.3	11.5	0.0	-	19.9	29.5	13.1	0.0	-	42.6	10.3	27.2	0.0	-	37.5	-
PHF	0.591	0.750	0.000	-	0.775	0.793	0.603	0.000	-	0.811	0.667	0.685	0.000	-	0.731	0.886
Motorcycles	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Motorcycles	0.0	0.0	-	-	0.0	1.1	0.0	-	-	0.8	0.0	0.0	-	-	0.0	0.3
Cars & Light Goods	19	25	0	-	44	74	33	0	-	107	20	71	0	-	91	242
% Cars & Light Goods	73.1	69.4	-	-	71.0	80.4	80.5	-	-	80.5	62.5	83.5	-	-	77.8	77.6
Buses	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	2	11	0	-	13	5	2	0	-	7	12	3	0	-	15	35
% Single-Unit Trucks	7.7	30.6	-	-	21.0	5.4	4.9	-	-	5.3	37.5	3.5	-	-	12.8	11.2
Articulated Trucks	5	0	0	-	5	11	6	0	-	17	0	10	0	-	10	32
% Articulated Trucks	19.2	0.0	-	-	8.1	12.0	14.6	-	-	12.8	0.0	11.8	-	-	8.5	10.3
Bicycles on Road	0	0	0	-	0	1	0	0	-	1	0	1	0	-	1	2
% Bicycles on Road	0.0	0.0	-	-	0.0	1.1	0.0	-	-	0.8	0.0	1.2	-	-	0.9	0.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Westchester Bourne & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023



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: Westchester Bourne & Donnybrook Drive
Site Code: 230556
Start Date: 09/13/2023

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Donnybrook Drive Westbound					Westchester Bourne Northbound					Westchester Bourne Southbound					
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Int. Total
4:15 PM	11	5	0	0	16	41	16	0	0	57	7	47	0	0	54	127
4:30 PM	16	9	0	0	25	33	12	0	0	45	4	43	0	0	47	117
4:45 PM	11	7	0	0	18	44	13	0	0	57	4	46	0	0	50	125
5:00 PM	13	10	1	0	24	46	5	0	0	51	7	44	0	0	51	126
Total	51	31	1	0	83	164	46	0	0	210	22	180	0	0	202	495
Approach %	61.4	37.3	1.2	-	-	78.1	21.9	0.0	-	-	10.9	89.1	0.0	-	-	-
Total %	10.3	6.3	0.2	-	16.8	33.1	9.3	0.0	-	42.4	4.4	36.4	0.0	-	40.8	-
PHF	0.797	0.775	0.250	-	0.830	0.891	0.719	0.000	-	0.921	0.786	0.957	0.000	-	0.935	0.974
Motorcycles	0	1	0	-	1	3	0	0	-	3	0	2	0	-	2	6
% Motorcycles	0.0	3.2	0.0	-	1.2	1.8	0.0	-	-	1.4	0.0	1.1	-	-	1.0	1.2
Cars & Light Goods	43	27	1	-	71	149	37	0	-	186	20	166	0	-	186	443
% Cars & Light Goods	84.3	87.1	100.0	-	85.5	90.9	80.4	-	-	88.6	90.9	92.2	-	-	92.1	89.5
Buses	1	0	0	-	1	2	0	0	-	2	0	1	0	-	1	4
% Buses	2.0	0.0	0.0	-	1.2	1.2	0.0	-	-	1.0	0.0	0.6	-	-	0.5	0.8
Single-Unit Trucks	5	2	0	-	7	5	2	0	-	7	1	5	0	-	6	20
% Single-Unit Trucks	9.8	6.5	0.0	-	8.4	3.0	4.3	-	-	3.3	4.5	2.8	-	-	3.0	4.0
Articulated Trucks	2	0	0	-	2	5	7	0	-	12	1	5	0	-	6	20
% Articulated Trucks	3.9	0.0	0.0	-	2.4	3.0	15.2	-	-	5.7	4.5	2.8	-	-	3.0	4.0
Bicycles on Road	0	1	0	-	1	0	0	0	-	0	0	1	0	-	1	2
% Bicycles on Road	0.0	3.2	0.0	-	1.2	0.0	0.0	-	-	0.0	0.0	0.6	-	-	0.5	0.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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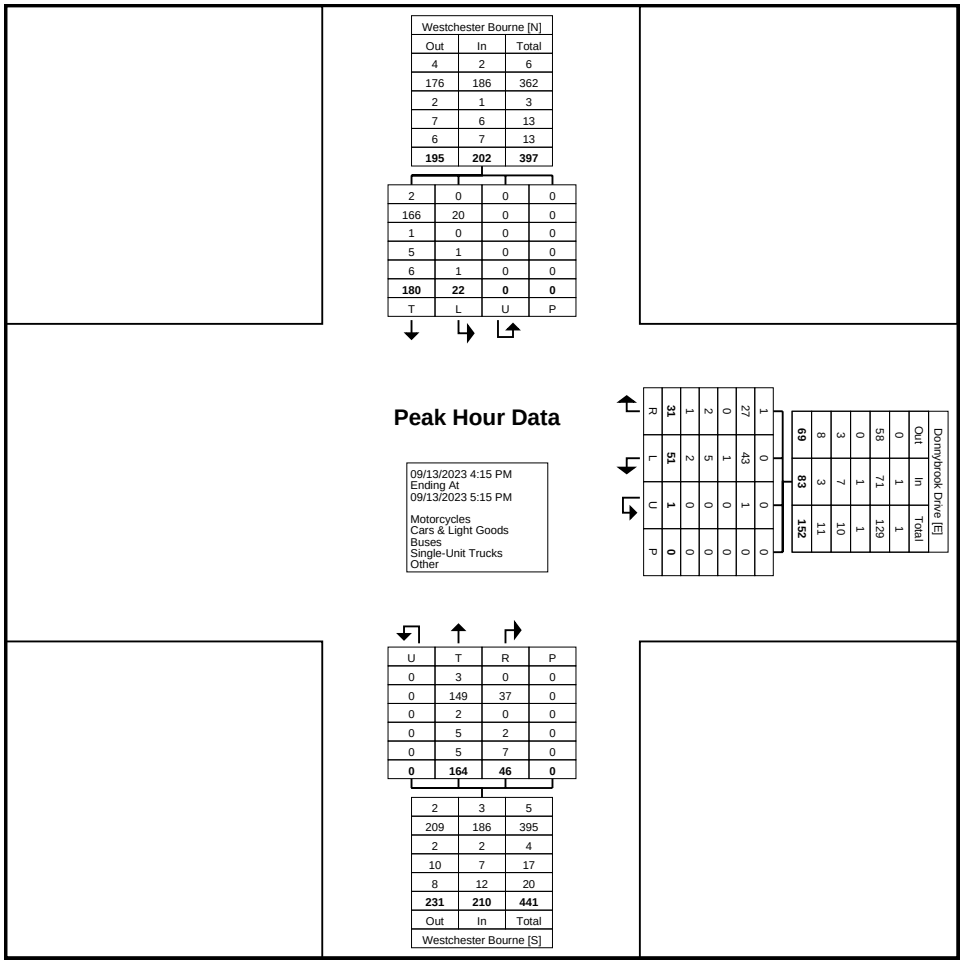
Site Code: 230556
Start Date: 09/13/2023



Turning Movement Peak Hour Data Plot (4:15 PM)

Appendix D

Existing Traffic Operations Reports

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	115	1	4	317	6	6
Future Volume (vph)	115	1	4	317	6	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.932	
Flt Protected				0.999	0.976	
Satd. Flow (prot)	1681	0	0	1826	1440	0
Flt Permitted				0.999	0.976	
Satd. Flow (perm)	1681	0	0	1826	1440	0
Link Speed (k/h)	80			80	50	
Link Distance (m)	597.0			1196.5	876.2	
Travel Time (s)	26.9			53.8	63.1	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	13%	0%	0%	4%	0%	40%
Adj. Flow (vph)	137	1	5	377	7	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	138	0	0	382	14	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	115	1	4	317	6	6
Future Vol, veh/h	115	1	4	317	6	6
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	84	84	84	84	84	84
Heavy Vehicles, %	13	0	0	4	0	40
Mvmt Flow	137	1	5	377	7	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	138	0	524	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	387	-
Critical Hdwy	-	-	4.1	-	6.4	6.6
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.66
Pot Cap-1 Maneuver	-	-	1458	-	517	819
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	691	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1458	-	515	819
Mov Cap-2 Maneuver	-	-	-	-	515	-
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	688	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.09	10.83
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	632	-	-	22	-
HCM Lane V/C Ratio	0.023	-	-	0.003	-
HCM Ctrl Dly (s/v)	10.8	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	121	2	11	276	43	24
Future Volume (vph)	121	2	11	276	43	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.952	
Flt Protected				0.998	0.969	
Satd. Flow (prot)	1652	1615	0	1809	1753	0
Flt Permitted				0.998	0.969	
Satd. Flow (perm)	1652	1615	0	1809	1753	0
Link Speed (k/h)	50			80	50	
Link Distance (m)	1196.5			175.5	195.2	
Travel Time (s)	86.1			7.9	14.1	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	15%	0%	0%	5%	0%	0%
Adj. Flow (vph)	141	2	13	321	50	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	2	0	334	78	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	121	2	11	276	43	24
Future Vol, veh/h	121	2	11	276	43	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	30	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	15	0	0	5	0	0
Mvmt Flow	141	2	13	321	50	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	143	0	487	141
Stage 1	-	-	-	-	141	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1452	-	543	913
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	720	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1452	-	537	913
Mov Cap-2 Maneuver	-	-	-	-	537	-
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	713	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.29	11.52
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	630	-	-	69	-
HCM Lane V/C Ratio	0.124	-	-	0.009	-
HCM Ctrl Dly (s/v)	11.5	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	29	234	43	40	133
Future Volume (vph)	42	29	234	43	40	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.945		0.979			
Flt Protected	0.971					0.989
Satd. Flow (prot)	1588	0	1763	0	0	1665
Flt Permitted	0.971					0.989
Satd. Flow (perm)	1588	0	1763	0	0	1665
Link Speed (k/h)	50		80			80
Link Distance (m)	738.9		447.4			418.4
Travel Time (s)	53.2		20.1			18.8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	11%	8%	6%	3%	9%	14%
Adj. Flow (vph)	48	33	266	49	45	151
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	0	315	0	0	196
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.2%		ICU Level of Service A	
Analysis Period (min) 15			

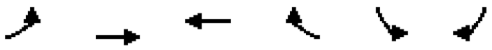
Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	42	29	234	43	40	133
Future Vol, veh/h	42	29	234	43	40	133
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	88	88	88	88	88	88
Heavy Vehicles, %	11	8	6	3	9	14
Mvmt Flow	48	33	266	49	45	151

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	532	290	0	0	315	0
Stage 1	290	-	-	-	-	-
Stage 2	242	-	-	-	-	-
Critical Hdwy	6.51	6.28	-	-	4.19	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.372	-	-	2.281	-
Pot Cap-1 Maneuver	493	735	-	-	1207	-
Stage 1	739	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	472	735	-	-	1207	-
Mov Cap-2 Maneuver	472	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	746	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	12.62	0	1.87
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	553	416	-
HCM Lane V/C Ratio	-	-	0.146	0.038	-
HCM Ctrl Dly (s/v)	-	-	12.6	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	5	56	70	6	13	2
Future Volume (vph)	5	56	70	6	13	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.989		0.984	
Flt Protected		0.996			0.958	
Satd. Flow (prot)	0	1611	1692	0	1791	0
Flt Permitted		0.996			0.958	
Satd. Flow (perm)	0	1611	1692	0	1791	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		271.9	37.2		248.0	
Travel Time (s)		19.6	2.7		17.9	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	0%	19%	12%	0%	0%	0%
Adj. Flow (vph)	6	67	83	7	15	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	73	90	0	17	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 17.1%		ICU Level of Service A	
Analysis Period (min) 15			

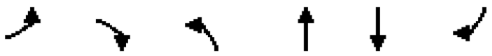
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	56	70	6	13	2
Future Vol, veh/h	5	56	70	6	13	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	19	12	0	0	0
Mvmt Flow	6	67	83	7	15	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	90	0	-	0	165	87
Stage 1	-	-	-	-	87	-
Stage 2	-	-	-	-	79	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1517	-	-	-	830	977
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1517	-	-	-	826	977
Mov Cap-2 Maneuver	-	-	-	-	826	-
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	950	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.61	0	9.36
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	148	-	-	-	844
HCM Lane V/C Ratio	0.004	-	-	-	0.021
HCM Ctrl Dly (s/v)	7.4	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	36	38	137	154	37
Future Volume (vph)	34	36	38	137	154	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	45.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.930				0.974	
Flt Protected	0.977		0.950			
Satd. Flow (prot)	1553	0	1543	1557	1686	0
Flt Permitted	0.977		0.950			
Satd. Flow (perm)	1553	0	1543	1557	1686	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	37.2			282.3	477.5	
Travel Time (s)	2.7			12.7	21.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	16%	17%	22%	9%	13%
Adj. Flow (vph)	37	40	42	151	169	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	77	0	42	151	210	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	34	36	38	137	154	37
Future Vol, veh/h	34	36	38	137	154	37
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	-	45	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	16	17	22	9	13
Mvmt Flow	37	40	42	151	169	41

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	424	190	210	0	-	0
Stage 1	190	-	-	-	-	-
Stage 2	234	-	-	-	-	-
Critical Hdwy	6.46	6.36	4.27	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.444	2.353	-	-	-
Pot Cap-1 Maneuver	580	818	1276	-	-	-
Stage 1	833	-	-	-	-	-
Stage 2	795	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	561	818	1276	-	-	-
Mov Cap-2 Maneuver	561	-	-	-	-	-
Stage 1	806	-	-	-	-	-
Stage 2	795	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.08	1.72	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1276	-	669	-	-
HCM Lane V/C Ratio	0.033	-	0.115	-	-
HCM Ctrl Dly (s/v)	7.9	-	11.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	6	1	222	4	4
Future Volume (vph)	346	6	1	222	4	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.932	
Flt Protected					0.976	
Satd. Flow (prot)	1860	0	0	1863	1728	0
Flt Permitted					0.976	
Satd. Flow (perm)	1860	0	0	1863	1728	0
Link Speed (k/h)	80			80	50	
Link Distance (m)	597.0			1196.5	876.2	
Travel Time (s)	26.9			53.8	63.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	360	6	1	231	4	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	366	0	0	232	8	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	346	6	1	222	4	4
Future Vol, veh/h	346	6	1	222	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	360	6	1	231	4	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	367	0	597	364
Stage 1	-	-	-	-	364	-
Stage 2	-	-	-	-	233	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1203	-	469	686
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1203	-	469	686
Mov Cap-2 Maneuver	-	-	-	-	469	-
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	809	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.04	11.56
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	557	-	-	8	-
HCM Lane V/C Ratio	0.015	-	-	0.001	-
HCM Ctrl Dly (s/v)	11.6	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	308	31	46	214	17	24
Future Volume (vph)	308	31	46	214	17	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.920	
Flt Protected				0.991	0.980	
Satd. Flow (prot)	1845	1615	0	1852	1713	0
Flt Permitted				0.991	0.980	
Satd. Flow (perm)	1845	1615	0	1852	1713	0
Link Speed (k/h)	50			80	50	
Link Distance (m)	1196.5			175.5	195.2	
Travel Time (s)	86.1			7.9	14.1	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	0%	0%	2%	0%	0%
Adj. Flow (vph)	331	33	49	230	18	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	331	33	0	279	44	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	308	31	46	214	17	24
Future Vol, veh/h	308	31	46	214	17	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	30	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	331	33	49	230	18	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	365	0	660	331
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	329	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1205	-	431	715
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	734	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1205	-	411	715
Mov Cap-2 Maneuver	-	-	-	-	411	-
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	699	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.44	12.16
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	547	-	-	318	-
HCM Lane V/C Ratio	0.081	-	-	0.041	-
HCM Ctrl Dly (s/v)	12.2	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	55	62	209	85	32	252
Future Volume (vph)	55	62	209	85	32	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.929		0.961			
Flt Protected	0.977					0.994
Satd. Flow (prot)	1662	0	1723	0	0	1824
Flt Permitted	0.977					0.994
Satd. Flow (perm)	1662	0	1723	0	0	1824
Link Speed (k/h)	50		80			80
Link Distance (m)	738.9		447.4			418.4
Travel Time (s)	53.2		20.1			18.8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	0%	8%	1%	0%	4%
Adj. Flow (vph)	63	70	238	97	36	286
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	0	335	0	0	322
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

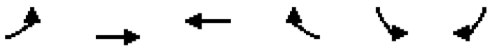
Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	62	209	85	32	252
Future Vol, veh/h	55	62	209	85	32	252
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	88	88	88	88	88	88
Heavy Vehicles, %	8	0	8	1	0	4
Mvmt Flow	63	70	238	97	36	286

