



**770 St. Clair Street,
Chatham**

Transportation Impact Study

Paradigm Transportation Solutions Limited

June 2025
230754



Project Summary

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770 St. Clair Street, Chatham Transportation Impact Study

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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct this Transportation Impact Study (TIS) for a proposed residential development located at 770 St. Clair Street in the Municipality of Chatham-Kent.

This TIS includes an analysis of existing traffic conditions; a description of the proposed development; traffic forecasts and analyses for build-out (2030), a five-year horizon (2035), and ten-year horizon (2040); and assessment of development traffic impacts with recommendations as appropriate to accommodate the proposed development.

Development Concept

The subject site is located on the west side of St. Clair Street to the south of Pioneer Line. The site is surrounded by existing commercial developments to the north, south and east, and has frontages on St. Clair Street at the southerly signalized access and the Right-In Right-Out (RIRO) access immediately to the north.

The proposed development will include two 12-storey and two 14-storey apartment buildings accommodating a total of 774 units and 2,144 sq. ft. of ground floor commercial.

The development is assumed to be completed by 2030.

TIA Scope

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

► Study Area Intersections:

- St. Clair Street and Pioneer Line (signalized);
- St. Clair Street and Gregory Drive (signalized);
- St. Clair Street and Pioneer Square Access (signalized);
- St. Clair Street and St. Clair Centre Access (signalized);
- Two RIRO plaza access intersections on St. Clair Street (unsignalized); and
- Two internal development access connections (unsignalized).



- ▶ **Analysis Periods:** Weekday AM and PM and Saturday peak hours.
- ▶ **Traffic Conditions:** Existing (2025), build-out (2030), five years after build-out (2035), and ten years after build-out (2040).

Conclusions

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

- ▶ **Existing Traffic Conditions:** The study area intersections are operating at acceptable levels of service, except for the noted critical movements at the following intersections:

St. Clair Street and St. Clair Centre Access:

- The westbound left-turn movement is operating with LOS F and a v/c ratio greater than 1.00 during the Saturday peak hour; and
- The northbound right-turn movement is operating with 95th percentile queues exceeding the available storage of 25 metres during the Saturday peak hour.

St. Clair Street and Gregory Drive: The eastbound left-turn movement is operating with 95th percentile queues exceeding the available storage of 30 metres during the weekday PM and Saturday peak hours.

- ▶ **Development Trip Generation:** The development is forecast to generate 194 AM peak hour trips, 238 PM peak hour trips and 277 Saturday peak hour trips.
- ▶ **Background Traffic Conditions:** The study area intersections are forecast to operate with the same critical movements as under existing traffic conditions, with the addition of the following movements:

Starting under 2035 conditions:

- St. Clair Street and Gregory Drive: The southbound left-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 30 metres during the weekday PM and Saturday peak hours.

Starting under 2040 conditions:

- St. Clair Street and Clair Centre Access: The northbound right-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 25 metres during the weekday PM peak hour.



- St. Clair Street and Gregory Drive: The northbound shared through/right-turn movement is forecast to operate with LOS D and a v/c ratio greater than 0.85 during the Saturday peak hour.
- ▶ **Total Traffic Conditions**: The study area intersections are forecast to operate with the same critical movements as under background traffic conditions, with the addition of the following movements:

Starting under 2030 conditions:

- St. Clair Street and Gregory Drive: The southbound left-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 30 metres by five metres (less than a single car length) during the Saturday peak hour.

Starting under 2035 conditions:

- St. Clair Street and Clair Centre Access: The northbound right-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 25 metres by one metre (less than a single car length) during the weekday PM peak hour.
- St. Clair Street and Gregory Drive: The northbound through/right-turn movement is forecast to operate with LOS D and a v/c ratio greater than 0.85 during the Saturday peak hour.

Starting under 2040 conditions:

- St. Clair Street and Gregory Drive: The westbound shared through/right-turn movement is forecast to operate with LOS C and a v/c ratio greater than 0.85 during the Saturday peak hour.
- ▶ **Summary of Impacts**: It is noted that although critical movements have been identified at two intersections, the overall intersection operations for all study area intersections analyzed in this study register acceptable levels of service during all peak hours and under all traffic conditions. Specific to the critical movements, the following is noted:
 - **St. Clair Street and St. Clair Centre Access**: The level of service and queueing issues are occurring under existing conditions and is independent of the subject development. To improve delays at the intersection, signal timing improvements could be considered including a northbound right-turn permissive overlapping phase and an increase in green time for the westbound left-turn advance phase.



- **St. Clair Street and Gregory Drive:** Generally, the intersection is forecast to operate with movements nearing capacity and queueing issues starting under existing and background conditions. Given the high volumes for competing movements, especially during the Saturday peak hour, signal timing changes alone will not provide significant improvements.

Recommendations

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



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1 Introduction

1.1 Overview

Paradigm Transportation Solutions Limited (Paradigm) has been retained to conduct this Transportation Impact Study (TIS) for a proposed mixed-use development located at 770 St. Clair Street in the Municipality of Chatham-Kent. **Figure 1.1** details the subject development location.

The subject site is located on the west side of St. Clair Street to the south of Pioneer Line. The site is surrounded by existing commercial developments to the north, south and east, and has frontages on St. Clair Street at the southerly signalized access and the Right-In Right-Out (RIRO) access immediately to the north.

The proposed development will include two 12-storey and two 14-storey apartment buildings accommodating a total of 774 units and 2,144 sq. ft. of ground floor commercial.

The development is assumed to be completed by 2030.

1.2 Purpose and Scope

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

- ▶ Assessment of the current traffic and site conditions within the study area;
- ▶ Estimates of background traffic growth for build-out (2030), five years from build-out (2035) and ten years from build-out (2040);
- ▶ Estimates of additional traffic generated by the subject site;
- ▶ Analyses of the impact of the future traffic on the surrounding road network, including the following study area intersections:
 - St. Clair Street and Pioneer Line (signalized);
 - St. Clair Street and Gregory Drive (signalized);
 - St. Clair Street and Pioneer Square Access (signalized);
 - St. Clair Street and St. Clair Centre Access (signalized);
 - Two RIRO plaza access intersections on St. Clair Street (unsignalized); and



- Two internal development access connections (unsignalized).
- ▶ Recommendations, if necessary, to mitigate the site generated traffic in a satisfactory manner.

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

This study has been prepared in accordance with the requirements detailed by the *Municipality of Chatham-Kent TIS Guidelines*¹.

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





Location of Subject Site

770 St. Clair Street, Chatham TIS
230754

Figure 1.1

2 Existing Conditions

2.1 Existing Roadways

The main roadways near the subject development considered in assessing the traffic impacts of the development include:

- ▶ **St. Clair Street** is a north-south urban arterial road² with a four to five-lane cross section south of Pioneer Line and a provincial highway with a two-lane cross section to the north. The roadway has a posted speed limit of 60 km/h north of Regency Drive and 50 km/h to the south. Sidewalks are provided on at least one side of the roadway south of Pioneer Line.
- ▶ **Pioneer Line** is an east-west local road with a two-lane cross-section and an assumed speed limit of 60 km/h on either side of St. Clair Street.
- ▶ **Gregory Drive** is an east-west urban collector with a posted speed limit of 50 km/h. Sidewalks are provided on at least one side of the roadway.

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

2.2 Transit Service

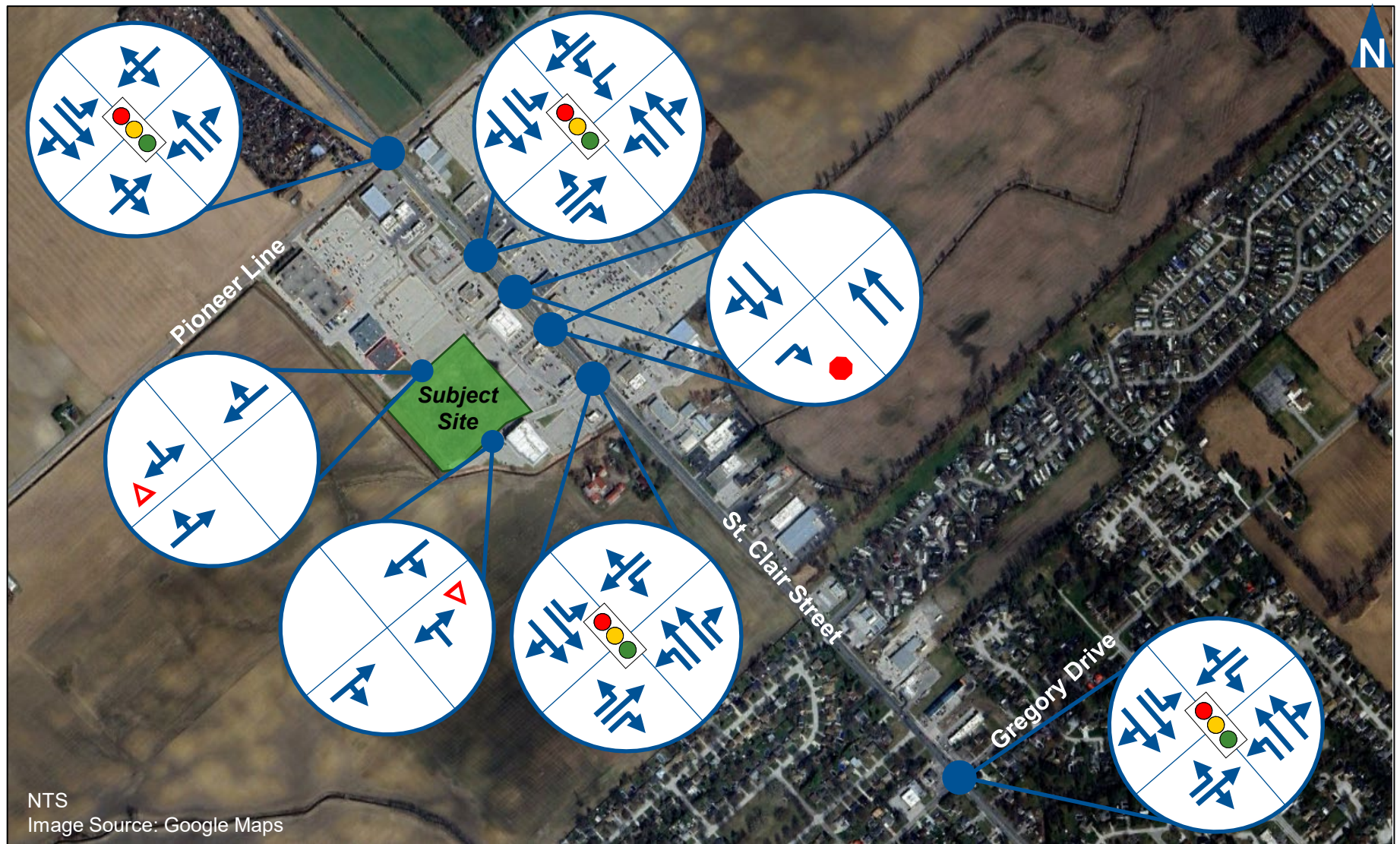
Chatham-Kent Transit (RideCK) operates two routes within the study area. **Figure 2.2** illustrates the existing transit service. The two routes include:

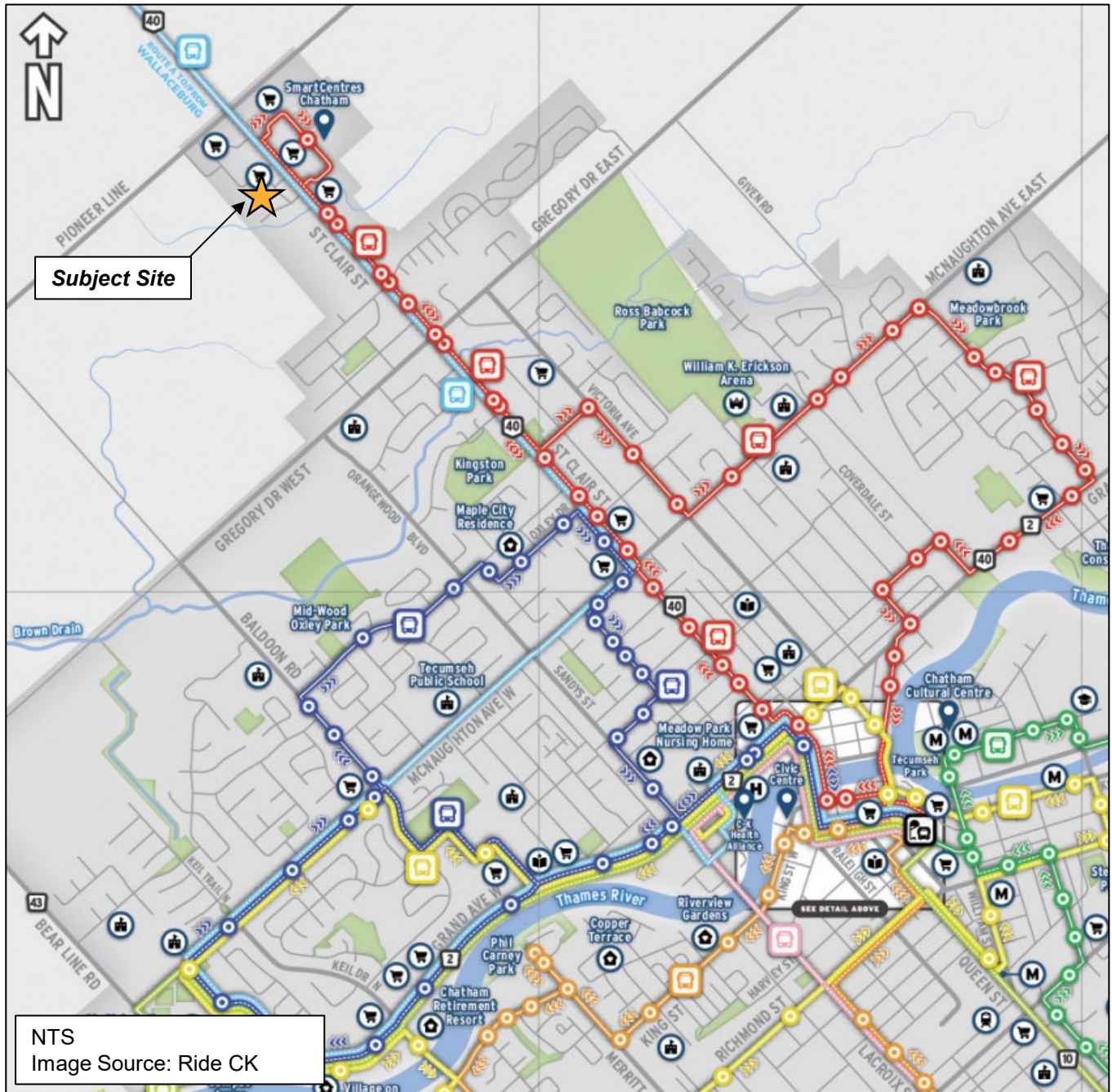
- ▶ **Route 2** operates along St. Clair Street with major stops at the Chatham SmartCentres and Downtown Chatham. The route operates Monday to Saturday with 30-minute headways.
- ▶ **Route A** operates along St. Clair Street travelling between Chatham and Wallaceburg. The route operates Monday to Saturday with five stops daily.

The closest stop for both routes is located on St. Clair Street immediately south of the St. Clair Centre access.

² Municipality of Chatham-Kent, *Official Plan Community of Chatham Road Network*, 2016.







2.3 Traffic Volumes

Paradigm conducted turning movement counts at the study area intersections on either Thursday 6 or Tuesday 11 February 2025 and Saturday 8 February 2025. **Table 2.1** summarizes the traffic count peak hour start times at each intersection.

TABLE 2.1: EXISTING TURNING MOVEMENT COUNT SUMMARY

Intersection	Weekday			Saturday	
	Count Date	AM Peak Hour	PM Peak Hour	Count Date	SAT Peak Hour
St. Clair St and Pioneer Line	February 11, 2025	7:30 AM	4:00 PM	February 8, 2025	11:45 AM
St. Clair St and Pioneer Square Access	February 11, 2025	9:00 AM	4:30 PM		1:15 PM
St. Clair St and Northerly RIRO	February 6, 2025	8:30 AM	3:15 PM		12:30 PM
St. Clair St and Southerly RIRO	February 11, 2025	9:00 AM	3:45 PM		12:45 PM
St. Clair St and St. Clair Centre Access	February 11, 2025	9:00 AM	4:30 PM		11:15 AM
St. Clair St and Gregory Dr	February 11, 2025	9:00 AM	3:45 PM		11:15 AM
Internal Staples Intersection	February 11, 2025	9:00 AM	3:15 PM		12:30 PM
Internal Galaxy Intersection	February 6, 2025	9:00 AM	4:30 PM		11:15 AM

The AM peak hour northbound/southbound through traffic volumes at the Northerly RIRO on St. Clair Street are low compared to the adjacent intersections, and have been increased accordingly.

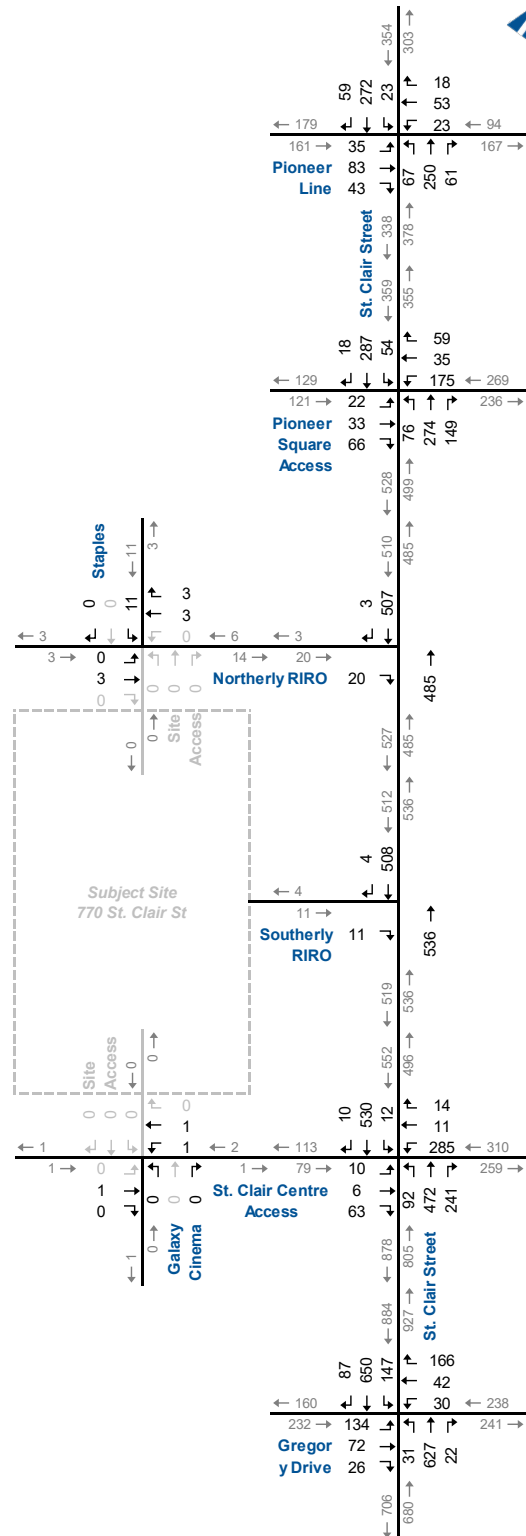
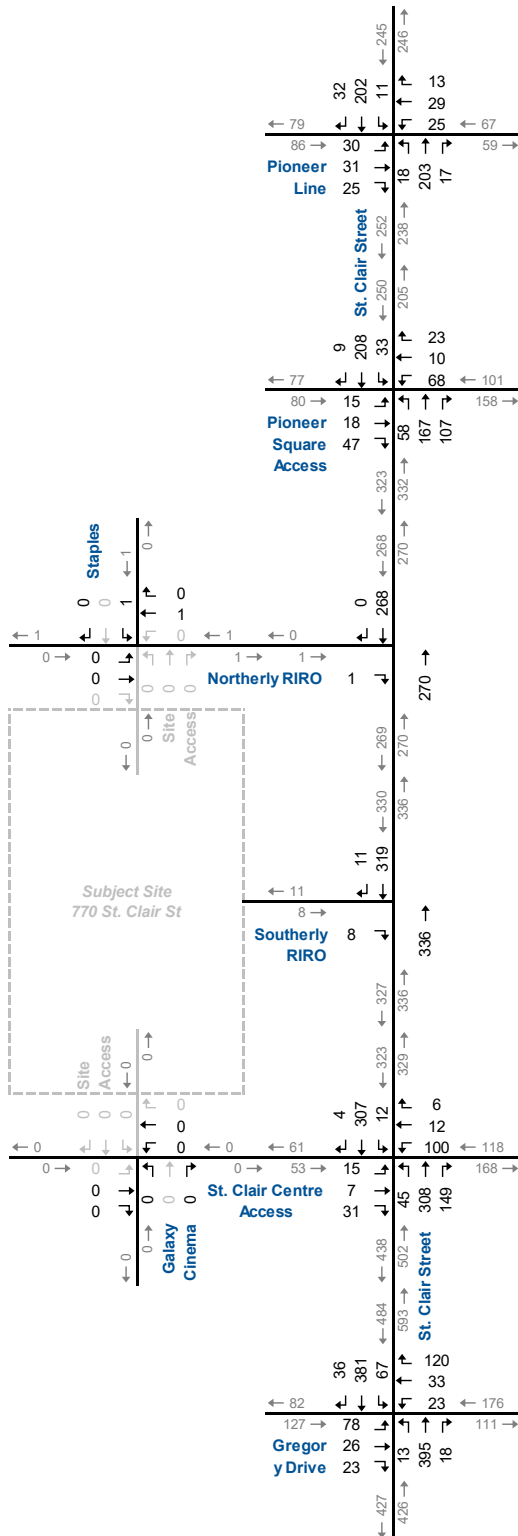
Figure 2.3a and **Figure 2.3b** illustrate the existing weekday AM and PM and Saturday peak hour turning movement traffic volumes, respectively.

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



AM Peak Hour

PM Peak Hour



NTS



Existing Traffic Volumes AM and PM Peak Hours

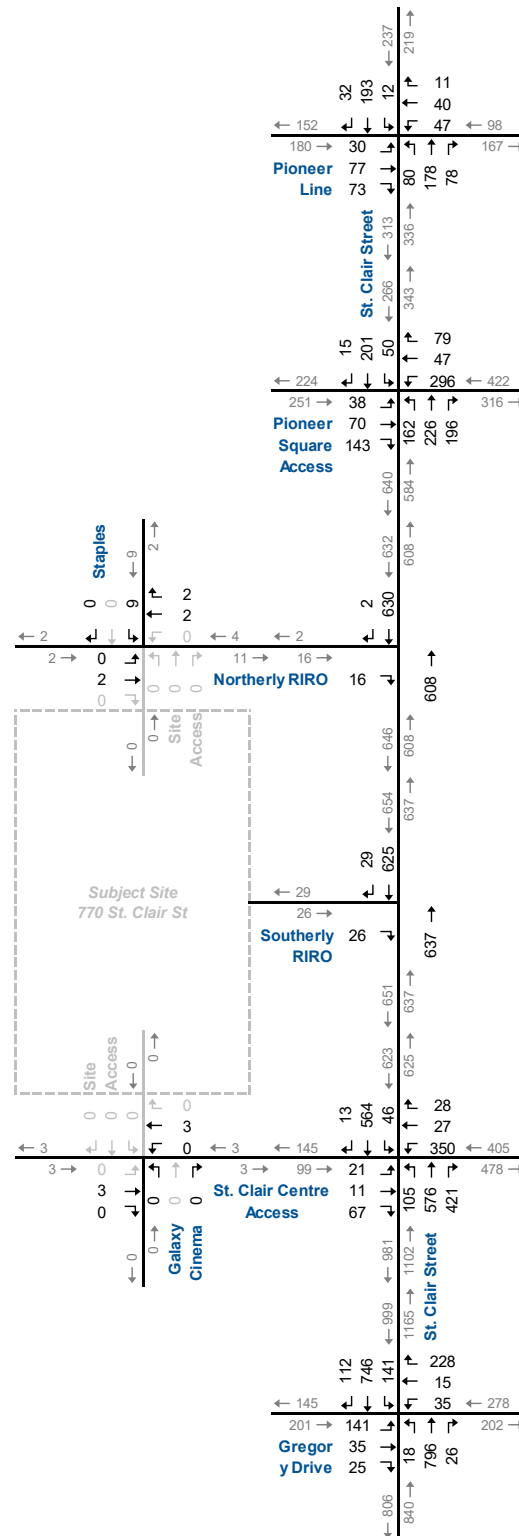


Figure 2.3b

2.4 Traffic Operations

The level of service conditions at the study area intersections have been assessed through intersection operational analysis using Synchro 12. Saturation flow rates have been modified as per the Municipality of Chatham-Kent TIS guidelines.

To remain conservative, the internal intersections have been analyzed under stop control as there is no visible traffic control posted.

As per the Municipality of Chatham-Kent TIS guidelines, movements are considered critical under the following conditions:

- ▶ volume/capacity (v/c) ratio of an overall intersection exceeds 0.85;
- ▶ v/c ratio of an individual through movement or shared through/turning movement exceeds 0.85;
- ▶ v/c ratio of an exclusive turning movement exceeds 1.0; or
- ▶ exclusive turning movement generated queues exceed the available turning lane storage space.

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

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

Table 2.2a, Table 2.2b and Table 2.2c summarize the results of the intersection operational analysis under existing conditions, including the weekday AM and PM and Saturday peak hour level of service (LOS), v/c ratios, and 95th percentile queues.



The results indicate that the study area intersections are operating at acceptable levels of service, except for the following critical movements:

St. Clair Street and St. Clair Centre Access

- ▶ The westbound left-turn movement is operating with LOS F and a v/c ratio greater than 1.00 during the Saturday peak hour; and
- ▶ The northbound right-turn movement is operating with 95th percentile queues exceeding the available storage of 25 metres during the Saturday peak hour.

St. Clair Street and Gregory Drive

- ▶ The eastbound left-turn movement is operating with 95th percentile queues exceeding the available storage of 30 metres during the weekday PM and Saturday peak hours.

Appendix C contains the detailed Synchro 12 reports.



TABLE 2.2A: EXISTING TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < <	C 24 0.41 21 -	> > > >	C 24 - - -	< < < <	C 23 0.32 18 -	> > > >	C 23 - - -	A 4 0.03 3 45 42	A 7 0.20 29 0 -	A 7 0.02 2 80 78	A 6 0.13 15 -	> > > >	A 6 - - -	B 10		
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	C 35 0.16 8 -	C 31 0.06 9 -	A 1 0.15 0 -	B 14 - - -	D 41 0.24 14 -	C 23 0.19 12 -	> > > >	D 35 - - -	B 12 0.10 14 140 126	B 13 0.19 26 -	B 13 0.06 9 115 106	B 20 0.16 28 -	> > > >	B 19 - - -	B 18		
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			A 9 0.00 0	A 9 - - -						A 0 0.00 0	A 0 - - -		A 0 0.00 0	> > > >	A 0 - - -		
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			A 9 0.01 0	A 9 - - -						A 0 0.00 0	A 0 - - -		A 0 0.00 0	> > > >	A 0 - - -		
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 20 0.06 6 -	C 32 0.03 5 0 -	A 1 0.11 0 -	B 10 - - -	C 24 0.36 24 -	C 20 0.06 8 -	> > > >	C 24 - - -	A 7 0.07 7 160 153	A 10 0.16 26 -	A 3 0.17 10 25 15	A 7 0.02 3 25 22	B 13 0.19 27 -	> > > >	B 13 - - -	B 11	
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 25 0.29 21 30 9	C 20 0.16 14 -	> > > >	C 23 - - -	C 22 0.08 8 25 17	B 19 0.57 24 -	> > > >	B 20 - - -	A 8 0.03 4 50 46	B 16 0.30 40 -	B 16 0.14 12 30 18	A 9 0.26 39 -	> > > >	B 11 - - -	B 15		
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0 - - -		A 0 0.00 0	> > > >	A 0 - - -				A 8 0.00 0		> > > >	A 9 - - -		
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0 - - -	< < < <	A 0 0.00 0		A 0 - - -	A 0 0.00 0		> > > >	A 0 - - -					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 2.2B: EXISTING TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 34 0.64 39 -	> > > > >	C 34 - - -	< < < < <	C 26 0.38 24 -	> > > > >	C 26 - - -	A 6 0.12 9 45 36	B 11 0.27 43 -	A 2 0.08 4 -	A 9 - -	A 6 0.04 4 80 76	B 11 0.23 25 -	> > > > >	B 11 - -	B 15	
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 42 0.27 12 -	C 33 0.10 14 -	A 3 0.19 4 -	B 18 - -	D 47 0.53 33 -	C 25 0.38 25 -	> > > > >	D 39 - -	B 17 0.16 22 140 118	C 23 0.38 56 -	> > > > >	C 22 - -	B 17 0.13 16 115 99	C 26 0.27 46 -	> > > > >	C 24 -	C 26	
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 10 0.03 1	B 10 - -						A 0 0.00 0		A 0 - -		A 0 0.00 0	> > > >	A 0 -		
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 10 0.02 1	B 10 - -						A 0 0.00 0		A 0 - -		A 0 0.00 0	> > > >	A 0 -		
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.04 5 -	C 33 0.03 5 -	A 4 0.24 4 -	A 9 - -	D 50 0.86 90 -	B 17 0.07 8 -	> > > > >	D 47 - -	A 9 0.21 12 160 148	B 11 0.28 39 -	A 5 0.31 20 25 5	A 9 - -	A 7 0.03 3 25 22	B 18 0.42 50 -	> > > > >	B 18 -	B 18	
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 31 0.52 34 30 -4	C 31 0.32 30 -	> > > > >	C 31 - -	C 23 0.11 10 25 15	C 22 0.68 32 -	> > > > >	C 22 - -	A 10 0.09 7 50 43	C 22 0.52 73 -	> > > > >	C 21 - -	B 12 0.40 24 30 6	B 18 0.51 80 -	> > > > >	B 17 -	C 20	
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0 - -		A 0 0.00 0	> > > >	A 0 - -						A 9 0.01 0		> > > >	A 9 -	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0 - -		A 7 0.00 0	> > > >	A 4 - -		A 0 0.00 0		> > > >	A 0 - -					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 2.2C: EXISTING TRAFFIC OPERATIONS – SATURDAY 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	
Saturday Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < <	C 32 0.66 41 -	> > > >	C 32	< < < <	C 33 0.50 27 -	> > > >	C 33	A 6 0.13 10 45 35	A 9 0.18 31 - -	A 3 0.09 7 - -	A 7	A 6 0.02 3 80 77	B 11 0.16 18 - -	> > > >	B 11	B 16
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	F 103 0.72 30 - -	D 37 0.17 29 - -	A 8 0.33 17 - -	C 30	E 57 0.74 54 - -	C 29 0.44 35 - -	> > > >	D 49	C 28 0.39 50 140 90	C 24 0.42 53 - -	> > > >	C 25	C 25 0.15 18 115 97	D 35 0.25 37 - -	> > > >	C 33	C 34
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.03 1	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.04 1	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.08 8 - -	C 34 0.05 6 - -	A 5 0.25 5 - -	B 12	F 94 1.06 94 - -	B 19 0.17 14 - -	> > > >	F 84	A 9 0.25 14 160 146	B 15 0.38 50 - -	A 10 0.56 25 -23	B 12	A 8 0.11 7 25 18	B 18 0.44 54 - -	> > > >	B 18	C 27
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 34 0.59 36 -6	C 24 0.20 17 - -	> > > >	C 31	C 23 0.12 12 25 13	B 16 0.68 26 - -	> > > >	B 17	A 9 0.06 5 50 45	C 24 0.66 96 - -	> > > >	C 24	B 13 0.46 22 30 8	B 17 0.57 94 - -	> > > >	B 17	C 20
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0					A 9 0.01 0		> > > >	A 9	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0		A 0	A 0 0.00 0		> > > >	A 0					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



3 Development Concept

3.1 Development Description

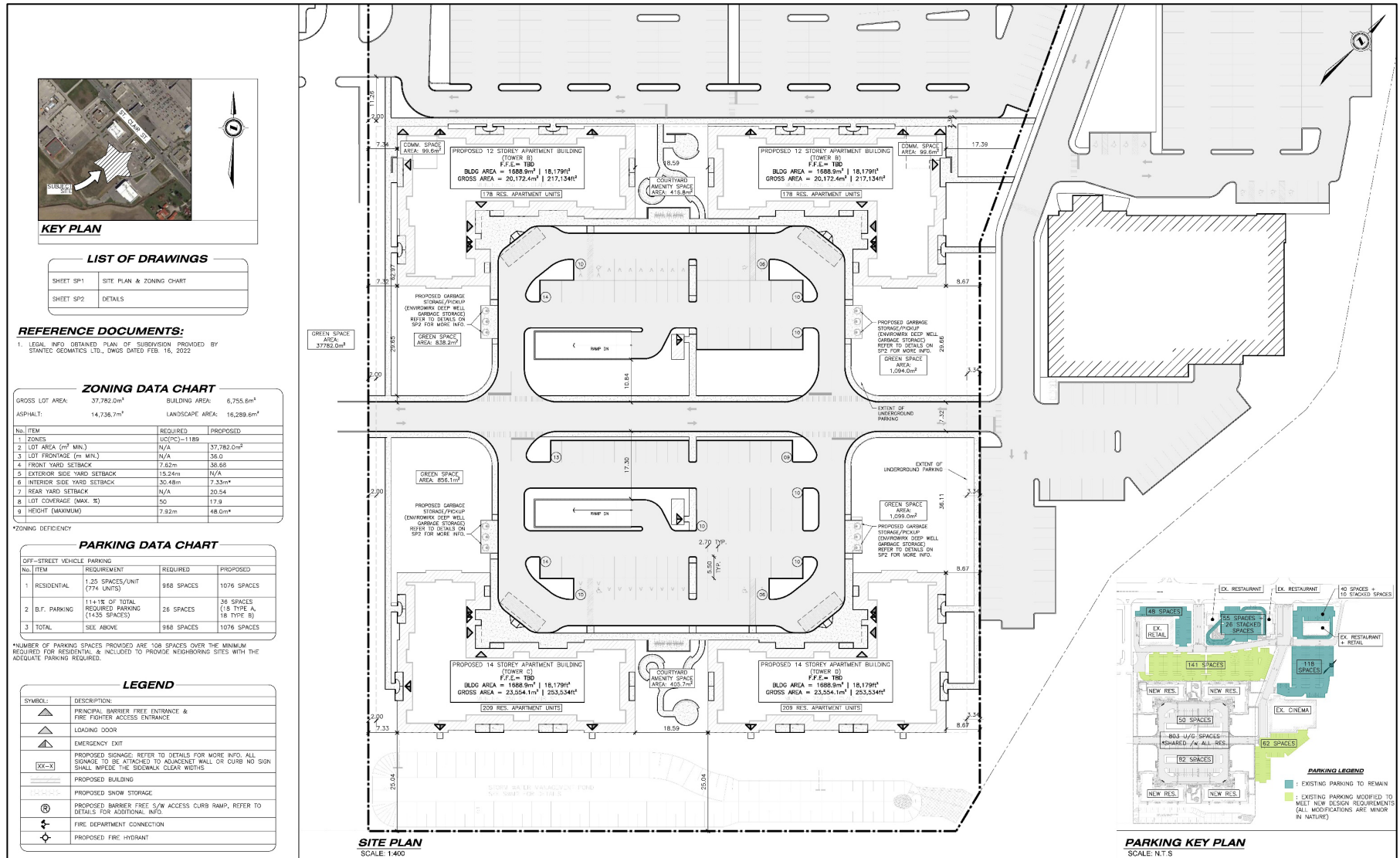
The subject site is located on the west side of St. Clair Street to the south of Pioneer Line. The site is surrounded by existing commercial developments to the north, south and east, and has frontages on St. Clair Street at the southerly signalized access and the Right-In Right-Out (RIRO) access immediately to the north.

The proposed development will include two 12-storey and two 14-storey apartment buildings accommodating a total of 774 units and 2,144 sq. ft. of ground floor commercial.

The development is assumed to be completed by 2030.

Figure 3.1 shows the development concept.





3.2 Development Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation Manual³ rates and equations were used to estimate the peak hour traffic volumes generated by the subject development based on the following Land Use Code (LUC):

- ▶ LUC 222: Multifamily Housing (High Rise); and
- ▶ LUC 822: Strip Retail Plaza (<40k).

Given the minimal commercial area within the proposed development, no pass-by or internal trip reductions have been applied.

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

TABLE 3.1: TRIP GENERATION

Land Use Code	Units	AM Peak Hour				PM Peak Hour				SAT Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total	Rate	In	Out	Total
LUC 222 - Multifamily Housing (High-Rise)	774 Units	Eq	49	140	189	Eq	139	85	224	Eq	150	113	263
LUC 822 - Strip Retail Plaza (<40k)	2,144 sq. ft.	2.36	3	2	5	6.59	7	7	14	6.57	7	7	14
Total Trip Generation			52	142	194		146	92	238		157	120	277

LUC 222 - AM: $T = 0.22(X) + 18.85$ | PM: $T = 0.26(X) + 23.12$ | SAT: $T = 0.30(X) + 30.34$

3.3 Development Trip Distribution and Assignment

The trip distribution was determined based on the location of the development at the north end of Chatham and likely destinations for residential uses.

It is likely that there will be some synergy between the proposed development and the existing surrounding commercial plaza; however, to remain conservative all trips have been assigned to the external road network.

Table 3.2 displays the trip distribution used in this study.

³ Institute of Transportation Engineers, *Trip Generation Manual*, 11th ed., (Washington, DC: ITE, 2021).



TABLE 3.2: ESTIMATED TRIP DISTRIBUTION

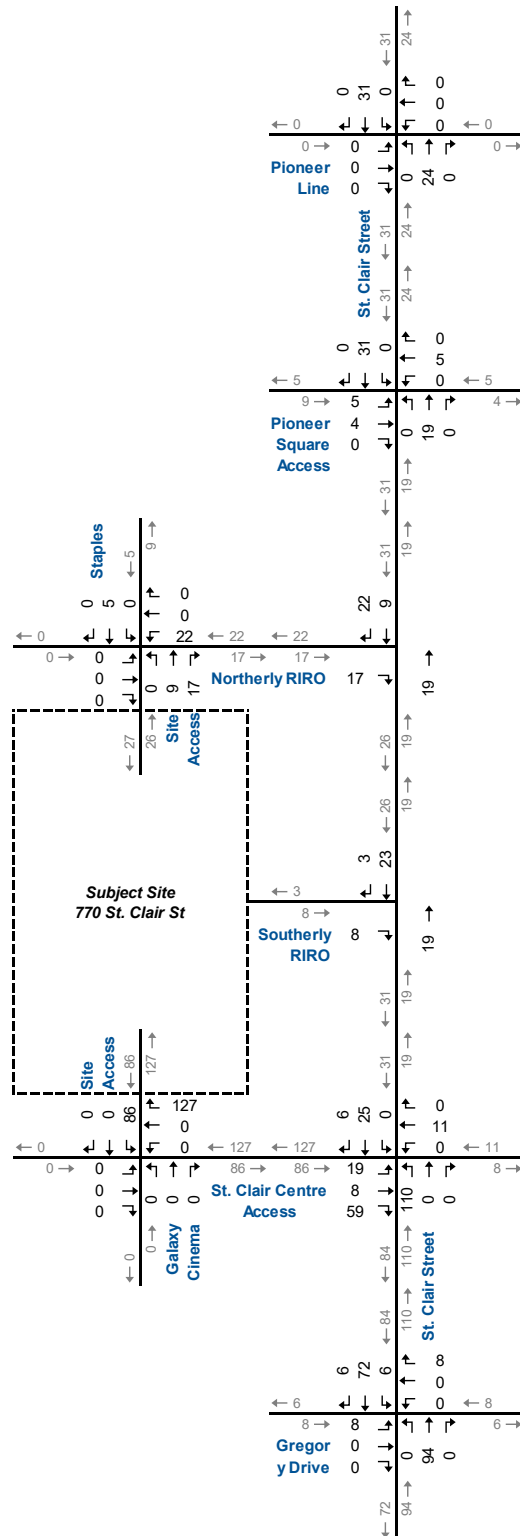
Direction	Distribution
North via St. Clair St	20%
South via St. Clair St	60%
East via Gregory Dr	5%
East to Commercial Plaza	10%
West via Gregory Dr	5%
Total	100%

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





SAT Peak Hour



NTS



Site Generated Traffic Volumes Saturday Peak Hour

4 Evaluation of Future Traffic Conditions

The assessment of future traffic conditions in this section includes estimates of future background and total traffic volumes, and the analyses for the 2030, 2035 and 2040 horizon years.

4.1 General Background Growth

To derive the 2030, 2035 and 2040 background traffic volumes, a growth rate of 2.0% per annum was applied to the existing municipal roadway traffic volumes. This growth rate was confirmed with Municipality during the pre-study consultation.

4.2 2030 (Build-Out) Horizon

4.2.1 Background Traffic

Figure 4.1a and **Figure 4.1b** illustrate the 2030 background traffic volumes, including road traffic growth.

The 2030 background traffic volumes have been analyzed using the same methodology as under existing traffic conditions. Signal timings have not been optimized.

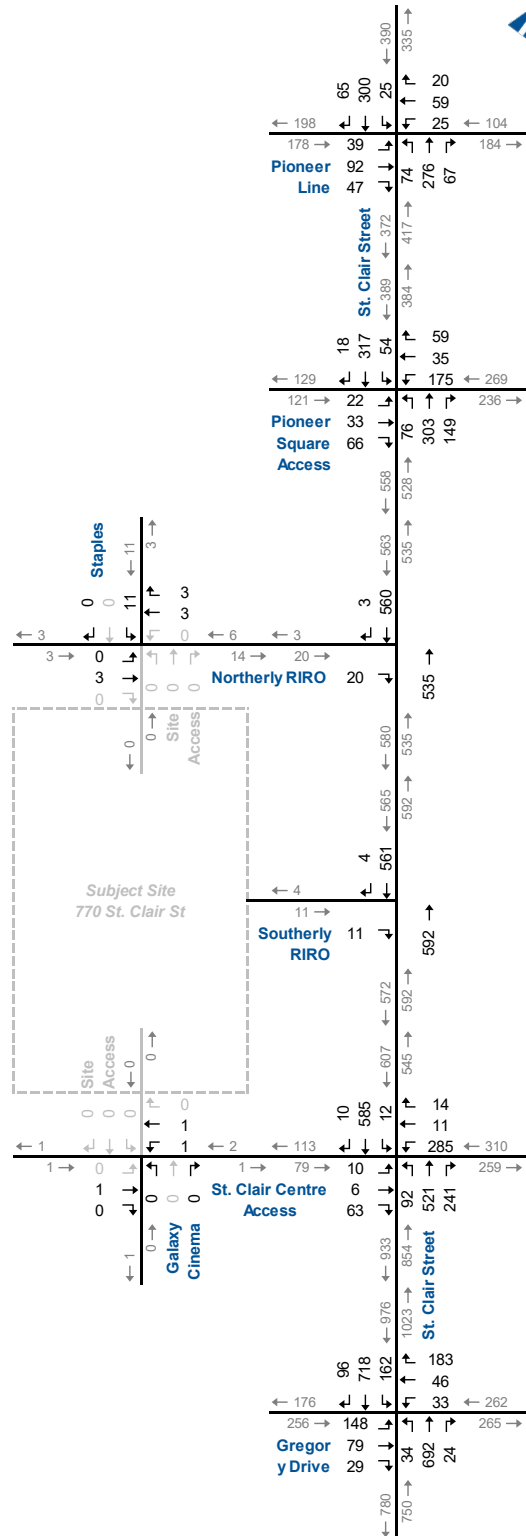
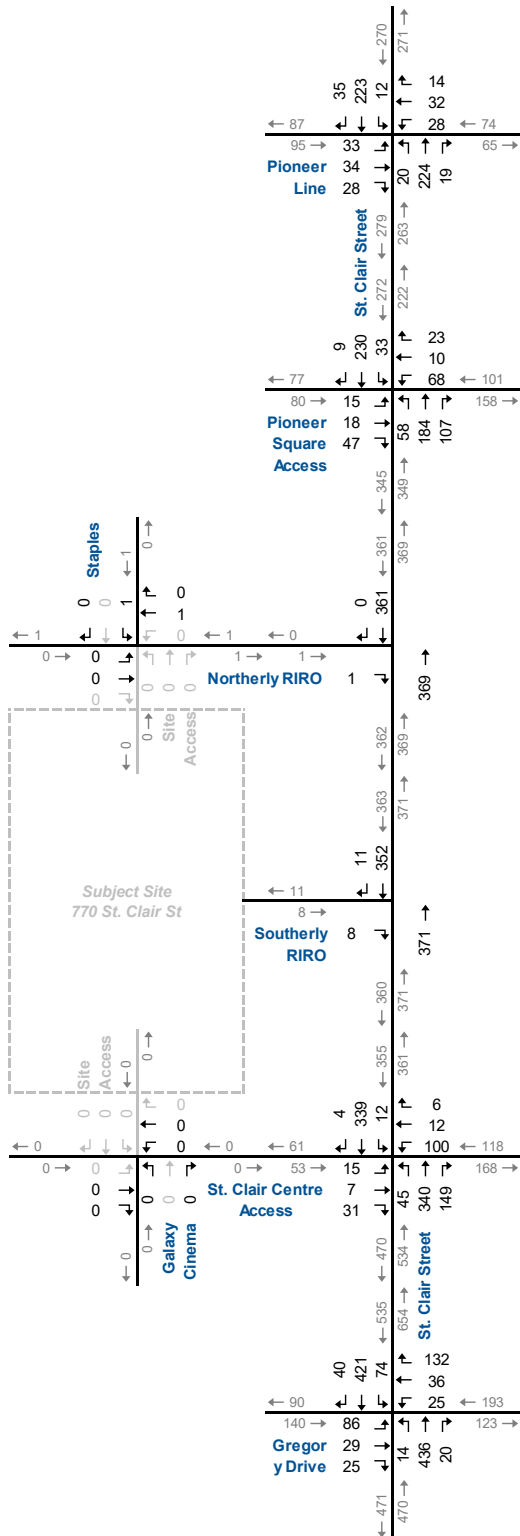
Table 4.1a, **Table 4.1b** and **Table 4.1c** summarize the results of the 2030 background traffic operations. The results indicate that the study area intersections are forecast to operate with the same critical movements as under existing traffic conditions.

Appendix D contains the supporting detailed Synchro 12 reports.



AM Peak Hour

PM Peak Hour



NTS

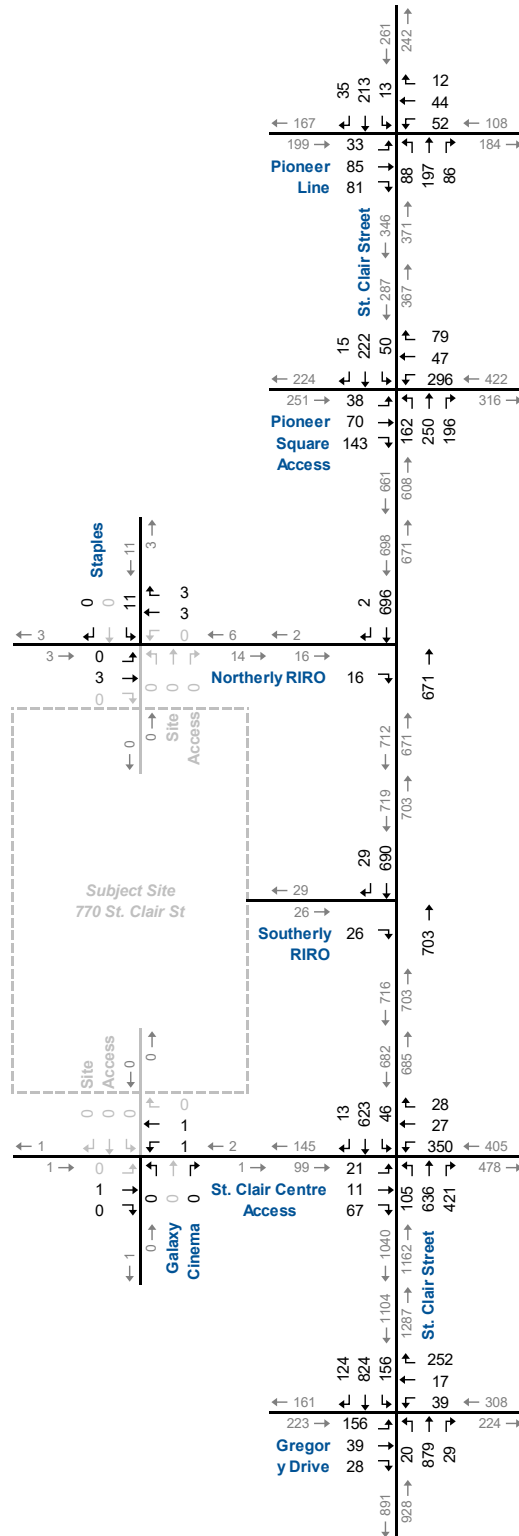


2030 Background Traffic Volumes AM and PM Peak Hours

770 St. Clair Street, Chatham TIS
230754

Figure 4.1a

SAT Peak Hour



NTS



2030 Background Traffic Volumes Saturday Peak Hour

770 St. Clair Street, Chatham TIS
230754

Figure 4.1b

TABLE 4.1A: 2030 BACKGROUND TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 25 0.44 23 -	> > > > >	C 25 - - -	< < < < <	C 24 0.34 19 -	> > > > >	C 24 - - -	A 4 0.03 3 45 42	A 8 0.22 33 -	A 0 0.03 0 -	A 7 - - -	A 4 0.02 2 80 78	A 6 0.14 16 -	> > > > >	A 6 - - -	B 11
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	C 35 0.16 8 -	C 31 0.06 9 -	A 1 0.15 0 -	B 14 - - -	D 41 0.24 14 -	C 23 0.19 12 -	> > > > >	D 35 - - -	B 12 0.10 14 140 126	B 14 0.20 29 -	> > > > >	B 14 - - -	B 12 0.06 9 115 106	B 20 0.18 31 -	> > > > >	B 19 - - -	B 18
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			A 9 0.00 0	A 9 - -						A 0 0.00 0		A 0 - -		A 0 0.00 0		A 0 - -	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.01 0	A 9 - -						A 0 0.00 0		A 0 - -		A 0 0.00 0		A 0 - -	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 20 0.06 6 -	C 32 0.03 5 -	A 1 0.11 0 -	B 10 - - -	C 24 0.36 24 -	C 20 0.06 8 -	> > > > >	C 24 - - -	A 7 0.08 7 160 153	A 10 0.18 29 -	A 3 0.17 10 25 15	A 8 - - -	A 7 0.02 3 25 22	B 13 0.21 30 -	> > > > >	B 13 - - -	B 12
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 26 0.32 23 30 7	C 20 0.17 15 -	> > > > >	C 24 - - -	C 22 0.09 9 25 16	B 19 0.59 26 -	> > > > >	B 20 - - -	A 8 0.03 4 50 46	B 17 0.33 46 -	> > > > >	B 16 - - -	A 9 0.16 13 30 17	B 12 0.30 44 -	> > > > >	B 12 - - -	B 16
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0 - -		A 0 0.00 0	> > > >	A 0 - -					A 8 0.00 0		> > > >	A 9 - -	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0 - -	< < < <	A 0 0.00 0		A 0 - -	A 0 0.00 0		> > > >	A 0 - -					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.1B: 2030 BACKGROUND TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 35 0.67 43 -	> > > > >	D 35	< < < < <	C 26 0.39 26 -	> > > > >	C 26	A 6 0.14 10 45 35	B 12 0.30 50 -	A 3 0.09 6 -	A 9	A 6 0.04 5 80 75	B 12 0.26 30 -	> > > > >	B 12	B 16
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 42 0.27 12 -	C 33 0.10 14 -	A 3 0.19 4 -	B 18	D 47 0.53 33 -	C 25 0.38 25 -	> > > > >	D 39	B 17 0.16 22 140 118	C 24 0.40 62 -	> > > > >	C 23	B 17 0.14 16 115 99	C 26 0.30 51 -	> > > > >	C 25	C 26
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 10 0.03 1	B 10			>			A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 10 0.02 1	B 10			>			A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.04 5 -	C 33 0.03 5 -	A 4 0.24 4 -	A 9	D 50 0.86 90 -	B 17 0.07 8 -	> > > > >	D 47	A 9 0.22 12 160 148	B 12 0.31 44 -	A 6 0.31 23 25 2	A 10	A 7 0.03 3 25 22	B 18 0.46 55 -	> > > > >	B 18	B 19
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 34 0.60 38 30 -8	C 31 0.35 33 -	> > > > >	C 32	C 23 0.12 11 25 14	C 25 0.72 37 -	> > > > >	C 24	B 10 0.11 8 50 42	C 24 0.58 86 -	> > > > >	C 23	B 14 0.48 28 30 2	B 20 0.57 95 -	> > > > >	B 19	C 22
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0	A 0 0.00 0	> > > >	A 0						A 9 0.01 0		> > > >	A 9	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0		A 4	A 0 0.00 0		> > > >	A 0					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.1C: 2030 BACKGROUND TRAFFIC OPERATIONS – SATURDAY 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	
Saturday Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 34 0.69 46 -	> > > > >	C 34	< < < < <	C 35 0.55 30 -	> > > > >	C 35	A 6 0.15 12 45 33	A 10 0.20 36 -	A 3 0.10 8 -	A 7	A 7 0.02 3 80 77	B 12 0.18 22 -	> > > > >	B 12	B 17
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	F 103 0.72 30 -	D 37 0.17 29 -	A 8 0.33 17 -	C 30	E 57 0.74 54 -	C 29 0.44 35 -	> > > > >	D 49	C 28 0.40 50 140 90	C 26 0.45 59 -	> > > > >	C 27	C 25 0.16 18 115 97	D 36 0.28 41 -	> > > > >	C 34	C 35
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.03 1	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.05 1	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.08 8 -	C 34 0.05 6 -	A 5 0.25 5 -	B 12	F 94 1.06 94 -	B 19 0.17 14 -	> > > > >	F 84	A 9 0.26 14 160 146	B 16 0.42 56 -	B 11 0.57 25 -28	B 13	A 8 0.12 7 25 18	B 19 0.49 60 -	> > > > >	B 18	C 27
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 38 0.66 41 30 -11	C 24 0.22 18 -	> > > > >	C 34	C 24 0.14 12 25 13	B 18 0.72 29 -	> > > > >	B 18	A 9 0.08 5 50 45	C 27 0.73 112 -	> > > > >	C 26	B 16 0.55 26 30 4	B 19 0.63 111 -	> > > > >	B 18	C 22
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0						A 9 0.01 0	> > > >	A 9	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0		A 4	A 0 0.00 0		> > > >	A 0					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



4.2.2 Total Traffic

Figure 4.2a and **Figure 4.2b** illustrate the 2030 total traffic volumes, including trips generated by the proposed development.

The 2030 total traffic volumes have been analyzed using the same methodology as under existing and background traffic conditions. Signal timings have not been optimized.

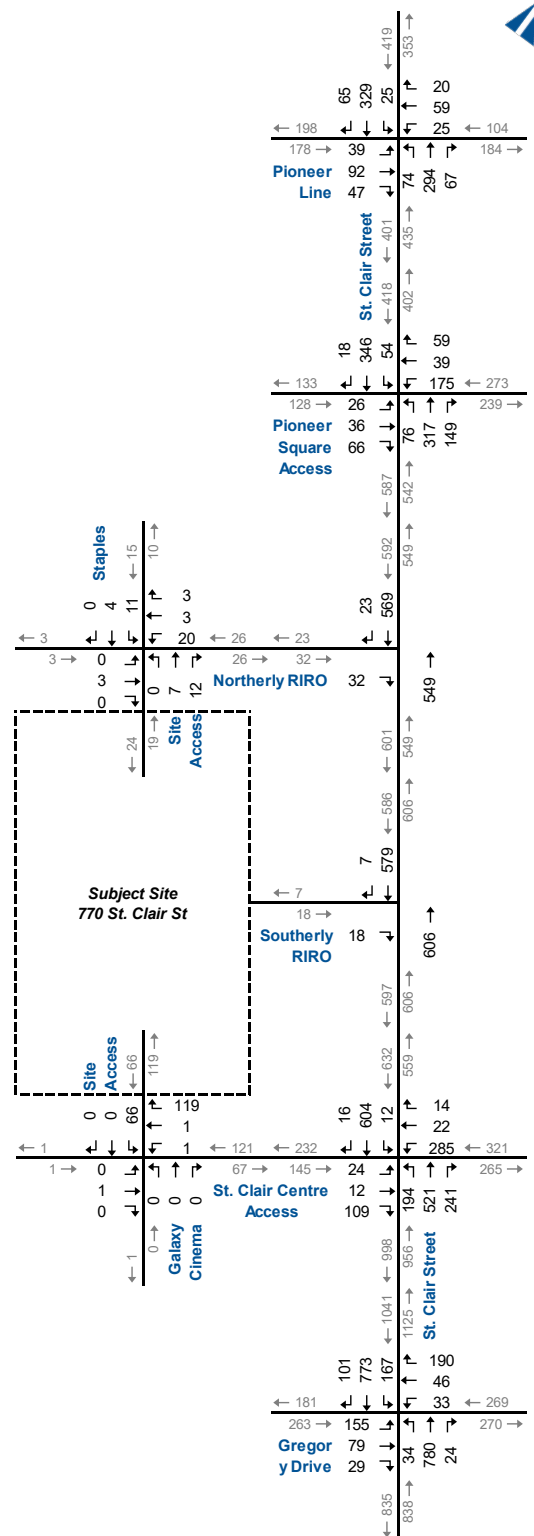
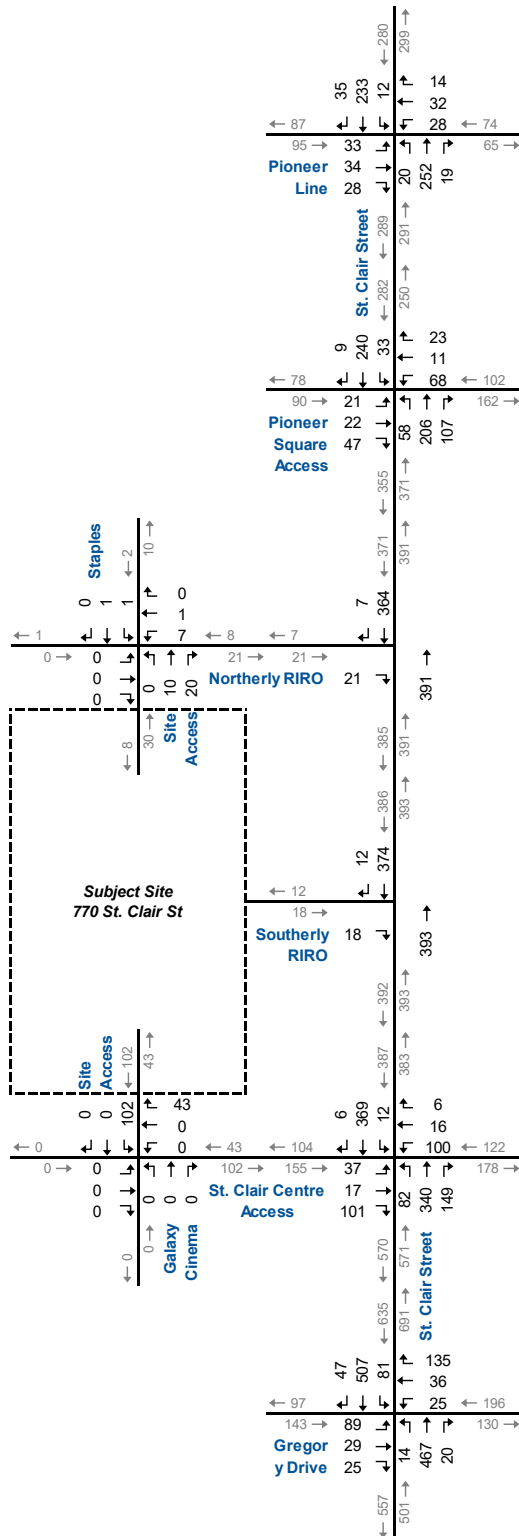
Table 4.2a, **Table 4.2b** and **Table 4.2c** summarize the results of the 2030 total traffic operations. The results indicate that the study area intersections are forecast to operate with the same critical movements as under 2030 background traffic conditions, with the addition of the southbound left-turn movement at St. Clair Street and Gregory Drive which is forecast to operate with 95th percentile queues exceeding the available storage of 30 metres by five metres (less than a single car length) during the Saturday peak hour.

Appendix E contains the supporting detailed Synchro 12 reports.



AM Peak Hour

PM Peak Hour



NTS



2030 Total Traffic Volumes AM and PM Peak Hours

770 St. Clair Street, Chatham TIS
230754

Figure 4.2a

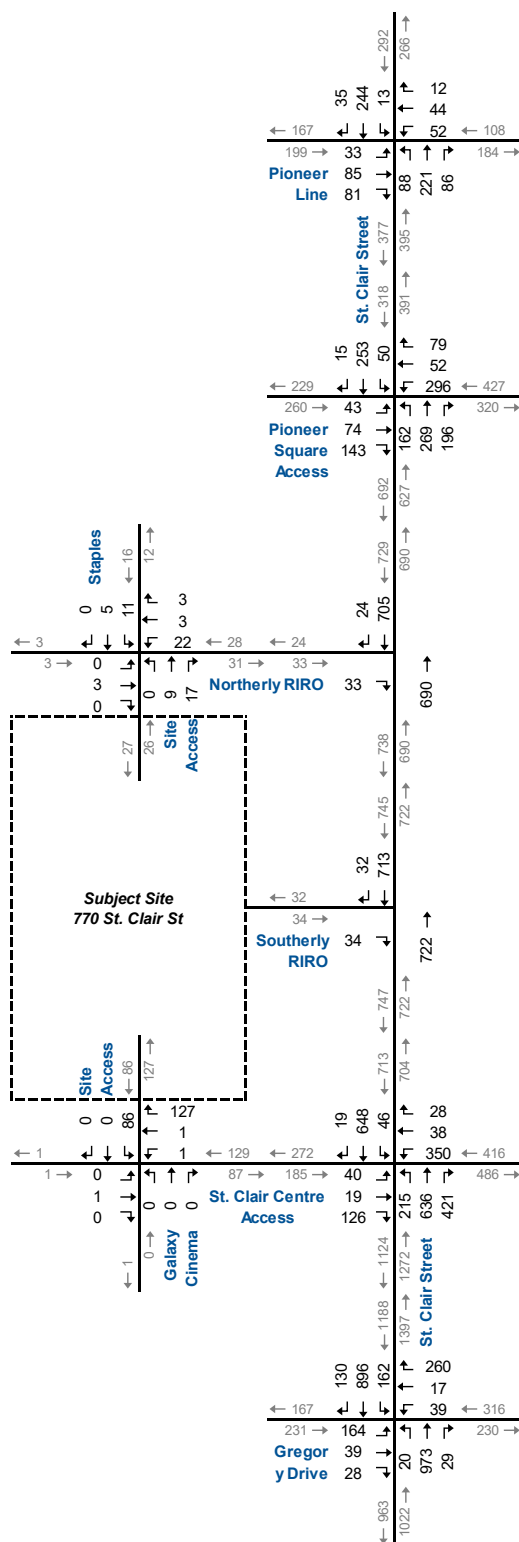


Figure 4.2b

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

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 25 0.44 23 - -	> > > > >	C 25	< < < < <	C 24 0.34 19 - -	> > > > >	C 24	A 4 0.03 3 45 42	A 8 0.25 37 0 - -	A 7	A 4 0.02 2 80 78	A 6 0.15 17 - -	> > > > >	A 6	B 11	
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 37 0.24 11 - -	C 29 0.06 10 - -	A 1 0.13 0 - -	B 16	D 44 0.25 15 - -	C 25 0.20 12 - -	> > > > >	D 38	B 14 0.11 16 140 124	B 17 0.23 36 - -	B 17	B 14 0.07 10 115 105	C 22 0.19 35 - -	> > > > >	C 21	C 21	
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.03 1	A 10						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.02 1	A 10						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.14 11 - -	C 34 0.07 9 - -	B 11 0.38 13 - -	B 16	C 25 0.35 25 - -	C 24 0.07 9 - -	> > > > >	C 24	A 8 0.15 11 160 149	B 10 0.18 28 25 15	A 8	A 7 0.02 3 25 22	B 16 0.26 34 - -	> > > > >	B 16	B 13	
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 26 0.34 24 30 6	C 21 0.17 15 - -	> > > > >	C 24	C 22 0.09 9 25 16	B 19 0.59 26 - -	> > > > >	B 20	A 8 0.03 4 50 46	B 17 0.36 50 - -	B 17	A 9 0.18 14 30 16	B 12 0.36 54 - -	> > > > >	B 12	B 16	
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.01 0	> > > >	A 6	< < < <	A 9 0.03 1	A 9	< < < <	A 9 0.00 0	> > > >	A 9		
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	A 0	< < < <	A 9 0.11 3	> > > >	A 9		

MOE - Measure of Effectiveness

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TABLE 4.2B: 2030 TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 35 0.67 43 -	> > > > >	D 35	< < < < <	C 26 0.39 26 -	> > > > >	C 26	A 6 0.14 10 45 35	B 12 0.32 54 -	A 3 0.09 6 -	A 10	A 6 0.05 5 80 75	B 12 0.28 33 -	> > > > >	B 12	B 16
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 45 0.33 14 -	C 32 0.10 15 -	A 3 0.18 4 -	B 20	D 48 0.54 33 -	C 29 0.40 28 -	> > > > >	D 41	B 19 0.17 22 140 118	C 26 0.42 66 -	> > > > >	C 25	B 18 0.14 16 115 99	C 28 0.33 55 -	> > > > >	C 27	C 28
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.05 2	B 11			>			A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 10 0.03 1	B 10			>			A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.09 8 -	C 34 0.06 7 -	B 13 0.44 14 -	B 16	D 46 0.83 91 -	C 22 0.10 12 -	> > > > >	D 44	B 12 0.48 25 160 135	B 12 0.31 44 -	A 5 0.31 23 25 2	B 10	A 8 0.03 3 25 22	C 22 0.54 60 -	> > > > >	C 22	B 19
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 36 0.64 39 30 -9	C 31 0.35 33 -	> > > > >	C 34	C 23 0.12 11 25 14	C 25 0.73 38 -	> > > > >	C 24	B 10 0.12 8 50 42	C 25 0.66 100 -	> > > > >	C 25	B 16 0.55 29 30 1	C 21 0.61 106 -	> > > > >	B 20	C 24
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.01 0	> > > >	A 6	< < < <	A 9 0.02 1	> > > >	A 9	< < < <	A 9 0.02 1	> > > >	A 9	
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 9 0.08 2	> > > >	A 9	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.2C: 2030 TOTAL TRAFFIC OPERATIONS – SATURDAY 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	
Saturday Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 34 0.69 46 -	> > > > >	C 34	< < < < <	C 35 0.55 30 -	> > > > >	C 35	A 6 0.15 12 45 33	A 10 0.23 40 -	A 3 0.10 8 -	A 8	A 7 0.02 3 80 77	B 12 0.20 24 -	> > > > >	B 12	B 17
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	F 132 0.85 37 -	D 37 0.17 30 -	A 8 0.31 17 -	D 37	E 59 0.75 54 -	C 32 0.46 39 -	> > > > >	D 51	C 29 0.44 50 140 90	C 29 0.49 64 -	> > > > >	C 29	C 26 0.17 18 115 97	D 38 0.33 46 -	> > > > >	D 36	D 37
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.06 2	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.06 2	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 23 0.14 12 -	C 35 0.10 10 -	B 12 0.47 16 -	B 17	F 88 1.04 94 -	C 22 0.21 18 -	> > > > >	E 78	B 14 0.56 28 160 132	B 16 0.42 57 -	B 10 0.56 25 -29	B 14	A 8 0.13 7 25 18	C 22 0.58 66 -	> > > > >	C 22	C 26
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 40 0.69 42 30 -12	C 23 0.22 18 -	> > > > >	D 35	C 23 0.14 12 25 13	C 21 0.75 34 -	> > > > >	C 21	A 10 0.08 5 50 45	C 30 0.82 142 -	> > > > >	C 30	C 22 0.63 35 30 -5	C 20 0.68 127 -	> > > > >	C 20	C 25
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.01 0	> > > >	A 6	< < < <	A 9 0.03 1	> > > >	A 9	< < < <	A 9 0.02 1	> > > >	A 9	
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 9 0.10 2	> > > >	A 9	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



4.3 2035 (Five-Year) Horizon

4.3.1 Background Traffic

Figure 4.3a and **Figure 4.3b** illustrate the 2035 background traffic volumes, including road traffic growth.

The 2035 background traffic volumes have been analyzed using the same methodology as under existing traffic conditions. Signal timings have not been optimized.

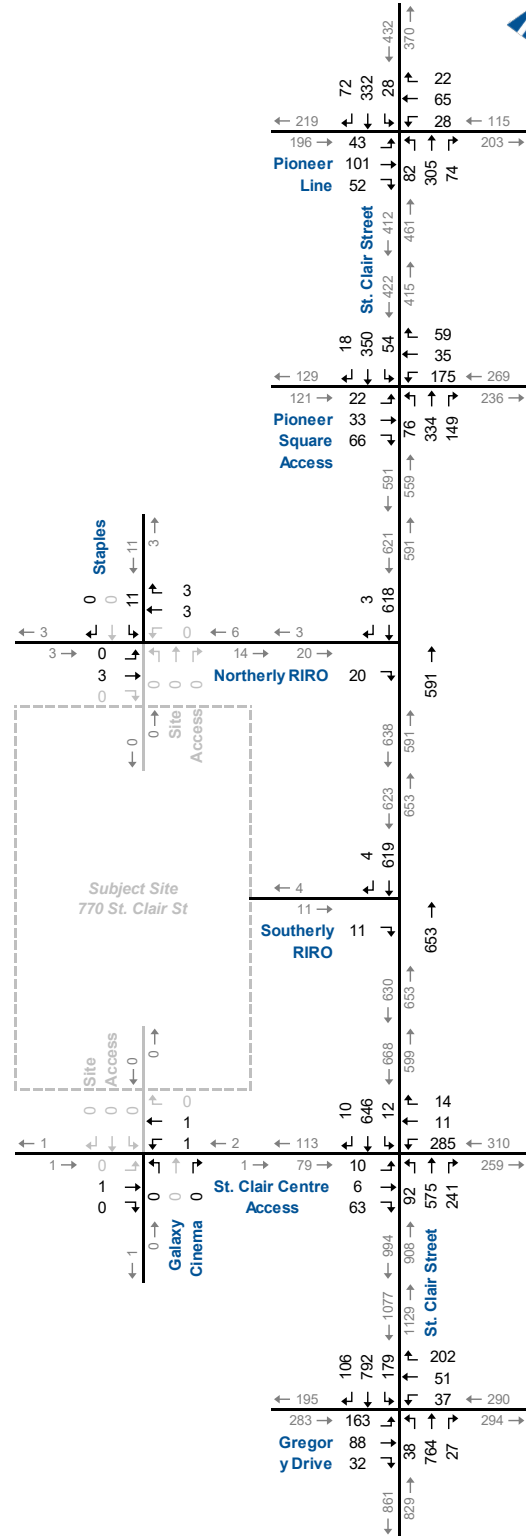
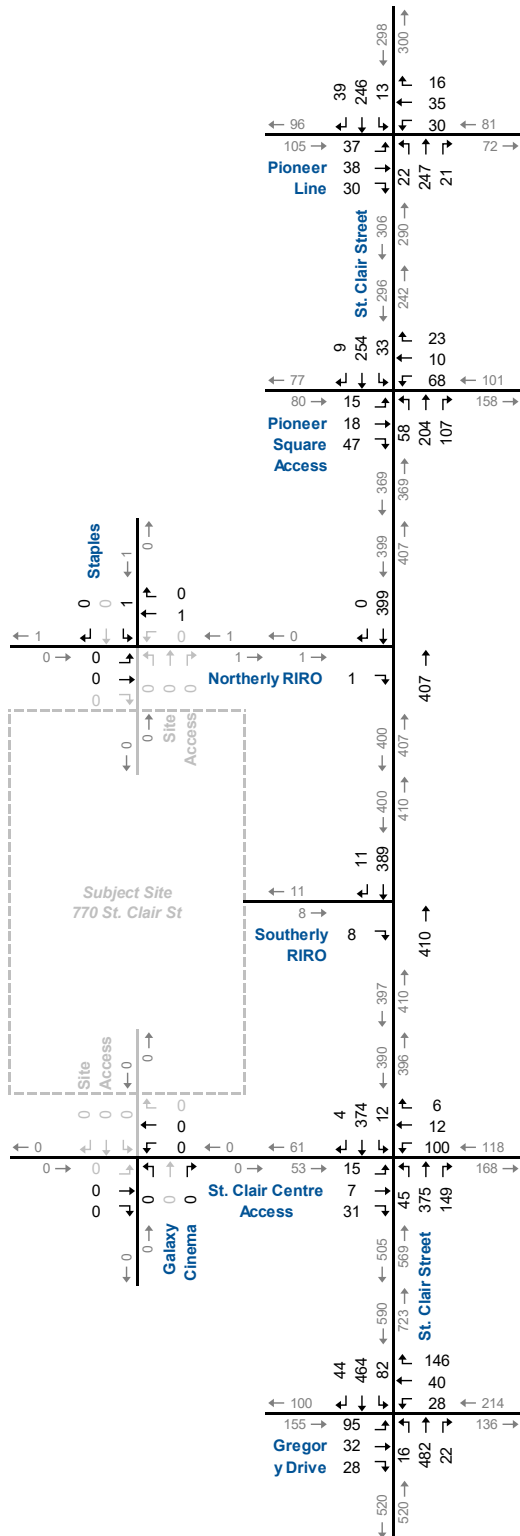
Table 4.3a, **Table 4.3b** and **Table 4.3c** summarize the results of the 2035 background traffic operations. The results indicate that the study area intersections are forecast to operate with the same critical movements as under existing traffic conditions, with the addition of the southbound left-turn movement at St. Clair Street and Gregory Drive which is forecast to operate with 95th percentile queues exceeding the available storage of 30 metres during the weekday PM and Saturday peak hours.

Appendix F contains the supporting detailed Synchro 12 reports.