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	645	286	0	0	334	0
Stage 1	286	-	-	-	-	-
Stage 2	359	-	-	-	-	-
Critical Hdwy	6.48	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	427	758	-	-	1237	-
Stage 1	749	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	412	758	-	-	1237	-
Mov Cap-2 Maneuver	412	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	13.75	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	544	203	-
HCM Lane V/C Ratio	-	-	0.244	0.029	-
HCM Ctrl Dly (s/v)	-	-	13.7	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1	0.1	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	113	83	19	10	2
Future Volume (vph)	10	113	83	19	10	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.975		0.981	
Flt Protected		0.996			0.959	
Satd. Flow (prot)	0	1875	1713	0	1787	0
Flt Permitted		0.996			0.959	
Satd. Flow (perm)	0	1875	1713	0	1787	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		271.9	37.2		248.0	
Travel Time (s)		19.6	2.7		17.9	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	0%	1%	10%	0%	0%	0%
Adj. Flow (vph)	12	140	102	23	12	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	152	125	0	14	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.2%		ICU Level of Service A	
Analysis Period (min) 15			

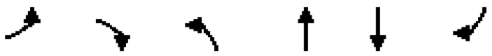
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	113	83	19	10	2
Future Vol, veh/h	10	113	83	19	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	1	10	0	0	0
Mvmt Flow	12	140	102	23	12	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	126	0	-	0	278	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	164	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1473	-	-	-	716	944
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	870	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1473	-	-	-	709	944
Mov Cap-2 Maneuver	-	-	-	-	709	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	870	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.61	0	9.97
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	146	-	-	-	740
HCM Lane V/C Ratio	0.008	-	-	-	0.02
HCM Ctrl Dly (s/v)	7.5	0	-	-	10
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	72	50	52	227	143	50
Future Volume (vph)	72	50	52	227	143	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	45.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.944				0.965	
Flt Protected	0.971		0.950			
Satd. Flow (prot)	1654	0	1612	1792	1771	0
Flt Permitted	0.971		0.950			
Satd. Flow (perm)	1654	0	1612	1792	1771	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	37.2			282.3	477.5	
Travel Time (s)	2.7			12.7	21.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	2%	10%	12%	6%	3%	5%
Adj. Flow (vph)	90	63	65	284	179	63
Shared Lane Traffic (%)						
Lane Group Flow (vph)	153	0	65	284	242	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	72	50	52	227	143	50
Future Vol, veh/h	72	50	52	227	143	50
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	-	45	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	10	12	6	3	5
Mvmt Flow	90	63	65	284	179	63

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	624	210	241	0	-	0
Stage 1	210	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Critical Hdwy	6.42	6.3	4.22	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.39	2.308	-	-	-
Pot Cap-1 Maneuver	449	810	1269	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	426	810	1269	-	-	-
Mov Cap-2 Maneuver	426	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	667	-	-	-	-	-

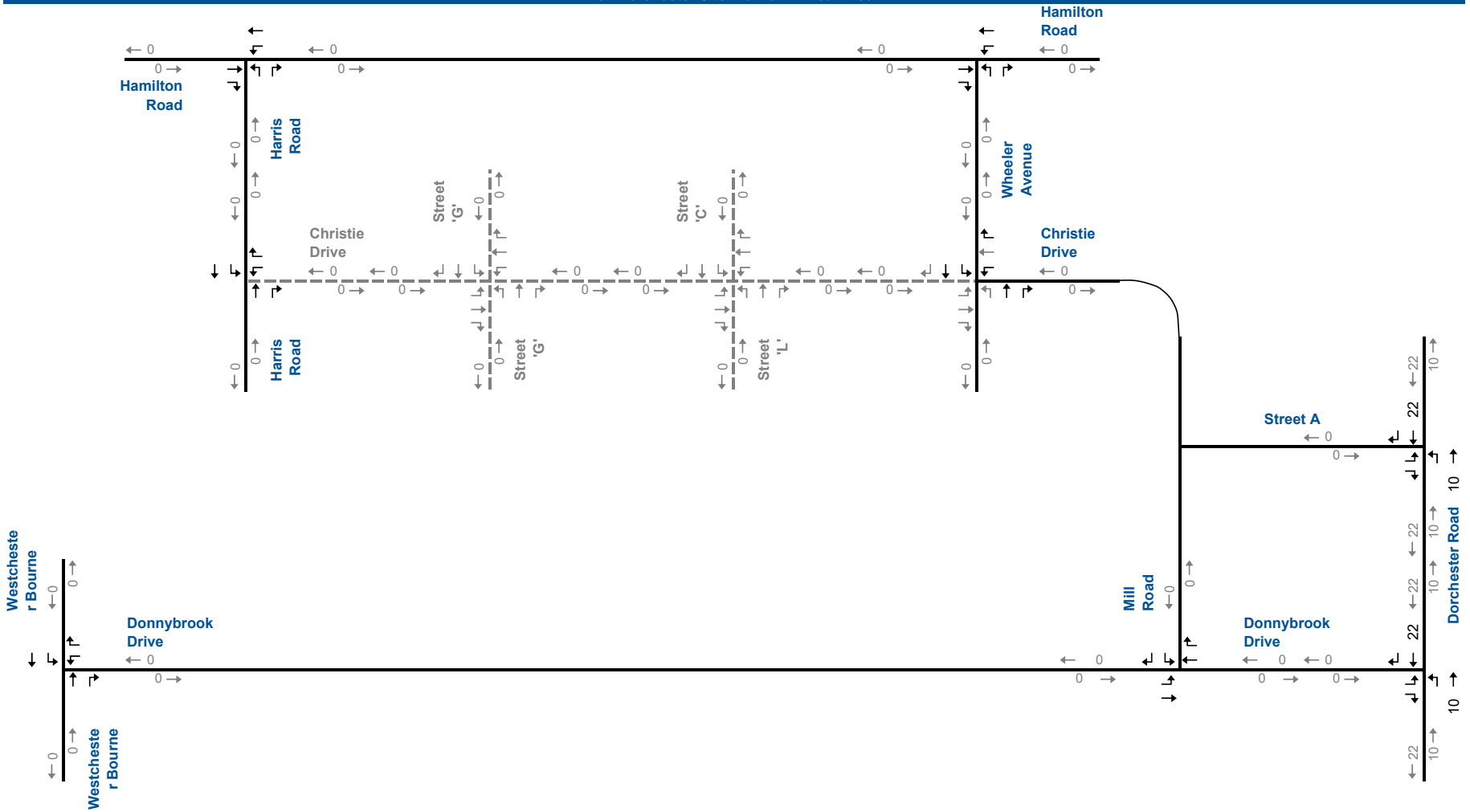
Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.54	1.49	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1269	-	529	-	-
HCM Lane V/C Ratio	0.051	-	0.288	-	-
HCM Ctrl Dly (s/v)	8	-	14.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1.2	-	-

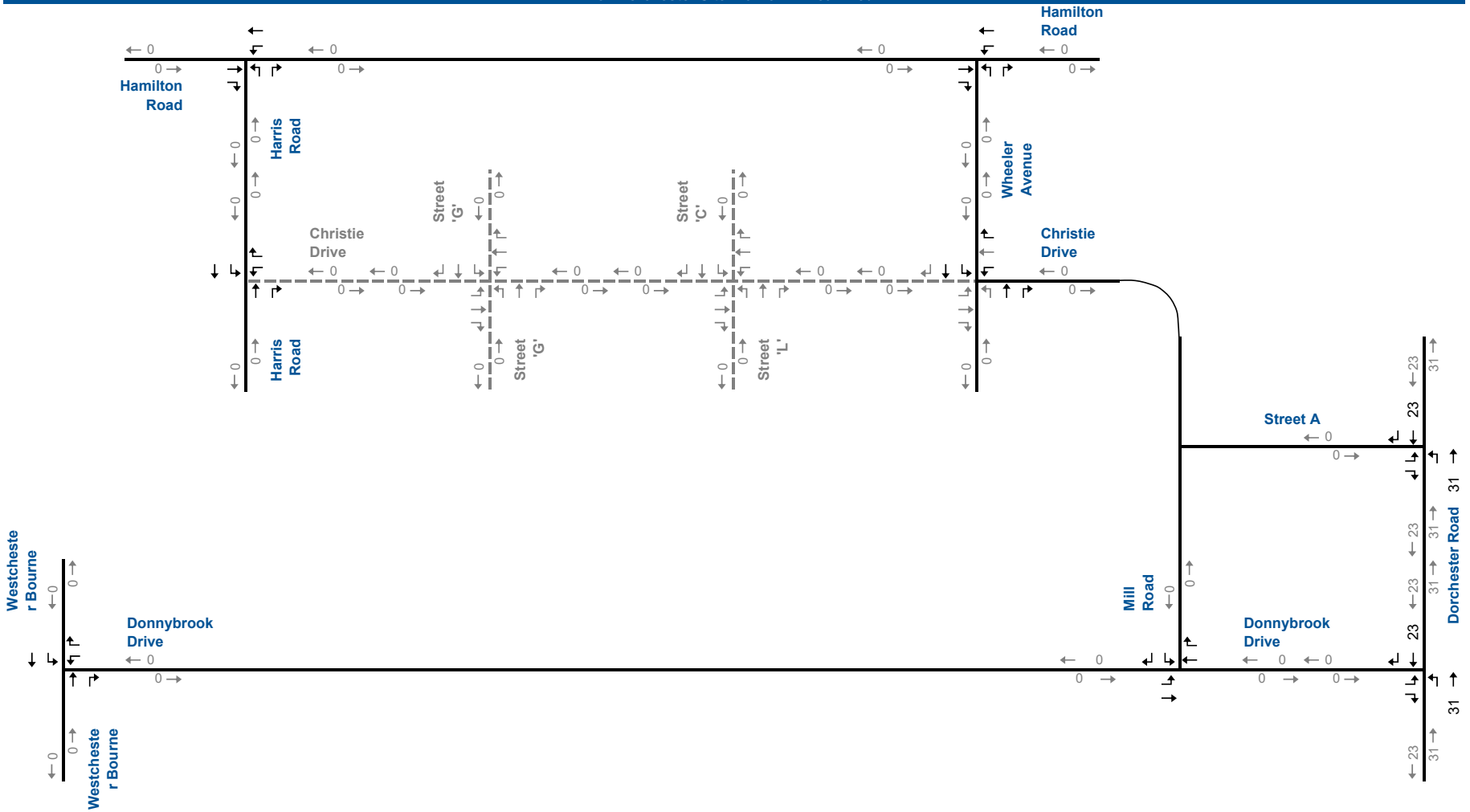
Appendix E

Background Development Traffic Volumes

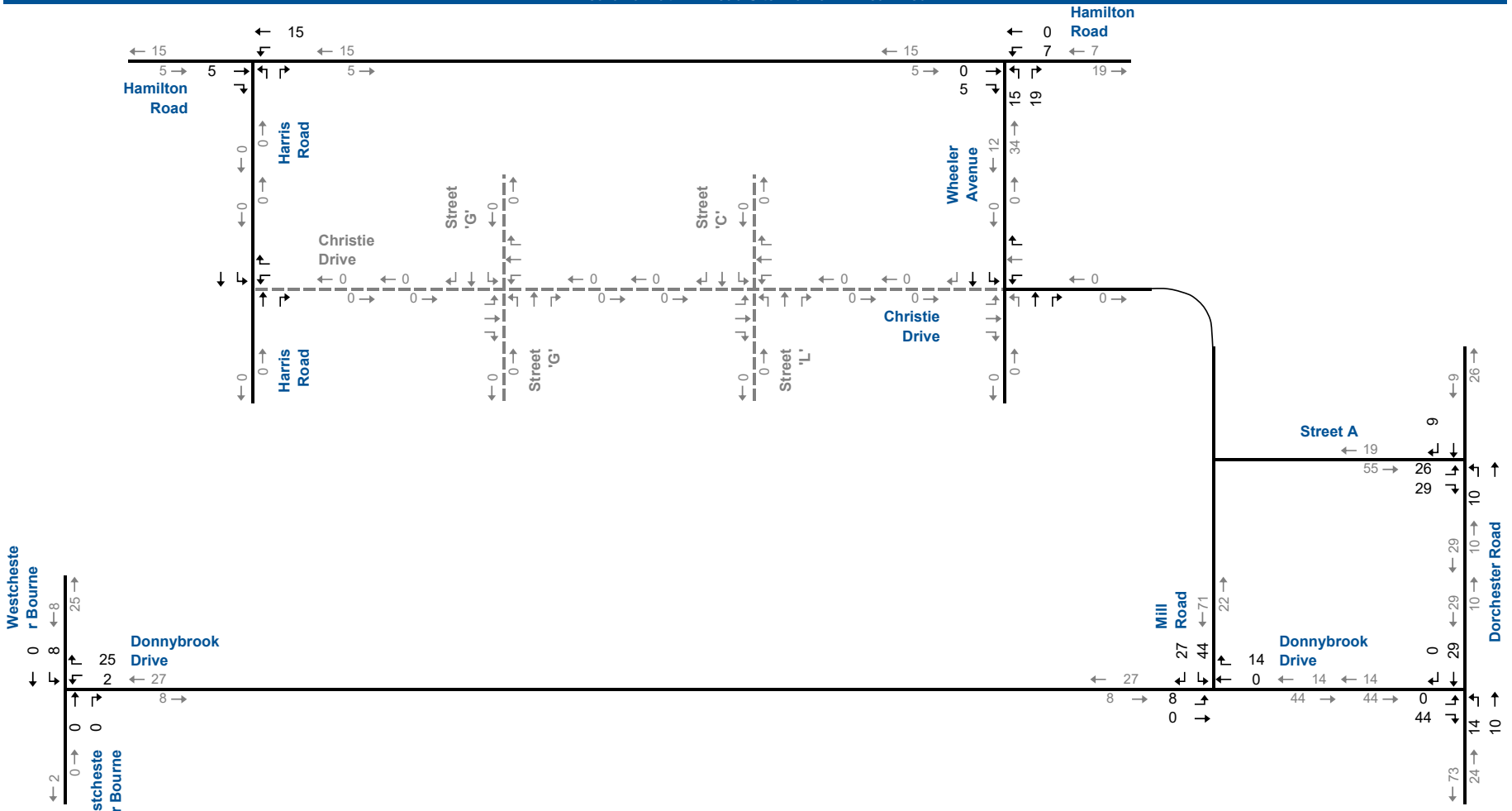
187 Dorchester Site Traffic PM Peak Hour



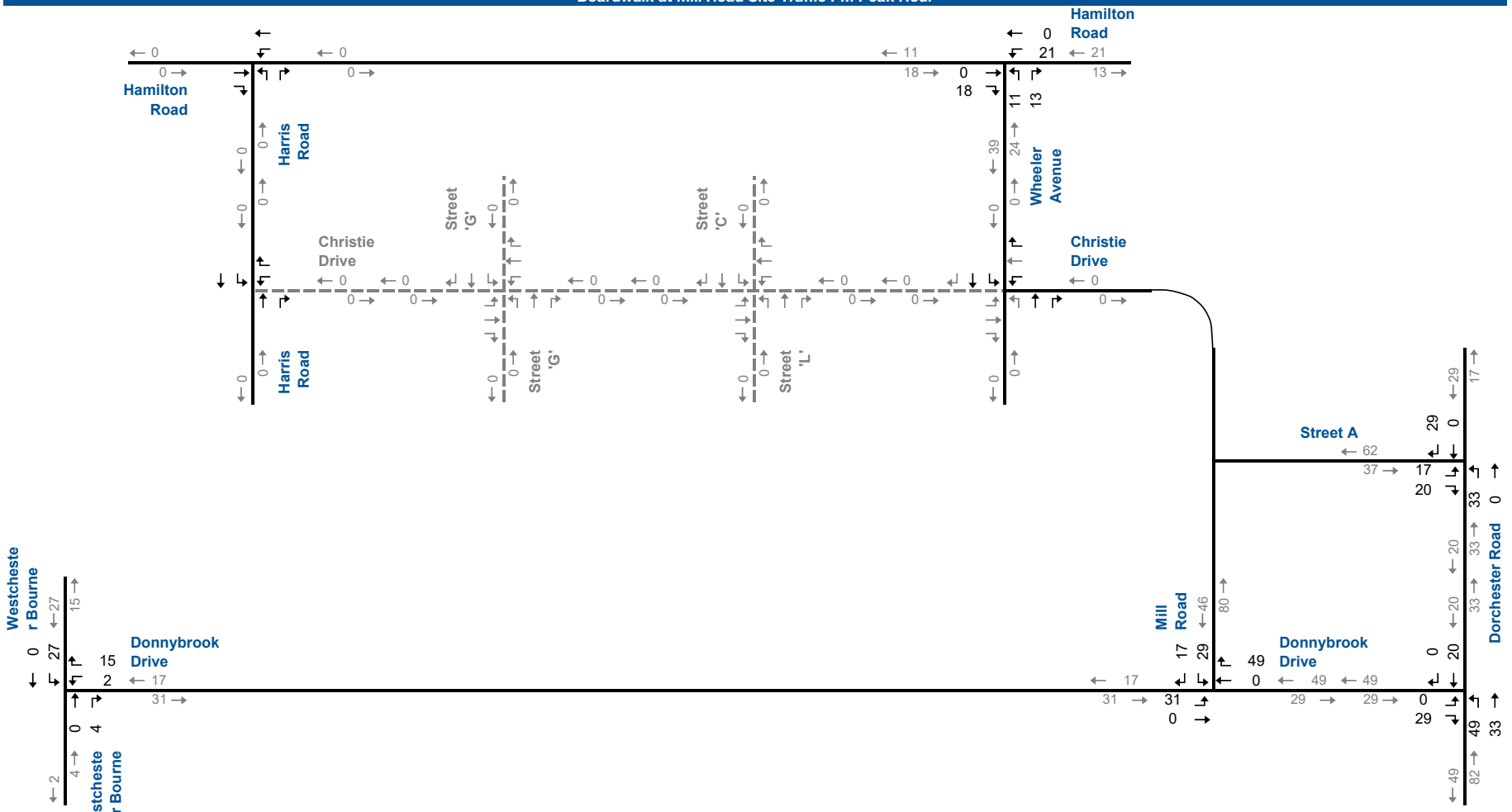
187 Dorchester Site Traffic PM Peak Hour