AM Peak Hour

PM Peak Hour



NTS

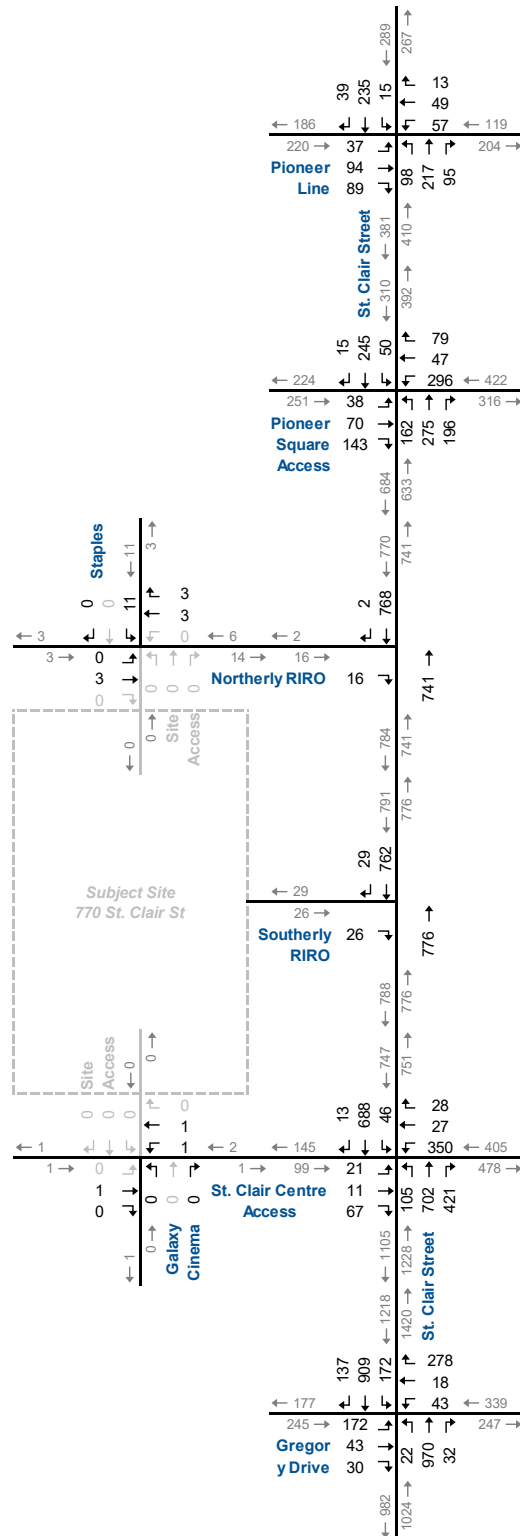


2035 Background Traffic Volumes AM and PM Peak Hours

770 St. Clair Street, Chatham TIS
230754

Figure 4.3a

SAT Peak Hour



NTS



2035 Background Traffic Volumes Saturday Peak Hour

TABLE 4.3A: 2035 BACKGROUND TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 27 0.49 25 -	> > > > >	C 27	< < < < <	C 26 0.37 21 -	> > > > >	C 26	A 4 0.04 3 45 42	A 8 0.24 38 -	A 0 0.03 0 -	A 7	A 4 0.02 2 80 78	A 8 0.16 19 -	> > > > >	A 8	B 12
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	C 35 0.16 8 -	C 31 0.06 9 -	A 1 0.15 0 -	B 14	D 41 0.24 14 -	C 23 0.19 12 -	> > > > >	D 35	B 12 0.10 14 140 126	B 15 0.22 33 -	> > > > >	B 15	B 12 0.06 9 115 106	B 20 0.20 34 -	> > > > >	B 19	B 19
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.00 0	A 10						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.01 0	A 10						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 20 0.06 6 -	C 32 0.03 5 -	A 1 0.11 0 -	B 10	C 24 0.36 24 -	C 20 0.06 8 -	> > > > >	C 24	A 7 0.08 7 160 153	A 10 0.20 32 -	A 3 0.17 11 25 14	A 8	A 7 0.02 3 25 22	B 13 0.24 33 -	> > > > >	B 13	B 12
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 26 0.36 25 30 5	C 20 0.19 16 -	> > > > >	C 24	C 22 0.09 10 25 15	B 19 0.62 28 -	> > > > >	B 20	A 9 0.03 4 50 46	B 18 0.37 53 -	> > > > >	B 17	A 9 0.19 14 30 16	B 12 0.33 50 -	> > > > >	B 12	B 16
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0						A 8 0.00 0	> > > >	A 9	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0		A 0	A 0 0.00 0		> > > >	A 0					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.3B: 2035 BACKGROUND TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 37 0.70 49 -	> > > > >	D 37	< < < < <	C 27 0.42 29 -	> > > > >	C 27	A 7 0.16 12 45 33	B 13 0.34 58 - -	A 3 0.10 7 5 80 75	B 10	A 7 0.05 5 80 75	B 13	> > > > >	B 17	
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 42 0.27 12 -	C 33 0.10 14 -	A 3 0.19 4 -	B 18	D 47 0.53 33 -	C 25 0.38 25 -	> > > > >	D 39	B 17 0.17 22 140 118	C 24	> > > > >	B 17 0.14 16 115 99	C 25	> > > > >	C 27		
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.03 1	B 11						A 0 0.00 0	A 0		A 0 0.00 0	A 0	> > > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.02 1	B 11						A 0 0.00 0	A 0		A 0 0.00 0	A 0	> > > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.04 5 -	C 33 0.03 5 -	A 4 0.24 4 -	A 9	D 50 0.86 90 -	B 17 0.07 8 -	> > > > >	D 47	A 9 0.24 12 160 148	B 10	A 6 0.31 25 0	B 19	A 8 0.03 3 25 22	B 19	> > > > >	B 19	
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 38 0.68 43 30 -13	C 32 0.37 36 -	> > > > >	D 36	C 22 0.13 12 25 13	C 28 0.76 44 -	> > > > >	C 28	B 11 0.14 9 50 41	C 26	> > > > >	B 18 0.58 33 30 -3	C 22	> > > > >	C 25		
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0				A 9 0.01 0		> > > >	A 9		
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0		A 4	A 0 0.00 0		> > > >	A 0					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.3C: 2035 BACKGROUND TRAFFIC OPERATIONS – SATURDAY 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	
Saturday Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 37 0.73 52 -	> > > > >	D 37	< < < < <	D 38 0.60 34 -	> > > > >	D 38	A 7 0.17 14 45 31	A 10 0.23 40 -	A 3 0.12 8 -	A 8	A 7 0.03 3 80 77	B 13 0.20 24 -	> > > > >	B 12	B 19
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	F 103 0.72 30 -	D 37 0.17 29 -	A 8 0.33 17 -	C 30	E 57 0.74 54 -	C 29 0.44 35 -	> > > > >	D 49	C 28 0.41 50 140 90	C 28 0.47 65 -	> > > > >	C 28	C 25 0.16 18 115 97	D 36 0.31 44 -	> > > > >	C 34	D 35
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.03 1	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 12 0.05 2	B 12						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.08 8 -	C 34 0.05 6 -	A 5 0.25 5 -	B 12	F 94 1.06 94 -	B 19 0.17 14 -	> > > > >	F 84	A 9 0.28 14 160 146	B 16 0.46 62 -	B 12 0.57 25 -32	B 14	A 8 0.13 7 25 18	B 20 0.54 68 -	> > > > >	B 19	C 27
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 43 0.74 47 30 -17	C 24 0.23 20 -	> > > > >	D 37	C 23 0.15 13 25 12	C 25 0.79 41 -	> > > > >	C 24	B 11 0.09 6 50 44	C 32 0.83 151 -	> > > > >	C 32	C 26 0.67 47 30 -17	C 22 0.70 151 -	> > > > >	C 22	C 27
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0					A 9 0.01 0		> > > >	A 9	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0		A 4	A 0 0.00 0		> > > >	A 0					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



4.3.2 Total Traffic

Figure 4.4a and **Figure 4.4b** illustrate the 2035 total traffic volumes, including trips generated by the proposed development.

The 2035 total traffic volumes have been analyzed using the same methodology as under existing and background traffic conditions. Signal timings have not been optimized.

Table 4.4a, **Table 4.4b** and **Table 4.4c** summarize the results of the 2035 total traffic operations. The results indicate that the study area intersections are forecast to operate with the same critical movements as under 2035 background traffic conditions, with the addition of the following movements:

St. Clair Street and Clair Centre Access

- ▶ The northbound right-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 25 metres by one metre (less than a single car length) during the weekday PM peak hour.

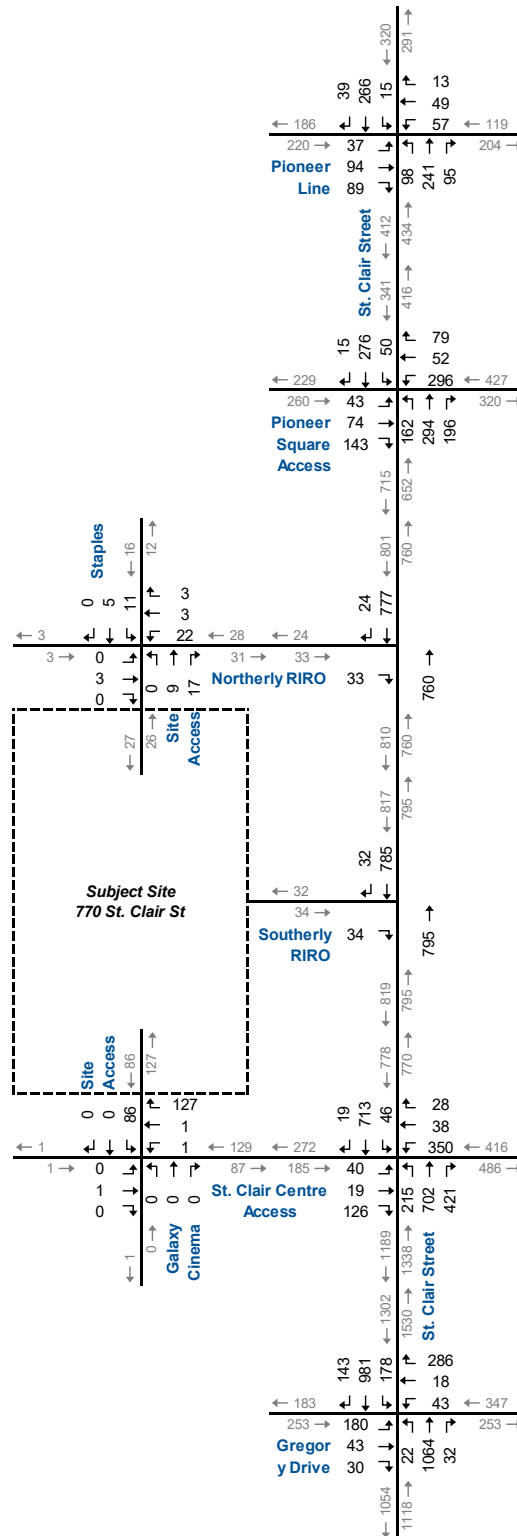
St. Clair Street and Gregory Drive

- ▶ The northbound through/right-turn movement is forecast to operate with LOS D and a v/c ratio greater than 0.85 during the Saturday peak hour.

Appendix G contains the supporting detailed Synchro 12 reports.



SAT Peak Hour



NTS



2035 Total Traffic Volumes Saturday Peak Hour

770 St. Clair Street, Chatham TIS
230754

Figure 4.4b

TABLE 4.4A: 2035 TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 27 0.49 25 -	> > > > >	C 27 26 0.37 21 -	< < < < <	C 26 26 0.37 21 -	> > > > >	C 26 4 0.04 3 45 42	A 7 8 0.27 42 -	A 0 0.03 0 -	A 7 4 0.02 2 80 78	A 8 0.17 20 -	> > > > >	A 8 -	B 12		
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 37 0.24 11 -	C 29 0.06 10 -	A 1 0.13 0 -	B 16 -	D 44 0.25 15 -	C 25 0.20 12 -	> > > > >	D 38 -	B 14 0.11 16 140 124	B 18 0.24 40 -	> > > > >	B 14 0.07 10 115 105	C 22 0.21 38 -	> > > > >	C 22 -	C 21	
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.03 1	A 10			>			A 0 0.00 0		A 0	A 0 0.00 0	> > > > >	A 0		
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.03 1	A 10			>			A 0 0.00 0		A 0	A 0 0.00 0	> > > > >	A 0		
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.14 11 -	C 34 0.07 9 -	B 11 0.38 13 -	B 16 -	C 25 0.35 25 -	C 24 0.07 9 -	> > > > >	C 24 -	A 8 0.15 11 160 149	B 3 0.20 31 25 14	A 8 0.18 11 25 14	A 7 0.02 3 25 22	B 16 0.28 37 -	> > > > >	B 16 -	B 13	
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 27 0.38 26 30 4	C 21 0.19 16 -	> > > > >	C 24 -	C 22 0.09 10 25 15	B 19 0.62 28 -	> > > > >	B 20 -	A 9 0.04 4 50 46	B 18 0.40 57 -	> > > > >	B 18 0.21 15 30 15	B 13 0.39 61 -	> > > > >	B 13 -	B 16	
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0 -	< < < <	A 7 0.01 0	> > > >	A 6 -	< < < <	A 9 0.03 1	> > > >	A 9 -	< < < <	A 9 0.00 0	> > > >	A 9	
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0 -	< < < <	A 0 0.00 0	> > > >	A 0 -	< < < <	A 0 0.00 0	> > > >	A 0 -	< < < <	A 9 0.11 3	> > > >	A 9	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.4B: 2035 TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 37 0.70 49 -	> > > > >	D 37	< < < < <	C 27 0.42 29 -	> > > > >	C 27	A 7 0.16 12 45 33	B 13 0.36 62 - -	A 7 0.05 5 80 75	B 13 0.31 37 - -	> > > > >	B 13	B 17		
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 45 0.33 14 -	C 32 0.10 15 -	A 3 0.18 4 -	B 20	D 48 0.54 33 -	C 29 0.40 28 -	> > > > >	D 41	B 19 0.18 22 140 118	C 26 0.45 72 - -	B 18 0.15 16 115 99	C 27 0.36 60 - -	> > > > >	C 27	C 29		
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.05 2	B 11						A 0 0.00 0	A 0		A 0 0.00 0	> > > >	A 0		
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.03 1	B 11						A 0 0.00 0	A 0		A 0 0.00 0	> > > >	A 0		
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.09 8 -	C 34 0.06 7 -	B 13 0.44 14 -	B 16	D 47 0.83 91 -	C 22 0.10 12 -	> > > > >	D 44	B 13 0.51 25 160 135	B 12 0.34 49 25 -	A 6 0.31 26 25 -1	B 11 0.03 3 25 22	C 22 0.59 67 - -	> > > > >	C 22	B 20	
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 42 0.73 45 30 -15	C 32 0.37 36 -	> > > > >	D 38	C 22 0.12 12 25 13	C 29 0.77 45 - -	> > > > >	C 28	B 12 0.15 9 50 41	C 28 0.74 118 - -	C 28 0.65 44 30 -14	C 22 0.68 128 - -	> > > > >	C 23	C 27		
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.01 0	> > > >	A 6	< < < <	A 9 0.02 1	> > > >	A 9	< < < <	A 9 0.02 1	> > > >	A 9	
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 9 0.08 2	> > > >	A 9	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.4C: 2035 TOTAL TRAFFIC OPERATIONS – SATURDAY 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	
Saturday Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 37 0.73 52 -	> > > > >	D 37	< < < < <	D 38 0.60 34 -	> > > > >	D 38	A 7 0.17 14 45 31	B 10 0.25 44 -	A 3 0.12 8 -	A 8	A 7 0.03 3 80 77	B 13 0.22 27 -	> > > > >	B 13	B 18
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	F 132 0.85 37 -	D 37 0.17 30 -	A 8 0.31 17 -	D 37	E 59 0.75 54 -	C 32 0.46 39 -	> > > > >	D 51	C 30 0.45 50 140 90	C 31 0.52 71 -	> > > > >	C 31	C 26 0.18 18 115 97	D 38 0.36 50 -	> > > > >	D 36	D 38
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 12 0.06 2	B 12						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 12 0.07 2	B 12						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 23 0.14 12 -	C 35 0.10 10 -	B 12 0.47 16 -	B 17	F 88 1.04 94 -	C 22 0.21 18 -	> > > > >	E 78	B 15 0.60 28 160 132	B 17 0.46 64 -	B 12 0.57 25 -33	B 15	A 8 0.13 7 25 18	C 24 0.64 74 -	> > > > >	C 23	C 27
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 47 0.78 53 30 -23	C 23 0.23 20 -	> > > > >	D 40	C 23 0.14 13 25 12	C 27 0.81 46 -	> > > > >	C 27	B 12 0.11 6 50 44	D 40 0.92 181 -	> > > > >	D 40	D 41 0.77 63 30 -33	C 24 0.75 176 -	> > > > >	C 27	C 33
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.01 0	> > > >	A 6	< < < <	A 9 0.03 1	> > > >	A 9	< < < <	A 9 0.02 1	> > > >	A 9	
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 9 0.10 2	> > > >	A 9	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



4.4 2040 (Ten-Year) Horizon

4.4.1 Background Traffic

Figure 4.5a and **Figure 4.5b** illustrate the 2040 background traffic volumes, including road traffic growth.

The 2040 background traffic volumes have been analyzed using the same methodology as under existing traffic conditions. Signal timings have not been optimized.

Table 4.5a, **Table 4.5b** and **Table 4.5c** summarize the results of the 2040 background traffic operations. The results indicate that the study area intersections are forecast to operate with the same critical movements as under 2035 background traffic conditions, with the addition of the following:

St. Clair Street and Clair Centre Access

- ▶ The northbound right-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 25 metres during the weekday PM peak hour.

St. Clair Street and Gregory Drive

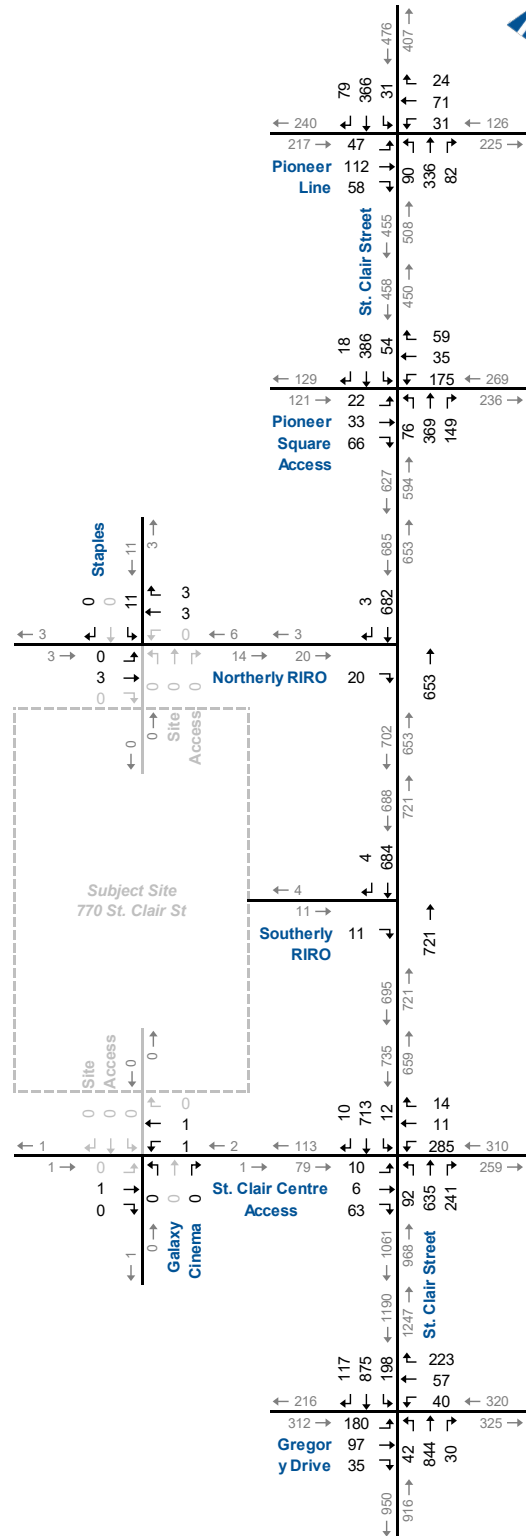
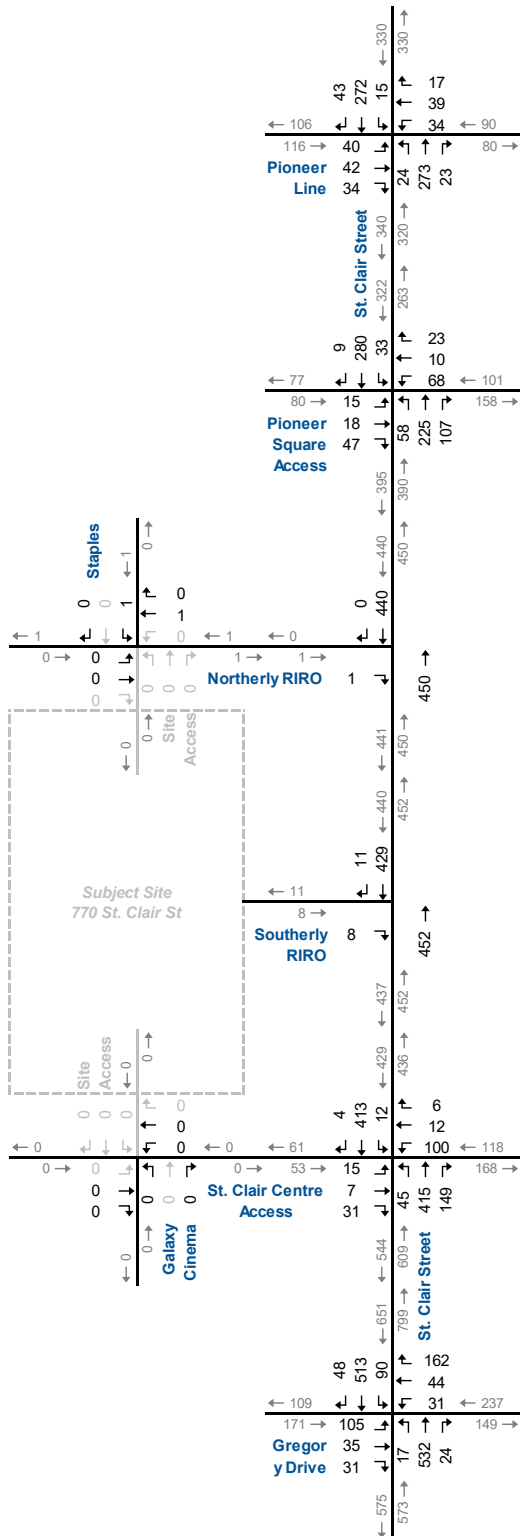
- ▶ The northbound shared through/right-turn movement is forecast to operate with LOS D and a v/c ratio greater than 0.85 during the Saturday peak hour.

Appendix H contains the supporting detailed Synchro 12 reports.



AM Peak Hour

PM Peak Hour



NTS

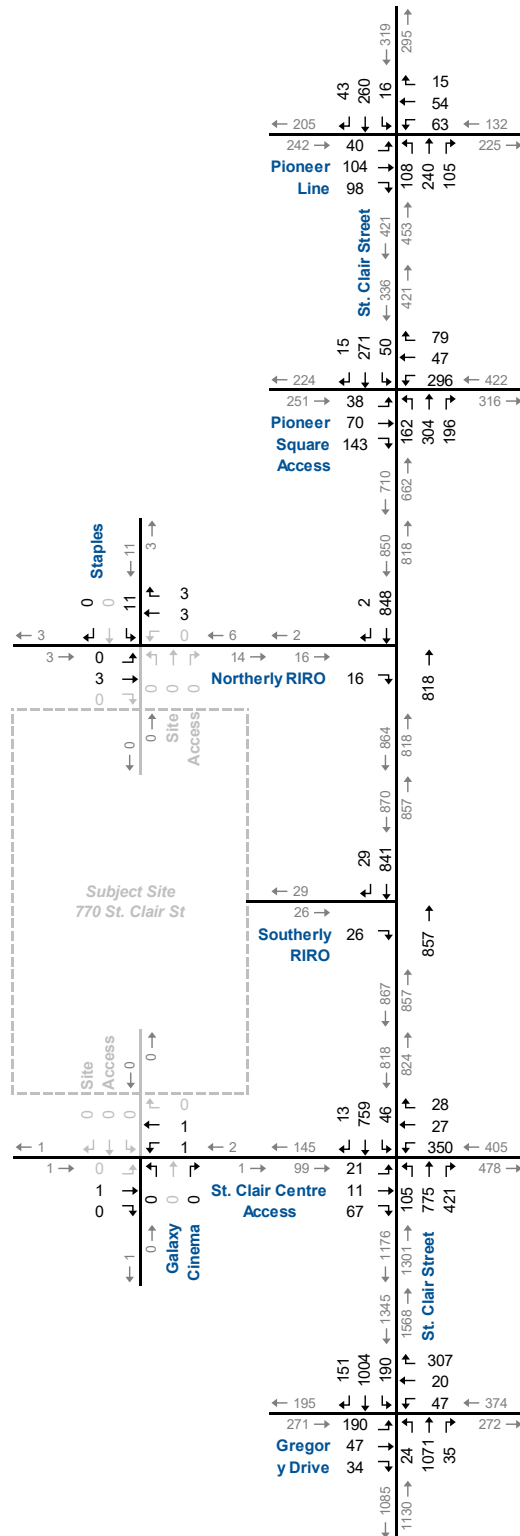


2040 Background Traffic Volumes AM and PM Peak Hours

770 St. Clair Street, Chatham TIS
230754

Figure 4.5a

SAT Peak Hour



NTS



2040 Background Traffic Volumes Saturday Peak Hour

770 St. Clair Street, Chatham TIS
230754

Figure 4.5b

TABLE 4.5A: 2040 BACKGROUND TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 29 0.53 28 -	> > > > >	C 29	< < < < <	C 27 0.42 23 -	> > > > >	C 27	A 5 0.05 4 45 41	A 9 0.30 44 -	A 0 0.03 0 -	A 8	A 5 0.03 3 80 77	A 8 0.20 22 -	> > > > >	A 8	B 13
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	C 35 0.16 8 -	C 31 0.06 9 -	A 1 0.15 0 -	B 14	D 41 0.24 14 -	C 23 0.19 12 -	> > > > >	D 35	B 12 0.11 14 140 126	B 16 0.23 36 -	> > > > >	B 16	B 12 0.07 9 115 106	C 20 0.22 37 -	> > > > >	B 19	B 19
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.00 0	A 10						A 0 0.00 0		A 0		A 0 0.00 0	> > > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.01 0	A 10						A 0 0.00 0		A 0		A 0 0.00 0	> > > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 20 0.06 6 -	C 32 0.03 5 -	A 1 0.11 0 -	B 10	C 24 0.36 24 -	C 20 0.06 8 -	> > > > >	C 24	A 7 0.08 7 160 153	B 10 0.22 35 -	A 4 0.17 13 25 12	A 8	A 8 0.02 3 25 22	B 14 0.26 36 -	> > > > >	B 14	B 12
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 27 0.40 28 30 2	C 21 0.20 18 -	> > > > >	C 25	C 22 0.10 11 25 14	C 23 0.67 33 -	> > > > >	C 22	A 9 0.04 4 50 46	B 19 0.43 62 -	> > > > >	B 19	B 10 0.23 16 30 14	B 16 0.40 58 -	> > > > >	B 15	B 18
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0					A 8 0.00 0		> > > >	A 9	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > >	A 0	< < <	A 0 0.00 0		A 0	A 0 0.00 0		> > >	A 0					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.5B: 2040 BACKGROUND TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
PM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 40 0.75 55 -	> > > > >	D 40	< < < < <	C 28 0.46 32 -	> > > > >	C 28	A 8 0.18 13 45 32	B 14 0.38 64 -	A 4 0.11 8 -	B 11	A 7 0.06 6 80 74	B 14 0.32 38 -	> > > > >	B 14	B 18	
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 42 0.27 12 -	C 33 0.10 14 -	A 3 0.19 4 -	B 18	D 47 0.53 33 -	C 25 0.38 25 -	> > > > >	D 39	B 18 0.18 22 140 118	C 26 0.46 76 -	> > > > >	C 25	B 17 0.15 16 115 99	C 27 0.36 62 -	> > > > >	C 26	C 27	
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.03 1	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0		
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.02 1	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0		
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.04 5 -	C 33 0.03 5 -	A 4 0.24 4 -	A 9	D 50 0.86 90 -	B 17 0.07 8 -	> > > > >	D 47	A 9 0.26 12 160 148	B 12 0.38 54 -	A 7 0.32 25 -2	B 11	A 8 0.03 3 25 22	B 20 0.56 70 -	> > > > >	B 20	B 19	
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 46 0.77 51 30 -21	C 31 0.38 39 -	> > > > >	D 40	C 22 0.13 12 25 13	C 33 0.80 54 -	> > > > >	C 32	B 13 0.19 11 50 39	C 31 0.75 124 -	> > > > >	C 30	C 28 0.71 58 30 -28	C 26 0.72 155 -	> > > > >	C 26	C 30	
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0						A 9 0.01 0		> > > >	A 9	
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0		A 4	A 0 0.00 0		> > > >	A 0						

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.5C: 2040 BACKGROUND TRAFFIC OPERATIONS – SATURDAY 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	
Saturday Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 40 0.78 58 -	> > > > >	D 40 - - -	< < < < <	D 42 0.67 38 -	> > > > >	D 42 - - -	A 7 0.19 15 45 30	B 11 0.25 44 -	A 3 0.13 8 -	A 8 - -	A 7 0.03 4 80 76	B 14 0.22 26 -	> > > > >	B 13 - -	C 20
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	F 103 0.72 30 -	D 37 0.17 29 -	A 8 0.33 17 -	C 30 - -	E 57 0.74 54 -	C 29 0.44 35 -	> > > > >	D 49 - -	C 28 0.43 50 140 90	C 31 0.51 74 -	> > > > >	C 30 - -	C 25 0.17 18 115 97	D 37 0.34 49 -	> > > > >	C 35 - -	D 36
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 12 0.03 1	B 12 - -			> > > >			A 0 0.00 0		A 0 - -		A 0 0.00 0	> > > >	A 0 - -	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 12 0.05 2	B 12 - -			> > > >			A 0 0.00 0		A 0 - -		A 0 0.00 0	> > > >	A 0 - -	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 21 0.08 8 -	C 34 0.05 6 -	A 5 0.25 5 -	B 12 - -	F 94 1.06 94 -	B 19 0.17 14 -	> > > > >	F 84 - -	A 10 0.31 14 160 146	B 17 0.51 70 -	B 13 0.58 25 -36	B 15 - -	A 8 0.14 7 25 18	C 21 0.59 76 -	> > > > >	B 20 - -	C 27
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 52 0.83 60 30 -30	C 24 0.26 22 -	> > > > >	D 44 - -	C 22 0.15 14 25 11	C 32 0.85 55 -	> > > > >	C 30 - -	B 13 0.12 7 50 43	D 47 0.95 193 -	> > > > >	D 46 - -	D 49 0.82 75 30 -45	C 27 0.79 195 -	> > > > >	C 30 - -	D 37
	Northerly RIRO & Staples Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0		A 0 - -		A 0 0.00 0	> > > >	A 0 - -					A 9 0.01 0	> > > >	A 9 - -		
	Galaxy Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q		A 0 0.00 0	> > > >	A 0 - -	< < < <	A 7 0.00 0		A 4 - -	A 0 0.00 0		> > > >	A 0 - -					

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



4.4.2 Total Traffic

Figure 4.6a and **Figure 4.6b** illustrate the 2040 total traffic volumes, including trips generated by the proposed development.

The 2040 total traffic volumes have been analyzed using the same methodology as under existing and background traffic conditions. Signal timings have not been optimized.

Table 4.6a, **Table 4.6b** and **Table 4.6c** summarize the results of the 2040 total traffic operations. The results indicate that the study area intersections are forecast to operate with the same critical movements as under 2040 background traffic conditions, with the addition of the westbound shared through/right-turn movement at St. Clair Street and Gregory Drive which is forecast to operate with LOS C and a v/c ratio greater than 0.85 during the Saturday peak hour.

Appendix I contains the supporting detailed Synchro 12 reports.



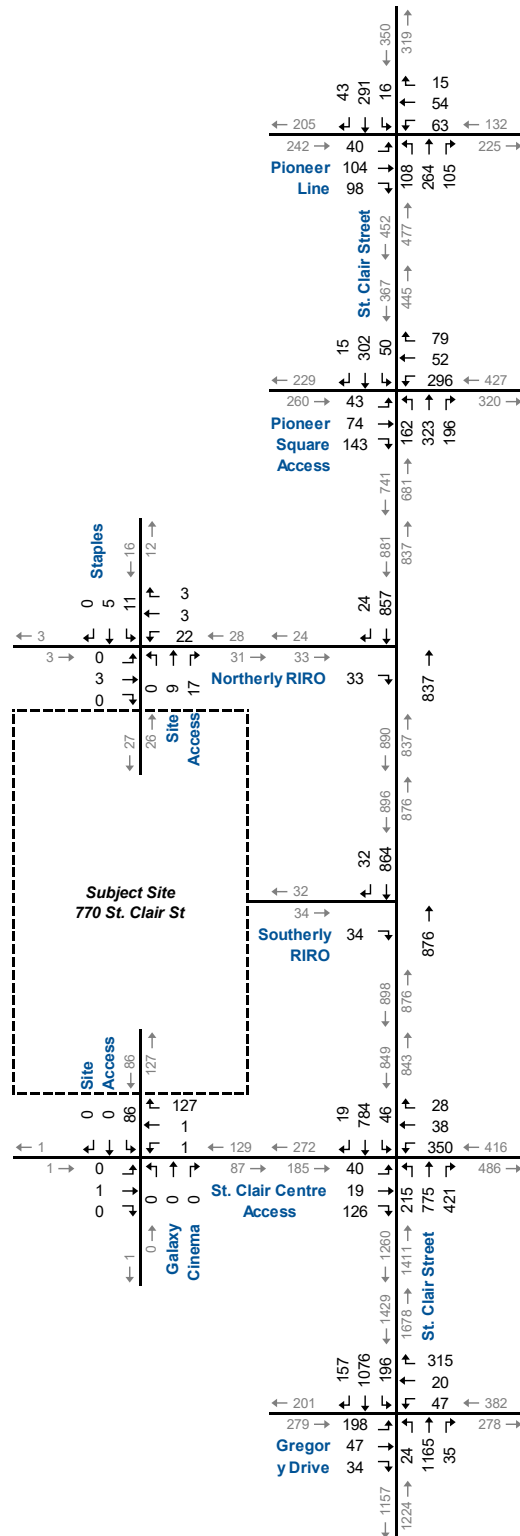


Figure 4.6b

TABLE 4.6A: 2040 TOTAL TRAFFIC OPERATIONS – AM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach		
AM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	C 29 0.53 28 -	> > > > >	C 29	< < < < <	C 27 0.42 23 -	> > > > >	C 27	A 5 0.05 4 45 41	A 9 0.33 48 -	A 0 0.03 0 -	A 8	A 5 0.03 3 80 77	> > > > >	A 8	B 13		
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 37 0.24 11 -	C 29 0.06 10 -	A 1 0.13 0 -	B 16	D 44 0.25 15 -	C 25 0.20 12 -	> > > > >	D 38	B 14 0.11 16 140 124	B 19 0.26 44 -	> > > > >	B 18	B 14 0.07 10 115 105	C 23 0.23 42 -	> > > > >	C 22	C 21	
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.03 1	A 10			>				A 0 0.00 0		A 0		A 0 0.00 0	> > > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			A 10 0.03 1	A 10			>				A 0 0.00 0		A 0		A 0 0.00 0	> > > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.14 11 -	C 34 0.07 9 -	B 11 0.38 13 -	B 16	C 25 0.35 25 -	C 24 0.07 9 -	> > > > >	C 24	A 8 0.16 11 160 149	B 11 0.22 35 -	A 4 0.18 13 25 12	A 9	A 7 0.02 3 25 22	B 16 0.31 41 -	> > > > >	B 16	B 13	
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	C 27 0.42 28 30 2	C 21 0.20 18 -	> > > > >	C 25	C 22 0.10 11 25 14	C 23 0.68 34 -	> > > > >	C 23	A 9 0.04 4 50 46	B 20 0.46 66 -	> > > > >	B 20	B 11 0.26 17 30 13	B 16 0.46 70 -	> > > > >	B 16	B 19	
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.01 0	> > > >	A 6	< < < <	A 9 0.03 1	> > > >	A 9	< < < <	A 9 0.00 0	> > > >	A 9		
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 9 0.11 3	> > > >	A 9		

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.6B: 2040 TOTAL TRAFFIC OPERATIONS – PM PEAK HOUR

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 40 0.75 55 -	> > > > >	D 40	< < < < <	C 28 0.46 32 -	> > > > >	C 28	A 8 0.19 13 45 32	B 14 0.40 68 -	A 4 0.11 8 -	B 11	A 7 0.06 6 80 74	B 14 0.35 42 -	> > > > >	B 14	B 18
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	D 45 0.33 14 -	C 32 0.10 15 -	A 3 0.18 4 -	B 20	D 48 0.54 33 -	C 29 0.40 28 -	> > > > >	D 41	B 19 0.19 22 140 118	C 28 0.49 78 -	> > > > >	C 27	B 19 0.15 16 115 99	C 29 0.40 66 -	> > > > >	C 28	C 29
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.06 2	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 11 0.03 1	B 11						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 22 0.09 8 -	C 34 0.06 7 -	B 13 0.44 14 -	B 16	D 47 0.83 91 -	C 22 0.10 12 -	> > > > >	D 44	B 14 0.55 25 160 135	B 13 0.38 55 -	A 7 0.32 28 -3	B 11	A 8 0.03 3 25 22	C 24 0.65 75 -	> > > > >	C 24	C 20
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	D 51 0.82 58 30 -28	C 31 0.38 39 -	> > > > >	D 43	C 22 0.13 12 25 13	C 33 0.81 55 -	> > > > >	C 32	B 14 0.20 11 50 39	D 35 0.84 155 -	> > > > >	C 34	D 41 0.80 73 30 -43	C 28 0.76 173 -	> > > > >	C 30	C 33
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.01 0	> > > >	A 6	< < < <	A 9 0.02 1	> > > >	A 9	< < < <	A 9 0.02 1	> > > >	A 9	
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 9 0.08 2	> > > >	A 9	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



TABLE 4.6C: 2040 TOTAL TRAFFIC OPERATIONS – SATURDAY 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	
Saturday Peak Hour	St. Clair Street & Pioneer Line	TCS	LOS Delay V/C Q Stor. Avail.	< < < < <	D 40 0.78 58 -	> > > > >	D 40	< < < < <	D 42 0.67 38 -	> > > > >	D 42	A 7 0.19 15 45 30	B 11 0.28 48 -	A 3 0.13 8 -	A 8	A 7 0.03 4 80 76	B 14 0.25 30 -	> > > > >	B 14	B 20
	St. Clair Street & Pioneer Square Access	TCS	LOS Delay V/C Q Stor. Avail.	F 132 0.85 37 -	D 37 0.17 30 -	A 8 0.31 17 -	D 37	E 59 0.75 54 -	C 32 0.46 39 -	> > > > >	D 51	C 30 0.47 50 140 90	C 34 0.55 80 -	> > > > >	C 33	C 26 0.19 18 115 97	D 39 0.39 54 -	> > > > >	D 37	D 39
	St. Clair Street & Northerly RIRO	TWSC	LOS Delay V/C Q			B 12 0.07 2	B 12						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & Southerly RIRO	TWSC	LOS Delay V/C Q			B 12 0.07 2	B 12						A 0 0.00 0		A 0		A 0 0.00 0	> > > >	A 0	
	St. Clair Street & St. Clair Centre Access	TCS	LOS Delay V/C Q Stor. Avail.	C 23 0.14 12 -	C 35 0.10 10 -	B 12 0.47 16 -	B 17	F 88 1.04 94 -	C 22 0.21 18 -	> > > > >	E 78	B 18 0.65 32 160 128	B 17 0.51 72 -	B 13 0.58 62 25 -37	B 16	A 9 0.14 7 25 18	C 25 0.70 83 -	> > > > >	C 24	C 28
	St. Clair Street & Gregory Drive	TCS	LOS Delay V/C Q Stor. Avail.	E 58 0.87 66 30 -36	C 23 0.25 22 -	> > > > >	D 48	C 22 0.15 14 25 11	C 34 0.86 60 -	> > > > >	C 33	B 14 0.14 7 50 43	E 68 1.04 218 -	> > > > >	E 66	D 54 0.86 78 30 -48	C 30 0.85 216 -	> > > > >	C 33	D 47
	Site Access/Staples Access & Northerly RIRO	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.01 0	> > > >	A 6	< < < <	A 9 0.03 1	> > > >	A 9	< < < <	A 9 0.02 1	> > > >	A 9	
	Galaxy Access/Site Access & St. Clair Centre Access	TWSC	LOS Delay V/C Q	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 7 0.00 0	> > > >	A 0	< < < <	A 0 0.00 0	> > > >	A 0	< < < <	A 9 0.10 2	> > > >	A 9	

MOE - Measure of Effectiveness

LOS - Level of Service

Delay - Average Delay per Vehicle in Seconds

V/C - Volume to Capacity Ratio

Q - 95th Percentile Queue Length (m)

Stor. - Existing Storage (m)

Avail. - Available Storage (m)

TCS - Traffic Control Signal

TWSC - Two-Way Stop Control

</> - Shared with through movement



4.5 St. Clair Street Corridor

It is noted that although critical movements have been identified at two intersections, the overall intersection operations for all study area intersections analyzed in this study register acceptable levels of service during all peak hours and under all traffic conditions.

4.5.1 St. Clair Centre Access

The level of service and queueing issues are occurring under existing conditions and is independent of the subject development. The westbound left-turn movement (exiting the Superstore grocery store plaza) currently exceeds 200 vehicles per hour (vph) during the weekday PM peak hour and 350 vph during the Saturday peak hour. To improve delays at the intersection, signal timing improvements could be considered including a northbound right-turn permissive overlapping phase and an increase in green time for the westbound left-turn advance phase.

4.5.2 Gregory Drive

Generally, the intersection is forecast to operate with movements nearing capacity and queueing issues starting under existing and background conditions. Given the high volumes for competing movements, especially during the Saturday peak hour, signal timing changes alone will not provide significant improvements.



5 Conclusions and Recommendations

5.1 Conclusions

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

- ▶ **Existing Traffic Conditions:** The study area intersections are operating at acceptable levels of service, except for the noted critical movements at the following intersections:

St. Clair Street and St. Clair Centre Access:

- The westbound left-turn movement is operating with LOS F and a v/c ratio greater than 1.00 during the Saturday peak hour; and
- The northbound right-turn movement is operating with 95th percentile queues exceeding the available storage of 25 metres during the Saturday peak hour.

St. Clair Street and Gregory Drive: The eastbound left-turn movement is operating with 95th percentile queues exceeding the available storage of 30 metres during the weekday PM and Saturday peak hours.

- ▶ **Development Trip Generation:** The development is forecast to generate 194 AM peak hour trips, 238 PM peak hour trips and 277 Saturday peak hour trips.
- ▶ **Background Traffic Conditions:** The study area intersections are forecast to operate with the same critical movements as under existing traffic conditions, with the addition of the following movements:

Starting under 2035 conditions:

- St. Clair Street and Gregory Drive: The southbound left-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 30 metres during the weekday PM and Saturday peak hours.

Starting under 2040 conditions:

- St. Clair Street and Clair Centre Access: The northbound right-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 25 metres during the weekday PM peak hour.
- St. Clair Street and Gregory Drive: The northbound shared through/right-turn movement is forecast to operate with LOS D and a v/c ratio greater than 0.85 during the Saturday peak hour.



- ▶ **Total Traffic Conditions:** The study area intersections are forecast to operate with the same critical movements as under background traffic conditions, with the addition of the following movements:

Starting under 2030 conditions:

- St. Clair Street and Gregory Drive: The southbound left-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 30 metres by five metres (less than a single car length) during the Saturday peak hour.

Starting under 2035 conditions:

- St. Clair Street and Clair Centre Access: The northbound right-turn movement is forecast to operate with 95th percentile queues exceeding the available storage of 25 metres by one metre (less than a single car length) during the weekday PM peak hour.
- St. Clair Street and Gregory Drive: The northbound through/right-turn movement is forecast to operate with LOS D and a v/c ratio greater than 0.85 during the Saturday peak hour.

Starting under 2040 conditions:

- St. Clair Street and Gregory Drive: The westbound shared through/right-turn movement is forecast to operate with LOS C and a v/c ratio greater than 0.85 during the Saturday peak hour.

- ▶ **Summary of Impacts:** It is noted that although critical movements have been identified at two intersections, the overall intersection operations for all study area intersections analyzed in this study register acceptable levels of service during all peak hours and under all traffic conditions. Specific to the critical movements, the following is noted:

- **St. Clair Street and St. Clair Centre Access:** The level of service and queueing issues are occurring under existing conditions and is independent of the subject development. To improve delays at the intersection, signal timing improvements could be considered including a northbound right-turn permissive overlapping phase and an increase in green time for the westbound left-turn advance phase.
- **St. Clair Street and Gregory Drive:** Generally, the intersection is forecast to operate with movements nearing capacity and queueing issues starting under existing and background conditions. Given the high volumes for



competing movements, especially during the Saturday peak hour, signal timing changes alone will not provide significant improvements.

5.2 Recommendations

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



Appendix A

Pre-Study Consultation



Maddison Murch

From: Siddharth Dhiman <Siddharthd@chatham-kent.ca>
Sent: January 24, 2025 9:29 AM
To: Rajan Philips
Cc: Jeff Hagan; Anthony Jas; Frank Gerrits; Maddison Murch
Subject: RE: (230754) - RE: 770 St. Clair Street, Chatham

Hi Rajan,

Thank you for providing the information. We recommend analyzing the traffic access you are assigning. If not assigning traffic to the three specified driveways significantly impacts the main Pioneer/Clair intersection, you may exclude them.

Regards,
Siddharth Dhiman (*he/him*)
Project Manager (Transportation)
Infrastructure & Engineering Services
Municipality of Chatham-Kent

From: Rajan Philips <rphilips@ptsl.com>
Sent: January 20, 2025 3:26 PM
To: Anthony Jas <anthonyj@chatham-kent.ca>; Frank Gerrits <frank.gerrits@yorkdev.ca>; Maddison Murch <mmurch@ptsl.com>
Cc: Siddharth Dhiman <Siddharthd@chatham-kent.ca>; Jeff Hagan <jeffha@chatham-kent.ca>
Subject: RE: (230754) - RE: 770 St. Clair Street, Chatham

Hi Anthony,

Following up on Maddy's email, we have reviewed the driveway intersections you have identified for analysis.

The Site Plan identifies the following three access connections to St Clair Street:

- The main (southerly most) access between Burger King & Popeyes. This is a four-legged, signalized intersection.
- The RIRO access at Tim Hortons, and
- The RIRO access at Michaels.

We will include the above three driveways for traffic counts and analyses.

In addition, we will also include:

- the access between Boston Pizza and Starbucks, which is also a four-legged, signalized intersection; and

- the two internal connections, which you have indicated in blue.

However, we do not see any technical need or value in analysing the following three driveways:

- The right-in only access to Starbucks, and
- The two commercial driveways on Pioneer Line.

Assigning new development traffic to the Pioneer Line driveways would be validating shortcutting traffic through parking lots. Also, such an assignment will reduce the development traffic that should be assigned to the main Pioneer/Clair intersection to conservatively assess the development impact at that intersection.

Please let us know if the above approach is acceptable to you.

Thank you.

Regards,

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

Paradigm Transportation Solutions Limited

5A-150 Pinebush Road, Cambridge ON N1R 8J8

p: 519.896.3163 x207

e: rphilips@ptsl.com

w: www.ptsl.com

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



Employee-owned | Client-centric | Solution-focused



From: Maddison Murch <mmurch@ptsl.com>

Sent: January 20, 2025 1:49 PM

To: Anthony Jas <anthonyj@chatham-kent.ca>

Cc: Rajan Philips <rphilips@ptsl.com>; Siddharth Dhiman <Siddharthd@chatham-kent.ca>; Jeff Hagan <jeffha@chatham-kent.ca>

Subject: RE: (230754) - RE: 770 St. Clair Street, Chatham

Hi Anthony,

Thanks for providing this information.

Are you able to provide us with the signal timing plans for St Clair/Pioneer and St Clair/Gregory? We already have the plans for the signalized plaza accesses.

Thanks,

Maddison Murch, P.Eng.
Transportation Engineer



5A-150 Pinebush Road, Cambridge ON N1R 8J8
p: 519.896.3163 x205
m: 226.268.3697

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

From: Anthony Jas <anthonyj@chatham-kent.ca>

Sent: January 13, 2025 9:28 AM

To: Maddison Murch <mmurch@ptsl.com>

Cc: frank.gerrits@yorkdev.ca; Rajan Philips <rphilips@ptsl.com>; Siddharth Dhiman <Siddharthd@chatham-kent.ca>; Jeff Hagan <jeffha@chatham-kent.ca>; Kelly Ngo <kngo@ptsl.com>

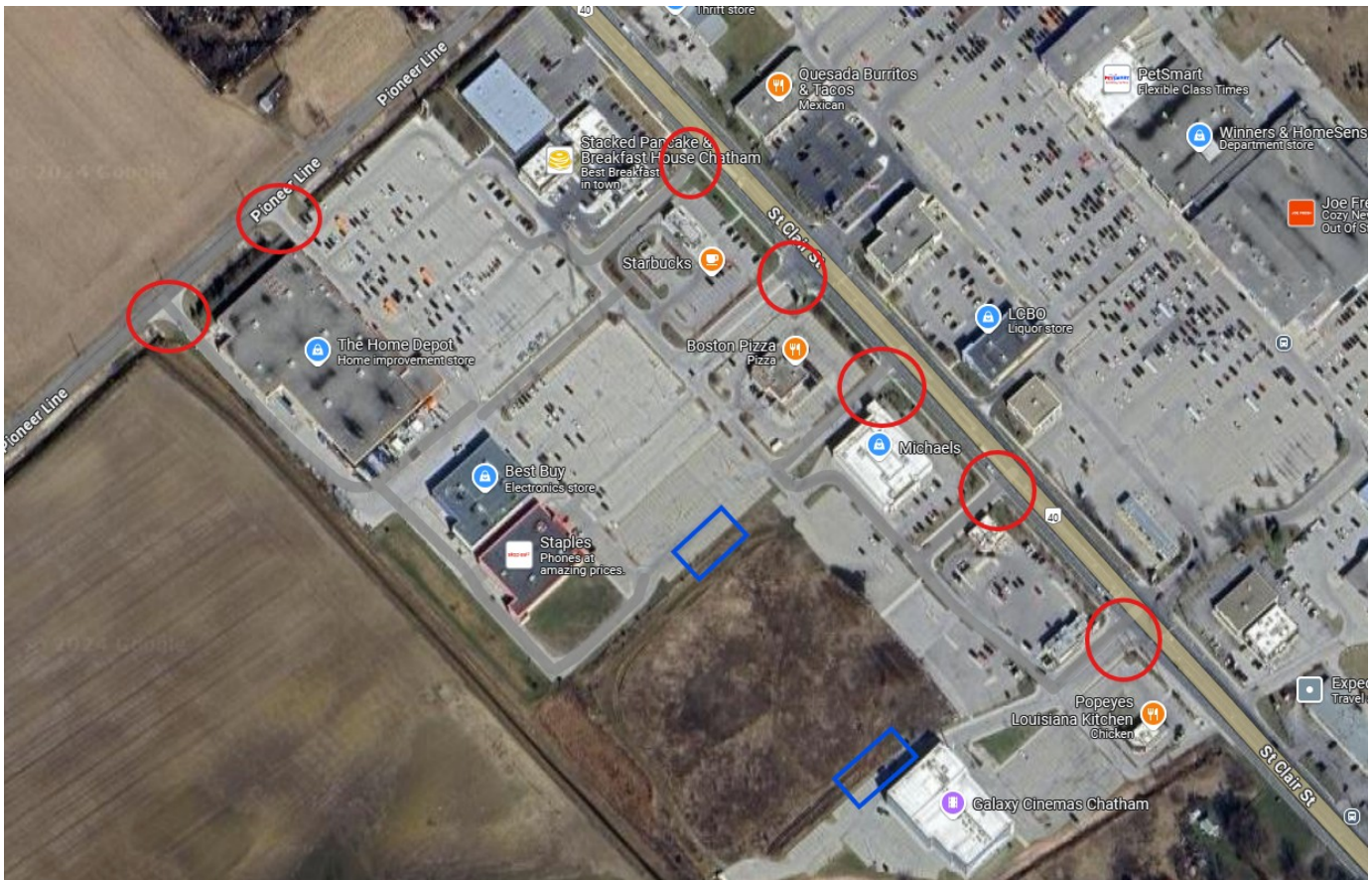
Subject: RE: (230754) - RE: 770 St. Clair Street, Chatham

Good morning, Maddison,

The information you requested is below:

Red circles are the Plaza accesses,

Blue squares are development accesses.



Also, there are no developments planned/approved for the area other than what has been built to date. No TIS reports or statistics to share either. This would need to be an independent study.

Thanks,

Anthony Jas

Manager | Planning Services
Development Services
Municipality of Chatham-Kent

P 519-360-1998 x 3050

E anthonyj@chatham-kent.ca

www.chatham-kent.ca



From: Maddison Murch <mmurch@ptsl.com>

Sent: January 7, 2025 2:19 PM

To: Anthony Jas <anthonyj@chatham-kent.ca>

Cc: frank.gerrits@yorkdev.ca; Rajan Philips <rphilips@ptsl.com>; Siddharth Dhiman <Siddharthd@chatham-kent.ca>;

Jeff Hagan <jeffha@chatham-kent.ca>; Kelly Ngo <kngo@ptsl.com>

Subject: RE: (230754) - RE: 770 St. Clair Street, Chatham

Hi Anthony,

Thank you providing Frank with the below scope of work for the TIS. Regarding the study area intersections, it would be helpful if you could specifically identify the plaza and development accesses requested, maybe by noting them on a map?

Further, it would be helpful if you could identify any approved developments in the area that would impact the study area intersections, and provide the TIS report or site statistics.

Regards,

Maddison Murch, P.Eng.

Transportation Engineer



5A-150 Pinebush Road, Cambridge ON N1R 8J8
p: 519.896.3163 x205
m: 226.268.3697

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

From: **Anthony Jas** <anthonyj@chatham-kent.ca>

Date: Thu, Dec 19, 2024 at 3:59 PM

Subject: 770 St. Clair Street, Chatham

To: Frank Gerrits <frank.gerrits@yorkdev.ca>, James Close <jclose@sbmltd.ca>, Louis Pinsonneault <lpinsonneault@sbmltd.ca>

Cc: Siddharth Dhiman <Siddharthd@chatham-kent.ca>, Jeff Hagan <jeffha@chatham-kent.ca>

Good afternoon,

I appreciate your patience with this communication. Attached is the Direction for Complete Application for Official Plan Amendment and Zoning By-law Amendment applications. These applications could potentially be considered by Council at the same meeting, if this is preferred. We can discuss process at a later date, when there is an understanding of timing for application(s) submission.

In terms of the Traffic Impact Study (TIS), attached is the Chatham-Kent Guidelines for reference. Additionally, to inform the scope for the TIS, please consider the following:

- Traffic data collection / review at the following intersections:
 - Development Accesses
 - *Plaza Accesses to St. Clair Street.*
 - *Plaza Accesses to Pioneer Line.*
 - *St. Clair Street and Pioneer Line.*
 - *St. Clair Street and Gregory Drive E*
- Trip generation for the proposed site using ITE trip generation data.
- Traffic distribution and assignment of site generated traffic onto the road network.
 - Analysis periods: *Weekday AM peak hour, Weekday PM peak hour, and Saturday peak hours.*
- Baseline traffic network modelling and development of total traffic projections for existing and future weekday/weekend conditions, accounting for possible growth of background traffic on existing and future road network.
 - Horizon years: *Opening day + 5 years +10 years*
- Capacity and level of service analysis.
- Identification of applicable improvements for future consideration.
- Preparation of a final report (to include engineers' comments and supporting figures)

Please note: the Municipality may have traffic data collection / review for St. Clair Street and Gregor Drive E intersection. Please contact Jeff Hagan (cc'd) to inquire.

Let me know if you have any questions at this time.

Thanks,

Anthony Jas

Manager | Planning Services

Development Services

Municipality of Chatham-Kent

P 519-360-1998 x 3050

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Appendix B

Existing Traffic Data





Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Pioneer Line -
Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 1

Turning Movement Data

Start Time	Pioneer Line Eastbound						Pioneer Line Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	8	2	3	0	0	13	6	4	3	0	0	13	2	44	4	0	0	50	0	34	2	0	0	36	112
7:15 AM	8	3	3	0	0	14	2	4	3	0	0	9	3	36	10	0	0	49	2	31	6	0	0	39	111
7:30 AM	10	2	3	0	0	15	8	7	2	0	0	17	2	55	3	0	0	60	2	61	9	0	0	72	164
7:45 AM	4	7	9	0	0	20	3	7	5	0	0	15	4	51	4	0	0	59	4	53	6	0	0	63	157
Hourly Total	30	14	18	0	0	62	19	22	13	0	0	54	11	186	21	0	0	218	8	179	23	0	0	210	544
8:00 AM	10	14	6	0	0	30	7	8	5	0	0	20	7	55	6	0	0	68	2	48	7	0	0	57	175
8:15 AM	6	8	7	0	0	21	7	7	1	0	0	15	5	42	4	0	0	51	3	40	10	0	0	53	140
8:30 AM	6	4	6	0	0	16	14	6	1	0	0	21	4	40	5	0	0	49	2	52	7	0	0	61	147
8:45 AM	5	7	9	0	0	21	8	7	2	0	0	17	8	42	5	0	0	55	1	64	8	0	0	73	166
Hourly Total	27	33	28	0	0	88	36	28	9	0	0	73	24	179	20	0	0	223	8	204	32	0	0	244	628
9:00 AM	5	14	14	0	0	33	6	11	1	0	0	18	4	35	5	0	0	44	8	46	3	0	0	57	152
9:15 AM	6	14	3	0	0	23	3	8	1	0	0	12	3	37	10	0	0	50	5	42	8	0	0	55	140
9:30 AM	6	10	10	0	0	26	7	4	0	0	0	11	11	39	10	0	0	60	1	55	6	0	0	62	159
9:45 AM	4	8	9	0	0	21	10	10	0	0	0	20	4	34	8	0	0	46	3	47	6	0	0	56	143
Hourly Total	21	46	36	0	0	103	26	33	2	0	0	61	22	145	33	0	0	200	17	190	23	0	0	230	594
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	3	12	9	0	0	24	7	10	0	0	0	17	14	35	9	0	0	58	1	61	9	0	0	71	170
11:45 AM	7	14	19	0	0	40	9	7	3	0	0	19	16	58	10	0	0	84	3	44	7	0	0	54	197
Hourly Total	10	26	28	0	0	64	16	17	3	0	0	36	30	93	19	0	0	142	4	105	16	0	0	125	367
12:00 PM	8	10	11	0	0	29	10	8	7	0	0	25	14	51	9	0	0	74	5	47	10	0	0	62	190
12:15 PM	12	14	11	0	0	37	5	4	1	0	1	10	19	48	10	0	0	77	6	52	8	0	0	66	190
12:30 PM	13	7	8	0	0	28	13	11	2	0	0	26	14	53	10	0	0	77	5	45	3	0	0	53	184
12:45 PM	1	13	10	0	0	24	7	7	3	0	0	17	23	39	12	0	0	74	2	53	9	0	0	64	179
Hourly Total	34	44	40	0	0	118	35	30	13	0	1	78	70	191	41	0	0	302	18	197	30	0	0	245	743
1:00 PM	5	13	17	0	0	35	7	8	2	0	0	17	8	48	8	0	0	64	4	45	4	0	0	53	169
1:15 PM	2	11	9	0	0	22	13	8	2	0	0	23	13	54	10	0	0	77	3	46	4	0	0	53	175
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	7	24	26	0	0	57	20	16	4	0	0	40	21	102	18	0	0	141	7	91	8	0	0	106	344
3:00 PM	6	9	12	0	0	27	4	15	9	0	0	28	22	50	14	0	0	86	4	37	7	0	0	48	189
3:15 PM	7	18	7	0	0	32	7	9	4	0	0	20	19	69	17	0	0	105	6	61	19	0	0	86	243
3:30 PM	9	15	16	0	0	40	9	10	6	0	1	25	10	59	10	0	0	79	7	64	12	0	0	83	227
3:45 PM	6	11	9	0	0	26	7	12	5	0	0	24	17	75	13	0	0	105	7	64	12	0	0	83	238
Hourly Total	28	53	44	0	0	125	27	46	24	0	1	97	68	253	54	0	0	375	24	226	50	0	0	300	897
4:00 PM	7	23	5	0	0	35	4	12	6	0	0	22	19	60	18	0	0	97	10	48	15	0	0	73	227
4:15 PM	9	19	12	0	0	40	7	15	6	0	0	28	14	65	9	0	0	88	4	72	10	0	0	86	242

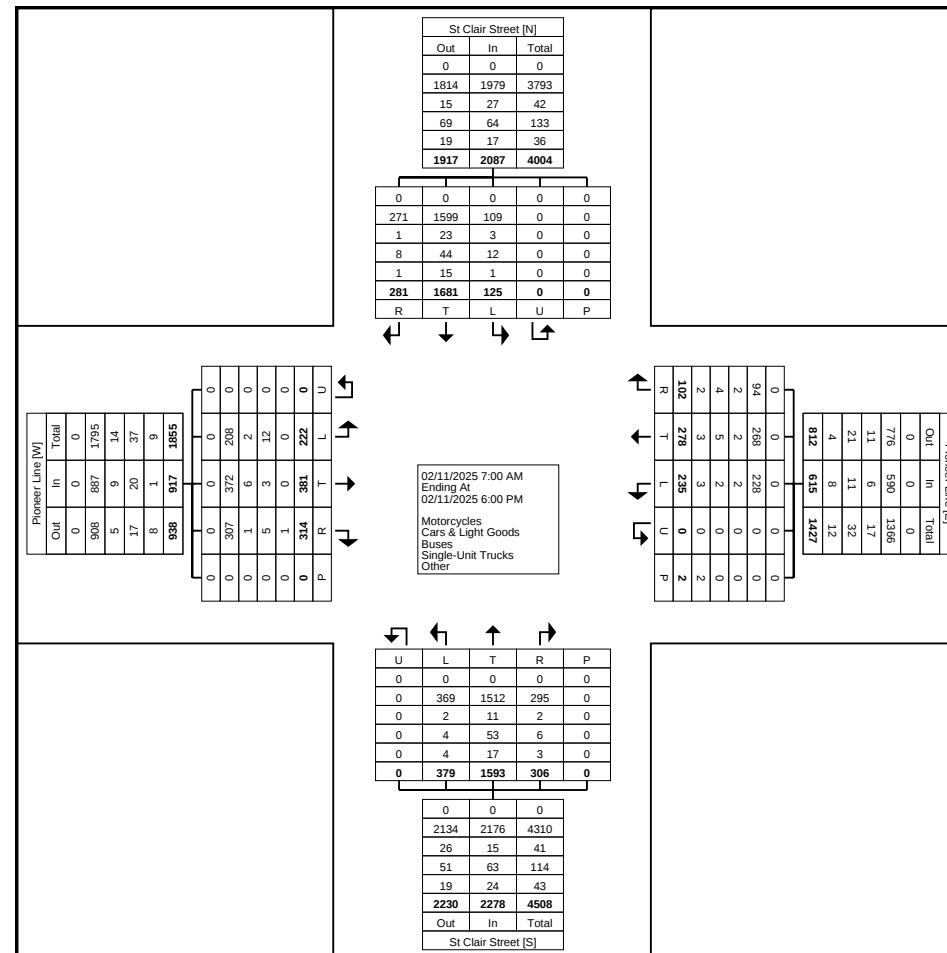
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4:45 PM	7	23	14	0	0	44	4	12	1	0	0	17	12	62	18	0	0	92	5	89	22	0	0	116	269
Hourly Total	35	83	43	0	0	161	23	53	18	0	0	94	67	250	61	0	0	378	23	272	59	0	0	354	987
5:00 PM	5	16	16	0	0	37	9	13	5	0	0	27	23	56	9	0	0	88	7	61	6	0	0	74	226
5:15 PM	9	9	18	0	0	36	8	6	4	0	0	18	11	57	16	0	0	84	4	65	13	0	0	82	220
5:30 PM	5	15	10	0	0	30	10	4	5	0	0	19	15	39	7	0	0	61	2	43	12	0	0	57	167
5:45 PM	11	18	7	0	0	36	6	10	2	0	0	18	17	42	7	0	0	66	3	48	9	0	0	60	180
Hourly Total	30	58	51	0	0	139	33	33	16	0	0	82	66	194	39	0	0	299	16	217	40	0	0	273	793
Grand Total	222	381	314	0	0	917	235	278	102	0	2	615	379	1593	306	0	0	2278	125	1681	281	0	0	2087	5897
Approach %	24.2	41.5	34.2	0.0	-	-	38.2	45.2	16.6	0.0	-	-	16.6	69.9	13.4	0.0	-	-	6.0	80.5	13.5	0.0	-	-	-
Total %	3.8	6.5	5.3	0.0	-	15.6	4.0	4.7	1.7	0.0	-	10.4	6.4	27.0	5.2	0.0	-	38.6	2.1	28.5	4.8	0.0	-	35.4	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	208	372	307	0	-	887	228	268	94	0	-	590	369	1512	295	0	-	2176	109	1599	271	0	-	1979	5632
% Cars & Light Goods	93.7	97.6	97.8	-	-	96.7	97.0	96.4	92.2	-	-	95.9	97.4	94.9	96.4	-	-	95.5	87.2	95.1	96.4	-	-	94.8	95.5
Buses	2	6	1	0	-	9	2	2	2	0	-	6	2	11	2	0	-	15	3	23	1	0	-	27	57
% Buses	0.9	1.6	0.3	-	-	1.0	0.9	0.7	2.0	-	-	1.0	0.5	0.7	0.7	-	-	0.7	2.4	1.4	0.4	-	-	1.3	1.0
Single-Unit Trucks	12	3	5	0	-	20	2	5	4	0	-	11	4	53	6	0	-	63	12	44	8	0	-	64	158
% Single-Unit Trucks	5.4	0.8	1.6	-	-	2.2	0.9	1.8	3.9	-	-	1.8	1.1	3.3	2.0	-	-	2.8	9.6	2.6	2.8	-	-	3.1	2.7
Articulated Trucks	0	0	1	0	-	1	3	3	2	0	-	8	4	17	3	0	-	24	1	15	1	0	-	17	50
% Articulated Trucks	0.0	0.0	0.3	-	-	0.1	1.3	1.1	2.0	-	-	1.3	1.1	1.1	1.0	-	-	1.1	0.8	0.9	0.4	-	-	0.8	0.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0													



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Pioneer Line -
Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 3



Turning Movement Data Plot

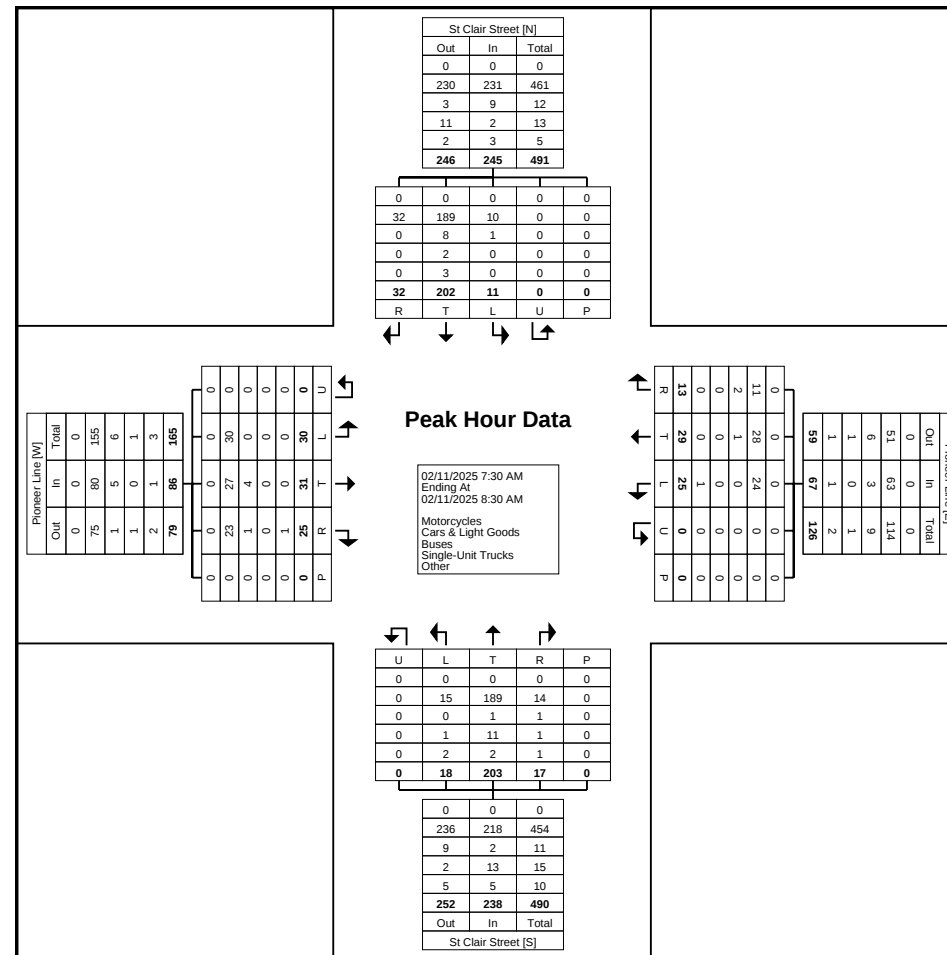
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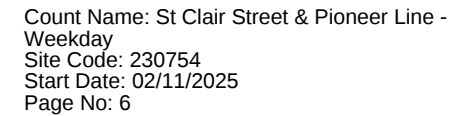


Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Pioneer Line -
Weekday
Site Code: 230754
Start Date: 02/11/2025
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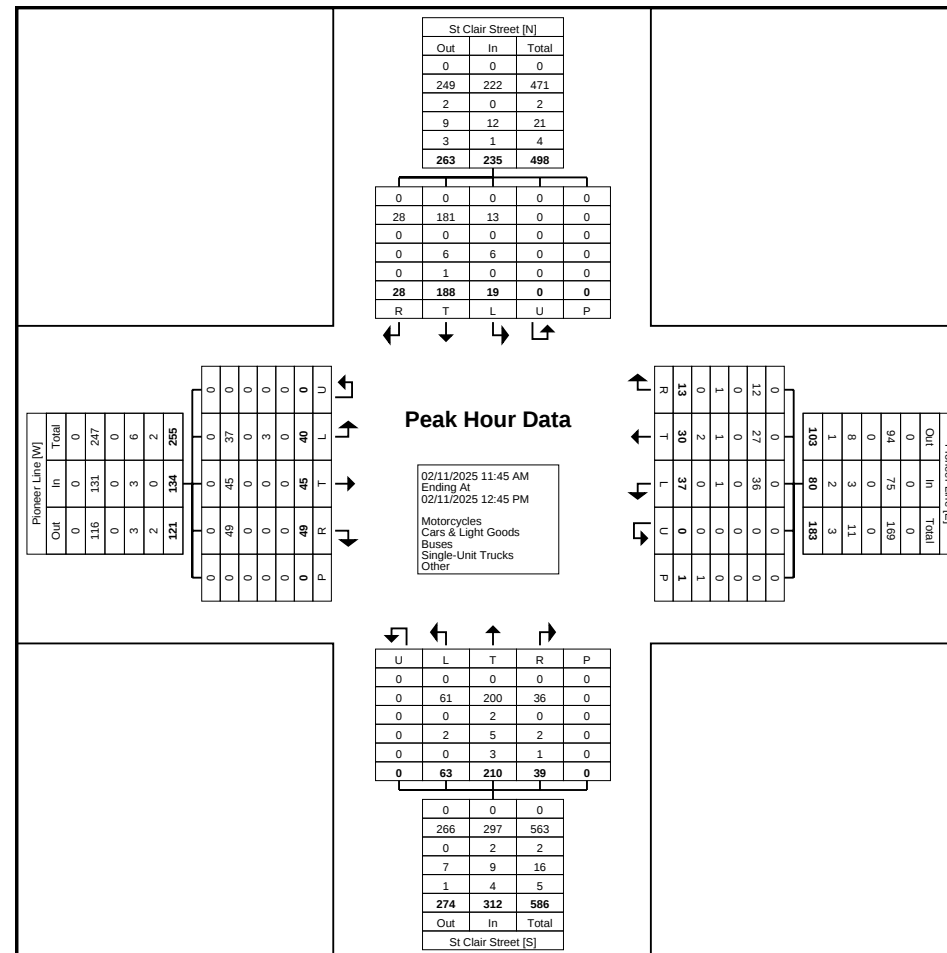
Start Time	Pioneer Line Eastbound						Pioneer Line Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	7	14	19	0	0	40	9	7	3	0	0	19	16	58	10	0	0	84	3	44	7	0	0	54	197
12:00 PM	8	10	11	0	0	29	10	8	7	0	0	25	14	51	9	0	0	74	5	47	10	0	0	62	190
12:15 PM	12	14	11	0	0	37	5	4	1	0	1	10	19	48	10	0	0	77	6	52	8	0	0	66	190
12:30 PM	13	7	8	0	0	28	13	11	2	0	0	26	14	53	10	0	0	77	5	45	3	0	0	53	184
Total	40	45	49	0	0	134	37	30	13	0	1	80	63	210	39	0	0	312	19	188	28	0	0	235	761
Approach %	29.9	33.6	36.6	0.0	-	-	46.3	37.5	16.3	0.0	-	-	20.2	67.3	12.5	0.0	-	-	8.1	80.0	11.9	0.0	-	-	-
Total %	5.3	5.9	6.4	0.0	-	17.6	4.9	3.9	1.7	0.0	-	10.5	8.3	27.6	5.1	0.0	-	41.0	2.5	24.7	3.7	0.0	-	30.9	-
PHF	0.769	0.804	0.645	0.000	-	0.838	0.712	0.682	0.464	0.000	-	0.769	0.829	0.905	0.975	0.000	-	0.929	0.792	0.904	0.700	0.000	-	0.890	0.966
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	37	45	49	0	-	131	36	27	12	0	-	75	61	200	36	0	-	297	13	181	28	0	-	222	725
% Cars & Light Goods	92.5	100.0	100.0	-	-	97.8	97.3	90.0	92.3	-	-	93.8	96.8	95.2	92.3	-	-	95.2	68.4	96.3	100.0	-	-	94.5	95.3
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	2
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.0	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	3	0	0	0	-	3	1	1	1	0	-	3	2	5	2	0	-	9	6	6	0	0	-	12	27
% Single-Unit Trucks	7.5	0.0	0.0	-	-	2.2	2.7	3.3	7.7	-	-	3.8	3.2	2.4	5.1	-	-	2.9	31.6	3.2	0.0	-	-	5.1	3.5
Articulated Trucks	0	0	0	0	-	0	0	2	0	0	-	2	0	3	1	0	-	4	0	1	0	0	-	1	7
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	6.7	0.0	-	-	2.5	0.0	1.4	2.6	-	-	1.3	0.0	0.5	0.0	-	-	0.4	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-



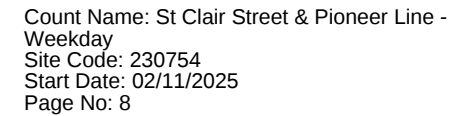
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Pioneer Line -
Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 7



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



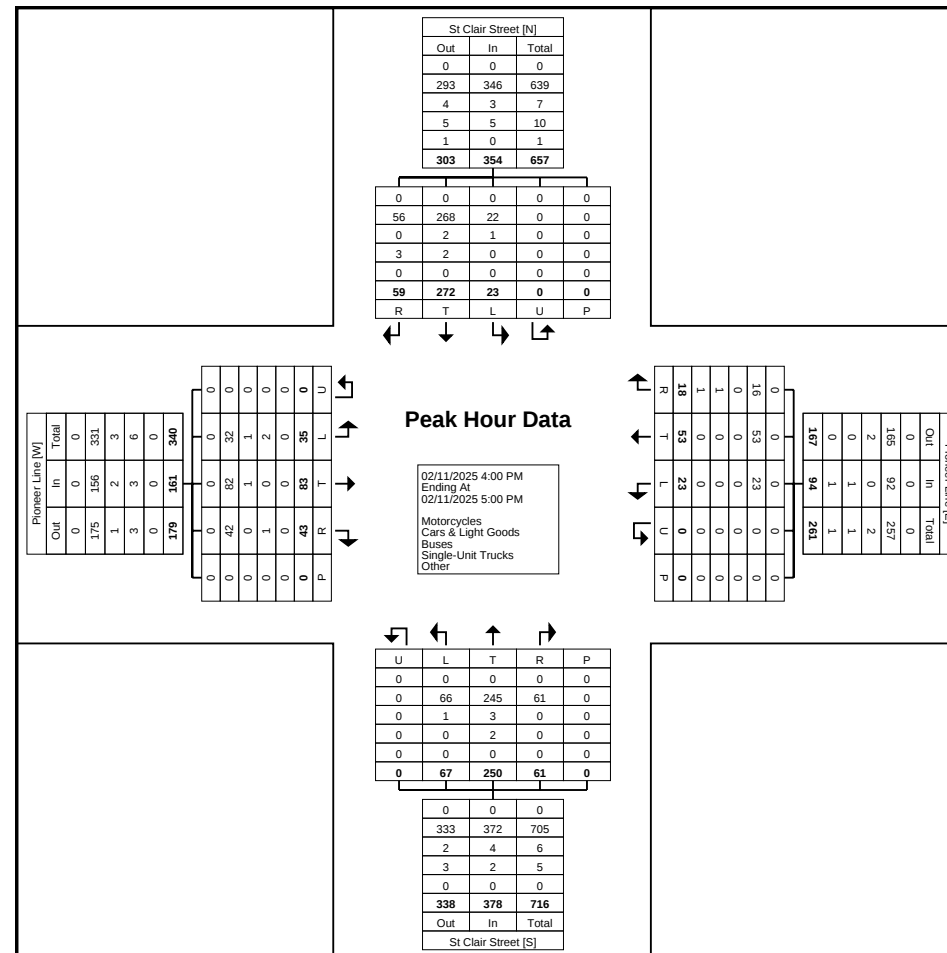
Start Time	Pioneer Line Eastbound						Pioneer Line Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:00 PM	7	23	5	0	0	35	4	12	6	0	0	22	19	60	18	0	0	97	10	48	15	0	0	73	227
4:15 PM	9	19	12	0	0	40	7	15	6	0	0	28	14	65	9	0	0	88	4	72	10	0	0	86	242
4:30 PM	12	18	12	0	0	42	8	14	5	0	0	27	22	63	16	0	0	101	4	63	12	0	0	79	249
4:45 PM	7	23	14	0	0	44	4	12	1	0	0	17	12	62	18	0	0	92	5	89	22	0	0	116	269
Total	35	83	43	0	0	161	23	53	18	0	0	94	67	250	61	0	0	378	23	272	59	0	0	354	987
Approach %	21.7	51.6	26.7	0.0	-	-	24.5	56.4	19.1	0.0	-	-	17.7	66.1	16.1	0.0	-	-	6.5	76.8	16.7	0.0	-	-	-
Total %	3.5	8.4	4.4	0.0	-	16.3	2.3	5.4	1.8	0.0	-	9.5	6.8	25.3	6.2	0.0	-	38.3	2.3	27.6	6.0	0.0	-	35.9	-
PHF	0.729	0.902	0.768	0.000	-	0.915	0.719	0.883	0.750	0.000	-	0.839	0.761	0.962	0.847	0.000	-	0.936	0.575	0.764	0.670	0.000	-	0.763	0.917
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	32	82	42	0	-	156	23	53	16	0	-	92	66	245	61	0	-	372	22	268	56	0	-	346	966
% Cars & Light Goods	91.4	98.8	97.7	-	-	96.9	100.0	100.0	88.9	-	-	97.9	98.5	98.0	100.0	-	-	98.4	95.7	98.5	94.9	-	-	97.7	97.9
Buses	1	1	0	0	-	2	0	0	0	0	-	0	1	3	0	0	-	4	1	2	0	0	-	3	9
% Buses	2.9	1.2	0.0	-	-	1.2	0.0	0.0	0.0	-	-	0.0	1.5	1.2	0.0	-	-	1.1	4.3	0.7	0.0	-	-	0.8	0.9
Single-Unit Trucks	2	0	1	0	-	3	0	0	1	0	-	1	0	2	0	0	-	2	0	2	3	0	-	5	11
% Single-Unit Trucks	5.7	0.0	2.3	-	-	1.9	0.0	0.0	5.6	-	-	1.1	0.0	0.8	0.0	-	-	0.5	0.0	0.7	5.1	-	-	1.4	1.1
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	5.6	-	-	1.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-																				



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Pioneer Line -
Weekday
Site Code: 230754
Start Date: 02/11/2025
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Turning Movement Peak Hour Data Plot (4:00 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Pioneer Line -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 1

Turning Movement Data

Start Time	Pioneer Line Eastbound						Pioneer Line Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
10:00 AM	2	8	14	0	0	24	6	10	0	0	0	16	13	22	15	0	0	50	4	45	4	0	0	53	143
10:15 AM	6	15	12	0	0	33	13	16	2	0	0	31	12	31	8	0	0	51	3	38	2	0	0	43	158
10:30 AM	5	19	18	0	0	42	8	14	1	0	0	23	10	38	13	0	0	61	5	33	6	0	0	44	170
10:45 AM	3	14	13	0	0	30	15	10	4	0	0	29	11	30	11	0	0	52	7	51	4	0	0	62	173
Hourly Total	16	56	57	0	0	129	42	50	7	0	0	99	46	121	47	0	0	214	19	167	16	0	0	202	644
11:00 AM	6	16	18	0	0	40	11	7	4	0	0	22	22	40	11	0	0	73	8	40	6	0	0	54	189
11:15 AM	6	10	19	0	0	35	12	19	3	0	0	34	14	45	16	0	0	75	5	47	13	0	0	65	209
11:30 AM	8	17	14	0	0	39	14	14	4	0	0	32	23	46	18	0	0	87	5	57	9	0	0	71	229
11:45 AM	5	19	14	0	0	38	13	8	2	0	0	23	20	40	24	0	0	84	2	47	6	0	0	55	200
Hourly Total	25	62	65	0	0	152	50	48	13	0	0	111	79	171	69	0	0	319	20	191	34	0	0	245	827
12:00 PM	6	17	19	0	0	42	12	15	4	0	0	31	20	40	23	0	0	83	3	39	9	0	0	51	207
12:15 PM	10	20	17	0	0	47	12	10	2	0	0	24	20	50	13	0	0	83	3	47	10	0	0	60	214
12:30 PM	9	21	23	0	0	53	10	7	3	0	0	20	20	48	18	0	0	86	4	60	7	0	0	71	230
12:45 PM	6	13	19	0	0	38	9	14	6	0	0	29	20	36	19	0	0	75	7	42	9	0	0	58	200
Hourly Total	31	71	78	0	0	180	43	46	15	0	0	104	80	174	73	0	0	327	17	188	35	0	0	240	851
1:00 PM	7	22	15	0	0	44	13	13	3	0	0	29	19	45	14	0	0	78	3	44	9	0	0	56	207
1:15 PM	10	22	13	0	0	45	13	6	3	0	0	22	16	38	18	0	0	72	9	47	6	0	0	62	201
1:30 PM	6	13	16	0	0	35	12	14	2	0	0	28	23	47	23	0	0	93	6	46	4	0	0	56	212
1:45 PM	4	25	14	0	0	43	10	14	3	0	0	27	18	49	12	0	0	79	7	36	10	0	0	53	202
Hourly Total	27	82	58	0	0	167	48	47	11	0	0	106	76	179	67	0	0	322	25	173	29	0	0	227	822
2:00 PM	7	14	9	0	0	30	16	14	3	0	0	33	27	49	18	0	0	94	5	47	2	0	0	54	211
2:15 PM	9	21	12	0	0	42	10	18	3	0	0	31	23	40	15	0	0	78	4	37	7	0	0	48	199
2:30 PM	5	14	20	0	0	39	11	14	1	0	0	26	21	55	19	0	0	95	4	42	4	0	0	50	210
2:45 PM	11	20	13	0	0	44	15	10	1	0	0	26	20	37	13	0	0	70	4	53	4	0	0	61	201
Hourly Total	32	69	54	0	0	155	52	56	8	0	0	116	91	181	65	0	0	337	17	179	17	0	0	213	821
3:00 PM	5	15	14	0	0	34	6	13	1	0	0	20	16	61	15	0	0	92	2	39	4	0	0	45	191
3:15 PM	9	16	12	0	0	37	6	14	3	0	0	23	12	59	7	0	0	78	4	40	7	0	0	51	189
3:30 PM	4	17	10	0	0	31	5	9	2	0	0	16	22	43	11	0	0	76	3	33	6	0	0	42	165
3:45 PM	5	10	15	0	0	30	12	14	2	0	0	28	26	45	12	0	0	83	3	34	5	0	0	42	183
Hourly Total	23	58	51	0	0	132	29	50	8	0	0	87	76	208	45	0	0	329	12	146	22	0	0	180	728
Grand Total	154	398	363	0	0	915	264	297	62	0	0	623	448	1034	366	0	0	1848	110	1044	153	0	0	1307	4693
Approach %	16.8	43.5	39.7	0.0	-	-	42.4	47.7	10.0	0.0	-	-	24.2	56.0	19.8	0.0	-	-	8.4	79.9	11.7	0.0	-	-	-
Total %	3.3	8.5	7.7	0.0	-	19.5	5.6	6.3	1.3	0.0	-	13.3	9.5	22.0	7.8	0.0	-	39.4	2.3	22.2	3.3	0.0	-	27.8	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0

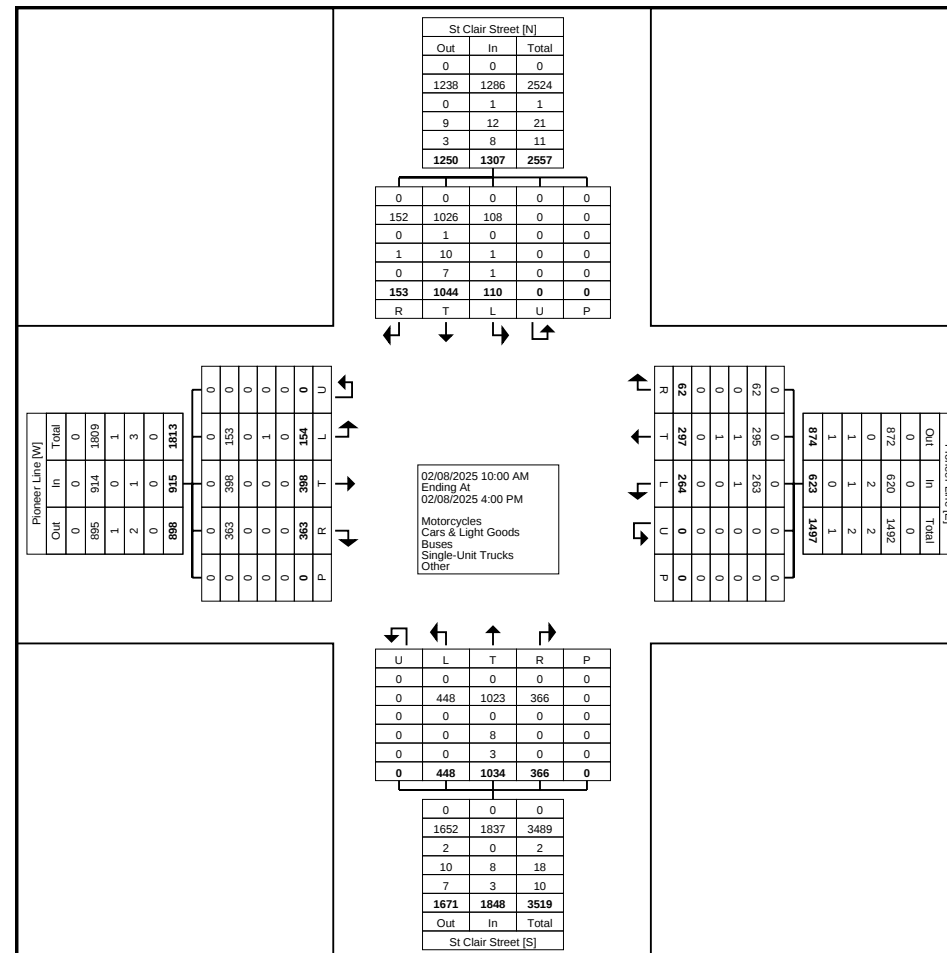
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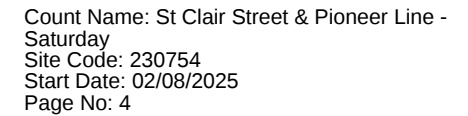
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Pioneer Line -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 3



Turning Movement Data Plot



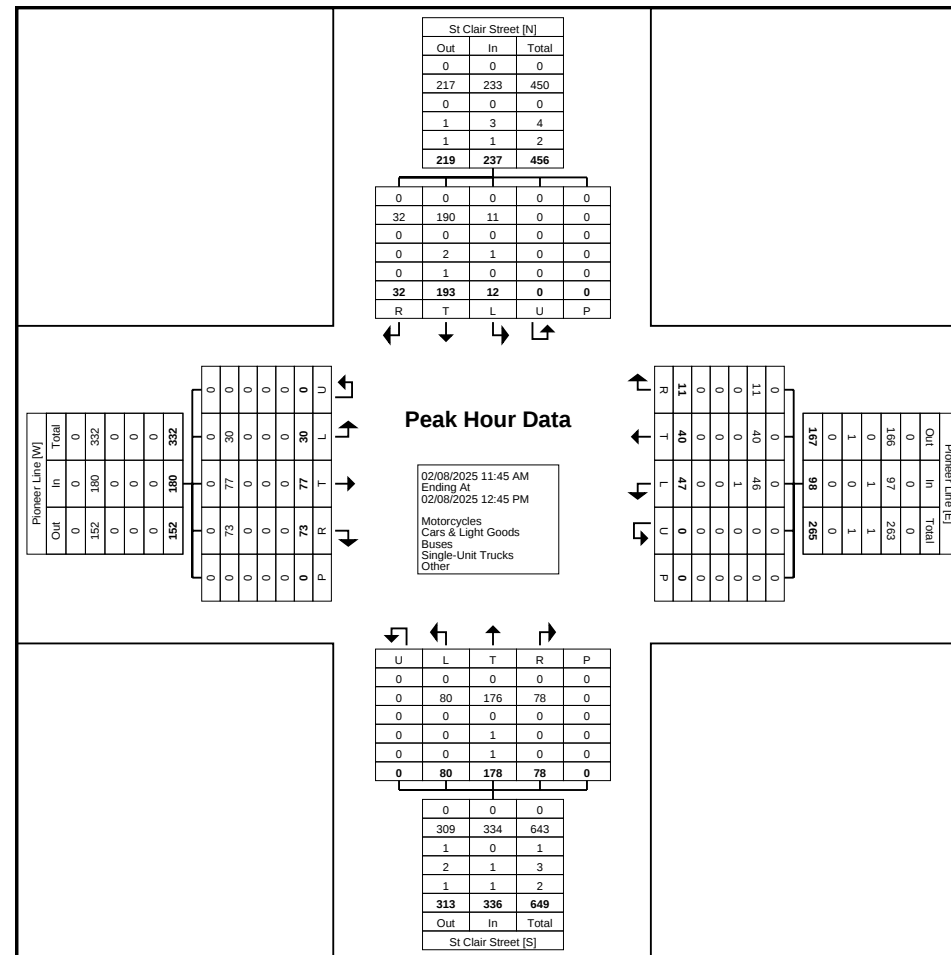
Start Time	Pioneer Line Eastbound						Pioneer Line Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	5	19	14	0	0	38	13	8	2	0	0	23	20	40	24	0	0	84	2	47	6	0	0	55	200
12:00 PM	6	17	19	0	0	42	12	15	4	0	0	31	20	40	23	0	0	83	3	39	9	0	0	51	207
12:15 PM	10	20	17	0	0	47	12	10	2	0	0	24	20	50	13	0	0	83	3	47	10	0	0	60	214
12:30 PM	9	21	23	0	0	53	10	7	3	0	0	20	20	48	18	0	0	86	4	60	7	0	0	71	230
Total	30	77	73	0	0	180	47	40	11	0	0	98	80	178	78	0	0	336	12	193	32	0	0	237	851
Approach %	16.7	42.8	40.6	0.0	-	-	48.0	40.8	11.2	0.0	-	-	23.8	53.0	23.2	0.0	-	-	5.1	81.4	13.5	0.0	-	-	-
Total %	3.5	9.0	8.6	0.0	-	21.2	5.5	4.7	1.3	0.0	-	11.5	9.4	20.9	9.2	0.0	-	39.5	1.4	22.7	3.8	0.0	-	27.8	-
PHF	0.750	0.917	0.793	0.000	-	0.849	0.904	0.667	0.688	0.000	-	0.790	1.000	0.890	0.813	0.000	-	0.977	0.750	0.804	0.800	0.000	-	0.835	0.925
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	30	77	73	0	-	180	46	40	11	0	-	97	80	176	78	0	-	334	11	190	32	0	-	233	844
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	97.9	100.0	100.0	-	-	99.0	100.0	98.9	100.0	-	-	99.4	91.7	98.4	100.0	-	-	98.3	99.2
Buses	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	0.0	0.0	0.0	-	-	0.0	2.1	0.0	0.0	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1	2	0	0	-	3	4
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.6	0.0	-	-	0.3	8.3	1.0	0.0	-	-	1.3	0.5
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	1	0	0	-	1	2
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.6	0.0	-	-	0.3	0.0	0.5	0.0	-	-	0.4	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Pioneer Line -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 5





Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Boston Pizza & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/06/2025
Page No: 1

Turning Movement Data

Start Time	Boston Pizza & Micheals Access Eastbound					St Clair Street Northbound					St Clair Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	55	0	0	55	30	0	0	0	30	85
7:15 AM	0	0	0	0	0	0	56	0	0	56	38	0	0	0	38	94
7:30 AM	0	2	0	0	2	0	54	0	0	54	53	0	0	0	53	109
7:45 AM	0	0	0	0	0	1	73	0	0	74	58	0	0	0	58	132
Hourly Total	0	2	0	0	2	1	238	0	0	239	179	0	0	0	179	420
8:00 AM	0	1	1	0	2	0	53	0	0	53	42	0	0	0	42	97
8:15 AM	0	0	0	0	0	0	57	0	0	57	61	1	0	0	62	119
8:30 AM	0	0	0	0	0	0	64	0	0	64	81	0	0	0	81	145
8:45 AM	0	0	0	0	0	1	61	0	0	62	74	0	0	0	74	136
Hourly Total	0	1	1	0	2	1	235	0	0	236	258	1	0	0	259	497
9:00 AM	0	1	0	1	1	0	76	0	0	76	57	0	0	0	57	134
9:15 AM	0	0	0	0	0	0	68	0	0	68	56	0	0	0	56	124
9:30 AM	0	0	0	0	0	1	61	0	0	62	74	0	0	0	74	136
9:45 AM	0	2	0	0	2	0	66	0	0	66	71	1	0	0	72	140
Hourly Total	0	3	0	1	3	1	271	0	0	272	258	1	0	0	259	534
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	0	1	0	0	1	0	86	0	0	86	81	0	0	0	81	168
11:45 AM	0	1	0	1	1	1	85	0	0	86	91	0	0	0	91	178
Hourly Total	0	2	0	1	2	1	171	0	0	172	172	0	0	0	172	346
12:00 PM	0	1	0	0	1	1	116	0	0	117	85	0	0	0	85	203
12:15 PM	0	4	0	0	4	0	97	0	0	97	89	1	0	0	90	191
12:30 PM	0	3	0	0	3	2	87	0	0	89	112	0	0	0	112	204
12:45 PM	0	6	0	0	6	0	84	0	0	84	110	0	0	0	110	200
Hourly Total	0	14	0	0	14	3	384	0	0	387	396	1	0	0	397	798
1:00 PM	0	2	0	0	2	0	112	0	0	112	95	1	0	0	96	210
1:15 PM	1	1	0	1	2	0	109	0	0	109	100	1	0	0	101	212
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	1	3	0	1	4	0	221	0	0	221	195	2	0	0	197	422
3:00 PM	0	4	0	2	4	0	132	0	0	132	113	0	0	0	113	249
3:15 PM	0	2	0	0	2	0	103	0	0	103	147	0	0	0	147	252
3:30 PM	0	8	0	0	8	2	114	0	0	116	121	1	0	0	122	246
3:45 PM	0	4	0	0	4	0	127	0	0	127	103	2	0	0	105	236
Hourly Total	0	18	0	2	18	2	476	0	0	478	484	3	0	0	487	983
4:00 PM	0	6	0	0	6	0	139	0	0	139	136	0	0	0	136	281
4:15 PM	0	4	0	0	4	0	126	0	0	126	115	0	0	0	115	245
4:30 PM	0	9	0	0	9	0	125	0	0	125	109	0	0	0	109	243

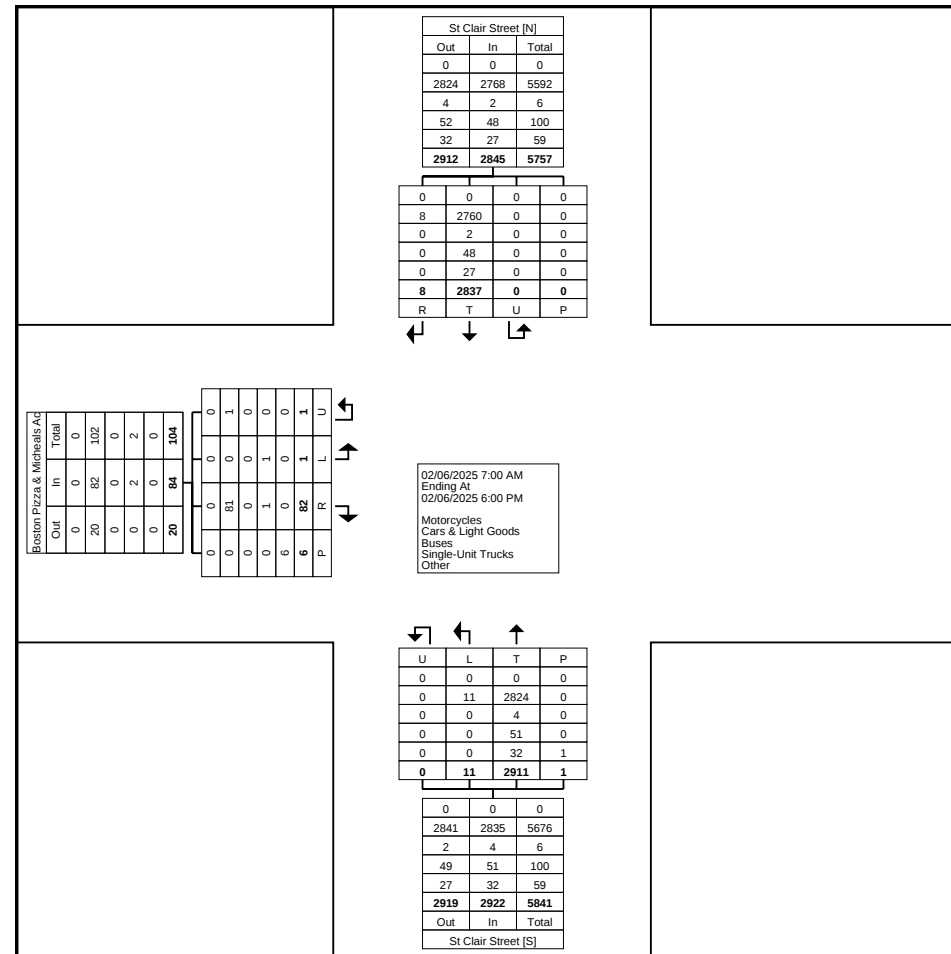
4:45 PM	0	4	0	0	4	1	112	0	1	113	127	0	0	0	127	244
Hourly Total	0	23	0	0	23	1	502	0	1	503	487	0	0	0	487	1013
5:00 PM	0	4	0	0	4	0	124	0	0	124	133	0	0	0	133	261
5:15 PM	0	2	0	0	2	0	98	0	0	98	111	0	0	0	111	211
5:30 PM	0	3	0	1	3	0	113	0	0	113	87	0	0	0	87	203
5:45 PM	0	7	0	0	7	1	78	0	0	79	77	0	0	0	77	163
Hourly Total	0	16	0	1	16	1	413	0	0	414	408	0	0	0	408	838
Grand Total	1	82	1	6	84	11	2911	0	1	2922	2837	8	0	0	2845	5851
Approach %	1.2	97.6	1.2	-	-	0.4	99.6	0.0	-	-	99.7	0.3	0.0	-	-	-
Total %	0.0	1.4	0.0	-	1.4	0.2	49.8	0.0	-	49.9	48.5	0.1	0.0	-	48.6	-
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	0	81	1	-	82	11	2824	0	-	2835	2760	8	0	-	2768	5685
% Cars & Light Goods	0.0	98.8	100.0	-	97.6	100.0	97.0	-	-	97.0	97.3	100.0	-	-	97.3	97.2
Buses	0	0	0	-	0	0	4	0	-	4	2	0	0	-	2	6
% Buses	0.0	0.0	0.0	-	0.0	0.0	0.1	-	-	0.1	0.1	0.0	-	-	0.1	0.1
Single-Unit Trucks	1	1	0	-	2	0	51	0	-	51	48	0	0	-	48	101
% Single-Unit Trucks	100.0	1.2	0.0	-	2.4	0.0	1.8	-	-	1.7	1.7	0.0	-	-	1.7	1.7
Articulated Trucks	0	0	0	-	0	0	32	0	-	32	27	0	0	-	27	59
% Articulated Trucks	0.0	0.0	0.0	-	0.0	0.0	1.1	-	-	1.1	1.0	0.0	-	-	0.9	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	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	6	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Boston Pizza & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/06/2025
Page No: 3



Turning Movement Data Plot

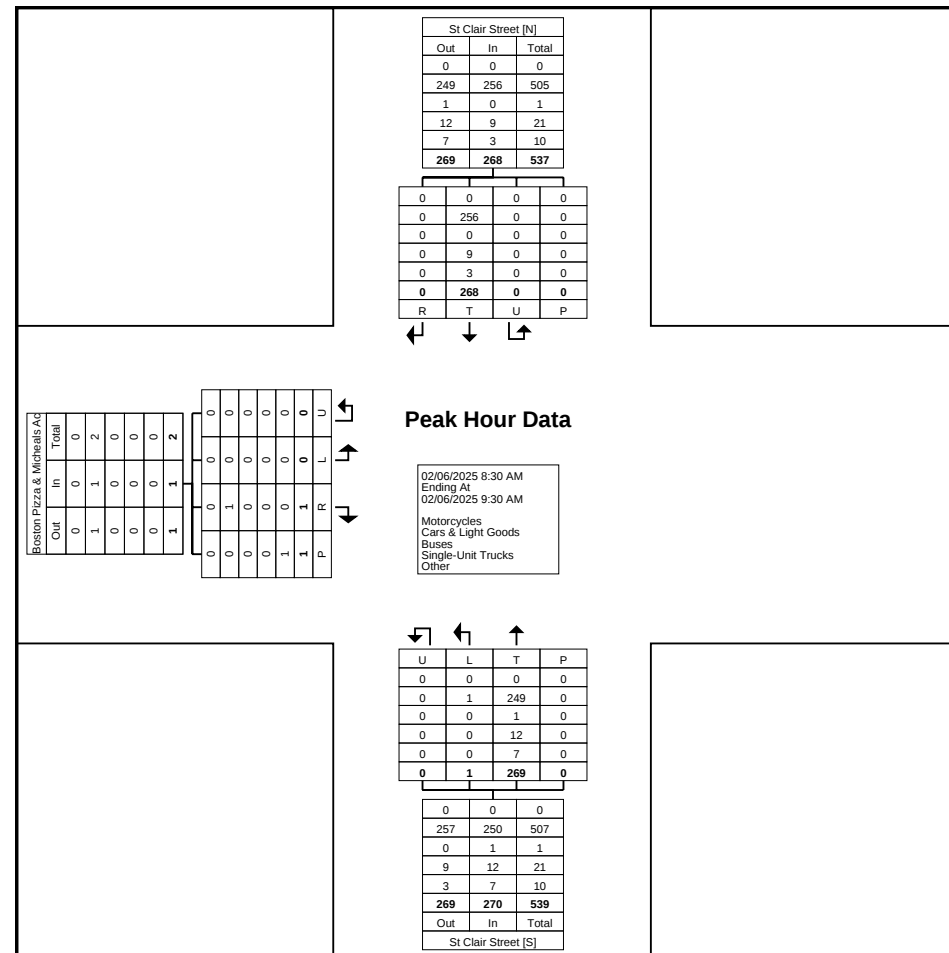
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Boston Pizza & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/06/2025
Page No: 5



Turning Movement Peak Hour Data Plot (8:30 AM)

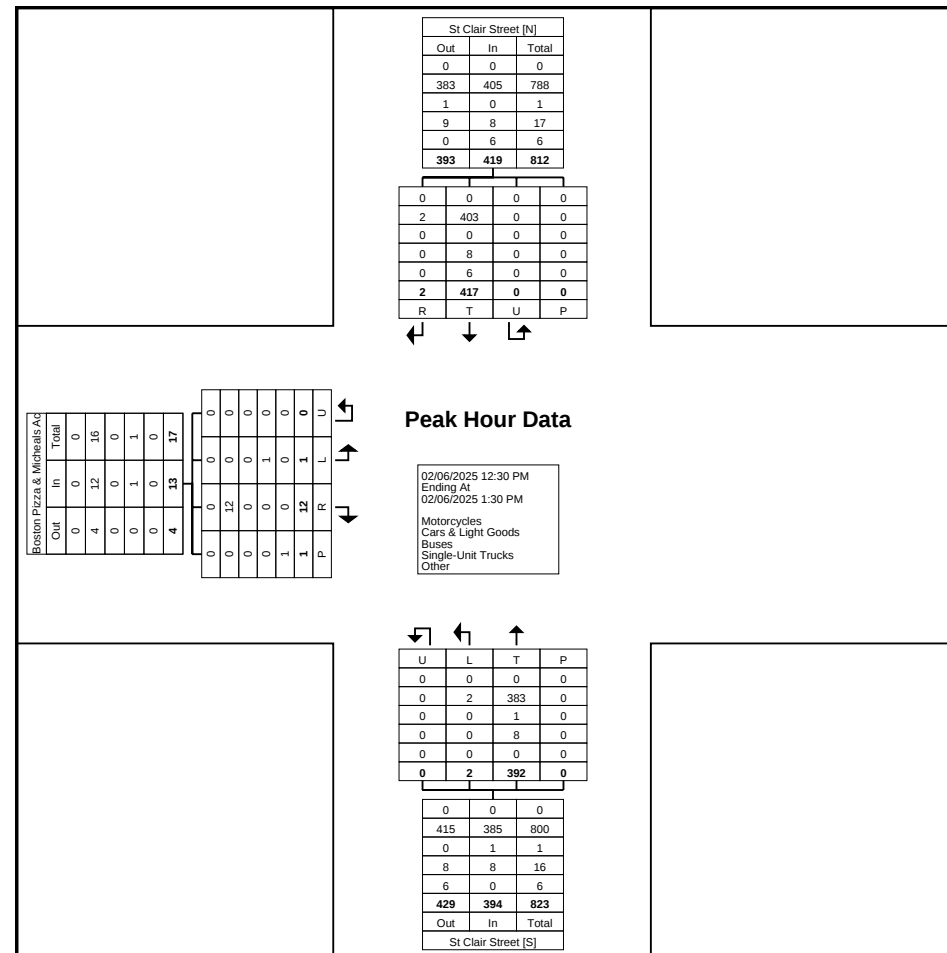
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Boston Pizza & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/06/2025
Page No: 7



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

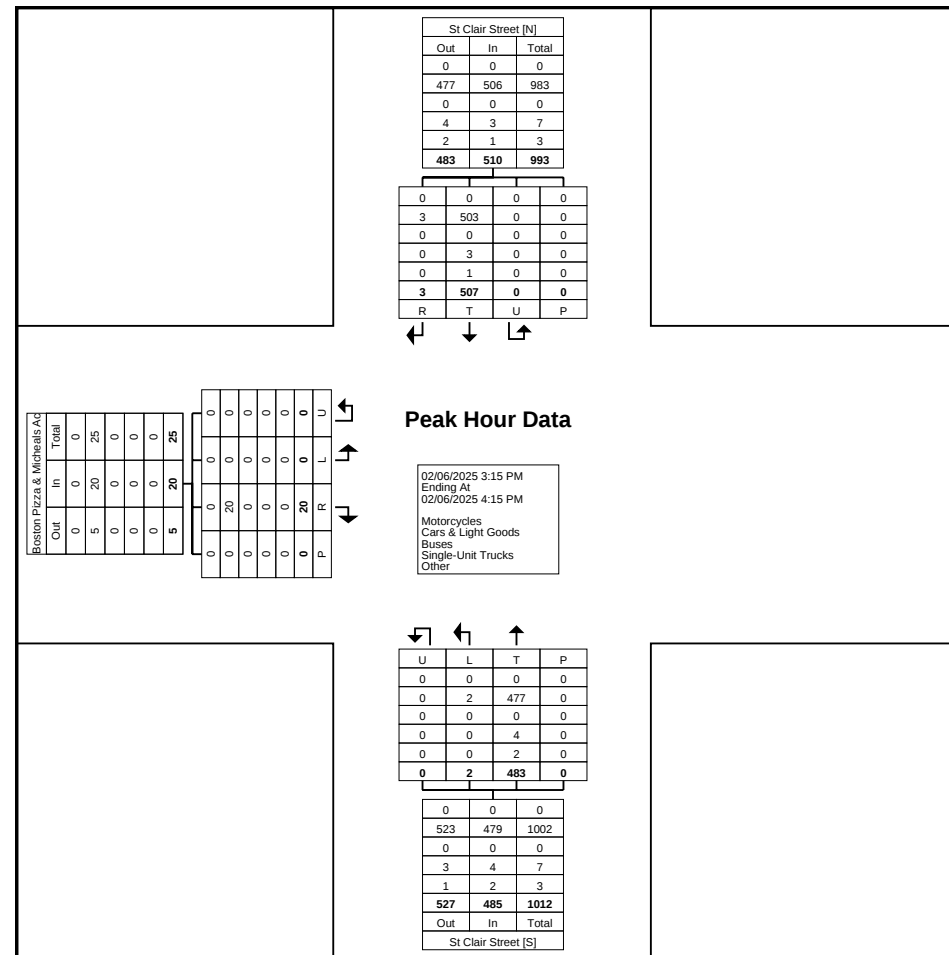
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Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Boston Pizza & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/06/2025
Page No: 9



Turning Movement Peak Hour Data Plot (3:15 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Boston Pizza & Micheals Access -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 1

Turning Movement Data

Start Time	Boston Pizza & Micheals Access Eastbound					St Clair Street Northbound					St Clair Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
10:00 AM	0	1	0	1	1	0	94	0	0	94	113	1	0	0	114	209
10:15 AM	0	1	0	1	1	0	106	0	0	106	101	0	0	0	101	208
10:30 AM	0	4	0	0	4	0	124	0	0	124	97	1	0	0	98	226
10:45 AM	0	5	0	0	5	0	126	0	0	126	121	0	0	0	121	252
Hourly Total	0	11	0	2	11	0	450	0	0	450	432	2	0	0	434	895
11:00 AM	0	4	0	0	4	0	147	0	0	147	129	1	0	0	130	281
11:15 AM	0	4	0	0	4	0	154	0	0	154	162	1	0	0	163	321
11:30 AM	0	7	0	0	7	0	153	0	0	153	169	2	0	0	171	331
11:45 AM	0	3	0	1	3	0	134	0	0	134	125	0	0	0	125	262
Hourly Total	0	18	0	1	18	0	588	0	0	588	585	4	0	0	589	1195
12:00 PM	0	3	0	0	3	1	158	0	0	159	156	1	0	0	157	319
12:15 PM	0	2	0	1	2	0	145	0	0	145	146	2	0	0	148	295
12:30 PM	0	1	0	0	1	1	159	0	0	160	162	1	0	0	163	324
12:45 PM	1	4	0	0	5	0	151	0	0	151	152	0	0	0	152	308
Hourly Total	1	10	0	1	11	2	613	0	0	615	616	4	0	0	620	1246
1:00 PM	0	4	0	1	4	1	149	1	0	151	156	0	0	0	156	311
1:15 PM	0	6	0	0	6	0	147	0	0	147	160	1	0	0	161	314
1:30 PM	1	5	0	0	6	1	157	0	0	158	158	0	0	0	158	322
1:45 PM	0	7	0	0	7	0	131	0	0	131	150	0	0	0	150	288
Hourly Total	1	22	0	1	23	2	584	1	0	587	624	1	0	0	625	1235
2:00 PM	0	6	0	0	6	1	143	0	0	144	172	0	0	0	172	322
2:15 PM	0	3	0	0	3	0	151	0	0	151	124	0	0	0	124	278
2:30 PM	0	4	0	0	4	1	160	0	0	161	144	0	0	0	144	309
2:45 PM	0	5	0	1	5	0	119	0	0	119	135	0	0	0	135	259
Hourly Total	0	18	0	1	18	2	573	0	0	575	575	0	0	0	575	1168
3:00 PM	0	4	0	0	4	1	137	0	0	138	155	0	0	0	155	297
3:15 PM	0	2	0	2	2	0	154	0	0	154	116	1	0	1	117	273
3:30 PM	0	4	0	1	4	1	107	0	0	108	117	0	0	0	117	229
3:45 PM	0	6	0	0	6	1	112	0	1	113	144	1	0	0	145	264
Hourly Total	0	16	0	3	16	3	510	0	1	513	532	2	0	1	534	1063
Grand Total	2	95	0	9	97	9	3318	1	1	3328	3364	13	0	1	3377	6802
Approach %	2.1	97.9	0.0	-	-	0.3	99.7	0.0	-	-	99.6	0.4	0.0	-	-	-
Total %	0.0	1.4	0.0	-	1.4	0.1	48.8	0.0	-	48.9	49.5	0.2	0.0	-	49.6	-
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	2	95	0	-	97	9	3306	1	-	3316	3343	13	0	-	3356	6769

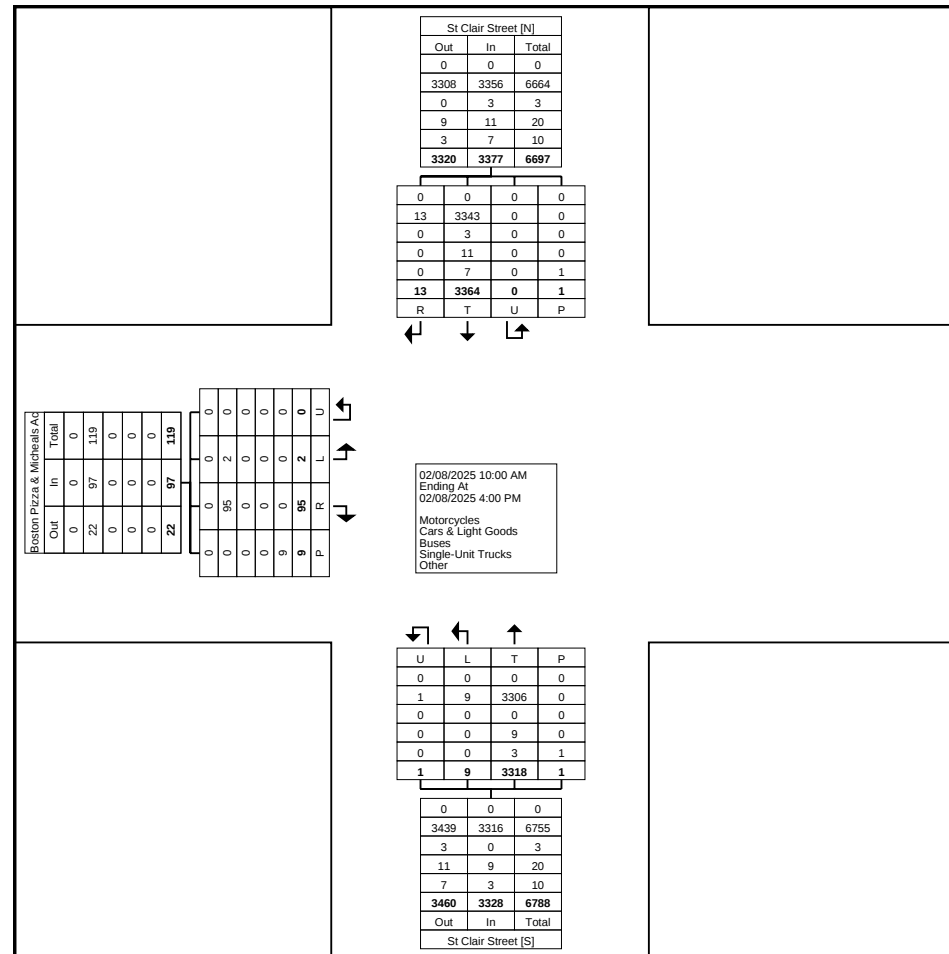
% Cars & Light Goods	100.0	100.0	-	-	100.0	100.0	99.6	100.0	-	99.6	99.4	100.0	-	-	99.4	99.5
Buses	0	0	0	-	0	0	0	0	-	0	3	0	0	-	3	3
% Buses	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	0.0	0.1	0.0	-	-	0.1	0.0
Single-Unit Trucks	0	0	0	-	0	0	9	0	-	9	11	0	0	-	11	20
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	0.3	0.3	0.0	-	-	0.3	0.3
Articulated Trucks	0	0	0	-	0	0	3	0	-	3	7	0	0	-	7	10
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	0.1	0.2	0.0	-	-	0.2	0.1
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	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	9	-	-	-	-	1	-	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Boston Pizza & Micheals Access -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 3



Turning Movement Data Plot

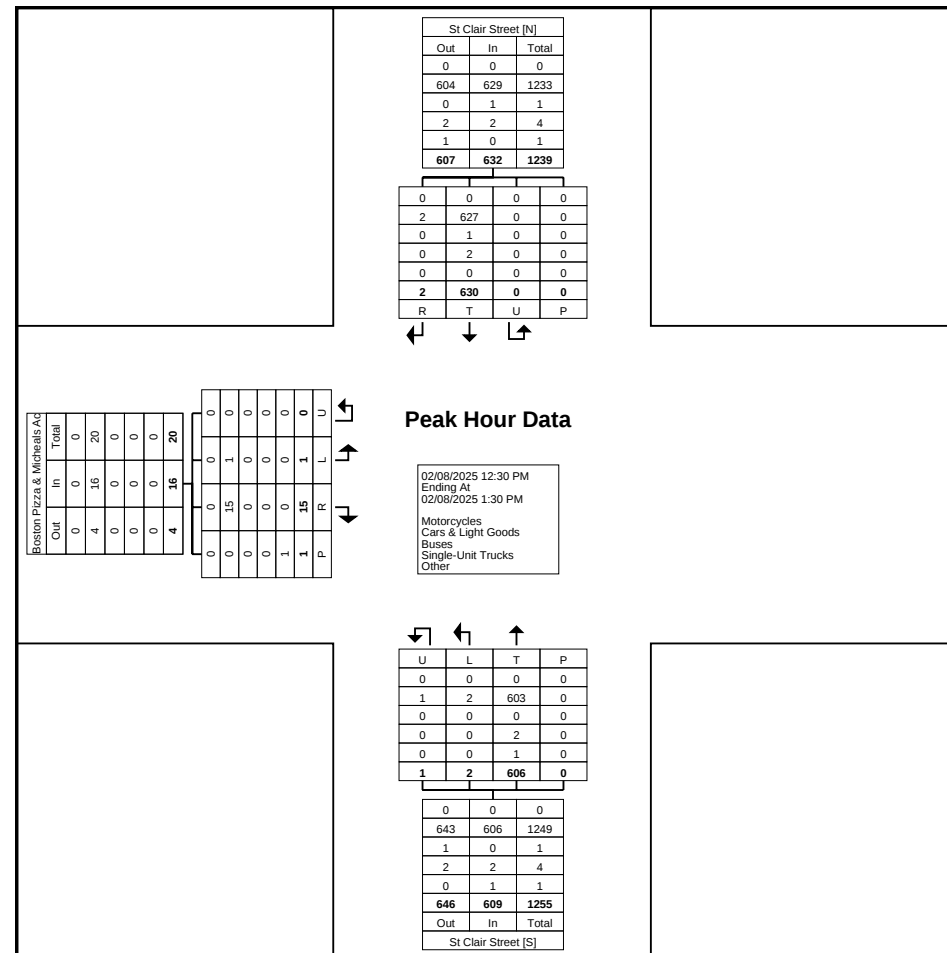
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Boston Pizza & Micheals Access -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 5



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: North Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 1

Turning Movement Data

Start Time	Plaza Driveway Eastbound						Walmart Plaza Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	2	0	3	0	0	5	6	0	0	0	0	6	6	46	11	0	0	63	1	36	1	0	1	38	112
7:15 AM	5	0	2	0	0	7	5	0	1	0	0	6	4	52	8	0	0	64	2	35	0	0	0	37	114
7:30 AM	2	1	3	0	0	6	6	0	4	0	0	10	4	52	7	0	0	63	3	60	3	0	0	66	145
7:45 AM	2	2	3	0	0	7	3	1	2	0	0	6	12	57	24	0	0	93	4	56	1	0	0	61	167
Hourly Total	11	3	11	0	0	25	20	1	7	0	0	28	26	207	50	0	0	283	10	187	5	0	1	202	538
8:00 AM	9	2	3	0	1	14	7	1	2	0	0	10	11	61	9	0	1	81	2	57	1	0	0	60	165
8:15 AM	4	1	14	0	0	19	10	0	0	0	0	10	10	53	15	0	0	78	2	46	1	0	0	49	156
8:30 AM	2	5	7	0	0	14	10	1	0	0	0	11	12	46	16	0	0	74	2	58	3	0	0	63	162
8:45 AM	7	3	12	0	1	22	13	0	3	0	0	16	10	46	19	0	0	75	2	64	2	0	0	68	181
Hourly Total	22	11	36	0	2	69	40	2	5	0	0	47	43	206	59	0	1	308	8	225	7	0	0	240	664
9:00 AM	2	4	8	0	0	14	6	2	5	0	0	13	16	38	19	0	0	73	11	58	3	0	0	72	172
9:15 AM	3	3	14	0	0	20	12	4	2	0	0	18	14	48	29	0	0	91	5	46	2	0	0	53	182
9:30 AM	8	8	10	0	1	26	26	1	10	0	0	37	14	48	29	0	0	91	10	46	3	0	0	59	213
9:45 AM	2	3	15	0	0	20	24	3	6	0	1	33	14	33	30	0	0	77	7	58	1	0	1	66	196
Hourly Total	15	18	47	0	1	80	68	10	23	0	1	101	58	167	107	0	0	332	33	208	9	0	1	250	763
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	2	8	20	0	0	30	38	6	12	0	0	56	28	44	32	0	0	104	10	61	1	0	0	72	262
11:45 AM	11	7	24	0	0	42	45	15	9	0	0	69	30	69	37	0	0	136	14	54	2	0	0	70	317
Hourly Total	13	15	44	0	0	72	83	21	21	0	0	125	58	113	69	0	0	240	24	115	3	0	0	142	579
12:00 PM	7	16	33	0	0	56	49	9	6	0	0	64	20	56	42	0	0	118	13	45	3	0	0	61	299
12:15 PM	6	9	21	0	0	36	51	6	19	0	0	76	34	61	35	0	1	130	8	53	3	0	0	64	306
12:30 PM	9	8	28	0	0	45	43	8	10	0	0	61	19	58	26	0	1	103	8	51	1	0	0	60	269
12:45 PM	3	10	23	0	1	36	46	7	7	0	0	60	22	58	23	0	0	103	9	48	3	0	0	60	259
Hourly Total	25	43	105	0	1	173	189	30	42	0	0	261	95	233	126	0	2	454	38	197	10	0	0	245	1133
1:00 PM	8	9	26	0	0	43	36	10	8	0	0	54	28	52	27	0	2	107	20	51	5	0	0	76	280
1:15 PM	9	13	28	0	1	50	41	5	16	0	0	62	22	56	45	0	0	123	11	49	8	0	0	68	303
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	17	22	54	0	1	93	77	15	24	0	0	116	50	108	72	0	2	230	31	100	13	0	0	144	583
3:00 PM	2	8	12	0	1	22	49	9	12	0	0	70	17	71	33	0	0	121	10	41	2	0	0	53	266
3:15 PM	7	13	22	0	2	42	36	7	19	0	0	62	22	80	33	0	0	135	7	65	1	0	0	73	312
3:30 PM	11	7	24	0	0	42	50	12	20	0	0	82	21	55	33	0	0	109	20	56	2	0	0	78	311
3:45 PM	9	13	18	0	0	40	49	9	8	0	0	66	25	86	33	0	0	144	10	71	2	0	0	83	333
Hourly Total	29	41	76	0	3	146	184	37	59	0	0	280	85	292	132	0	0	509	47	233	7	0	0	287	1222
4:00 PM	9	6	15	0	0	30	37	3	14	0	0	54	21	76	38	0	0	135	12	37	3	0	0	52	271
4:15 PM	4	9	19	0	1	32	27	8	12	0	0	47	27	72	38	0	0	137	15	70	1	0	0	86	302

4:30 PM	6	6	18	0	0	30	54	6	11	0	0	71	21	77	26	0	0	124	9	71	6	0	0	86	311
4:45 PM	4	7	13	0	0	24	32	6	11	0	0	49	15	79	36	0	0	130	15	90	4	0	0	109	312
Hourly Total	23	28	65	0	1	116	150	23	48	0	0	221	84	304	138	0	0	526	51	268	14	0	0	333	1196
5:00 PM	6	13	21	0	0	40	42	11	20	0	0	73	20	59	42	0	1	121	16	59	3	0	0	78	312
5:15 PM	6	7	14	0	0	27	47	12	17	0	0	76	20	59	45	0	0	124	14	67	5	0	0	86	313
5:30 PM	4	7	18	0	0	29	43	3	14	0	0	60	29	43	39	0	0	111	11	51	4	0	0	66	266
5:45 PM	8	9	14	0	0	31	34	6	15	0	1	55	16	49	27	0	0	92	8	48	4	0	0	60	238
Hourly Total	24	36	67	0	0	127	166	32	66	0	1	264	85	210	153	0	1	448	49	225	16	0	0	290	1129
Grand Total	179	217	505	0	9	901	977	171	295	0	2	1443	584	1840	906	0	6	3330	291	1758	84	0	2	2133	7807
Approach %	19.9	24.1	56.0	0.0	-	-	67.7	11.9	20.4	0.0	-	-	17.5	55.3	27.2	0.0	-	-	13.6	82.4	3.9	0.0	-	-	-
Total %	2.3	2.8	6.5	0.0	-	11.5	12.5	2.2	3.8	0.0	-	18.5	7.5	23.6	11.6	0.0	-	42.7	3.7	22.5	1.1	0.0	-	27.3	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	170	214	500	0	-	884	967	168	292	0	-	1427	578	1750	893	0	-	3221	288	1669	83	0	-	2040	7572
% Cars & Light Goods	95.0	98.6	99.0	-	-	98.1	99.0	98.2	99.0	-	-	98.9	99.0	95.1	98.6	-	-	96.7	99.0	94.9	98.8	-	-	95.6	97.0
Buses	1	2	1	0	-	4	5	0	0	0	-	5	0	13	7	0	-	20	0	27	0	0	-	27	56
% Buses	0.6	0.9	0.2	-	-	0.4	0.5	0.0	0.0	-	-	0.3	0.0	0.7	0.8	-	-	0.6	0.0	1.5	0.0	-	-	1.3	0.7
Single-Unit Trucks	7	1	4	0	-	12	3	3	2	0	-	8	4	53	6	0	-	63	1	45	1	0	-	47	130
% Single-Unit Trucks	3.9	0.5	0.8	-	-	1.3	0.3	1.8	0.7	-	-	0.6	0.7	2.9	0.7	-	-	1.9	0.3	2.6	1.2	-	-	2.2	1.7
Articulated Trucks	1	0	0	0	-	1	2	0	1	0	-	3	2	24	0	0	-	26	2	17	0	0	-	19	49
% Articulated Trucks	0.6	0.0	0.0	-	-	0.1	0.2	0.0	0.3	-	-	0.2	0.3	1.3	0.0	-	-	0.8	0.7	1.0	0.0	-	-	0.9	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	9	-	-	-	-	-	2	-	-	-	-	-	6	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: North Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 4

Turning Movement Peak Hour Data (9:00 AM)

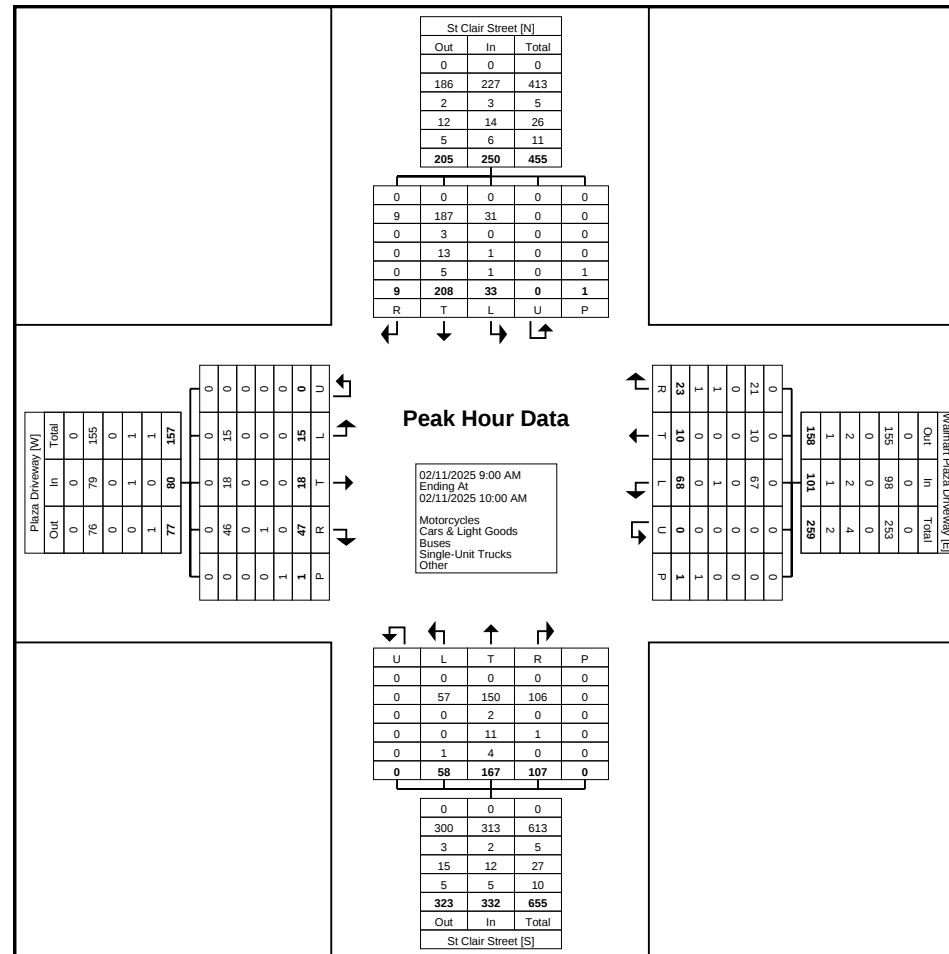
Start Time	Plaza Driveway Eastbound						Walmart Plaza Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	2	4	8	0	0	14	6	2	5	0	0	13	16	38	19	0	0	73	11	58	3	0	0	72	172
9:15 AM	3	3	14	0	0	20	12	4	2	0	0	18	14	48	29	0	0	91	5	46	2	0	0	53	182
9:30 AM	8	8	10	0	1	26	26	1	10	0	0	37	14	48	29	0	0	91	10	46	3	0	0	59	213
9:45 AM	2	3	15	0	0	20	24	3	6	0	1	33	14	33	30	0	0	77	7	58	1	0	1	66	196
Total	15	18	47	0	1	80	68	10	23	0	1	101	58	167	107	0	0	332	33	208	9	0	1	250	763
Approach %	18.8	22.5	58.8	0.0	-	-	67.3	9.9	22.8	0.0	-	-	17.5	50.3	32.2	0.0	-	-	13.2	83.2	3.6	0.0	-	-	-
Total %	2.0	2.4	6.2	0.0	-	10.5	8.9	1.3	3.0	0.0	-	13.2	7.6	21.9	14.0	0.0	-	43.5	4.3	27.3	1.2	0.0	-	32.8	-
PHF	0.469	0.563	0.783	0.000	-	0.769	0.654	0.625	0.575	0.000	-	0.682	0.906	0.870	0.892	0.000	-	0.912	0.750	0.897	0.750	0.000	-	0.868	0.896
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	15	18	46	0	-	79	67	10	21	0	-	98	57	150	106	0	-	313	31	187	9	0	-	227	717
% Cars & Light Goods	100.0	100.0	97.9	-	-	98.8	98.5	100.0	91.3	-	-	97.0	98.3	89.8	99.1	-	-	94.3	93.9	89.9	100.0	-	-	90.8	94.0
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	3	0	0	-	3	5
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.2	0.0	-	-	0.6	0.0	1.4	0.0	-	-	1.2	0.7
Single-Unit Trucks	0	0	1	0	-	1	1	0	1	0	-	2	0	11	1	0	-	12	1	13	0	0	-	14	29
% Single-Unit Trucks	0.0	0.0	2.1	-	-	1.3	1.5	0.0	4.3	-	-	2.0	0.0	6.6	0.9	-	-	3.6	3.0	6.3	0.0	-	-	5.6	3.8
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	1	4	0	0	-	5	1	5	0	0	-	6	12
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	4.3	-	-	1.0	1.7	2.4	0.0	-	-	1.5	3.0	2.4	0.0	-	-	2.4	1.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: North Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
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Turning Movement Peak Hour Data Plot (9:00 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: North Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
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Turning Movement Peak Hour Data (11:45 AM)

Start Time	Plaza Driveway Eastbound						Walmart Plaza Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	11	7	24	0	0	42	45	15	9	0	0	69	30	69	37	0	0	136	14	54	2	0	0	70	317
12:00 PM	7	16	33	0	0	56	49	9	6	0	0	64	20	56	42	0	0	118	13	45	3	0	0	61	299
12:15 PM	6	9	21	0	0	36	51	6	19	0	0	76	34	61	35	0	1	130	8	53	3	0	0	64	306
12:30 PM	9	8	28	0	0	45	43	8	10	0	0	61	19	58	26	0	1	103	8	51	1	0	0	60	269
Total	33	40	106	0	0	179	188	38	44	0	0	270	103	244	140	0	2	487	43	203	9	0	0	255	1191
Approach %	18.4	22.3	59.2	0.0	-	-	69.6	14.1	16.3	0.0	-	-	21.1	50.1	28.7	0.0	-	-	16.9	79.6	3.5	0.0	-	-	-
Total %	2.8	3.4	8.9	0.0	-	15.0	15.8	3.2	3.7	0.0	-	22.7	8.6	20.5	11.8	0.0	-	40.9	3.6	17.0	0.8	0.0	-	21.4	-
PHF	0.750	0.625	0.803	0.000	-	0.799	0.922	0.633	0.579	0.000	-	0.888	0.757	0.884	0.833	0.000	-	0.895	0.768	0.940	0.750	0.000	-	0.911	0.939
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	32	40	104	0	-	176	186	38	44	0	-	268	102	232	139	0	-	473	43	195	9	0	-	247	1164
% Cars & Light Goods	97.0	100.0	98.1	-	-	98.3	98.9	100.0	100.0	-	-	99.3	99.0	95.1	99.3	-	-	97.1	100.0	96.1	100.0	-	-	96.9	97.7
Buses	0	0	0	0	-	0	1	0	0	0	-	1	0	1	0	0	-	1	0	1	0	0	-	1	3
% Buses	0.0	0.0	0.0	-	-	0.0	0.5	0.0	0.0	-	-	0.4	0.0	0.4	0.0	-	-	0.2	0.0	0.5	0.0	-	-	0.4	0.3
Single-Unit Trucks	0	0	2	0	-	2	1	0	0	0	-	1	1	8	1	0	-	10	0	6	0	0	-	6	19
% Single-Unit Trucks	0.0	0.0	1.9	-	-	1.1	0.5	0.0	0.0	-	-	0.4	1.0	3.3	0.7	-	-	2.1	0.0	3.0	0.0	-	-	2.4	1.6
Articulated Trucks	1	0	0	0	-	1	0	0	0	0	-	0	0	3	0	0	-	3	0	1	0	0	-	1	5
% Articulated Trucks	3.0	0.0	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.0	1.2	0.0	-	-	0.6	0.0	0.5	0.0	-	-	0.4	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: North Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 8

Turning Movement Peak Hour Data (4:30 PM)

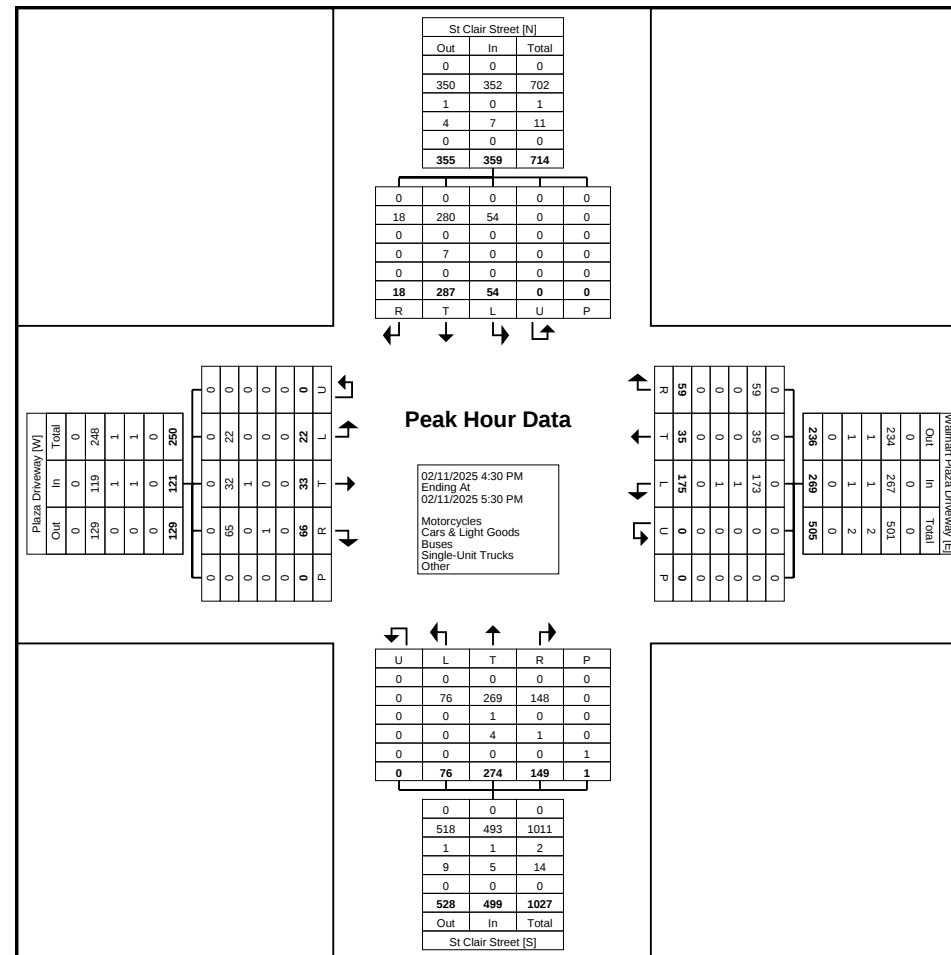
Start Time	Plaza Driveway Eastbound						Walmart Plaza Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	6	6	18	0	0	30	54	6	11	0	0	71	21	77	26	0	0	124	9	71	6	0	0	86	311
4:45 PM	4	7	13	0	0	24	32	6	11	0	0	49	15	79	36	0	0	130	15	90	4	0	0	109	312
5:00 PM	6	13	21	0	0	40	42	11	20	0	0	73	20	59	42	0	1	121	16	59	3	0	0	78	312
5:15 PM	6	7	14	0	0	27	47	12	17	0	0	76	20	59	45	0	0	124	14	67	5	0	0	86	313
Total	22	33	66	0	0	121	175	35	59	0	0	269	76	274	149	0	1	499	54	287	18	0	0	359	1248
Approach %	18.2	27.3	54.5	0.0	-	-	65.1	13.0	21.9	0.0	-	-	15.2	54.9	29.9	0.0	-	-	15.0	79.9	5.0	0.0	-	-	-
Total %	1.8	2.6	5.3	0.0	-	9.7	14.0	2.8	4.7	0.0	-	21.6	6.1	22.0	11.9	0.0	-	40.0	4.3	23.0	1.4	0.0	-	28.8	-
PHF	0.917	0.635	0.786	0.000	-	0.756	0.810	0.729	0.738	0.000	-	0.885	0.905	0.867	0.828	0.000	-	0.960	0.844	0.797	0.750	0.000	-	0.823	0.997
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	22	32	65	0	-	119	173	35	59	0	-	267	76	269	148	0	-	493	54	280	18	0	-	352	1231
% Cars & Light Goods	100.0	97.0	98.5	-	-	98.3	98.9	100.0	100.0	-	-	99.3	100.0	98.2	99.3	-	-	98.8	100.0	97.6	100.0	-	-	98.1	98.6
Buses	0	1	0	0	-	1	1	0	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	3
% Buses	0.0	3.0	0.0	-	-	0.8	0.6	0.0	0.0	-	-	0.4	0.0	0.4	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.2
Single-Unit Trucks	0	0	1	0	-	1	1	0	0	0	-	1	0	4	1	0	-	5	0	7	0	0	-	7	14
% Single-Unit Trucks	0.0	0.0	1.5	-	-	0.8	0.6	0.0	0.0	-	-	0.4	0.0	1.5	0.7	-	-	1.0	0.0	2.4	0.0	-	-	1.9	1.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: North Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 9



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: North Signal Access - Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 1

Turning Movement Data

Start Time	Plaza Driveway Eastbound						Walmart Plaza Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
10:00 AM	6	14	29	0	1	49	25	4	7	0	0	36	29	36	34	0	0	99	11	61	5	0	0	77	261
10:15 AM	8	10	27	0	0	45	29	11	8	0	0	48	26	34	45	0	0	105	4	44	7	0	0	55	253
10:30 AM	9	14	23	0	0	46	37	5	10	0	0	52	39	49	39	0	0	127	15	40	5	0	0	60	285
10:45 AM	4	15	29	0	0	48	31	7	6	0	0	44	41	41	44	0	0	126	16	63	3	0	0	82	300
Hourly Total	27	53	108	0	1	188	122	27	31	0	0	180	135	160	162	0	0	457	46	208	20	0	0	274	1099
11:00 AM	5	16	33	0	0	54	51	16	9	0	0	76	42	61	44	0	2	147	13	48	2	0	0	63	340
11:15 AM	7	24	38	0	0	69	61	8	12	0	0	81	45	65	45	0	0	155	12	61	3	0	0	76	381
11:30 AM	4	25	40	0	0	69	63	10	12	0	0	85	38	69	49	0	2	156	8	62	7	0	0	77	387
11:45 AM	14	23	31	0	1	68	51	12	19	0	0	82	30	47	61	0	3	138	13	44	9	0	2	66	354
Hourly Total	30	88	142	0	1	260	226	46	52	0	0	324	155	242	199	0	7	596	46	215	21	0	2	282	1462
12:00 PM	10	11	32	0	0	53	58	11	13	0	0	82	32	61	55	0	0	148	9	51	2	0	0	62	345
12:15 PM	8	15	32	0	0	55	63	16	13	0	1	92	31	69	47	0	1	147	17	50	4	0	1	71	365
12:30 PM	7	21	20	0	0	48	66	15	13	0	0	94	39	68	55	0	0	162	18	73	4	0	2	95	399
12:45 PM	8	12	35	0	0	55	68	12	9	0	0	89	33	54	60	0	0	147	14	45	3	0	2	62	353
Hourly Total	33	59	119	0	0	211	255	54	48	0	1	357	135	252	217	0	1	604	58	219	13	0	5	290	1462
1:00 PM	9	14	33	0	1	56	68	15	15	0	0	98	39	57	57	0	2	153	8	58	5	0	0	71	378
1:15 PM	10	19	30	0	0	59	79	11	15	0	0	105	47	50	42	0	0	139	11	50	4	0	0	65	368
1:30 PM	13	27	37	0	0	77	67	9	23	0	0	99	45	57	52	0	1	154	13	55	2	0	0	70	400
1:45 PM	8	14	39	0	0	61	70	11	16	0	0	97	27	62	52	0	0	141	16	42	5	0	0	63	362
Hourly Total	40	74	139	0	1	253	284	46	69	0	0	399	158	226	203	0	3	587	48	205	16	0	0	269	1508
2:00 PM	7	10	37	0	0	54	80	16	25	0	0	121	43	57	50	0	0	150	10	54	4	0	2	68	393
2:15 PM	9	15	23	0	0	47	65	17	10	0	0	92	41	61	50	0	2	152	16	34	3	0	0	53	344
2:30 PM	10	17	36	0	0	63	54	10	17	0	0	81	34	73	50	0	0	157	13	54	4	0	0	71	372
2:45 PM	14	14	27	0	0	55	46	10	9	0	1	65	27	48	44	0	1	119	16	60	1	0	1	77	316
Hourly Total	40	56	123	0	0	219	245	53	61	0	1	359	145	239	194	0	3	578	55	202	12	0	3	269	1425
3:00 PM	11	16	27	0	0	54	84	9	19	0	0	112	25	61	46	0	0	132	11	39	2	0	0	52	350
3:15 PM	3	13	29	0	0	45	42	11	14	0	0	67	31	63	51	0	0	145	18	45	3	0	0	66	323
3:30 PM	10	13	24	0	1	47	57	15	15	0	0	87	31	57	35	0	0	123	10	33	3	0	0	46	303
3:45 PM	11	15	27	0	0	53	68	15	19	0	0	102	18	48	37	0	0	103	10	47	2	0	0	59	317
Hourly Total	35	57	107	0	1	199	251	50	67	0	0	368	105	229	169	0	0	503	49	164	10	0	0	223	1293
Grand Total	205	387	738	0	4	1330	1383	276	328	0	2	1987	833	1348	1144	0	14	3325	302	1213	92	0	10	1607	8249
Approach %	15.4	29.1	55.5	0.0	-	-	69.6	13.9	16.5	0.0	-	-	25.1	40.5	34.4	0.0	-	-	18.8	75.5	5.7	0.0	-	-	-
Total %	2.5	4.7	8.9	0.0	-	16.1	16.8	3.3	4.0	0.0	-	24.1	10.1	16.3	13.9	0.0	-	40.3	3.7	14.7	1.1	0.0	-	19.5	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0

Cars & Light Goods	205	387	737	0	-	1329	1382	275	327	0	-	1984	833	1336	1142	0	-	3311	302	1195	92	0	-	1589	8213
% Cars & Light Goods	100.0	100.0	99.9	-	-	99.9	99.9	99.6	99.7	-	-	99.8	100.0	99.1	99.8	-	-	99.6	100.0	98.5	100.0	-	-	98.9	99.6
Buses	0	0	1	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	2	0	0	-	2	4
% Buses	0.0	0.0	0.1	-	-	0.1	0.0	0.4	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.1	0.0
Single-Unit Trucks	0	0	0	0	-	0	1	0	1	0	-	2	0	9	2	0	-	11	0	9	0	0	-	9	22
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.1	0.0	0.3	-	-	0.1	0.0	0.7	0.2	-	-	0.3	0.0	0.7	0.0	-	-	0.6	0.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	0	-	3	0	7	0	0	-	7	10
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.1	0.0	0.6	0.0	-	-	0.4	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	2	-	-	-	-	-	14	-	-	-	-	-	10	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-

Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: North Signal Access - Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 4

Turning Movement Peak Hour Data (1:15 PM)

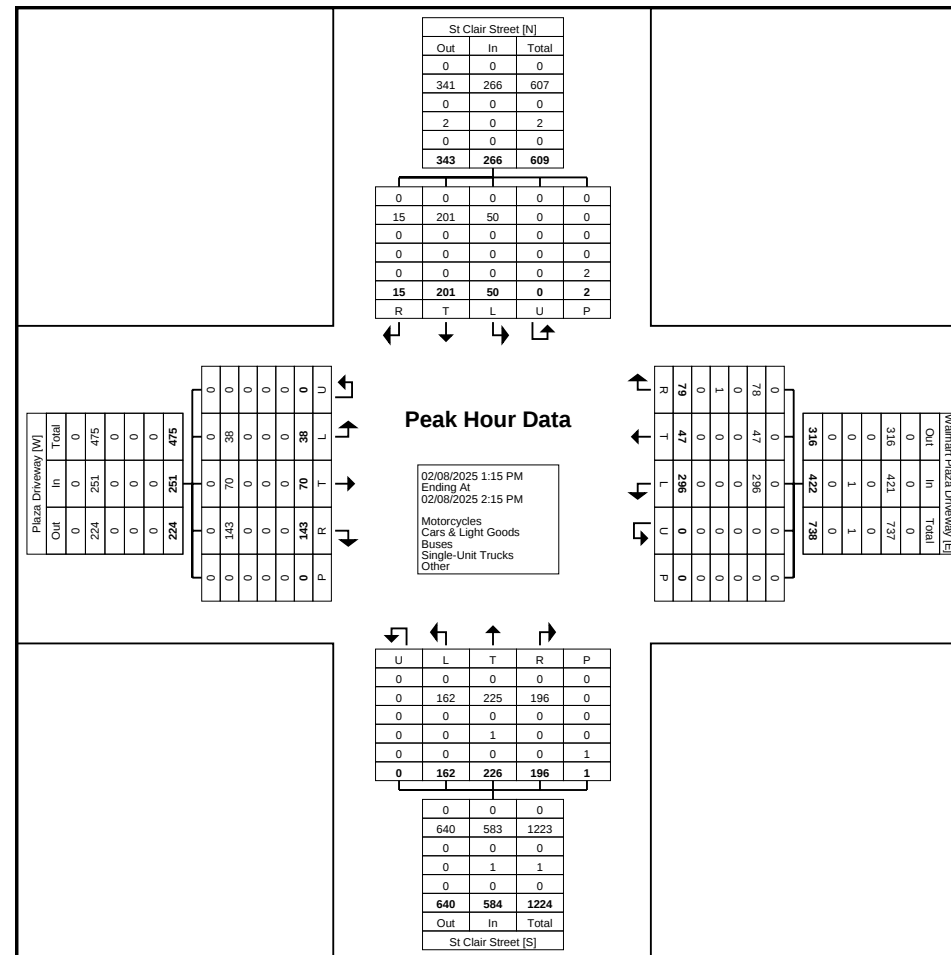
Start Time	Plaza Driveway Eastbound						Walmart Plaza Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
1:15 PM	10	19	30	0	0	59	79	11	15	0	0	105	47	50	42	0	0	139	11	50	4	0	0	65	368
1:30 PM	13	27	37	0	0	77	67	9	23	0	0	99	45	57	52	0	1	154	13	55	2	0	0	70	400
1:45 PM	8	14	39	0	0	61	70	11	16	0	0	97	27	62	52	0	0	141	16	42	5	0	0	63	362
2:00 PM	7	10	37	0	0	54	80	16	25	0	0	121	43	57	50	0	0	150	10	54	4	0	2	68	393
Total	38	70	143	0	0	251	296	47	79	0	0	422	162	226	196	0	1	584	50	201	15	0	2	266	1523
Approach %	15.1	27.9	57.0	0.0	-	-	70.1	11.1	18.7	0.0	-	-	27.7	38.7	33.6	0.0	-	-	18.8	75.6	5.6	0.0	-	-	-
Total %	2.5	4.6	9.4	0.0	-	16.5	19.4	3.1	5.2	0.0	-	27.7	10.6	14.8	12.9	0.0	-	38.3	3.3	13.2	1.0	0.0	-	17.5	-
PHF	0.731	0.648	0.917	0.000	-	0.815	0.925	0.734	0.790	0.000	-	0.872	0.862	0.911	0.942	0.000	-	0.948	0.781	0.914	0.750	0.000	-	0.950	0.952
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	38	70	143	0	-	251	296	47	78	0	-	421	162	225	196	0	-	583	50	201	15	0	-	266	1521
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	100.0	100.0	98.7	-	-	99.8	100.0	99.6	100.0	-	-	99.8	100.0	100.0	100.0	-	-	100.0	99.9
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	2
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	1.3	-	-	0.2	0.0	0.4	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: North Signal Access - Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 5



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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

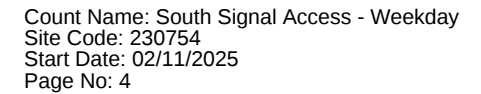
Count Name: South Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 1

Turning Movement Data

Start Time	Glaxay Plaza Driveway Eastbound						Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	4	0	5	0	0	9	9	1	0	0	0	10	7	76	15	0	0	98	3	37	1	0	0	41	158
7:15 AM	5	0	5	0	0	10	14	0	0	0	0	14	7	55	9	0	0	71	0	35	2	0	0	37	132
7:30 AM	4	2	12	0	0	18	10	2	0	0	0	12	17	62	9	0	0	88	1	59	0	0	1	60	178
7:45 AM	8	0	4	0	0	12	16	0	1	0	1	17	15	87	24	0	0	126	1	63	1	0	0	65	220
Hourly Total	21	2	26	0	0	49	49	3	1	0	1	53	46	280	57	0	0	383	5	194	4	0	1	203	688
8:00 AM	1	1	9	0	1	11	3	1	0	0	0	4	10	73	11	0	0	94	5	54	2	0	0	61	170
8:15 AM	1	2	9	0	0	12	9	1	1	0	0	11	8	77	11	0	0	96	3	63	1	0	0	67	186
8:30 AM	3	2	14	0	0	19	20	2	2	0	0	24	14	65	19	0	0	98	1	62	4	0	0	67	208
8:45 AM	2	6	9	0	0	17	17	0	2	0	1	19	18	71	25	0	0	114	3	87	0	0	1	90	240
Hourly Total	7	11	41	0	1	59	49	4	5	0	1	58	50	286	66	0	0	402	12	266	7	0	1	285	804
9:00 AM	3	4	6	0	0	13	15	3	1	0	0	19	7	62	27	0	0	96	3	64	2	0	0	69	197
9:15 AM	5	2	8	0	0	15	34	5	2	0	0	41	6	85	41	0	0	132	2	64	1	0	0	67	255
9:30 AM	4	1	13	0	0	18	22	1	1	0	0	24	18	81	42	0	0	141	2	83	1	0	0	86	269
9:45 AM	3	0	4	0	0	7	29	3	2	0	0	34	14	80	39	0	0	133	5	96	0	0	0	101	275
Hourly Total	15	7	31	0	0	53	100	12	6	0	0	118	45	308	149	0	0	502	12	307	4	0	0	323	996
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	4	4	12	0	1	20	63	6	5	0	0	74	10	99	69	0	0	178	6	107	2	0	2	115	387
11:45 AM	2	2	17	0	0	21	60	2	1	0	0	63	25	136	65	0	0	226	7	108	0	0	0	115	425
Hourly Total	6	6	29	0	1	41	123	8	6	0	0	137	35	235	134	0	0	404	13	215	2	0	2	230	812
12:00 PM	2	4	23	0	0	29	57	6	3	1	0	67	24	126	66	0	0	216	6	125	2	0	0	133	445
12:15 PM	5	0	23	0	2	28	72	9	6	0	0	87	36	114	58	0	0	208	2	120	1	0	0	123	446
12:30 PM	5	2	25	0	0	32	65	4	2	0	0	71	26	89	43	0	0	158	4	121	7	0	0	132	393
12:45 PM	6	2	23	0	0	31	48	4	3	0	0	55	14	101	53	0	0	168	3	113	3	0	3	119	373
Hourly Total	18	8	94	0	2	120	242	23	14	1	0	280	100	430	220	0	0	750	15	479	13	0	3	507	1657
1:00 PM	6	4	13	0	0	23	57	4	1	0	1	62	27	110	54	0	0	191	5	102	5	0	2	112	388
1:15 PM	3	5	10	0	0	18	64	5	4	0	1	73	21	126	56	0	0	203	9	115	1	0	0	125	419
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	9	9	23	0	0	41	121	9	5	0	2	135	48	236	110	0	0	394	14	217	6	0	2	237	807
3:00 PM	6	1	14	0	1	21	48	4	6	0	2	58	18	120	52	0	0	190	1	104	2	0	0	107	376
3:15 PM	5	1	20	0	2	26	69	2	4	0	2	75	16	124	56	0	0	196	7	110	3	0	2	120	417
3:30 PM	6	1	9	0	0	16	62	3	1	0	1	66	19	100	55	0	0	174	2	131	2	0	0	135	391
3:45 PM	10	4	14	0	0	28	63	3	2	0	1	68	21	138	57	0	0	216	4	148	0	0	1	152	464
Hourly Total	27	7	57	0	3	91	242	12	13	0	6	267	74	482	220	0	0	776	14	493	7	0	3	514	1648
4:00 PM	1	1	14	0	1	16	70	1	2	0	1	73	19	132	78	0	0	229	4	99	4	0	2	107	425
4:15 PM	4	0	12	0	0	16	50	5	6	0	0	61	22	116	72	0	0	210	5	120	2	0	0	127	414