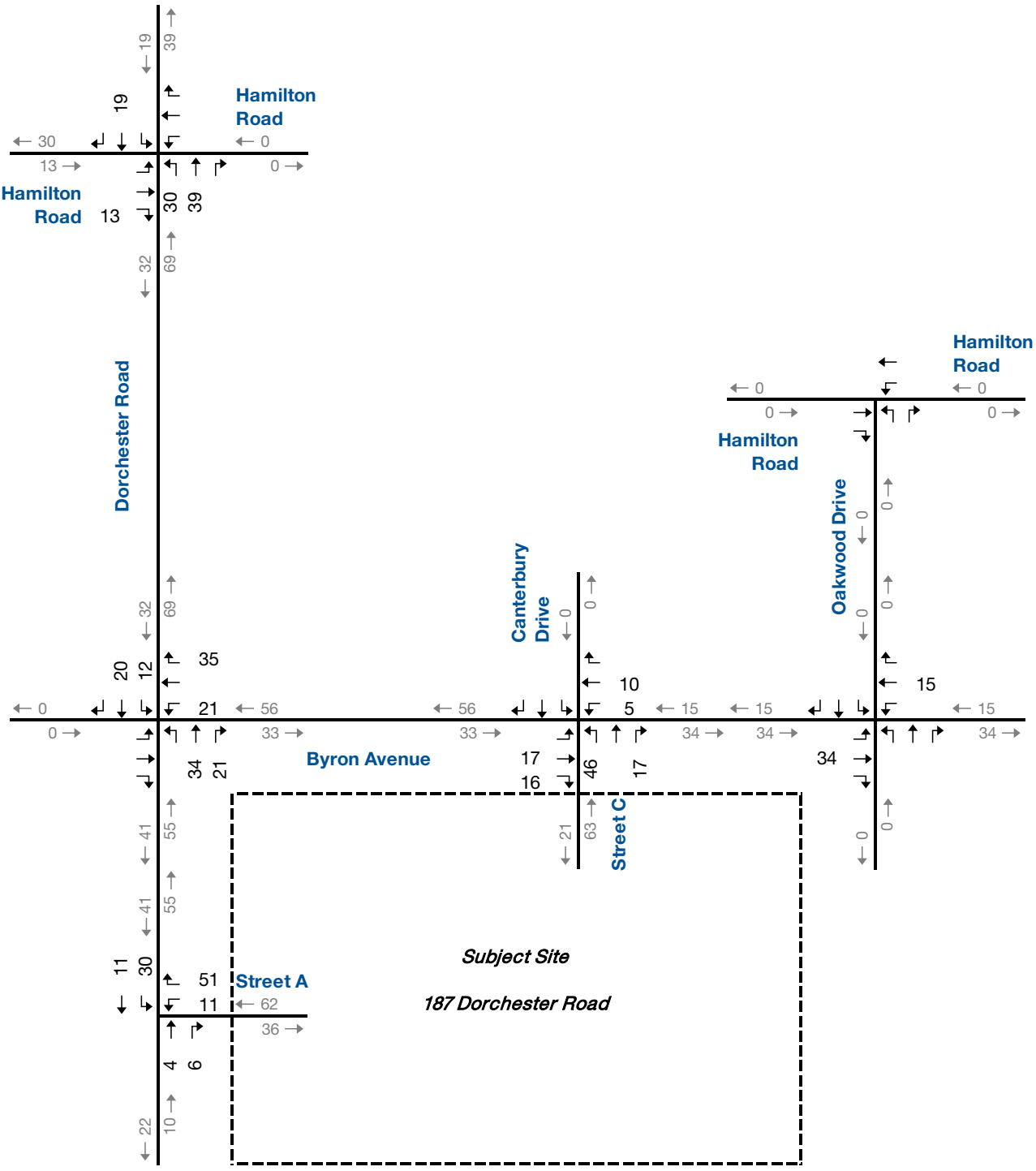


Boardwalk at Mill Road Site Traffic AM Peak Hour

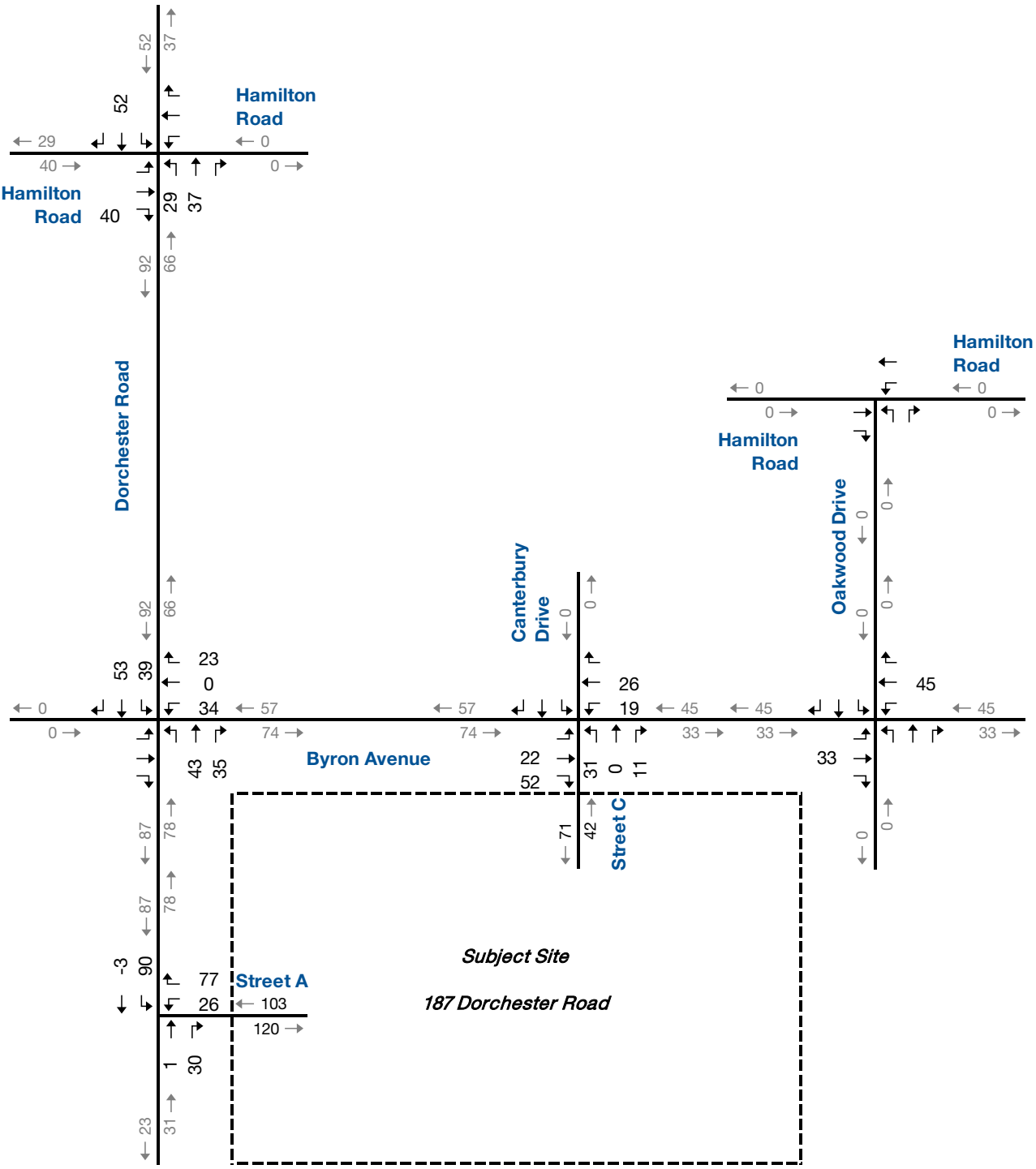


Boardwalk at Mill Road Site Traffic PM Peak Hour





Site Generated Traffic Forecast
AM Peak Hour



Site Generated Traffic Forecast
PM Peak Hour

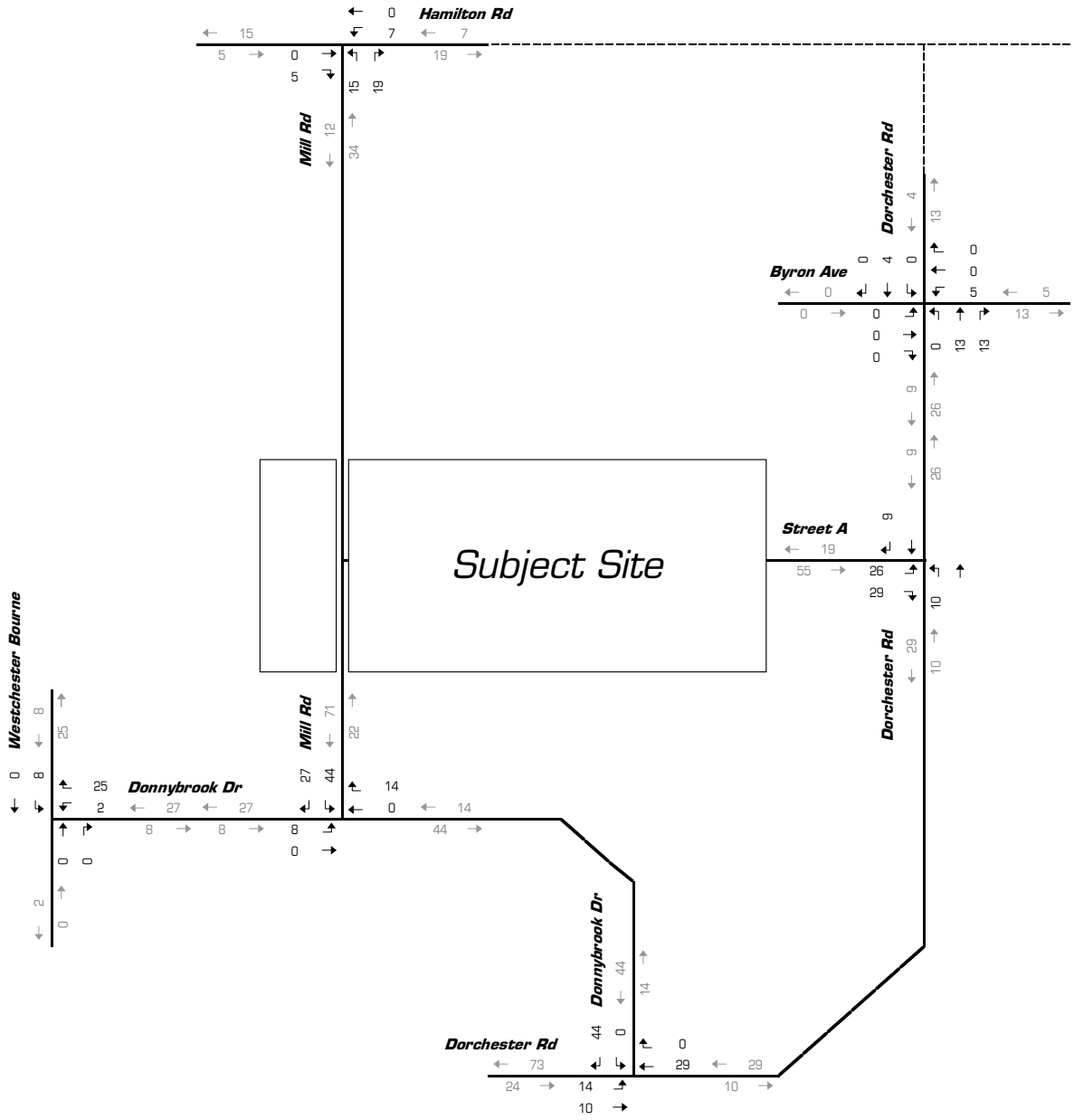


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Figure 4.2A

Site Generated Traffic – AM Peak Hour

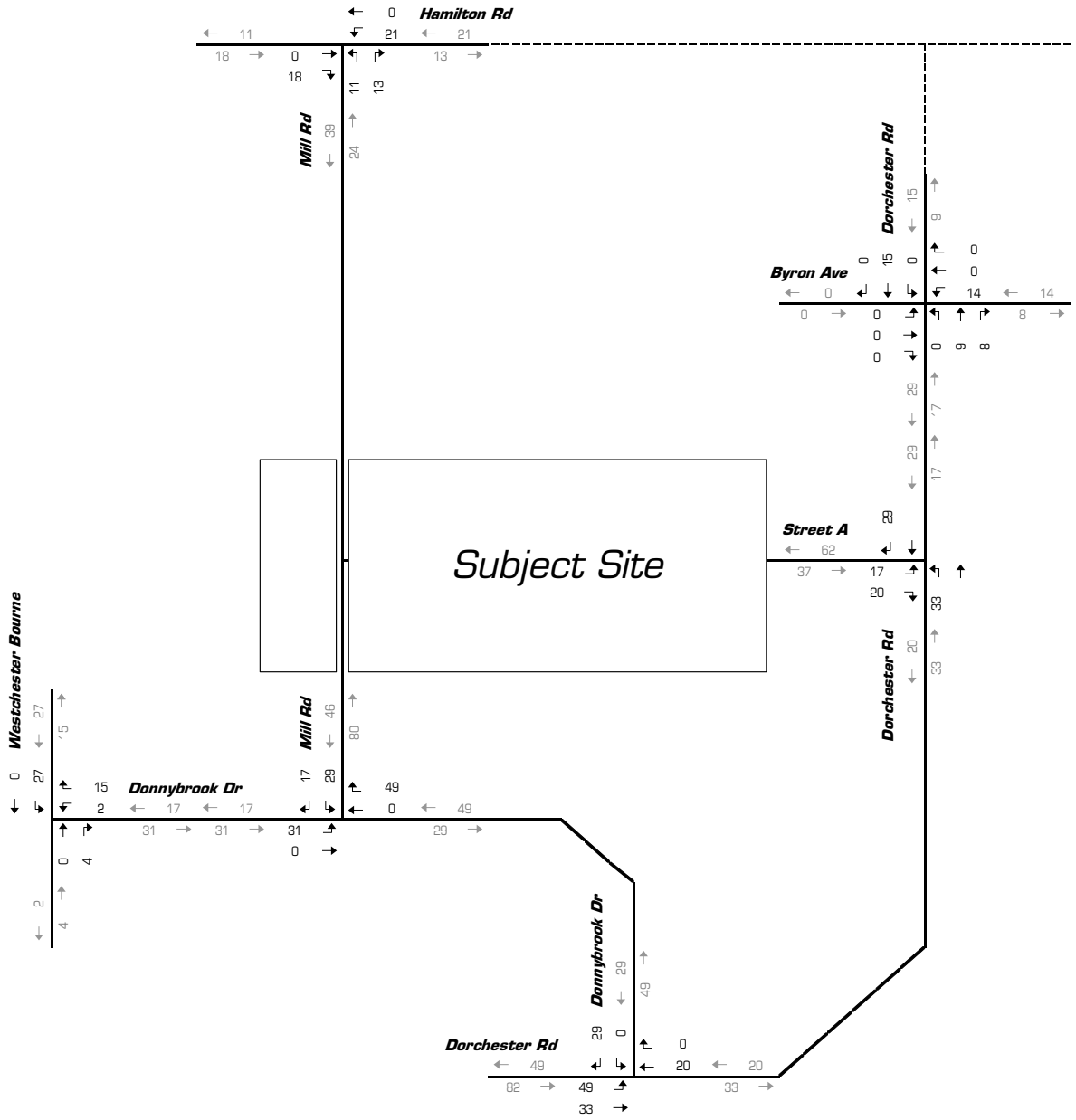

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Figure 4.2B

Site Generated Traffic – PM Peak Hour

Appendix F

2030 Background Traffic Operations Reports

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	148	1	5	409	7	7
Future Volume (vph)	148	1	5	409	7	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.932	
Flt Protected				0.999	0.976	
Satd. Flow (prot)	1681	0	0	1826	1440	0
Flt Permitted				0.999	0.976	
Satd. Flow (perm)	1681	0	0	1826	1440	0
Link Speed (k/h)	80			80	60	
Link Distance (m)	597.0			1191.6	327.6	
Travel Time (s)	26.9			53.6	19.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	0%	0%	4%	0%	40%
Adj. Flow (vph)	161	1	5	445	8	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	0	450	16	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	148	1	5	409	7	7
Future Vol, veh/h	148	1	5	409	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	13	0	0	4	0	40
Mvmt Flow	161	1	5	445	8	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	162	0	617	161
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	455	-
Critical Hdwy	-	-	4.1	-	6.4	6.6
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.66
Pot Cap-1 Maneuver	-	-	1429	-	457	793
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	643	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1429	-	454	793
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	640	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.09	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	578	-	-	22	-
HCM Lane V/C Ratio	0.026	-	-	0.004	-
HCM Ctrl Dly (s/v)	11.4	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	150	7	21	343	68	49
Future Volume (vph)	150	7	21	343	68	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.944	
Flt Protected				0.997	0.972	
Satd. Flow (prot)	1652	1615	0	1809	1743	0
Flt Permitted				0.997	0.972	
Satd. Flow (perm)	1652	1615	0	1809	1743	0
Link Speed (k/h)	50			80	50	
Link Distance (m)	1191.6			175.5	197.3	
Travel Time (s)	85.8			7.9	14.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	0%	0%	5%	0%	0%
Adj. Flow (vph)	163	8	23	373	74	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	163	8	0	396	127	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	150	7	21	343	68	49
Future Vol, veh/h	150	7	21	343	68	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	30	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	0	0	5	0	0
Mvmt Flow	163	8	23	373	74	53

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	171	0	582	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	418	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1419	-	479	887
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	668	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1419	-	469	887
Mov Cap-2 Maneuver	-	-	-	-	469	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	655	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.44	12.86
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	584	-	-	104	-
HCM Lane V/C Ratio	0.218	-	-	0.016	-
HCM Ctrl Dly (s/v)	12.9	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	61	291	53	58	165
Future Volume (vph)	54	61	291	53	58	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	55.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.929		0.979			
Flt Protected	0.977				0.950	
Satd. Flow (prot)	1576	0	1763	0	1656	1667
Flt Permitted	0.977				0.950	
Satd. Flow (perm)	1576	0	1763	0	1656	1667
Link Speed (k/h)	50		80			80
Link Distance (m)	738.9		447.4			418.4
Travel Time (s)	53.2		20.1			18.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	8%	6%	3%	9%	14%
Adj. Flow (vph)	59	66	316	58	63	179
Shared Lane Traffic (%)						
Lane Group Flow (vph)	125	0	374	0	63	179
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.6%		ICU Level of Service A	
Analysis Period (min) 15			

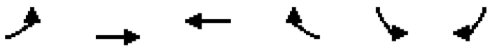
Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	61	291	53	58	165
Future Vol, veh/h	54	61	291	53	58	165
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	-	-	-	55	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	11	8	6	3	9	14
Mvmt Flow	59	66	316	58	63	179

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	651	345	0	0	374	0
Stage 1	345	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.51	6.28	-	-	4.19	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.372	-	-	2.281	-
Pot Cap-1 Maneuver	420	684	-	-	1147	-
Stage 1	697	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	397	684	-	-	1147	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	697	-	-	-	-	-
Stage 2	687	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	14.33	0	2.16
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	510	1147	-
HCM Lane V/C Ratio	-	-	0.245	0.055	-
HCM Ctrl Dly (s/v)	-	-	14.3	8.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	1	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	70	87	21	60	29
Future Volume (vph)	14	70	87	21	60	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.974		0.955	
Flt Protected		0.992			0.968	
Satd. Flow (prot)	0	1627	1688	0	1756	0
Flt Permitted		0.992			0.968	
Satd. Flow (perm)	0	1627	1688	0	1756	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		271.9	32.6		248.0	
Travel Time (s)		19.6	2.3		17.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	19%	12%	0%	0%	0%
Adj. Flow (vph)	15	76	95	23	65	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	91	118	0	97	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.9%		ICU Level of Service A	
Analysis Period (min) 15			

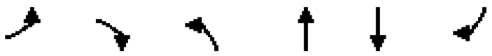
Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	70	87	21	60	29
Future Vol, veh/h	14	70	87	21	60	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	19	12	0	0	0
Mvmt Flow	15	76	95	23	65	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	117	0	-	0	213	106
Stage 1	-	-	-	-	106	-
Stage 2	-	-	-	-	107	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1484	-	-	-	780	954
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	923	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1484	-	-	-	772	954
Mov Cap-2 Maneuver	-	-	-	-	772	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	923	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.24	0	9.96
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	300	-	-	-	823
HCM Lane V/C Ratio	0.01	-	-	-	0.118
HCM Ctrl Dly (s/v)	7.5	0	-	-	10
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	89	61	190	242	46
Future Volume (vph)	42	89	61	190	242	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	45.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.908				0.978	
Flt Protected	0.984		0.950			
Satd. Flow (prot)	1505	0	1543	1557	1695	0
Flt Permitted	0.984		0.950			
Satd. Flow (perm)	1505	0	1543	1557	1695	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	32.6			282.3	477.5	
Travel Time (s)	2.3			12.7	21.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	16%	17%	22%	9%	13%
Adj. Flow (vph)	46	97	66	207	263	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	0	66	207	313	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.7%		ICU Level of Service A	
Analysis Period (min) 15			

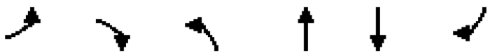
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	89	61	190	242	46
Future Vol, veh/h	42	89	61	190	242	46
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	-	45	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	16	17	22	9	13
Mvmt Flow	46	97	66	207	263	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	627	288	313	0	-	0
Stage 1	288	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.46	6.36	4.27	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.444	2.353	-	-	-
Pot Cap-1 Maneuver	441	719	1167	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	416	719	1167	-	-	-
Mov Cap-2 Maneuver	416	-	-	-	-	-
Stage 1	709	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.16	2.01	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1167	-	583	-	-
HCM Lane V/C Ratio	0.057	-	0.244	-	-
HCM Ctrl Dly (s/v)	8.3	-	13.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	1	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	29	10	221	259	9
Future Volume (vph)	26	29	10	221	259	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	120.0			60.0
Storage Lanes	1	0	1			1
Taper Length (m)	7.5		95.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928					0.850
Flt Protected	0.977		0.950			
Satd. Flow (prot)	1689	0	1770	1863	1863	1583
Flt Permitted	0.977		0.950			
Satd. Flow (perm)	1689	0	1770	1863	1863	1583
Link Speed (k/h)	50			80	80	
Link Distance (m)	617.6			185.9	220.9	
Travel Time (s)	44.5			8.4	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	32	11	240	282	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	0	11	240	282	10
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	29	10	221	259	9
Future Vol, veh/h	26	29	10	221	259	9
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	-	120	-	-	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	32	11	240	282	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	543	282	291	0	-	0
Stage 1	282	-	-	-	-	-
Stage 2	262	-	-	-	-	-
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	500	757	1270	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	496	757	1270	-	-	-
Mov Cap-2 Maneuver	496	-	-	-	-	-
Stage 1	760	-	-	-	-	-
Stage 2	782	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.58	0.34	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1270	-	606	-	-
HCM Lane V/C Ratio	0.009	-	0.099	-	-