4:30 PM	1	1	16	0	0	18	70	1	6	0	1	77	30	110	61	0	0	201	2	139	5	0	1	146	442
4:45 PM	2	2	17	0	2	21	65	3	2	0	0	70	25	120	68	0	2	213	3	130	3	0	1	136	440
Hourly Total	8	4	59	0	3	71	255	10	16	0	2	281	96	478	279	0	2	853	14	488	14	0	4	516	1721
5:00 PM	3	2	15	0	0	20	74	5	3	0	0	82	17	126	62	0	1	205	5	128	0	0	0	133	440
5:15 PM	4	1	15	0	0	20	76	2	3	0	2	81	20	116	50	0	0	186	2	133	2	0	1	137	424
5:30 PM	2	1	15	0	2	18	70	3	2	0	1	75	18	100	45	0	0	163	1	107	4	0	1	112	368
5:45 PM	3	1	14	0	2	18	43	1	2	0	0	46	9	86	51	0	0	146	2	102	1	0	0	105	315
Hourly Total	12	5	59	0	4	76	263	11	10	0	3	284	64	428	208	0	1	700	10	470	7	0	2	487	1547
Grand Total	123	59	419	0	14	601	1444	92	76	1	15	1613	558	3163	1443	0	3	5164	109	3129	64	0	18	3302	10680
Approach %	20.5	9.8	69.7	0.0	-	-	89.5	5.7	4.7	0.1	-	-	10.8	61.3	27.9	0.0	-	-	3.3	94.8	1.9	0.0	-	-	-
Total %	1.2	0.6	3.9	0.0	-	5.6	13.5	0.9	0.7	0.0	-	15.1	5.2	29.6	13.5	0.0	-	48.4	1.0	29.3	0.6	0.0	-	30.9	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	123	59	414	0	-	596	1418	92	75	1	-	1586	548	3050	1414	0	-	5012	105	3032	62	0	-	3199	10393
% Cars & Light Goods	100.0	100.0	98.8	-	-	99.2	98.2	100.0	98.7	100.0	-	98.3	98.2	96.4	98.0	-	-	97.1	96.3	96.9	96.9	-	-	96.9	97.3
Buses	0	0	0	0	-	0	17	0	0	0	-	17	4	23	14	0	-	41	1	30	0	0	-	31	89
% Buses	0.0	0.0	0.0	-	-	0.0	1.2	0.0	0.0	0.0	-	1.1	0.7	0.7	1.0	-	-	0.8	0.9	1.0	0.0	-	-	0.9	0.8
Single-Unit Trucks	0	0	1	0	-	1	7	0	0	0	-	7	1	65	11	0	-	77	3	43	2	0	-	48	133
% Single-Unit Trucks	0.0	0.0	0.2	-	-	0.2	0.5	0.0	0.0	0.0	-	0.4	0.2	2.1	0.8	-	-	1.5	2.8	1.4	3.1	-	-	1.5	1.2
Articulated Trucks	0	0	3	0	-	3	2	0	1	0	-	3	5	25	3	0	-	33	0	24	0	0	-	24	63
% Articulated Trucks	0.0	0.0	0.7	-	-	0.5	0.1	0.0	1.3	0.0	-	0.2	0.9	0.8	0.2	-	-	0.6	0.0	0.8	0.0	-	-	0.7	0.6
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.2	-	-	0.2	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.1	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	28.6	-	-	-	-	-	6.7	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	10	-	-	-	-	-	14	-	-	-	-	-	3	-	-	-	-	-	18	-	-
% Pedestrians	-	-	-	-	71.4	-	-	-	-	-	93.3	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Turning Movement Data Plot



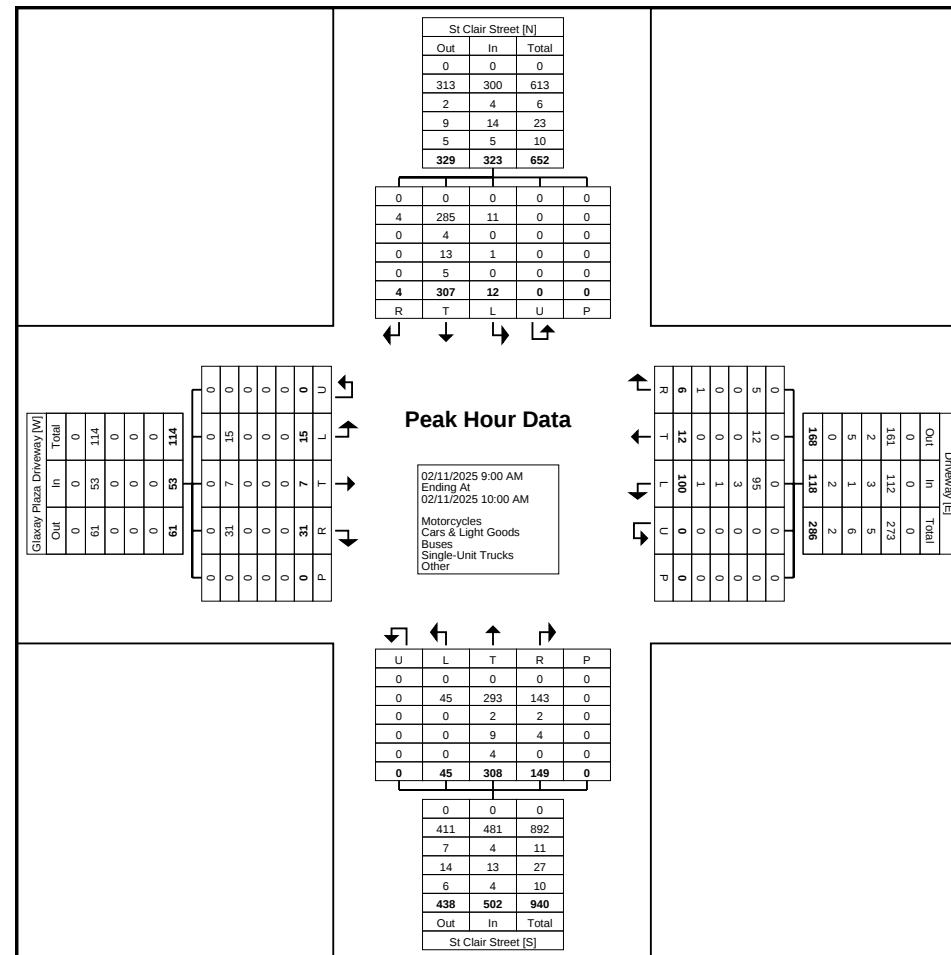
Start Time	Galaxy Plaza Driveway Eastbound						Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	3	4	6	0	0	13	15	3	1	0	0	19	7	62	27	0	0	96	3	64	2	0	0	69	197
9:15 AM	5	2	8	0	0	15	34	5	2	0	0	41	6	85	41	0	0	132	2	64	1	0	0	67	255
9:30 AM	4	1	13	0	0	18	22	1	1	0	0	24	18	81	42	0	0	141	2	83	1	0	0	86	269
9:45 AM	3	0	4	0	0	7	29	3	2	0	0	34	14	80	39	0	0	133	5	96	0	0	0	101	275
Total	15	7	31	0	0	53	100	12	6	0	0	118	45	308	149	0	0	502	12	307	4	0	0	323	996
Approach %	28.3	13.2	58.5	0.0	-	-	84.7	10.2	5.1	0.0	-	-	9.0	61.4	29.7	0.0	-	-	3.7	95.0	1.2	0.0	-	-	-
Total %	1.5	0.7	3.1	0.0	-	5.3	10.0	1.2	0.6	0.0	-	11.8	4.5	30.9	15.0	0.0	-	50.4	1.2	30.8	0.4	0.0	-	32.4	-
PHF	0.750	0.438	0.596	0.000	-	0.736	0.735	0.600	0.750	0.000	-	0.720	0.625	0.906	0.887	0.000	-	0.890	0.600	0.799	0.500	0.000	-	0.800	0.905
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	15	7	31	0	-	53	95	12	5	0	-	112	45	293	143	0	-	481	11	285	4	0	-	300	946
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	95.0	100.0	83.3	-	-	94.9	100.0	95.1	96.0	-	-	95.8	91.7	92.8	100.0	-	-	92.9	95.0
Buses	0	0	0	0	-	0	3	0	0	0	-	3	0	2	2	0	-	4	0	4	0	0	-	4	11
% Buses	0.0	0.0	0.0	-	-	0.0	3.0	0.0	0.0	-	-	2.5	0.0	0.6	1.3	-	-	0.8	0.0	1.3	0.0	-	-	1.2	1.1
Single-Unit Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	9	4	0	-	13	1	13	0	0	-	14	28
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	1.0	0.0	0.0	-	-	0.8	0.0	2.9	2.7	-	-	2.6	8.3	4.2	0.0	-	-	4.3	2.8
Articulated Trucks	0	0	0	0	-	0	1	0	1	0	-	2	0	4	0	0	-	4	0	5	0	0	-	5	11
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	1.0	0.0	16.7	-	-	1.7	0.0	1.3	0.0	-	-	0.8	0.0	1.6	0.0	-	-	1.5	1.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



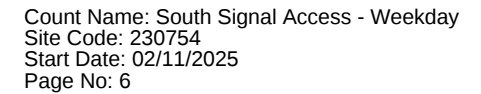
Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: South Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
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Turning Movement Peak Hour Data Plot (9:00 AM)



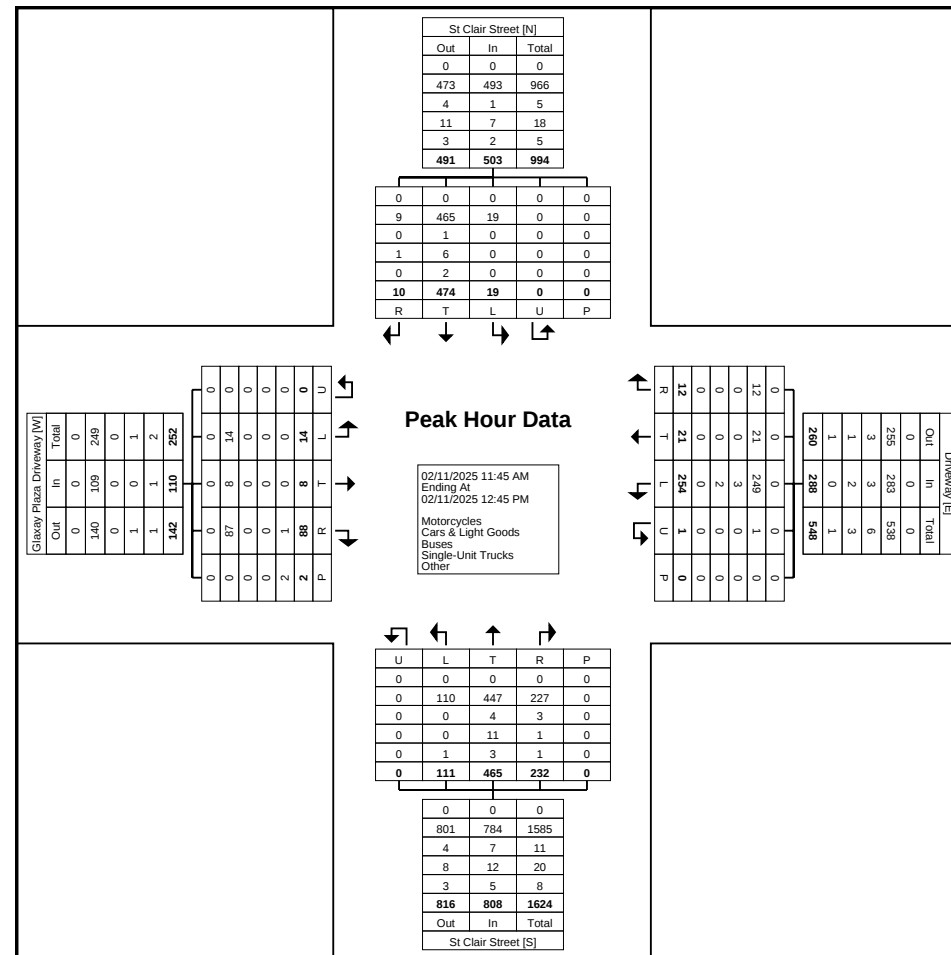
Start Time	Glaxay Plaza Driveway Eastbound						Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	2	2	17	0	0	21	60	2	1	0	0	63	25	136	65	0	0	226	7	108	0	0	0	115	425
12:00 PM	2	4	23	0	0	29	57	6	3	1	0	67	24	126	66	0	0	216	6	125	2	0	0	133	445
12:15 PM	5	0	23	0	2	28	72	9	6	0	0	87	36	114	58	0	0	208	2	120	1	0	0	123	446
12:30 PM	5	2	25	0	0	32	65	4	2	0	0	71	26	89	43	0	0	158	4	121	7	0	0	132	393
Total	14	8	88	0	2	110	254	21	12	1	0	288	111	465	232	0	0	808	19	474	10	0	0	503	1709
Approach %	12.7	7.3	80.0	0.0	-	-	88.2	7.3	4.2	0.3	-	-	13.7	57.5	28.7	0.0	-	-	3.8	94.2	2.0	0.0	-	-	-
Total %	0.8	0.5	5.1	0.0	-	6.4	14.9	1.2	0.7	0.1	-	16.9	6.5	27.2	13.6	0.0	-	47.3	1.1	27.7	0.6	0.0	-	29.4	-
PHF	0.700	0.500	0.880	0.000	-	0.859	0.882	0.583	0.500	0.250	-	0.828	0.771	0.855	0.879	0.000	-	0.894	0.679	0.948	0.357	0.000	-	0.945	0.958
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	14	8	87	0	-	109	249	21	12	1	-	283	110	447	227	0	-	784	19	465	9	0	-	493	1669
% Cars & Light Goods	100.0	100.0	98.9	-	-	99.1	98.0	100.0	100.0	100.0	-	98.3	99.1	96.1	97.8	-	-	97.0	100.0	98.1	90.0	-	-	98.0	97.7
Buses	0	0	0	0	-	0	3	0	0	0	-	3	0	4	3	0	-	7	0	1	0	0	-	1	11
% Buses	0.0	0.0	0.0	-	-	0.0	1.2	0.0	0.0	0.0	-	1.0	0.0	0.9	1.3	-	-	0.9	0.0	0.2	0.0	-	-	0.2	0.6
Single-Unit Trucks	0	0	0	0	-	0	2	0	0	0	-	2	0	11	1	0	-	12	0	6	1	0	-	7	21
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.8	0.0	0.0	0.0	-	0.7	0.0	2.4	0.4	-	-	1.5	0.0	1.3	10.0	-	-	1.4	1.2
Articulated Trucks	0	0	1	0	-	1	0	0	0	0	-	0	1	3	1	0	-	5	0	2	0	0	-	2	8
% Articulated Trucks	0.0	0.0	1.1	-	-	0.9	0.0	0.0	0.0	0.0	-	0.0	0.9	0.6	0.4	-	-	0.6	0.0	0.4	0.0	-	-	0.4	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
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Count Name: South Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
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Turning Movement Peak Hour Data Plot (11:45 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: South Signal Access - Weekday
Site Code: 230754
Start Date: 02/11/2025
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Turning Movement Peak Hour Data (4:30 PM)

Start Time	Glaxay Plaza Driveway Eastbound						Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	1	1	16	0	0	18	70	1	6	0	1	77	30	110	61	0	0	201	2	139	5	0	1	146	442
4:45 PM	2	2	17	0	2	21	65	3	2	0	0	70	25	120	68	0	2	213	3	130	3	0	1	136	440
5:00 PM	3	2	15	0	0	20	74	5	3	0	0	82	17	126	62	0	1	205	5	128	0	0	0	133	440
5:15 PM	4	1	15	0	0	20	76	2	3	0	2	81	20	116	50	0	0	186	2	133	2	0	1	137	424
Total	10	6	63	0	2	79	285	11	14	0	3	310	92	472	241	0	3	805	12	530	10	0	3	552	1746
Approach %	12.7	7.6	79.7	0.0	-	-	91.9	3.5	4.5	0.0	-	-	11.4	58.6	29.9	0.0	-	-	2.2	96.0	1.8	0.0	-	-	-
Total %	0.6	0.3	3.6	0.0	-	4.5	16.3	0.6	0.8	0.0	-	17.8	5.3	27.0	13.8	0.0	-	46.1	0.7	30.4	0.6	0.0	-	31.6	-
PHF	0.625	0.750	0.926	0.000	-	0.940	0.938	0.550	0.583	0.000	-	0.945	0.767	0.937	0.886	0.000	-	0.945	0.600	0.953	0.500	0.000	-	0.945	0.988
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	10	6	62	0	-	78	282	11	14	0	-	307	92	466	239	0	-	797	11	522	10	0	-	543	1725
% Cars & Light Goods	100.0	100.0	98.4	-	-	98.7	98.9	100.0	100.0	-	-	99.0	100.0	98.7	99.2	-	-	99.0	91.7	98.5	100.0	-	-	98.4	98.8
Buses	0	0	0	0	-	0	2	0	0	0	-	2	0	1	1	0	-	2	0	1	0	0	-	1	5
% Buses	0.0	0.0	0.0	-	-	0.0	0.7	0.0	0.0	-	-	0.6	0.0	0.2	0.4	-	-	0.2	0.0	0.2	0.0	-	-	0.2	0.3
Single-Unit Trucks	0	0	1	0	-	1	1	0	0	0	-	1	0	5	0	0	-	5	1	7	0	0	-	8	15
% Single-Unit Trucks	0.0	0.0	1.6	-	-	1.3	0.4	0.0	0.0	-	-	0.3	0.0	1.1	0.0	-	-	0.6	8.3	1.3	0.0	-	-	1.4	0.9
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.4	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	50.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	3	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	50.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: South Signal Access - Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 1

Turning Movement Data

Start Time	Galaxy Plaza Driveway Eastbound						Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
10:00 AM	1	3	7	0	0	11	47	2	5	0	1	54	17	104	67	0	0	188	6	103	3	0	1	112	365
10:15 AM	0	0	14	0	1	14	53	1	3	0	0	57	17	111	58	0	0	186	7	102	0	0	0	109	366
10:30 AM	3	3	14	0	0	20	63	2	2	0	1	67	17	127	79	0	0	223	7	91	1	0	0	99	409
10:45 AM	2	3	11	0	0	16	74	7	6	0	1	87	19	137	73	0	0	229	7	120	1	0	0	128	460
Hourly Total	6	9	46	0	1	61	237	12	16	0	3	265	70	479	277	0	0	826	27	416	5	0	1	448	1600
11:00 AM	1	4	21	0	0	26	81	5	1	0	0	87	26	142	78	0	0	246	7	127	1	0	0	135	494
11:15 AM	7	1	17	0	0	25	76	6	5	0	0	87	22	157	122	0	0	301	11	151	3	0	0	165	578
11:30 AM	6	3	18	0	0	27	80	4	7	0	0	91	30	140	99	0	0	269	14	148	8	0	0	170	557
11:45 AM	7	5	17	0	0	29	101	8	8	0	1	117	25	123	111	0	0	259	12	118	1	0	2	131	536
Hourly Total	21	13	73	0	0	107	338	23	21	0	1	382	103	562	410	0	0	1075	44	544	13	0	2	601	2165
12:00 PM	1	2	15	0	0	18	93	9	8	0	2	110	28	156	89	0	0	273	9	147	1	0	2	157	558
12:15 PM	3	2	13	0	0	18	83	2	4	0	0	89	22	149	91	0	0	262	6	140	4	0	0	150	519
12:30 PM	8	2	30	0	0	40	90	10	11	0	1	111	21	126	84	0	0	231	9	157	5	0	2	171	553
12:45 PM	3	2	19	0	2	24	89	8	5	0	0	102	35	149	77	0	0	261	7	152	4	0	1	163	550
Hourly Total	15	8	77	0	2	100	355	29	28	0	3	412	106	580	341	0	0	1027	31	596	14	0	5	641	2180
1:00 PM	5	2	23	0	0	30	85	5	10	0	0	100	27	141	80	0	0	248	12	142	2	0	0	156	534
1:15 PM	3	7	22	0	2	32	82	3	6	0	0	91	29	142	89	0	0	260	7	154	3	0	1	164	547
1:30 PM	7	2	21	0	0	30	89	5	6	0	0	100	20	133	95	0	0	248	16	144	2	0	0	162	540
1:45 PM	5	3	22	0	0	30	88	12	6	0	0	106	19	116	82	0	0	217	4	143	7	0	0	154	507
Hourly Total	20	14	88	0	2	122	344	25	28	0	0	397	95	532	346	0	0	973	39	583	14	0	1	636	2128
2:00 PM	8	2	22	0	0	32	74	9	8	0	0	91	29	125	72	0	0	226	8	158	10	0	0	176	525
2:15 PM	6	5	22	0	0	33	82	10	9	0	0	101	29	138	82	0	0	249	3	122	4	0	0	129	512
2:30 PM	7	7	15	0	0	29	83	5	11	0	2	99	25	145	76	0	0	246	8	144	3	0	1	155	529
2:45 PM	7	3	17	0	0	27	93	3	4	0	0	100	23	101	80	0	0	204	10	126	3	0	0	139	470
Hourly Total	28	17	76	0	0	121	332	27	32	0	2	391	106	509	310	0	0	925	29	550	20	0	1	599	2036
3:00 PM	2	3	21	0	0	26	76	3	7	0	0	86	21	132	63	0	0	216	7	141	2	0	0	150	478
3:15 PM	6	1	15	0	0	22	86	6	6	0	1	98	26	154	83	0	0	263	12	115	3	0	0	130	513
3:30 PM	3	4	23	0	1	30	90	4	6	0	1	100	21	100	79	0	0	200	6	113	3	0	1	122	452
3:45 PM	4	2	8	0	1	14	76	4	6	0	0	86	34	113	63	0	0	210	7	152	3	0	2	162	472
Hourly Total	15	10	67	0	2	92	328	17	25	0	2	370	102	499	288	0	0	889	32	521	11	0	3	564	1915
Grand Total	105	71	427	0	7	603	1934	133	150	0	11	2217	582	3161	1972	0	0	5715	202	3210	77	0	13	3489	12024
Approach %	17.4	11.8	70.8	0.0	-	-	87.2	6.0	6.8	0.0	-	-	10.2	55.3	34.5	0.0	-	-	5.8	92.0	2.2	0.0	-	-	-
Total %	0.9	0.6	3.6	0.0	-	5.0	16.1	1.1	1.2	0.0	-	18.4	4.8	26.3	16.4	0.0	-	47.5	1.7	26.7	0.6	0.0	-	29.0	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0

Cars & Light Goods	105	71	427	0	-	603	1914	133	150	0	-	2197	581	3147	1959	0	-	5687	198	3193	77	0	-	3468	11955
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	99.0	100.0	100.0	-	-	99.1	99.8	99.6	99.3	-	-	99.5	98.0	99.5	100.0	-	-	99.4	99.4
Buses	0	0	0	0	-	0	15	0	0	0	-	15	1	2	13	0	-	16	1	2	0	0	-	3	34
% Buses	0.0	0.0	0.0	-	-	0.0	0.8	0.0	0.0	-	-	0.7	0.2	0.1	0.7	-	-	0.3	0.5	0.1	0.0	-	-	0.1	0.3
Single-Unit Trucks	0	0	0	0	-	0	4	0	0	0	-	4	0	9	0	0	-	9	2	9	0	0	-	11	24
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.2	0.0	0.0	-	-	0.2	0.0	0.3	0.0	-	-	0.2	1.0	0.3	0.0	-	-	0.3	0.2
Articulated Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	3	0	0	-	3	1	6	0	0	-	7	11
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.1	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.5	0.2	0.0	-	-	0.2	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	7.7	-	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	11	-	-	-	-	-	0	-	-	-	-	-	12	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	92.3	-	-	-

Turning Movement Data Plot

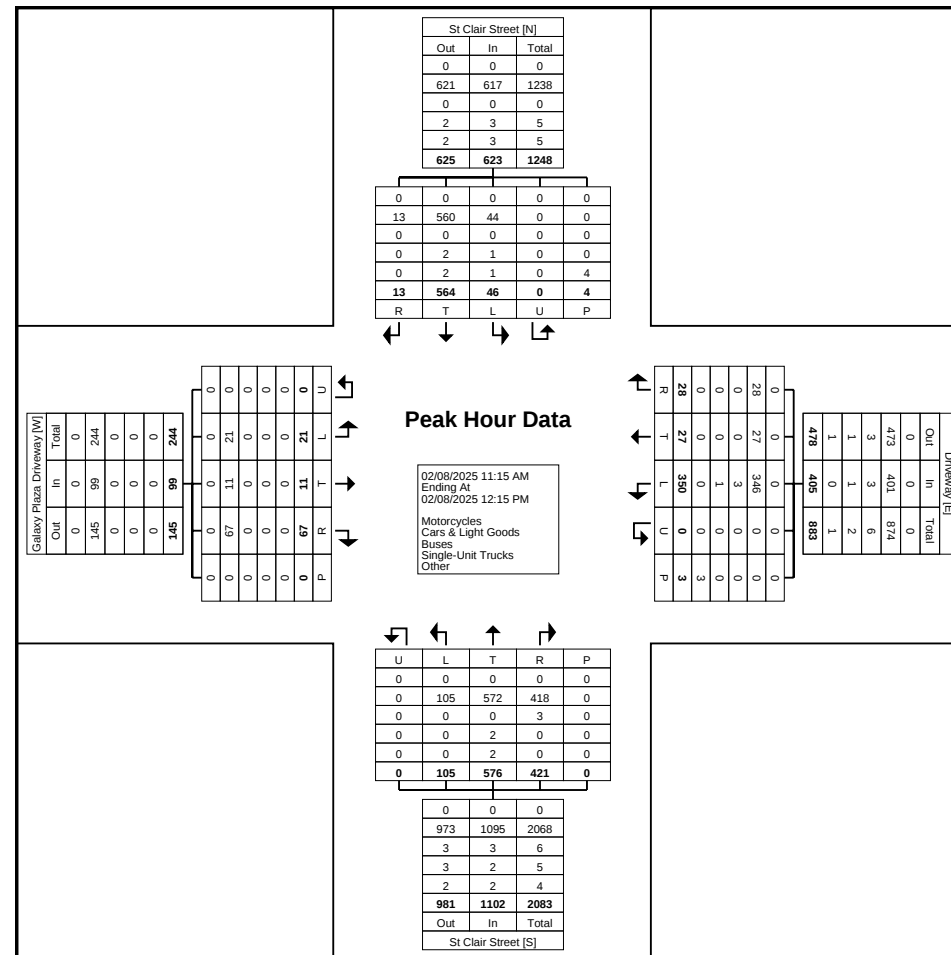
Start Time	Galaxy Plaza Driveway Eastbound						Driveway Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:15 AM	7	1	17	0	0	25	76	6	5	0	0	87	22	157	122	0	0	301	11	151	3	0	0	165	578
11:30 AM	6	3	18	0	0	27	80	4	7	0	0	91	30	140	99	0	0	269	14	148	8	0	0	170	557
11:45 AM	7	5	17	0	0	29	101	8	8	0	1	117	25	123	111	0	0	259	12	118	1	0	2	131	536
12:00 PM	1	2	15	0	0	18	93	9	8	0	2	110	28	156	89	0	0	273	9	147	1	0	2	157	558
Total	21	11	67	0	0	99	350	27	28	0	3	405	105	576	421	0	0	1102	46	564	13	0	4	623	2229
Approach %	21.2	11.1	67.7	0.0	-	-	86.4	6.7	6.9	0.0	-	-	9.5	52.3	38.2	0.0	-	-	7.4	90.5	2.1	0.0	-	-	-
Total %	0.9	0.5	3.0	0.0	-	4.4	15.7	1.2	1.3	0.0	-	18.2	4.7	25.8	18.9	0.0	-	49.4	2.1	25.3	0.6	0.0	-	27.9	-
PHF	0.750	0.550	0.931	0.000	-	0.853	0.866	0.750	0.875	0.000	-	0.865	0.875	0.917	0.863	0.000	-	0.915	0.821	0.934	0.406	0.000	-	0.916	0.964
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	21	11	67	0	-	99	346	27	28	0	-	401	105	572	418	0	-	1095	44	560	13	0	-	617	2212
% Cars & Light Goods	100.0	100.0	100.0	-	-	100.0	98.9	100.0	100.0	-	-	99.0	100.0	99.3	99.3	-	-	99.4	95.7	99.3	100.0	-	-	99.0	99.2
Buses	0	0	0	0	-	0	3	0	0	0	-	3	0	0	3	0	-	3	0	0	0	0	-	0	6
% Buses	0.0	0.0	0.0	-	-	0.0	0.9	0.0	0.0	-	-	0.7	0.0	0.0	0.7	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.3
Single-Unit Trucks	0	0	0	0	-	0	1	0	0	0	-	1	0	2	0	0	-	2	1	2	0	0	-	3	6
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.3	0.0	0.0	-	-	0.2	0.0	0.3	0.0	-	-	0.2	2.2	0.4	0.0	-	-	0.5	0.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	1	2	0	0	-	3	5
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	2.2	0.4	0.0	-	-	0.5	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	25.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	75.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: South Signal Access - Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 5



Turning Movement Peak Hour Data Plot (11:15 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Gregory Drive -
Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 1

Turning Movement Data

Start Time	Gregory Drive Eastbound						Gregory Drive Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	14	3	5	0	0	22	2	7	7	0	0	16	3	68	5	0	0	76	9	46	1	0	0	56	170
7:15 AM	11	4	1	0	0	16	4	13	18	0	0	35	5	55	7	0	0	67	8	49	4	0	0	61	179
7:30 AM	11	18	7	0	0	36	5	10	30	0	0	45	3	59	3	0	0	65	8	79	6	0	0	93	239
7:45 AM	20	24	5	0	0	49	5	13	39	0	0	57	3	72	5	0	0	80	9	63	5	0	0	77	263
Hourly Total	56	49	18	0	0	123	16	43	94	0	0	153	14	254	20	0	0	288	34	237	16	0	0	287	851
8:00 AM	16	6	5	0	0	27	11	10	23	0	0	44	4	74	0	0	0	78	5	72	8	0	0	85	234
8:15 AM	21	10	10	0	0	41	10	16	17	0	3	43	3	68	3	0	3	74	12	70	11	0	0	93	251
8:30 AM	13	12	17	0	1	42	2	13	19	0	1	34	12	74	6	0	2	92	10	80	12	0	1	102	270
8:45 AM	24	5	12	0	1	41	10	18	29	0	0	57	2	77	5	0	0	84	17	92	6	0	0	115	297
Hourly Total	74	33	44	0	2	151	33	57	88	0	4	178	21	293	14	0	5	328	44	314	37	0	1	395	1052
9:00 AM	27	10	9	0	0	46	6	10	21	0	0	37	3	85	4	0	0	92	19	69	5	0	0	93	268
9:15 AM	20	3	4	0	0	27	5	5	38	0	0	48	3	98	4	0	0	105	11	100	6	0	1	117	297
9:30 AM	15	7	3	0	1	25	3	11	25	0	0	39	4	106	4	0	0	114	18	98	13	0	1	129	307
9:45 AM	16	6	7	0	1	29	9	7	36	0	1	52	3	106	6	0	0	115	19	114	12	0	1	145	341
Hourly Total	78	26	23	0	2	127	23	33	120	0	1	176	13	395	18	0	0	426	67	381	36	0	3	484	1213
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	26	6	5	0	0	37	7	6	39	0	0	52	5	137	5	0	1	147	22	148	33	0	0	203	439
11:45 AM	40	4	6	0	0	50	6	4	32	0	0	42	2	180	6	0	1	188	22	180	19	0	0	221	501
Hourly Total	66	10	11	0	0	87	13	10	71	0	0	94	7	317	11	0	2	335	44	328	52	0	0	424	940
12:00 PM	34	11	2	0	0	47	8	11	36	0	0	55	2	153	11	0	1	166	30	192	13	0	0	235	503
12:15 PM	41	5	3	0	0	49	6	7	34	0	0	47	3	156	4	0	0	163	32	180	20	0	0	232	491
12:30 PM	20	12	6	0	0	38	6	11	38	0	1	55	3	127	1	0	1	131	33	160	26	0	1	219	443
12:45 PM	31	6	2	0	0	39	15	11	34	0	0	60	3	104	2	0	1	109	35	150	11	0	0	196	404
Hourly Total	126	34	13	0	0	173	35	40	142	0	1	217	11	540	18	0	3	569	130	682	70	0	1	882	1841
1:00 PM	23	13	5	0	1	41	7	5	49	0	0	61	3	131	6	0	0	140	32	137	17	0	1	186	428
1:15 PM	32	7	9	0	2	48	7	4	32	0	0	43	6	154	7	0	0	167	26	154	21	0	2	201	459
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	55	20	14	0	3	89	14	9	81	0	0	104	9	285	13	0	0	307	58	291	38	0	3	387	887
3:00 PM	24	14	15	0	0	53	8	13	30	0	1	51	6	132	5	0	4	143	29	133	14	0	0	176	423
3:15 PM	39	8	4	0	0	51	7	13	33	0	0	53	0	153	6	0	0	159	41	145	16	0	1	202	465
3:30 PM	21	10	7	0	0	38	7	10	24	0	1	41	6	139	6	0	1	151	33	152	15	0	0	200	430
3:45 PM	35	19	7	0	1	61	8	8	30	0	2	46	11	166	0	0	3	177	39	172	21	0	3	232	516
Hourly Total	119	51	33	0	1	203	30	44	117	0	4	191	23	590	17	0	8	630	142	602	66	0	4	810	1834
4:00 PM	46	17	6	0	0	69	7	9	51	0	0	67	6	154	8	0	0	168	31	155	23	0	0	209	513
4:15 PM	27	16	7	0	1	50	9	17	47	0	0	73	6	146	5	0	1	157	31	144	27	0	1	202	482

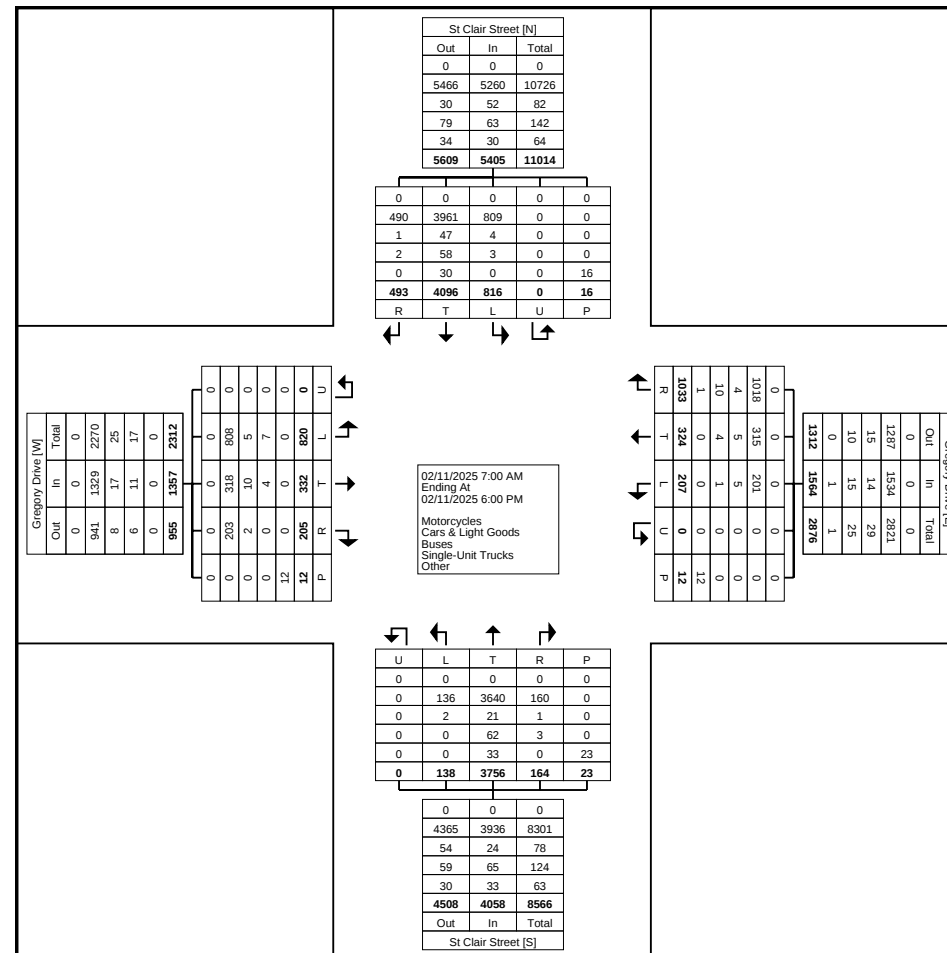
4:30 PM	26	20	6	0	1	52	6	8	38	0	0	52	8	161	9	0	1	178	46	179	16	0	1	241	523
4:45 PM	36	11	7	0	1	54	1	13	48	0	0	62	4	136	4	0	1	144	45	161	23	0	1	229	489
Hourly Total	135	64	26	0	3	225	23	47	184	0	0	254	24	597	26	0	3	647	153	639	89	0	3	881	2007
5:00 PM	30	12	6	0	0	48	5	11	38	0	0	54	7	154	8	0	0	169	36	180	28	0	0	244	515
5:15 PM	34	12	11	0	0	57	6	14	36	0	0	56	3	111	6	0	0	120	35	160	24	0	0	219	452
5:30 PM	26	13	3	0	0	42	5	9	35	0	2	49	3	120	3	0	1	126	47	149	18	0	0	214	431
5:45 PM	21	8	3	0	1	32	4	7	27	0	0	38	3	100	10	0	1	113	26	133	19	0	1	178	361
Hourly Total	111	45	23	0	1	179	20	41	136	0	2	197	16	485	27	0	2	528	144	622	89	0	1	855	1759
Grand Total	820	332	205	0	12	1357	207	324	1033	0	12	1564	138	3756	164	0	23	4058	816	4096	493	0	16	5405	12384
Approach %	60.4	24.5	15.1	0.0	-	-	13.2	20.7	66.0	0.0	-	-	3.4	92.6	4.0	0.0	-	-	15.1	75.8	9.1	0.0	-	-	-
Total %	6.6	2.7	1.7	0.0	-	11.0	1.7	2.6	8.3	0.0	-	12.6	1.1	30.3	1.3	0.0	-	32.8	6.6	33.1	4.0	0.0	-	43.6	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	808	318	203	0	-	1329	201	315	1018	0	-	1534	136	3640	160	0	-	3936	809	3961	490	0	-	5260	12059
% Cars & Light Goods	98.5	95.8	99.0	-	-	97.9	97.1	97.2	98.5	-	-	98.1	98.6	96.9	97.6	-	-	97.0	99.1	96.7	99.4	-	-	97.3	97.4
Buses	5	10	2	0	-	17	5	5	4	0	-	14	2	21	1	0	-	24	4	47	1	0	-	52	107
% Buses	0.6	3.0	1.0	-	-	1.3	2.4	1.5	0.4	-	-	0.9	1.4	0.6	0.6	-	-	0.6	0.5	1.1	0.2	-	-	1.0	0.9
Single-Unit Trucks	7	4	0	0	-	11	1	4	10	0	-	15	0	62	3	0	-	65	3	58	2	0	-	63	154
% Single-Unit Trucks	0.9	1.2	0.0	-	-	0.8	0.5	1.2	1.0	-	-	1.0	0.0	1.7	1.8	-	-	1.6	0.4	1.4	0.4	-	-	1.2	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	32	0	0	-	32	0	27	0	0	-	27	60
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.1	-	-	0.1	0.0	0.9	0.0	-	-	0.8	0.0	0.7	0.0	-	-	0.5	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	3	0	0	-	3	4
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	8.3	-	-	-	-	-	0.0	-	-	-	-	-	6.3	-	-
Pedestrians	-	-	-	-	12	-	-	-	-	-	11	-	-	-	-	-	23	-	-	-	-	-	15	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	91.7	-	-	-	-	-	100.0	-	-	-	-	-	93.8	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Gregory Drive -
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Site Code: 230754
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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: St Clair Street & Gregory Drive -
Weekday
Site Code: 230754
Start Date: 02/11/2025
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Turning Movement Peak Hour Data (9:00 AM)

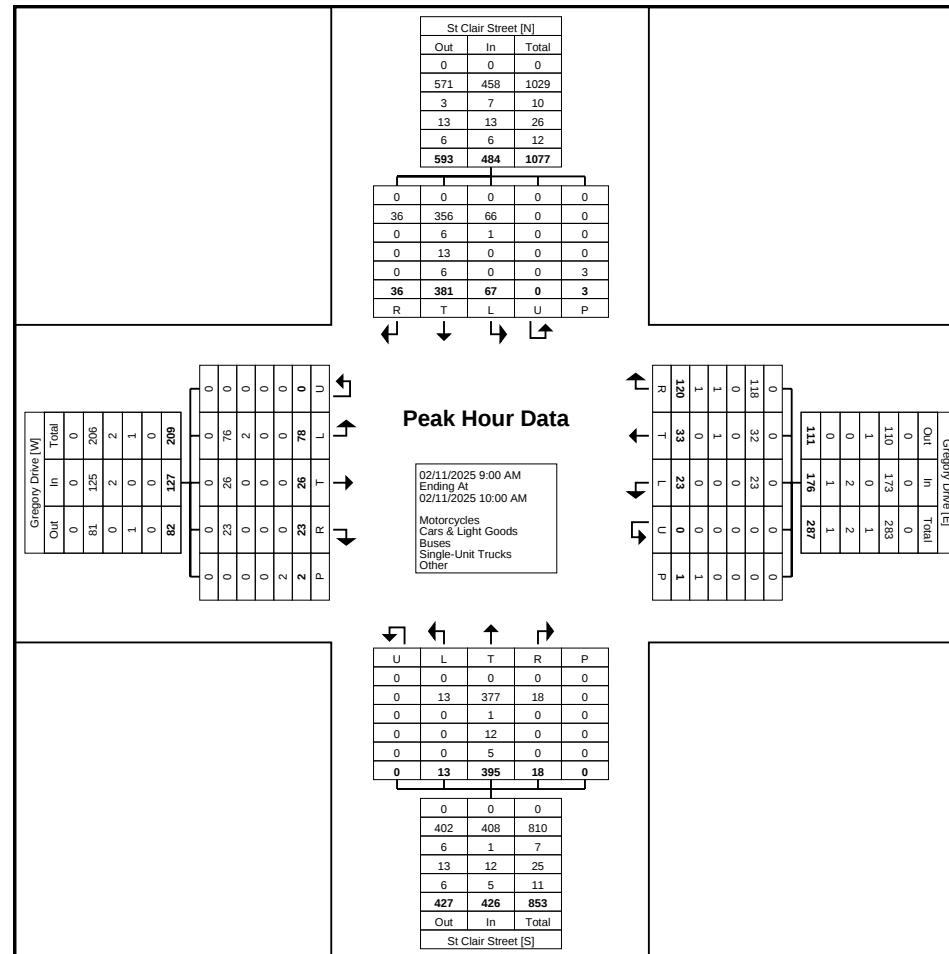
Start Time	Gregory Drive Eastbound						Gregory Drive Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
9:00 AM	27	10	9	0	0	46	6	10	21	0	0	37	3	85	4	0	0	92	19	69	5	0	0	93	268
9:15 AM	20	3	4	0	0	27	5	5	38	0	0	48	3	98	4	0	0	105	11	100	6	0	1	117	297
9:30 AM	15	7	3	0	1	25	3	11	25	0	0	39	4	106	4	0	0	114	18	98	13	0	1	129	307
9:45 AM	16	6	7	0	1	29	9	7	36	0	1	52	3	106	6	0	0	115	19	114	12	0	1	145	341
Total	78	26	23	0	2	127	23	33	120	0	1	176	13	395	18	0	0	426	67	381	36	0	3	484	1213
Approach %	61.4	20.5	18.1	0.0	-	-	13.1	18.8	68.2	0.0	-	-	3.1	92.7	4.2	0.0	-	-	13.8	78.7	7.4	0.0	-	-	-
Total %	6.4	2.1	1.9	0.0	-	10.5	1.9	2.7	9.9	0.0	-	14.5	1.1	32.6	1.5	0.0	-	35.1	5.5	31.4	3.0	0.0	-	39.9	-
PHF	0.722	0.650	0.639	0.000	-	0.690	0.639	0.750	0.789	0.000	-	0.846	0.813	0.932	0.750	0.000	-	0.926	0.882	0.836	0.692	0.000	-	0.834	0.889
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	76	26	23	0	-	125	23	32	118	0	-	173	13	377	18	0	-	408	66	356	36	0	-	458	1164
% Cars & Light Goods	97.4	100.0	100.0	-	-	98.4	100.0	97.0	98.3	-	-	98.3	100.0	95.4	100.0	-	-	95.8	98.5	93.4	100.0	-	-	94.6	96.0
Buses	2	0	0	0	-	2	0	0	0	0	-	0	0	1	0	0	-	1	1	6	0	0	-	7	10
% Buses	2.6	0.0	0.0	-	-	1.6	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	1.5	1.6	0.0	-	-	1.4	0.8
Single-Unit Trucks	0	0	0	0	-	0	0	1	1	0	-	2	0	12	0	0	-	12	0	13	0	0	-	13	27
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	3.0	0.8	-	-	1.1	0.0	3.0	0.0	-	-	2.8	0.0	3.4	0.0	-	-	2.7	2.2
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	4	0	0	-	4	0	6	0	0	-	6	11
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.8	-	-	0.6	0.0	1.0	0.0	-	-	0.9	0.0	1.6	0.0	-	-	1.2	0.9
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
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Count Name: St Clair Street & Gregory Drive -
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Paradigm Transportation Solutions Limited
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Count Name: St Clair Street & Gregory Drive -
Weekday
Site Code: 230754
Start Date: 02/11/2025
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Turning Movement Peak Hour Data (11:45 AM)

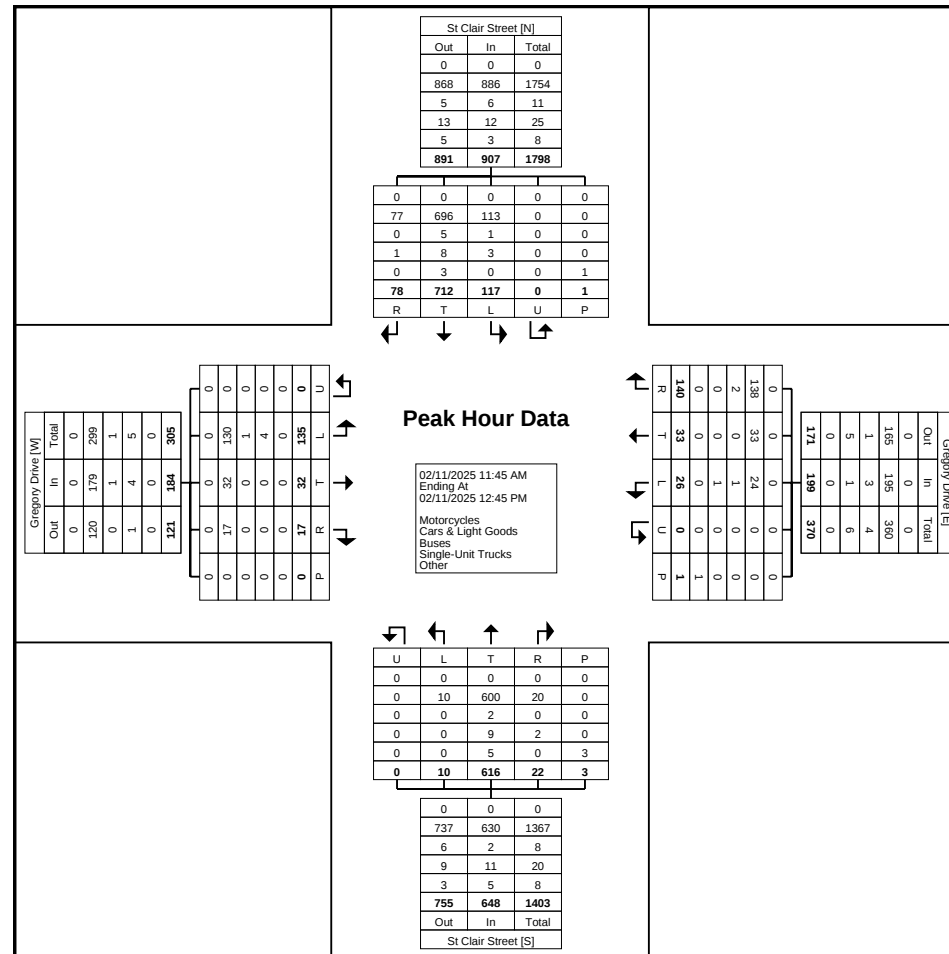
Start Time	Gregory Drive Eastbound						Gregory Drive Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	40	4	6	0	0	50	6	4	32	0	0	42	2	180	6	0	1	188	22	180	19	0	0	221	501
12:00 PM	34	11	2	0	0	47	8	11	36	0	0	55	2	153	11	0	1	166	30	192	13	0	0	235	503
12:15 PM	41	5	3	0	0	49	6	7	34	0	0	47	3	156	4	0	0	163	32	180	20	0	0	232	491
12:30 PM	20	12	6	0	0	38	6	11	38	0	1	55	3	127	1	0	1	131	33	160	26	0	1	219	443
Total	135	32	17	0	0	184	26	33	140	0	1	199	10	616	22	0	3	648	117	712	78	0	1	907	1938
Approach %	73.4	17.4	9.2	0.0	-	-	13.1	16.6	70.4	0.0	-	-	1.5	95.1	3.4	0.0	-	-	12.9	78.5	8.6	0.0	-	-	-
Total %	7.0	1.7	0.9	0.0	-	9.5	1.3	1.7	7.2	0.0	-	10.3	0.5	31.8	1.1	0.0	-	33.4	6.0	36.7	4.0	0.0	-	46.8	-
PHF	0.823	0.667	0.708	0.000	-	0.920	0.813	0.750	0.921	0.000	-	0.905	0.833	0.856	0.500	0.000	-	0.862	0.886	0.927	0.750	0.000	-	0.965	0.963
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	130	32	17	0	-	179	24	33	138	0	-	195	10	600	20	0	-	630	113	696	77	0	-	886	1890
% Cars & Light Goods	96.3	100.0	100.0	-	-	97.3	92.3	100.0	98.6	-	-	98.0	100.0	97.4	90.9	-	-	97.2	96.6	97.8	98.7	-	-	97.7	97.5
Buses	1	0	0	0	-	1	1	0	2	0	-	3	0	2	0	0	-	2	1	5	0	0	-	6	12
% Buses	0.7	0.0	0.0	-	-	0.5	3.8	0.0	1.4	-	-	1.5	0.0	0.3	0.0	-	-	0.3	0.9	0.7	0.0	-	-	0.7	0.6
Single-Unit Trucks	4	0	0	0	-	4	1	0	0	0	-	1	0	9	2	0	-	11	3	8	1	0	-	12	28
% Single-Unit Trucks	3.0	0.0	0.0	-	-	2.2	3.8	0.0	0.0	-	-	0.5	0.0	1.5	9.1	-	-	1.7	2.6	1.1	1.3	-	-	1.3	1.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	0	-	5	0	3	0	0	-	3	8
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.8	0.0	-	-	0.8	0.0	0.4	0.0	-	-	0.3	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: St Clair Street & Gregory Drive -
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Site Code: 230754
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Turning Movement Peak Hour Data Plot (11:45 AM)



Paradigm Transportation Solutions Limited
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Cambridge, Ontario, Canada N1R 8J8
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Count Name: St Clair Street & Gregory Drive -
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Turning Movement Peak Hour Data (3:45 PM)

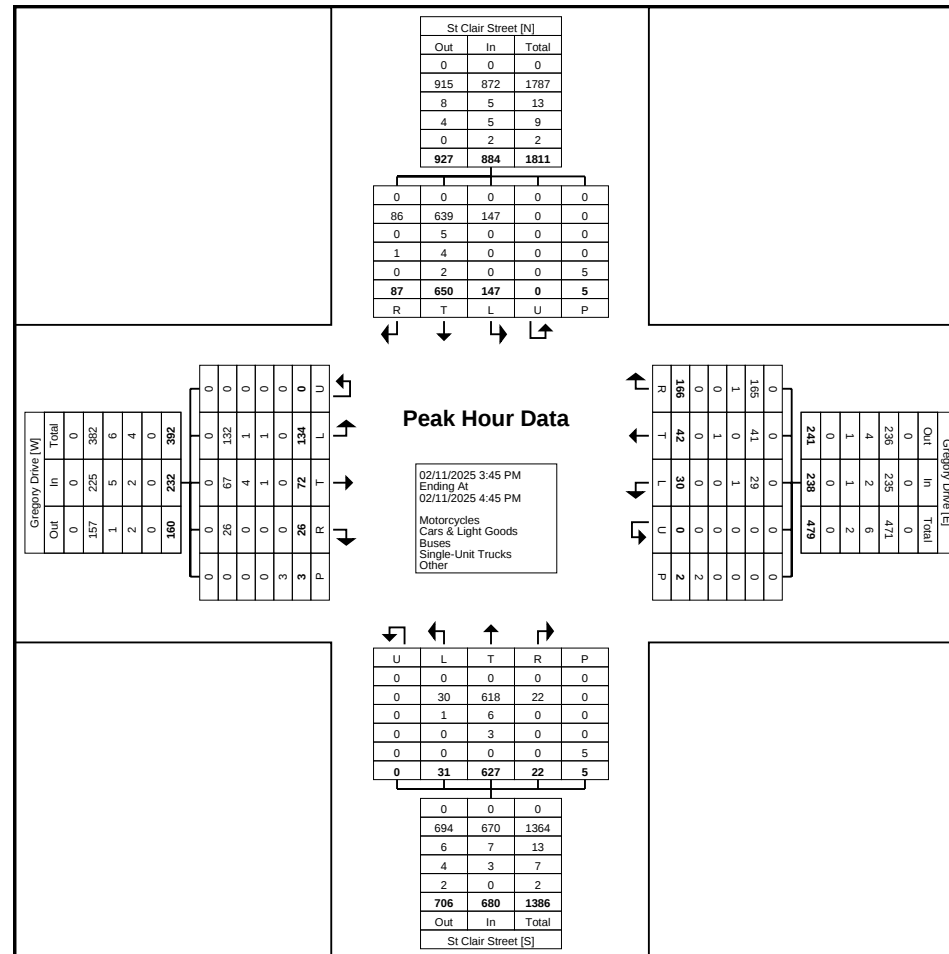
Start Time	Gregory Drive Eastbound						Gregory Drive Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
3:45 PM	35	19	7	0	1	61	8	8	30	0	2	46	11	166	0	0	3	177	39	172	21	0	3	232	516
4:00 PM	46	17	6	0	0	69	7	9	51	0	0	67	6	154	8	0	0	168	31	155	23	0	0	209	513
4:15 PM	27	16	7	0	1	50	9	17	47	0	0	73	6	146	5	0	1	157	31	144	27	0	1	202	482
4:30 PM	26	20	6	0	1	52	6	8	38	0	0	52	8	161	9	0	1	178	46	179	16	0	1	241	523
Total	134	72	26	0	3	232	30	42	166	0	2	238	31	627	22	0	5	680	147	650	87	0	5	884	2034
Approach %	57.8	31.0	11.2	0.0	-	-	12.6	17.6	69.7	0.0	-	-	4.6	92.2	3.2	0.0	-	-	16.6	73.5	9.8	0.0	-	-	-
Total %	6.6	3.5	1.3	0.0	-	11.4	1.5	2.1	8.2	0.0	-	11.7	1.5	30.8	1.1	0.0	-	33.4	7.2	32.0	4.3	0.0	-	43.5	-
PHF	0.728	0.900	0.929	0.000	-	0.841	0.833	0.618	0.814	0.000	-	0.815	0.705	0.944	0.611	0.000	-	0.955	0.799	0.908	0.806	0.000	-	0.917	0.972
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	132	67	26	0	-	225	29	41	165	0	-	235	30	618	22	0	-	670	147	639	86	0	-	872	2002
% Cars & Light Goods	98.5	93.1	100.0	-	-	97.0	96.7	97.6	99.4	-	-	98.7	96.8	98.6	100.0	-	-	98.5	100.0	98.3	98.9	-	-	98.6	98.4
Buses	1	4	0	0	-	5	1	0	1	0	-	2	1	6	0	0	-	7	0	5	0	0	-	5	19
% Buses	0.7	5.6	0.0	-	-	2.2	3.3	0.0	0.6	-	-	0.8	3.2	1.0	0.0	-	-	1.0	0.0	0.8	0.0	-	-	0.6	0.9
Single-Unit Trucks	1	1	0	0	-	2	0	1	0	0	-	1	0	3	0	0	-	3	0	4	1	0	-	5	11
% Single-Unit Trucks	0.7	1.4	0.0	-	-	0.9	0.0	2.4	0.0	-	-	0.4	0.0	0.5	0.0	-	-	0.4	0.0	0.6	1.1	-	-	0.6	0.5
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.1	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	50.0	-	-	-	-	-	0.0	-	-	-	-	-	20.0	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	50.0	-	-	-	-	-	100.0	-	-	-	-	-	80.0	-	-



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

Count Name: St Clair Street & Gregory Drive -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 1

Turning Movement Data

Start Time	Gregory Drive Eastbound						Gregory Drive Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
10:00 AM	37	8	2	0	1	47	5	13	45	0	0	63	4	129	4	0	1	137	15	120	20	0	0	155	402
10:15 AM	34	5	5	0	1	44	7	7	31	0	1	45	0	144	4	0	1	148	26	138	16	0	0	180	417
10:30 AM	34	8	7	0	0	49	8	11	54	0	1	73	2	168	3	0	0	173	26	119	22	0	0	167	462
10:45 AM	37	4	7	0	1	48	3	2	42	0	0	47	6	162	3	0	0	171	37	151	23	0	1	211	477
Hourly Total	142	25	21	0	3	188	23	33	172	0	2	228	12	603	14	0	2	629	104	528	81	0	1	713	1758
11:00 AM	37	4	3	0	0	44	12	14	46	0	0	72	4	198	8	0	0	210	30	179	20	0	0	229	555
11:15 AM	33	9	8	0	0	50	10	2	62	0	0	74	5	226	4	0	0	235	32	165	21	0	0	218	577
11:30 AM	31	10	4	0	0	45	6	7	57	0	0	70	5	189	9	0	0	203	35	196	24	0	0	255	573
11:45 AM	39	8	8	0	1	55	11	4	53	0	0	68	5	179	3	0	0	187	33	191	24	0	0	248	558
Hourly Total	140	31	23	0	1	194	39	27	218	0	0	284	19	792	24	0	0	835	130	731	89	0	0	950	2263
12:00 PM	38	8	5	0	1	51	8	2	56	0	0	66	3	202	10	0	0	215	41	194	43	0	0	278	610
12:15 PM	38	6	3	0	1	47	11	3	53	0	0	67	2	172	7	0	1	181	35	194	18	0	2	247	542
12:30 PM	40	4	2	0	0	46	6	9	41	0	2	56	1	162	5	0	2	168	36	212	26	0	0	274	544
12:45 PM	41	7	5	0	2	53	9	2	47	0	0	58	4	163	9	0	1	176	36	198	24	0	1	258	545
Hourly Total	157	25	15	0	4	197	34	16	197	0	2	247	10	699	31	0	4	740	148	798	111	0	3	1057	2241
1:00 PM	43	11	3	0	0	57	6	15	48	0	0	69	7	190	5	0	0	202	41	182	31	0	0	254	582
1:15 PM	40	8	5	0	0	53	5	7	48	0	0	60	1	208	6	0	0	215	34	210	32	0	0	276	604
1:30 PM	32	6	9	0	0	47	10	11	39	0	0	60	6	189	5	0	1	200	42	194	28	0	0	264	571
1:45 PM	35	2	5	0	0	42	5	5	38	0	1	48	4	179	9	0	0	192	40	198	28	0	0	266	548
Hourly Total	150	27	22	0	0	199	26	38	173	0	1	237	18	766	25	0	1	809	157	784	119	0	0	1060	2305
2:00 PM	38	5	4	0	1	47	10	9	43	0	1	62	3	180	7	0	0	190	35	215	25	0	1	275	574
2:15 PM	35	4	2	0	0	41	9	9	37	0	0	55	1	208	4	0	0	213	22	192	27	0	0	241	550
2:30 PM	32	8	4	0	0	44	6	1	44	0	1	51	4	187	1	0	0	192	44	193	23	0	0	260	547
2:45 PM	40	5	5	0	1	50	11	2	36	0	2	49	3	161	4	0	3	168	36	187	13	0	1	236	503
Hourly Total	145	22	15	0	2	182	36	21	160	0	4	217	11	736	16	0	3	763	137	787	88	0	2	1012	2174
3:00 PM	34	7	4	0	0	45	3	2	41	0	0	46	3	133	3	0	0	139	39	187	23	0	0	249	479
3:15 PM	42	3	8	0	0	53	9	9	66	0	1	84	6	160	7	0	0	173	31	175	22	0	1	228	538
3:30 PM	37	7	7	0	0	51	2	4	45	0	0	51	2	127	6	0	1	135	41	165	23	0	0	229	466
3:45 PM	31	8	4	0	0	43	3	11	50	0	1	64	3	132	6	0	1	141	41	173	25	0	0	239	487
Hourly Total	144	25	23	0	0	192	17	26	202	0	2	245	14	552	22	0	2	588	152	700	93	0	1	945	1970
Grand Total	878	155	119	0	10	1152	175	161	1122	0	11	1458	84	4148	132	0	12	4364	828	4328	581	0	7	5737	12711
Approach %	76.2	13.5	10.3	0.0	-	-	12.0	11.0	77.0	0.0	-	-	1.9	95.1	3.0	0.0	-	-	14.4	75.4	10.1	0.0	-	-	-
Total %	6.9	1.2	0.9	0.0	-	9.1	1.4	1.3	8.8	0.0	-	11.5	0.7	32.6	1.0	0.0	-	34.3	6.5	34.0	4.6	0.0	-	45.1	-
Motorcycles	0	0	0	0	-	0	0	0	1	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	2
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.1	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0

Cars & Light Goods	873	154	119	0	-	1146	173	159	1121	0	-	1453	84	4121	132	0	-	4337	828	4294	576	0	-	5698	12634
% Cars & Light Goods	99.4	99.4	100.0	-	-	99.5	98.9	98.8	99.9	-	-	99.7	100.0	99.3	100.0	-	-	99.4	100.0	99.2	99.1	-	-	99.3	99.4
Buses	4	0	0	0	-	4	0	0	0	0	-	0	0	12	0	0	-	12	0	15	2	0	-	17	33
% Buses	0.5	0.0	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.3	0.0	0.3	0.3	-	-	0.3	0.3
Single-Unit Trucks	1	0	0	0	-	1	2	1	0	0	-	3	0	11	0	0	-	11	0	12	1	0	-	13	28
% Single-Unit Trucks	0.1	0.0	0.0	-	-	0.1	1.1	0.6	0.0	-	-	0.2	0.0	0.3	0.0	-	-	0.3	0.0	0.3	0.2	-	-	0.2	0.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	0	-	3	0	7	0	0	-	7	10
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0	0.2	0.0	-	-	0.1	0.1
Bicycles on Road	0	1	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	0	2	0	-	2	4
% Bicycles on Road	0.0	0.6	0.0	-	-	0.1	0.0	0.6	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.3	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	20.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	14.3	-	-
Pedestrians	-	-	-	-	8	-	-	-	-	-	11	-	-	-	-	-	12	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	80.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	85.7	-	-

Turning Movement Data Plot

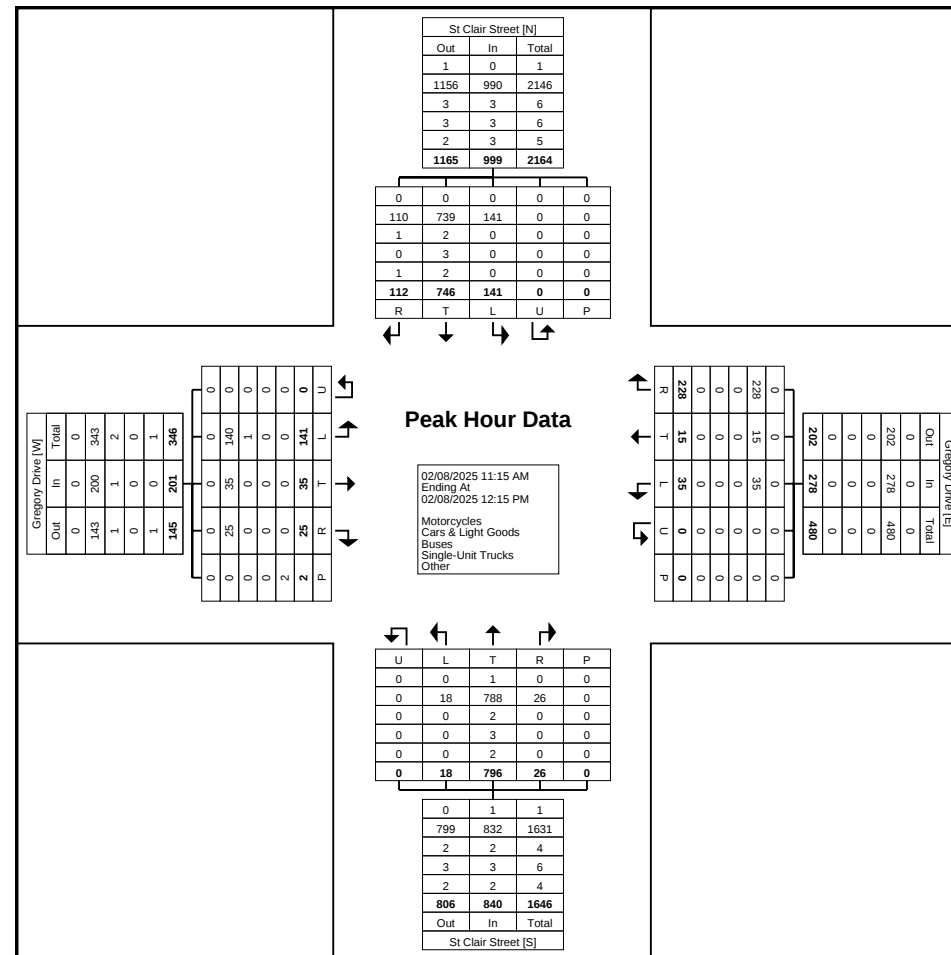
Start Time	Gregory Drive Eastbound						Gregory Drive Westbound						St Clair Street Northbound						St Clair Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:15 AM	33	9	8	0	0	50	10	2	62	0	0	74	5	226	4	0	0	235	32	165	21	0	0	218	577
11:30 AM	31	10	4	0	0	45	6	7	57	0	0	70	5	189	9	0	0	203	35	196	24	0	0	255	573
11:45 AM	39	8	8	0	1	55	11	4	53	0	0	68	5	179	3	0	0	187	33	191	24	0	0	248	558
12:00 PM	38	8	5	0	1	51	8	2	56	0	0	66	3	202	10	0	0	215	41	194	43	0	0	278	610
Total	141	35	25	0	2	201	35	15	228	0	0	278	18	796	26	0	0	840	141	746	112	0	0	999	2318
Approach %	70.1	17.4	12.4	0.0	-	-	12.6	5.4	82.0	0.0	-	-	2.1	94.8	3.1	0.0	-	-	14.1	74.7	11.2	0.0	-	-	-
Total %	6.1	1.5	1.1	0.0	-	8.7	1.5	0.6	9.8	0.0	-	12.0	0.8	34.3	1.1	0.0	-	36.2	6.1	32.2	4.8	0.0	-	43.1	-
PHF	0.904	0.875	0.781	0.000	-	0.914	0.795	0.536	0.919	0.000	-	0.939	0.900	0.881	0.650	0.000	-	0.894	0.860	0.952	0.651	0.000	-	0.898	0.950
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	140	35	25	0	-	200	35	15	228	0	-	278	18	788	26	0	-	832	141	739	110	0	-	990	2300
% Cars & Light Goods	99.3	100.0	100.0	-	-	99.5	100.0	100.0	100.0	-	-	100.0	100.0	99.0	100.0	-	-	99.0	100.0	99.1	98.2	-	-	99.1	99.2
Buses	1	0	0	0	-	1	0	0	0	0	-	0	0	2	0	0	-	2	0	2	1	0	-	3	6
% Buses	0.7	0.0	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	0.0	0.3	0.9	-	-	0.3	0.3
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	3	0	0	-	3	0	3	0	0	-	3	6
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.4	0.0	0.4	0.0	-	-	0.3	0.3
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	2	0	0	-	2	4
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	0.0	0.3	0.0	-	-	0.2	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	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	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.9	-	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	50.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: St Clair Street & Gregory Drive -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 5



Turning Movement Peak Hour Data Plot (11:15 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Tim Hortons & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 1

Turning Movement Data

Start Time	Tim Hortons & Micheals Access Eastbound					St Clair Street Northbound					St Clair Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	1	1	0	0	2	0	69	0	0	69	39	4	0	0	43	114
7:15 AM	1	0	0	2	1	0	59	0	0	59	40	3	0	0	43	103
7:30 AM	1	0	0	0	1	0	64	0	0	64	58	6	0	0	64	129
7:45 AM	0	0	0	0	0	0	100	0	0	100	61	4	0	0	65	165
Hourly Total	3	1	0	2	4	0	292	0	0	292	198	17	0	0	215	511
8:00 AM	1	0	0	1	1	0	74	0	0	74	60	8	0	0	68	143
8:15 AM	0	1	0	0	1	1	79	0	0	80	67	7	0	0	74	155
8:30 AM	1	1	0	2	2	0	68	0	0	68	67	8	0	0	75	145
8:45 AM	0	1	0	1	1	0	77	0	0	77	87	6	0	0	93	171
Hourly Total	2	3	0	4	5	1	298	0	0	299	281	29	0	0	310	614
9:00 AM	0	0	0	0	0	0	70	0	0	70	70	3	0	0	73	143
9:15 AM	1	1	0	0	2	0	93	0	0	93	69	3	0	0	72	167
9:30 AM	1	1	0	1	2	0	87	0	0	87	83	4	0	0	87	176
9:45 AM	1	3	0	0	4	0	86	0	0	86	97	1	0	0	98	188
Hourly Total	3	5	0	1	8	0	336	0	0	336	319	11	0	0	330	674
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	0	1	0	0	1	2	109	0	0	111	116	5	0	0	121	233
11:45 AM	1	2	0	0	3	0	146	1	0	147	116	5	0	0	121	271
Hourly Total	1	3	0	0	4	2	255	1	0	258	232	10	0	0	242	504
12:00 PM	1	4	0	0	5	1	132	0	0	133	127	6	0	0	133	271
12:15 PM	2	2	0	0	4	0	126	0	0	126	120	5	0	0	125	255
12:30 PM	1	8	0	0	9	0	101	0	0	101	125	4	0	0	129	239
12:45 PM	0	2	0	0	2	0	112	0	0	112	120	5	0	0	125	239
Hourly Total	4	16	0	0	20	1	471	0	0	472	492	20	0	0	512	1004
1:00 PM	1	1	0	0	2	1	120	0	0	121	109	4	0	0	113	236
1:15 PM	0	1	0	2	1	1	133	0	0	134	120	4	0	0	124	259
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	1	2	0	2	3	2	253	0	0	255	229	8	0	0	237	495
3:00 PM	0	4	0	1	4	0	131	0	0	131	103	3	0	0	106	241
3:15 PM	1	2	0	4	3	0	132	0	0	132	124	3	0	0	127	262
3:30 PM	0	2	0	1	2	0	105	0	0	105	125	0	0	0	125	232
3:45 PM	0	4	0	1	4	0	155	0	0	155	143	3	0	0	146	305
Hourly Total	1	12	0	7	13	0	523	0	0	523	495	9	0	0	504	1040
4:00 PM	0	3	0	1	3	0	136	0	0	136	98	1	0	0	99	238
4:15 PM	0	2	0	0	2	0	132	0	0	132	124	0	0	0	124	258
4:30 PM	0	2	0	1	2	0	113	0	0	113	143	0	0	0	143	258

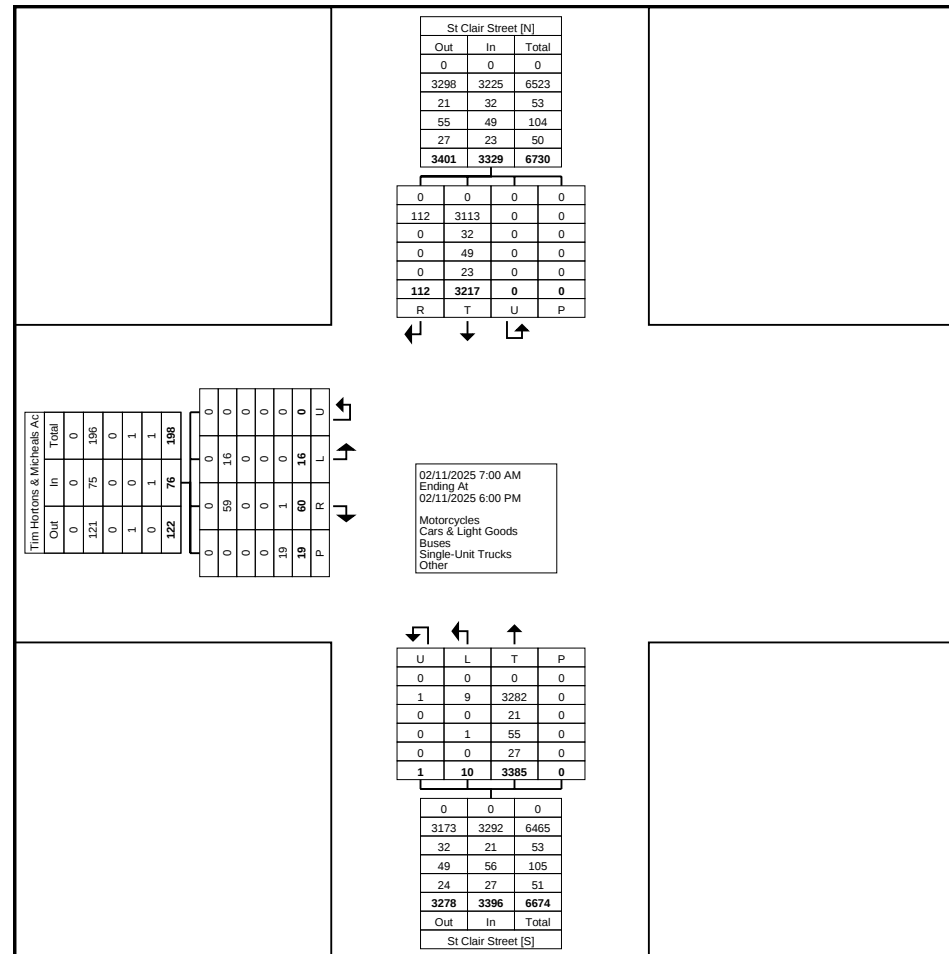
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Tim Hortons & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 3



Turning Movement Data Plot

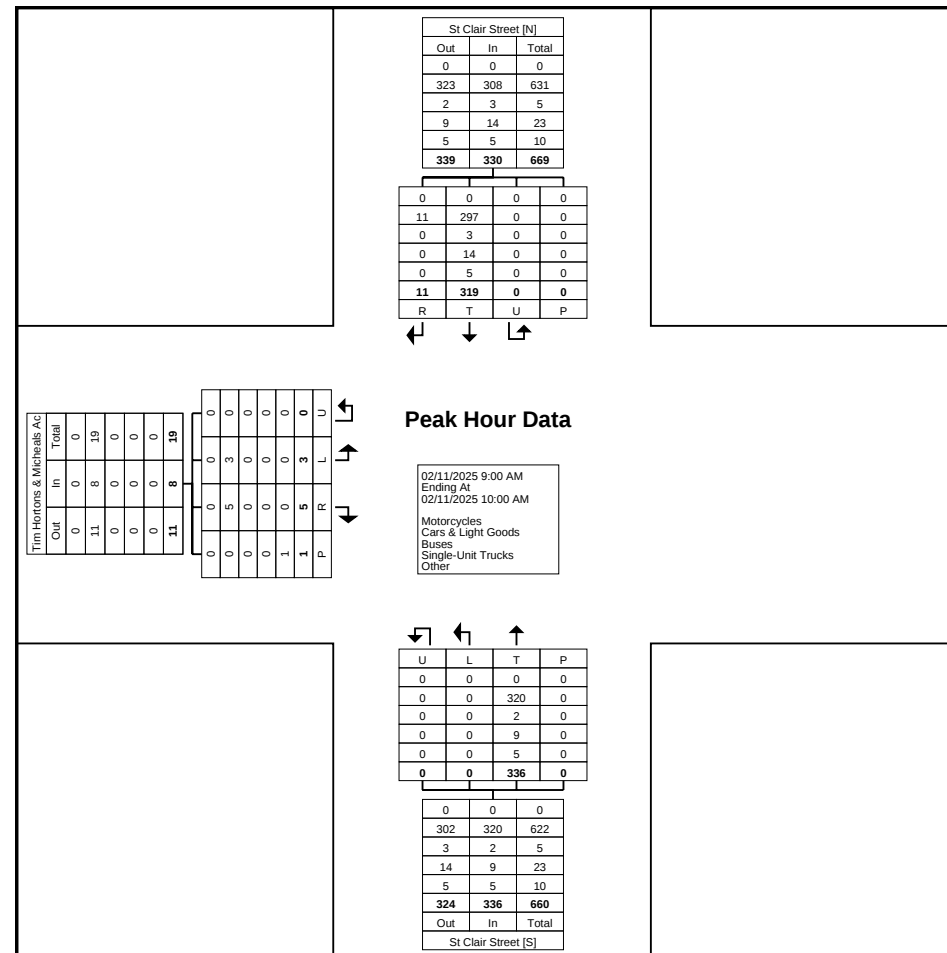
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Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Tim Hortons & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 5



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

[illegible]

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

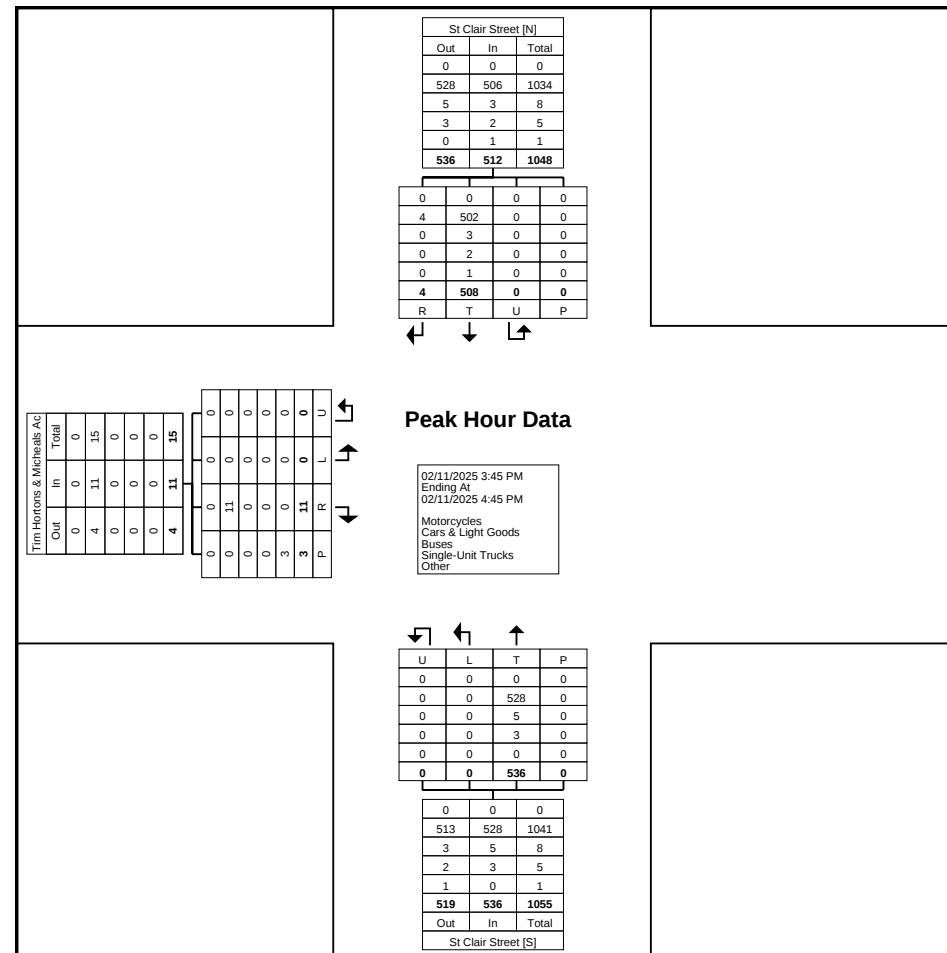
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Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Tim Hortons & Micheals Access -
Weekday
Site Code: 230754
Start Date: 02/11/2025
Page No: 9



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@pts1.com

Count Name: Tim Hortons & Micheals Access -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 1

Turning Movement Data

Start Time	Tim Hortons & Micheals Access Eastbound					St Clair Street Northbound					St Clair Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
10:00 AM	1	1	0	1	2	0	106	0	0	106	114	3	0	0	117	225
10:15 AM	0	4	0	1	4	0	117	0	0	117	100	4	0	0	104	225
10:30 AM	0	2	0	2	2	2	131	0	0	133	99	3	0	0	102	237
10:45 AM	1	0	0	0	1	0	137	0	0	137	127	3	0	0	130	268
Hourly Total	2	7	0	4	9	2	491	0	0	493	440	13	0	0	453	955
11:00 AM	0	3	0	0	3	0	145	0	0	145	124	6	0	0	130	278
11:15 AM	2	8	0	0	10	0	171	0	0	171	147	8	0	0	155	336
11:30 AM	0	6	0	0	6	0	158	0	0	158	156	6	0	0	162	326
11:45 AM	0	6	0	0	6	1	140	0	0	141	118	6	0	0	124	271
Hourly Total	2	23	0	0	25	1	614	0	0	615	545	26	0	0	571	1211
12:00 PM	0	2	0	0	2	0	162	0	0	162	154	5	0	0	159	323
12:15 PM	0	2	0	0	2	1	155	0	0	156	144	6	0	0	150	308
12:30 PM	0	6	0	0	6	1	153	0	0	154	165	1	0	0	166	326
12:45 PM	0	5	0	0	5	0	156	0	0	156	160	3	0	0	163	324
Hourly Total	0	15	0	0	15	2	626	0	0	628	623	15	0	0	638	1281
1:00 PM	0	6	0	0	6	2	160	0	0	162	152	8	0	0	160	328
1:15 PM	0	8	0	1	8	0	152	0	0	152	159	10	0	0	169	329
1:30 PM	1	6	0	2	7	1	166	0	0	167	154	8	0	0	162	336
1:45 PM	0	3	0	0	3	0	135	0	0	135	153	5	0	0	158	296
Hourly Total	1	23	0	3	24	3	613	0	0	616	618	31	0	0	649	1289
2:00 PM	1	2	0	0	3	0	145	0	0	145	177	7	0	0	184	332
2:15 PM	1	1	0	0	2	1	158	0	0	159	125	4	0	0	129	290
2:30 PM	0	7	0	0	7	0	161	0	0	161	143	5	0	0	148	316
2:45 PM	0	2	0	1	2	2	122	0	0	124	138	4	0	0	142	268
Hourly Total	2	12	0	1	14	3	586	0	0	589	583	20	0	0	603	1206
3:00 PM	1	5	0	0	6	0	143	0	0	143	152	3	0	0	155	304
3:15 PM	1	10	0	1	11	0	167	0	0	167	115	4	0	0	119	297
3:30 PM	0	5	0	1	5	0	109	0	0	109	122	3	0	0	125	239
3:45 PM	1	4	0	0	5	2	123	0	0	125	150	0	0	0	150	280
Hourly Total	3	24	0	2	27	2	542	0	0	544	539	10	0	0	549	1120
Grand Total	10	104	0	10	114	13	3472	0	0	3485	3348	115	0	0	3463	7062
Approach %	8.8	91.2	0.0	-	-	0.4	99.6	0.0	-	-	96.7	3.3	0.0	-	-	-
Total %	0.1	1.5	0.0	-	1.6	0.2	49.2	0.0	-	49.3	47.4	1.6	0.0	-	49.0	-
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	10	104	0	-	114	13	3457	0	-	3470	3328	115	0	-	3443	7027

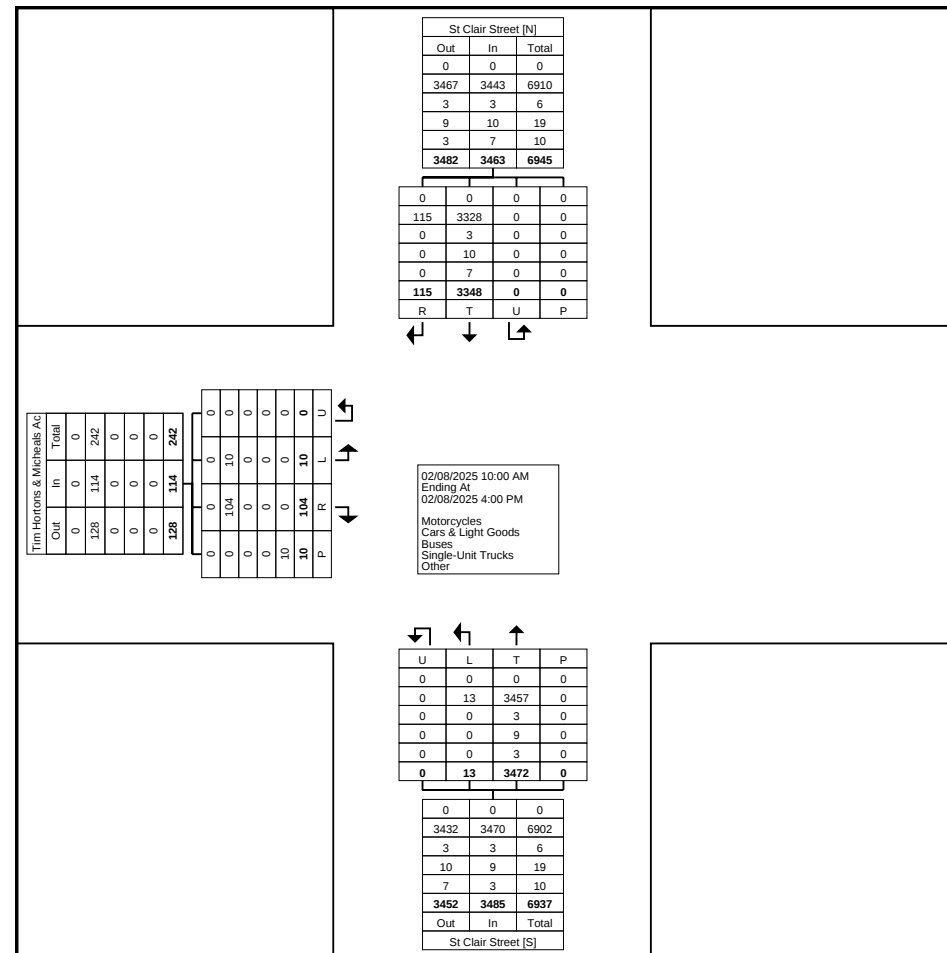
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Tim Hortons & Micheals Access -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 3



Turning Movement Data Plot

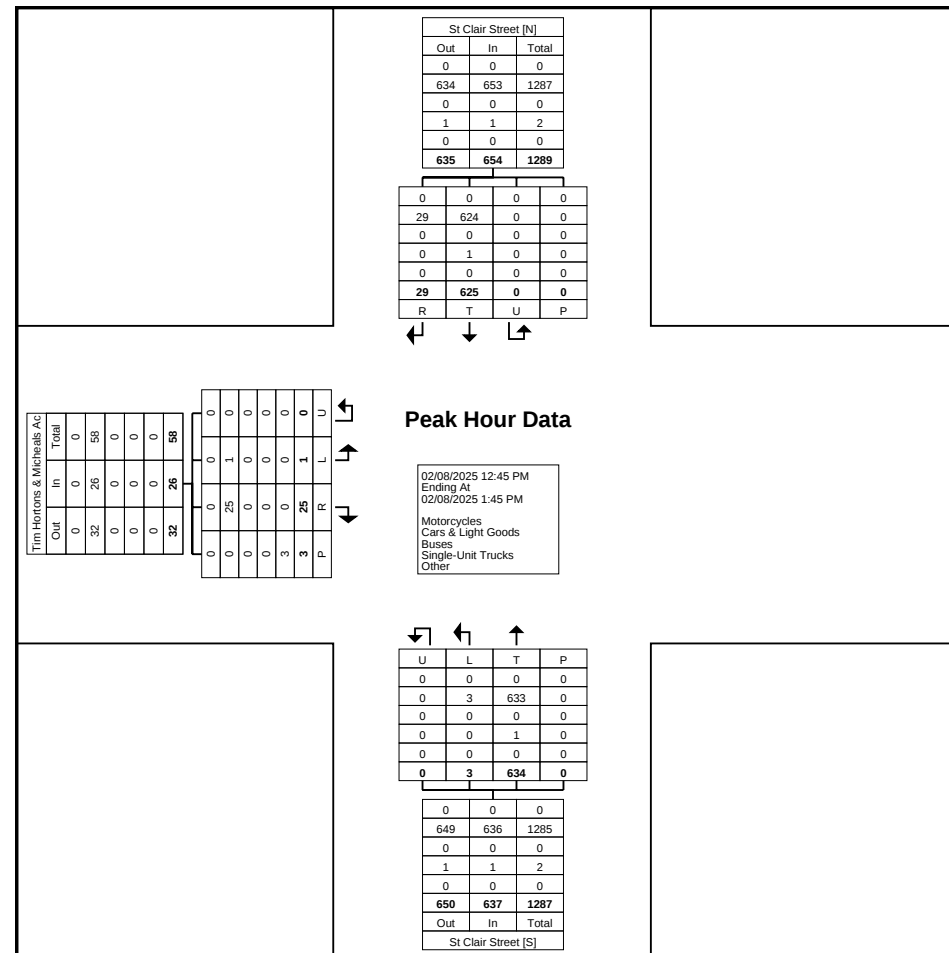
[illegible]



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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

Count Name: Tim Hortons & Micheals Access -
Saturday
Site Code: 230754
Start Date: 02/08/2025
Page No: 5



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

Count Location: Internal Staples Intersection
 Start Date: 02/11/2025

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Eastbound		Westbound		Southbound		Int. Total
	Left	Thru	Thru	Right	Left	Right	
9:00 AM	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0
9:45 AM	0	0	1	0	1	0	2
Total	0	0	1	0	1	0	2
Trucks	0	0	1	0	0	0	1
% Trucks	0%	0%	100%	0%	0%	0%	50%

Turning Movement Peak Hour Data (3:15 PM)

Start Time	Eastbound		Westbound		Southbound		Int. Total
	Left	Thru	Thru	Right	Left	Right	
3:15 PM	0	2	0	1	1	0	4
3:30 PM	0	0	1	1	3	0	5
3:45 PM	0	0	2	1	4	0	7
4:00 PM	0	1	0	0	3	0	4
Total	0	3	3	3	11	0	20
Trucks	0	0	0	0	2	0	2
% Trucks	0%	0%	0%	0%	18%	0%	10%

Start Date: 02/08/2025

Turning Movement Peak Hour Data (12:30 PM)

Start Time	Eastbound		Westbound		Southbound		Int. Total
	Left	Thru	Thru	Right	Left	Right	
12:30 PM	0	1	0	0	3	0	4
12:45 PM	0	1	1	0	5	0	7
1:00 PM	0	0	1	1	0	0	2
1:15 PM	0	0	0	1	1	0	2
Total	0	2	2	2	9	0	15
Trucks	0	0	0	0	0	0	0
% Trucks	0%	0%	0%	0%	0%	0%	0%

Count Location: Internal Galaxy Intersection
 Start Date: 02/11/2025

Turning Movement Peak Hour Data (9:00 AM)

Start Time	Eastbound		Westbound		Northbound		Int. Total
	Thru	Right	Left	Thru	Left	Right	
9:00 AM	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	0
% Trucks	0%	0%	0%	0%	0%	0%	0%

Start Date: 02/06/2025

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Eastbound		Westbound		Northbound		Int. Total
	Thru	Right	Left	Thru	Left	Right	
4:30 PM	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	1
5:00 PM	0	0	0	1	0	0	1
5:15 PM	1	0	0	0	0	0	1
Total	1	0	1	1	0	0	3
Trucks	0	0	0	0	0	0	0
% Trucks	0%	0%	0%	0%	0%	0%	0%

Start Date: 02/08/2025

Turning Movement Peak Hour Data (11:15 AM)

Start Time	Eastbound		Westbound		Northbound		Int. Total
	Thru	Right	Left	Thru	Left	Right	
11:15 AM	1	0	0	1	0	0	2
11:30 AM	0	0	0	1	0	0	1
11:45 AM	2	0	0	1	0	0	3
12:00 PM	0	0	0	0	0	0	0
Total	3	0	0	3	0	0	6
Trucks	0	0	0	0	0	0	0
% Trucks	0%	0%	0%	0%	0%	0%	0%

Fixed Time

ASC/2

PROGRAM REFERENCE CARD

Intersection: St.Clair St at North Maple Mall/Home Depot # 44

Date: April 3, 2024 Entered By: unknown

1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8
MIN GRN	7.0	31.0	10.0	10.0	7.0	31.0	5.0	31.0
BIKE GRN								
CS MGRN								
WALK		8.0	8.0	8.0		8.0		
PED CLR		22.0	21.0	23.0		20.0		7.0
VEH EXT	3.0	5.0	4.0	4.0	3.0	5.0	5.0	5.0
VEH EXT 2								
MAX EXT								
MAX1	15.0	35.0	15.0	15.0	15.0	35.0	35.0	35.0
MAX2	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
MAX3								
DET MAX								
YELLOW	3.0	4.5	4.0	4.0	3.0	4.5	3.0	5.0
RED CLR	1.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0
RED RVT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

9. CONTROLLER OPTION DATA

PHASE	1	2	3	4	5	6	7	8
GUAR PASSAGE								
NONACTUATED I		x				x		
NONACTUATED II				x				x
DUAL ENTRY		x		x		x		x
COND SERVICE	x		x		x		x	
COND RESERVICE								
REST IN WALK		x						
FLASHING WALK								
FIVE SECTION LEFT TURN HEADS								
5-2		7-4		1-6				
3-8		11-10		9-12				
DUAL ENTRY	ON	RESERVED						
COND SERVICE ENABLE		BACKUP PROTECTION GROUP 1						ON
COND SERVICE DET X SWITCHING		BACKUP PROTECTION GROUP 2						ON
PED CLR PROTECT		BACKUP PROTECTION GROUP 3						
SPEC PREEMPT OVL P FLASH		SIMULTANEOUS GAP GROUP 1						
LOCK DETECTORS IN RED ONLY		SIMULTANEOUS GAP GROUP 2						
RESERVED		SIMULTANEOUS GAP GROUP 3						

2. DETECTOR PHASE ASSIGNMENT

DETECTOR	PHASES							
	1	2	3	4	5	6	7	8
1	X							
2					X			
3								
4								
5					X			
6								
7				X				
8			X					

4. CONTROLLER RECALL DATA

PHASE	1	2	3	4	5	6	7	8
LOCKING MEMORY								
VEHICLE RECALL		X				X		
PED RECALL		X				X		
RECALL TO MAX								
SOFT RECALL		X				X		
DON'T REST HERE								
PED DARK N/CALL								

6. CONTROLLER START/FLASH DATA

PHASE	1	2	3	4	5	6	7	8
POWER START		x				x		
EXTERNAL START		x				x		
ENTRY REM FLASH		x				x		
EXIT REM FLASH		x				x		
REM FLASH YEL								
FL TOGETHER PHS								
FL TOGETHER OVLPS	A:		B:		C:		D:	
POWER START	Yellow							
EXTERNAL START	Yellow							
POWER START ALL RED ME	0.05							
POWER START FLASH ME	0.05							
REMOTE FLASH OPTIONS:								
OUT OF FLASH YELLOW								
OUT OF FLASH ALL RED								
MINIMUM RECALL								
SPARE								
FLASH THRU LOAD SWITCHES								
CYCLE THROUGH PHASES								

1. DETECTOR TYPE/TIMERS

DET	TYPE	LOCK	EXTEND	DELAY	NO RESET	LOG ENABLE
1						
2						
3						
4						
5						
6						
7						
8						

4. CROSS SWITCHING

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

Municipality of Chatham-Kent

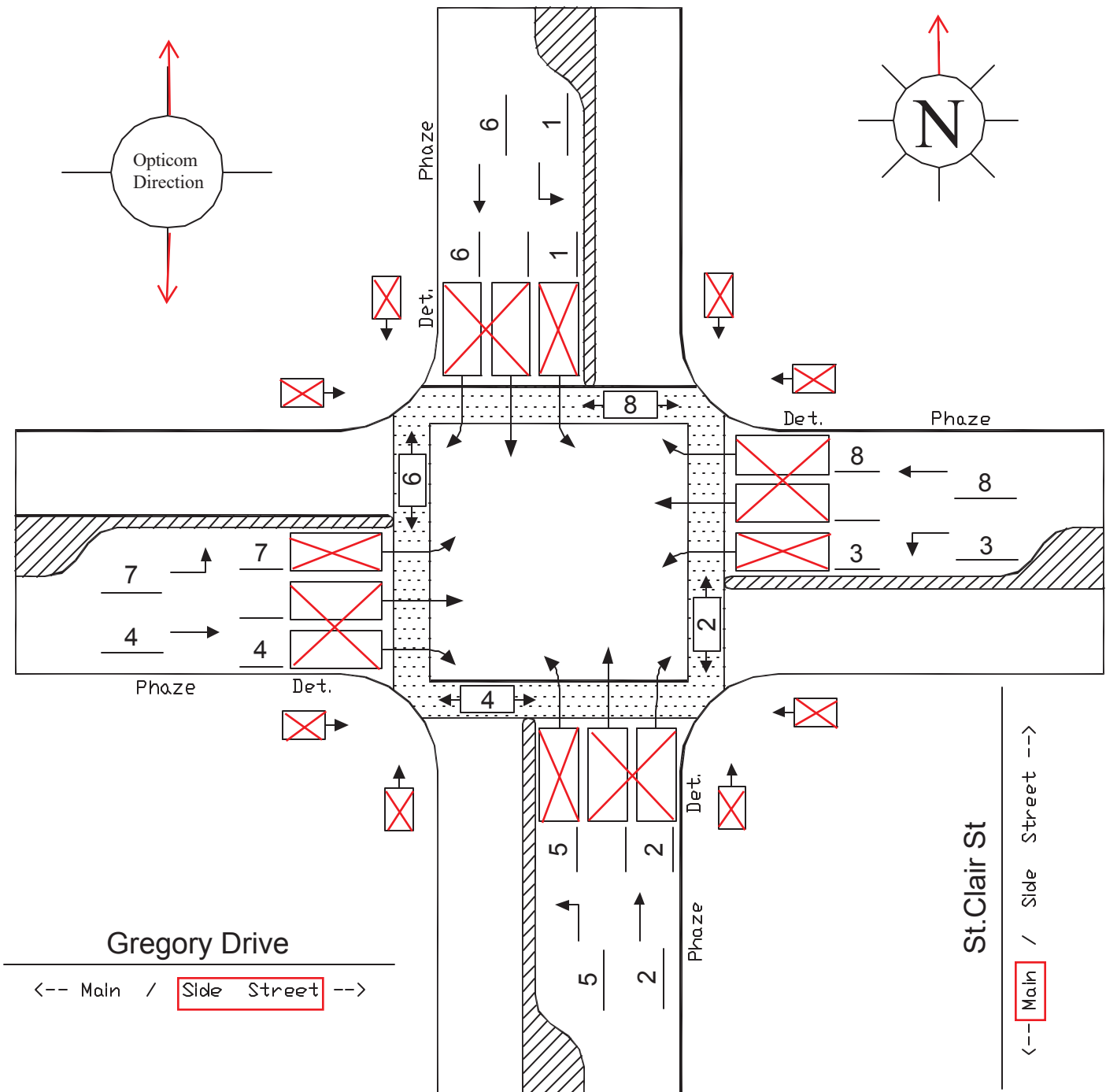
Signal Operation Diagram

Community: Chatham

Location: St.Clair St & Gregory Drive

Location No.: 43

Date: August 19, 2019



ASC/2

PROGRAM REFERENCE CARD

Intersection: St. Clair Street at Gregory Dr W # 43

Date: Revised February 19, 2025 Entered By: _____

1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8
MIN GRN	7.0	35.0	7.0	10.0	7.0	35.0	7.0	10.0
BIKE GRN								
CS MGRN								
WALK		8.0		8.0		8.0		8.0
PED CLR		13.0		19.0		14.0		20.0
VEH EXT	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
VEH EXT 2								
MAX EXT								
MAX1	15.0	35.0	15.0	25.0	15.0	35.0	15.0	25.0
MAX2		45.0		35.0		45.0		35.0
MAX3								
DET MAX								
YELLOW	3.0	4.1	3.0	4.1	3.0	4.1	3.0	4.1
RED CLR	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
RED RVT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

9. CONTROLLER OPTION DATA

PHASE	1	2	3	4	5	6	7	8
GUAR PASSAGE								
NONACTUATED I		x				x		
NONACTUATED II				x				x
DUAL ENTRY		x		x		x		x
COND SERVICE	x		x		x		x	
COND RESERVICE								
REST IN WALK		x				x		
FLASHING WALK								
FIVE SECTION LEFT TURN HEADS								
5-2		7-4		1-6				
3-8		11-10		9-12				
DUAL ENTRY	ON	RESERVED						
COND SERVICE ENABLE		BACKUP PROTECTION GROUP 1					ON	
COND SERVICE DET X SWITCHING		BACKUP PROTECTION GROUP 2					ON	
PED CLR PROTECT		BACKUP PROTECTION GROUP 3						
SPEC PREEMPT OVLP FLASH		SIMULTANEOUS GAP GROUP 1						
LOCK DETECTORS IN RED ONLY		SIMULTANEOUS GAP GROUP 2						
RESERVED		SIMULTANEOUS GAP GROUP 3						

2. DETECTOR PHASE ASSIGNMENT

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

4. CONTROLLER RECALL DATA

PHASE	1	2	3	4	5	6	7	8
LOCKING MEMORY								
VEHICLE RECALL								
PED RECALL		x				x		
RECALL TO MAX		x				x		
SOFT RECALL								
DON'T REST HERE								
PED DARK N/CALL								

6. CONTROLLER START/FLASH DATA

PHASE	1	2	3	4	5	6	7	8
POWER START		x				x		
EXTERNAL START		x				x		
ENTRY REM FLASH		x				x		
EXIT REM FLASH		x				x		
REM FLASH YEL								
FL TOGETHER PHS								
FL TOGETHER OVLPs	A:		B:		C:		D:	
POWER START	Red							
EXTERNAL START	Red							
POWER START ALL RED	0s							
ME								
POWER START FLASH	0s							
ME								
REMOTE FLASH OPTIONS:								
OUT OF FLASH YELLOW								
OUT OF FLASH ALL RED								
MINIMUM RECALL								
SPARE								
FLASH THRU LOAD SWITCHES								
CYCLE THROUGH PHASES								

1. DETECTOR TYPE/TIMERS

DET	TYPE	LOCK	EXTEND	DELAY	NO RESET	LOG ENABLE
1	1			3		
2						
3	1			3		
4						
5	1			3		
6						
7	1			3		
8						

4. CROSS SWITCHING

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

Municipality of Chatham-Kent

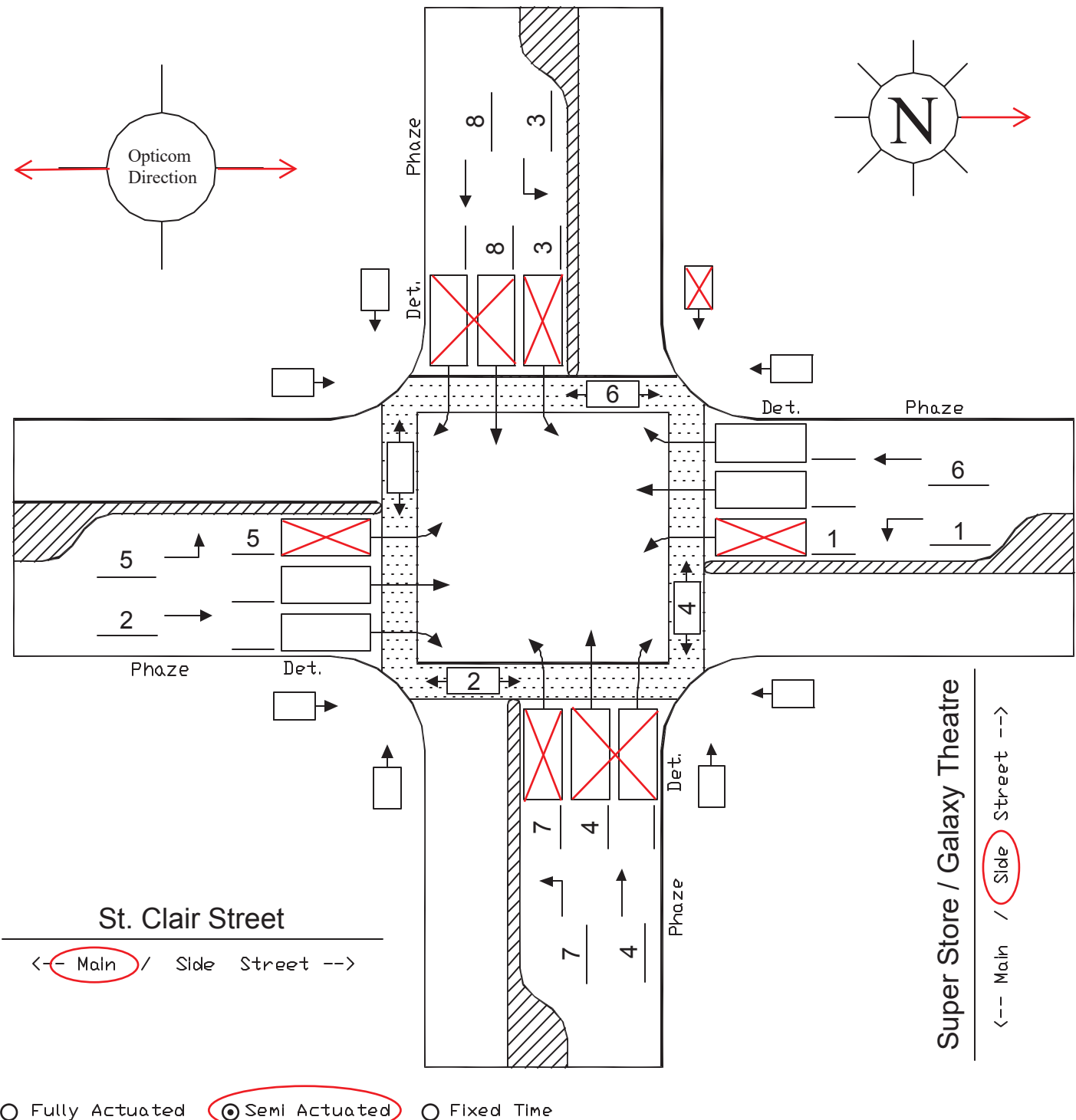
Signal Operation Diagram

Community: Chatham, Ontario

Location: St.Clair Street at Super Store / Galaxy Theatre

Location No.: 129

Date: December 23, 2011



ASC/2

PROGRAM REFERENCE CARD

Intersection: St. Clair Street at Super Store / Galaxy Theatre # 129

Date: Friday, December 23, 2011 Entered By: M.Ceppi

1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8
MIN GRN	7.0	35.0	7.0	10.0	7.0	35.0	7.0	10.0
BIKE GRN								
CS MGRN								
WALK		8.0		8.0		8.0		
PED CLR		17.0		19.0		19.0		
VEH EXT	3.0		3.0	4.0	3.0		3.0	4.0
VEH EXT 2								
MAX EXT								
MAX1	15.0	35.0	15.0	25.0	15.0	35.0	15.0	25.0
MAX2	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
MAX3								
DET MAX								
YELLOW	3.0	4.5	3.0	3.0	3.0	4.5	3.0	3.0
RED CLR	1.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0
RED RVT	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

9. CONTROLLER OPTION DATA

PHASE	1	2	3	4	5	6	7	8
GUAR PASSAGE								
NONACTUATED I		x				x		
NONACTUATED II				x				x
DUAL ENTRY		x		x		x		x
COND SERVICE	x		x		x		x	
COND RESERVICE								
REST IN WALK		x				x		
FLASHING WALK								
FIVE SECTION LEFT TURN HEADS								
5-2		7-4		1-6				
3-8		11-10		9-12				
DUAL ENTRY	ON	RESERVED						
COND SERVICE ENABLE		BACKUP PROTECTION GROUP 1						ON
COND SERVICE DET X SWITCHING		BACKUP PROTECTION GROUP 2						ON
PED CLR PROTECT		BACKUP PROTECTION GROUP 3						
SPEC PREEMPT OVLP FLASH		SIMULTANEOUS GAP GROUP 1						
LOCK DETECTORS IN RED ONLY		SIMULTANEOUS GAP GROUP 2						
RESERVED		SIMULTANEOUS GAP GROUP 3						

2. DETECTOR PHASE ASSIGNMENT

DETECTOR	1	2	3	4	5	6	7	8
1	X							
2								
3			X					X
4				X				
5								
6						X		
7				X			X	
8								X

4. CONTROLLER RECALL DATA

PHASE	1	2	3	4	5	6	7	8
LOCKING MEMORY								
VEHICLE RECALL		X				X		
PED RECALL		X				X		
RECALL TO MAX								
SOFT RECALL								
DON'T REST HERE								
PED DARK N/CALL								

6. CONTROLLER START/FLASH DATA

PHASE	1	2	3	4	5	6	7	8
POWER START		x				x		
EXTERNAL START		x				x		
ENTRY REM FLASH		x				x		
EXIT REM FLASH		x				x		
REM FLASH YEL								
FL TOGETHER PHS								
FL TOGETHER OVLPs	A:		B:		C:		D:	
POWER START	yellow							
EXTERNAL START	yellow							
POWER START ALL RED	0s							
ME								
POWER START FLASH	0s							
ME								
REMOTE FLASH OPTIONS:								
OUT OF FLASH YELLOW								
OUT OF FLASH ALL RED								
MINIMUM RECALL								
SPARE								
FLASH THRU LOAD SWITCHES								
CYCLE THROUGH PHASES								

1. DETECTOR TYPE/TIMERS

DET	TYPE	LOCK	EXTEND	DELAY	NO RESET	LOG ENABLE
1	1			3		
2						
3						
4						
5	1			3		
6						
7						
8						

4. CROSS SWITCHING

DETECTOR	1	2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
7								
8								

Municipality of Chatham-Kent

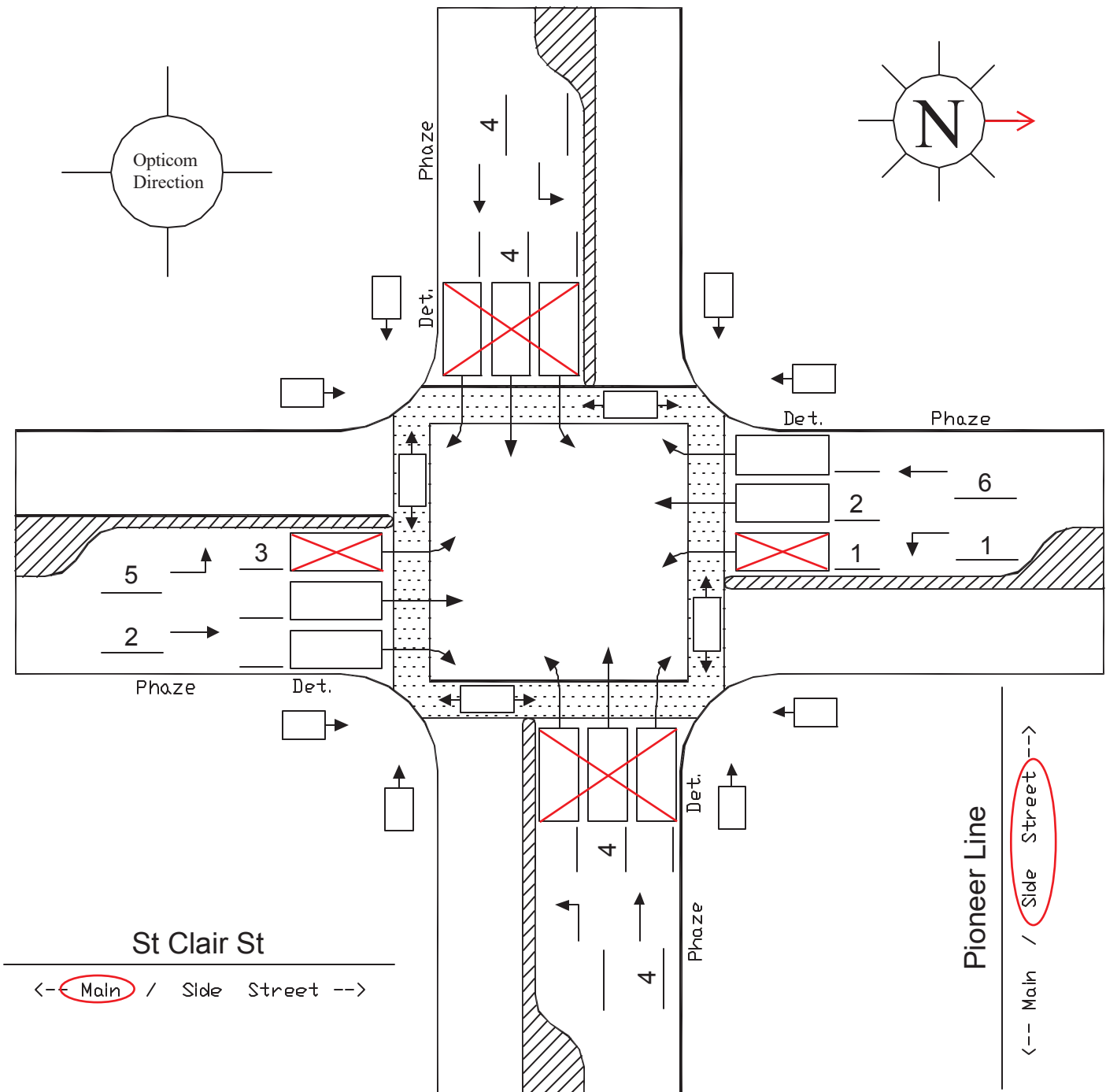
Signal Operation Diagram

Community: Chatham

Location: St.Clair St & Pioneer Line

Location No.: 122

Date: July 27, 2007



ASC/2

PROGRAM REFERENCE CARD

Intersection: St. Clair Street at Pioneer Line # 122

Date: Revised July 27, 2007 Entered By:

1. CONTROLLER TIMING DATA

PHASE	1	2	3	4	5	6	7	8
MIN GRN	5.0	35.0		10.0	5.0	35.0		
BIKE GRN								
CS MGRN								
WALK								
PED CLR								
VEH EXT	3.0			4.0	3.0	4.0		
VEH EXT 2								
MAX EXT								
MAX1	15.0	35.0		25.0	15.0	35.0		
MAX2								
MAX3								
DET MAX								
YELLOW								
RED CLR								
RED RVT								

9. CONTROLLER OPTION DATA

PHASE	1	2	3	4	5	6	7	8
GUAR PASSAGE								
NONACTUATED I		x				x		
NONACTUATED II				x				x
DUAL ENTRY		x		x		x		x
COND SERVICE	x		x		x		x	
COND RESERVICE								
REST IN WALK								
FLASHING WALK								
FIVE SECTION LEFT TURN HEADS								
5-2		7-4		1-6				
3-8		11-10		9-12				
DUAL ENTRY	ON	RESERVED						
COND SERVICE ENABLE		BACKUP PROTECTION GROUP 1					ON	
COND SERVICE DET X SWITCHING		BACKUP PROTECTION GROUP 2					ON	
PED CLR PROTECT		BACKUP PROTECTION GROUP 3						
SPEC PREEMPT OVLP FLASH		SIMULTANEOUS GAP GROUP 1						
LOCK DETECTORS IN RED ONLY		SIMULTANEOUS GAP GROUP 2						
RESERVED		SIMULTANEOUS GAP GROUP 3						

2. DETECTOR PHASE ASSIGNMENT

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

4. CONTROLLER RECALL DATA

PHASE	1	2	3	4	5	6	7	8
LOCKING MEMORY								
VEHICLE RECALL		x				x		
PED RECALL								
RECALL TO MAX								
SOFT RECALL		x				x		
DON'T REST HERE								
PED DARK N/CALL								

6. CONTROLLER START/FLASH DATA

PHASE	1	2	3	4	5	6	7	8
POWER START		x				x		
EXTERNAL START		x				x		
ENTRY REM FLASH		x				x		
EXIT REM FLASH		x				x		
REM FLASH YEL								
FL TOGETHER PHS								
FL TOGETHER OVLPS	A:		B:		C:		D:	
POWER START	Yellow							
EXTERNAL START	Yellow							
POWER START ALL RED	0s							
ME								
POWER START FLASH	0s							
ME								
REMOTE FLASH OPTIONS:								
OUT OF FLASH YELLOW								
OUT OF FLASH ALL RED								
MINIMUM RECALL								
SPARE								
FLASH THRU LOAD SWITCHES								
CYCLE THROUGH PHASES								

1. DETECTOR TYPE/TIMERS

DET	TYPE	LOCK	EXTEND	DELAY	NO RESET	LOG ENABLE
1	1			3		
2	0					
3	1			3		
4	1			5		
5						
6						
7						
8						

4. CROSS SWITCHING

DETECTOR	1	2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
7								
8								

Appendix C

Existing Traffic Operations Reports



Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	31	25	25	29	13	18	203	17	11	202	32
Future Volume (vph)	30	31	25	25	29	13	18	203	17	11	202	32
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.961				0.974			0.850			0.979	
Flt Protected	0.983				0.982		0.950			0.950		
Satd. Flow (prot)	0	1324	0	0	1358	0	1380	1682	1225	1482	2982	0
Flt Permitted	0.854				0.858		0.592			0.620		
Satd. Flow (perm)	0	1151	0	0	1186	0	860	1682	1225	967	2982	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			14				88		24	
Link Speed (k/h)	60			60			60			60		
Link Distance (m)	145.1			185.2			229.0			235.8		
Travel Time (s)	8.7			11.1			13.7			14.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	13%	8%	4%	3%	15%	17%	7%	18%	9%	7%	0%
Adj. Flow (vph)	33	34	27	27	32	14	20	221	18	12	220	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	73	0	20	221	18	12	255	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			3.6			3.6		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.9			4.9			4.9			4.9		
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	11.1			11.1			41.7	39.9	39.9	41.6	39.8	
Actuated g/C Ratio	0.18			0.18			0.69	0.66	0.66	0.69	0.66	
v/c Ratio	0.41			0.32			0.03	0.20	0.02	0.02	0.13	
Control Delay (s/veh)	24.0			23.0			4.2	7.4	0.1	4.2	6.0	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	24.0			23.0			4.2	7.4	0.1	4.2	6.0	
LOS	C			C			A	A	A	A	A	
Approach Delay (s/veh)	24.0			23.0			6.6				6.0	
Approach LOS	C			C			A				A	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 60.1

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.41

Intersection Signal Delay (s/veh): 10.4

Intersection LOS: B

Intersection Capacity Utilization 55.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

Existing AM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	94	73	20	221	18	12	255
v/c Ratio	0.41	0.32	0.03	0.20	0.02	0.02	0.13
Control Delay (s/veh)	24.0	23.0	4.2	7.4	0.1	4.2	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.0	23.0	4.2	7.4	0.1	4.2	6.0
Queue Length 50th (m)	6.6	5.4	0.6	8.6	0.0	0.4	4.4
Queue Length 95th (m)	20.9	17.5	2.7	29.0	0.0	1.9	14.6
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	496	506	701	1116	843	776	1984
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	0.03	0.20	0.02	0.02	0.13

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Volume (vph)	15	18	47	68	10	23	58	167	107	33	208	9
Future Volume (vph)	15	18	47	68	10	23	58	167	107	33	208	9
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					0.99		1.00	0.99		1.00	1.00	
Frt			0.850		0.896			0.942			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	3072	1337	0	1583	2842	0	1524	2928	0
Flt Permitted	0.336			0.744			0.578			0.570		
Satd. Flow (perm)	571	1800	1417	2406	1337	0	962	2842	0	913	2928	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		25			100			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	1					1	1		1	1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	9%	2%	10%	1%	6%	10%	0%
Adj. Flow (vph)	16	20	51	74	11	25	63	182	116	36	226	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	20	51	74	36	0	63	298	0	36	236	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0						20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	15.0	15.0	15.0	10.7	10.7		49.7	44.5		47.8	41.7	
Actuated g/C Ratio	0.18	0.18	0.18	0.13	0.13		0.59	0.53		0.57	0.50	
v/c Ratio	0.16	0.06	0.15	0.24	0.19		0.10	0.19		0.06	0.16	
Control Delay (s/veh)	34.9	30.8	0.9	40.9	23.2		12.2	12.9		12.2	19.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	34.9	30.8	0.9	40.9	23.2		12.2	12.9		12.2	19.8	
LOS	C	C	A	D	C		B	B		B	B	
Approach Delay (s/veh)		14.0			35.1			12.8			18.8	
Approach LOS		B			D			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 84

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.24

Intersection Signal Delay (s/veh): 17.8

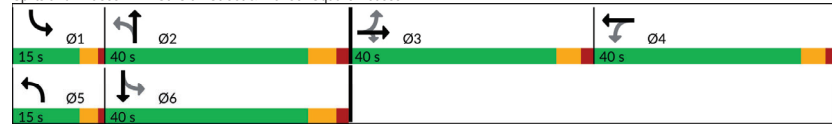
Intersection LOS: B

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	20	51	74	36	63	298	36	236
v/c Ratio	0.16	0.06	0.15	0.24	0.19	0.10	0.19	0.06	0.16
Control Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	12.2	12.9	12.2	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	12.2	12.9	12.2	19.8
Queue Length 50th (m)	2.4	2.9	0.0	5.7	1.6	4.5	10.7	2.5	12.8
Queue Length 95th (m)	8.3	8.9	0.0	14.2	11.6	13.9	25.5	9.1	28.1
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	242	763	663	1020	581	669	1551	632	1454
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.08	0.07	0.06	0.09	0.19	0.06	0.16

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

Existing AM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	0	334	327	0
Future Volume (vph)	0	1	0	334	327	0
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1470	0	3167	3076	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3167	3076	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	8%	5%	0%
Adj. Flow (vph)	0	1	0	363	355	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	0	363	355	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	20.2%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	1	0	334	327	0
Future Vol, veh/h	0	1	0	334	327	0
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	8	5	0
Mvmt Flow	0	1	0	363	355	0
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	179	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	840	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	839	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.3	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	839	-	-		
HCM Lane V/C Ratio	-	0.001	-	-		
HCM Control Delay (s/veh)	-	9.3	-	-		
HCM Lane LOS	-	A	-	-		
HCM 95th %tile Q(veh)	-	0	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	336	319	11
Future Volume (vph)	0	8	0	336	319	11
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.995	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3257	3010	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3257	3010	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	7%	0%
Adj. Flow (vph)	0	9	0	365	347	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	0	365	359	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	20.4%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	8	0	336	319	11
Future Vol, veh/h	0	8	0	336	319	11
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	5	7	0
Mvmt Flow	0	9	0	365	347	12
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	180	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	838	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	837	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.35	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	837	-	-		
HCM Lane V/C Ratio	-	0.01	-	-		
HCM Control Delay (s/veh)	-	9.3	-	-		
HCM Lane LOS	-	A	-	-		
HCM 95th %tile Q(veh)	-	0	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	15	7	31	100	12	6	45	308	149	12	307	4
Future Volume (vph)	15	7	31	100	12	6	45	308	149	12	307	4
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.947				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1538	1430	0	1615	3257	1389	1495	3015	0
Flt Permitted	0.744			0.466			0.513			0.550		
Satd. Flow (perm)	1265	1800	1445	754	1430	0	872	3257	1389	866	3015	0
Right Turn on Red			Yes		Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			114		7				162		1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	0%	17%	0%	5%	4%	8%	7%	0%
Adj. Flow (vph)	16	8	34	109	13	7	49	335	162	13	334	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	8	34	109	20	0	49	335	162	13	338	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	13.1	10.3	10.3	18.3	16.3		48.0	45.8	45.8	46.2	41.7	
Actuated g/C Ratio	0.18	0.14	0.14	0.25	0.23		0.66	0.63	0.63	0.64	0.58	
v/c Ratio	0.06	0.03	0.11	0.36	0.06		0.07	0.16	0.17	0.02	0.19	
Control Delay (s/veh)	20.2	32.0	0.7	24.5	20.3		7.4	9.9	3.0	7.4	13.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	20.2	32.0	0.7	24.5	20.3		7.4	9.9	3.0	7.4	13.2	
LOS	C	C	A	C	C		A	A	A	A	B	
Approach Delay (s/veh)		10.4			23.8			7.6			13.0	
Approach LOS		B			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 72.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.36

Intersection Signal Delay (s/veh): 11.4

Intersection LOS: B

Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access

↰	Ø1	↱	Ø2	↰	Ø3	↱	Ø4
15 s		40 s		15 s		40 s	
↰	Ø5	↱	Ø6	↰	Ø7	↱	Ø8
15 s		40 s		15 s		40 s	

PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	8	34	109	20	49	335	162	13	338
v/c Ratio	0.06	0.03	0.11	0.36	0.06	0.07	0.16	0.17	0.02	0.19
Control Delay (s/veh)	20.2	32.0	0.7	24.5	20.3	7.4	9.9	3.0	7.4	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.2	32.0	0.7	24.5	20.3	7.4	9.9	3.0	7.4	13.2
Queue Length 50th (m)	1.7	1.1	0.0	12.1	1.4	3.0	12.6	0.0	0.8	17.5
Queue Length 95th (m)	5.9	5.0	0.0	24.3	7.5	7.2	26.1	10.4	2.9	27.1
Internal Link Dist (m)	43.3			29.1			876.2		85.2	
Turn Bay Length (m)						160.0		25.0		25.0
Base Capacity (vph)	355	898	778	324	716	703	2065	940	678	1739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.04	0.34	0.03	0.07	0.16	0.17	0.02	0.19

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

Existing AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	78	26	23	23	33	120	13	395	18	67	381	36
Future Volume (vph)	78	26	23	23	33	120	13	395	18	67	381	36
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99		1.00	1.00		1.00	1.00	
Frt		0.929			0.883			0.993			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1486	0	1615	1365	0	1615	3086	0	1583	2990	0
Flt Permitted	0.428			0.722			0.491			0.442		
Satd. Flow (perm)	705	1486	0	1227	1365	0	833	3086	0	736	2990	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			130			5			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	3					3	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	3%	2%	0%	4%	0%	2%	7%	0%
Adj. Flow (vph)	85	28	25	25	36	130	14	429	20	73	414	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	53	0	25	166	0	14	449	0	73	453	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

Existing AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	23.7	17.6		18.8	11.2		48.8	41.3		52.1	48.4	
Actuated g/C Ratio	0.28	0.21		0.22	0.13		0.58	0.49		0.62	0.57	
v/c Ratio	0.29	0.16		0.08	0.57		0.03	0.30		0.14	0.26	
Control Delay (s/veh)	25.0	20.3		22.2	19.2		8.2	15.8		8.6	11.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	25.0	20.3		22.2	19.2		8.2	15.8		8.6	11.3	
LOS	C	C		C	B		A	B		A	B	
Approach Delay (s/veh)		23.2			19.6			15.5			10.9	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 84.5

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.57

Intersection Signal Delay (s/veh): 15.1

Intersection LOS: B

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

Existing AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	53	25	166	14	449	73	453
v/c Ratio	0.29	0.16	0.08	0.57	0.03	0.30	0.14	0.26
Control Delay (s/veh)	25.0	20.3	22.2	19.2	8.2	15.8	8.6	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.0	20.3	22.2	19.2	8.2	15.8	8.6	11.3
Queue Length 50th (m)	10.3	3.4	2.9	5.5	0.8	23.6	4.5	17.3
Queue Length 95th (m)	21.3	14.0	8.4	24.3	3.5	40.5	11.5	39.0
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	312	530	366	557	614	1511	568	1715
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.10	0.07	0.30	0.02	0.30	0.13	0.26

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Northerly RIRO & Staples Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	1	0	1	0
Future Volume (vph)	0	0	1	0	1	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	800	0	1425	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	800	0	1425	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	100%	0%	0%	0%
Adj. Flow (vph)	0	0	1	0	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Northerly RIRO & Staples Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	1	0	1	0
Future Vol, veh/h	0	0	1	0	1	0
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	0	100	0	0	0
Mvmt Flow	0	0	1	0	1	0
Major/Minor						
	Major1	Major2		Minor2		
Conflicting Flow All	1	0	-	0	1	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	0	-
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	1635	-	-	-	1027	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1635	-	-	-	1027	1089
Mov Cap-2 Maneuver	-	-	-	-	1027	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	-	-
Approach						
	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.51		
HCM LOS	A					
Minor Lane/Major Mvmt						
	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1635	-	-	-	1027	
HCM Lane V/C Ratio	-	-	-	-	0.001	
HCM Control Delay (s/veh)	0	-	-	-	8.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access & St. Clair Centre Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected						
Satd. Flow (prot)	1600	0	0	1600	1500	0
Flt Permitted						
Satd. Flow (perm)	1600	0	0	1600	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	0.0%					
ICU Level of Service A						
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

8: Galaxy Access & St. Clair Centre Access

Existing AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
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	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
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	-	-	1635	-	1026	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1027	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1026	1089
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1027	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1635	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s/veh)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	83	43	23	53	18	67	250	61	23	272	59
Future Volume (vph)	35	83	43	23	53	18	67	250	61	23	272	59
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.964				0.974				0.850		0.973	
Flt Protected		0.989				0.988		0.950		0.950		
Satd. Flow (prot)	0	1388	0	0	1413	0	1583	1765	1445	1553	3090	0
Flt Permitted		0.903			0.903		0.493		0.592			
Satd. Flow (perm)	0	1268	0	0	1292	0	822	1765	1445	968	3090	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			14				88		35	
Link Speed (k/h)		60			60			60		60		
Link Distance (m)		145.1			185.2			229.0		235.8		
Travel Time (s)		8.7			11.1			13.7		14.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	1%	2%	0%	0%	11%	2%	2%	0%	4%	1%	5%
Adj. Flow (vph)	38	90	47	25	58	20	73	272	66	25	296	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	175	0	0	103	0	73	272	66	25	360	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6		3.6		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		4.9			4.9			4.9		4.9		
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7		28.7		
Detector 2 Size(m)		1.8			1.8			1.8		1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex		CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0		0.0		
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	14.5			14.5			45.4	40.5	40.5	42.2	35.5	
Actuated g/C Ratio	0.20			0.20			0.64	0.57	0.57	0.60	0.50	
v/c Ratio	0.64			0.38			0.12	0.27	0.08	0.04	0.23	
Control Delay (s/veh)	34.4			26.3			5.8	10.9	2.2	5.7	11.0	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	34.4			26.3			5.8	10.9	2.2	5.7	11.0	
LOS	C			C			A	B	A	A	B	
Approach Delay (s/veh)	34.4			26.3			8.6				10.7	
Approach LOS	C			C			A				B	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 70.9

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.64

Intersection Signal Delay (s/veh): 15.3

Intersection LOS: B

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

Existing PM
770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	175	103	73	272	66	25	360
v/c Ratio	0.64	0.38	0.12	0.27	0.08	0.04	0.23
Control Delay (s/veh)	34.4	26.3	5.8	10.9	2.2	5.7	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.4	26.3	5.8	10.9	2.2	5.7	11.0
Queue Length 50th (m)	19.4	10.5	2.9	13.4	0.0	1.0	12.5
Queue Length 95th (m)	38.8	23.8	9.0	43.2	4.4	4.1	25.4
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	466	471	656	1006	862	717	1564
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.22	0.11	0.27	0.08	0.03	0.23
Intersection Summary							

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

Existing PM
770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↙	↘		↖	↗	↘	↙	↘	↙
Traffic Volume (vph)	22	33	66	175	35	59	76	274	149	54	287	18
Future Volume (vph)	22	33	66	175	35	59	76	274	149	54	287	18
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.906			0.947			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1748	1417	3102	1450	0	1615	3009	0	1615	3142	0
Flt Permitted	0.256			0.734			0.544			0.459		
Satd. Flow (perm)	435	1748	1398	2391	1450	0	925	3009	0	780	3142	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		60			72			5	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	1%	0%	0%	0%	2%	1%	0%	2%	0%
Adj. Flow (vph)	24	36	72	190	38	64	83	298	162	59	312	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	36	72	190	102	0	83	460	0	59	332	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

Existing PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	18.9	18.9	18.9	14.0	14.0		45.7	36.4		44.7	35.9	
Actuated g/C Ratio	0.20	0.20	0.20	0.15	0.15		0.49	0.39		0.48	0.39	
v/c Ratio	0.27	0.10	0.19	0.53	0.38		0.16	0.38		0.13	0.27	
Control Delay (s/veh)	42.0	32.8	3.3	46.7	25.1		17.3	22.7		17.3	25.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	42.0	32.8	3.3	46.7	25.1		17.3	22.7		17.3	25.8	
LOS	D	C	A	D	C		B	C		B	C	
Approach Delay (s/veh)		18.4			39.1			21.9			24.5	
Approach LOS		B			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 92.9

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay (s/veh): 26.0

Intersection LOS: C

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

Existing PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	36	72	190	102	83	460	59	332
v/c Ratio	0.27	0.10	0.19	0.53	0.38	0.16	0.38	0.13	0.27
Control Delay (s/veh)	42.0	32.8	3.3	46.7	25.1	17.3	22.7	17.3	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.0	32.8	3.3	46.7	25.1	17.3	22.7	17.3	25.8
Queue Length 50th (m)	3.8	5.6	0.0	17.1	7.0	7.6	27.3	5.3	22.6
Queue Length 95th (m)	12.0	14.4	4.1	33.1	25.1	21.9	56.5	16.5	46.0
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	170	685	614	938	605	557	1223	498	1217
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.05	0.12	0.20	0.17	0.15	0.38	0.12	0.27

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Volume (vph)	0	20	0	485	507	3
Future Volume (vph)	0	20	0	485	507	3
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.865		0.999		
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3195	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3195	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	22	0	527	551	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	0	527	554	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 25.8%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	20	0	485	507	3
Future Vol, veh/h	0	20	0	485	507	3
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, %	0	0	0	1	1	0
Mvmt Flow	0	22	0	527	551	3
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 277	-	0	-	0	
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	- 6.9	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	- 3.3	-	-	-	-	-
Pot Cap-1 Maneuver	0 726	0	-	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	- 726	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
	EB	NB		SB		
HCM Control Delay, s/v10.11		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	726	-	-		
HCM Lane V/C Ratio	-	0.03	-	-		
HCM Control Delay (s/veh)	-	10.1	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

Existing PM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	11	0	536	508	4
Future Volume (vph)	0	11	0	536	508	4
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.999	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3353	3195	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3353	3195	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	12	0	583	552	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	12	0	583	556	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.8%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	11	0	536	508	4
Future Vol, veh/h	0	11	0	536	508	4
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	2	1	0
Mvmt Flow	0	12	0	583	552	4
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	281	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	722	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	720	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s/v10.09			0		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT		SBR	
Capacity (veh/h)	- 720		-		-	
HCM Lane V/C Ratio	- 0.017		-		-	
HCM Control Delay (s/veh)	- 10.1		-		-	
HCM Lane LOS	- B		-		-	
HCM 95th %tile Q(veh)	- 0.1		-		-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	10	6	63	285	11	14	92	472	241	12	530	10
Future Volume (vph)	10	6	63	285	11	14	92	472	241	12	530	10
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00		0.99	1.00		0.97	1.00		1.00
Frt			0.850			0.917			0.850			0.997
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	1599	1454	0	1615	3386	1445	1495	3157	0
Flt Permitted	0.740			0.528			0.354			0.463		
Satd. Flow (perm)	1254	1800	1395	885	1454	0	601	3386	1407	727	3157	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114		15				196		2	
Link Speed (k/h)		50			50		60			60		
Link Distance (m)		67.3			53.1		900.2			109.2		
Travel Time (s)		4.8			3.8		54.0			6.6		
Confl. Peds. (#/hr)	3		3	3		3	2		3	3		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	1%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	11	7	68	310	12	15	100	513	262	13	576	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	7	68	310	27	0	100	513	262	13	587	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.4	10.3	10.3	22.5	19.5		46.5	42.1	42.1	42.2	34.4	
Actuated g/C Ratio	0.20	0.13	0.13	0.29	0.25		0.60	0.54	0.54	0.55	0.44	
v/c Ratio	0.04	0.03	0.24	0.86	0.07		0.21	0.28	0.31	0.03	0.42	
Control Delay (s/veh)	20.9	33.0	4.2	49.5	17.3		8.6	11.4	4.8	7.4	17.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	20.9	33.0	4.2	49.5	17.3		8.6	11.4	4.8	7.4	17.9	
LOS	C	C	A	D	B		A	B	A	A	B	
Approach Delay (s/veh)		8.7			46.9			9.1			17.7	
Approach LOS		A			D			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 18.5

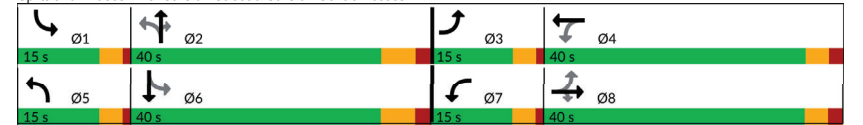
Intersection LOS: B

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

Existing PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	7	68	310	27	100	513	262	13	587
v/c Ratio	0.04	0.03	0.24	0.86	0.07	0.21	0.28	0.31	0.03	0.42
Control Delay (s/veh)	20.9	33.0	4.2	49.5	17.3	8.6	11.4	4.8	7.4	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.9	33.0	4.2	49.5	17.3	8.6	11.4	4.8	7.4	17.9
Queue Length 50th (m)	1.2	1.0	0.0	41.1	1.3	6.3	20.4	4.5	0.8	34.3
Queue Length 95th (m)	4.7	4.7	4.0	#90.0	8.5	12.5	39.3	20.4	2.9	49.6
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	369	836	709	361	683	510	1840	854	536	1405
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.10	0.86	0.04	0.20	0.28	0.31	0.02	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

Existing PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	134	72	26	30	42	166	31	627	22	147	650	87
Future Volume (vph)	134	72	26	30	42	166	31	627	22	147	650	87
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		0.99	0.99		1.00	1.00		1.00	1.00	
Frt	0.960			0.881			0.995			0.982		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1454	0	1568	1373	0	1568	3150	0	1615	3103	0
Flt Permitted	0.289			0.689			0.316			0.281		
Satd. Flow (perm)	485	1454	0	1131	1373	0	521	3150	0	477	3103	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	16			174			3			15		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	146	78	28	33	46	180	34	682	24	160	707	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	146	106	0	33	226	0	34	706	0	160	802	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

Existing PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	28.3	19.8		21.7	12.1		48.3	39.0		53.8	45.7	
Actuated g/C Ratio	0.31	0.22		0.24	0.13		0.53	0.43		0.59	0.50	
v/c Ratio	0.52	0.32		0.11	0.68		0.09	0.52		0.40	0.51	
Control Delay (s/veh)	30.8	30.8		22.9	21.6		9.5	21.6		12.1	18.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	30.8	30.8		22.9	21.6		9.5	21.6		12.1	18.0	
LOS	C	C		C	C		A	C		B	B	
Approach Delay (s/veh)		30.8			21.8			21.1			17.0	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 91.1

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay (s/veh): 20.5

Intersection LOS: C

Intersection Capacity Utilization 79.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

Existing PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	146	106	33	226	34	706	160	802
v/c Ratio	0.52	0.32	0.11	0.68	0.09	0.52	0.40	0.51
Control Delay (s/veh)	30.8	30.8	22.9	21.6	9.5	21.6	12.1	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.8	30.8	22.9	21.6	9.5	21.6	12.1	18.0
Queue Length 50th (m)	19.1	14.1	4.0	8.4	2.1	44.8	10.9	49.5
Queue Length 95th (m)	34.4	29.9	10.5	31.6	7.0	73.0	24.3	79.7
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	285	473	367	555	425	1351	421	1564
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.22	0.09	0.41	0.08	0.52	0.38	0.51

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Northerly RIRO & Staples Access

Existing PM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	3	3	11	0
Future Volume (vph)	0	3	3	3	11	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.932			
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	1491	0	1208	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	1491	0	1208	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	18%	0%
Adj. Flow (vph)	0	3	3	3	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	6	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Northerly RIRO & Staples Access

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	3	3	11	0
Future Vol, veh/h	0	3	3	3	11	0
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	0	0	0	18	0
Mvmt Flow	0	3	3	3	12	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	7	0	-	0	8	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	3	-
Critical Hdwy	4.1	-	-	-	6.58	6.2
Critical Hdwy Stg 1	-	-	-	-	5.58	-
Critical Hdwy Stg 2	-	-	-	-	5.58	-
Follow-up Hdwy	2.2	-	-	-	3.662	3.3
Pot Cap-1 Maneuver	1627	-	-	-	973	1084
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	980	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1627	-	-	-	973	1084
Mov Cap-2 Maneuver	-	-	-	-	973	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	980	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.75		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1627	-	-	-	973	
HCM Lane V/C Ratio	-	-	-	-	0.012	
HCM Control Delay (s/veh)	0	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access & St. Clair Centre Access

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	1	0	1	1	0	0
Future Volume (vph)	1	0	1	1	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected				0.976		
Satd. Flow (prot)	1600	0	0	1562	1500	0
Flt Permitted				0.976		
Satd. Flow (perm)	1600	0	0	1562	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	1	1	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	2	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

8: Galaxy Access & St. Clair Centre Access

Existing PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	0	1	1	0	0
Future Vol, veh/h	1	0	1	1	0	0
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	0	0	0	0	0
Mvmt Flow	1	0	1	1	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	1	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	-	-	1635	-	1023	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1022	1089
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1024	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	3.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	900	-	
HCM Lane V/C Ratio	-	-	-	0.001	-	
HCM Control Delay (s/veh)	0	-	-	7.2	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	77	73	47	40	11	80	178	78	12	193	32
Future Volume (vph)	30	77	73	47	40	11	80	178	78	12	193	32
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	45.0		0.0	80.0	80.0
Storage Lanes	0		0	0			0	1		1	1	1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.946				0.985				0.850		0.979	
Flt Protected	0.992				0.977		0.950			0.950		
Satd. Flow (prot)	0	1408	0	0	1430	0	1615	1782	1445	1495	3109	0
Flt Permitted	0.925				0.698		0.542			0.636		
Satd. Flow (perm)	0	1313	0	0	1021	0	921	1782	1445	1001	3109	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			7				88		26	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	33	84	79	51	43	12	87	193	85	13	210	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	0	0	106	0	87	193	85	13	245	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	14.6			14.6			46.6	42.9	42.9	42.1	35.5	
Actuated g/C Ratio	0.20			0.20			0.65	0.60	0.60	0.59	0.50	
v/c Ratio	0.66			0.50			0.13	0.18	0.09	0.02	0.16	
Control Delay (s/veh)	32.5			33.1			5.9	8.8	2.9	5.9	10.9	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	32.5			33.1			5.9	8.8	2.9	5.9	10.9	
LOS	C			C			A	A	A	A	B	
Approach Delay (s/veh)	32.5			33.1			6.7				10.7	
Approach LOS	C			C			A				B	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 71.5

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.66

Intersection Signal Delay (s/veh): 16.3

Intersection LOS: B

Intersection Capacity Utilization 63.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

Existing SAT
770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	196	106	87	193	85	13	245
v/c Ratio	0.66	0.50	0.13	0.18	0.09	0.02	0.16
Control Delay (s/veh)	32.5	33.1	5.9	8.8	2.9	5.9	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.5	33.1	5.9	8.8	2.9	5.9	10.9
Queue Length 50th (m)	19.9	12.2	3.5	9.1	0.0	0.5	8.2
Queue Length 95th (m)	40.7	26.8	10.5	30.7	6.8	2.7	18.2
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	491	367	710	1069	902	719	1558
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.29	0.12	0.18	0.09	0.02	0.16
Intersection Summary							

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

Existing SAT
770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	38	70	143	296	47	79	162	226	196	50	201	15
Future Volume (vph)	38	70	143	296	47	79	162	226	196	50	201	15
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00	0.99							
Frt			0.850		0.906			0.930			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	3133	1427	0	1615	3004	0	1615	3198	0
Flt Permitted	0.137			0.708			0.544			0.462		
Satd. Flow (perm)	233	1800	1426	2330	1427	0	925	3004	0	785	3198	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		60			154			5	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	2		1	1		2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	41	76	155	322	51	86	176	246	213	54	218	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	76	155	322	137	0	176	459	0	54	234	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	29.1	29.1	29.1	22.0	22.0		49.9	39.0		44.9	34.0	
Actuated g/C Ratio	0.25	0.25	0.25	0.19	0.19		0.42	0.33		0.38	0.29	
v/c Ratio	0.72	0.17	0.33	0.74	0.44		0.39	0.42		0.15	0.25	
Control Delay (s/veh)	103.2	37.2	7.8	57.3	29.3		27.7	24.4		25.0	35.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	103.2	37.2	7.8	57.3	29.3		27.7	24.4		25.0	35.4	
LOS	F	D	A	E	C		C	C		C	D	
Approach Delay (s/veh)		30.4			48.9			25.3			33.4	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 118.6

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 34.1

Intersection LOS: C

Intersection Capacity Utilization 72.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	76	155	322	137	176	459	54	234
v/c Ratio	0.72	0.17	0.33	0.74	0.44	0.39	0.42	0.15	0.25
Control Delay (s/veh)	103.2	37.2	7.8	57.3	29.3	27.7	24.4	25.0	35.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	103.2	37.2	7.8	57.3	29.3	27.7	24.4	25.0	35.4
Queue Length 50th (m)	8.7	13.9	0.0	38.6	16.3	27.6	30.9	7.8	22.8
Queue Length 95th (m)	#30.5	28.8	16.8	54.2	35.2	49.7	53.2	17.9	37.3
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	67	523	524	677	457	454	1090	393	919
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.15	0.30	0.48	0.30	0.39	0.42	0.14	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	16	0	608	630	2
Future Volume (vph)	0	16	0	608	630	2
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3198	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3198	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	17	0	661	685	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	17	0	661	687	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	16	0	608	630	2
Future Vol, veh/h	0	16	0	608	630	2
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	17	0	661	685	2
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 344	-	0	-	0	
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	- 6.9	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	- 3.3	-	-	-	-	-
Pot Cap-1 Maneuver	0 657	0	-	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	- 657	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v10.63		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	657	-	-		
HCM Lane V/C Ratio	-	0.026	-	-		
HCM Control Delay (s/veh)	-	10.6	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Volume (vph)	0	26	0	637	625	29
Future Volume (vph)	0	26	0	637	625	29
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.993	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3420	3207	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3420	3207	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	28	0	692	679	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	28	0	692	711	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.4%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	26	0	637	625	29
Future Vol, veh/h	0	26	0	637	625	29
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	0	0	0
Mvmt Flow	0	28	0	692	679	32
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	- 358	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 644	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	- 642	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v10.87		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	642	-	-		
HCM Lane V/C Ratio	-	0.044	-	-		
HCM Control Delay (s/veh)	-	10.9	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	21	11	67	350	27	28	105	576	421	46	564	13
Future Volume (vph)	21	11	67	350	27	28	105	576	421	46	564	13
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.97	1.00		
Frt			0.850		0.924				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1599	1466	0	1615	3386	1431	1553	3189	0
Flt Permitted	0.719			0.514			0.343			0.407		
Satd. Flow (perm)	1217	1800	1445	865	1466	0	583	3386	1393	664	3189	0
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			114		30			281			2	
Link Speed (k/h)		50			50		60			60		
Link Distance (m)		67.3			53.1		900.2			109.2		
Travel Time (s)		4.8			3.8		54.0			6.6		
Confl. Peds. (#/hr)	4				4			3	3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	4%	1%	0%	0%
Adj. Flow (vph)	23	12	73	380	29	30	114	626	458	50	613	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	12	73	380	59	0	114	626	458	50	627	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.5	10.3	10.3	22.4	17.3		45.6	37.8	37.8	42.4	34.4	
Actuated g/C Ratio	0.20	0.13	0.13	0.29	0.22		0.59	0.49	0.49	0.55	0.44	
v/c Ratio	0.08	0.05	0.25	1.06	0.17		0.25	0.38	0.56	0.11	0.44	
Control Delay (s/veh)	21.4	33.5	4.9	94.4	18.6		9.0	15.3	9.6	8.1	18.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	21.4	33.5	4.9	94.4	18.6		9.0	15.3	9.6	8.1	18.3	
LOS	C	C	A	F	B		A	B	A	A	B	
Approach Delay (s/veh)		11.5			84.2			12.5			17.5	
Approach LOS		B			F			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.06

Intersection Signal Delay (s/veh): 26.9

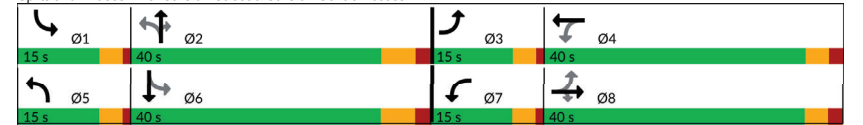
Intersection LOS: C

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

Existing SAT
770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	12	73	380	59	114	626	458	50	627
v/c Ratio	0.08	0.05	0.25	1.06	0.17	0.25	0.38	0.56	0.11	0.44
Control Delay (s/veh)	21.4	33.5	4.9	94.4	18.6	9.0	15.3	9.6	8.1	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.4	33.5	4.9	94.4	18.6	9.0	15.3	9.6	8.1	18.3
Queue Length 50th (m)	2.5	1.7	0.0	~54.7	3.2	7.3	35.3	17.8	3.1	37.0
Queue Length 95th (m)	7.8	6.5	5.2	#93.7	14.3	13.9	49.7	48.0	7.2	53.8
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0			25.0	25.0	
Base Capacity (vph)	365	836	732	357	697	501	1653	824	517	1419
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.01	0.10	1.06	0.08	0.23	0.38	0.56	0.10	0.44

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

Existing SAT
770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	141	35	25	35	15	228	18	796	26	141	746	112
Future Volume (vph)	141	35	25	35	15	228	18	796	26	141	746	112
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	0.98		1.00	1.00		1.00	1.00	
Frt	0.938			0.859			0.995			0.980		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1431	0	1568	1337	0	1568	3150	0	1615	3096	0
Flt Permitted	0.233			0.715			0.269			0.202		
Satd. Flow (perm)	391	1431	0	1174	1337	0	443	3150	0	343	3096	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	27			248			3			17		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	153	38	27	38	16	248	20	865	28	153	811	122
Shared Lane Traffic (%)												
Lane Group Flow (vph)	153	65	0	38	264	0	20	893	0	153	933	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane							Yes					
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

Existing SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	27.6	19.1		21.2	11.5		48.1	39.0		54.0	47.8	
Actuated g/C Ratio	0.31	0.21		0.23	0.13		0.53	0.43		0.60	0.53	
v/c Ratio	0.59	0.20		0.12	0.68		0.06	0.66		0.46	0.57	
Control Delay (s/veh)	33.7	23.6		23.3	16.0		8.9	23.8		13.2	17.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	33.7	23.6		23.3	16.0		8.9	23.8		13.2	17.3	
LOS	C	C		C	B		A	C		B	B	
Approach Delay (s/veh)		30.7			16.9			23.5			16.7	
Approach LOS		C			B			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 90.3

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay (s/veh): 20.4

Intersection LOS: C

Intersection Capacity Utilization 82.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

Existing SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	153	65	38	264	20	893	153	933
v/c Ratio	0.59	0.20	0.12	0.68	0.06	0.66	0.46	0.57
Control Delay (s/veh)	33.7	23.6	23.3	16.0	8.9	23.8	13.2	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.7	23.6	23.3	16.0	8.9	23.8	13.2	17.3
Queue Length 50th (m)	20.0	5.7	4.6	2.5	1.2	61.2	10.4	45.3
Queue Length 95th (m)	36.0	17.3	11.6	25.6	4.6	96.2	22.5	93.8
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	266	477	368	597	392	1361	360	1647
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.14	0.10	0.44	0.05	0.66	0.43	0.57

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Northerly RIRO & Staples Access

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	2	2	2	9	0
Future Volume (vph)	0	2	2	2	9	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.932			
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	1491	0	1425	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	1491	0	1425	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	2	2	2	10	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2	4	0	10	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Northerly RIRO & Staples Access

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	2	2	9	0
Future Vol, veh/h	0	2	2	2	9	0
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	0	0	0	0	0
Mvmt Flow	0	2	2	2	10	0
Major/Minor						
	Major1	Major2		Minor2		
Conflicting Flow All	4	0	-	0	5	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	2	-
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	1630	-	-	-	1021	1086
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1026	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1630	-	-	-	1021	1086
Mov Cap-2 Maneuver	-	-	-	-	1021	-
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1026	-
Approach						
	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.56		
HCM LOS	A					
Minor Lane/Major Mvmt						
	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1630	-	-	-	1021	
HCM Lane V/C Ratio	-	-	-	-	0.01	
HCM Control Delay (s/veh)	0	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access & St. Clair Centre Access

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	3	0	0	3	0	0
Future Volume (vph)	3	0	0	3	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected						
Satd. Flow (prot)	1600	0	0	1600	1500	0
Flt Permitted						
Satd. Flow (perm)	1600	0	0	1600	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	0	0	3	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	3	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