HCM Ctrl Dly (s/v)	7.9	-	11.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	430	7	1	276	5	5
Future Volume (vph)	430	7	1	276	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.932	
Flt Protected					0.976	
Satd. Flow (prot)	1860	0	0	1863	1728	0
Flt Permitted					0.976	
Satd. Flow (perm)	1860	0	0	1863	1728	0
Link Speed (k/h)	80			80	60	
Link Distance (m)	597.0			1205.6	328.8	
Travel Time (s)	26.9			54.3	19.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	467	8	1	300	5	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	475	0	0	301	10	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	430	7	1	276	5	5
Future Vol, veh/h	430	7	1	276	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	467	8	1	300	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	475	0	773	471
Stage 1	-	-	-	-	471	-
Stage 2	-	-	-	-	302	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1098	-	370	597
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	754	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1098	-	370	597
Mov Cap-2 Maneuver	-	-	-	-	370	-
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	754	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.03	13.08
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	456	-	-	6	-
HCM Lane V/C Ratio	0.024	-	-	0.001	-
HCM Ctrl Dly (s/v)	13.1	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	383	57	78	266	32	43
Future Volume (vph)	383	57	78	266	32	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.923	
Flt Protected				0.989	0.979	
Satd. Flow (prot)	1845	1615	0	1851	1717	0
Flt Permitted				0.989	0.979	
Satd. Flow (perm)	1845	1615	0	1851	1717	0
Link Speed (k/h)	50			80	50	
Link Distance (m)	1205.6			175.5	195.2	
Travel Time (s)	86.8			7.9	14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	2%	0%	0%
Adj. Flow (vph)	416	62	85	289	35	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	416	62	0	374	82	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	383	57	78	266	32	43
Future Vol, veh/h	383	57	78	266	32	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	30	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	416	62	85	289	35	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	478	0	875	416
Stage 1	-	-	-	-	416	-
Stage 2	-	-	-	-	459	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1095	-	322	641
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	641	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1095	-	293	641
Mov Cap-2 Maneuver	-	-	-	-	293	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	582	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.94	15.47
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	425	-	-	408	-
HCM Lane V/C Ratio	0.192	-	-	0.077	-
HCM Ctrl Dly (s/v)	15.5	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.3	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	70	92	260	110	67	313
Future Volume (vph)	70	92	260	110	67	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	55.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.923		0.960			
Flt Protected	0.979				0.950	
Satd. Flow (prot)	1660	0	1722	0	1805	1827
Flt Permitted	0.979				0.950	
Satd. Flow (perm)	1660	0	1722	0	1805	1827
Link Speed (k/h)	50		80			80
Link Distance (m)	738.9		447.4			418.4
Travel Time (s)	53.2		20.1			18.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	0%	8%	1%	0%	4%
Adj. Flow (vph)	76	100	283	120	73	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	0	403	0	73	340
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.6%		ICU Level of Service A	
Analysis Period (min) 15			

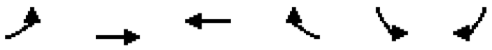
Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	70	92	260	110	67	313
Future Vol, veh/h	70	92	260	110	67	313
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	-	-	-	55	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	0	8	1	0	4
Mvmt Flow	76	100	283	120	73	340

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	828	342	0	0	402	0
Stage 1	342	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Critical Hdwy	6.48	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	333	705	-	-	1167	-
Stage 1	706	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	312	705	-	-	1167	-
Mov Cap-2 Maneuver	312	-	-	-	-	-
Stage 1	706	-	-	-	-	-
Stage 2	568	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.75	0	1.46
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	457	1167	-
HCM Lane V/C Ratio	-	-	0.386	0.062	-
HCM Ctrl Dly (s/v)	-	-	17.8	8.3	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.8	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	141	103	73	41	19
Future Volume (vph)	43	141	103	73	41	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.944		0.957	
Flt Protected		0.988			0.967	
Satd. Flow (prot)	0	1863	1694	0	1758	0
Flt Permitted		0.988			0.967	
Satd. Flow (perm)	0	1863	1694	0	1758	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		271.9	35.7		248.0	
Travel Time (s)		19.6	2.6		17.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	10%	0%	0%	0%
Adj. Flow (vph)	47	153	112	79	45	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	200	191	0	66	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.1%		ICU Level of Service A	
Analysis Period (min) 15			

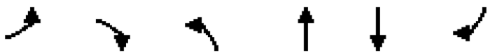
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	141	103	73	41	19
Future Vol, veh/h	43	141	103	73	41	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	10	0	0	0
Mvmt Flow	47	153	112	79	45	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	191	0	-	0	398	152
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	247	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1394	-	-	-	611	900
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	799	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1394	-	-	-	589	900
Mov Cap-2 Maneuver	-	-	-	-	589	-
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	799	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.79	0	11.04
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	421	-	-	-	661
HCM Lane V/C Ratio	0.034	-	-	-	0.099
HCM Ctrl Dly (s/v)	7.7	0	-	-	11
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	91	114	346	221	62
Future Volume (vph)	90	91	114	346	221	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	45.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.971	
Flt Protected	0.976		0.950			
Satd. Flow (prot)	1630	0	1612	1792	1784	0
Flt Permitted	0.976		0.950			
Satd. Flow (perm)	1630	0	1612	1792	1784	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	35.7			282.3	477.5	
Travel Time (s)	2.6			12.7	21.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	12%	6%	3%	5%
Adj. Flow (vph)	98	99	124	376	240	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	197	0	124	376	307	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.3%		ICU Level of Service A	
Analysis Period (min) 15			

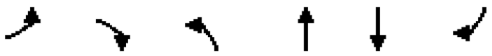
Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	91	114	346	221	62
Future Vol, veh/h	90	91	114	346	221	62
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	-	45	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	10	12	6	3	5
Mvmt Flow	98	99	124	376	240	67

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	898	274	308	0	-	0
Stage 1	274	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Critical Hdwy	6.42	6.3	4.22	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.39	2.308	-	-	-
Pot Cap-1 Maneuver	310	746	1198	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	278	746	1198	-	-	-
Mov Cap-2 Maneuver	278	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	21.92	2.07	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1198	-	406	-	-
HCM Lane V/C Ratio	0.103	-	0.485	-	-
HCM Ctrl Dly (s/v)	8.4	-	21.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2.6	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	20	33	403	263	29
Future Volume (vph)	17	20	33	403	263	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	120.0			60.0
Storage Lanes	1	0	1			1
Taper Length (m)	7.5		95.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.926					0.850
Flt Protected	0.978		0.950			
Satd. Flow (prot)	1687	0	1770	1863	1863	1583
Flt Permitted	0.978		0.950			
Satd. Flow (perm)	1687	0	1770	1863	1863	1583
Link Speed (k/h)	50			80	80	
Link Distance (m)	617.6			185.9	220.9	
Travel Time (s)	44.5			8.4	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	22	36	438	286	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	36	438	286	32
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	20	33	403	263	29
Future Vol, veh/h	17	20	33	403	263	29
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	-	120	-	-	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	22	36	438	286	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	796	286	317	0	-	0
Stage 1	286	-	-	-	-	-
Stage 2	510	-	-	-	-	-
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	356	753	1243	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	346	753	1243	-	-	-
Mov Cap-2 Maneuver	346	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.02	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1243	-	489	-	-
HCM Lane V/C Ratio	0.029	-	0.082	-	-
HCM Ctrl Dly (s/v)	8	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Appendix G

2030 Total Traffic Operations Reports

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	148	35	17	409	106	37
Future Volume (vph)	148	35	17	409	106	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974				0.965	
Flt Protected				0.998	0.964	
Satd. Flow (prot)	1674	0	0	1826	1602	0
Flt Permitted				0.998	0.964	
Satd. Flow (perm)	1674	0	0	1826	1602	0
Link Speed (k/h)	80			80	60	
Link Distance (m)	597.0			1191.6	655.3	
Travel Time (s)	26.9			53.6	39.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	0%	0%	4%	0%	40%
Adj. Flow (vph)	161	38	18	445	115	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	199	0	0	463	155	0
Sign Control	Free			Free	Stop	

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

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	148	35	17	409	106	37
Future Vol, veh/h	148	35	17	409	106	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	13	0	0	4	0	40
Mvmt Flow	161	38	18	445	115	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	199	0	661	180
Stage 1	-	-	-	-	180	-
Stage 2	-	-	-	-	482	-
Critical Hdwy	-	-	4.1	-	6.4	6.6
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.66
Pot Cap-1 Maneuver	-	-	1386	-	430	774
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	626	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1386	-	423	774
Mov Cap-2 Maneuver	-	-	-	-	423	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	614	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.3	16.09
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	479	-	-	72	-
HCM Lane V/C Ratio	0.325	-	-	0.013	-
HCM Ctrl Dly (s/v)	16.1	-	-	7.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	180	7	50	355	68	134
Future Volume (vph)	180	7	50	355	68	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.910	
Flt Protected				0.994	0.983	
Satd. Flow (prot)	1652	1615	0	1809	1700	0
Flt Permitted				0.994	0.983	
Satd. Flow (perm)	1652	1615	0	1809	1700	0
Link Speed (k/h)	50			80	50	
Link Distance (m)	1191.6			175.5	197.3	
Travel Time (s)	85.8			7.9	14.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	15%	0%	0%	5%	0%	0%
Adj. Flow (vph)	196	8	54	386	74	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	196	8	0	440	220	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	180	7	50	355	68	134
Future Vol, veh/h	180	7	50	355	68	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	30	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	15	0	0	5	0	0
Mvmt Flow	196	8	54	386	74	146

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	203	0	690	196
Stage 1	-	-	-	-	196	-
Stage 2	-	-	-	-	495	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1381	-	414	851
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	617	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	393	851
Mov Cap-2 Maneuver	-	-	-	-	393	-
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	586	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.95	14.15
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	611	-	-	222	-
HCM Lane V/C Ratio	0.359	-	-	0.039	-
HCM Ctrl Dly (s/v)	14.2	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.6	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	82	1	1	29	1	4	4	2	16	1	28
Future Volume (vph)	81	82	1	1	29	1	4	4	2	16	1	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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			0.996			0.973			0.916	
Flt Protected		0.976			0.999			0.980			0.983	
Satd. Flow (prot)	0	1816	0	0	1853	0	0	1776	0	0	1677	0
Flt Permitted		0.976			0.999			0.980			0.983	
Satd. Flow (perm)	0	1816	0	0	1853	0	0	1776	0	0	1677	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		204.6			280.2			84.0			222.9	
Travel Time (s)		14.7			20.2			6.0			16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	89	1	1	32	1	4	4	2	17	1	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	178	0	0	34	0	0	10	0	0	48	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	81	82	1	1	29	1	4	4	2	16	1	28
Future Vol, veh/h	81	82	1	1	29	1	4	4	2	16	1	28
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	88	89	1	1	32	1	4	4	2	17	1	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	33	0	0	90	0	0	300	301	90	302	301	32
Stage 1	-	-	-	-	-	-	266	266	-	34	34	-
Stage 2	-	-	-	-	-	-	34	35	-	267	266	-
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	1579	-	-	1505	-	-	652	612	968	651	612	1042
Stage 1	-	-	-	-	-	-	740	689	-	982	866	-
Stage 2	-	-	-	-	-	-	982	866	-	738	688	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1579	-	-	1505	-	-	595	576	968	606	576	1042
Mov Cap-2 Maneuver	-	-	-	-	-	-	595	576	-	606	576	-
Stage 1	-	-	-	-	-	-	696	648	-	981	866	-
Stage 2	-	-	-	-	-	-	951	865	-	689	648	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	3.66	0.24	10.77	9.68
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	635	887	-	-	58	-	-	818
HCM Lane V/C Ratio	0.017	0.056	-	-	0.001	-	-	0.06
HCM Ctrl Dly (s/v)	10.8	7.4	0	-	7.4	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.2

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	88	61	291	64	58	165
Future Volume (vph)	88	61	291	64	58	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	55.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.945		0.976			
Flt Protected	0.971				0.950	
Satd. Flow (prot)	1588	0	1758	0	1656	1667
Flt Permitted	0.971				0.950	
Satd. Flow (perm)	1588	0	1758	0	1656	1667
Link Speed (k/h)	50		80			80
Link Distance (m)	738.9		447.4			418.4
Travel Time (s)	53.2		20.1			18.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	8%	6%	3%	9%	14%
Adj. Flow (vph)	96	66	316	70	63	179
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	386	0	63	179
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.1%		ICU Level of Service A	
Analysis Period (min) 15			

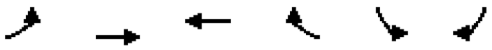
Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	88	61	291	64	58	165
Future Vol, veh/h	88	61	291	64	58	165
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	-	-	-	55	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	11	8	6	3	9	14
Mvmt Flow	96	66	316	70	63	179

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	657	351	0	0	386	0
Stage 1	351	-	-	-	-	-
Stage 2	305	-	-	-	-	-
Critical Hdwy	6.51	6.28	-	-	4.19	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.372	-	-	2.281	-
Pot Cap-1 Maneuver	416	679	-	-	1135	-
Stage 1	693	-	-	-	-	-
Stage 2	727	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	393	679	-	-	1135	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	693	-	-	-	-	-
Stage 2	687	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.45	0	2.17
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	475	1135	-
HCM Lane V/C Ratio	-	-	0.341	0.056	-
HCM Ctrl Dly (s/v)	-	-	16.5	8.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	1.5	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	14	70	87	51	144	29
Future Volume (vph)	14	70	87	51	144	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.950		0.977	
Flt Protected		0.992			0.960	
Satd. Flow (prot)	0	1627	1678	0	1782	0
Flt Permitted		0.992			0.960	
Satd. Flow (perm)	0	1627	1678	0	1782	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		271.9	32.6		248.0	
Travel Time (s)		19.6	2.3		17.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	19%	12%	0%	0%	0%
Adj. Flow (vph)	15	76	95	55	157	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	91	150	0	189	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.9%		ICU Level of Service A	
Analysis Period (min) 15			

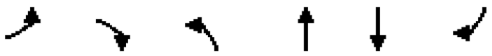
Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	70	87	51	144	29
Future Vol, veh/h	14	70	87	51	144	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	19	12	0	0	0
Mvmt Flow	15	76	95	55	157	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	150	0	-	0	229	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	107	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1444	-	-	-	764	934
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	923	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1444	-	-	-	755	934
Mov Cap-2 Maneuver	-	-	-	-	755	-
Stage 1	-	-	-	-	898	-
Stage 2	-	-	-	-	923	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.25	0	11.07
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	300	-	-	-	780
HCM Lane V/C Ratio	0.011	-	-	-	0.241
HCM Ctrl Dly (s/v)	7.5	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	42	173	91	190	242	46
Future Volume (vph)	42	173	91	190	242	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	45.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.892				0.978	
Flt Protected	0.990		0.950			
Satd. Flow (prot)	1471	0	1543	1557	1695	0
Flt Permitted	0.990		0.950			
Satd. Flow (perm)	1471	0	1543	1557	1695	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	32.6			282.3	477.5	
Travel Time (s)	2.3			12.7	21.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	6%	16%	17%	22%	9%	13%
Adj. Flow (vph)	46	188	99	207	263	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	234	0	99	207	313	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 43.6%		ICU Level of Service A	
Analysis Period (min) 15			

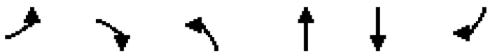
Intersection	
Int Delay, s/veh	5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	173	91	190	242	46
Future Vol, veh/h	42	173	91	190	242	46
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	-	45	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	16	17	22	9	13
Mvmt Flow	46	188	99	207	263	50

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	692	288	313	0	-	0
Stage 1	288	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Critical Hdwy	6.46	6.36	4.27	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.444	2.353	-	-	-
Pot Cap-1 Maneuver	404	719	1167	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	369	719	1167	-	-	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	665	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.6	2.71	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1167	-	607	-	-
HCM Lane V/C Ratio	0.085	-	0.385	-	-
HCM Ctrl Dly (s/v)	8.4	-	14.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.8	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	29	10	223	259	9
Future Volume (vph)	26	29	10	223	259	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	120.0			60.0
Storage Lanes	1	0	1			1
Taper Length (m)	7.5		95.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.928					0.850
Flt Protected	0.977		0.950			
Satd. Flow (prot)	1689	0	1770	1863	1863	1583
Flt Permitted	0.977		0.950			
Satd. Flow (perm)	1689	0	1770	1863	1863	1583
Link Speed (k/h)	50			80	80	
Link Distance (m)	617.6			185.9	220.9	
Travel Time (s)	44.5			8.4	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	32	11	242	282	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	0	11	242	282	10
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	29	10	223	259	9
Future Vol, veh/h	26	29	10	223	259	9
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	-	120	-	-	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	32	11	242	282	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	546	282	291	0	-	0
Stage 1	282	-	-	-	-	-
Stage 2	264	-	-	-	-	-
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	499	757	1270	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	780	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	495	757	1270	-	-	-
Mov Cap-2 Maneuver	495	-	-	-	-	-
Stage 1	760	-	-	-	-	-
Stage 2	780	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.6	0.34	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1270	-	605	-	-
HCM Lane V/C Ratio	0.009	-	0.099	-	-
HCM Ctrl Dly (s/v)	7.9	-	11.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	34	129	14	11	46	6
Future Volume (vph)	34	129	14	11	46	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.893		0.940			
Flt Protected	0.990					0.958
Satd. Flow (prot)	1647	0	1751	0	0	1785
Flt Permitted	0.990					0.958
Satd. Flow (perm)	1647	0	1751	0	0	1785
Link Speed (k/h)	50		60			60
Link Distance (m)	264.5		209.0			655.3
Travel Time (s)	19.0		12.5			39.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	140	15	12	50	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	177	0	27	0	0	57
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	7.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	34	129	14	11	46	6
Future Vol, veh/h	34	129	14	11	46	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	140	15	12	50	7

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	128	21	0	0	27	0
Stage 1	21	-	-	-	-	-
Stage 2	107	-	-	-	-	-
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	867	1056	-	-	1587	-
Stage 1	1001	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	839	1056	-	-	1587	-
Mov Cap-2 Maneuver	839	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	889	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.36	0	6.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1002	1581	-
HCM Lane V/C Ratio	-	-	0.177	0.032	-
HCM Ctrl Dly (s/v)	-	-	9.4	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	32	25	9	100	63	21
Future Volume (vph)	32	25	9	100	63	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.941				0.966	
Flt Protected				0.996	0.964	
Satd. Flow (prot)	1753	0	0	1855	1735	0
Flt Permitted				0.996	0.964	
Satd. Flow (perm)	1753	0	0	1855	1735	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	264.5			190.4	81.2	
Travel Time (s)	19.0			13.7	5.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	27	10	109	68	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	0	0	119	91	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	32	25	9	100	63	21
Future Vol, veh/h	32	25	9	100	63	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	27	10	109	68	23

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	62	0	177	48
Stage 1	-	-	-	-	48	-
Stage 2	-	-	-	-	128	-
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	-	-	1541	-	813	1020
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1541	-	808	1020
Mov Cap-2 Maneuver	-	-	-	-	808	-
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	892	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.61	9.73
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	852	-	-	149	-
HCM Lane V/C Ratio	0.107	-	-	0.006	-
HCM Ctrl Dly (s/v)	9.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]

Filename: Christie and Street B.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\2023\230556 - Arcady
Report generation date: 2025-11-26 5:05:53 PM

Summary of intersection performance

	AM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - Total 2030						
Leg North	0.08	~1	2.97	0.07	A	2.96	A
Leg West	0.08	~1	3.02	0.07	A		
Leg South	0.03	~1	2.98	0.02	A		
Leg East	0.05	~1	2.86	0.05	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Total 2030, AM " model duration: 8:00 AM - 9:00 AM
"D2 - Total 2030, PM" model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 2025-11-26 5:05:53 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2023-09-19
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - Total 2030, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Total 2030, AM	Total 2030	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				2.96	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	Street B	
West	West	Christie Street	
South	South	Street B	
East	East	Christie Street	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	85.00	100.000
West	PHF	✓	86.00	100.000
South	PHF	✓	28.00	100.000
East	PHF	✓	61.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	85.00	0.92	SecondQuarter
West	86.00	0.92	SecondQuarter
South	28.00	0.92	SecondQuarter
East	61.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	16.000	0.000	69.000
	West	5.000	0.000	4.000	77.000
	South	0.000	10.000	0.000	18.000
	East	22.000	31.000	8.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.19	0.00	0.81
	West	0.06	0.00	0.05	0.90
	South	0.00	0.36	0.00	0.64
	East	0.36	0.51	0.13	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.020	1.020	1.020
	West	1.020	1.000	1.020	1.020
	South	1.020	1.020	1.000	1.020
	East	1.020	1.020	1.020	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	2.0	2.0	2.0
	West	2.0	0.0	2.0	2.0
	South	2.0	2.0	0.0	2.0
	East	2.0	2.0	2.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.07	2.97	0.08	~1	A	85.00	85.00	4.17	2.94	0.07	4.17	2.94
West	0.07	3.02	0.08	~1	A	86.00	86.00	4.28	2.99	0.07	4.28	2.99
South	0.02	2.98	0.03	~1	A	28.00	28.00	1.38	2.95	0.02	1.38	2.95
East	0.05	2.86	0.05	~1	A	61.00	61.00	2.89	2.84	0.05	2.89	2.84

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	80.07	20.02	79.81	25.35	46.01	0.00	1330.81	802.29	0.060	0.00	0.07	2.935	A
West	81.01	20.25	80.75	53.52	72.30	0.00	1315.60	887.45	0.062	0.00	0.07	2.973	A
South	26.38	6.59	26.29	11.27	141.78	0.00	1275.39	490.79	0.021	0.00	0.02	2.939	A
East	57.46	14.37	57.28	153.99	14.08	0.00	1349.29	1226.14	0.043	0.00	0.05	2.841	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	92.39	23.10	92.35	29.33	53.24	0.00	1326.63	802.29	0.070	0.07	0.08	2.974	A
West	93.48	23.37	93.43	61.93	83.66	0.00	1309.03	887.45	0.071	0.07	0.08	3.020	A
South	30.43	7.61	30.42	13.04	164.05	0.00	1262.50	490.79	0.024	0.02	0.03	2.979	A
East	66.30	16.58	66.27	178.17	16.30	0.00	1348.01	1226.14	0.049	0.05	0.05	2.864	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	87.46	21.87	87.48	27.79	50.43	0.00	1328.26	802.29	0.066	0.08	0.07	2.958	A
West	88.49	22.12	88.51	58.66	79.25	0.00	1311.58	887.45	0.067	0.08	0.07	3.003	A
South	28.81	7.20	28.82	12.35	155.41	0.00	1267.50	490.79	0.023	0.03	0.02	2.966	A
East	62.77	15.69	62.78	168.78	15.44	0.00	1348.51	1226.14	0.047	0.05	0.05	2.855	A

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	80.07	20.02	80.10	25.44	46.17	0.00	1330.72	802.29	0.060	0.07	0.07	2.937	A
West	81.01	20.25	81.04	53.71	72.56	0.00	1315.45	887.45	0.062	0.07	0.07	2.976	A
South	26.38	6.59	26.39	11.31	142.29	0.00	1275.09	490.79	0.021	0.02	0.02	2.942	A
East	57.46	14.37	57.48	154.54	14.14	0.00	1349.26	1226.14	0.043	0.05	0.05	2.844	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.96	0.06	2.935	A	A
West	0.98	0.07	2.973	A	A
South	0.32	0.02	2.939	A	A
East	0.67	0.04	2.841	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.13	0.08	2.974	A	A
West	1.16	0.08	3.020	A	A
South	0.37	0.02	2.979	A	A
East	0.78	0.05	2.864	A	A

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	1.09	0.07	2.958	A	A
West	1.12	0.07	3.003	A	A
South	0.36	0.02	2.966	A	A
East	0.75	0.05	2.855	A	A

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.99	0.07	2.937	A	A
West	1.02	0.07	2.976	A	A
South	0.33	0.02	2.942	A	A
East	0.69	0.05	2.844	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
						Percentiles could not be calculated. This may			

North	0.08	~1	~1	~1	~1	be because the mean queue is very small or very big.		N/A	N/A
West	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.03	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]

Filename: Christie and Street D.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\2023\230556 - Arcady
Report generation date: 2025-11-26 4:11:16 PM