8: Galaxy Access & St. Clair Centre Access

Existing SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰ ↱ ↰ ↱ ↰ ↱					
Traffic Vol, veh/h	3	0	0	3	0	0
Future Vol, veh/h	3	0	0	3	0	0
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	0	0	0	0	0
Mvmt Flow	3	0	0	3	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	3	0	7	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	3	-
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	-	-	1632	-	1020	1086
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1632	-	1020	1086
Mov Cap-2 Maneuver	-	-	-	-	1020	-
Stage 1	-	-	-	-	1025	-
Stage 2	-	-	-	-	1025	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		0		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1632	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s/veh)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Appendix D

2030 Background Traffic Operations Reports



Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	34	28	28	32	14	20	224	19	12	223	35
Future Volume (vph)	33	34	28	28	32	14	20	224	19	12	223	35
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	45.0		0.0	80.0	80.0
Storage Lanes	0		0	0			0	1		1	1	1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.961				0.975				0.850		0.980	
Flt Protected	0.983				0.982		0.950			0.950		
Satd. Flow (prot)	0	1324	0	0	1360	0	1380	1682	1225	1482	2985	0
Flt Permitted	0.852				0.869		0.578			0.608		
Satd. Flow (perm)	0	1148	0	0	1203	0	840	1682	1225	948	2985	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			13				88		24	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	13%	8%	4%	3%	15%	17%	7%	18%	9%	7%	0%
Adj. Flow (vph)	36	37	30	30	35	15	22	243	21	13	242	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	80	0	22	243	21	13	280	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		11.4			11.4		41.8	40.0	40.0	41.6	39.9	
Actuated g/C Ratio		0.19			0.19		0.69	0.66	0.66	0.69	0.66	
v/c Ratio		0.44			0.34		0.03	0.22	0.03	0.02	0.14	
Control Delay (s/veh)		24.7			23.7		4.4	7.7	0.1	4.3	6.3	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		24.7			23.7		4.4	7.7	0.1	4.3	6.3	
LOS		C			C		A	A	A	A	A	
Approach Delay (s/veh)		24.7			23.7			6.9			6.2	
Approach LOS		C			C			A			A	
Intersection Summary												
Area Type:	Other											
Cycle Length:	87											
Actuated Cycle Length:	60.4											
Natural Cycle:	70											
Control Type:	Semi Act-Uncoord											
Maximum v/c Ratio:	0.44											
Intersection Signal Delay (s/veh):	10.8					Intersection LOS: B						
Intersection Capacity Utilization	55.0%					ICU Level of Service A						
Analysis Period (min)	15											

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	80	22	243	21	13	280
v/c Ratio	0.44	0.34	0.03	0.22	0.03	0.02	0.14
Control Delay (s/veh)	24.7	23.7	4.4	7.7	0.1	4.3	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.7	23.7	4.4	7.7	0.1	4.3	6.3
Queue Length 50th (m)	7.4	6.1	0.7	9.6	0.0	0.4	5.0
Queue Length 95th (m)	22.6	19.1	2.9	32.8	0.0	2.1	16.5
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	493	510	688	1112	840	763	1979
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.16	0.03	0.22	0.03	0.02	0.14
Intersection Summary							

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Volume (vph)	15	18	47	68	10	23	58	184	107	33	230	9
Future Volume (vph)	15	18	47	68	10	23	58	184	107	33	230	9
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					0.99		1.00		1.00		1.00	
Frt			0.850		0.896			0.945			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	3072	1337	0	1583	2847	0	1524	2927	0
Flt Permitted	0.336			0.744			0.565			0.560		
Satd. Flow (perm)	571	1800	1417	2406	1337	0	941	2847	0	897	2927	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		25			82			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	1					1	1		1	1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	9%	2%	10%	1%	6%	10%	0%
Adj. Flow (vph)	16	20	51	74	11	25	63	200	116	36	250	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	20	51	74	36	0	63	316	0	36	260	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases	3	3	3	4	4	4	5	2	1	6	6	6
Permitted Phases	3	3	3	4	4	4	5	2	1	6	6	6
Detector Phase	3	3	3	4	4	4	5	2	1	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	7.0	31.0	7.0	31.0		
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0	37.0	11.0	37.5	11.0	37.5		
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	15.0	40.0	15.0	40.0		
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%	29.6%	11.1%	29.6%	11.1%	29.6%		
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.0	33.5	11.0	33.5		
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.5	3.0	4.5		
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.5	4.0	6.5		
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Recall Mode	None	None	None	None	None	None	None	Max	None	Max		
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0	23.0	22.0	22.0	22.0	22.0		
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0		
Act Effct Green (s)	15.0	15.0	15.0	10.7	10.7	10.7	49.7	44.5	47.8	41.7		
Actuated g/C Ratio	0.18	0.18	0.18	0.13	0.13	0.13	0.59	0.53	0.57	0.50		
v/c Ratio	0.16	0.06	0.15	0.24	0.19	0.19	0.10	0.20	0.06	0.18		
Control Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	23.2	12.2	14.2	12.2	19.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	23.2	12.2	14.2	12.2	19.9		
LOS	C	C	A	D	C	C	B	B	B	B		
Approach Delay (s/veh)	14.0			35.1			13.8			18.9		
Approach LOS	B			D			B			B		

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 84

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.24

Intersection Signal Delay (s/veh): 18.3

Intersection LOS: B

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	20	51	74	36	63	316	36	260
v/c Ratio	0.16	0.06	0.15	0.24	0.19	0.10	0.20	0.06	0.18
Control Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	12.2	14.2	12.2	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	12.2	14.2	12.2	19.9
Queue Length 50th (m)	2.4	2.9	0.0	5.7	1.6	4.5	12.8	2.5	14.3
Queue Length 95th (m)	8.3	8.9	0.0	14.2	11.6	13.9	29.0	9.1	30.6
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	242	763	663	1020	581	659	1545	625	1454
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.08	0.07	0.06	0.10	0.20	0.06	0.18

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
3: St. Clair Street & Northerly RIRO

2030 Background AM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	0	369	361	0
Future Volume (vph)	0	1	0	369	361	0
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1470	0	3167	3076	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3167	3076	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	8%	5%	0%
Adj. Flow (vph)	0	1	0	401	392	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	0	401	392	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
3: St. Clair Street & Northerly RIRO

2030 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖	↗	↖
Traffic Vol, veh/h	0	1	0	369	361	0
Future Vol, veh/h	0	1	0	369	361	0
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	8	5	0
Mvmt Flow	0	1	0	401	392	0
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	197	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	817	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	816	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.42	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	816	-	-		
HCM Lane V/C Ratio	-	0.001	-	-		
HCM Control Delay (s/veh)	-	9.4	-	-		
HCM Lane LOS	-	A	-	-		
HCM 95th %tile Q(veh)	-	0	-	-		

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	371	352	11
Future Volume (vph)	0	8	0	371	352	11
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.995	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3257	3010	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3257	3010	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	7%	0%
Adj. Flow (vph)	0	9	0	403	383	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	0	403	395	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.3%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	8	0	371	352	11
Future Vol, veh/h	0	8	0	371	352	11
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	5	7	0
Mvmt Flow	0	9	0	403	383	12
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	198	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	816	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	815	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.46	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	815	-	-	-	-
HCM Lane V/C Ratio	-	0.011	-	-	-	-
HCM Control Delay (s/veh)	-	9.5	-	-	-	-
HCM Lane LOS	-	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	15	7	31	100	12	6	45	340	149	12	339	4
Future Volume (vph)	15	7	31	100	12	6	45	340	149	12	339	4
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.947				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1538	1430	0	1615	3257	1389	1495	3015	0
Flt Permitted	0.744			0.466			0.497			0.532		
Satd. Flow (perm)	1265	1800	1445	754	1430	0	845	3257	1389	837	3015	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114		7				162		1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	0%	17%	0%	5%	4%	8%	7%	0%
Adj. Flow (vph)	16	8	34	109	13	7	49	370	162	13	368	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	8	34	109	20	0	49	370	162	13	372	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	13.1	10.3	10.3	18.3	16.3		48.0	45.8	45.8	46.2	41.7	
Actuated g/C Ratio	0.18	0.14	0.14	0.25	0.23		0.66	0.63	0.63	0.64	0.58	
v/c Ratio	0.06	0.03	0.11	0.36	0.06		0.08	0.18	0.17	0.02	0.21	
Control Delay (s/veh)	20.2	32.0	0.7	24.5	20.3		7.4	9.9	3.0	7.4	13.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	20.2	32.0	0.7	24.5	20.3		7.4	9.9	3.0	7.4	13.3	
LOS	C	C	A	C	C		A	A	A	A	B	
Approach Delay (s/veh)		10.4			23.8			7.8			13.1	
Approach LOS		B			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 72.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.36

Intersection Signal Delay (s/veh): 11.5

Intersection LOS: B

Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	8	34	109	20	49	370	162	13	372
v/c Ratio	0.06	0.03	0.11	0.36	0.06	0.08	0.18	0.17	0.02	0.21
Control Delay (s/veh)	20.2	32.0	0.7	24.5	20.3	7.4	9.9	3.0	7.4	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.2	32.0	0.7	24.5	20.3	7.4	9.9	3.0	7.4	13.3
Queue Length 50th (m)	1.7	1.1	0.0	12.1	1.4	3.0	14.1	0.0	0.8	19.5
Queue Length 95th (m)	5.9	5.0	0.0	24.3	7.5	7.2	28.6	10.4	2.9	29.7
Internal Link Dist (m)	43.3			29.1			876.2		85.2	
Turn Bay Length (m)						160.0		25.0		25.0
Base Capacity (vph)	355	898	778	324	716	689	2065	940	664	1739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.04	0.34	0.03	0.07	0.18	0.17	0.02	0.21

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2030 Background AM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	29	25	25	36	132	14	436	20	74	421	40
Future Volume (vph)	86	29	25	25	36	132	14	436	20	74	421	40
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0			0.0	50.0		0.0	30.0	0.0
Storage Lanes	1			0	1		0	1		0	1	0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99		1.00	1.00		1.00	1.00	
Frt		0.931			0.882			0.993			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1490	0	1615	1364	0	1615	3086	0	1583	2990	0
Flt Permitted	0.397			0.719			0.468			0.411		
Satd. Flow (perm)	654	1490	0	1222	1364	0	794	3086	0	684	2990	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			143			5			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	3					3	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	3%	2%	0%	4%	0%	2%	7%	0%
Adj. Flow (vph)	93	32	27	27	39	143	15	474	22	80	458	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	59	0	27	182	0	15	496	0	80	501	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2030 Background AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.2	18.0		19.1	11.5		47.9	40.5		51.4	47.6	
Actuated g/C Ratio	0.29	0.21		0.23	0.14		0.57	0.48		0.61	0.57	
v/c Ratio	0.32	0.17		0.09	0.59		0.03	0.33		0.16	0.30	
Control Delay (s/veh)	25.5	20.5		22.2	19.2		8.4	16.6		9.0	11.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	25.5	20.5		22.2	19.2		8.4	16.6		9.0	11.8	
LOS	C	C		C	B		A	B		A	B	
Approach Delay (s/veh)		23.5			19.6			16.3			11.5	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 84.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.59

Intersection Signal Delay (s/veh): 15.6

Intersection LOS: B

Intersection Capacity Utilization 70.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2030 Background AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	93	59	27	182	15	496	80	501
v/c Ratio	0.32	0.17	0.09	0.59	0.03	0.33	0.16	0.30
Control Delay (s/veh)	25.5	20.5	22.2	19.2	8.4	16.6	9.0	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.5	20.5	22.2	19.2	8.4	16.6	9.0	11.8
Queue Length 50th (m)	11.3	3.9	3.1	6.0	0.9	27.0	5.0	19.8
Queue Length 95th (m)	23.0	15.2	8.9	25.9	3.7	46.1	12.6	44.1
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	309	538	370	569	589	1486	539	1694
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.11	0.07	0.32	0.03	0.33	0.15	0.30

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2030 Background AM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	1	0	1	0
Future Volume (vph)	0	0	1	0	1	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	800	0	1425	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	800	0	1425	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	100%	0%	0%	0%
Adj. Flow (vph)	0	0	1	0	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2030 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	1	0	1	0
Future Vol, veh/h	0	0	1	0	1	0
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	0	100	0	0	0
Mvmt Flow	0	0	1	0	1	0
Major/Minor						
Major1	Major2		Minor2			
Conflicting Flow All	1	0	-	0	1	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	0	-
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	1635	-	-	-	1027	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1635	-	-	-	1027	1089
Mov Cap-2 Maneuver	-	-	-	-	1027	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	-	-
Approach						
EB	WB		SB			
HCM Control Delay, s/v	0		0		8.51	
HCM LOS					A	
Minor Lane/Major Mvmt						
EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	1635	-	-	-	1027	
HCM Lane V/C Ratio	-	-	-	-	0.001	
HCM Control Delay (s/veh)	0	-	-	-	8.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2030 Background AM
770 St. Clair Street, Chatham-Kent TIS

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	↖
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected						
Satd. Flow (prot)	1600	0	0	1600	1500	0
Flt Permitted						
Satd. Flow (perm)	1600	0	0	1600	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	0.0%					
ICU Level of Service A						
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2030 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
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	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
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	-	-	1635	-	1026	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1027	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1026	1089
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1027	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1635	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s/veh)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	92	47	25	59	20	74	276	67	25	300	65
Future Volume (vph)	39	92	47	25	59	20	74	276	67	25	300	65
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.964			0.974				0.850		0.973	
Flt Protected		0.989			0.988		0.950			0.950		
Satd. Flow (prot)	0	1388	0	0	1413	0	1583	1765	1445	1553	3090	0
Flt Permitted		0.907			0.897		0.473			0.577		
Satd. Flow (perm)	0	1273	0	0	1283	0	788	1765	1445	943	3090	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			14				88		36	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	1%	2%	0%	0%	11%	2%	2%	0%	4%	1%	5%
Adj. Flow (vph)	42	100	51	27	64	22	80	300	73	27	326	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	193	0	0	113	0	80	300	73	27	397	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		15.6			15.6		45.8	40.7	40.7	42.3	35.6	
Actuated g/C Ratio		0.22			0.22		0.63	0.56	0.56	0.59	0.49	
v/c Ratio		0.67			0.39		0.14	0.30	0.09	0.04	0.26	
Control Delay (s/veh)		35.4			26.4		6.4	11.8	2.8	6.3	12.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		35.4			26.4		6.4	11.8	2.8	6.3	12.0	
LOS		D			C		A	B	A	A	B	
Approach Delay (s/veh)		35.4			26.4			9.4			11.6	
Approach LOS		D			C			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 87												
Actuated Cycle Length: 72.3												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.67												
Intersection Signal Delay (s/veh): 16.1				Intersection LOS: B								
Intersection Capacity Utilization 63.3%				ICU Level of Service B								
Analysis Period (min) 15												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	193	113	80	300	73	27	397
v/c Ratio	0.67	0.39	0.14	0.30	0.09	0.04	0.26
Control Delay (s/veh)	35.4	26.4	6.4	11.8	2.8	6.3	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.4	26.4	6.4	11.8	2.8	6.3	12.0
Queue Length 50th (m)	22.1	11.9	3.4	16.1	0.0	1.1	14.7
Queue Length 95th (m)	43.1	25.8	10.4	50.4	5.5	4.7	29.8
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	461	459	630	993	851	693	1539
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.25	0.13	0.30	0.09	0.04	0.26

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	
Traffic Volume (vph)	22	33	66	175	35	59	76	303	149	54	317	18
Future Volume (vph)	22	33	66	175	35	59	76	303	149	54	317	18
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.906			0.951			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1748	1417	3102	1450	0	1615	3021	0	1615	3145	0
Flt Permitted	0.256			0.734			0.519			0.436		
Satd. Flow (perm)	435	1748	1398	2391	1450	0	882	3021	0	741	3145	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		60			60			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	1%	0%	0%	0%	2%	1%	0%	2%	0%
Adj. Flow (vph)	24	36	72	190	38	64	83	329	162	59	345	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	36	72	190	102	0	83	491	0	59	365	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24			14	24		14	24	14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	18.9	18.9	18.9	14.0	14.0		45.7	36.4		44.7	35.9	
Actuated g/C Ratio	0.20	0.20	0.20	0.15	0.15		0.49	0.39		0.48	0.39	
v/c Ratio	0.27	0.10	0.19	0.53	0.38		0.16	0.40		0.14	0.30	
Control Delay (s/veh)	42.0	32.8	3.3	46.7	25.1		17.4	23.9		17.3	26.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	42.0	32.8	3.3	46.7	25.1		17.4	23.9		17.3	26.2	
LOS	D	C	A	D	C		B	C		B	C	
Approach Delay (s/veh)		18.4			39.1			23.0			24.9	
Approach LOS		B			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 92.9

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay (s/veh): 26.5

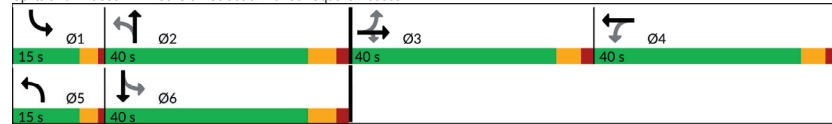
Intersection LOS: C

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	36	72	190	102	83	491	59	365
v/c Ratio	0.27	0.10	0.19	0.53	0.38	0.16	0.40	0.14	0.30
Control Delay (s/veh)	42.0	32.8	3.3	46.7	25.1	17.4	23.9	17.3	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.0	32.8	3.3	46.7	25.1	17.4	23.9	17.3	26.2
Queue Length 50th (m)	3.8	5.6	0.0	17.1	7.0	7.6	30.8	5.3	25.3
Queue Length 95th (m)	12.0	14.4	4.1	33.1	25.1	21.9	62.4	16.5	50.7
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	170	685	614	938	605	541	1220	483	1218
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.05	0.12	0.20	0.17	0.15	0.40	0.12	0.30

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗	↗	
Traffic Volume (vph)	0	20	0	535	560	3
Future Volume (vph)	0	20	0	535	560	3
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.865		0.999		
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3195	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3195	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	22	0	582	609	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	0	582	612	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 27.4%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	20	0	535	560	3
Future Vol, veh/h	0	20	0	535	560	3
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, %	0	0	0	1	1	0
Mvmt Flow	0	22	0	582	609	3
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	-	306	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	696	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	696	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v10.34		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	696	-	-		
HCM Lane V/C Ratio	-	0.031	-	-		
HCM Control Delay (s/veh)	-	10.3	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	11	0	592	561	4
Future Volume (vph)	0	11	0	592	561	4
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.999	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3353	3195	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3353	3195	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	12	0	643	610	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	12	0	643	614	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.5%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	11	0	592	561	4
Future Vol, veh/h	0	11	0	592	561	4
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	2	1	0
Mvmt Flow	0	12	0	643	610	4
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 310	-	0	-	0	
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	- 6.9	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	- 3.3	-	-	-	-	-
Pot Cap-1 Maneuver	0 692	0	-	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %		-	-	-	-	-
Mov Cap-1 Maneuver	- 690	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v10.31		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	690	-	-		
HCM Lane V/C Ratio	-	0.017	-	-		
HCM Control Delay (s/veh)	-	10.3	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	10	6	63	285	11	14	92	521	241	12	585	10
Future Volume (vph)	10	6	63	285	11	14	92	521	241	12	585	10
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00		0.99	1.00		0.97	1.00		1.00
Frt			0.850			0.917			0.850			0.997
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	1599	1454	0	1615	3386	1445	1495	3157	0
Flt Permitted	0.740			0.528			0.322			0.439		
Satd. Flow (perm)	1254	1800	1395	885	1454	0	547	3386	1407	689	3157	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114		15				177		2	
Link Speed (k/h)		50			50		60			60		
Link Distance (m)		67.3			53.1		900.2			109.2		
Travel Time (s)		4.8			3.8		54.0			6.6		
Confl. Peds. (#/hr)	3		3	3		3	2		3	3		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	1%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	11	7	68	310	12	15	100	566	262	13	636	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	7	68	310	27	0	100	566	262	13	647	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

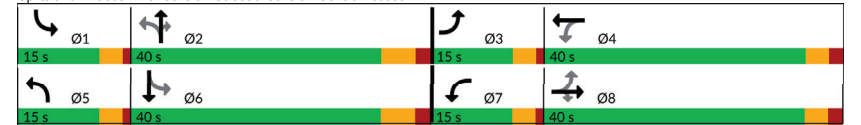
5: St. Clair Street & St. Clair Centre Access

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.4	10.3	10.3	22.5	19.5		46.5	42.1	42.1	42.2	34.4	
Actuated g/C Ratio	0.20	0.13	0.13	0.29	0.25		0.60	0.54	0.54	0.55	0.44	
v/c Ratio	0.04	0.03	0.24	0.86	0.07		0.22	0.31	0.31	0.03	0.46	
Control Delay (s/veh)	20.9	33.0	4.2	49.5	17.3		8.7	11.6	5.5	7.4	18.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	20.9	33.0	4.2	49.5	17.3		8.7	11.6	5.5	7.4	18.5	
LOS	C	C	A	D	B		A	B	A	A	B	
Approach Delay (s/veh)		8.7			46.9			9.6			18.3	
Approach LOS		A			D			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 110												
Actuated Cycle Length: 77.4												
Natural Cycle: 100												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.86												
Intersection Signal Delay (s/veh): 18.7					Intersection LOS: B							
Intersection Capacity Utilization 72.2%					ICU Level of Service C							
Analysis Period (min) 15												

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	7	68	310	27	100	566	262	13	647
v/c Ratio	0.04	0.03	0.24	0.86	0.07	0.22	0.31	0.31	0.03	0.46
Control Delay (s/veh)	20.9	33.0	4.2	49.5	17.3	8.7	11.6	5.5	7.4	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.9	33.0	4.2	49.5	17.3	8.7	11.6	5.5	7.4	18.5
Queue Length 50th (m)	1.2	1.0	0.0	41.1	1.3	6.3	23.0	5.8	0.8	38.8
Queue Length 95th (m)	4.7	4.7	4.0	#90.0	8.5	12.5	43.6	23.0	2.9	55.4
Internal Link Dist (m)	43.3			29.1			876.2			85.2
Turn Bay Length (m)	160.0					25.0		25.0		
Base Capacity (vph)	369	836	709	361	683	485	1840	845	520	1405
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.10	0.86	0.04	0.21	0.31	0.31	0.03	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2030 Background PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	148	79	29	33	46	183	34	692	24	162	718	96
Future Volume (vph)	148	79	29	33	46	183	34	692	24	162	718	96
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		0.99	0.99		1.00	1.00		1.00	1.00	
Frt	0.959			0.880			0.995			0.982		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1453	0	1568	1372	0	1568	3150	0	1615	3103	0
Flt Permitted	0.254			0.681			0.275			0.244		
Satd. Flow (perm)	426	1453	0	1118	1372	0	453	3150	0	414	3103	0
Right Turn on Red	Yes			Yes			Yes			Yes		
Satd. Flow (RTOR)	17			177			3			15		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	161	86	32	36	50	199	37	752	26	176	780	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	118	0	36	249	0	37	778	0	176	884	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.6			3.6			3.6			3.6		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.9			4.9			4.9			4.9		
Two way Left Turn Lane	Yes											
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	28.7			28.7			28.7			28.7		
Detector 2 Size(m)	1.8			1.8			1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2030 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	29.3	20.8		22.7	13.1		48.4	39.1		54.2	46.0	
Actuated g/C Ratio	0.32	0.22		0.25	0.14		0.52	0.42		0.59	0.50	
v/c Ratio	0.60	0.35		0.12	0.72		0.11	0.58		0.48	0.57	
Control Delay (s/veh)	33.6	31.1		22.7	24.7		10.3	23.6		14.2	19.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	33.6	31.1		22.7	24.7		10.3	23.6		14.2	19.8	
LOS	C	C		C	C		B	C		B	B	
Approach Delay (s/veh)		32.5			24.5			23.0			18.8	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 92.5

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.72

Intersection Signal Delay (s/veh): 22.4

Intersection LOS: C

Intersection Capacity Utilization 82.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2030 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	161	118	36	249	37	778	176	884
v/c Ratio	0.60	0.35	0.12	0.72	0.11	0.58	0.48	0.57
Control Delay (s/veh)	33.6	31.1	22.7	24.7	10.3	23.6	14.2	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.6	31.1	22.7	24.7	10.3	23.6	14.2	19.8
Queue Length 50th (m)	21.5	16.0	4.4	11.9	2.4	52.3	12.5	57.9
Queue Length 95th (m)	37.5	32.8	11.2	37.1	7.7	85.7	28.1	95.2
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	275	467	371	551	388	1331	387	1551
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.25	0.10	0.45	0.10	0.58	0.45	0.57

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2030 Background PM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	3	3	11	0
Future Volume (vph)	0	3	3	3	11	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.932			
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	1491	0	1208	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	1491	0	1208	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	18%	0%
Adj. Flow (vph)	0	3	3	3	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	6	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2030 Background PM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	3	3	11	0
Future Vol, veh/h	0	3	3	3	11	0
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	0	0	0	18	0
Mvmt Flow	0	3	3	3	12	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	7	0	-	0	8	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	3	-
Critical Hdwy	4.1	-	-	-	6.58	6.2
Critical Hdwy Stg 1	-	-	-	-	5.58	-
Critical Hdwy Stg 2	-	-	-	-	5.58	-
Follow-up Hdwy	2.2	-	-	-	3.662	3.3
Pot Cap-1 Maneuver	1627	-	-	-	973	1084
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	980	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1627	-	-	-	973	1084
Mov Cap-2 Maneuver	-	-	-	-	973	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	980	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.75		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1627	-	-	-	973	
HCM Lane V/C Ratio	-	-	-	-	0.012	
HCM Control Delay (s/veh)	0	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2030 Background PM
770 St. Clair Street, Chatham-Kent TIS

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↘			↘	↗	
Traffic Volume (vph)	1	0	1	1	0	0
Future Volume (vph)	1	0	1	1	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected				0.976		
Satd. Flow (prot)	1600	0	0	1562	1500	0
Flt Permitted				0.976		
Satd. Flow (perm)	1600	0	0	1562	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	1	1	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	2	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2030 Background PM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	0	1	1	0	0
Future Vol, veh/h	1	0	1	1	0	0
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	0	0	0	0	0
Mvmt Flow	1	0	1	1	0	0
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	1	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	-	-	1635	-	1023	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1022	1089
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1024	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	3.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	900	-	
HCM Lane V/C Ratio	-	-	-	0.001	-	
HCM Control Delay (s/veh)	0	-	-	7.2	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	85	81	52	44	12	88	197	86	13	213	35
Future Volume (vph)	33	85	81	52	44	12	88	197	86	13	213	35
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.945			0.985			0.850			0.979	
Flt Protected		0.992			0.976		0.950		0.950			
Satd. Flow (prot)	0	1406	0	0	1428	0	1615	1782	1445	1495	3109	0
Flt Permitted		0.925			0.669		0.530		0.624			
Satd. Flow (perm)	0	1311	0	0	979	0	901	1782	1445	982	3109	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			7				93		25	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	36	92	88	57	48	13	96	214	93	14	232	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	216	0	0	118	0	96	214	93	14	270	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		15.8			15.8		47.1	43.4	43.4	42.2	35.7	
Actuated g/C Ratio		0.22			0.22		0.64	0.59	0.59	0.58	0.49	
v/c Ratio		0.69			0.55		0.15	0.20	0.10	0.02	0.18	
Control Delay (s/veh)		33.9			34.7		6.5	9.6	3.2	6.6	12.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		33.9			34.7		6.5	9.6	3.2	6.6	12.0	
LOS		C			C		A	A	A	A	B	
Approach Delay (s/veh)		33.9			34.7			7.4			11.7	
Approach LOS		C			C			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 87												
Actuated Cycle Length: 73.2												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.69												
Intersection Signal Delay (s/veh): 17.3						Intersection LOS: B						
Intersection Capacity Utilization 65.5%						ICU Level of Service C						
Analysis Period (min) 15												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	216	118	96	214	93	14	270
v/c Ratio	0.69	0.55	0.15	0.20	0.10	0.02	0.18
Control Delay (s/veh)	33.9	34.7	6.5	9.6	3.2	6.6	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.9	34.7	6.5	9.6	3.2	6.6	12.0
Queue Length 50th (m)	22.9	14.0	4.1	10.9	0.0	0.6	9.7
Queue Length 95th (m)	45.5	30.0	12.4	35.9	7.7	3.1	21.5
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	482	345	690	1055	894	697	1529
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.34	0.14	0.20	0.10	0.02	0.18
Intersection Summary							

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	38	70	143	296	47	79	162	250	196	50	222	15
Future Volume (vph)	38	70	143	296	47	79	162	250	196	50	222	15
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00	0.99							
Frt			0.850		0.906			0.934			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	3133	1427	0	1615	3017	0	1615	3201	0
Flt Permitted	0.137			0.708			0.526			0.439		
Satd. Flow (perm)	233	1800	1426	2330	1427	0	894	3017	0	746	3201	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		60			140			5	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	2		1	1		2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	41	76	155	322	51	86	176	272	213	54	241	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	76	155	322	137	0	176	485	0	54	257	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↑	↗	↖	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0			8.0			8.0	
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0			22.0			20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	29.1	29.1	29.1	22.0	22.0		49.9	39.0		44.9	34.0	
Actuated g/C Ratio	0.25	0.25	0.25	0.19	0.19		0.42	0.33		0.38	0.29	
v/c Ratio	0.72	0.17	0.33	0.74	0.44		0.40	0.45		0.16	0.28	
Control Delay (s/veh)	103.2	37.2	7.8	57.3	29.3		27.9	26.4		25.1	35.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	103.2	37.2	7.8	57.3	29.3		27.9	26.4		25.1	35.7	
LOS	F	D	A	E	C		C	C		C	D	
Approach Delay (s/veh)		30.4			48.9			26.8			33.8	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 118.6

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 34.6

Intersection LOS: C

Intersection Capacity Utilization 72.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↑	↗	↖	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT			
Lane Group Flow (vph)	41	76	155	322	137	176	485	54	257			
v/c Ratio	0.72	0.17	0.33	0.74	0.44	0.40	0.45	0.16	0.28			
Control Delay (s/veh)	103.2	37.2	7.8	57.3	29.3	27.9	26.4	25.1	35.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay (s/veh)	103.2	37.2	7.8	57.3	29.3	27.9	26.4	25.1	35.7			
Queue Length 50th (m)	8.7	13.9	0.0	38.6	16.3	27.6	35.6	7.8	25.4			
Queue Length 95th (m)	#30.5	28.8	16.8	54.2	35.2	49.7	59.3	17.9	40.6			
Internal Link Dist (m)		67.3			53.0		51.7		205.0			
Turn Bay Length (m)						140.0			115.0			
Base Capacity (vph)	67	523	524	677	457	444	1085	381	920			
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.61	0.15	0.30	0.48	0.30	0.40	0.45	0.14	0.28			

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	16	0	671	696	2
Future Volume (vph)	0	16	0	671	696	2
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3198	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3198	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	17	0	729	757	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	17	0	729	759	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	16	0	671	696	2
Future Vol, veh/h	0	16	0	671	696	2
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	17	0	729	757	2
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	- 380	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 623	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	- 623	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v10.95		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	623	-	-		
HCM Lane V/C Ratio	-	0.028	-	-		
HCM Control Delay (s/veh)	-	10.9	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Volume (vph)	0	26	0	703	690	29
Future Volume (vph)	0	26	0	703	690	29
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.994	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3420	3211	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3420	3211	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	28	0	764	750	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	28	0	764	782	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	32.4%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	26	0	703	690	29
Future Vol, veh/h	0	26	0	703	690	29
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	0	0	0
Mvmt Flow	0	28	0	764	750	32
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	394	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	611	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	609	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	11.2	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	609	-	-	-	-
HCM Lane V/C Ratio	-	0.046	-	-	-	-
HCM Control Delay (s/veh)	-	11.2	-	-	-	-
HCM Lane LOS	-	B	-	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-	-

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	21	11	67	350	27	28	105	636	421	46	623	13
Future Volume (vph)	21	11	67	350	27	28	105	636	421	46	623	13
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.97	1.00		
Frt			0.850		0.924				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1599	1466	0	1615	3386	1431	1553	3189	0
Flt Permitted	0.719			0.514			0.309			0.367		
Satd. Flow (perm)	1217	1800	1445	865	1466	0	525	3386	1393	599	3189	0
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			114		30			254			2	
Link Speed (k/h)		50			50		60			60		
Link Distance (m)		67.3			53.1		900.2			109.2		
Travel Time (s)		4.8			3.8		54.0			6.6		
Confl. Peds. (#/hr)	4				4			3	3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	4%	1%	0%	0%
Adj. Flow (vph)	23	12	73	380	29	30	114	691	458	50	677	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	12	73	380	59	0	114	691	458	50	691	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.5	10.3	10.3	22.4	17.3		45.6	37.8	37.8	42.4	34.4	
Actuated g/C Ratio	0.20	0.13	0.13	0.29	0.22		0.59	0.49	0.49	0.55	0.44	
v/c Ratio	0.08	0.05	0.25	1.06	0.17		0.26	0.42	0.57	0.12	0.49	
Control Delay (s/veh)	21.4	33.5	4.9	94.4	18.6		9.2	15.7	10.7	8.1	18.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	21.4	33.5	4.9	94.4	18.6		9.2	15.7	10.7	8.1	18.9	
LOS	C	C	A	F	B		A	B	B	A	B	
Approach Delay (s/veh)		11.5			84.2			13.3			18.1	
Approach LOS		B			F			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.06

Intersection Signal Delay (s/veh): 26.8

Intersection LOS: C

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	12	73	380	59	114	691	458	50	691
v/c Ratio	0.08	0.05	0.25	1.06	0.17	0.26	0.42	0.57	0.12	0.49
Control Delay (s/veh)	21.4	33.5	4.9	94.4	18.6	9.2	15.7	10.7	8.1	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.4	33.5	4.9	94.4	18.6	9.2	15.7	10.7	8.1	18.9
Queue Length 50th (m)	2.5	1.7	0.0	~54.7	3.2	7.3	40.0	21.9	3.1	41.8
Queue Length 95th (m)	7.8	6.5	5.2	#93.7	14.3	13.9	55.5	53.0	7.2	60.2
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	365	836	732	357	697	474	1653	810	489	1419
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.01	0.10	1.06	0.08	0.24	0.42	0.57	0.10	0.49

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2030 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	156	39	28	39	17	252	20	879	29	156	824	124
Future Volume (vph)	156	39	28	39	17	252	20	879	29	156	824	124
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0		25.0		7.5		40.0					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99	0.99	0.98	1.00	1.00	0.995	0.980	1.00	0.995	0.980	1.00
Frt	0.937		0.859		0.995		0.980		0.937		0.859	
Flt Protected	0.950		0.950		0.950		0.950		0.950		0.950	
Satd. Flow (prot)	1599	1430	0	1568	1337	0	1568	3150	0	1615	3096	0
Flt Permitted	0.229		0.710		0.230		0.230		0.164		0.164	
Satd. Flow (perm)	384	1430	0	1165	1337	0	380	3150	0	279	3096	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)	30		267		3		17		50		50	
Link Speed (k/h)	50		50		50		50		50		50	
Link Distance (m)	157.0		124.1		207.7		900.2		64.8		64.8	
Travel Time (s)	11.3		8.9		15.0		15.0		64.8		64.8	
Confl. Peds. (#/hr)	5		5		5		3		2		2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	170	42	30	42	18	274	22	955	32	170	896	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	72	0	42	292	0	22	987	0	170	1031	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.6		3.6		3.6		3.6		3.6		3.6	
Link Offset(m)	0.0		0.0		0.0		0.0		0.0		0.0	
Crosswalk Width(m)	4.9		4.9		4.9		4.9		4.9		4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	28.7			28.7			28.7			28.7		
Detector 2 Size(m)	1.8			1.8			1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2030 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	27.9	19.4		21.6	11.8		48.1	39.0		54.8	48.5	
Actuated g/C Ratio	0.31	0.21		0.24	0.13		0.53	0.43		0.60	0.53	
v/c Ratio	0.66	0.22		0.14	0.72		0.08	0.73		0.55	0.63	
Control Delay (s/veh)	37.7	23.6		23.5	17.6		9.3	26.6		15.8	18.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	37.7	23.6		23.5	17.6		9.3	26.6		15.8	18.7	
LOS	D	C		C	B		A	C		B	B	
Approach Delay (s/veh)		33.5			18.4			26.2			18.3	
Approach LOS		C			B			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 91.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 22.5

Intersection LOS: C

Intersection Capacity Utilization 85.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2030 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	170	72	42	292	22	987	170	1031
v/c Ratio	0.66	0.22	0.14	0.72	0.08	0.73	0.55	0.63
Control Delay (s/veh)	37.7	23.6	23.5	17.6	9.3	26.6	15.8	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.7	23.6	23.5	17.6	9.3	26.6	15.8	18.7
Queue Length 50th (m)	23.0	6.4	5.2	4.0	1.4	72.1	11.7	52.5
Queue Length 95th (m)	#41.1	18.5	12.4	29.2	5.0	112.3	25.5	110.8
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	263	473	366	605	359	1345	328	1649
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.15	0.11	0.48	0.06	0.73	0.52	0.63

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2030 Background SAT
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	3	3	11	0
Future Volume (vph)	0	3	3	3	11	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.932			
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	1491	0	1425	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	1491	0	1425	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	3	3	3	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	6	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2030 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	3	3	11	0
Future Vol, veh/h	0	3	3	3	11	0
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	0	0	0	0	0
Mvmt Flow	0	3	3	3	12	0
Major/Minor						
	Major1	Major2		Minor2		
Conflicting Flow All	7	0	-	0	8	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	3	-
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	1627	-	-	-	1018	1084
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1627	-	-	-	1018	1084
Mov Cap-2 Maneuver	-	-	-	-	1018	-
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1025	-
Approach						
	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.58		
HCM LOS	A					
Minor Lane/Major Mvmt						
	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1627	-	-	-	1018	
HCM Lane V/C Ratio	-	-	-	-	0.012	
HCM Control Delay (s/veh)	0	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2030 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	1	0	1	1	0	0
Future Volume (vph)	1	0	1	1	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected				0.976		
Satd. Flow (prot)	1600	0	0	1562	1500	0
Flt Permitted				0.976		
Satd. Flow (perm)	1600	0	0	1562	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	1	1	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	2	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2030 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	0	1	1	0	0
Future Vol, veh/h	1	0	1	1	0	0
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	0	0	0	0	0
Mvmt Flow	1	0	1	1	0	0
Major/Minor						
	Major1	Major2		Minor1		
Conflicting Flow All	0	0	1	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	-	-	1635	-	1023	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1022	1089
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1024	-
Approach						
	EB	WB		NB		
HCM Control Delay, s/v	0	3.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt						
	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	900	-	
HCM Lane V/C Ratio	-	-	-	0.001	-	
HCM Control Delay (s/veh)	0	-	-	7.2	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Appendix E

2030 Total Traffic Operations Reports



Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	34	28	28	32	14	20	252	19	12	233	35
Future Volume (vph)	33	34	28	28	32	14	20	252	19	12	233	35
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	45.0		0.0	80.0	80.0
Storage Lanes	0		0	0			0	1		1	1	1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.961			0.975			0.850			0.980	
Flt Protected		0.983			0.982		0.950			0.950		
Satd. Flow (prot)	0	1324	0	0	1360	0	1380	1682	1225	1482	2984	0
Flt Permitted		0.852			0.869		0.572			0.591		
Satd. Flow (perm)	0	1148	0	0	1203	0	831	1682	1225	922	2984	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			13				88		23	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	13%	8%	4%	3%	15%	17%	7%	18%	9%	7%	0%
Adj. Flow (vph)	36	37	30	30	35	15	22	274	21	13	253	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	80	0	22	274	21	13	291	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		11.4			11.4		41.8	40.0	40.0	41.6	39.9	
Actuated g/C Ratio		0.19			0.19		0.69	0.66	0.66	0.69	0.66	
v/c Ratio		0.44			0.34		0.03	0.25	0.03	0.02	0.15	
Control Delay (s/veh)		24.7			23.7		4.4	7.9	0.1	4.3	6.3	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		24.7			23.7		4.4	7.9	0.1	4.3	6.3	
LOS		C			C		A	A	A	A	A	
Approach Delay (s/veh)		24.7			23.7			7.1			6.2	
Approach LOS		C			C			A			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 87												
Actuated Cycle Length: 60.4												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.44												
Intersection Signal Delay (s/veh): 10.7						Intersection LOS: B						
Intersection Capacity Utilization 55.0%						ICU Level of Service A						
Analysis Period (min) 15												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	80	22	274	21	13	291
v/c Ratio	0.44	0.34	0.03	0.25	0.03	0.02	0.15
Control Delay (s/veh)	24.7	23.7	4.4	7.9	0.1	4.3	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.7	23.7	4.4	7.9	0.1	4.3	6.3
Queue Length 50th (m)	7.4	6.1	0.7	11.1	0.0	0.4	5.2
Queue Length 95th (m)	22.6	19.1	2.9	37.1	0.0	2.1	17.2
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	493	510	684	1112	840	749	1978
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.16	0.03	0.25	0.03	0.02	0.15
Intersection Summary							

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	21	22	47	68	11	23	58	206	107	33	240	9
Future Volume (vph)	21	22	47	68	11	23	58	206	107	33	240	9
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					0.99		1.00	1.00		1.00	1.00	
Frt			0.850		0.899			0.949			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	3072	1344	0	1583	2854	0	1524	2927	0
Flt Permitted	0.268			0.742			0.556			0.547		
Satd. Flow (perm)	456	1800	1417	2399	1344	0	926	2854	0	877	2927	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		25			65			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	1					1	1		1	1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	9%	2%	10%	1%	6%	10%	0%
Adj. Flow (vph)	23	24	51	74	12	25	63	224	116	36	261	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	24	51	74	37	0	63	340	0	36	271	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24			14	24		14	24	14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	18.1	18.1	18.1	10.8	10.8		50.5	45.3		48.5	42.4	
Actuated g/C Ratio	0.21	0.21	0.21	0.12	0.12		0.58	0.52		0.55	0.48	
v/c Ratio	0.24	0.06	0.13	0.25	0.20		0.11	0.23		0.07	0.19	
Control Delay (s/veh)	37.3	29.3	0.7	43.8	25.1		14.4	17.3		14.5	22.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	37.3	29.3	0.7	43.8	25.1		14.4	17.3		14.5	22.3	
LOS	D	C	A	D	C		B	B		B	C	
Approach Delay (s/veh)		16.3			37.6			16.8			21.3	
Approach LOS		B			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 87.7

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.25

Intersection Signal Delay (s/veh): 20.8

Intersection LOS: C

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	24	51	74	37	63	340	36	271
v/c Ratio	0.24	0.06	0.13	0.25	0.20	0.11	0.23	0.07	0.19
Control Delay (s/veh)	37.3	29.3	0.7	43.8	25.1	14.4	17.3	14.5	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	29.3	0.7	43.8	25.1	14.4	17.3	14.5	22.3
Queue Length 50th (m)	3.5	3.5	0.0	6.1	1.9	5.1	16.8	2.9	16.4
Queue Length 95th (m)	10.7	9.9	0.0	15.1	12.5	15.6	36.5	10.3	35.1
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	187	739	646	985	567	633	1504	596	1415
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.03	0.08	0.08	0.07	0.10	0.23	0.06	0.19

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	21	0	391	364	7
Future Volume (vph)	0	21	0	391	364	7
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.997	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3167	3070	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3167	3070	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	8%	5%	0%
Adj. Flow (vph)	0	23	0	425	396	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	0	425	404	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.6%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	21	0	391	364	7
Future Vol, veh/h	0	21	0	391	364	7
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	8	5	0
Mvmt Flow	0	23	0	425	396	8
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	203	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	811	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	810	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.57	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	810	-	-	-	-
HCM Lane V/C Ratio	-	0.028	-	-	-	-
HCM Control Delay (s/veh)	-	9.6	-	-	-	-
HCM Lane LOS	-	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-	-

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2030 Total AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Volume (vph)	0	18	0	393	374	12
Future Volume (vph)	0	18	0	393	374	12
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.995	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3257	3010	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3257	3010	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	7%	0%
Adj. Flow (vph)	0	20	0	427	407	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	0	427	420	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.0%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2030 Total AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	18	0	393	374	12
Future Vol, veh/h	0	18	0	393	374	12
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	5	7	0
Mvmt Flow	0	20	0	427	407	13
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	211	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	801	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	800	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.61	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	800	-	-	-	-
HCM Lane V/C Ratio	-	0.024	-	-	-	-
HCM Control Delay (s/veh)	-	9.6	-	-	-	-
HCM Lane LOS	-	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-	-

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↰	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	37	17	101	100	16	6	82	340	149	12	369	6
Future Volume (vph)	37	17	101	100	16	6	82	340	149	12	369	6
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	160.0		25.0	25.0	0.0
Storage Lanes	1		1	1			0	1		1	1	0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.956				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1538	1457	0	1615	3257	1389	1495	3013	0
Flt Permitted	0.742			0.516			0.467			0.532		
Satd. Flow (perm)	1261	1800	1445	835	1457	0	794	3257	1389	837	3013	0
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			114		7				162		2	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	5%	0%	17%	0%	5%	4%	8%	7%
Adj. Flow (vph)	40	18	110	109	17	7	89	370	162	13	401	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	18	110	109	24	0	89	370	162	13	408	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.8	10.3	10.3	20.7	16.7		50.2	47.7	47.7	46.4	40.4	
Actuated g/C Ratio	0.21	0.13	0.13	0.27	0.22		0.65	0.62	0.62	0.60	0.53	
v/c Ratio	0.14	0.07	0.38	0.35	0.07		0.15	0.18	0.18	0.02	0.26	
Control Delay (s/veh)	21.7	33.5	11.2	24.6	23.8		8.0	10.4	2.9	7.4	15.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	21.7	33.5	11.2	24.6	23.8		8.0	10.4	2.9	7.4	15.8	
LOS	C	C	B	C	C		A	B	A	A	B	
Approach Delay (s/veh)		16.1			24.5			8.1			15.6	
Approach LOS		B			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 76.7

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.38

Intersection Signal Delay (s/veh): 13.1

Intersection LOS: B

Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	18	110	109	24	89	370	162	13	408
v/c Ratio	0.14	0.07	0.38	0.35	0.07	0.15	0.18	0.18	0.02	0.26
Control Delay (s/veh)	21.7	33.5	11.2	24.6	23.8	8.0	10.4	2.9	7.4	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.7	33.5	11.2	24.6	23.8	8.0	10.4	2.9	7.4	15.8
Queue Length 50th (m)	4.3	2.6	0.0	12.4	1.9	5.6	14.1	0.0	0.8	22.2
Queue Length 95th (m)	11.2	8.6	13.2	25.1	8.9	11.4	28.5	10.2	2.9	33.7
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	373	843	737	340	686	643	2025	925	635	1587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.02	0.15	0.32	0.03	0.14	0.18	0.18	0.02	0.26
Intersection Summary										

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	29	25	25	36	135	14	467	20	81	507	47
Future Volume (vph)	89	29	25	25	36	135	14	467	20	81	507	47
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99		1.00	1.00		1.00	1.00	
Frt		0.931			0.881			0.994			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1490	0	1615	1362	0	1615	3089	0	1583	2990	0
Flt Permitted	0.386			0.719			0.424			0.391		
Satd. Flow (perm)	635	1490	0	1222	1362	0	720	3089	0	651	2990	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			147			4			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	3					3	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	3%	2%	0%	4%	0%	2%	7%	0%
Adj. Flow (vph)	97	32	27	27	39	147	15	508	22	88	551	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	59	0	27	186	0	15	530	0	88	602	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.3	18.1		19.2	11.5		47.7	40.2		51.4	47.5	
Actuated g/C Ratio	0.29	0.21		0.23	0.14		0.57	0.48		0.61	0.56	
v/c Ratio	0.34	0.17		0.09	0.59		0.03	0.36		0.18	0.36	
Control Delay (s/veh)	25.8	20.6		22.3	19.1		8.5	17.1		9.2	12.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	25.8	20.6		22.3	19.1		8.5	17.1		9.2	12.5	
LOS	C	C		C	B		A	B		A	B	
Approach Delay (s/veh)		23.9			19.5			16.8			12.1	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 84.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.59

Intersection Signal Delay (s/veh): 15.8

Intersection LOS: B

Intersection Capacity Utilization 71.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues

6: St. Clair Street & Gregory Drive

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	97	59	27	186	15	530	88	602
v/c Ratio	0.34	0.17	0.09	0.59	0.03	0.36	0.18	0.36
Control Delay (s/veh)	25.8	20.6	22.3	19.1	8.5	17.1	9.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.8	20.6	22.3	19.1	8.5	17.1	9.2	12.5
Queue Length 50th (m)	11.9	3.9	3.2	6.0	0.9	29.6	5.6	25.1
Queue Length 95th (m)	23.9	15.3	8.9	26.3	3.8	50.0	13.6	54.4
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	307	540	371	573	553	1478	523	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.11	0.07	0.32	0.03	0.36	0.17	0.36

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	7	1	0	0	10	20	1	1	0
Future Volume (vph)	0	0	0	7	1	0	0	10	20	1	1	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.910				
Flt Protected					0.957						0.976	
Satd. Flow (prot)	0	1500	0	0	1272	0	0	1338	0	0	1450	0
Flt Permitted					0.957						0.976	
Satd. Flow (perm)	0	1500	0	0	1272	0	0	1338	0	0	1450	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	100%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	0	0	8	1	0	0	11	22	1	1	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	9	0	0	33	0	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 13.3%	ICU Level of Service A											
Analysis Period (min) 15												

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh		8										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	7	1	0	0	10	20	1	1	0
Future Vol, veh/h	0	0	0	7	1	0	0	10	20	1	1	0
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, %	0	0	2	2	100	0	2	2	2	0	2	0
Mvmt Flow	0	0	0	8	1	0	0	11	22	1	1	0
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	1	0	0	1	0	0	18	17	1	23	17	1
Stage 1	-	-	-	-	-	-	1	1	-	16	16	-
Stage 2	-	-	-	-	-	-	17	16	-	7	1	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1635	-	-	1622	-	-	996	877	1083	994	877	1089
Stage 1	-	-	-	-	-	-	1022	895	-	1008	882	-
Stage 2	-	-	-	-	-	-	1003	882	-	1020	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1635	-	-	1622	-	-	990	873	1083	958	873	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	990	873	-	958	873	-
Stage 1	-	-	-	-	-	-	1022	895	-	1004	878	-
Stage 2	-	-	-	-	-	-	997	878	-	988	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			6.33			8.71			8.95		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1003	1635	-	-	1575	-	-	913				
HCM Lane V/C Ratio	0.033	-	-	-	0.005	-	-	0.002				
HCM Control Delay (s/veh)	8.7	0	-	-	7.2	0	-	9				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	43	0	0	0	102	0	0
Future Volume (vph)	0	0	0	0	0	43	0	0	0	102	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865							
Flt Protected											0.950	
Satd. Flow (prot)	0	1500	0	0	1272	0	0	1471	0	0	1397	0
Flt Permitted											0.950	
Satd. Flow (perm)	0	1500	0	0	1272	0	0	1471	0	0	1397	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		48.6			122.4			53.3			51.7	
Travel Time (s)		3.5			8.8			3.8			3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	0	0	0	0	47	0	0	0	111	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	47	0	0	0	0	0	111	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 17.2%	ICU Level of Service A											
Analysis Period (min) 15												

PTSL

Synchro 12 Report

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2030 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔ ↔ ↔ ↔											
Traffic Vol, veh/h	0	0	0	0	0	43	0	0	0	102	0	0
Future Vol, veh/h	0	0	0	0	0	43	0	0	0	102	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	0	0	0	0	47	0	0	0	111	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	47	0	0	1	0	0	1	48	1	24	24	23
Stage 1	-	-	-	-	-	-	1	1	-	23	23	-
Stage 2	-	-	-	-	-	-	0	47	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1561	-	-	1635	-	-	1027	844	1089	987	869	1053
Stage 1	-	-	-	-	-	-	1027	895	-	995	876	-
Stage 2	-	-	-	-	-	-	-	856	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1561	-	-	1635	-	-	1027	844	1089	987	869	1053
Mov Cap-2 Maneuver	-	-	-	-	-	-	1027	844	-	987	869	-
Stage 1	-	-	-	-	-	-	1027	895	-	995	876	-
Stage 2	-	-	-	-	-	-	-	856	-	1022	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0			0			9.11		
HCM LOS				A			A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1561	-	-	1635	-	-	987				
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.112				
HCM Control Delay (s/veh)	0	0	-	-	0	-	-	9.1				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.4				

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	92	47	25	59	20	74	294	67	25	329	65
Future Volume (vph)	39	92	47	25	59	20	74	294	67	25	329	65
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.964			0.974			0.850			0.975	
Flt Protected		0.989			0.988		0.950		0.950			
Satd. Flow (prot)	0	1388	0	0	1413	0	1583	1765	1445	1553	3098	0
Flt Permitted		0.907			0.897		0.459		0.567			
Satd. Flow (perm)	0	1273	0	0	1283	0	765	1765	1445	927	3098	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			14				88		32	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	1%	2%	0%	0%	11%	2%	2%	0%	4%	1%	5%
Adj. Flow (vph)	42	100	51	27	64	22	80	320	73	27	358	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	193	0	0	113	0	80	320	73	27	429	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

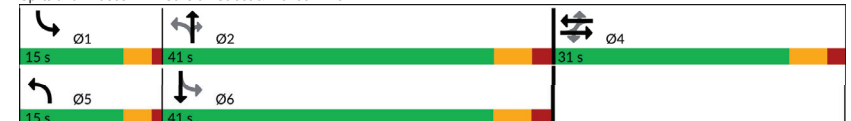
1: St. Clair Street & Pioneer Line

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		15.6			15.6		45.8	40.7	40.7	42.3	35.6	
Actuated g/C Ratio		0.22			0.22		0.63	0.56	0.56	0.59	0.49	
v/c Ratio		0.67			0.39		0.14	0.32	0.09	0.05	0.28	
Control Delay (s/veh)		35.4			26.4		6.5	12.0	2.8	6.3	12.3	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		35.4			26.4		6.5	12.0	2.8	6.3	12.3	
LOS		D			C		A	B	A	A	B	
Approach Delay (s/veh)		35.4			26.4			9.7			12.0	
Approach LOS		D			C			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 87												
Actuated Cycle Length: 72.3												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.67												
Intersection Signal Delay (s/veh): 16.1												
Intersection LOS: B												
Intersection Capacity Utilization 63.3%												
ICU Level of Service B												
Analysis Period (min) 15												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2030 Total PM
770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	193	113	80	320	73	27	429
v/c Ratio	0.67	0.39	0.14	0.32	0.09	0.05	0.28
Control Delay (s/veh)	35.4	26.4	6.5	12.0	2.8	6.3	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.4	26.4	6.5	12.0	2.8	6.3	12.3
Queue Length 50th (m)	22.1	11.9	3.4	17.5	0.0	1.1	16.4
Queue Length 95th (m)	43.1	25.8	10.4	54.2	5.5	4.7	32.7
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	461	459	619	993	851	685	1541
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.25	0.13	0.32	0.09	0.04	0.28
Intersection Summary							

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Total PM
770 St. Clair Street, Chatham-Kent TIS

	↖	→	↘	↗	←	↖	↗	↑	↘	↗	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↗	↖		↖	↗	↘	↗	↖	↗
Traffic Volume (vph)	26	36	66	175	39	59	76	317	149	54	346	18
Future Volume (vph)	26	36	66	175	39	59	76	317	149	54	346	18
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.909			0.952			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1748	1417	3102	1454	0	1615	3024	0	1615	3144	0
Flt Permitted	0.226			0.732			0.489			0.421		
Satd. Flow (perm)	384	1748	1398	2385	1454	0	831	3024	0	716	3144	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		54			55			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	1%	0%	0%	0%	2%	1%	0%	2%	0%
Adj. Flow (vph)	28	39	72	190	42	64	83	345	162	59	376	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	39	72	190	106	0	83	507	0	59	396	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Total PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt
Protected Phases	3	3	3	4	4	4	5	2	1	6	6	6
Permitted Phases	3	3	3	4	4	4	2	2	6	6	6	6
Detector Phase	3	3	3	4	4	4	5	2	1	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	7.0	31.0	7.0	31.0	7.0	31.0	31.0
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0	11.0	37.5	11.0	37.5	11.0	37.5	37.5
Total Split (s)	40.0	40.0	40.0	40.0	40.0	15.0	40.0	15.0	40.0	15.0	40.0	40.0
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%	11.1%	29.6%	11.1%	29.6%	11.1%	29.6%	29.6%
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	11.0	33.5	11.0	33.5	11.0	33.5	33.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.5	3.0	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.5	4.0	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	None	Max	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0	23.0	22.0	22.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	21.1	21.1	21.1	14.2	14.2	46.0	36.6	44.9	36.1	44.9	36.1	36.1
Actuated g/C Ratio	0.22	0.22	0.22	0.15	0.15	0.48	0.38	0.47	0.38	0.47	0.38	0.38
v/c Ratio	0.33	0.10	0.18	0.54	0.40	0.17	0.42	0.14	0.33	0.14	0.33	0.33
Control Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.6	25.7	18.5	27.9	18.5	27.9	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.6	25.7	18.5	27.9	18.5	27.9	27.9
LOS	D	C	A	D	C	B	C	B	C	B	C	C
Approach Delay (s/veh)	19.8			41.3		24.7		26.7				
Approach LOS	B			D		C		C				

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 95.5

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.54

Intersection Signal Delay (s/veh): 28.2

Intersection LOS: C

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access

Ø1	Ø2	Ø3	Ø4
15 s	40 s	40 s	40 s
Ø5	Ø6		
15 s	40 s		

PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2030 Total PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	39	72	190	106	83	507	59	396
v/c Ratio	0.33	0.10	0.18	0.54	0.40	0.17	0.42	0.14	0.33
Control Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.6	25.7	18.5	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.6	25.7	18.5	27.9
Queue Length 50th (m)	4.6	6.1	0.0	17.9	9.1	8.3	35.1	5.8	29.8
Queue Length 95th (m)	14.0	15.3	4.1	33.1	27.9	22.0	65.6	16.5	55.2
Internal Link Dist (m)	67.3			53.0		51.7		205.0	
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	147	670	603	914	590	509	1194	462	1190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.06	0.12	0.21	0.18	0.16	0.42	0.13	0.33

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Volume (vph)	0	32	0	549	569	23
Future Volume (vph)	0	32	0	549	569	23
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.865		0.994		
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3180	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3180	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	35	0	597	618	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	35	0	597	643	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 28.4%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	32	0	549	569	23
Future Vol, veh/h	0	32	0	549	569	23
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, %	0	0	0	1	1	0
Mvmt Flow	0	35	0	597	618	25
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	- 322	-	0	-	0	
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	- 6.9	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	- 3.3	-	-	-	-	-
Pot Cap-1 Maneuver	0 680	0	-	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	- 680	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s/v10.58		0	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	680	-	-		
HCM Lane V/C Ratio	-	0.051	-	-		
HCM Control Delay (s/veh)	-	10.6	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	  	
Traffic Volume (vph)	0	18	0	606	579	7
Future Volume (vph)	0	18	0	606	579	7
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.998	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3353	3192	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3353	3192	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	20	0	659	629	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	0	659	637	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.1%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↖	↗↖	
Traffic Vol, veh/h	0	18	0	606	579	7
Future Vol, veh/h	0	18	0	606	579	7
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	2	1	0
Mvmt Flow	0	20	0	659	629	8
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	321	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	680	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	678	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v10.47		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	678	-	-		
HCM Lane V/C Ratio	-	0.029	-	-		
HCM Control Delay (s/veh)	-	10.5	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	24	12	109	285	22	14	194	521	241	12	604	16
Future Volume (vph)	24	12	109	285	22	14	194	521	241	12	604	16
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	160.0		25.0	25.0	0.0
Storage Lanes	1		1	1			0	1		1	1	0
Taper Length (m)	7.6			7.6				100.0			65.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00		0.99		1.00		0.97	1.00	1.00
Frt			0.850			0.942				0.850		0.996
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	1599	1498	0	1615	3386	1445	1495	3154	0
Flt Permitted	0.732			0.567			0.292			0.439		
Satd. Flow (perm)	1240	1800	1395	951	1498	0	496	3386	1407	689	3154	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118		15				177		2	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Confl. Peds. (#/hr)	3		3	3		3	2		3	3		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	1%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	26	13	118	310	24	15	211	566	262	13	657	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	13	118	310	39	0	211	566	262	13	674	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	18.3	10.1	10.1	26.0	20.6		50.6	45.9	45.9	43.0	33.5	
Actuated g/C Ratio	0.22	0.12	0.12	0.31	0.24		0.60	0.54	0.54	0.51	0.40	
v/c Ratio	0.09	0.06	0.44	0.83	0.10		0.48	0.31	0.31	0.03	0.54	
Control Delay (s/veh)	22.0	34.1	12.6	46.5	21.6		11.9	12.0	5.4	7.6	21.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	22.0	34.1	12.6	46.5	21.6		11.9	12.0	5.4	7.6	21.7	
LOS	C	C	B	D	C		B	B	A	A	C	
Approach Delay (s/veh)		15.9			43.7			10.3			21.5	
Approach LOS		B			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 84.7

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 19.4

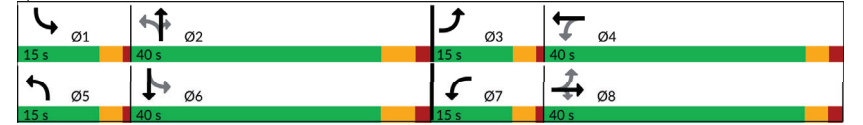
Intersection LOS: B

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	13	118	310	39	211	566	262	13	674
v/c Ratio	0.09	0.06	0.44	0.83	0.10	0.48	0.31	0.31	0.03	0.54
Control Delay (s/veh)	22.0	34.1	12.6	46.5	21.6	11.9	12.0	5.4	7.6	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.0	34.1	12.6	46.5	21.6	11.9	12.0	5.4	7.6	21.7
Queue Length 50th (m)	3.0	1.9	0.0	43.0	2.8	14.4	23.0	5.8	0.8	43.2
Queue Length 95th (m)	8.4	6.9	14.5	#90.7	11.7	25.0	44.1	23.4	2.9	60.0
Internal Link Dist (m)	43.3			29.1			876.2			85.2
Turn Bay Length (m)					160.0			25.0		25.0
Base Capacity (vph)	372	743	645	375	627	441	1835	843	486	1248
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.02	0.18	0.83	0.06	0.48	0.31	0.31	0.03	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	155	79	29	33	46	190	34	780	24	167	773	101
Future Volume (vph)	155	79	29	33	46	190	34	780	24	167	773	101
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		0.99	0.99		1.00	1.00		1.00	1.00	
Frt	0.959			0.879			0.996			0.983		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1453	0	1568	1370	0	1568	3153	0	1615	3107	0
Flt Permitted	0.237			0.681			0.245			0.202		
Satd. Flow (perm)	397	1453	0	1118	1370	0	404	3153	0	343	3107	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	17			184			3			14		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	168	86	32	36	50	207	37	848	26	182	840	110
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	118	0	36	257	0	37	874	0	182	950	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.6			3.6			3.6			3.6		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.9			4.9			4.9			4.9		
Two way Left Turn Lane							Yes					
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	28.7			28.7			28.7			28.7		
Detector 2 Size(m)	1.8			1.8			1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2030 Total PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	29.5	21.0		22.9	13.3		48.4	39.1		54.5	46.2	
Actuated g/C Ratio	0.32	0.23		0.25	0.14		0.52	0.42		0.59	0.50	
v/c Ratio	0.64	0.35		0.12	0.73		0.12	0.66		0.55	0.61	
Control Delay (s/veh)	35.7	31.0		22.7	24.8		10.5	25.4		16.1	20.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	35.7	31.0		22.7	24.8		10.5	25.4		16.1	20.8	
LOS	D	C		C	C		B	C		B	C	
Approach Delay (s/veh)		33.8			24.5			24.8			20.0	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 92.9

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 23.7

Intersection LOS: C

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2030 Total PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	168	118	36	257	37	874	182	950
v/c Ratio	0.64	0.35	0.12	0.73	0.12	0.66	0.55	0.61
Control Delay (s/veh)	35.7	31.0	22.7	24.8	10.5	25.4	16.1	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	35.7	31.0	22.7	24.8	10.5	25.4	16.1	20.8
Queue Length 50th (m)	22.7	16.1	4.5	12.1	2.4	61.9	13.0	64.5
Queue Length 95th (m)	38.9	32.8	11.0	37.7	7.8	100.1	29.3	105.7
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	269	465	371	554	365	1327	353	1552
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.25	0.10	0.46	0.10	0.66	0.52	0.61

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	0	3	0	20	3	3	0	7	12	11	4	0
Future Volume (vph)	0	3	0	20	3	3	0	7	12	11	4	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.986			0.916				
Flt Protected					0.962						0.964	
Satd. Flow (prot)	0	1500	0	0	1401	0	0	1347	0	0	1268	0
Flt Permitted					0.962						0.964	
Satd. Flow (perm)	0	1500	0	0	1401	0	0	1347	0	0	1268	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	18%	2%	0%
Adj. Flow (vph)	0	3	0	22	3	3	0	8	13	12	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	28	0	0	21	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 22.9%	ICU Level of Service A											
Analysis Period (min) 15												

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	3	0	20	3	3	0	7	12	11	4	0
Future Vol, veh/h	0	3	0	20	3	3	0	7	12	11	4	0
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, %	0	0	2	2	0	0	2	2	2	18	2	0
Mvmt Flow	0	3	0	22	3	3	0	8	13	12	4	0

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	7	0	0	3	0	0	52	53	3	55	52	5
Stage 1	-	-	-	-	-	-	3	3	-	48	48	-
Stage 2	-	-	-	-	-	-	49	50	-	7	3	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.28	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.28	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.28	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.662	4.018	3.3
Pot Cap-1 Maneuver	1627	-	-	1619	-	-	947	838	1081	904	840	1084
Stage 1	-	-	-	-	-	-	1019	893	-	926	855	-
Stage 2	-	-	-	-	-	-	964	853	-	975	893	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1627	-	-	1619	-	-	929	827	1081	873	828	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	929	827	-	873	828	-
Stage 1	-	-	-	-	-	-	1019	893	-	913	843	-
Stage 2	-	-	-	-	-	-	946	842	-	955	893	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	5.58	8.79	9.26
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	971	1627	-	-	1259	-	-	861
HCM Lane V/C Ratio	0.021	-	-	-	0.013	-	-	0.019
HCM Control Delay (s/veh)	8.8	0	-	-	7.3	0	-	9.3
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

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Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1	0	1	1	119	0	0	0	66	0	0
Future Volume (vph)	0	1	0	1	1	119	0	0	0	66	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.867											
Flt Protected	0.950											
Satd. Flow (prot)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Flt Permitted	0.950											
Satd. Flow (perm)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Link Speed (k/h)	50											
Link Distance (m)	48.6											
Travel Time (s)	3.5											
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	1	0	1	1	129	0	0	0	72	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	131	0	0	0	0	0	72	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0											
Link Offset(m)	0.0											
Crosswalk Width(m)	4.9											
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control	Free											
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	21.9%											
Analysis Period (min)	15											
ICU Level of Service	A											

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Synchro 12 Report

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2030 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	1	0	1	1	119	0	0	0	66	0	0
Future Vol, veh/h	0	1	0	1	1	119	0	0	0	66	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	1	0	1	1	129	0	0	0	72	0	0
Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	130	0	0	1	0	0	4	134	1	69	69	66
Stage 1	-	-	-	-	-	-	1	1	-	68	68	-
Stage 2	-	-	-	-	-	-	3	133	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1455	-	-	1635	-	-	1022	757	1089	923	822	998
Stage 1	-	-	-	-	-	-	1027	895	-	942	838	-
Stage 2	-	-	-	-	-	-	1025	787	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1455	-	-	1635	-	-	1021	757	1089	923	821	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	1021	757	-	923	821	-
Stage 1	-	-	-	-	-	-	1027	895	-	942	838	-
Stage 2	-	-	-	-	-	-	1024	786	-	1022	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0.06			0			9.23		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1455	-	-	12	-	-	923				
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	0.078				
HCM Control Delay (s/veh)	0	0	-	-	7.2	0	-	9.2				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.3				

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	85	81	52	44	12	88	221	86	13	244	35
Future Volume (vph)	33	85	81	52	44	12	88	221	86	13	244	35
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.945			0.985				0.850		0.981	
Flt Protected		0.992			0.976		0.950			0.950		
Satd. Flow (prot)	0	1406	0	0	1428	0	1615	1782	1445	1495	3114	0
Flt Permitted		0.925			0.669		0.513			0.610		
Satd. Flow (perm)	0	1311	0	0	979	0	872	1782	1445	960	3114	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			7				93		22	
Link Speed (k/h)		60			60			60		60		
Link Distance (m)		145.1			185.2			229.0		235.8		
Travel Time (s)		8.7			11.1			13.7		14.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	36	92	88	57	48	13	96	240	93	14	265	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	216	0	0	118	0	96	240	93	14	303	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6		3.6		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		4.9			4.9			4.9		4.9		
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7		28.7		
Detector 2 Size(m)		1.8			1.8			1.8		1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex		CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0		0.0		
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		15.8			15.8		47.1	43.4	43.4	42.2	35.7	
Actuated g/C Ratio		0.22			0.22		0.64	0.59	0.59	0.58	0.49	
v/c Ratio		0.69			0.55		0.15	0.23	0.10	0.02	0.20	
Control Delay (s/veh)		33.9			34.7		6.5	9.7	3.2	6.6	12.3	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		33.9			34.7		6.5	9.7	3.2	6.6	12.3	
LOS		C			C		A	A	A	A	B	
Approach Delay (s/veh)		33.9			34.7			7.6			12.1	
Approach LOS		C			C			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 87												
Actuated Cycle Length: 73.2												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.69												
Intersection Signal Delay (s/veh): 17.1						Intersection LOS: B						
Intersection Capacity Utilization 65.5%						ICU Level of Service C						
Analysis Period (min) 15												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2030 Total SAT
770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	216	118	96	240	93	14	303
v/c Ratio	0.69	0.55	0.15	0.23	0.10	0.02	0.20
Control Delay (s/veh)	33.9	34.7	6.5	9.7	3.2	6.6	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.9	34.7	6.5	9.7	3.2	6.6	12.3
Queue Length 50th (m)	22.9	14.0	4.1	12.4	0.0	0.6	11.3
Queue Length 95th (m)	45.5	30.0	12.4	40.3	7.7	3.1	24.2
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	482	345	676	1055	894	686	1530
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.34	0.14	0.23	0.10	0.02	0.20
Intersection Summary							

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Total SAT
770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	43	74	143	296	52	79	162	269	196	50	253	15
Future Volume (vph)	43	74	143	296	52	79	162	269	196	50	253	15
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00	0.99							
Frt			0.850		0.910			0.937			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	3133	1435	0	1615	3027	0	1615	3204	0
Flt Permitted	0.121			0.705			0.488			0.410		
Satd. Flow (perm)	206	1800	1426	2320	1435	0	830	3027	0	697	3204	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		54			130			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	2		1	1		2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	47	80	155	322	57	86	176	292	213	54	275	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	80	155	322	143	0	176	505	0	54	291	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	33.0	33.0	33.0	22.5	22.5		49.6	38.5		44.5	33.6	
Actuated g/C Ratio	0.27	0.27	0.27	0.18	0.18		0.40	0.31		0.36	0.27	
v/c Ratio	0.85	0.17	0.31	0.75	0.46		0.44	0.49		0.17	0.33	
Control Delay (s/veh)	132.0	36.9	7.5	59.1	32.1		29.4	28.7		25.5	37.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	132.0	36.9	7.5	59.1	32.1		29.4	28.7		25.5	37.5	
LOS	F	D	A	E	C		C	C		C	D	
Approach Delay (s/veh)		36.6			50.8			28.8			35.7	
Approach LOS		D			D			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 122.5

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 37.2

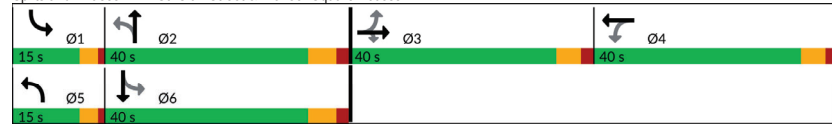
Intersection LOS: D

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	80	155	322	143	176	505	54	291
v/c Ratio	0.85	0.17	0.31	0.75	0.46	0.44	0.49	0.17	0.33
Control Delay (s/veh)	132.0	36.9	7.5	59.1	32.1	29.4	28.7	25.5	37.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	132.0	36.9	7.5	59.1	32.1	29.4	28.7	25.5	37.5
Queue Length 50th (m)	10.7	14.7	0.0	38.6	19.1	27.6	39.2	7.8	29.3
Queue Length 95th (m)	#37.3	29.9	16.8	54.2	38.8	49.8	64.0	18.0	45.8
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	57	501	509	646	438	406	1041	351	882
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.16	0.30	0.50	0.33	0.43	0.49	0.15	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	33	0	690	705	24
Future Volume (vph)	0	33	0	690	705	24
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.995	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3183	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3183	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	36	0	750	766	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	36	0	750	792	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	32.6%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	33	0	690	705	24
Future Vol, veh/h	0	33	0	690	705	24
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	36	0	750	766	26
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	397	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	608	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	607	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	11.3	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	607	-	-	-	-
HCM Lane V/C Ratio	-	0.059	-	-	-	-
HCM Control Delay (s/veh)	-	11.3	-	-	-	-
HCM Lane LOS	-	B	-	-	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-	-	-

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations					 	
Traffic Volume (vph)	0	34	0	722	713	32
Future Volume (vph)	0	34	0	722	713	32
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.994	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3420	3211	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3420	3211	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	37	0	785	775	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	37	0	785	810	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.2%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	34	0	722	713	32
Future Vol, veh/h	0	34	0	722	713	32
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	0	0	0
Mvmt Flow	0	37	0	785	775	35
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	408	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	598	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	596	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s/v11.43			0		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT		SBR	
Capacity (veh/h)	- 596		-		-	
HCM Lane V/C Ratio	- 0.062		-		-	
HCM Control Delay (s/veh)	- 11.4		-		-	
HCM Lane LOS	- B		-		-	
HCM 95th %tile Q(veh)	- 0.2		-		-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	40	19	126	350	38	28	215	636	421	46	648	19
Future Volume (vph)	40	19	126	350	38	28	215	636	421	46	648	19
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	160.0		25.0	25.0	0.0
Storage Lanes	1		1	1			0	1		1	1	0
Taper Length (m)	7.6			7.6				100.0			65.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00						0.99			0.97	1.00	
Frt			0.850			0.937				0.850		0.996
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1599	1489	0	1615	3386	1431	1553	3186	0
Flt Permitted	0.711			0.555			0.262			0.389		
Satd. Flow (perm)	1203	1800	1445	934	1489	0	445	3386	1393	635	3186	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137		30				254		3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Confl. Peds. (#/hr)	4				4			3		3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	1%	4%	1%	0%
Adj. Flow (vph)	43	21	137	380	41	30	234	691	458	50	704	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	21	137	380	71	0	234	691	458	50	725	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	18.8	10.2	10.2	25.6	18.0		50.8	41.7	41.7	43.2	33.5	
Actuated g/C Ratio	0.22	0.12	0.12	0.30	0.21		0.60	0.49	0.49	0.51	0.39	
v/c Ratio	0.14	0.10	0.47	1.04	0.21		0.56	0.42	0.56	0.13	0.58	
Control Delay (s/veh)	22.6	34.6	12.3	88.0	22.4		13.7	16.0	10.5	8.3	22.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	22.6	34.6	12.3	88.0	22.4		13.7	16.0	10.5	8.3	22.5	
LOS	C	C	B	F	C		B	B	B	A	C	
Approach Delay (s/veh)		16.8			77.7			13.8			21.6	
Approach LOS		B			E			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 85.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.04