Summary of intersection performance

	AM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - Total 2030						
Leg North	0.06	~1	2.96	0.06	A	2.90	A
Leg West	0.05	~1	2.86	0.04	A		
Leg South	0.03	~1	2.87	0.02	A		
Leg East	0.05	~1	2.88	0.05	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Total 2030, AM " model duration: 8:00 AM - 9:00 AM
"D2 - Total 2030, PM" model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 2025-11-26 4:11:15 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2023-09-19
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - Total 2030, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Total 2030, AM	Total 2030	AM		PHF	08:00	09:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				2.90	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	Street D	
West	West	Christie Street	
South	South	Street D	
East	East	Christie Street	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	69.00	100.000
West	PHF	✓	53.00	100.000
South	PHF	✓	29.00	100.000
East	PHF	✓	62.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	69.00	0.92	SecondQuarter
West	53.00	0.92	SecondQuarter
South	29.00	0.92	SecondQuarter
East	62.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	46.000	0.000	23.000
	West	14.000	0.000	4.000	35.000
	South	0.000	13.000	0.000	16.000
	East	7.000	50.000	5.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.67	0.00	0.33
	West	0.26	0.00	0.08	0.66
	South	0.00	0.45	0.00	0.55
	East	0.11	0.81	0.08	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.020	1.020	1.020
	West	1.020	1.000	1.020	1.020
	South	1.020	1.020	1.000	1.020
	East	1.020	1.020	1.020	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	2.0	2.0	2.0
	West	2.0	0.0	2.0	2.0
	South	2.0	2.0	0.0	2.0
	East	2.0	2.0	2.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.06	2.96	0.06	~1	A	69.00	69.00	3.37	2.93	0.06	3.37	2.93
West	0.04	2.86	0.05	~1	A	53.00	53.00	2.51	2.84	0.04	2.51	2.84
South	0.02	2.87	0.03	~1	A	29.00	29.00	1.38	2.85	0.02	1.38	2.85
East	0.05	2.88	0.05	~1	A	62.00	62.00	2.96	2.86	0.05	2.96	2.86

Main Results for each time segment

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	65.00	16.25	64.79	19.72	63.86	0.00	1320.49	677.82	0.049	0.00	0.05	2.924	A
West	49.93	12.48	49.77	102.35	26.29	0.00	1342.23	1178.95	0.037	0.00	0.04	2.840	A
South	27.32	6.83	27.23	8.45	67.61	0.00	1318.31	595.85	0.021	0.00	0.02	2.843	A
East	58.41	14.60	58.22	69.49	25.35	0.00	1342.77	1022.62	0.044	0.00	0.05	2.858	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	75.00	18.75	74.96	22.82	73.88	0.00	1314.69	677.82	0.057	0.05	0.06	2.961	A
West	57.61	14.40	57.58	118.42	30.42	0.00	1339.84	1178.95	0.043	0.04	0.05	2.863	A
South	31.52	7.88	31.51	9.78	78.23	0.00	1312.17	595.85	0.024	0.02	0.03	2.866	A
East	67.39	16.85	67.36	80.40	29.33	0.00	1340.47	1022.62	0.050	0.05	0.05	2.883	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	71.00	17.75	71.01	21.61	69.98	0.00	1316.94	677.82	0.054	0.06	0.06	2.946	A
West	54.54	13.63	54.55	112.18	28.82	0.00	1340.77	1178.95	0.041	0.05	0.04	2.854	A
South	29.84	7.46	29.85	9.26	74.10	0.00	1314.56	595.85	0.023	0.03	0.02	2.857	A
East	63.80	15.95	63.81	76.16	27.79	0.00	1341.36	1022.62	0.048	0.05	0.05	2.875	A

Main results: (08:45-09:00)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	65.00	16.25	65.02	19.79	64.08	0.00	1320.36	677.82	0.049	0.06	0.05	2.926	A
West	49.93	12.48	49.94	102.71	26.39	0.00	1342.17	1178.95	0.037	0.04	0.04	2.843	A
South	27.32	6.83	27.33	8.48	67.85	0.00	1318.18	595.85	0.021	0.02	0.02	2.846	A
East	58.41	14.60	58.42	69.73	25.44	0.00	1342.72	1022.62	0.044	0.05	0.05	2.858	A

Queueing Delay Results for each time segment

Queueing Delay results: (08:00-08:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.78	0.05	2.924	A	A
West	0.58	0.04	2.840	A	A
South	0.32	0.02	2.843	A	A
East	0.68	0.05	2.858	A	A

Queueing Delay results: (08:15-08:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.91	0.06	2.961	A	A
West	0.68	0.05	2.863	A	A
South	0.37	0.02	2.866	A	A
East	0.80	0.05	2.883	A	A

Queueing Delay results: (08:30-08:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.88	0.06	2.946	A	A
West	0.65	0.04	2.854	A	A
South	0.36	0.02	2.857	A	A
East	0.77	0.05	2.875	A	A

Queueing Delay results: (08:45-09:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.80	0.05	2.926	A	A
West	0.60	0.04	2.843	A	A
South	0.33	0.02	2.846	A	A
East	0.70	0.05	2.858	A	A

Queue Variation Results for each time segment

Queue Variation results: (08:00-08:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:15-08:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
						Percentiles could not be calculated. This may			

North	0.06	~1	~1	~1	~1	be because the mean queue is very small or very big.		N/A	N/A
West	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.03	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:30-08:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (08:45-09:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	430	116	34	276	74	26
Future Volume (vph)	430	116	34	276	74	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.971				0.965	
Flt Protected				0.995	0.964	
Satd. Flow (prot)	1816	0	0	1857	1767	0
Flt Permitted				0.995	0.964	
Satd. Flow (perm)	1816	0	0	1857	1767	0
Link Speed (k/h)	80			80	60	
Link Distance (m)	597.0			1205.6	657.5	
Travel Time (s)	26.9			54.3	39.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	467	126	37	300	80	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	593	0	0	337	108	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.4%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	430	116	34	276	74	26
Future Vol, veh/h	430	116	34	276	74	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	467	126	37	300	80	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	593	0	904	530
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	992	-	310	553
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	700	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	992	-	296	553
Mov Cap-2 Maneuver	-	-	-	-	296	-
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	669	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.96	20.72
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	337	-	-	197	-
HCM Lane V/C Ratio	0.323	-	-	0.037	-
HCM Ctrl Dly (s/v)	20.7	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	404	57	172	299	32	99
Future Volume (vph)	404	57	172	299	32	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		30.0	0.0		0.0	0.0
Storage Lanes		1	0		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.898	
Flt Protected				0.982	0.988	
Satd. Flow (prot)	1845	1615	0	1842	1686	0
Flt Permitted				0.982	0.988	
Satd. Flow (perm)	1845	1615	0	1842	1686	0
Link Speed (k/h)	50			80	50	
Link Distance (m)	1205.6			175.5	195.2	
Travel Time (s)	86.8			7.9	14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	2%	0%	0%
Adj. Flow (vph)	439	62	187	325	35	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	439	62	0	512	143	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.4%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	404	57	172	299	32	99
Future Vol, veh/h	404	57	172	299	32	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	30	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	0	0	2	0	0
Mvmt Flow	439	62	187	325	35	108

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	501	0	1138	439
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	699	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1074	-	225	622
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	497	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1074	-	177	622
Mov Cap-2 Maneuver	-	-	-	-	177	-
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	391	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	3.31	19.71
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	385	-	-	657	-
HCM Lane V/C Ratio	0.369	-	-	0.174	-
HCM Ctrl Dly (s/v)	19.7	-	-	9.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0.6	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	55	5	3	86	21	3	2	2	12	4	90
Future Volume (vph)	54	55	5	3	86	21	3	2	2	12	4	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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		0.995			0.974			0.961			0.885	
Flt Protected		0.977			0.999			0.979			0.994	
Satd. Flow (prot)	0	1811	0	0	1812	0	0	1753	0	0	1639	0
Flt Permitted		0.977			0.999			0.979			0.994	
Satd. Flow (perm)	0	1811	0	0	1812	0	0	1753	0	0	1639	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		204.0			280.2			91.1			222.9	
Travel Time (s)		14.7			20.2			6.6			16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	60	5	3	93	23	3	2	2	13	4	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	124	0	0	119	0	0	7	0	0	115	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 26.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	54	55	5	3	86	21	3	2	2	12	4	90
Future Vol, veh/h	54	55	5	3	86	21	3	2	2	12	4	90
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	60	5	3	93	23	3	2	2	13	4	98

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	116	0	0	65	0	0	282	303	63	290	294	105
Stage 1	-	-	-	-	-	-	180	180	-	111	111	-
Stage 2	-	-	-	-	-	-	102	123	-	178	183	-
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	1472	-	-	1537	-	-	670	610	1002	663	617	950
Stage 1	-	-	-	-	-	-	822	751	-	894	803	-
Stage 2	-	-	-	-	-	-	904	794	-	824	749	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1472	-	-	1537	-	-	571	584	1002	630	590	950
Mov Cap-2 Maneuver	-	-	-	-	-	-	571	584	-	630	590	-
Stage 1	-	-	-	-	-	-	788	719	-	892	801	-
Stage 2	-	-	-	-	-	-	804	792	-	785	718	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	3.57	0.2	10.56	9.71
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	656	839	-	-	47	-	-	879
HCM Lane V/C Ratio	0.012	0.04	-	-	0.002	-	-	0.131
HCM Ctrl Dly (s/v)	10.6	7.5	0	-	7.3	0	-	9.7
HCM Lane LOS	B	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	94	92	260	145	67	313
Future Volume (vph)	94	92	260	145	67	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0		0.0	55.0	
Storage Lanes	1	0		0	1	
Taper Length (m)	7.5				100.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.933		0.952			
Flt Protected	0.975				0.950	
Satd. Flow (prot)	1661	0	1715	0	1805	1827
Flt Permitted	0.975				0.950	
Satd. Flow (perm)	1661	0	1715	0	1805	1827
Link Speed (k/h)	50		80			80
Link Distance (m)	738.9		447.4			418.4
Travel Time (s)	53.2		20.1			18.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	0%	8%	1%	0%	4%
Adj. Flow (vph)	102	100	283	158	73	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	202	0	441	0	73	340
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.1%		ICU Level of Service A	
Analysis Period (min) 15			

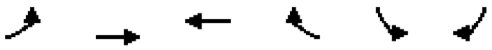
Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	94	92	260	145	67	313
Future Vol, veh/h	94	92	260	145	67	313
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	-	-	-	55	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	8	0	8	1	0	4
Mvmt Flow	102	100	283	158	73	340

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	847	361	0	0	440	0
Stage 1	361	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Critical Hdwy	6.48	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.48	-	-	-	-	-
Critical Hdwy Stg 2	5.48	-	-	-	-	-
Follow-up Hdwy	3.572	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	324	688	-	-	1130	-
Stage 1	692	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	303	688	-	-	1130	-
Mov Cap-2 Maneuver	303	-	-	-	-	-
Stage 1	692	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	21.33	0	1.48
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	419	1130	-
HCM Lane V/C Ratio	-	-	0.482	0.064	-
HCM Ctrl Dly (s/v)	-	-	21.3	8.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	2.6	0.2	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	43	141	103	162	98	19
Future Volume (vph)	43	141	103	162	98	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.917		0.978	
Flt Protected		0.988			0.960	
Satd. Flow (prot)	0	1863	1677	0	1784	0
Flt Permitted		0.988			0.960	
Satd. Flow (perm)	0	1863	1677	0	1784	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		271.9	35.7		248.0	
Travel Time (s)		19.6	2.6		17.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	1%	10%	0%	0%	0%
Adj. Flow (vph)	47	153	112	176	107	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	200	288	0	128	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.7%		ICU Level of Service A	
Analysis Period (min) 15			

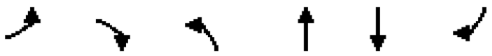
Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	43	141	103	162	98	19
Future Vol, veh/h	43	141	103	162	98	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	1	10	0	0	0
Mvmt Flow	47	153	112	176	107	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	288	0	-	0	447	200
Stage 1	-	-	-	-	200	-
Stage 2	-	-	-	-	247	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1286	-	-	-	573	846
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	799	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1286	-	-	-	550	846
Mov Cap-2 Maneuver	-	-	-	-	550	-
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	799	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.85	0	12.88
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	421	-	-	-	583
HCM Lane V/C Ratio	0.036	-	-	-	0.218
HCM Ctrl Dly (s/v)	7.9	0	-	-	12.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	148	203	346	221	62
Future Volume (vph)	90	148	203	346	221	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	45.0			0.0
Storage Lanes	1	0	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.916				0.971	
Flt Protected	0.981		0.950			
Satd. Flow (prot)	1596	0	1612	1792	1784	0
Flt Permitted	0.981		0.950			
Satd. Flow (perm)	1596	0	1612	1792	1784	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	35.7			282.3	477.5	
Travel Time (s)	2.6			12.7	21.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	10%	12%	6%	3%	5%
Adj. Flow (vph)	98	161	221	376	240	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	259	0	221	376	307	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.7%		ICU Level of Service A	
Analysis Period (min) 15			

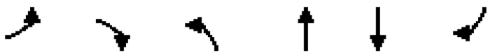
Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	148	203	346	221	62
Future Vol, veh/h	90	148	203	346	221	62
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	-	45	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	10	12	6	3	5
Mvmt Flow	98	161	221	376	240	67

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1091	274	308	0	-	0
Stage 1	274	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Critical Hdwy	6.42	6.3	4.22	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.39	2.308	-	-	-
Pot Cap-1 Maneuver	238	746	1198	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	434	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	194	746	1198	-	-	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	434	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	36.98	3.21	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1198	-	359	-	-
HCM Lane V/C Ratio	0.184	-	0.72	-	-
HCM Ctrl Dly (s/v)	8.7	-	37	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.7	-	5.4	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	20	33	403	263	29
Future Volume (vph)	17	20	33	403	263	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	120.0			60.0
Storage Lanes	1	0	1			1
Taper Length (m)	7.5		95.0			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.926					0.850
Flt Protected	0.978		0.950			
Satd. Flow (prot)	1687	0	1770	1863	1863	1583
Flt Permitted	0.978		0.950			
Satd. Flow (perm)	1687	0	1770	1863	1863	1583
Link Speed (k/h)	50			80	80	
Link Distance (m)	617.6			185.9	220.9	
Travel Time (s)	44.5			8.4	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	22	36	438	286	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	36	438	286	32
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 31.2%		ICU Level of Service A	
Analysis Period (min) 15			

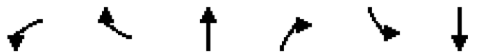
Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	20	33	403	263	29
Future Vol, veh/h	17	20	33	403	263	29
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	-	120	-	-	60
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	22	36	438	286	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	796	286	317	0	-	0
Stage 1	286	-	-	-	-	-
Stage 2	510	-	-	-	-	-
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	356	753	1243	-	-	-
Stage 1	763	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	346	753	1243	-	-	-
Mov Cap-2 Maneuver	346	-	-	-	-	-
Stage 1	741	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.02	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1243	-	489	-	-
HCM Lane V/C Ratio	0.029	-	0.082	-	-
HCM Ctrl Dly (s/v)	8	-	13	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	24	90	10	35	142	8
Future Volume (vph)	24	90	10	35	142	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.893		0.895			
Flt Protected	0.990					0.955
Satd. Flow (prot)	1647	0	1667	0	0	1779
Flt Permitted	0.990					0.955
Satd. Flow (perm)	1647	0	1667	0	0	1779
Link Speed (k/h)	50		60			60
Link Distance (m)	263.9		209.0			657.5
Travel Time (s)	19.0		12.5			39.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	98	11	38	154	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	0	49	0	0	163
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	90	10	35	142	8
Future Vol, veh/h	24	90	10	35	142	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	98	11	38	154	9

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	347	30	0	0	49	0
Stage 1	30	-	-	-	-	-
Stage 2	317	-	-	-	-	-
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	650	1045	-	-	1558	-
Stage 1	993	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	585	1045	-	-	1558	-
Mov Cap-2 Maneuver	585	-	-	-	-	-
Stage 1	993	-	-	-	-	-
Stage 2	665	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.66	0	7.16
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	896	1550	-
HCM Lane V/C Ratio	-	-	0.138	0.099	-
HCM Ctrl Dly (s/v)	-	-	9.7	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.3	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	107	70	23	69	45	15
Future Volume (vph)	107	70	23	69	45	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.947				0.967	
Flt Protected				0.988	0.964	
Satd. Flow (prot)	1764	0	0	1840	1736	0
Flt Permitted				0.988	0.964	
Satd. Flow (perm)	1764	0	0	1840	1736	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	263.9			190.9	116.7	
Travel Time (s)	19.0			13.7	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	76	25	75	49	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	0	0	100	65	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	107	70	23	69	45	15
Future Vol, veh/h	107	70	23	69	45	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	76	25	75	49	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	192	0	279	154
Stage 1	-	-	-	-	154	-
Stage 2	-	-	-	-	125	-
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	-	-	1381	-	711	892
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	697	892
Mov Cap-2 Maneuver	-	-	-	-	697	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	884	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.91	10.36
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	737	-	-	450	-
HCM Lane V/C Ratio	0.088	-	-	0.018	-
HCM Ctrl Dly (s/v)	10.4	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: Christie and Street B.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\2023\230556 - Arcady
Report generation date: 2025-11-26 5:04:49 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - Total 2030						
Leg North	0.05	~1	2.99	0.05	A	3.10	A
Leg West	0.07	~1	2.99	0.07	A		
Leg South	0.02	~1	2.91	0.02	A		
Leg East	0.17	~1	3.20	0.14	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Total 2030, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Total 2030, PM " model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 2025-11-26 5:04:48 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2023-09-19
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - Total 2030, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Total 2030, PM	Total 2030	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				3.10	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	Street B	
West	West	Christie Street	
South	South	Street B	
East	East	Christie Street	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	56.00	100.000
West	PHF	✓	83.00	100.000
South	PHF	✓	19.00	100.000
East	PHF	✓	179.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	56.00	0.92	SecondQuarter
West	83.00	0.92	SecondQuarter
South	19.00	0.92	SecondQuarter
East	179.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	11.000	0.000	45.000
	West	16.000	0.000	10.000	57.000
	South	0.000	7.000	0.000	12.000
	East	75.000	84.000	20.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.20	0.00	0.80
	West	0.19	0.00	0.12	0.69
	South	0.00	0.37	0.00	0.63
	East	0.42	0.47	0.11	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.020	1.020	1.020
	West	1.020	1.000	1.020	1.020
	South	1.020	1.020	1.000	1.020
	East	1.020	1.020	1.020	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	2.0	2.0	2.0
	West	2.0	0.0	2.0	2.0
	South	2.0	2.0	0.0	2.0
	East	2.0	2.0	2.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.05	2.99	0.05	~1	A	56.00	56.00	2.76	2.96	0.05	2.76	2.96
West	0.07	2.99	0.07	~1	A	83.00	83.00	4.10	2.96	0.07	4.10	2.96
South	0.02	2.91	0.02	~1	A	19.00	19.00	0.91	2.88	0.02	0.91	2.88
East	0.14	3.20	0.17	~1	A	179.00	179.00	9.38	3.14	0.16	9.38	3.14