Intersection Signal Delay (s/veh): 26.4

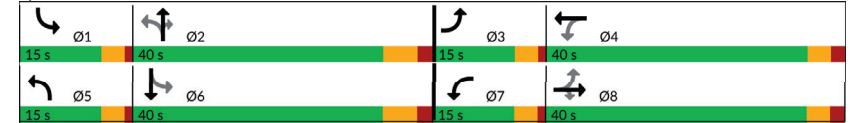
Intersection LOS: C

Intersection Capacity Utilization 83.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	43	21	137	380	71	234	691	458	50	725
v/c Ratio	0.14	0.10	0.47	1.04	0.21	0.56	0.42	0.56	0.13	0.58
Control Delay (s/veh)	22.6	34.6	12.3	88.0	22.4	13.7	16.0	10.5	8.3	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	34.6	12.3	88.0	22.4	13.7	16.0	10.5	8.3	22.5
Queue Length 50th (m)	5.0	3.1	0.0	~57.8	5.8	16.2	40.0	21.9	3.1	47.2
Queue Length 95th (m)	12.2	9.5	15.5	#94.3	17.7	28.0	56.6	53.9	7.4	65.5
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	366	739	674	366	629	416	1658	811	468	1254
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.03	0.20	1.04	0.11	0.56	0.42	0.56	0.11	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	164	39	28	39	17	260	20	973	29	162	896	130
Future Volume (vph)	164	39	28	39	17	260	20	973	29	162	896	130
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0		25.0		7.5		40.0					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99	0.99	0.98	1.00	1.00	0.96	0.96	1.00	0.95	0.95	0.95
Frt	0.937		0.859		0.996		0.981					
Flt Protected	0.950		0.950		0.950		0.950		0.950		0.950	
Satd. Flow (prot)	1599	1430	0	1568	1337	0	1568	3153	0	1615	3100	0
Flt Permitted	0.223		0.710		0.196		0.126		0.126		0.126	
Satd. Flow (perm)	374	1430	0	1165	1337	0	323	3153	0	214	3100	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)	30		257		3		16				16	
Link Speed (k/h)	50		50		50		50				50	
Link Distance (m)	157.0		124.1		207.7		900.2				900.2	
Travel Time (s)	11.3		8.9		15.0		64.8				64.8	
Confl. Peds. (#/hr)	5		5		5		3		2		2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	178	42	30	42	18	283	22	1058	32	176	974	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	72	0	42	301	0	22	1090	0	176	1115	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.6		3.6		3.6		3.6		3.6		3.6	
Link Offset(m)	0.0		0.0		0.0		0.0		0.0		0.0	
Crosswalk Width(m)	4.9		4.9		4.9		4.9		4.9		4.9	
Two way Left Turn Lane							Yes					
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	28.7			28.7			28.7			28.7		
Detector 2 Size(m)	1.8			1.8			1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2030 Total SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	28.4	19.9		22.0	12.2		48.1	39.0		55.1	48.8	
Actuated g/C Ratio	0.31	0.22		0.24	0.13		0.52	0.42		0.60	0.53	
v/c Ratio	0.69	0.22		0.14	0.75		0.08	0.82		0.63	0.68	
Control Delay (s/veh)	39.9	23.4		23.4	20.8		9.7	30.4		22.2	20.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	39.9	23.4		23.4	20.8		9.7	30.4		22.2	20.2	
LOS	D	C		C	C		A	C		C	C	
Approach Delay (s/veh)		35.1			21.1			30.0			20.5	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 92.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.82

Intersection Signal Delay (s/veh): 25.3

Intersection LOS: C

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2030 Total SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	178	72	42	301	22	1090	176	1115
v/c Ratio	0.69	0.22	0.14	0.75	0.08	0.82	0.63	0.68
Control Delay (s/veh)	39.9	23.4	23.4	20.8	9.7	30.4	22.2	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.9	23.4	23.4	20.8	9.7	30.4	22.2	20.2
Queue Length 50th (m)	24.4	6.5	5.3	7.2	1.4	84.7	12.1	59.3
Queue Length 95th (m)	#41.8	18.5	12.4	34.3	5.2	#142.5	#35.4	127.1
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	261	470	368	596	331	1335	295	1649
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.15	0.11	0.51	0.07	0.82	0.60	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	3	0	22	3	3	0	9	17	11	5	0
Future Volume (vph)	0	3	0	22	3	3	0	9	17	11	5	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.986			0.913				
Flt Protected					0.962					0.966		
Satd. Flow (prot)	0	1500	0	0	1400	0	0	1343	0	0	1441	0
Flt Permitted					0.962					0.966		
Satd. Flow (perm)	0	1500	0	0	1400	0	0	1343	0	0	1441	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	3	0	24	3	3	0	10	18	12	5	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	30	0	0	28	0	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 23.1%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	3	0	22	3	3	0	9	17	11	5	0
Future Vol, veh/h	0	3	0	22	3	3	0	9	17	11	5	0
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, %	0	0	2	2	0	0	2	2	2	0	2	0
Mvmt Flow	0	3	0	24	3	3	0	10	18	12	5	0
Major/Minor												
Major1	Major2		Minor1		Minor2							
Conflicting Flow All	7	0	0	3	0	0	57	58	3	61	56	5
Stage 1	-	-	-	-	-	-	3	3	-	53	53	-
Stage 2	-	-	-	-	-	-	54	54	-	8	3	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1627	-	-	1619	-	-	940	833	1081	939	835	1084
Stage 1	-	-	-	-	-	-	1019	893	-	965	851	-
Stage 2	-	-	-	-	-	-	959	850	-	1018	893	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1627	-	-	1619	-	-	920	821	1081	899	823	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	920	821	-	899	823	-
Stage 1	-	-	-	-	-	-	1019	893	-	951	838	-
Stage 2	-	-	-	-	-	-	938	837	-	990	893	-
Approach												
EB	WB		NB		SB							
HCM Control Delay, s/v	0		5.7		8.81		9.2					
HCM LOS					A		A					
Minor Lane/Major Mvmt												
NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	974	1627	-	-	1286	-	-	874				
HCM Lane V/C Ratio	0.029	-	-	-	0.015	-	-	0.02				
HCM Control Delay (s/veh)	8.8	0	-	-	7.3	0	-	9.2				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	0	1	0	1	1	127	0	0	0	86	0	0
Future Volume (vph)	0	1	0	1	1	127	0	0	0	86	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.867							
Flt Protected											0.950	
Satd. Flow (prot)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Flt Permitted											0.950	
Satd. Flow (perm)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		48.6			122.4			53.3			51.7	
Travel Time (s)		3.5			8.8			3.8			3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	1	0	1	1	138	0	0	0	93	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	140	0	0	0	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 23.9%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2030 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	1	0	1	1	127	0	0	0	86	0	0
Future Vol, veh/h	0	1	0	1	1	127	0	0	0	86	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	1	0	1	1	138	0	0	0	93	0	0
Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	139	0	0	1	0	0	4	142	1	73	73	70
Stage 1	-	-	-	-	-	-	1	1	-	72	72	-
Stage 2	-	-	-	-	-	-	3	141	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1444	-	-	1635	-	-	1022	749	1089	917	817	993
Stage 1	-	-	-	-	-	-	1027	895	-	937	835	-
Stage 2	-	-	-	-	-	-	1025	780	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1444	-	-	1635	-	-	1021	748	1089	917	816	993
Mov Cap-2 Maneuver	-	-	-	-	-	-	1021	748	-	917	816	-
Stage 1	-	-	-	-	-	-	1027	895	-	937	834	-
Stage 2	-	-	-	-	-	-	1024	779	-	1022	895	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	0		0.06		0		9.37					
HCM LOS					A		A					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1444	-	-	12	-	-	917				
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	0.102				
HCM Control Delay (s/veh)	0	0	-	-	7.2	0	-	9.4				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.3				

Appendix F

2035 Background Traffic Operations Reports



Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	38	30	30	35	16	22	247	21	13	246	39
Future Volume (vph)	37	38	30	30	35	16	22	247	21	13	246	39
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.961			0.974				0.850		0.980	
Flt Protected		0.983			0.982		0.950			0.950		
Satd. Flow (prot)	0	1324	0	0	1357	0	1380	1682	1225	1482	2985	0
Flt Permitted		0.858			0.869		0.547			0.594		
Satd. Flow (perm)	0	1156	0	0	1201	0	795	1682	1225	926	2985	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			14				88		24	
Link Speed (k/h)		60			60				60		60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	13%	8%	4%	3%	15%	17%	7%	18%	9%	7%	0%
Adj. Flow (vph)	40	41	33	33	38	17	24	268	23	14	267	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	88	0	24	268	23	14	309	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	11.7			11.7			44.0	42.2	42.2	43.0	40.2	
Actuated g/C Ratio	0.19			0.19			0.70	0.67	0.67	0.68	0.64	
v/c Ratio	0.49			0.37			0.04	0.24	0.03	0.02	0.16	
Control Delay (s/veh)	27.4			25.7			4.5	7.9	0.0	4.5	7.6	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	27.4			25.7			4.5	7.9	0.0	4.5	7.6	
LOS	C			C			A	A	A	A	A	
Approach Delay (s/veh)	27.4			25.7			7.0				7.5	
Approach LOS	C			C			A				A	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 62.9

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.49

Intersection Signal Delay (s/veh): 11.9

Intersection LOS: B

Intersection Capacity Utilization 55.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	114	88	24	268	23	14	309
v/c Ratio	0.49	0.37	0.04	0.24	0.03	0.02	0.16
Control Delay (s/veh)	27.4	25.7	4.5	7.9	0.0	4.5	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.4	25.7	4.5	7.9	0.0	4.5	7.6
Queue Length 50th (m)	8.5	6.8	0.7	10.8	0.0	0.4	5.6
Queue Length 95th (m)	24.9	20.6	3.3	37.6	0.0	2.3	18.8
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	480	492	667	1127	850	755	1917
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.18	0.04	0.24	0.03	0.02	0.16
Intersection Summary							

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	15	18	47	68	10	23	58	204	107	33	254	9
Future Volume (vph)	15	18	47	68	10	23	58	204	107	33	254	9
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					0.99		1.00		1.00		1.00	
Frt			0.850		0.896			0.949			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	3072	1337	0	1583	2854	0	1524	2930	0
Flt Permitted	0.336			0.744			0.551			0.548		
Satd. Flow (perm)	571	1800	1417	2406	1337	0	917	2854	0	878	2930	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		25			66			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	1					1	1		1	1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	9%	2%	10%	1%	6%	10%	0%
Adj. Flow (vph)	16	20	51	74	11	25	63	222	116	36	276	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	20	51	74	36	0	63	338	0	36	286	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0						20.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)	15.0	15.0	15.0	10.7	10.7		49.7	44.5		47.8	41.7	
Actuated g/C Ratio	0.18	0.18	0.18	0.13	0.13		0.59	0.53		0.57	0.50	
v/c Ratio	0.16	0.06	0.15	0.24	0.19		0.10	0.22		0.06	0.20	
Control Delay (s/veh)	34.9	30.8	0.9	40.9	23.2		12.2	15.3		12.2	20.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	34.9	30.8	0.9	40.9	23.2		12.2	15.3		12.2	20.0	
LOS	C	C	A	D	C		B	B		B	B	
Approach Delay (s/veh)		14.0			35.1			14.8			19.1	
Approach LOS		B			D			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 84

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.24

Intersection Signal Delay (s/veh): 18.7

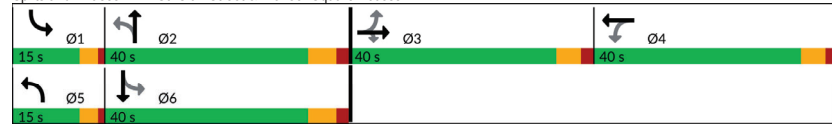
Intersection LOS: B

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	20	51	74	36	63	338	36	286
v/c Ratio	0.16	0.06	0.15	0.24	0.19	0.10	0.22	0.06	0.20
Control Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	12.2	15.3	12.2	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	12.2	15.3	12.2	20.0
Queue Length 50th (m)	2.4	2.9	0.0	5.7	1.6	4.5	15.2	2.5	15.9
Queue Length 95th (m)	8.3	8.9	0.0	14.2	11.6	13.9	32.8	9.1	33.5
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	242	763	663	1020	581	648	1541	616	1455
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.08	0.07	0.06	0.10	0.22	0.06	0.20

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
3: St. Clair Street & Northerly RIRO

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	1	0	407	399	0
Future Volume (vph)	0	1	0	407	399	0
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1470	0	3167	3076	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3167	3076	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	8%	5%	0%
Adj. Flow (vph)	0	1	0	442	434	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	0	442	434	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.4%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
3: St. Clair Street & Northerly RIRO

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	1	0	407	399	0
Future Vol, veh/h	0	1	0	407	399	0
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	8	5	0
Mvmt Flow	0	1	0	442	434	0
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	218	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	793	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	792	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.55	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	792	-	-	-	-
HCM Lane V/C Ratio	-	0.001	-	-	-	-
HCM Control Delay (s/veh)	-	9.6	-	-	-	-
HCM Lane LOS	-	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-

Lanes, Volumes, Timings
4: St. Clair Street & Southerly RIRO

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	410	389	11
Future Volume (vph)	0	8	0	410	389	11
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.996	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3257	3012	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3257	3012	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	7%	0%
Adj. Flow (vph)	0	9	0	446	423	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	0	446	435	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.4%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
4: St. Clair Street & Southerly RIRO

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	0	410	389	11
Future Vol, veh/h	0	8	0	410	389	11
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	5	7	0
Mvmt Flow	0	9	0	446	423	12
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	218	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	792	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	791	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.6	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	791	-	-		
HCM Lane V/C Ratio	-	0.011	-	-		
HCM Control Delay (s/veh)	-	9.6	-	-		
HCM Lane LOS	-	A	-	-		
HCM 95th %tile Q(veh)	-	0	-	-		

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	15	7	31	100	12	6	45	375	149	12	374	4
Future Volume (vph)	15	7	31	100	12	6	45	375	149	12	374	4
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.947				0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1538	1430	0	1615	3257	1389	1495	3018	0
Flt Permitted	0.744			0.466			0.478			0.512		
Satd. Flow (perm)	1265	1800	1445	754	1430	0	813	3257	1389	806	3018	0
Right Turn on Red			Yes		Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			114		7				152		1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	0%	17%	0%	5%	4%	8%	7%	0%
Adj. Flow (vph)	16	8	34	109	13	7	49	408	162	13	407	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	8	34	109	20	0	49	408	162	13	411	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	13.1	10.3	10.3	18.3	16.3		48.0	45.8	45.8	46.2	41.7	
Actuated g/C Ratio	0.18	0.14	0.14	0.25	0.23		0.66	0.63	0.63	0.64	0.58	
v/c Ratio	0.06	0.03	0.11	0.36	0.06		0.08	0.20	0.17	0.02	0.24	
Control Delay (s/veh)	20.2	32.0	0.7	24.5	20.3		7.4	10.0	3.4	7.4	13.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	20.2	32.0	0.7	24.5	20.3		7.4	10.0	3.4	7.4	13.4	
LOS	C	C	A	C	C		A	A	A	A	B	
Approach Delay (s/veh)		10.4			23.8			8.1			13.3	
Approach LOS		B			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 72.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.36

Intersection Signal Delay (s/veh): 11.6

Intersection LOS: B

Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	8	34	109	20	49	408	162	13	411
v/c Ratio	0.06	0.03	0.11	0.36	0.06	0.08	0.20	0.17	0.02	0.24
Control Delay (s/veh)	20.2	32.0	0.7	24.5	20.3	7.4	10.0	3.4	7.4	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.2	32.0	0.7	24.5	20.3	7.4	10.0	3.4	7.4	13.4
Queue Length 50th (m)	1.7	1.1	0.0	12.1	1.4	3.0	15.8	0.7	0.8	21.8
Queue Length 95th (m)	5.9	5.0	0.0	24.3	7.5	7.2	31.5	11.4	2.9	32.8
Internal Link Dist (m)	43.3					876.2			85.2	
Turn Bay Length (m)						160.0		25.0		25.0
Base Capacity (vph)	355	898	778	324	716	673	2065	936	648	1741
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.04	0.34	0.03	0.07	0.20	0.17	0.02	0.24
Intersection Summary										

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Background AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↙	←	↖	↗	↙	↘	↓	↖	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	95	32	28	28	40	146	16	482	22	82	464	44
Future Volume (vph)	95	32	28	28	40	146	16	482	22	82	464	44
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99		1.00	1.00		1.00	1.00	
Frt		0.931			0.882			0.993			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1490	0	1615	1364	0	1615	3086	0	1583	2990	0
Flt Permitted	0.357			0.715			0.446			0.380		
Satd. Flow (perm)	588	1490	0	1216	1364	0	757	3086	0	633	2990	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			159			5			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	3					3	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	3%	2%	0%	4%	0%	2%	7%	0%
Adj. Flow (vph)	103	35	30	30	43	159	17	524	24	89	504	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	65	0	30	202	0	17	548	0	89	552	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.5	18.4		19.5	11.8		47.3	39.9		51.0	47.1	
Actuated g/C Ratio	0.29	0.22		0.23	0.14		0.56	0.47		0.61	0.56	
v/c Ratio	0.36	0.19		0.09	0.62		0.03	0.37		0.19	0.33	
Control Delay (s/veh)	26.3	20.5		22.3	19.3		8.8	17.5		9.4	12.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	26.3	20.5		22.3	19.3		8.8	17.5		9.4	12.4	
LOS	C	C		C	B		A	B		A	B	
Approach Delay (s/veh)		24.0			19.7			17.2			12.0	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 84.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.62

Intersection Signal Delay (s/veh): 16.2

Intersection LOS: B

Intersection Capacity Utilization 72.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	103	65	30	202	17	548	89	552
v/c Ratio	0.36	0.19	0.09	0.62	0.03	0.37	0.19	0.33
Control Delay (s/veh)	26.3	20.5	22.3	19.3	8.8	17.5	9.4	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.3	20.5	22.3	19.3	8.8	17.5	9.4	12.4
Queue Length 50th (m)	12.7	4.3	3.5	6.7	1.1	31.1	5.8	22.7
Queue Length 95th (m)	25.3	16.3	9.7	28.0	4.1	52.7	14.1	50.1
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	302	543	374	583	567	1465	512	1678
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.12	0.08	0.35	0.03	0.37	0.17	0.33

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	1	0	1	0
Future Volume (vph)	0	0	1	0	1	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	800	0	1425	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	800	0	1425	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	100%	0%	0%	0%
Adj. Flow (vph)	0	0	1	0	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	1	0	1	0
Future Vol, veh/h	0	0	1	0	1	0
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	0	100	0	0	0
Mvmt Flow	0	0	1	0	1	0
Major/Minor						
Major1	Major2		Minor2			
Conflicting Flow All	1	0	-	0	1	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	0	-
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	1635	-	-	-	1027	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1635	-	-	-	1027	1089
Mov Cap-2 Maneuver	-	-	-	-	1027	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	-	-
Approach						
EB	WB		SB			
HCM Control Delay, s/v	0		0		8.51	
HCM LOS					A	
Minor Lane/Major Mvmt						
EBL	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	1635	-	-	-	1027	
HCM Lane V/C Ratio	-	-	-	-	0.001	
HCM Control Delay (s/veh)	0	-	-	-	8.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1600	0	0	1600	1500	0
Flt Permitted						
Satd. Flow (perm)	1600	0	0	1600	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	0.0%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2035 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
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	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
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	-	-	1635	-	1026	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1027	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1026	1089
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1027	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		0		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1635	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s/veh)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	101	52	28	65	22	82	305	74	28	332	72
Future Volume (vph)	43	101	52	28	65	22	82	305	74	28	332	72
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.964			0.974				0.850		0.973	
Flt Protected		0.989			0.988		0.950			0.950		
Satd. Flow (prot)	0	1388	0	0	1414	0	1583	1765	1445	1553	3090	0
Flt Permitted		0.909			0.884		0.452			0.560		
Satd. Flow (perm)	0	1276	0	0	1265	0	753	1765	1445	915	3090	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			14				88		35	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	1%	2%	0%	0%	11%	2%	2%	0%	4%	1%	5%
Adj. Flow (vph)	47	110	57	30	71	24	89	332	80	30	361	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	214	0	0	125	0	89	332	80	30	439	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		16.7			16.7		46.3	41.0	41.0	42.5	35.7	
Actuated g/C Ratio		0.23			0.23		0.63	0.56	0.56	0.58	0.48	
v/c Ratio		0.70			0.42		0.16	0.34	0.10	0.05	0.29	
Control Delay (s/veh)		37.3			26.8		7.0	12.7	3.3	6.7	13.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		37.3			26.8		7.0	12.7	3.3	6.7	13.0	
LOS		D			C		A	B	A	A	B	
Approach Delay (s/veh)		37.3			26.8			10.2			12.6	
Approach LOS		D			C			B			B	
Intersection Summary												
Area Type:		Other										
Cycle Length: 87												
Actuated Cycle Length: 73.8												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.70												
Intersection Signal Delay (s/veh): 17.1												
Intersection LOS: B												
Intersection Capacity Utilization 65.3%												
ICU Level of Service C												
Analysis Period (min) 15												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	214	125	89	332	80	30	439
v/c Ratio	0.70	0.42	0.16	0.34	0.10	0.05	0.29
Control Delay (s/veh)	37.3	26.8	7.0	12.7	3.3	6.7	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	26.8	7.0	12.7	3.3	6.7	13.0
Queue Length 50th (m)	25.5	13.6	4.1	19.5	0.0	1.3	17.7
Queue Length 95th (m)	48.6	28.7	11.7	57.6	6.6	5.1	34.4
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	454	446	604	981	842	667	1512
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.28	0.15	0.34	0.10	0.04	0.29

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	
Traffic Volume (vph)	22	33	66	175	35	59	76	334	149	54	350	18
Future Volume (vph)	22	33	66	175	35	59	76	334	149	54	350	18
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.906			0.954			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1748	1417	3102	1450	0	1615	3030	0	1615	3144	0
Flt Permitted	0.256			0.734			0.491			0.412		
Satd. Flow (perm)	435	1748	1398	2391	1450	0	835	3030	0	700	3144	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		60			50			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	1%	0%	0%	0%	2%	1%	0%	2%	0%
Adj. Flow (vph)	24	36	72	190	38	64	83	363	162	59	380	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	36	72	190	102	0	83	525	0	59	400	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	18.9	18.9	18.9	14.0	14.0		45.7	36.4		44.7	35.9	
Actuated g/C Ratio	0.20	0.20	0.20	0.15	0.15		0.49	0.39		0.48	0.39	
v/c Ratio	0.27	0.10	0.19	0.53	0.38		0.17	0.43		0.14	0.33	
Control Delay (s/veh)	42.0	32.8	3.3	46.7	25.1		17.4	25.0		17.4	26.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	42.0	32.8	3.3	46.7	25.1		17.4	25.0		17.4	26.5	
LOS	D	C	A	D	C		B	C		B	C	
Approach Delay (s/veh)		18.4			39.1			24.0			25.3	
Approach LOS		B			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 92.9

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay (s/veh): 26.9

Intersection LOS: C

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	36	72	190	102	83	525	59	400
v/c Ratio	0.27	0.10	0.19	0.53	0.38	0.17	0.43	0.14	0.33
Control Delay (s/veh)	42.0	32.8	3.3	46.7	25.1	17.4	25.0	17.4	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.0	32.8	3.3	46.7	25.1	17.4	25.0	17.4	26.5
Queue Length 50th (m)	3.8	5.6	0.0	17.1	7.0	7.6	34.5	5.3	28.1
Queue Length 95th (m)	12.0	14.4	4.1	33.1	25.1	21.9	68.7	16.5	55.6
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	170	685	614	938	605	523	1218	468	1217
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.05	0.12	0.20	0.17	0.16	0.43	0.13	0.33

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗	↗	
Traffic Volume (vph)	0	20	0	591	618	3
Future Volume (vph)	0	20	0	591	618	3
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.865		0.999		
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3195	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3195	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	22	0	642	672	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	0	642	675	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 29.2%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗	↗	
Traffic Vol, veh/h	0	20	0	591	618	3
Future Vol, veh/h	0	20	0	591	618	3
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, %	0	0	0	1	1	0
Mvmt Flow	0	22	0	642	672	3
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	338	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	664	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	664	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	10.6	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	664	-	-		
HCM Lane V/C Ratio	-	0.033	-	-		
HCM Control Delay (s/veh)	-	10.6	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
4: St. Clair Street & Southerly RIRO

2035 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations					 	
Traffic Volume (vph)	0	11	0	653	619	4
Future Volume (vph)	0	11	0	653	619	4
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.865		0.999			
Flt Protected						
Satd. Flow (prot)	0	1470	0	3353	3195	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3353	3195	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	12	0	710	673	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	12	0	710	677	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC
4: St. Clair Street & Southerly RIRO

2035 Background PM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	11	0	653	619	4
Future Vol, veh/h	0	11	0	653	619	4
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	2	1	0
Mvmt Flow	0	12	0	710	673	4
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 342	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 660	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %		-	-	-	-	
Mov Cap-1 Maneuver	- 658	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v10.57		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT	SBR		
Capacity (veh/h)	- 658		-	-		
HCM Lane V/C Ratio	- 0.018		-	-		
HCM Control Delay (s/veh)	- 10.6		-	-		
HCM Lane LOS	- B		-	-		
HCM 95th %tile Q(veh)	- 0.1		-	-		

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	10	6	63	285	11	14	92	575	241	12	646	10
Future Volume (vph)	10	6	63	285	11	14	92	575	241	12	646	10
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00		0.99	1.00		0.97	1.00		1.00
Frt			0.850			0.917			0.850			0.998
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	1599	1454	0	1615	3386	1445	1495	3160	0
Flt Permitted	0.740			0.528			0.288			0.415		
Satd. Flow (perm)	1254	1800	1395	885	1454	0	489	3386	1407	652	3160	0
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			114		15			161		1		
Link Speed (k/h)		50			50		60			60		
Link Distance (m)		67.3			53.1		900.2			109.2		
Travel Time (s)		4.8			3.8		54.0			6.6		
Confl. Peds. (#/hr)	3		3	3		3	2		3	3		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	1%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	11	7	68	310	12	15	100	625	262	13	702	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	7	68	310	27	0	100	625	262	13	713	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.4	10.3	10.3	22.5	19.5		46.5	42.1	42.1	42.2	34.4	
Actuated g/C Ratio	0.20	0.13	0.13	0.29	0.25		0.60	0.54	0.54	0.55	0.44	
v/c Ratio	0.04	0.03	0.24	0.86	0.07		0.24	0.34	0.31	0.03	0.51	
Control Delay (s/veh)	20.9	33.0	4.2	49.5	17.3		8.9	11.9	6.2	7.5	19.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	20.9	33.0	4.2	49.5	17.3		8.9	11.9	6.2	7.5	19.2	
LOS	C	C	A	D	B		A	B	A	A	B	
Approach Delay (s/veh)		8.7			46.9			10.1			19.0	
Approach LOS		A			D			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 18.9

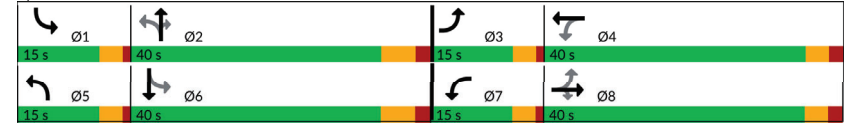
Intersection LOS: B

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	7	68	310	27	100	625	262	13	713
v/c Ratio	0.04	0.03	0.24	0.86	0.07	0.24	0.34	0.31	0.03	0.51
Control Delay (s/veh)	20.9	33.0	4.2	49.5	17.3	8.9	11.9	6.2	7.5	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.9	33.0	4.2	49.5	17.3	8.9	11.9	6.2	7.5	19.2
Queue Length 50th (m)	1.2	1.0	0.0	41.1	1.3	6.3	26.0	7.0	0.8	44.0
Queue Length 95th (m)	4.7	4.7	4.0	#90.0	8.5	12.5	48.7	25.3	2.9	62.2
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	369	836	709	361	683	459	1840	838	504	1406
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.10	0.86	0.04	0.22	0.34	0.31	0.03	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Background PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	163	88	32	37	51	202	38	764	27	179	792	106
Future Volume (vph)	163	88	32	37	51	202	38	764	27	179	792	106
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0		25.0		7.5		40.0					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		0.99	0.99		1.00		1.00	1.00		
Frt	0.960			0.880			0.995		0.982			
Flt Protected	0.950		0.950		0.950				0.950			
Satd. Flow (prot)	1599	1454	0	1568	1372	0	1568	3150	0	1615	3103	0
Flt Permitted	0.221		0.673		0.231				0.204			
Satd. Flow (perm)	371	1454	0	1105	1372	0	381	3150	0	346	3103	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)	16			178			3			15		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	177	96	35	40	55	220	41	830	29	195	861	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	131	0	40	275	0	41	859	0	195	976	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane							Yes					
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2035 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	30.8	22.3		24.3	14.6		48.5	39.1		55.0	46.6	
Actuated g/C Ratio	0.33	0.24		0.26	0.15		0.51	0.41		0.58	0.49	
v/c Ratio	0.68	0.37		0.13	0.76		0.14	0.66		0.58	0.64	
Control Delay (s/veh)	38.5	31.7		22.4	28.4		11.4	26.5		17.8	22.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	38.5	31.7		22.4	28.4		11.4	26.5		17.8	22.2	
LOS	D	C		C	C		B	C		B	C	
Approach Delay (s/veh)		35.6			27.6			25.8			21.5	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 94.7

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.76

Intersection Signal Delay (s/veh): 25.3

Intersection LOS: C

Intersection Capacity Utilization 86.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2035 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	177	131	40	275	41	859	195	976
v/c Ratio	0.68	0.37	0.13	0.76	0.14	0.66	0.58	0.64
Control Delay (s/veh)	38.5	31.7	22.4	28.4	11.4	26.5	17.8	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.5	31.7	22.4	28.4	11.4	26.5	17.8	22.2
Queue Length 50th (m)	24.4	18.8	5.0	16.6	2.8	64.1	15.0	70.0
Queue Length 95th (m)	#42.9	36.3	11.8	44.4	9.0	102.0	33.2	115.3
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	263	456	377	544	348	1301	349	1534
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.29	0.11	0.51	0.12	0.66	0.56	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2035 Background PM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	3	3	11	0
Future Volume (vph)	0	3	3	3	11	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.932			
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	1491	0	1208	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	1491	0	1208	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	18%	0%
Adj. Flow (vph)	0	3	3	3	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	6	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2035 Background PM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	3	3	11	0
Future Vol, veh/h	0	3	3	3	11	0
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	0	0	0	18	0
Mvmt Flow	0	3	3	3	12	0
Major/Minor						
	Major1	Major2		Minor2		
Conflicting Flow All	7	0	-	0	8	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	3	-
Critical Hdwy	4.1	-	-	-	6.58	6.2
Critical Hdwy Stg 1	-	-	-	-	5.58	-
Critical Hdwy Stg 2	-	-	-	-	5.58	-
Follow-up Hdwy	2.2	-	-	-	3.662	3.3
Pot Cap-1 Maneuver	1627	-	-	-	973	1084
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	980	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1627	-	-	-	973	1084
Mov Cap-2 Maneuver	-	-	-	-	973	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	980	-
Approach						
	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.75		
HCM LOS	A					
Minor Lane/Major Mvmt						
	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1627	-	-	-	973	
HCM Lane V/C Ratio	-	-	-	-	0.012	
HCM Control Delay (s/veh)	0	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2035 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Volume (vph)	1	0	1	1	0	0
Future Volume (vph)	1	0	1	1	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected				0.976		
Satd. Flow (prot)	1600	0	0	1562	1500	0
Flt Permitted				0.976		
Satd. Flow (perm)	1600	0	0	1562	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	1	1	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	2	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2035 Background PM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Vol, veh/h	1	0	1	1	0	0
Future Vol, veh/h	1	0	1	1	0	0
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	0	0	0	0	0
Mvmt Flow	1	0	1	1	0	0
Major/Minor						
Major1	Major2		Minor1			
Conflicting Flow All	0	0	1	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	-	-	1635	-	1023	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1022	1089
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1024	-
Approach						
EB	WB		NB			
HCM Control Delay, s/v	0	3.6	0			
HCM LOS			A			
Minor Lane/Major Mvmt						
NBLn1	EBT	EBR	WBL	WBT		
Capacity (veh/h)	-	-	-	900	-	-
HCM Lane V/C Ratio	-	-	-	0.001	-	-
HCM Control Delay (s/veh)	0	-	-	7.2	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	94	89	57	49	13	98	217	95	15	235	39
Future Volume (vph)	37	94	89	57	49	13	98	217	95	15	235	39
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.945			0.985				0.850		0.979	
Flt Protected		0.992			0.977		0.950			0.950		
Satd. Flow (prot)	0	1406	0	0	1430	0	1615	1782	1445	1495	3109	0
Flt Permitted		0.928			0.639		0.516			0.612		
Satd. Flow (perm)	0	1315	0	0	935	0	877	1782	1445	963	3109	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			7				103		26	
Link Speed (k/h)		60			60			60		60		
Link Distance (m)		145.1			185.2			229.0		235.8		
Travel Time (s)		8.7			11.1			13.7		14.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	40	102	97	62	53	14	107	236	103	16	255	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	239	0	0	129	0	107	236	103	16	297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6		3.6		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		4.9			4.9			4.9		4.9		
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7		28.7		
Detector 2 Size(m)		1.8			1.8			1.8		1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex		CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0		0.0		
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		16.8			16.8		47.5	43.7	43.7	42.3	35.7	
Actuated g/C Ratio		0.23			0.23		0.64	0.59	0.59	0.57	0.48	
v/c Ratio		0.73			0.60		0.17	0.23	0.12	0.03	0.20	
Control Delay (s/veh)		36.6			37.6		6.9	10.0	3.1	6.9	12.7	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		36.6			37.6		6.9	10.0	3.1	6.9	12.7	
LOS		D			D		A	B	A	A	B	
Approach Delay (s/veh)		36.6			37.6			7.7			12.4	
Approach LOS		D			D			A			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 87												
Actuated Cycle Length: 74.5												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.73												
Intersection Signal Delay (s/veh): 18.6						Intersection LOS: B						
Intersection Capacity Utilization 67.7%						ICU Level of Service C						
Analysis Period (min) 15												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	239	129	107	236	103	16	297
v/c Ratio	0.73	0.60	0.17	0.23	0.12	0.03	0.20
Control Delay (s/veh)	36.6	37.6	6.9	10.0	3.1	6.9	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.6	37.6	6.9	10.0	3.1	6.9	12.7
Queue Length 50th (m)	26.7	15.8	5.1	13.1	0.0	0.7	11.5
Queue Length 95th (m)	51.9	33.5	13.6	39.5	8.1	3.3	23.7
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	476	325	670	1044	889	676	1504
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.40	0.16	0.23	0.12	0.02	0.20

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↗		↖	↗	↖
Traffic Volume (vph)	38	70	143	296	47	79	162	275	196	50	245	15
Future Volume (vph)	38	70	143	296	47	79	162	275	196	50	245	15
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00	0.99							
Frt			0.850		0.906			0.938			0.991	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	3133	1427	0	1615	3030	0	1615	3201	0
Flt Permitted	0.137			0.708			0.503			0.416		
Satd. Flow (perm)	233	1800	1426	2330	1427	0	855	3030	0	707	3201	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		60			128			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	2		1	1		2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	41	76	155	322	51	86	176	299	213	54	266	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	76	155	322	137	0	176	512	0	54	282	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	29.1	29.1	29.1	22.0	22.0		49.9	39.0		44.9	34.0	
Actuated g/C Ratio	0.25	0.25	0.25	0.19	0.19		0.42	0.33		0.38	0.29	
v/c Ratio	0.72	0.17	0.33	0.74	0.44		0.41	0.47		0.16	0.31	
Control Delay (s/veh)	103.2	37.2	7.8	57.3	29.3		28.1	28.1		25.1	36.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	103.2	37.2	7.8	57.3	29.3		28.1	28.1		25.1	36.2	
LOS	F	D	A	E	C		C	C		C	D	
Approach Delay (s/veh)		30.4			48.9			28.1			34.4	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 118.6

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 35.1

Intersection LOS: D

Intersection Capacity Utilization 72.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	76	155	322	137	176	512	54	282
v/c Ratio	0.72	0.17	0.33	0.74	0.44	0.41	0.47	0.16	0.31
Control Delay (s/veh)	103.2	37.2	7.8	57.3	29.3	28.1	28.1	25.1	36.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	103.2	37.2	7.8	57.3	29.3	28.1	28.1	25.1	36.2
Queue Length 50th (m)	8.7	13.9	0.0	38.6	16.3	27.6	40.2	7.8	28.2
Queue Length 95th (m)	#30.5	28.8	16.8	54.2	35.2	49.7	65.2	17.9	44.5
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	67	523	524	677	457	431	1082	369	919
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.15	0.30	0.48	0.30	0.41	0.47	0.15	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	16	0	741	768	2
Future Volume (vph)	0	16	0	741	768	2
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3198	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3198	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	17	0	805	835	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	17	0	805	837	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	16	0	741	768	2
Future Vol, veh/h	0	16	0	741	768	2
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	17	0	805	835	2
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	-	419	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	588	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	587	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v11.31		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	587	-	-		
HCM Lane V/C Ratio	-	0.03	-	-		
HCM Control Delay (s/veh)	-	11.3	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	26	0	776	762	29
Future Volume (vph)	0	26	0	776	762	29
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.994	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3420	3211	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3420	3211	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	28	0	843	828	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	28	0	843	860	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖↗	↖↗	
Traffic Vol, veh/h	0	26	0	776	762	29
Future Vol, veh/h	0	26	0	776	762	29
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	0	0	0
Mvmt Flow	0	28	0	843	828	32
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 433	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 576	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %						
Mov Cap-1 Maneuver	- 575	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v11.59		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	575	-	-		
HCM Lane V/C Ratio	-	0.049	-	-		
HCM Control Delay (s/veh)	-	11.6	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↰	↰	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	21	11	67	350	27	28	105	702	421	46	688	13
Future Volume (vph)	21	11	67	350	27	28	105	702	421	46	688	13
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	160.0		25.0	25.0	0.0
Storage Lanes	1		1	1			0	1		1	1	0
Taper Length (m)	7.6			7.6				100.0			65.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00						0.99		0.97	1.00		
Frt			0.850		0.924				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1599	1466	0	1615	3386	1431	1553	3189	0
Flt Permitted	0.719			0.514			0.273			0.327		
Satd. Flow (perm)	1217	1800	1445	865	1466	0	464	3386	1393	534	3189	0
Right Turn on Red			Yes		Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			114		30			230		2		
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Confl. Peds. (#/hr)	4				4			3	3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	1%	4%	1%	0%
Adj. Flow (vph)	23	12	73	380	29	30	114	763	458	50	748	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	12	73	380	59	0	114	763	458	50	762	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.5	10.3	10.3	22.4	17.3		45.6	37.8	37.8	42.4	34.4	
Actuated g/C Ratio	0.20	0.13	0.13	0.29	0.22		0.59	0.49	0.49	0.55	0.44	
v/c Ratio	0.08	0.05	0.25	1.06	0.17		0.28	0.46	0.57	0.13	0.54	
Control Delay (s/veh)	21.4	33.5	4.9	94.4	18.6		9.4	16.3	11.7	8.2	19.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	21.4	33.5	4.9	94.4	18.6		9.4	16.3	11.7	8.2	19.6	
LOS	C	C	A	F	B		A	B	B	A	B	
Approach Delay (s/veh)		11.5			84.2			14.1			18.9	
Approach LOS		B			F			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.06

Intersection Signal Delay (s/veh): 26.9

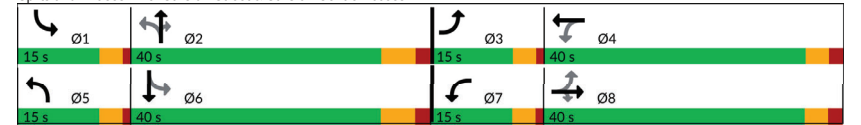
Intersection LOS: C

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	12	73	380	59	114	763	458	50	762
v/c Ratio	0.08	0.05	0.25	1.06	0.17	0.28	0.46	0.57	0.13	0.54
Control Delay (s/veh)	21.4	33.5	4.9	94.4	18.6	9.4	16.3	11.7	8.2	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.4	33.5	4.9	94.4	18.6	9.4	16.3	11.7	8.2	19.6
Queue Length 50th (m)	2.5	1.7	0.0	~54.7	3.2	7.3	45.4	25.4	3.1	47.4
Queue Length 95th (m)	7.8	6.5	5.2	#93.7	14.3	13.9	62.4	57.4	7.2	67.7
Internal Link Dist (m)	43.3			29.1			876.2			85.2
Turn Bay Length (m)					160.0			25.0	25.0	
Base Capacity (vph)	365	836	732	357	697	446	1653	798	460	1419
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.01	0.10	1.06	0.08	0.26	0.46	0.57	0.11	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	172	43	30	43	18	278	22	970	32	172	909	137
Future Volume (vph)	172	43	30	43	18	278	22	970	32	172	909	137
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	0.98			1.00		1.00		1.00
Frt		0.938			0.859			0.995				0.980
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1431	0	1568	1337	0	1568	3150	0	1615	3096	0
Flt Permitted	0.211			0.705			0.188			0.122		
Satd. Flow (perm)	354	1431	0	1157	1337	0	310	3150	0	207	3096	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			253			3			17	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	187	47	33	47	20	302	24	1054	35	187	988	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	187	80	0	47	322	0	24	1089	0	187	1137	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2035 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	29.5	21.0		23.3	13.3		48.3	39.0		55.6	49.3	
Actuated g/C Ratio	0.31	0.22		0.25	0.14		0.51	0.41		0.59	0.52	
v/c Ratio	0.74	0.23		0.15	0.79		0.09	0.83		0.67	0.70	
Control Delay (s/veh)	43.1	23.6		23.1	24.6		10.6	32.3		26.4	21.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	43.1	23.6		23.1	24.6		10.6	32.3		26.4	21.8	
LOS	D	C		C	C		B	C		C	C	
Approach Delay (s/veh)		37.3			24.4			31.9			22.4	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 94

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 27.4

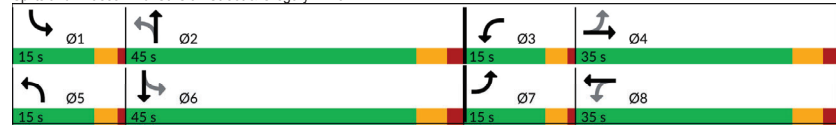
Intersection LOS: C

Intersection Capacity Utilization 91.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive



PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2035 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	187	80	47	322	24	1089	187	1137
v/c Ratio	0.74	0.23	0.15	0.79	0.09	0.83	0.67	0.70
Control Delay (s/veh)	43.1	23.6	23.1	24.6	10.6	32.3	26.4	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	43.1	23.6	23.1	24.6	10.6	32.3	26.4	21.8
Queue Length 50th (m)	25.9	7.7	5.9	11.6	1.5	85.3	13.0	61.2
Queue Length 95th (m)	#46.9	20.1	13.4	41.2	6.0	#151.2	#47.4	#150.6
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	257	463	374	587	319	1310	287	1632
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.17	0.13	0.55	0.08	0.83	0.65	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2035 Background SAT
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	3	3	11	0
Future Volume (vph)	0	3	3	3	11	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.932			
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	1491	0	1425	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	1491	0	1425	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	3	3	3	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	6	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2035 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	3	3	11	0
Future Vol, veh/h	0	3	3	3	11	0
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	0	0	0	0	0
Mvmt Flow	0	3	3	3	12	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	7	0	-	0	8	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	3	-
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	1627	-	-	-	1018	1084
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1627	-	-	-	1018	1084
Mov Cap-2 Maneuver	-	-	-	-	1018	-
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1025	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.58		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1627	-	-	-	1018	
HCM Lane V/C Ratio	-	-	-	-	0.012	
HCM Control Delay (s/veh)	0	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2035 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	1	0	1	1	0	0
Future Volume (vph)	1	0	1	1	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected				0.976		
Satd. Flow (prot)	1600	0	0	1562	1500	0
Flt Permitted				0.976		
Satd. Flow (perm)	1600	0	0	1562	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	1	1	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	2	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2035 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Vol, veh/h	1	0	1	1	0	0
Future Vol, veh/h	1	0	1	1	0	0
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	0	0	0	0	0
Mvmt Flow	1	0	1	1	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	1	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	-	-	1635	-	1023	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1022	1089
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1024	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	3.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	900	-	
HCM Lane V/C Ratio	-	-	-	0.001	-	
HCM Control Delay (s/veh)	0	-	-	7.2	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Appendix G

2035 Total Traffic Operations Reports



Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	38	30	30	35	16	22	275	21	13	256	39
Future Volume (vph)	37	38	30	30	35	16	22	275	21	13	256	39
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.961				0.974				0.850		0.980	
Flt Protected	0.983				0.982		0.950			0.950		
Satd. Flow (prot)	0	1324	0	0	1357	0	1380	1682	1225	1482	2984	0
Flt Permitted	0.858				0.869		0.541			0.578		
Satd. Flow (perm)	0	1156	0	0	1201	0	786	1682	1225	901	2984	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			14				88		23	
Link Speed (k/h)	60			60			60			60		
Link Distance (m)	145.1			185.2			229.0			235.8		
Travel Time (s)	8.7			11.1			13.7			14.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	13%	8%	4%	3%	15%	17%	7%	18%	9%	7%	0%
Adj. Flow (vph)	40	41	33	33	38	17	24	299	23	14	278	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	0	0	88	0	24	299	23	14	320	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			3.6			3.6		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.9			4.9			4.9			4.9		
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	11.7			11.7			44.0	42.2	42.2	43.0	40.2	
Actuated g/C Ratio	0.19			0.19			0.70	0.67	0.67	0.68	0.64	
v/c Ratio	0.49			0.37			0.04	0.27	0.03	0.02	0.17	
Control Delay (s/veh)	27.4			25.7			4.5	8.1	0.0	4.5	7.6	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	27.4			25.7			4.5	8.1	0.0	4.5	7.6	
LOS	C			C			A	A	A	A	A	
Approach Delay (s/veh)	27.4			25.7			7.3				7.5	
Approach LOS	C			C			A				A	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 62.9

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.49

Intersection Signal Delay (s/veh): 11.8

Intersection LOS: B

Intersection Capacity Utilization 55.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	114	88	24	299	23	14	320
v/c Ratio	0.49	0.37	0.04	0.27	0.03	0.02	0.17
Control Delay (s/veh)	27.4	25.7	4.5	8.1	0.0	4.5	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.4	25.7	4.5	8.1	0.0	4.5	7.6
Queue Length 50th (m)	8.5	6.8	0.7	12.3	0.0	0.4	5.8
Queue Length 95th (m)	24.9	20.6	3.3	42.2	0.0	2.3	19.6
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	480	492	662	1127	850	741	1916
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.18	0.04	0.27	0.03	0.02	0.17
Intersection Summary							

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	21	22	47	68	11	23	58	226	107	33	264	9
Future Volume (vph)	21	22	47	68	11	23	58	226	107	33	264	9
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					0.99		1.00	1.00		1.00	1.00	
Frt			0.850		0.899		0.952				0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	3072	1344	0	1583	2858	0	1524	2929	0
Flt Permitted	0.268			0.742			0.543			0.536		
Satd. Flow (perm)	456	1800	1417	2399	1344	0	904	2858	0	859	2929	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		25			55			2	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	1					1	1		1	1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	9%	2%	10%	1%	6%	10%	0%
Adj. Flow (vph)	23	24	51	74	12	25	63	246	116	36	287	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	24	51	74	37	0	63	362	0	36	297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Total AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	18.1	18.1	18.1	10.8	10.8		50.5	45.3		48.5	42.4	
Actuated g/C Ratio	0.21	0.21	0.21	0.12	0.12		0.58	0.52		0.55	0.48	
v/c Ratio	0.24	0.06	0.13	0.25	0.20		0.11	0.24		0.07	0.21	
Control Delay (s/veh)	37.3	29.3	0.7	43.8	25.1		14.4	18.1		14.5	22.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	37.3	29.3	0.7	43.8	25.1		14.4	18.1		14.5	22.5	
LOS	D	C	A	D	C		B	B		B	C	
Approach Delay (s/veh)		16.3			37.6			17.5			21.6	
Approach LOS		B			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 87.7

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.25

Intersection Signal Delay (s/veh): 21.1

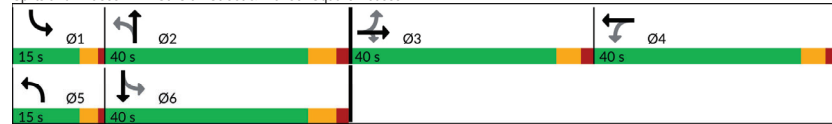
Intersection LOS: C

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2035 Total AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	24	51	74	37	63	362	36	297
v/c Ratio	0.24	0.06	0.13	0.25	0.20	0.11	0.24	0.07	0.21
Control Delay (s/veh)	37.3	29.3	0.7	43.8	25.1	14.4	18.1	14.5	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	29.3	0.7	43.8	25.1	14.4	18.1	14.5	22.5
Queue Length 50th (m)	3.5	3.5	0.0	6.1	1.9	5.1	19.1	2.9	18.3
Queue Length 95th (m)	10.7	9.9	0.0	15.1	12.5	15.6	40.3	10.3	38.3
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	187	739	646	985	567	623	1502	589	1416
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.03	0.08	0.08	0.07	0.10	0.24	0.06	0.21

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	21	0	429	402	7
Future Volume (vph)	0	21	0	429	402	7
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.997	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3167	3070	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3167	3070	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	8%	5%	0%
Adj. Flow (vph)	0	23	0	466	437	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	0	466	445	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.7%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	21	0	429	402	7
Future Vol, veh/h	0	21	0	429	402	7
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	8	5	0
Mvmt Flow	0	23	0	466	437	8
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	223	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	786	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	786	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.72	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	786	-	-		
HCM Lane V/C Ratio	-	0.029	-	-		
HCM Control Delay (s/veh)	-	9.7	-	-		
HCM Lane LOS	-	A	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	18	0	432	411	12
Future Volume (vph)	0	18	0	432	411	12
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.996	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3257	3012	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3257	3012	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	7%	0%
Adj. Flow (vph)	0	20	0	470	447	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	0	470	460	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.1%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	18	0	432	411	12
Future Vol, veh/h	0	18	0	432	411	12
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	5	7	0
Mvmt Flow	0	20	0	470	447	13

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 231	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.9	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.3	- -	- -
Pot Cap-1 Maneuver	0 778	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %	- -	- -	- -
Mov Cap-1 Maneuver	- 777	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s/v	9.75	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 777	- -	- -
HCM Lane V/C Ratio	- 0.025	- -	- -
HCM Control Delay (s/veh)	- 9.8	- -	- -
HCM Lane LOS	- A	- -	- -
HCM 95th %tile Q(veh)	- 0.1	- -	- -

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	37	17	101	100	16	6	82	375	149	12	404	6
Future Volume (vph)	37	17	101	100	16	6	82	375	149	12	404	6
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.956				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1538	1457	0	1615	3257	1389	1495	3016	0
Flt Permitted	0.742			0.516			0.450			0.512		
Satd. Flow (perm)	1261	1800	1445	835	1457	0	765	3257	1389	806	3016	0
Right Turn on Red			Yes		Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			114		7				152		1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	5%	0%	17%	0%	5%	4%	8%	7%
Adj. Flow (vph)	40	18	110	109	17	7	89	408	162	13	439	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	18	110	109	24	0	89	408	162	13	446	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.8	10.3	10.3	20.7	16.7		50.2	47.7	47.7	46.4	40.4	
Actuated g/C Ratio	0.21	0.13	0.13	0.27	0.22		0.65	0.62	0.62	0.60	0.53	
v/c Ratio	0.14	0.07	0.38	0.35	0.07		0.15	0.20	0.18	0.02	0.28	
Control Delay (s/veh)	21.7	33.5	11.2	24.6	23.8		8.0	10.5	3.3	7.4	16.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	21.7	33.5	11.2	24.6	23.8		8.0	10.5	3.3	7.4	16.1	
LOS	C	C	B	C	C		A	B	A	A	B	
Approach Delay (s/veh)		16.1			24.5			8.4			15.8	
Approach LOS		B			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 76.7

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.38

Intersection Signal Delay (s/veh): 13.2

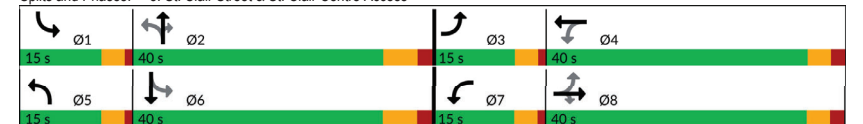
Intersection LOS: B

Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	18	110	109	24	89	408	162	13	446
v/c Ratio	0.14	0.07	0.38	0.35	0.07	0.15	0.20	0.18	0.02	0.28
Control Delay (s/veh)	21.7	33.5	11.2	24.6	23.8	8.0	10.5	3.3	7.4	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.7	33.5	11.2	24.6	23.8	8.0	10.5	3.3	7.4	16.1
Queue Length 50th (m)	4.3	2.6	0.0	12.4	1.9	5.6	15.8	0.7	0.8	24.7
Queue Length 95th (m)	11.2	8.6	13.2	25.1	8.9	11.4	31.4	11.2	2.9	37.2
Internal Link Dist (m)	43.3				29.1	876.2				85.2
Turn Bay Length (m)						160.0	25.0		25.0	
Base Capacity (vph)	373	843	737	340	686	628	2025	921	620	1588
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.02	0.15	0.32	0.03	0.14	0.20	0.18	0.02	0.28
Intersection Summary										

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	32	28	28	40	149	16	513	22	89	550	51
Future Volume (vph)	98	32	28	28	40	149	16	513	22	89	550	51
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99		1.00	1.00		1.00	1.00	
Frt		0.931			0.881			0.994			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1490	0	1615	1362	0	1615	3089	0	1583	2990	0
Flt Permitted	0.349			0.715			0.404			0.361		
Satd. Flow (perm)	575	1490	0	1216	1362	0	686	3089	0	601	2990	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			162			4			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	3					3	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	3%	2%	0%	4%	0%	2%	7%	0%
Adj. Flow (vph)	107	35	30	30	43	162	17	558	24	97	598	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	65	0	30	205	0	17	582	0	97	653	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.6				3.6		3.6				3.6	
Link Offset(m)	0.0				0.0		0.0				0.0	
Crosswalk Width(m)	4.9				4.9		4.9				4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	28.7				28.7		28.7				28.7	
Detector 2 Size(m)	1.8				1.8		1.8				1.8	
Detector 2 Type	Cl+Ex				Cl+Ex		Cl+Ex				Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0				0.0		0.0				0.0	

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.6	18.5		19.5	11.8		47.3	39.9		51.3	47.3	
Actuated g/C Ratio	0.29	0.22		0.23	0.14		0.56	0.47		0.61	0.56	
v/c Ratio	0.38	0.19		0.09	0.62		0.04	0.40		0.21	0.39	
Control Delay (s/veh)	26.7	20.6		22.4	19.3		8.8	18.0		9.7	13.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	26.7	20.6		22.4	19.3		8.8	18.0		9.7	13.1	
LOS	C	C		C	B		A	B		A	B	
Approach Delay (s/veh)		24.4			19.7			17.7			12.6	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 84.5

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.62

Intersection Signal Delay (s/veh): 16.5

Intersection LOS: B

Intersection Capacity Utilization 72.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues

6: St. Clair Street & Gregory Drive

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	65	30	205	17	582	97	653
v/c Ratio	0.38	0.19	0.09	0.62	0.04	0.40	0.21	0.39
Control Delay (s/veh)	26.7	20.6	22.4	19.3	8.8	18.0	9.7	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.7	20.6	22.4	19.3	8.8	18.0	9.7	13.1
Queue Length 50th (m)	13.3	4.3	3.5	6.7	1.1	33.8	6.3	28.4
Queue Length 95th (m)	26.1	16.5	9.8	28.2	4.1	56.9	15.2	60.8
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	300	542	373	583	532	1461	496	1679
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.12	0.08	0.35	0.03	0.40	0.20	0.39

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	7	1	0	0	10	20	1	1	0
Future Volume (vph)	0	0	0	7	1	0	0	10	20	1	1	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.910				
Flt Protected					0.957						0.976	
Satd. Flow (prot)	0	1500	0	0	1272	0	0	1338	0	0	1450	0
Flt Permitted					0.957						0.976	
Satd. Flow (perm)	0	1500	0	0	1272	0	0	1338	0	0	1450	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	100%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	0	0	8	1	0	0	11	22	1	1	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	9	0	0	33	0	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 13.3%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh		8										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	7	1	0	0	10	20	1	1	0
Future Vol, veh/h	0	0	0	7	1	0	0	10	20	1	1	0
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, %	0	0	2	2	100	0	2	2	2	0	2	0
Mvmt Flow	0	0	0	8	1	0	0	11	22	1	1	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1	0	0	1	0	0	18	17	1	23	17	1
Stage 1	-	-	-	-	-	-	1	1	-	16	16	-
Stage 2	-	-	-	-	-	-	17	16	-	7	1	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1635	-	-	1622	-	-	996	877	1083	994	877	1089
Stage 1	-	-	-	-	-	-	1022	895	-	1008	882	-
Stage 2	-	-	-	-	-	-	1003	882	-	1020	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1635	-	-	1622	-	-	990	873	1083	958	873	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	990	873	-	958	873	-
Stage 1	-	-	-	-	-	-	1022	895	-	1004	878	-
Stage 2	-	-	-	-	-	-	997	878	-	988	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			6.33			8.71			8.95		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1003	1635	-	-	1575	-	-	913				
HCM Lane V/C Ratio	0.033	-	-	-	0.005	-	-	0.002				
HCM Control Delay (s/veh)	8.7	0	-	-	7.2	0	-	9				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	43	0	0	0	102	0	0
Future Volume (vph)	0	0	0	0	0	43	0	0	0	102	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865							
Flt Protected											0.950	
Satd. Flow (prot)	0	1500	0	0	1272	0	0	1471	0	0	1397	0
Flt Permitted											0.950	
Satd. Flow (perm)	0	1500	0	0	1272	0	0	1471	0	0	1397	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		48.6			122.4			53.3			51.7	
Travel Time (s)		3.5			8.8			3.8			3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	0	0	0	0	47	0	0	0	111	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	47	0	0	0	0	0	111	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 17.2%	ICU Level of Service A											
Analysis Period (min) 15												

PTSL

Synchro 12 Report

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2035 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	43	0	0	0	102	0	0
Future Vol, veh/h	0	0	0	0	0	43	0	0	0	102	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	0	0	0	0	47	0	0	0	111	0	0
Major/Minor												
Major1	Major2		Minor1		Minor2							
Conflicting Flow All	47	0	0	1	0	0	1	48	1	24	24	23
Stage 1	-	-	-	-	-	-	1	1	-	23	23	-
Stage 2	-	-	-	-	-	-	0	47	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1561	-	-	1635	-	-	1027	844	1089	987	869	1053
Stage 1	-	-	-	-	-	-	1027	895	-	995	876	-
Stage 2	-	-	-	-	-	-	-	856	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1561	-	-	1635	-	-	1027	844	1089	987	869	1053
Mov Cap-2 Maneuver	-	-	-	-	-	-	1027	844	-	987	869	-
Stage 1	-	-	-	-	-	-	1027	895	-	995	876	-
Stage 2	-	-	-	-	-	-	-	856	-	1022	895	-
Approach												
EB	WB		NB		SB							
HCM Control Delay, s/v	0		0		0					9.11		
HCM LOS					A					A		
Minor Lane/Major Mvmt												
NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	-	1561	-	-	1635	-	-	987				
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.112				
HCM Control Delay (s/veh)	0	0	-	-	0	-	-	9.1				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.4				

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	101	52	28	65	22	82	323	74	28	361	72
Future Volume (vph)	43	101	52	28	65	22	82	323	74	28	361	72
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.964				0.974				0.850		0.975	
Flt Protected		0.989				0.988		0.950		0.950		
Satd. Flow (prot)	0	1388	0	0	1414	0	1583	1765	1445	1553	3098	0
Flt Permitted		0.909			0.884		0.437		0.551			
Satd. Flow (perm)	0	1276	0	0	1265	0	728	1765	1445	901	3098	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			14				88		32	
Link Speed (k/h)		60			60			60		60		
Link Distance (m)		145.1			185.2			229.0		235.8		
Travel Time (s)		8.7			11.1			13.7		14.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	1%	2%	0%	0%	11%	2%	2%	0%	4%	1%	5%
Adj. Flow (vph)	47	110	57	30	71	24	89	351	80	30	392	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	214	0	0	125	0	89	351	80	30	470	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6		3.6		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		4.9			4.9			4.9		4.9		
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7		28.7		
Detector 2 Size(m)		1.8			1.8			1.8		1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex		CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0		0.0		
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		16.7			16.7		46.3	41.0	41.0	42.5	35.7	
Actuated g/C Ratio		0.23			0.23		0.63	0.56	0.56	0.58	0.48	
v/c Ratio		0.70			0.42		0.16	0.36	0.10	0.05	0.31	
Control Delay (s/veh)		37.3			26.8		7.0	12.9	3.3	6.7	13.4	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		37.3			26.8		7.0	12.9	3.3	6.7	13.4	
LOS		D			C		A	B	A	A	B	
Approach Delay (s/veh)		37.3			26.8			10.5			13.0	
Approach LOS		D			C			B			B	
Intersection Summary												
Area Type:	Other											
Cycle Length: 87												
Actuated Cycle Length: 73.8												
Natural Cycle: 70												
Control Type: Semi Act-Uncooord												
Maximum v/c Ratio: 0.70												
Intersection Signal Delay (s/veh): 17.1				Intersection LOS: B								
Intersection Capacity Utilization 65.3%				ICU Level of Service C								
Analysis Period (min) 15												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	214	125	89	351	80	30	470
v/c Ratio	0.70	0.42	0.16	0.36	0.10	0.05	0.31
Control Delay (s/veh)	37.3	26.8	7.0	12.9	3.3	6.7	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	26.8	7.0	12.9	3.3	6.7	13.4
Queue Length 50th (m)	25.5	13.6	4.1	20.9	0.0	1.3	19.4
Queue Length 95th (m)	48.6	28.7	11.7	61.5	6.6	5.1	37.2
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	454	446	592	981	842	661	1515
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.28	0.15	0.36	0.10	0.05	0.31

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	26	36	66	175	39	59	76	348	149	54	379	18
Future Volume (vph)	26	36	66	175	39	59	76	348	149	54	379	18
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.909			0.955			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1748	1417	3102	1454	0	1615	3033	0	1615	3147	0
Flt Permitted	0.226			0.732			0.461			0.398		
Satd. Flow (perm)	384	1748	1398	2385	1454	0	784	3033	0	677	3147	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		54			47			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	1%	0%	0%	0%	2%	1%	0%	2%	0%
Adj. Flow (vph)	28	39	72	190	42	64	83	378	162	59	412	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	39	72	190	106	0	83	540	0	59	432	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Total PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	NA	NA	NA
Protected Phases	3	3	3	4	4	4	5	2	1	6	6	6
Permitted Phases	3	3	3	4	4	4	2	2	6	6	6	6
Detector Phase	3	3	3	4	4	4	5	2	1	6	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	7.0	31.0	7.0	31.0	7.0	31.0	31.0
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0	11.0	37.5	11.0	37.5	11.0	37.5	37.5
Total Split (s)	40.0	40.0	40.0	40.0	40.0	15.0	40.0	15.0	40.0	15.0	40.0	40.0
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%	11.1%	29.6%	11.1%	29.6%	11.1%	29.6%	29.6%
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	11.0	33.5	11.0	33.5	11.0	33.5	33.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	4.5	3.0	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	4.0	6.5	4.0	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Max	None	Max	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	21.1	21.1	21.1	14.2	14.2	46.0	36.6	44.9	36.1	44.9	36.1	36.1
Actuated g/C Ratio	0.22	0.22	0.22	0.15	0.15	0.48	0.38	0.47	0.38	0.47	0.38	0.38
v/c Ratio	0.33	0.10	0.18	0.54	0.40	0.18	0.45	0.15	0.36	0.15	0.36	0.36
Control Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.7	26.7	18.5	28.3	18.5	28.3	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.7	26.7	18.5	28.3	18.5	28.3	28.3
LOS	D	C	A	D	C	B	C	B	C	B	C	C
Approach Delay (s/veh)	19.8			41.3		25.7		27.1				
Approach LOS	B			D		C		C				

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 95.5

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.54

Intersection Signal Delay (s/veh): 28.6

Intersection LOS: C

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2035 Total PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	39	72	190	106	83	540	59	432
v/c Ratio	0.33	0.10	0.18	0.54	0.40	0.18	0.45	0.15	0.36
Control Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.7	26.7	18.5	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.7	26.7	18.5	28.3
Queue Length 50th (m)	4.6	6.1	0.0	17.9	9.1	8.3	38.8	5.8	33.1
Queue Length 95th (m)	14.0	15.3	4.1	33.1	27.9	22.0	71.5	16.5	60.4
Internal Link Dist (m)	67.3			53.0		51.7		205.0	
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	147	670	603	914	590	492	1192	448	1190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.06	0.12	0.21	0.18	0.17	0.45	0.13	0.36

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗	↗	
Traffic Volume (vph)	0	32	0	605	627	23
Future Volume (vph)	0	32	0	605	627	23
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.865		0.995		
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3183	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3183	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	35	0	658	682	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	35	0	658	707	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 30.2%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	32	0	605	627	23
Future Vol, veh/h	0	32	0	605	627	23
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, %	0	0	0	1	1	0
Mvmt Flow	0	35	0	658	682	25
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	- 353	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 649	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	- 649	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v10.86		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	649	-	-		
HCM Lane V/C Ratio	-	0.054	-	-		
HCM Control Delay (s/veh)	-	10.9	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖↖	↗↗	
Traffic Volume (vph)	0	18	0	667	637	7
Future Volume (vph)	0	18	0	667	637	7
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.998	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3353	3192	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3353	3192	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	20	0	725	692	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	0	725	700	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.9%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	18	0	667	637	7
Future Vol, veh/h	0	18	0	667	637	7
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	2	1	0
Mvmt Flow	0	20	0	725	692	8
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 353	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 649	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %		-	-	-	-	
Mov Cap-1 Maneuver	- 647	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v10.74		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	647	-	-		
HCM Lane V/C Ratio	-	0.03	-	-		
HCM Control Delay (s/veh)	-	10.7	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	24	12	109	285	22	14	194	575	241	12	665	16
Future Volume (vph)	24	12	109	285	22	14	194	575	241	12	665	16
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	160.0		25.0	25.0	0.0
Storage Lanes	1		1	1			0	1		1	1	0
Taper Length (m)	7.6			7.6				100.0			65.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00	0.99		1.00		0.97	1.00	1.00	
Frt			0.850		0.942				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	1599	1498	0	1615	3386	1445	1495	3157	0
Flt Permitted	0.732			0.567			0.258			0.415		
Satd. Flow (perm)	1240	1800	1395	951	1498	0	438	3386	1407	652	3157	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118		15				161		2	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Confl. Peds. (#/hr)	3		3	3		3	2		3	3		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	1%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	26	13	118	310	24	15	211	625	262	13	723	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	13	118	310	39	0	211	625	262	13	740	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	18.3	10.1	10.1	26.0	20.6		50.7	46.0	46.0	43.0	33.5	
Actuated g/C Ratio	0.22	0.12	0.12	0.31	0.24		0.60	0.54	0.54	0.51	0.40	
v/c Ratio	0.09	0.06	0.44	0.83	0.10		0.51	0.34	0.31	0.03	0.59	
Control Delay (s/veh)	22.0	34.1	12.6	46.6	21.6		12.7	12.3	6.0	7.6	22.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	22.0	34.1	12.6	46.6	21.6		12.7	12.3	6.0	7.6	22.7	
LOS	C	C	B	D	C		B	B	A	A	C	
Approach Delay (s/veh)		15.9			43.8			10.8			22.5	
Approach LOS		B			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 84.8

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 19.8

Intersection LOS: B

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	13	118	310	39	211	625	262	13	740
v/c Ratio	0.09	0.06	0.44	0.83	0.10	0.51	0.34	0.31	0.03	0.59
Control Delay (s/veh)	22.0	34.1	12.6	46.6	21.6	12.7	12.3	6.0	7.6	22.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.0	34.1	12.6	46.6	21.6	12.7	12.3	6.0	7.6	22.7
Queue Length 50th (m)	3.0	1.9	0.0	43.0	2.8	14.4	26.0	7.0	0.8	48.7
Queue Length 95th (m)	8.4	6.9	14.5	#90.7	11.7	25.0	49.3	25.7	2.9	67.1
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	372	742	644	374	626	414	1837	836	470	1248
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.02	0.18	0.83	0.06	0.51	0.34	0.31	0.03	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱		↰	↱		↰	↱	↰
Traffic Volume (vph)	170	88	32	37	51	209	38	852	27	184	847	111
Future Volume (vph)	170	88	32	37	51	209	38	852	27	184	847	111
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		0.99	0.99			1.00			1.00	
Frt	0.960			0.879			0.995			0.983		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1454	0	1568	1370	0	1568	3150	0	1615	3106	0
Flt Permitted	0.207			0.673			0.205			0.164		
Satd. Flow (perm)	347	1454	0	1105	1370	0	338	3150	0	279	3106	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	16			183			3			14		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%		1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	185	96	35	40	55	227	41	926	29	200	921	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	185	131	0	40	282	0	41	955	0	200	1042	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane							Yes					
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	31.1	22.6		24.5	14.8		48.5	39.1		55.4	47.0	
Actuated g/C Ratio	0.33	0.24		0.26	0.16		0.51	0.41		0.58	0.49	
v/c Ratio	0.73	0.37		0.12	0.77		0.15	0.74		0.65	0.68	
Control Delay (s/veh)	42.1	31.6		22.4	28.6		11.8	29.1		22.3	23.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	42.1	31.6		22.4	28.6		11.8	29.1		22.3	23.5	
LOS	D	C		C	C		B	C		C	C	
Approach Delay (s/veh)		37.8			27.8			28.4			23.4	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 95.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay (s/veh): 27.2

Intersection LOS: C

Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues

6: St. Clair Street & Gregory Drive

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	185	131	40	282	41	955	200	1042
v/c Ratio	0.73	0.37	0.12	0.77	0.15	0.74	0.65	0.68
Control Delay (s/veh)	42.1	31.6	22.4	28.6	11.8	29.1	22.3	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.1	31.6	22.4	28.6	11.8	29.1	22.3	23.5
Queue Length 50th (m)	25.6	18.8	5.0	16.9	2.9	74.7	15.5	77.7
Queue Length 95th (m)	#45.3	36.3	11.8	45.1	9.0	118.4	#43.5	128.0
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	258	453	377	544	327	1292	316	1536
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.29	0.11	0.52	0.13	0.74	0.63	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	0	3	0	20	3	3	0	7	12	11	4	0
Future Volume (vph)	0	3	0	20	3	3	0	7	12	11	4	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.986			0.916				
Flt Protected					0.962						0.964	
Satd. Flow (prot)	0	1500	0	0	1401	0	0	1347	0	0	1268	0
Flt Permitted					0.962						0.964	
Satd. Flow (perm)	0	1500	0	0	1401	0	0	1347	0	0	1268	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	18%	2%	0%
Adj. Flow (vph)	0	3	0	22	3	3	0	8	13	12	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	28	0	0	21	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 22.9%	ICU Level of Service A											
Analysis Period (min) 15												

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	3	0	20	3	3	0	7	12	11	4	0
Future Vol, veh/h	0	3	0	20	3	3	0	7	12	11	4	0
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, %	0	0	2	2	0	0	2	2	2	18	2	0
Mvmt Flow	0	3	0	22	3	3	0	8	13	12	4	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	7	0	0	3	0	0	52	53	3	55	52	5
Stage 1	-	-	-	-	-	-	3	3	-	48	48	-
Stage 2	-	-	-	-	-	-	49	50	-	7	3	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.28	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.28	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.28	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.662	4.018	3.3
Pot Cap-1 Maneuver	1627	-	-	1619	-	-	947	838	1081	904	840	1084
Stage 1	-	-	-	-	-	-	1019	893	-	926	855	-
Stage 2	-	-	-	-	-	-	964	853	-	975	893	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1627	-	-	1619	-	-	929	827	1081	873	828	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	929	827	-	873	828	-
Stage 1	-	-	-	-	-	-	1019	893	-	913	843	-
Stage 2	-	-	-	-	-	-	946	842	-	955	893	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			5.58			8.79			9.26		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	971	1627	-	-	1259	-	-	861				
HCM Lane V/C Ratio	0.021	-	-	-	0.013	-	-	0.019				
HCM Control Delay (s/veh)	8.8	0	-	-	7.3	0	-	9.3				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	0	1	0	1	1	119	0	0	0	66	0	0
Future Volume (vph)	0	1	0	1	1	119	0	0	0	66	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.867							
Flt Protected											0.950	
Satd. Flow (prot)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Flt Permitted											0.950	
Satd. Flow (perm)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		48.6			122.4			53.3			51.7	
Travel Time (s)		3.5			8.8			3.8			3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	1	0	1	1	129	0	0	0	72	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	131	0	0	0	0	0	72	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 21.9%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2035 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	1	0	1	1	119	0	0	0	66	0	0
Future Vol, veh/h	0	1	0	1	1	119	0	0	0	66	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	1	0	1	1	129	0	0	0	72	0	0
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	130	0	0	1	0	0	4	134	1	69	69	66
Stage 1	-	-	-	-	-	-	1	1	-	68	68	-
Stage 2	-	-	-	-	-	-	3	133	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1455	-	-	1635	-	-	1022	757	1089	923	822	998
Stage 1	-	-	-	-	-	-	1027	895	-	942	838	-
Stage 2	-	-	-	-	-	-	1025	787	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1455	-	-	1635	-	-	1021	757	1089	923	821	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	1021	757	-	923	821	-
Stage 1	-	-	-	-	-	-	1027	895	-	942	838	-
Stage 2	-	-	-	-	-	-	1024	786	-	1022	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0.06			0			9.23		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1455	-	-	12	-	-	923				
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	0.078				
HCM Control Delay (s/veh)	0	0	-	-	7.2	0	-	9.2				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.3				

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	94	89	57	49	13	98	241	95	15	266	39
Future Volume (vph)	37	94	89	57	49	13	98	241	95	15	266	39
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.945			0.985				0.850		0.981	
Flt Protected		0.992			0.977		0.950		0.950			
Satd. Flow (prot)	0	1406	0	0	1430	0	1615	1782	1445	1495	3114	0
Flt Permitted		0.928			0.639		0.500		0.597			
Satd. Flow (perm)	0	1315	0	0	935	0	850	1782	1445	940	3114	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			7				103		22	
Link Speed (k/h)		60			60			60		60		
Link Distance (m)		145.1			185.2			229.0		235.8		
Travel Time (s)		8.7			11.1			13.7		14.1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	40	102	97	62	53	14	107	262	103	16	289	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	239	0	0	129	0	107	262	103	16	331	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6		3.6		
Link Offset(m)		0.0			0.0			0.0		0.0		
Crosswalk Width(m)		4.9			4.9			4.9		4.9		
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7		28.7		
Detector 2 Size(m)		1.8			1.8			1.8		1.8		
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex		CI+Ex		
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0		0.0		
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	16.8			16.8			47.5	43.7	43.7	42.3	35.7	
Actuated g/C Ratio	0.23			0.23			0.64	0.59	0.59	0.57	0.48	
v/c Ratio	0.73			0.60			0.17	0.25	0.12	0.03	0.22	
Control Delay (s/veh)	36.6			37.6			7.0	10.2	3.1	6.9	13.1	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	36.6			37.6			7.0	10.2	3.1	6.9	13.1	
LOS	D			D			A	B	A	A	B	
Approach Delay (s/veh)	36.6			37.6			7.9				12.8	
Approach LOS	D			D			A				B	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 74.5

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 18.4

Intersection LOS: B

Intersection Capacity Utilization 67.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	239	129	107	262	103	16	331
v/c Ratio	0.73	0.60	0.17	0.25	0.12	0.03	0.22
Control Delay (s/veh)	36.6	37.6	7.0	10.2	3.1	6.9	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.6	37.6	7.0	10.2	3.1	6.9	13.1
Queue Length 50th (m)	26.7	15.8	5.1	14.8	0.0	0.7	13.3
Queue Length 95th (m)	51.9	33.5	13.6	44.0	8.1	3.3	26.7
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	476	325	657	1044	889	665	1505
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.40	0.16	0.25	0.12	0.02	0.22
Intersection Summary							

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	43	74	143	296	52	79	162	294	196	50	276	15
Future Volume (vph)	43	74	143	296	52	79	162	294	196	50	276	15
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00	0.99							
Frt			0.850		0.910			0.940			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	3133	1435	0	1615	3036	0	1615	3204	0
Flt Permitted	0.121			0.705			0.465			0.386		
Satd. Flow (perm)	206	1800	1426	2320	1435	0	790	3036	0	656	3204	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		54			111			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	2		1	1		2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	47	80	155	322	57	86	176	320	213	54	300	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	80	155	322	143	0	176	533	0	54	316	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24			14	24		14	24	14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	33.0	33.0	33.0	22.5	22.5		49.6	38.5		44.5	33.6	
Actuated g/C Ratio	0.27	0.27	0.27	0.18	0.18		0.40	0.31		0.36	0.27	
v/c Ratio	0.85	0.17	0.31	0.75	0.46		0.45	0.52		0.18	0.36	
Control Delay (s/veh)	132.0	36.9	7.5	59.1	32.1		29.7	31.0		25.6	38.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	132.0	36.9	7.5	59.1	32.1		29.7	31.0		25.6	38.0	
LOS	F	D	A	E	C		C	C		C	D	
Approach Delay (s/veh)		36.6			50.8			30.7			36.2	
Approach LOS		D			D			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 122.5