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	52.75	13.19	52.58	85.43	104.21	0.00	1297.14	862.25	0.041	0.00	0.04	2.950	A
West	78.19	19.55	77.93	95.76	61.03	0.00	1322.12	882.01	0.059	0.00	0.06	2.951	A
South	17.90	4.47	17.84	28.16	110.80	0.00	1293.32	507.46	0.014	0.00	0.01	2.878	A
East	168.62	42.16	168.04	107.04	21.60	0.00	1344.95	1150.84	0.125	0.00	0.15	3.118	A

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	60.87	15.22	60.84	98.86	120.59	0.00	1287.65	862.25	0.047	0.04	0.05	2.992	A
West	90.22	22.55	90.17	110.81	70.62	0.00	1316.58	882.01	0.069	0.06	0.07	2.993	A
South	20.65	5.16	20.64	32.59	128.20	0.00	1283.25	507.46	0.016	0.01	0.02	2.907	A
East	194.57	48.64	194.46	123.85	24.99	0.00	1342.98	1150.84	0.145	0.15	0.17	3.196	A

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	57.62	14.41	57.63	93.66	114.24	0.00	1291.33	862.25	0.045	0.05	0.05	2.975	A
West	85.41	21.35	85.42	104.98	66.90	0.00	1318.73	882.01	0.065	0.07	0.07	2.976	A
South	19.55	4.89	19.55	30.88	121.44	0.00	1287.16	507.46	0.015	0.02	0.02	2.898	A
East	184.19	46.05	184.23	117.33	23.67	0.00	1343.75	1150.84	0.137	0.17	0.16	3.166	A

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	52.75	13.19	52.77	85.76	104.60	0.00	1296.90	862.25	0.041	0.05	0.04	2.950	A
West	78.19	19.55	78.21	96.12	61.25	0.00	1321.99	882.01	0.059	0.07	0.06	2.951	A
South	17.90	4.47	17.90	28.27	111.20	0.00	1293.09	507.46	0.014	0.02	0.01	2.881	A
East	168.62	42.16	168.69	107.43	21.67	0.00	1344.90	1150.84	0.125	0.16	0.15	3.121	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.64	0.04	2.950	A	A
West	0.94	0.06	2.951	A	A
South	0.21	0.01	2.878	A	A
East	2.15	0.14	3.118	A	A

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.75	0.05	2.992	A	A
West	1.11	0.07	2.993	A	A
South	0.25	0.02	2.907	A	A
East	2.55	0.17	3.196	A	A

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.72	0.05	2.975	A	A
West	1.07	0.07	2.976	A	A
South	0.24	0.02	2.898	A	A
East	2.46	0.16	3.166	A	A

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.66	0.04	2.950	A	A
West	0.97	0.06	2.951	A	A
South	0.22	0.01	2.881	A	A
East	2.22	0.15	3.121	A	A

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.01	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
						Percentiles could not be calculated. This may			

North	0.05	~1	~1	~1	~1	be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.17	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:30-16:45)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.05	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.16	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:45-17:00)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.06	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.01	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.15	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.6.541 [19821,26/11/2015]

Filename: Christie and Street D.arc8
Path: C:\Users\AdamMorrison\OneDrive - Paradigm\Desktop\Project\Project Files\2023\230556 - Arcady
Report generation date: 2025-11-26 4:09:42 PM

Summary of intersection performance

	PM						
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS
	A1 - Total 2030						
Leg North	0.04	~1	2.92	0.04	A	3.00	A
Leg West	0.11	~1	3.05	0.10	A		
Leg South	0.02	~1	2.92	0.02	A		
Leg East	0.08	~1	3.01	0.08	A		

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages.

"D1 - Total 2030, AM" model duration: 8:00 AM - 9:00 AM
"D2 - Total 2030, PM " model duration: 4:00 PM - 5:00 PM

Run using Junctions 8.0.6.541 at 2025-11-26 4:09:42 PM

File summary

Title	(untitled)
Location	
Site Number	
Date	2023-09-19
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Analyst	AdamMorrison
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
7.50	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

(Default Analysis Set) - Total 2030, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
Total 2030, PM	Total 2030	PM		PHF	16:00	17:00	60	15				✓		

Intersection Network

Intersections

Intersection	Name	Intersection Type	Leg Order	Grade Separated	Large Roundabout	Do Geometric Delay	Intersection Delay (s)	Intersection LOS
1	(untitled)	Roundabout	North,West,South,East				3.00	A

Intersection Network Options

Driving Side	Lighting
Right	Normal/unknown

Legs

Legs

Leg	Leg	Name	Description
North	North	Street D	
West	West	Christie Street	
South	South	Street D	
East	East	Christie Street	

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Assume Flat Start Profile	Initial Queue (PCE)
North	0.00	99999.00		0.00
West	0.00	99999.00		0.00
South	0.00	99999.00		0.00
East	0.00	99999.00		0.00

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
North	3.50	4.50	30.00	20.00	40.00	25.00	
West	3.50	4.50	30.00	20.00	40.00	25.00	
South	3.50	4.50	30.00	20.00	40.00	25.00	
East	3.50	4.50	30.00	20.00	40.00	25.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Leg	Enter slope and intercept directly	Entered slope	Entered intercept (PCE/hr)	Final Slope	Final Intercept (PCE/hr)
North		(calculated)	(calculated)	0.579	1357.445
West		(calculated)	(calculated)	0.579	1357.445
South		(calculated)	(calculated)	0.579	1357.445
East		(calculated)	(calculated)	0.579	1357.445

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCE Factor for a Truck (PCE)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	Truck Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Leg	Profile Type	Use Turning Counts	Average Demand Flow (PCE/hr)	Flow Scaling Factor (%)
North	PHF	✓	46.00	100.000
West	PHF	✓	122.00	100.000
South	PHF	✓	20.00	100.000
East	PHF	✓	93.00	100.000

Peak Hour Factor Data

Leg	Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
North	46.00	0.92	SecondQuarter
West	122.00	0.92	SecondQuarter
South	20.00	0.92	SecondQuarter
East	93.00	0.92	SecondQuarter

Turning Proportions

Turning Counts / Proportions (PCE/hr) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.000	31.000	0.000	15.000
	West	50.000	0.000	14.000	58.000
	South	0.000	9.000	0.000	11.000
	East	24.000	52.000	17.000	0.000

Turning Proportions (PCE) - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.00	0.67	0.00	0.33
	West	0.41	0.00	0.11	0.48
	South	0.00	0.45	0.00	0.55
	East	0.26	0.56	0.18	0.00

Vehicle Mix

Average PCE Per Vehicle - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	1.000	1.020	1.020	1.020
	West	1.020	1.000	1.020	1.020
	South	1.020	1.020	1.000	1.020
	East	1.020	1.020	1.020	1.000

Truck Percentages - Intersection 1 (for whole period)

		To			
		North	West	South	East
From	North	0.0	2.0	2.0	2.0
	West	2.0	0.0	2.0	2.0
	South	2.0	2.0	0.0	2.0
	East	2.0	2.0	2.0	0.0

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS	Average Demand (PCE/hr)	Total Intersection Arrivals (PCE)	Total Queueing Delay (PCE-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCE-min/min)	Inclusive Total Queueing Delay (PCE-min)	Inclusive Average Queueing Delay (s)
North	0.04	2.92	0.04	~1	A	46.00	46.00	2.22	2.89	0.04	2.22	2.89
West	0.10	3.05	0.11	~1	A	122.00	122.00	6.12	3.01	0.10	6.12	3.01
South	0.02	2.92	0.02	~1	A	20.00	20.00	0.96	2.89	0.02	0.96	2.89
East	0.08	3.01	0.08	~1	A	93.00	93.00	4.61	2.98	0.08	4.61	2.98

Main Results for each time segment

Main results: (16:00-16:15)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	43.33	10.83	43.19	69.48	73.24	0.00	1315.06	792.57	0.033	0.00	0.03	2.886	A
West	114.93	28.73	114.55	86.39	30.05	0.00	1340.06	1109.72	0.086	0.00	0.10	2.996	A
South	18.84	4.71	18.78	29.11	115.49	0.00	1290.61	639.31	0.015	0.00	0.02	2.886	A
East	87.61	21.90	87.32	78.87	55.40	0.00	1325.38	927.72	0.066	0.00	0.07	2.965	A

Main results: (16:15-16:30)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	50.00	12.50	49.98	80.39	84.74	0.00	1308.40	792.57	0.038	0.03	0.04	2.917	A
West	132.61	33.15	132.54	99.95	34.77	0.00	1337.32	1109.72	0.099	0.10	0.11	3.047	A
South	21.74	5.43	21.73	33.68	133.63	0.00	1280.11	639.31	0.017	0.02	0.02	2.917	A
East	101.09	25.27	101.04	91.26	64.10	0.00	1320.35	927.72	0.077	0.07	0.08	3.010	A

Main results: (16:30-16:45)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	47.33	11.83	47.34	76.16	80.28	0.00	1310.98	792.57	0.036	0.04	0.04	2.907	A
West	125.54	31.38	125.56	94.68	32.93	0.00	1338.38	1109.72	0.094	0.11	0.11	3.029	A
South	20.58	5.14	20.58	31.90	126.59	0.00	1284.18	639.31	0.016	0.02	0.02	2.907	A
East	95.70	23.92	95.71	86.45	60.72	0.00	1322.30	927.72	0.072	0.08	0.08	2.995	A

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Intersection Arrivals (PCE)	Entry Flow (PCE/hr)	Exit Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	Saturation Capacity (PCE/hr)	V/C Ratio	Start Queue (PCE)	End Queue (PCE)	Delay (s)	LOS
North	43.33	10.83	43.35	69.73	73.50	0.00	1314.90	792.57	0.033	0.04	0.03	2.889	A
West	114.93	28.73	114.97	86.70	30.15	0.00	1339.99	1109.72	0.086	0.11	0.10	2.999	A
South	18.84	4.71	18.85	29.21	115.91	0.00	1290.36	639.31	0.015	0.02	0.02	2.889	A
East	87.61	21.90	87.64	79.16	55.60	0.00	1325.27	927.72	0.066	0.08	0.07	2.968	A

Queueing Delay Results for each time segment

Queueing Delay results: (16:00-16:15)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.51	0.03	2.886	A	A
West	1.41	0.09	2.996	A	A
South	0.22	0.01	2.886	A	A
East	1.06	0.07	2.965	A	A

Queueing Delay results: (16:15-16:30)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.60	0.04	2.917	A	A
West	1.66	0.11	3.047	A	A
South	0.26	0.02	2.917	A	A
East	1.25	0.08	3.010	A	A

Queueing Delay results: (16:30-16:45)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.58	0.04	2.907	A	A
West	1.60	0.11	3.029	A	A
South	0.25	0.02	2.907	A	A
East	1.21	0.08	2.995	A	A

Queueing Delay results: (16:45-17:00)

Leg	Queueing Total Delay (PCE-min)	Queueing Rate Of Delay (PCE-min/min)	Average Delay Per Arriving Vehicle (s)	Unsignalised Level Of Service	Signalised Level Of Service
North	0.53	0.04	2.889	A	A
West	1.45	0.10	2.999	A	A
South	0.23	0.02	2.889	A	A
East	1.10	0.07	2.968	A	A

Queue Variation Results for each time segment

Queue Variation results: (16:00-16:15)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.03	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:15-16:30)

Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
						Percentiles could not be calculated. This may			

North	0.04	~1	~1	~1	~1	be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

Queue Variation results: (16:30-16:45)

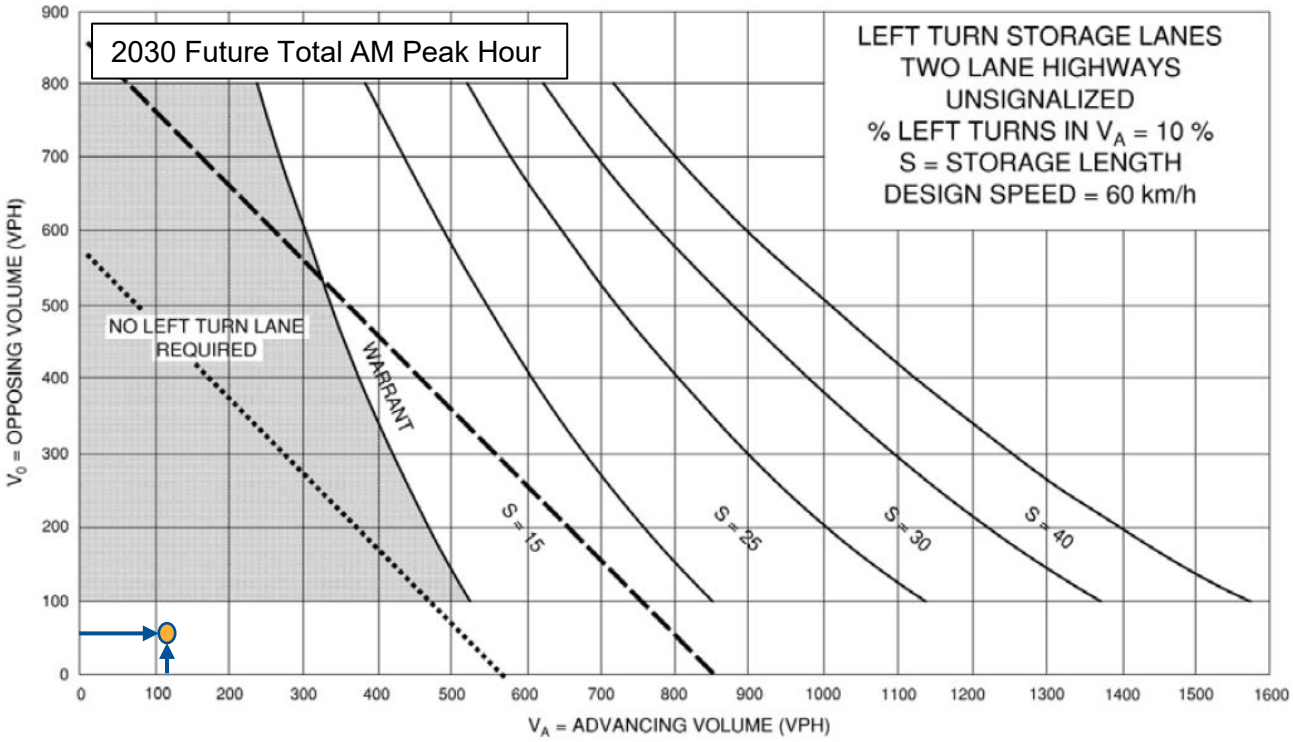
Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.04	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.11	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.08	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

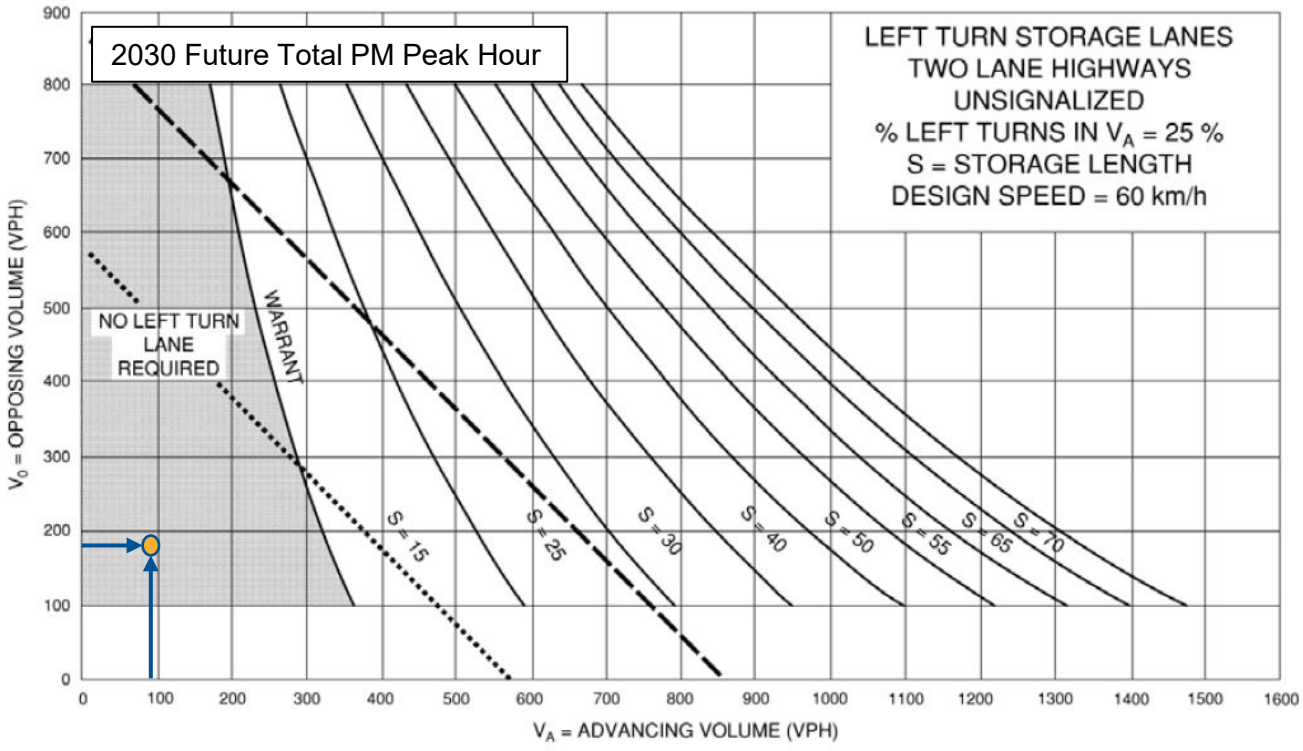
Queue Variation results: (16:45-17:00)

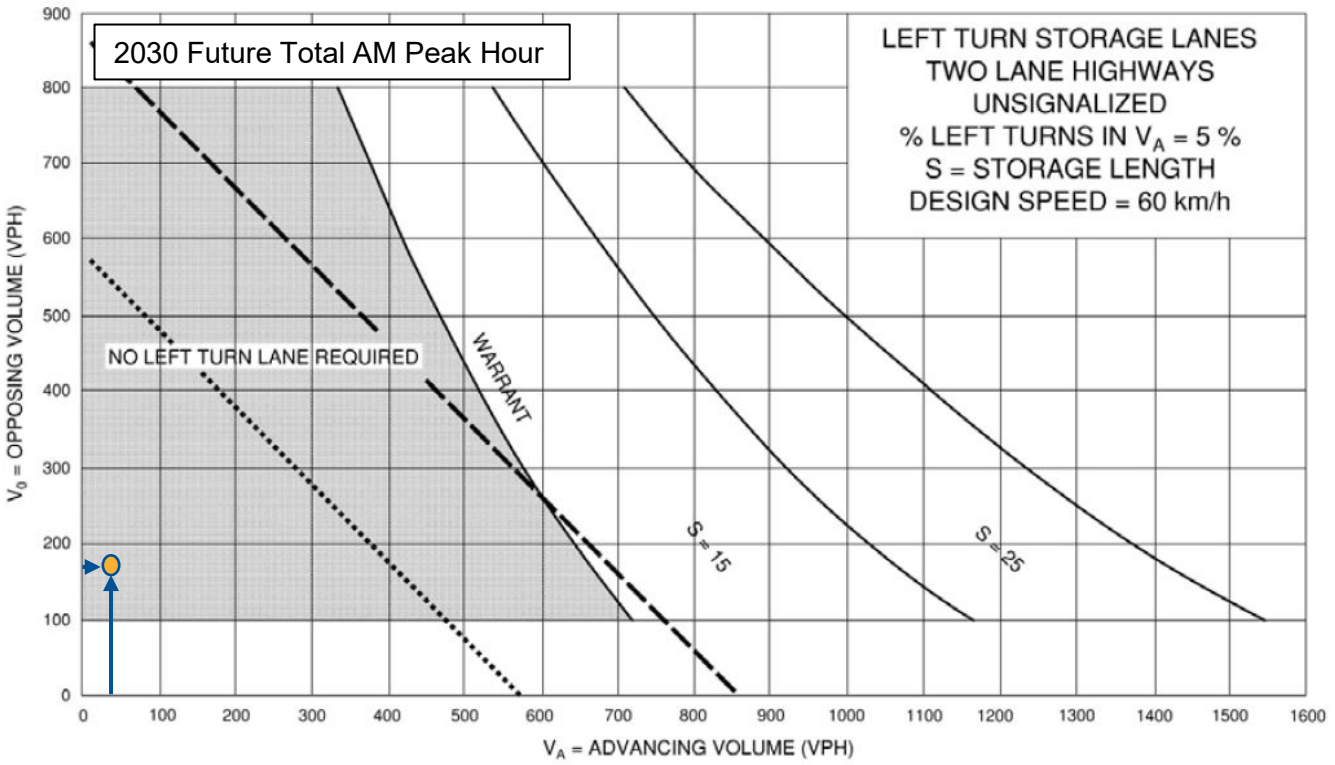
Leg	Mean (PCE)	Q05 (PCE)	Q50 (PCE)	Q90 (PCE)	Q95 (PCE)	Percentile Message	Marker Message	Probability Of Reaching Or Exceeding Marker	Probability Of Exactly Reaching Marker
North	0.03	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
West	0.10	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
South	0.02	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A
East	0.07	~1	~1	~1	~1	Percentiles could not be calculated. This may be because the mean queue is very small or very big.		N/A	N/A

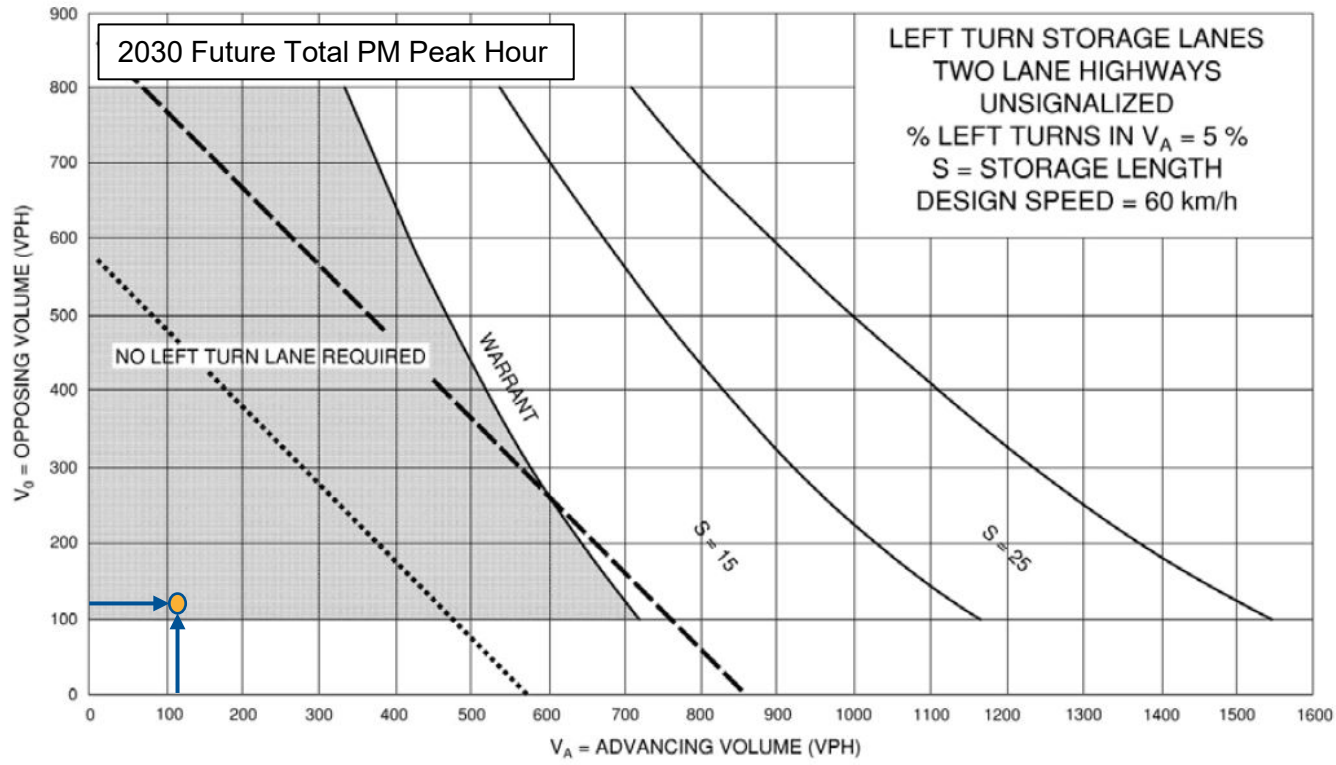
Appendix H

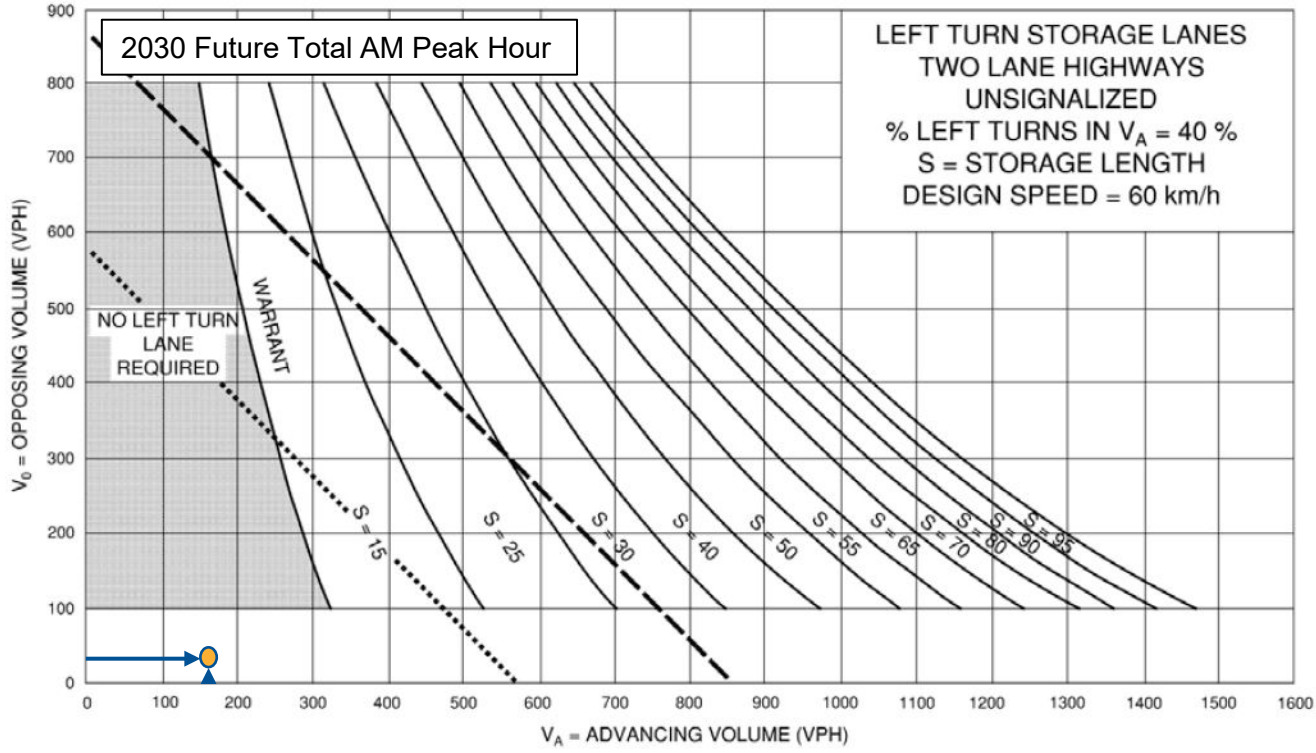
Left-Turn Lane Warrant Nomographs

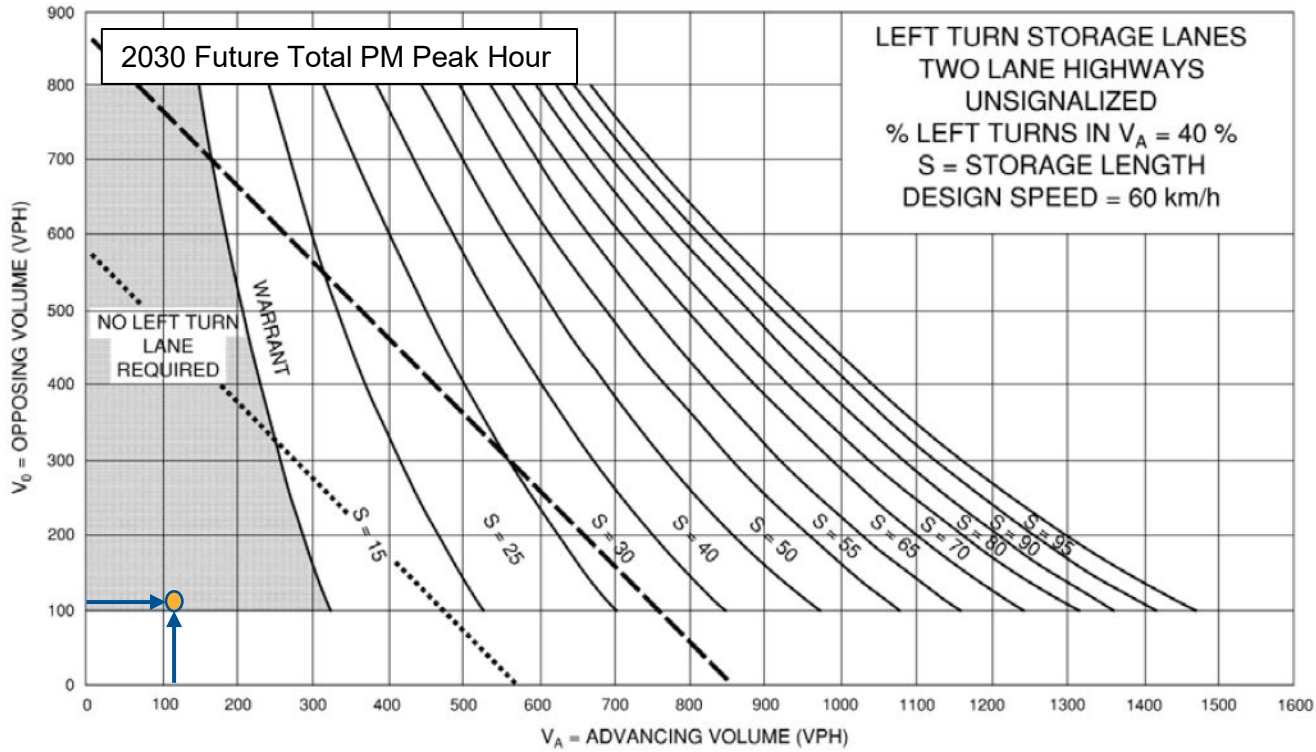

2030 Future Total AM Peak Hour
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 10 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)


2030 Future Total PM Peak Hour
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 25 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)


2030 Future Total AM Peak Hour
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 5 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


2030 Future Total PM Peak Hour
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 5 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
V_O = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


2030 Future Total AM Peak Hour
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
S = 80
S = 90
S = 95
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600


2030 Future Total PM Peak Hour
LEFT TURN STORAGE LANES
TWO LANE HIGHWAYS
UNSIGNALIZED
% LEFT TURNS IN V_A = 40 %
S = STORAGE LENGTH
DESIGN SPEED = 60 km/h
NO LEFT TURN LANE REQUIRED
WARRANT
S = 15
S = 25
S = 30
S = 40
S = 50
S = 55
S = 65
S = 70
S = 80
S = 90
S = 95
V_0 = OPPOSING VOLUME (VPH)
V_A = ADVANCING VOLUME (VPH)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600