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 37.8

Intersection LOS: D

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	80	155	322	143	176	533	54	316
v/c Ratio	0.85	0.17	0.31	0.75	0.46	0.45	0.52	0.18	0.36
Control Delay (s/veh)	132.0	36.9	7.5	59.1	32.1	29.7	31.0	25.6	38.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	132.0	36.9	7.5	59.1	32.1	29.7	31.0	25.6	38.0
Queue Length 50th (m)	10.7	14.7	0.0	38.6	19.1	27.6	44.8	7.8	32.1
Queue Length 95th (m)	#37.3	29.9	16.8	54.2	38.8	49.8	71.4	18.0	49.6
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	57	501	509	646	438	394	1030	339	882
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.16	0.30	0.50	0.33	0.45	0.52	0.16	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	33	0	760	777	24
Future Volume (vph)	0	33	0	760	777	24
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.996	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3186	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3186	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	36	0	826	845	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	36	0	826	871	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.9%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	33	0	760	777	24
Future Vol, veh/h	0	33	0	760	777	24
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	36	0	826	845	26
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	436	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	574	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	573	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	11.7	0	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	573	-	-		
HCM Lane V/C Ratio	-	0.063	-	-		
HCM Control Delay (s/veh)	-	11.7	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	34	0	795	785	32
Future Volume (vph)	0	34	0	795	785	32
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.994	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3420	3211	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3420	3211	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	37	0	864	853	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	37	0	864	888	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	35.4%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	34	0	795	785	32
Future Vol, veh/h	0	34	0	795	785	32
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	0	0	0
Mvmt Flow	0	37	0	864	853	35

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 447	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.9	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.3	- -	- -
Pot Cap-1 Maneuver	0 564	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %	- -	- -	- -
Mov Cap-1 Maneuver	- 563	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s/v11.85		0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 563	- -	- -
HCM Lane V/C Ratio	- 0.066	- -	- -
HCM Control Delay (s/veh)	- 11.8	- -	- -
HCM Lane LOS	- B	- -	- -
HCM 95th %tile Q(veh)	- 0.2	- -	- -

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	40	19	126	350	38	28	215	702	421	46	713	19
Future Volume (vph)	40	19	126	350	38	28	215	702	421	46	713	19
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	160.0		25.0	25.0	0.0
Storage Lanes	1		1	1			0	1		1	1	0
Taper Length (m)	7.6			7.6				100.0			65.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99				0.97	1.00	
Frt			0.850		0.937				0.850		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1599	1489	0	1615	3386	1431	1553	3186	0
Flt Permitted	0.711			0.555			0.228			0.359		
Satd. Flow (perm)	1203	1800	1445	934	1489	0	388	3386	1393	586	3186	0
Right Turn on Red			Yes		Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			137		30			230		2		
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Confl. Peds. (#/hr)	4				4			3		3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	1%	4%	1%	0%
Adj. Flow (vph)	43	21	137	380	41	30	234	763	458	50	775	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	21	137	380	71	0	234	763	458	50	796	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	18.8	10.2	10.2	25.6	18.0		50.8	41.7	41.7	43.2	33.5	
Actuated g/C Ratio	0.22	0.12	0.12	0.30	0.21		0.60	0.49	0.49	0.51	0.39	
v/c Ratio	0.14	0.10	0.47	1.04	0.21		0.60	0.46	0.57	0.13	0.64	
Control Delay (s/veh)	22.6	34.6	12.3	88.0	22.4		15.0	16.6	11.6	8.4	23.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	22.6	34.6	12.3	88.0	22.4		15.0	16.6	11.6	8.4	23.7	
LOS	C	C	B	F	C		B	B	B	A	C	
Approach Delay (s/veh)		16.8			77.7			14.8			22.8	
Approach LOS		B			E			B			C	
Intersection Summary												
Area Type:		Other										
Cycle Length:		110										
Actuated Cycle Length:		85.2										
Natural Cycle:		100										
Control Type:		Semi Act-Uncoord										
Maximum v/c Ratio:		1.04										
Intersection Signal Delay (s/veh):		26.8						Intersection LOS:	C			
Intersection Capacity Utilization		83.7%						ICU Level of Service	E			
Analysis Period (min)		15										

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2035 Total SAT
770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	43	21	137	380	71	234	763	458	50	796
v/c Ratio	0.14	0.10	0.47	1.04	0.21	0.60	0.46	0.57	0.13	0.64
Control Delay (s/veh)	22.6	34.6	12.3	88.0	22.4	15.0	16.6	11.6	8.4	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	34.6	12.3	88.0	22.4	15.0	16.6	11.6	8.4	23.7
Queue Length 50th (m)	5.0	3.1	0.0	~57.8	5.8	16.2	45.4	25.4	3.1	53.5
Queue Length 95th (m)	12.2	9.5	15.5	#94.3	17.7	28.0	63.6	58.3	7.4	73.5
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	366	739	674	366	629	389	1658	799	448	1253
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.03	0.20	1.04	0.11	0.60	0.46	0.57	0.11	0.64

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Total SAT
770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	180	43	30	43	18	286	22	1064	32	178	981	143
Future Volume (vph)	180	43	30	43	18	286	22	1064	32	178	981	143
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	0.98			1.00		1.00		1.00
Frt	0.938			0.859			0.996			0.981		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1431	0	1568	1337	0	1568	3153	0	1615	3100	0
Flt Permitted	0.199			0.705			0.154			0.088		
Satd. Flow (perm)	334	1431	0	1157	1337	0	254	3153	0	150	3100	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	31			244			3			16		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	196	47	33	47	20	311	24	1157	35	193	1066	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	80	0	47	331	0	24	1192	0	193	1221	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	30.6	22.1		24.3	14.4		48.3	39.0		55.7	49.5	
Actuated g/C Ratio	0.32	0.23		0.25	0.15		0.51	0.41		0.58	0.52	
v/c Ratio	0.78	0.23		0.14	0.81		0.11	0.92		0.77	0.75	
Control Delay (s/veh)	47.0	23.1		22.7	27.3		11.5	40.5		41.0	24.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	47.0	23.1		22.7	27.3		11.5	40.5		41.0	24.3	
LOS	D	C		C	C		B	D		D	C	
Approach Delay (s/veh)		40.1			26.7			40.0			26.6	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 95.3

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay (s/veh): 32.7

Intersection LOS: C

Intersection Capacity Utilization 95.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

↖ Ø1	↖ Ø2	↖ Ø3	↖ Ø4
15 s	45 s	15 s	35 s
↖ Ø5	↖ Ø6	↖ Ø7	↖ Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues

6: St. Clair Street & Gregory Drive

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↑	↗	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Group Flow (vph)	196	80	47	331	24	1192	193	1221	
v/c Ratio	0.78	0.23	0.14	0.81	0.11	0.92	0.77	0.75	
Control Delay (s/veh)	47.0	23.1	22.7	27.3	11.5	40.5	41.0	24.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	47.0	23.1	22.7	27.3	11.5	40.5	41.0	24.3	
Queue Length 50th (m)	27.4	7.7	5.9	14.8	1.6	101.3	18.8	72.1	
Queue Length 95th (m)	#52.9	20.1	13.4	46.1	6.3	#181.1	#63.4	#176.2	
Internal Link Dist (m)		133.0		100.1		183.7		876.2	
Turn Bay Length (m)	30.0		25.0		50.0		30.0		
Base Capacity (vph)	253	457	381	576	291	1293	257	1618	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.77	0.18	0.12	0.57	0.08	0.92	0.75	0.75	

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	0	3	0	22	3	3	0	9	17	11	5	0
Future Volume (vph)	0	3	0	22	3	3	0	9	17	11	5	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.986			0.913				
Flt Protected					0.962						0.966	
Satd. Flow (prot)	0	1500	0	0	1400	0	0	1343	0	0	1441	0
Flt Permitted					0.962						0.966	
Satd. Flow (perm)	0	1500	0	0	1400	0	0	1343	0	0	1441	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	3	0	24	3	3	0	10	18	12	5	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	30	0	0	28	0	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 23.1%	ICU Level of Service A											
Analysis Period (min) 15												

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	3	0	22	3	3	0	9	17	11	5	0
Future Vol, veh/h	0	3	0	22	3	3	0	9	17	11	5	0
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, %	0	0	2	2	0	0	2	2	2	0	2	0
Mvmt Flow	0	3	0	24	3	3	0	10	18	12	5	0
Major/Minor												
	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	7	0	0	3	0	0	57	58	3	61	56	5
Stage 1	-	-	-	-	-	-	3	3	-	53	53	-
Stage 2	-	-	-	-	-	-	54	54	-	8	3	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1627	-	-	1619	-	-	940	833	1081	939	835	1084
Stage 1	-	-	-	-	-	-	1019	893	-	965	851	-
Stage 2	-	-	-	-	-	-	959	850	-	1018	893	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1627	-	-	1619	-	-	920	821	1081	899	823	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	920	821	-	899	823	-
Stage 1	-	-	-	-	-	-	1019	893	-	951	838	-
Stage 2	-	-	-	-	-	-	938	837	-	990	893	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s/v	0		5.7		8.81		9.2					
HCM LOS					A		A					
Minor Lane/Major Mvmt												
	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	974	1627	-	-	1286	-	-	874				
HCM Lane V/C Ratio	0.029	-	-	-	0.015	-	-	0.02				
HCM Control Delay (s/veh)	8.8	0	-	-	7.3	0	-	9.2				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	0	1	0	1	1	127	0	0	0	86	0	0
Future Volume (vph)	0	1	0	1	1	127	0	0	0	86	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.867							
Flt Protected											0.950	
Satd. Flow (prot)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Flt Permitted											0.950	
Satd. Flow (perm)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		48.6			122.4			53.3			51.7	
Travel Time (s)		3.5			8.8			3.8			3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	1	0	1	1	138	0	0	0	93	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	140	0	0	0	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 23.9%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2035 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	1	0	1	1	127	0	0	0	86	0	0
Future Vol, veh/h	0	1	0	1	1	127	0	0	0	86	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	1	0	1	1	138	0	0	0	93	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	139	0	0	1	0	0	4	142	1	73	73	70
Stage 1	-	-	-	-	-	-	1	1	-	72	72	-
Stage 2	-	-	-	-	-	-	3	141	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1444	-	-	1635	-	-	1022	749	1089	917	817	993
Stage 1	-	-	-	-	-	-	1027	895	-	937	835	-
Stage 2	-	-	-	-	-	-	1025	780	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1444	-	-	1635	-	-	1021	748	1089	917	816	993
Mov Cap-2 Maneuver	-	-	-	-	-	-	1021	748	-	917	816	-
Stage 1	-	-	-	-	-	-	1027	895	-	937	834	-
Stage 2	-	-	-	-	-	-	1024	779	-	1022	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0.06			0			9.37		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1444	-	-	12	-	-	917				
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	0.102				
HCM Control Delay (s/veh)	0	0	-	-	7.2	0	-	9.4				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.3				

Appendix H

2040 Background Traffic Operations Reports



Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	42	34	34	39	17	24	273	23	15	272	43
Future Volume (vph)	40	42	34	34	39	17	24	273	23	15	272	43
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.960				0.975				0.850		0.979	
Flt Protected	0.983				0.981		0.950			0.950		
Satd. Flow (prot)	0	1322	0	0	1359	0	1380	1682	1225	1482	2982	0
Flt Permitted	0.864				0.855		0.528		0.579			
Satd. Flow (perm)	0	1162	0	0	1184	0	767	1682	1225	903	2982	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			13				88		24	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	13%	8%	4%	3%	15%	17%	7%	18%	9%	7%	0%
Adj. Flow (vph)	43	46	37	37	42	18	26	297	25	16	296	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	97	0	26	297	25	16	343	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)		12.2			12.2		42.3	39.1	39.1	41.3	37.1	
Actuated g/C Ratio		0.19			0.19		0.65	0.60	0.60	0.63	0.57	
v/c Ratio		0.53			0.42		0.05	0.30	0.03	0.03	0.20	
Control Delay (s/veh)		28.6			26.9		4.8	8.8	0.1	4.8	8.3	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)		28.6			26.9		4.8	8.8	0.1	4.8	8.3	
LOS		C			C		A	A	A	A	A	
Approach Delay (s/veh)		28.6			26.9			7.9			8.2	
Approach LOS		C			C			A			A	
Intersection Summary												
Area Type:	Other											
Cycle Length: 87												
Actuated Cycle Length: 65.3												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.53												
Intersection Signal Delay (s/veh): 12.8												
Intersection Capacity Utilization 55.0%												
Analysis Period (min) 15												
Intersection LOS: B												
ICU Level of Service A												

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	126	97	26	297	25	16	343
v/c Ratio	0.53	0.42	0.05	0.30	0.03	0.03	0.20
Control Delay (s/veh)	28.6	26.9	4.8	8.8	0.1	4.8	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.6	26.9	4.8	8.8	0.1	4.8	8.3
Queue Length 50th (m)	9.7	7.8	0.8	12.4	0.0	0.5	6.4
Queue Length 95th (m)	27.5	22.6	3.7	43.5	0.0	2.6	21.7
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	465	467	608	1006	768	692	1702
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.21	0.04	0.30	0.03	0.02	0.20

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Volume (vph)	15	18	47	68	10	23	58	225	107	33	280	9
Future Volume (vph)	15	18	47	68	10	23	58	225	107	33	280	9
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					0.99		1.00	1.00		1.00	1.00	
Frt			0.850		0.896			0.952			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	3072	1337	0	1583	2859	0	1524	2929	0
Flt Permitted	0.336			0.744			0.536			0.536		
Satd. Flow (perm)	571	1800	1417	2406	1337	0	893	2859	0	859	2929	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		25			56			2	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	1					1	1		1	1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	9%	2%	10%	1%	6%	10%	0%
Adj. Flow (vph)	16	20	51	74	11	25	63	245	116	36	304	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	20	51	74	36	0	63	361	0	36	314	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt
Protected Phases	3	3	3	3	3	3	3	3	3	3	3	3
Permitted Phases	3	3	3	4	4	4	2	2	2	6	6	6
Detector Phase	3	3	3	4	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	7.0	31.0	31.0	7.0	31.0	31.0
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0	37.0	11.0	37.5	37.5	11.0	37.5	37.5
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%	29.6%	11.1%	29.6%	29.6%	11.1%	29.6%	29.6%
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.0	33.5	33.5	11.0	33.5	33.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0	23.0	22.0	22.0	22.0	20.0	20.0	20.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	15.0	15.0	15.0	10.7	10.7	10.7	49.7	44.5	44.5	47.8	41.7	41.7
Actuated g/C Ratio	0.18	0.18	0.18	0.13	0.13	0.13	0.59	0.53	0.53	0.57	0.50	0.50
v/c Ratio	0.16	0.06	0.15	0.24	0.19	0.19	0.11	0.23	0.23	0.07	0.22	0.22
Control Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	23.2	12.3	16.0	16.0	12.2	20.2	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	23.2	12.3	16.0	16.0	12.2	20.2	20.2
LOS	C	C	A	D	C	C	B	B	B	B	C	C
Approach Delay (s/veh)	14.0	14.0	14.0	35.1	35.1	35.1	15.5	15.5	15.5	19.4	19.4	19.4
Approach LOS	B	B	B	D	D	D	B	B	B	B	B	B

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 84

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.24

Intersection Signal Delay (s/veh): 19.0

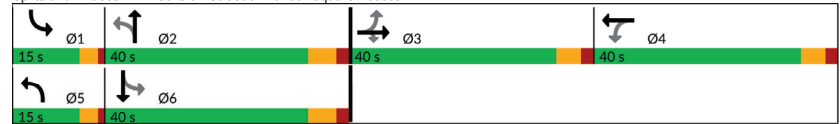
Intersection LOS: B

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	16	20	51	74	36	63	361	36	314
v/c Ratio	0.16	0.06	0.15	0.24	0.19	0.11	0.23	0.07	0.22
Control Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	12.3	16.0	12.2	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	34.9	30.8	0.9	40.9	23.2	12.3	16.0	12.2	20.2
Queue Length 50th (m)	2.4	2.9	0.0	5.7	1.6	4.5	17.3	2.5	17.7
Queue Length 95th (m)	8.3	8.9	0.0	14.2	11.6	13.9	36.3	9.1	36.9
Internal Link Dist (m)	67.3	67.3	67.3	53.0	53.0	51.7	205.0	205.0	205.0
Turn Bay Length (m)	140.0	140.0	140.0	140.0	140.0	140.0	115.0	115.0	115.0
Base Capacity (vph)	242	763	663	1020	581	637	1539	607	1454
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.08	0.07	0.06	0.10	0.23	0.06	0.22

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
3: St. Clair Street & Northerly RIRO

2040 Background AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Volume (vph)	0	1	0	450	440	0
Future Volume (vph)	0	1	0	450	440	0
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1470	0	3167	3076	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3167	3076	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	8%	5%	0%
Adj. Flow (vph)	0	1	0	489	478	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1	0	489	478	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
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					

HCM 7th TWSC
3: St. Clair Street & Northerly RIRO

2040 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	1	0	450	440	0
Future Vol, veh/h	0	1	0	450	440	0
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	8	5	0
Mvmt Flow	0	1	0	489	478	0
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	240	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	767	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	766	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.7	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	766	-	-	-	-
HCM Lane V/C Ratio	-	0.001	-	-	-	-
HCM Control Delay (s/veh)	-	9.7	-	-	-	-
HCM Lane LOS	-	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0	-	-	-	-

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	452	429	11
Future Volume (vph)	0	8	0	452	429	11
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.996	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3257	3012	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3257	3012	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	7%	0%
Adj. Flow (vph)	0	9	0	491	466	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	9	0	491	478	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
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					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	0	452	429	11
Future Vol, veh/h	0	8	0	452	429	11
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	5	7	0
Mvmt Flow	0	9	0	491	466	12
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	240	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	767	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	766	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.75	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	766	-	-		
HCM Lane V/C Ratio	-	0.011	-	-		
HCM Control Delay (s/veh)	-	9.8	-	-		
HCM Lane LOS	-	A	-	-		
HCM 95th %tile Q(veh)	-	0	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	15	7	31	100	12	6	45	415	149	12	413	4
Future Volume (vph)	15	7	31	100	12	6	45	415	149	12	413	4
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.947				0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1538	1430	0	1615	3257	1389	1495	3017	0
Flt Permitted	0.744			0.466			0.459			0.491		
Satd. Flow (perm)	1265	1800	1445	754	1430	0	780	3257	1389	773	3017	0
Right Turn on Red			Yes		Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			114		7				138		1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	0%	17%	0%	5%	4%	8%	7%	0%
Adj. Flow (vph)	16	8	34	109	13	7	49	451	162	13	449	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	8	34	109	20	0	49	451	162	13	453	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	13.1	10.3	10.3	18.3	16.3		48.0	45.8	45.8	46.2	41.7	
Actuated g/C Ratio	0.18	0.14	0.14	0.25	0.23		0.66	0.63	0.63	0.64	0.58	
v/c Ratio	0.06	0.03	0.11	0.36	0.06		0.08	0.22	0.17	0.02	0.26	
Control Delay (s/veh)	20.2	32.0	0.7	24.5	20.3		7.4	10.1	4.0	7.5	13.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	20.2	32.0	0.7	24.5	20.3		7.4	10.1	4.0	7.5	13.6	
LOS	C	C	A	C	C		A	B	A	A	B	
Approach Delay (s/veh)		10.4			23.8			8.4			13.5	
Approach LOS		B			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 72.2

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.36

Intersection Signal Delay (s/veh): 11.8

Intersection LOS: B

Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access

↰	Ø1	↱	Ø2	↰	Ø3	↱	Ø4
15 s		40 s		15 s		40 s	
↰	Ø5	↱	Ø6	↰	Ø7	↱	Ø8
15 s		40 s		15 s		40 s	

PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	16	8	34	109	20	49	451	162	13	453
v/c Ratio	0.06	0.03	0.11	0.36	0.06	0.08	0.22	0.17	0.02	0.26
Control Delay (s/veh)	20.2	32.0	0.7	24.5	20.3	7.4	10.1	4.0	7.5	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.2	32.0	0.7	24.5	20.3	7.4	10.1	4.0	7.5	13.6
Queue Length 50th (m)	1.7	1.1	0.0	12.1	1.4	3.0	17.7	1.6	0.8	24.5
Queue Length 95th (m)	5.9	5.0	0.0	24.3	7.5	7.2	34.9	12.9	2.9	36.3
Internal Link Dist (m)	43.3			29.1			876.2			85.2
Turn Bay Length (m)						160.0			25.0	25.0
Base Capacity (vph)	355	898	778	324	716	656	2065	931	631	1741
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.04	0.34	0.03	0.07	0.22	0.17	0.02	0.26

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2040 Background AM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	35	31	31	44	162	17	532	24	90	513	48
Future Volume (vph)	105	35	31	31	44	162	17	532	24	90	513	48
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99		1.00	1.00		1.00	1.00	
Frt		0.929			0.882			0.994			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1486	0	1615	1364	0	1615	3089	0	1583	2990	0
Flt Permitted	0.315			0.710			0.419			0.342		
Satd. Flow (perm)	519	1486	0	1207	1364	0	711	3089	0	569	2990	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			163			5			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	3					3	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	3%	2%	0%	4%	0%	2%	7%	0%
Adj. Flow (vph)	114	38	34	34	48	176	18	578	26	98	558	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	114	72	0	34	224	0	18	604	0	98	610	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2040 Background AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	28.0	19.7		22.0	12.4		46.9	39.4		50.6	45.0	
Actuated g/C Ratio	0.32	0.22		0.25	0.14		0.54	0.45		0.58	0.51	
v/c Ratio	0.40	0.20		0.10	0.67		0.04	0.43		0.23	0.40	
Control Delay (s/veh)	26.9	21.0		22.2	22.6		9.3	19.3		10.3	15.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	26.9	21.0		22.2	22.6		9.3	19.3		10.3	15.5	
LOS	C	C		C	C		A	B		B	B	
Approach Delay (s/veh)		24.6			22.5			19.0			14.7	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 87.6

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.67

Intersection Signal Delay (s/veh): 18.4

Intersection LOS: B

Intersection Capacity Utilization 74.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2040 Background AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	114	72	34	224	18	604	98	610
v/c Ratio	0.40	0.20	0.10	0.67	0.04	0.43	0.23	0.40
Control Delay (s/veh)	26.9	21.0	22.2	22.6	9.3	19.3	10.3	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	26.9	21.0	22.2	22.6	9.3	19.3	10.3	15.5
Queue Length 50th (m)	14.2	5.6	4.0	9.6	1.1	35.1	6.3	25.7
Queue Length 95th (m)	27.5	17.5	10.6	33.4	4.5	61.6	16.1	58.3
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	299	518	405	563	520	1390	460	1539
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.14	0.08	0.40	0.03	0.43	0.21	0.40

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2040 Background AM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	1	0	1	0
Future Volume (vph)	0	0	1	0	1	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	800	0	1425	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	800	0	1425	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	100%	0%	0%	0%
Adj. Flow (vph)	0	0	1	0	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	1	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2040 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	1	0	1	0
Future Vol, veh/h	0	0	1	0	1	0
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	0	100	0	0	0
Mvmt Flow	0	0	1	0	1	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1	0	- 0 1 1
Stage 1	-	-	- - 1 -
Stage 2	-	-	- - 0 -
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	1635	-	- - 1027 1089
Stage 1	-	-	- - 1027 -
Stage 2	-	-	- - - -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1635	-	- - 1027 1089
Mov Cap-2 Maneuver	-	-	- - 1027 -
Stage 1	-	-	- - 1027 -
Stage 2	-	-	- - - -

Approach	EB	WB	SB
HCM Control Delay, s/v	0	0	8.51
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1635	-	-	-	1027
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s/veh)	0	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2040 Background AM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr						
Flt Protected						
Satd. Flow (prot)	1600	0	0	1600	1500	0
Flt Permitted						
Satd. Flow (perm)	1600	0	0	1600	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	0.0%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2040 Background AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗ ↖ ↗ ↖					
Traffic Vol, veh/h	0	0	0	0	0	0
Future Vol, veh/h	0	0	0	0	0	0
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	0	0	0	0	0
Mvmt Flow	0	0	0	0	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	2	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	1	-
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	-	-	1635	-	1026	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1027	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1026	1089
Mov Cap-2 Maneuver	-	-	-	-	1026	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1027	-
Approach	EB		WB		NB	
HCM Control Delay, s/v	0		0		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1635	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s/veh)	0	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	112	58	31	71	24	90	336	82	31	366	79
Future Volume (vph)	47	112	58	31	71	24	90	336	82	31	366	79
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.964			0.974				0.850		0.973	
Flt Protected		0.989			0.988		0.950			0.950		
Satd. Flow (prot)	0	1388	0	0	1414	0	1583	1765	1445	1553	3090	0
Flt Permitted		0.908			0.861		0.424			0.544		
Satd. Flow (perm)	0	1275	0	0	1232	0	707	1765	1445	889	3090	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			14				89		35	
Link Speed (k/h)		60			60				60		60	
Link Distance (m)		145.1			185.2				229.0		235.8	
Travel Time (s)		8.7			11.1				13.7		14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	1%	2%	0%	0%	11%	2%	2%	0%	4%	1%	5%
Adj. Flow (vph)	51	122	63	34	77	26	98	365	89	34	398	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	236	0	0	137	0	98	365	89	34	484	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0				3.6		3.6	
Link Offset(m)		0.0			0.0				0.0		0.0	
Crosswalk Width(m)		4.9			4.9				4.9		4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	17.6			17.6			46.6	41.2	41.2	42.6	35.7	
Actuated g/C Ratio	0.23			0.23			0.62	0.55	0.55	0.57	0.48	
v/c Ratio	0.75			0.46			0.18	0.38	0.11	0.06	0.32	
Control Delay (s/veh)	40.2			27.8			7.5	13.6	3.8	7.1	14.0	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	40.2			27.8			7.5	13.6	3.8	7.1	14.0	
LOS	D			C			A	B	A	A	B	
Approach Delay (s/veh)	40.2			27.8			11.0				13.5	
Approach LOS	D			C			B				B	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 75

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 18.3

Intersection LOS: B

Intersection Capacity Utilization 67.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	236	137	98	365	89	34	484
v/c Ratio	0.75	0.46	0.18	0.38	0.11	0.06	0.32
Control Delay (s/veh)	40.2	27.8	7.5	13.6	3.8	7.1	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.2	27.8	7.5	13.6	3.8	7.1	14.0
Queue Length 50th (m)	29.3	15.3	4.9	23.6	0.0	1.6	21.2
Queue Length 95th (m)	54.6	31.7	12.7	64.5	7.7	5.6	38.5
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	447	428	575	970	834	646	1490
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.32	0.17	0.38	0.11	0.05	0.32

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	
Traffic Volume (vph)	22	33	66	175	35	59	76	369	149	54	386	18
Future Volume (vph)	22	33	66	175	35	59	76	369	149	54	386	18
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.906			0.957			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1748	1417	3102	1450	0	1615	3039	0	1615	3147	0
Flt Permitted	0.256			0.734			0.460			0.386		
Satd. Flow (perm)	435	1748	1398	2391	1450	0	782	3039	0	656	3147	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		60			43			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	1%	0%	0%	0%	2%	1%	0%	2%	0%
Adj. Flow (vph)	24	36	72	190	38	64	83	401	162	59	420	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	36	72	190	102	0	83	563	0	59	440	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	NA	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	18.9	18.9	18.9	14.0	14.0		45.7	36.4		44.7	35.9	
Actuated g/C Ratio	0.20	0.20	0.20	0.15	0.15		0.49	0.39		0.48	0.39	
v/c Ratio	0.27	0.10	0.19	0.53	0.38		0.18	0.46		0.15	0.36	
Control Delay (s/veh)	42.0	32.8	3.3	46.7	25.1		17.5	25.9		17.4	26.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	42.0	32.8	3.3	46.7	25.1		17.5	25.9		17.4	26.9	
LOS	D	C	A	D	C		B	C		B	C	
Approach Delay (s/veh)		18.4			39.1			24.9			25.8	
Approach LOS		B			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 92.9

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay (s/veh): 27.3

Intersection LOS: C

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	24	36	72	190	102	83	563	59	440
v/c Ratio	0.27	0.10	0.19	0.53	0.38	0.18	0.46	0.15	0.36
Control Delay (s/veh)	42.0	32.8	3.3	46.7	25.1	17.5	25.9	17.4	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.0	32.8	3.3	46.7	25.1	17.5	25.9	17.4	26.9
Queue Length 50th (m)	3.8	5.6	0.0	17.1	7.0	7.6	38.5	5.3	31.4
Queue Length 95th (m)	12.0	14.4	4.1	33.1	25.1	21.9	75.5	16.5	61.5
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	170	685	614	938	605	503	1217	451	1218
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.05	0.12	0.20	0.17	0.17	0.46	0.13	0.36

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
3: St. Clair Street & Northerly RIRO

2040 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖	↖	↗
Traffic Volume (vph)	0	20	0	653	682	3
Future Volume (vph)	0	20	0	653	682	3
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Fr _t		0.865		0.999		
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3195	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3195	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	22	0	710	741	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	0	710	744	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
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						

HCM 7th TWSC
3: St. Clair Street & Northerly RIRO

2040 Background PM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖↗	↖↗	
Traffic Vol, veh/h	0	20	0	653	682	3
Future Vol, veh/h	0	20	0	653	682	3
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, %	0	0	0	1	1	0
Mvmt Flow	0	22	0	710	741	3
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 372	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 631	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	- 631	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v10.91		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	631	-	-		
HCM Lane V/C Ratio	-	0.034	-	-		
HCM Control Delay (s/veh)	-	10.9	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	  	
Traffic Volume (vph)	0	11	0	721	684	4
Future Volume (vph)	0	11	0	721	684	4
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.999	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3353	3195	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3353	3195	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	12	0	784	743	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	12	0	784	747	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.3%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖↗	↖↗	
Traffic Vol, veh/h	0	11	0	721	684	4
Future Vol, veh/h	0	11	0	721	684	4
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	2	1	0
Mvmt Flow	0	12	0	784	743	4
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	377	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	626	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	625	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s/v10.88			0		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT EBLn1		SBT		SBR	
Capacity (veh/h)	- 625		-		-	
HCM Lane V/C Ratio	- 0.019		-		-	
HCM Control Delay (s/veh)	- 10.9		-		-	
HCM Lane LOS	- B		-		-	
HCM 95th %tile Q(veh)	- 0.1		-		-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↱	↰	↱	↱	↰	↱	↱	↰	↱	↱
Traffic Volume (vph)	10	6	63	285	11	14	92	635	241	12	713	10
Future Volume (vph)	10	6	63	285	11	14	92	635	241	12	713	10
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	160.0		25.0	25.0	0.0
Storage Lanes	1		1	1			0	1		1	1	0
Taper Length (m)	7.6			7.6				100.0			65.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00		0.99		1.00		0.97	1.00	1.00
Frt			0.850			0.917				0.850		0.998
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	1599	1454	0	1615	3386	1445	1495	3160	0
Flt Permitted	0.740			0.528			0.254			0.389		
Satd. Flow (perm)	1254	1800	1395	885	1454	0	431	3386	1407	611	3160	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			114		15				146		1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Confl. Peds. (#/hr)	3		3	3		3	2		3	3		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	1%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	11	7	68	310	12	15	100	690	262	13	775	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	7	68	310	27	0	100	690	262	13	786	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.4	10.3	10.3	22.5	19.5		46.5	42.1	42.1	42.2	34.4	
Actuated g/C Ratio	0.20	0.13	0.13	0.29	0.25		0.60	0.54	0.54	0.55	0.44	
v/c Ratio	0.04	0.03	0.24	0.86	0.07		0.26	0.38	0.32	0.03	0.56	
Control Delay (s/veh)	20.9	33.0	4.2	49.5	17.3		9.2	12.3	6.7	7.5	20.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	20.9	33.0	4.2	49.5	17.3		9.2	12.3	6.7	7.5	20.0	
LOS	C	C	A	D	B		A	B	A	A	C	
Approach Delay (s/veh)		8.7			46.9			10.6			19.8	
Approach LOS		A			D			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay (s/veh): 19.1

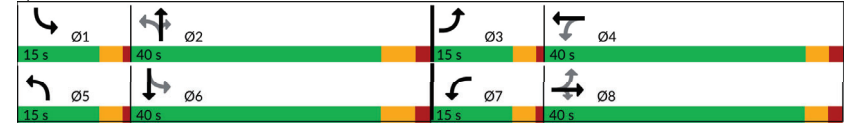
Intersection LOS: B

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	7	68	310	27	100	690	262	13	786
v/c Ratio	0.04	0.03	0.24	0.86	0.07	0.26	0.38	0.32	0.03	0.56
Control Delay (s/veh)	20.9	33.0	4.2	49.5	17.3	9.2	12.3	6.7	7.5	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	20.9	33.0	4.2	49.5	17.3	9.2	12.3	6.7	7.5	20.0
Queue Length 50th (m)	1.2	1.0	0.0	41.1	1.3	6.3	29.4	8.1	0.8	50.0
Queue Length 95th (m)	4.7	4.7	4.0	#90.0	8.5	12.5	54.4	27.4	2.9	70.0
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	369	836	709	361	683	432	1840	831	486	1406
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.10	0.86	0.04	0.23	0.38	0.32	0.03	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2040 Background PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	180	97	35	40	57	223	42	844	30	198	875	117
Future Volume (vph)	180	97	35	40	57	223	42	844	30	198	875	117
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0		25.0		7.5		40.0					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00			1.00		1.00
Frt	0.960			0.881			0.995			0.982		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1454	0	1568	1373	0	1568	3150	0	1615	3103	0
Flt Permitted	0.199			0.666			0.184			0.159		
Satd. Flow (perm)	334	1454	0	1094	1373	0	304	3150	0	270	3103	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)	16			173			4			15		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	196	105	38	43	62	242	46	917	33	215	951	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	196	143	0	43	304	0	46	950	0	215	1078	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	3.6			3.6			3.6			3.6		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.9			4.9			4.9			4.9		
Two way Left Turn Lane							Yes					
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)	28.7			28.7			28.7			28.7		
Detector 2 Size(m)	1.8			1.8			1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0			0.0			0.0		

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2040 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	33.1	24.7		26.7	16.8		48.7	39.1		55.6	47.2	
Actuated g/C Ratio	0.34	0.25		0.27	0.17		0.50	0.40		0.57	0.48	
v/c Ratio	0.77	0.38		0.13	0.80		0.19	0.75		0.71	0.72	
Control Delay (s/veh)	45.8	31.4		21.8	32.8		13.3	31.1		27.8	26.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	45.8	31.4		21.8	32.8		13.3	31.1		27.8	26.1	
LOS	D	C		C	C		B	C		C	C	
Approach Delay (s/veh)		39.7			31.5			30.3			26.4	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 97.9

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.80

Intersection Signal Delay (s/veh): 29.8

Intersection LOS: C

Intersection Capacity Utilization 90.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2040 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	196	143	43	304	46	950	215	1078
v/c Ratio	0.77	0.38	0.13	0.80	0.19	0.75	0.71	0.72
Control Delay (s/veh)	45.8	31.4	21.8	32.8	13.3	31.1	27.8	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.8	31.4	21.8	32.8	13.3	31.1	27.8	26.1
Queue Length 50th (m)	27.4	21.0	5.4	23.9	3.5	78.1	18.2	86.4
Queue Length 95th (m)	#51.1	39.2	12.4	53.6	10.6	124.0	#57.9	#155.0
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	255	445	388	529	305	1260	305	1503
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.32	0.11	0.57	0.15	0.75	0.70	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2040 Background PM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	3	3	11	0
Future Volume (vph)	0	3	3	3	11	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.932			
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	1491	0	1208	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	1491	0	1208	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	18%	0%
Adj. Flow (vph)	0	3	3	3	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	6	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2040 Background PM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	3	3	11	0
Future Vol, veh/h	0	3	3	3	11	0
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	0	0	0	18	0
Mvmt Flow	0	3	3	3	12	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	7	0	-	0	8	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	3	-
Critical Hdwy	4.1	-	-	-	6.58	6.2
Critical Hdwy Stg 1	-	-	-	-	5.58	-
Critical Hdwy Stg 2	-	-	-	-	5.58	-
Follow-up Hdwy	2.2	-	-	-	3.662	3.3
Pot Cap-1 Maneuver	1627	-	-	-	973	1084
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	980	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1627	-	-	-	973	1084
Mov Cap-2 Maneuver	-	-	-	-	973	-
Stage 1	-	-	-	-	978	-
Stage 2	-	-	-	-	980	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.75		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1627	-	-	-	973	
HCM Lane V/C Ratio	-	-	-	-	0.012	
HCM Control Delay (s/veh)	0	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2040 Background PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Volume (vph)	1	0	1	1	0	0
Future Volume (vph)	1	0	1	1	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected				0.976		
Satd. Flow (prot)	1600	0	0	1562	1500	0
Flt Permitted				0.976		
Satd. Flow (perm)	1600	0	0	1562	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	1	1	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	2	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

PTSL

Synchro 12 Report

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2040 Background PM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↶	↷
Traffic Vol, veh/h	1	0	1	1	0	0
Future Vol, veh/h	1	0	1	1	0	0
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	0	0	0	0	0
Mvmt Flow	1	0	1	1	0	0
Major/Minor						
Major1	Major2		Minor1			
Conflicting Flow All	0	0	1	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	-	-	1635	-	1023	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1022	1089
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1024	-
Approach						
EB	WB		NB			
HCM Control Delay, s/v	0	3.6	0			
HCM LOS			A			
Minor Lane/Major Mvmt						
NBLn1	EBT	EBR	WBL	WBT		
Capacity (veh/h)	-	-	-	900	-	-
HCM Lane V/C Ratio	-	-	-	0.001	-	-
HCM Control Delay (s/veh)	0	-	-	7.2	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	-	-	-	0	-	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	104	98	63	54	15	108	240	105	16	260	43
Future Volume (vph)	40	104	98	63	54	15	108	240	105	16	260	43
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.945			0.985				0.850		0.979	
Flt Protected		0.992			0.977		0.950			0.950		
Satd. Flow (prot)	0	1406	0	0	1430	0	1615	1782	1445	1495	3109	0
Flt Permitted		0.929			0.612		0.500			0.598		
Satd. Flow (perm)	0	1317	0	0	896	0	850	1782	1445	941	3109	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			7				114		26	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	43	113	107	68	59	16	117	261	114	17	283	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	263	0	0	143	0	117	261	114	17	330	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	17.8			17.8			47.9	44.0	44.0	42.4	35.8	
Actuated g/C Ratio	0.23			0.23			0.63	0.58	0.58	0.56	0.47	
v/c Ratio	0.78			0.67			0.19	0.25	0.13	0.03	0.22	
Control Delay (s/veh)	39.8			41.7			7.4	10.6	3.0	7.1	13.6	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	39.8			41.7			7.4	10.6	3.0	7.1	13.6	
LOS	D			D			A	B	A	A	B	
Approach Delay (s/veh)	39.8			41.7			8.1				13.3	
Approach LOS	D			D			A				B	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 75.9

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.78

Intersection Signal Delay (s/veh): 20.1

Intersection LOS: C

Intersection Capacity Utilization 70.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	263	143	117	261	114	17	330
v/c Ratio	0.78	0.67	0.19	0.25	0.13	0.03	0.22
Control Delay (s/veh)	39.8	41.7	7.4	10.6	3.0	7.1	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.8	41.7	7.4	10.6	3.0	7.1	13.6
Queue Length 50th (m)	31.0	18.3	6.0	15.9	0.0	0.8	13.9
Queue Length 95th (m)	58.5	38.2	14.6	43.8	8.5	3.5	26.5
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	469	306	649	1032	884	654	1479
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.47	0.18	0.25	0.13	0.03	0.22
Intersection Summary							

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↗		↖	↗	
Traffic Volume (vph)	38	70	143	296	47	79	162	304	196	50	271	15
Future Volume (vph)	38	70	143	296	47	79	162	304	196	50	271	15
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00	0.99							
Frt			0.850		0.906			0.941			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	3133	1427	0	1615	3039	0	1615	3204	0
Flt Permitted	0.137			0.708			0.477			0.391		
Satd. Flow (perm)	233	1800	1426	2330	1427	0	811	3039	0	665	3204	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		60			103			4	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	2		1	1		2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	41	76	155	322	51	86	176	330	213	54	295	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	76	155	322	137	0	176	543	0	54	311	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	29.1	29.1	29.1	22.0	22.0		49.9	39.0		44.9	34.0	
Actuated g/C Ratio	0.25	0.25	0.25	0.19	0.19		0.42	0.33		0.38	0.29	
v/c Ratio	0.72	0.17	0.33	0.74	0.44		0.43	0.51		0.17	0.34	
Control Delay (s/veh)	103.2	37.2	7.8	57.3	29.3		28.5	30.9		25.2	36.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	103.2	37.2	7.8	57.3	29.3		28.5	30.9		25.2	36.6	
LOS	F	D	A	E	C		C	C		C	D	
Approach Delay (s/veh)		30.4			48.9			30.3			35.0	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 118.6

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.74

Intersection Signal Delay (s/veh): 36.0

Intersection LOS: D

Intersection Capacity Utilization 72.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	76	155	322	137	176	543	54	311
v/c Ratio	0.72	0.17	0.33	0.74	0.44	0.43	0.51	0.17	0.34
Control Delay (s/veh)	103.2	37.2	7.8	57.3	29.3	28.5	30.9	25.2	36.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	103.2	37.2	7.8	57.3	29.3	28.5	30.9	25.2	36.6
Queue Length 50th (m)	8.7	13.9	0.0	38.6	16.3	27.6	47.0	7.8	31.5
Queue Length 95th (m)	#30.5	28.8	16.8	54.2	35.2	49.7	74.2	17.9	48.9
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	67	523	524	677	457	417	1068	356	920
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.15	0.30	0.48	0.30	0.42	0.51	0.15	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	16	0	818	848	2
Future Volume (vph)	0	16	0	818	848	2
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3198	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3198	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	17	0	889	922	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	17	0	889	924	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	36.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	16	0	818	848	2
Future Vol, veh/h	0	16	0	818	848	2
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	17	0	889	922	2
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 463	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 551	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	- 551	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach						
	EB	NB		SB		
HCM Control Delay, s/v11.75		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	551	-	-		
HCM Lane V/C Ratio	-	0.032	-	-		
HCM Control Delay (s/veh)	-	11.8	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	  	
Traffic Volume (vph)	0	26	0	857	841	29
Future Volume (vph)	0	26	0	857	841	29
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.995	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3420	3214	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3420	3214	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	28	0	932	914	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	28	0	932	946	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	26	0	857	841	29
Future Vol, veh/h	0	26	0	857	841	29
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	0	0	0
Mvmt Flow	0	28	0	932	914	32
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	-	476	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	541	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	539	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v12.05		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	539	-	-		
HCM Lane V/C Ratio	-	0.052	-	-		
HCM Control Delay (s/veh)	-	12	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	21	11	67	350	27	28	105	775	421	46	759	13
Future Volume (vph)	21	11	67	350	27	28	105	775	421	46	759	13
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00					0.99			0.97	1.00		
Frt			0.850		0.924				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1599	1466	0	1615	3386	1431	1553	3189	0
Flt Permitted	0.719			0.514			0.237			0.286		
Satd. Flow (perm)	1217	1800	1445	865	1466	0	403	3386	1393	467	3189	0
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			114		30			209			2	
Link Speed (k/h)		50			50		60			60		
Link Distance (m)		67.3			53.1		900.2			109.2		
Travel Time (s)		4.8			3.8		54.0			6.6		
Confl. Peds. (#/hr)	4				4			3	3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	4%	1%	0%	0%
Adj. Flow (vph)	23	12	73	380	29	30	114	842	458	50	825	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	12	73	380	59	0	114	842	458	50	839	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.5	10.3	10.3	22.4	17.3		45.6	37.8	37.8	42.4	34.4	
Actuated g/C Ratio	0.20	0.13	0.13	0.29	0.22		0.59	0.49	0.49	0.55	0.44	
v/c Ratio	0.08	0.05	0.25	1.06	0.17		0.31	0.51	0.58	0.14	0.59	
Control Delay (s/veh)	21.4	33.5	4.9	94.4	18.6		9.8	16.9	12.7	8.4	20.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	21.4	33.5	4.9	94.4	18.6		9.8	16.9	12.7	8.4	20.6	
LOS	C	C	A	F	B		A	B	B	A	C	
Approach Delay (s/veh)		11.5			84.2			15.0			19.9	
Approach LOS		B			F			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 77.4

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.06

Intersection Signal Delay (s/veh): 27.0

Intersection LOS: C

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	12	73	380	59	114	842	458	50	839
v/c Ratio	0.08	0.05	0.25	1.06	0.17	0.31	0.51	0.58	0.14	0.59
Control Delay (s/veh)	21.4	33.5	4.9	94.4	18.6	9.8	16.9	12.7	8.4	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.4	33.5	4.9	94.4	18.6	9.8	16.9	12.7	8.4	20.6
Queue Length 50th (m)	2.5	1.7	0.0	~54.7	3.2	7.3	51.6	28.6	3.1	54.0
Queue Length 95th (m)	7.8	6.5	5.2	#93.7	14.3	13.9	70.4	61.2	7.2	76.5
Internal Link Dist (m)	43.3			29.1			876.2			85.2
Turn Bay Length (m)					160.0			25.0	25.0	
Base Capacity (vph)	365	836	732	357	697	419	1653	787	431	1419
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.01	0.10	1.06	0.08	0.27	0.51	0.58	0.12	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2040 Background SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	190	47	34	47	20	307	24	1071	35	190	1004	151
Future Volume (vph)	190	47	34	47	20	307	24	1071	35	190	1004	151
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	0.98			1.00		1.00		1.00
Frt		0.937			0.859			0.995				0.980
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1430	0	1568	1337	0	1568	3150	0	1615	3096	0
Flt Permitted	0.189			0.700			0.141			0.088		
Satd. Flow (perm)	317	1430	0	1149	1337	0	233	3150	0	150	3096	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			239			3			17	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	207	51	37	51	22	334	26	1164	38	207	1091	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	88	0	51	356	0	26	1202	0	207	1255	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2040 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	32.6	21.8		26.4	16.3		48.4	39.1		56.2	50.0	
Actuated g/C Ratio	0.33	0.22		0.27	0.17		0.49	0.40		0.57	0.51	
v/c Ratio	0.83	0.26		0.15	0.85		0.12	0.95		0.82	0.79	
Control Delay (s/veh)	52.4	23.7		22.2	31.6		12.8	46.6		48.9	26.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	52.4	23.7		22.2	31.6		12.8	46.6		48.9	26.9	
LOS	D	C		C	C		B	D		D	C	
Approach Delay (s/veh)		43.8			30.4			45.9			30.0	
Approach LOS		D			C			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 97.8

Natural Cycle: 110

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.95

Intersection Signal Delay (s/veh): 37.0

Intersection LOS: D

Intersection Capacity Utilization 99.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2040 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	207	88	51	356	26	1202	207	1255
v/c Ratio	0.83	0.26	0.15	0.85	0.12	0.95	0.82	0.79
Control Delay (s/veh)	52.4	23.7	22.2	31.6	12.8	46.6	48.9	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	52.4	23.7	22.2	31.6	12.8	46.6	48.9	26.9
Queue Length 50th (m)	29.1	8.8	6.5	21.1	1.9	109.2	23.1	82.3
Queue Length 95th (m)	#59.6	21.7	13.9	55.3	7.1	#193.4	#74.9	#195.3
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	250	449	393	565	275	1260	251	1589
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.20	0.13	0.63	0.09	0.95	0.82	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings
7: Northerly RIRO & Staples Access

2040 Background SAT
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	3	3	11	0
Future Volume (vph)	0	3	3	3	11	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr			0.932			
Flt Protected					0.950	
Satd. Flow (prot)	0	1600	1491	0	1425	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1600	1491	0	1425	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		61.6	198.5		50.2	
Travel Time (s)		4.4	14.3		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	3	3	3	12	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	6	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.9	4.9		4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 13.3%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
7: Northerly RIRO & Staples Access

2040 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	3	3	11	0
Future Vol, veh/h	0	3	3	3	11	0
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	0	0	0	0	0
Mvmt Flow	0	3	3	3	12	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	7	0	-	0	8	5
Stage 1	-	-	-	-	5	-
Stage 2	-	-	-	-	3	-
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	1627	-	-	-	1018	1084
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	1627	-	-	-	1018	1084
Mov Cap-2 Maneuver	-	-	-	-	1018	-
Stage 1	-	-	-	-	1023	-
Stage 2	-	-	-	-	1025	-
Approach	EB	WB		SB		
HCM Control Delay, s/v	0	0		8.58		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1627	-	-	-	1018	
HCM Lane V/C Ratio	-	-	-	-	0.012	
HCM Control Delay (s/veh)	0	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Lanes, Volumes, Timings
8: Galaxy Access & St. Clair Centre Access

2040 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (vph)	1	0	1	1	0	0
Future Volume (vph)	1	0	1	1	0	0
Ideal Flow (vphpl)	1600	1600	1600	1600	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected				0.976		
Satd. Flow (prot)	1600	0	0	1562	1500	0
Flt Permitted				0.976		
Satd. Flow (perm)	1600	0	0	1562	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	48.6			122.4	53.3	
Travel Time (s)	3.5			8.8	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	1	0	1	1	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	2	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.35	1.35
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 6.7%	ICU Level of Service A					
Analysis Period (min) 15						

HCM 7th TWSC
8: Galaxy Access & St. Clair Centre Access

2040 Background SAT
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Vol, veh/h	1	0	1	1	0	0
Future Vol, veh/h	1	0	1	1	0	0
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	0	0	0	0	0
Mvmt Flow	1	0	1	1	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	1	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	-	-	1635	-	1023	1089
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1025	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1635	-	1022	1089
Mov Cap-2 Maneuver	-	-	-	-	1022	-
Stage 1	-	-	-	-	1027	-
Stage 2	-	-	-	-	1024	-
Approach	EB	WB		NB		
HCM Control Delay, s/v	0	3.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	900	-	
HCM Lane V/C Ratio	-	-	-	0.001	-	
HCM Control Delay (s/veh)	0	-	-	7.2	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	-	-	-	0	-	

Appendix I

2040 Total Traffic Operations Reports



Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	42	34	34	39	17	24	301	23	15	282	43
Future Volume (vph)	40	42	34	34	39	17	24	301	23	15	282	43
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt	0.960				0.975				0.850		0.980	
Flt Protected	0.983				0.981		0.950			0.950		
Satd. Flow (prot)	0	1322	0	0	1359	0	1380	1682	1225	1482	2984	0
Flt Permitted	0.864				0.855		0.522			0.563		
Satd. Flow (perm)	0	1162	0	0	1184	0	758	1682	1225	878	2984	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			13				88		23	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	13%	8%	4%	3%	15%	17%	7%	18%	9%	7%	0%
Adj. Flow (vph)	43	46	37	37	42	18	26	327	25	16	307	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	97	0	26	327	25	16	354	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	12.2			12.2			42.3	39.1	39.1	41.3	37.1	
Actuated g/C Ratio	0.19			0.19			0.65	0.60	0.60	0.63	0.57	
v/c Ratio	0.53			0.42			0.05	0.33	0.03	0.03	0.21	
Control Delay (s/veh)	28.6			26.9			4.8	9.1	0.1	4.8	8.4	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	28.6			26.9			4.8	9.1	0.1	4.8	8.4	
LOS	C			C			A	A	A	A	A	
Approach Delay (s/veh)	28.6			26.9			8.2				8.3	
Approach LOS	C			C			A				A	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 65.3

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay (s/veh): 12.8

Intersection LOS: B

Intersection Capacity Utilization 55.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	126	97	26	327	25	16	354
v/c Ratio	0.53	0.42	0.05	0.33	0.03	0.03	0.21
Control Delay (s/veh)	28.6	26.9	4.8	9.1	0.1	4.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	28.6	26.9	4.8	9.1	0.1	4.8	8.4
Queue Length 50th (m)	9.7	7.8	0.8	14.0	0.0	0.5	6.7
Queue Length 95th (m)	27.5	22.6	3.7	48.4	0.0	2.6	22.5
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	465	467	604	1006	768	680	1703
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.21	0.04	0.33	0.03	0.02	0.21
Intersection Summary							

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	21	22	47	68	11	23	58	247	107	33	290	9
Future Volume (vph)	21	22	47	68	11	23	58	247	107	33	290	9
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor					0.99		1.00	1.00		1.00	1.00	
Frt			0.850		0.899			0.955			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	3072	1344	0	1583	2864	0	1524	2929	0
Flt Permitted	0.268			0.742			0.528			0.524		
Satd. Flow (perm)	456	1800	1417	2399	1344	0	879	2864	0	840	2929	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		25			48			2	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	1					1	1		1	1		1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	9%	2%	10%	1%	6%	10%	0%
Adj. Flow (vph)	23	24	51	74	12	25	63	268	116	36	315	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	24	51	74	37	0	63	384	0	36	325	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Total AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt
Protected Phases	3	3	3	3	3	3	3	3	3	3	3	3
Permitted Phases	3	3	3	4	4	4	2	2	2	6	6	6
Detector Phase	3	3	3	4	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	7.0	31.0	31.0	7.0	31.0	31.0
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0	37.0	11.0	37.5	37.5	11.0	37.5	37.5
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	15.0	40.0	40.0	15.0	40.0	40.0
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%	29.6%	11.1%	29.6%	29.6%	11.1%	29.6%	29.6%
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0	34.0	11.0	33.5	33.5	11.0	33.5	33.5
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.5	4.5	3.0	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	6.5	6.5	4.0	6.5	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Walk Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0	23.0	22.0	22.0	22.0	20.0	20.0	20.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	18.1	18.1	18.1	10.8	10.8	10.8	50.5	45.3	45.3	48.5	42.4	42.4
Actuated g/C Ratio	0.21	0.21	0.21	0.12	0.12	0.12	0.58	0.52	0.52	0.55	0.48	0.48
v/c Ratio	0.24	0.06	0.13	0.25	0.20	0.20	0.11	0.26	0.26	0.07	0.23	0.23
Control Delay (s/veh)	37.3	29.3	0.7	43.8	25.1	25.1	14.4	18.7	18.7	14.5	22.6	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	29.3	0.7	43.8	25.1	25.1	14.4	18.7	18.7	14.5	22.6	22.6
LOS	D	C	A	D	C	C	B	B	B	B	C	C
Approach Delay (s/veh)	16.3	16.3	16.3	37.6	37.6	37.6	18.1	18.1	18.1	21.8	21.8	21.8
Approach LOS	B	B	B	D	D	D	B	B	B	C	C	C

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 87.7

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.26

Intersection Signal Delay (s/veh): 21.4

Intersection LOS: C

Intersection Capacity Utilization 57.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2040 Total AM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	23	24	51	74	37	63	384	36	325
v/c Ratio	0.24	0.06	0.13	0.25	0.20	0.11	0.26	0.07	0.23
Control Delay (s/veh)	37.3	29.3	0.7	43.8	25.1	14.4	18.7	14.5	22.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.3	29.3	0.7	43.8	25.1	14.4	18.7	14.5	22.6
Queue Length 50th (m)	3.5	3.5	0.0	6.1	1.9	5.1	21.1	2.9	20.3
Queue Length 95th (m)	10.7	9.9	0.0	15.1	12.5	15.6	43.7	10.3	41.8
Internal Link Dist (m)	67.3	67.3	67.3	53.0	53.0	51.7	205.0	205.0	205.0
Turn Bay Length (m)	187	739	646	985	567	611	1501	580	1416
Base Capacity (vph)	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.03	0.08	0.08	0.07	0.10	0.26	0.06	0.23

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	21	0	472	443	7
Future Volume (vph)	0	21	0	472	443	7
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.998	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3167	3072	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3167	3072	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	8%	5%	0%
Adj. Flow (vph)	0	23	0	513	482	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	0	513	490	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.9%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	21	0	472	443	7
Future Vol, veh/h	0	21	0	472	443	7
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	8	5	0
Mvmt Flow	0	23	0	513	482	8
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	246	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	761	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	760	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.88	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	760	-	-	-	-
HCM Lane V/C Ratio	-	0.03	-	-	-	-
HCM Control Delay (s/veh)	-	9.9	-	-	-	-
HCM Lane LOS	-	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-	-

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2040 Total AM
770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	18	0	474	451	12
Future Volume (vph)	0	18	0	474	451	12
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.996	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3257	3012	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3257	3012	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	5%	7%	0%
Adj. Flow (vph)	0	20	0	515	490	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	0	515	503	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.4%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2040 Total AM
770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	474	451	12
Future Vol, veh/h	0	18	0	474	451	12
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	5	7	0
Mvmt Flow	0	20	0	515	490	13
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	253	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	753	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	752	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach						
EB	NB		SB			
HCM Control Delay, s/v	9.91	0	0			
HCM LOS	A					
Minor Lane/Major Mvmt						
NBT EBLn1	SBT	SBR				
Capacity (veh/h)	-	752	-	-	-	-
HCM Lane V/C Ratio	-	0.026	-	-	-	-
HCM Control Delay (s/veh)	-	9.9	-	-	-	-
HCM Lane LOS	-	A	-	-	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-	-	-

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	37	17	101	100	16	6	82	415	149	12	443	6
Future Volume (vph)	37	17	101	100	16	6	82	415	149	12	443	6
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt			0.850		0.956				0.850		0.998	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1538	1457	0	1615	3257	1389	1495	3015	0
Flt Permitted	0.742			0.516			0.425			0.491		
Satd. Flow (perm)	1261	1800	1445	835	1457	0	722	3257	1389	773	3015	0
Right Turn on Red			Yes		Yes			Yes		Yes		Yes
Satd. Flow (RTOR)			114		7				138		1	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	5%	0%	17%	0%	5%	4%	8%	7%
Adj. Flow (vph)	40	18	110	109	17	7	89	451	162	13	482	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	18	110	109	24	0	89	451	162	13	489	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	15.8	10.3	10.3	20.7	16.7		50.2	47.7	47.7	46.4	40.4	
Actuated g/C Ratio	0.21	0.13	0.13	0.27	0.22		0.65	0.62	0.62	0.60	0.53	
v/c Ratio	0.14	0.07	0.38	0.35	0.07		0.16	0.22	0.18	0.02	0.31	
Control Delay (s/veh)	21.7	33.5	11.2	24.6	23.8		8.1	10.7	3.9	7.4	16.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	21.7	33.5	11.2	24.6	23.8		8.1	10.7	3.9	7.4	16.3	
LOS	C	C	B	C	C		A	B	A	A	B	
Approach Delay (s/veh)		16.1			24.5			8.8			16.1	
Approach LOS		B			C			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 76.7

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.38

Intersection Signal Delay (s/veh): 13.4

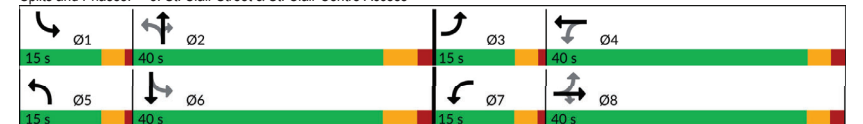
Intersection LOS: B

Intersection Capacity Utilization 60.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	18	110	109	24	89	451	162	13	489
v/c Ratio	0.14	0.07	0.38	0.35	0.07	0.16	0.22	0.18	0.02	0.31
Control Delay (s/veh)	21.7	33.5	11.2	24.6	23.8	8.1	10.7	3.9	7.4	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	21.7	33.5	11.2	24.6	23.8	8.1	10.7	3.9	7.4	16.3
Queue Length 50th (m)	4.3	2.6	0.0	12.4	1.9	5.6	17.7	1.6	0.8	27.5
Queue Length 95th (m)	11.2	8.6	13.2	25.1	8.9	11.4	34.7	12.7	2.9	40.8
Internal Link Dist (m)	43.3				29.1	876.2				85.2
Turn Bay Length (m)						160.0	25.0		25.0	
Base Capacity (vph)	373	843	737	340	686	606	2025	916	603	1588
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.02	0.15	0.32	0.03	0.15	0.22	0.18	0.02	0.31

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	35	31	31	44	165	17	563	24	97	599	55
Future Volume (vph)	108	35	31	31	44	165	17	563	24	97	599	55
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99		1.00	1.00		1.00	1.00	
Frt		0.929			0.882			0.994			0.987	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1568	1486	0	1615	1364	0	1615	3089	0	1583	2990	0
Flt Permitted	0.305			0.710			0.362			0.322		
Satd. Flow (perm)	502	1486	0	1207	1364	0	615	3089	0	536	2990	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			166			4			10	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		157.0			124.1			207.7			900.2	
Travel Time (s)		11.3			8.9			15.0			64.8	
Confl. Peds. (#/hr)	3					3	2		1	1		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	0%	0%	0%	3%	2%	0%	4%	0%	2%	7%	0%
Adj. Flow (vph)	117	38	34	34	48	179	18	612	26	105	651	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	72	0	34	227	0	18	638	0	105	711	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	28.1	19.8		22.0	12.4		46.9	39.4		50.9	45.1	
Actuated g/C Ratio	0.32	0.23		0.25	0.14		0.53	0.45		0.58	0.51	
v/c Ratio	0.42	0.20		0.10	0.68		0.04	0.46		0.26	0.46	
Control Delay (s/veh)	27.3	21.1		22.3	22.6		9.4	19.8		10.6	16.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	27.3	21.1		22.3	22.6		9.4	19.8		10.6	16.4	
LOS	C	C		C	C		A	B		B	B	
Approach Delay (s/veh)		24.9			22.6			19.5			15.6	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 87.9

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.68

Intersection Signal Delay (s/veh): 18.8

Intersection LOS: B

Intersection Capacity Utilization 74.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues

6: St. Clair Street & Gregory Drive

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	117	72	34	227	18	638	105	711
v/c Ratio	0.42	0.20	0.10	0.68	0.04	0.46	0.26	0.46
Control Delay (s/veh)	27.3	21.1	22.3	22.6	9.4	19.8	10.6	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.3	21.1	22.3	22.6	9.4	19.8	10.6	16.4
Queue Length 50th (m)	14.7	5.6	4.0	9.7	1.1	38.1	6.9	31.6
Queue Length 95th (m)	28.3	17.6	10.6	33.5	4.5	66.1	17.0	70.2
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	295	516	404	564	476	1385	445	1539
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.14	0.08	0.40	0.04	0.46	0.24	0.46

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	0	0	0	7	1	0	0	10	20	1	1	0
Future Volume (vph)	0	0	0	7	1	0	0	10	20	1	1	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt								0.910				
Flt Protected					0.957						0.976	
Satd. Flow (prot)	0	1500	0	0	1272	0	0	1338	0	0	1450	0
Flt Permitted					0.957						0.976	
Satd. Flow (perm)	0	1500	0	0	1272	0	0	1338	0	0	1450	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	100%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	0	0	8	1	0	0	11	22	1	1	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	9	0	0	33	0	0	2	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 13.3%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔		↔	↔	
Traffic Vol, veh/h	0	0	0	7	1	0	0	10	20	1	1	0
Future Vol, veh/h	0	0	0	7	1	0	0	10	20	1	1	0
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, %	0	0	2	2	100	0	2	2	2	0	2	0
Mvmt Flow	0	0	0	8	1	0	0	11	22	1	1	0
Major/Minor												
	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	1	0	0	1	0	0	18	17	1	23	17	1
Stage 1	-	-	-	-	-	-	1	1	-	16	16	-
Stage 2	-	-	-	-	-	-	17	16	-	7	1	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1635	-	-	1622	-	-	996	877	1083	994	877	1089
Stage 1	-	-	-	-	-	-	1022	895	-	1008	882	-
Stage 2	-	-	-	-	-	-	1003	882	-	1020	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1635	-	-	1622	-	-	990	873	1083	958	873	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	990	873	-	958	873	-
Stage 1	-	-	-	-	-	-	1022	895	-	1004	878	-
Stage 2	-	-	-	-	-	-	997	878	-	988	895	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s/v	0		6.33		8.71		8.95					
HCM LOS					A		A					
Minor Lane/Major Mvmt												
	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	1003	1635	-	-	1575	-	-	913				
HCM Lane V/C Ratio	0.033	-	-	-	0.005	-	-	0.002				
HCM Control Delay (s/veh)	8.7	0	-	-	7.2	0	-	9				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	0	43	0	0	0	102	0	0
Future Volume (vph)	0	0	0	0	0	43	0	0	0	102	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865							
Flt Protected											0.950	
Satd. Flow (prot)	0	1500	0	0	1272	0	0	1471	0	0	1397	0
Flt Permitted											0.950	
Satd. Flow (perm)	0	1500	0	0	1272	0	0	1471	0	0	1397	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		48.6			122.4			53.3			51.7	
Travel Time (s)		3.5			8.8			3.8			3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	0	0	0	0	47	0	0	0	111	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	47	0	0	0	0	0	111	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 17.2%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2040 Total AM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	6.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	0	43	0	0	0	102	0	0
Future Vol, veh/h	0	0	0	0	0	43	0	0	0	102	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	0	0	0	0	47	0	0	0	111	0	0
Major/Minor												
Major1	Major2		Minor1		Minor2							
Conflicting Flow All	47	0	0	1	0	0	1	48	1	24	24	23
Stage 1	-	-	-	-	-	-	1	1	-	23	23	-
Stage 2	-	-	-	-	-	-	0	47	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1561	-	-	1635	-	-	1027	844	1089	987	869	1053
Stage 1	-	-	-	-	-	-	1027	895	-	995	876	-
Stage 2	-	-	-	-	-	-	-	856	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1561	-	-	1635	-	-	1027	844	1089	987	869	1053
Mov Cap-2 Maneuver	-	-	-	-	-	-	1027	844	-	987	869	-
Stage 1	-	-	-	-	-	-	1027	895	-	995	876	-
Stage 2	-	-	-	-	-	-	-	856	-	1022	895	-
Approach												
EB	WB		NB		SB							
HCM Control Delay, s/v	0		0		0		9.11					
HCM LOS					A		A					
Minor Lane/Major Mvmt												
NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1					
Capacity (veh/h)	-	1561	-	-	1635	-	-	987				
HCM Lane V/C Ratio	-	-	-	-	-	-	-	0.112				
HCM Control Delay (s/veh)	0	0	-	-	0	-	-	9.1				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.4				

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	112	58	31	71	24	90	354	82	31	395	79
Future Volume (vph)	47	112	58	31	71	24	90	354	82	31	395	79
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.964			0.974				0.850		0.975	
Flt Protected		0.989			0.988		0.950			0.950		
Satd. Flow (prot)	0	1388	0	0	1414	0	1583	1765	1445	1553	3098	0
Flt Permitted		0.908			0.861		0.406		0.534			
Satd. Flow (perm)	0	1275	0	0	1232	0	677	1765	1445	873	3098	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			14				89		32	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	9%	1%	2%	0%	0%	11%	2%	2%	0%	4%	1%	5%
Adj. Flow (vph)	51	122	63	34	77	26	98	385	89	34	429	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	236	0	0	137	0	98	385	89	34	515	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	17.6			17.6			46.6	41.2	41.2	42.6	35.7	
Actuated g/C Ratio	0.23			0.23			0.62	0.55	0.55	0.57	0.48	
v/c Ratio	0.75			0.46			0.19	0.40	0.11	0.06	0.35	
Control Delay (s/veh)	40.2			27.8			7.5	13.9	3.8	7.1	14.3	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	40.2			27.8			7.5	13.9	3.8	7.1	14.3	
LOS	D			C			A	B	A	A	B	
Approach Delay (s/veh)	40.2			27.8			11.2				13.9	
Approach LOS	D			C			B				B	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 75

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.75

Intersection Signal Delay (s/veh): 18.3

Intersection LOS: B

Intersection Capacity Utilization 67.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	236	137	98	385	89	34	515
v/c Ratio	0.75	0.46	0.19	0.40	0.11	0.06	0.35
Control Delay (s/veh)	40.2	27.8	7.5	13.9	3.8	7.1	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	40.2	27.8	7.5	13.9	3.8	7.1	14.3
Queue Length 50th (m)	29.3	15.3	4.9	25.3	0.0	1.6	23.1
Queue Length 95th (m)	54.6	31.7	12.7	68.5	7.7	5.6	41.5
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	447	428	560	970	834	638	1492
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.32	0.18	0.40	0.11	0.05	0.35
Intersection Summary							

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↗	↖	↖		↖	↖		↖	↖	↖
Traffic Volume (vph)	26	36	66	175	39	59	76	383	149	54	415	18
Future Volume (vph)	26	36	66	175	39	59	76	383	149	54	415	18
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5		2.5				60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00								
Frt			0.850		0.909			0.958			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1748	1417	3102	1454	0	1615	3042	0	1615	3150	0
Flt Permitted	0.226			0.732			0.431			0.372		
Satd. Flow (perm)	384	1748	1398	2385	1454	0	733	3042	0	632	3150	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		54			40			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)			1	1								
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	3%	2%	1%	0%	0%	0%	2%	1%	0%	2%	0%
Adj. Flow (vph)	28	39	72	190	42	64	83	416	162	59	451	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	39	72	190	106	0	83	578	0	59	471	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↑	↗	↖	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	21.1	21.1	21.1	14.2	14.2		46.0	36.6		44.9	36.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.15	0.15		0.48	0.38		0.47	0.38	
v/c Ratio	0.33	0.10	0.18	0.54	0.40		0.19	0.49		0.15	0.40	
Control Delay (s/veh)	45.3	32.3	3.1	48.2	29.0		18.8	27.7		18.6	28.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	45.3	32.3	3.1	48.2	29.0		18.8	27.7		18.6	28.7	
LOS	D	C	A	D	C		B	C		B	C	
Approach Delay (s/veh)		19.8			41.3			26.6			27.6	
Approach LOS		B			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 95.5

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.54

Intersection Signal Delay (s/veh): 29.0

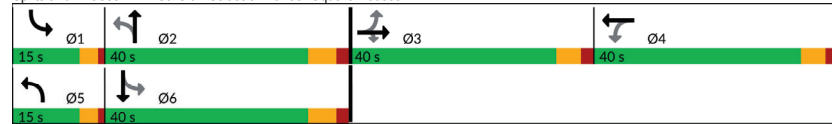
Intersection LOS: C

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↑	↗	↖	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT			
Lane Group Flow (vph)	28	39	72	190	106	83	578	59	471			
v/c Ratio	0.33	0.10	0.18	0.54	0.40	0.19	0.49	0.15	0.40			
Control Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.8	27.7	18.6	28.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Delay (s/veh)	45.3	32.3	3.1	48.2	29.0	18.8	27.7	18.6	28.7			
Queue Length 50th (m)	4.6	6.1	0.0	17.9	9.1	8.3	43.1	5.8	36.6			
Queue Length 95th (m)	14.0	15.3	4.1	33.1	27.9	22.0	78.4	16.5	66.0			
Internal Link Dist (m)		67.3			53.0		51.7		205.0			
Turn Bay Length (m)						140.0			115.0			
Base Capacity (vph)	147	670	603	914	590	473	1191	432	1192			
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.19	0.06	0.12	0.21	0.18	0.18	0.49	0.14	0.40			

Intersection Summary

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	32	0	667	691	23
Future Volume (vph)	0	32	0	667	691	23
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Frt		0.865		0.995		
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3183	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3183	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	35	0	725	751	25
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	35	0	725	776	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	32.2%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	32	0	667	691	23
Future Vol, veh/h	0	32	0	667	691	23
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, %	0	0	0	1	1	0
Mvmt Flow	0	35	0	725	751	25
Major/Minor						
Minor2	Major1		Major2			
Conflicting Flow All	-	388	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	616	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	616	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v11.19		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	616	-	-		
HCM Lane V/C Ratio	-	0.056	-	-		
HCM Control Delay (s/veh)	-	11.2	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↖↖	↖↗	
Traffic Volume (vph)	0	18	0	735	702	7
Future Volume (vph)	0	18	0	735	702	7
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.998	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3353	3192	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3353	3192	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Adj. Flow (vph)	0	20	0	799	763	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	20	0	799	771	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.9%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	18	0	735	702	7
Future Vol, veh/h	0	18	0	735	702	7
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	2	1	0
Mvmt Flow	0	20	0	799	763	8
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 388	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 616	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %		-	-	-	-	
Mov Cap-1 Maneuver	- 614	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v11.06		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	614	-	-		
HCM Lane V/C Ratio	-	0.032	-	-		
HCM Control Delay (s/veh)	-	11.1	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.1	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	24	12	109	285	22	14	194	635	241	12	732	16
Future Volume (vph)	24	12	109	285	22	14	194	635	241	12	732	16
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0			0.0	160.0		25.0	25.0	0.0
Storage Lanes	1		1	1			0	1		1	1	0
Taper Length (m)	7.6			7.6				100.0			65.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00		0.98	1.00	0.99		1.00		0.97	1.00	1.00	
Frt			0.850		0.942				0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1417	1599	1498	0	1615	3386	1445	1495	3157	0
Flt Permitted	0.732			0.567			0.224			0.389		
Satd. Flow (perm)	1240	1800	1395	951	1498	0	380	3386	1407	611	3157	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			118		15				146		2	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		67.3			53.1			900.2			109.2	
Travel Time (s)		4.8			3.8			54.0			6.6	
Confl. Peds. (#/hr)	3		3	3		3	2		3	3		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	1%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	26	13	118	310	39	0	211	690	262	13	796	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	13	118	310	39	0	211	690	262	13	813	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↖	←	↖	↖	↖	↖	↖	↖	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	18.3	10.1	10.1	26.0	20.6		50.9	46.2	46.2	43.0	33.5	
Actuated g/C Ratio	0.22	0.12	0.12	0.31	0.24		0.60	0.54	0.54	0.51	0.39	
v/c Ratio	0.09	0.06	0.44	0.83	0.10		0.55	0.38	0.32	0.03	0.65	
Control Delay (s/veh)	22.0	34.1	12.6	46.8	21.6		13.6	12.6	6.6	7.6	24.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	22.0	34.1	12.6	46.8	21.6		13.6	12.6	6.6	7.6	24.1	
LOS	C	C	B	D	C		B	B	A	A	C	
Approach Delay (s/veh)		15.9			44.0			11.4			23.8	
Approach LOS		B			D			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 85

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.83

Intersection Signal Delay (s/veh): 20.4

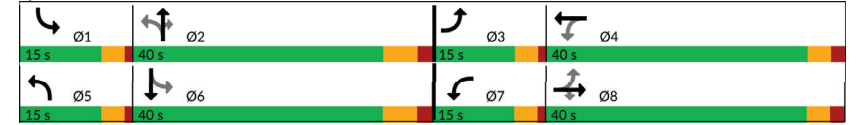
Intersection LOS: C

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	26	13	118	310	39	211	690	262	13	813
v/c Ratio	0.09	0.06	0.44	0.83	0.10	0.55	0.38	0.32	0.03	0.65
Control Delay (s/veh)	22.0	34.1	12.6	46.8	21.6	13.6	12.6	6.6	7.6	24.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.0	34.1	12.6	46.8	21.6	13.6	12.6	6.6	7.6	24.1
Queue Length 50th (m)	3.0	1.9	0.0	43.0	2.8	14.4	29.4	8.1	0.8	55.2
Queue Length 95th (m)	8.4	6.9	14.5	#90.7	11.7	25.0	55.0	27.8	2.9	75.4
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0		25.0	25.0		
Base Capacity (vph)	371	741	643	374	625	387	1840	831	452	1245
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.02	0.18	0.83	0.06	0.55	0.38	0.32	0.03	0.65

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	187	97	35	40	57	230	42	932	30	203	930	122
Future Volume (vph)	187	97	35	40	57	230	42	932	30	203	930	122
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0	0.0	25.0	0.0	50.0	0.0	50.0	0.0	30.0	0.0	30.0	0.0
Storage Lanes	1	0	1	0	1	0	1	0	1	0	1	0
Taper Length (m)	25.0		25.0		7.5		40.0					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00			1.00		1.00
Frt	0.960			0.880			0.995			0.983		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1454	0	1568	1372	0	1568	3150	0	1615	3106	0
Flt Permitted	0.185			0.666			0.159			0.122		
Satd. Flow (perm)	310	1454	0	1094	1372	0	262	3150	0	207	3106	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	16			179			3			14		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	203	105	38	43	62	250	46	1013	33	221	1011	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	203	143	0	43	312	0	46	1046	0	221	1144	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings
6: St. Clair Street & Gregory Drive

2040 Total PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	33.5	25.0		26.9	17.1		48.7	39.1		55.8	47.4	
Actuated g/C Ratio	0.34	0.25		0.27	0.17		0.49	0.40		0.57	0.48	
v/c Ratio	0.82	0.38		0.13	0.81		0.20	0.84		0.80	0.76	
Control Delay (s/veh)	51.0	31.3		21.8	33.0		13.8	35.1		40.8	27.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	51.0	31.3		21.8	33.0		13.8	35.1		40.8	27.8	
LOS	D	C		C	C		B	D		D	C	
Approach Delay (s/veh)		42.8			31.6			34.2			29.9	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 98.5

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 33.0

Intersection LOS: C

Intersection Capacity Utilization 92.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues
6: St. Clair Street & Gregory Drive

2040 Total PM
770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	203	143	43	312	46	1046	221	1144
v/c Ratio	0.82	0.38	0.13	0.81	0.20	0.84	0.80	0.76
Control Delay (s/veh)	51.0	31.3	21.8	33.0	13.8	35.1	40.8	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.0	31.3	21.8	33.0	13.8	35.1	40.8	27.8
Queue Length 50th (m)	28.5	21.0	5.4	24.4	3.5	90.4	20.5	95.4
Queue Length 95th (m)	#57.7	39.2	12.4	54.7	10.7	#155.0	#73.2	#172.6
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	249	444	388	531	285	1252	275	1501
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.32	0.11	0.59	0.16	0.84	0.80	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	0	3	0	20	3	3	0	7	12	11	4	0
Future Volume (vph)	0	3	0	20	3	3	0	7	12	11	4	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.986			0.916				
Flt Protected					0.962						0.964	
Satd. Flow (prot)	0	1500	0	0	1401	0	0	1347	0	0	1268	0
Flt Permitted					0.962						0.964	
Satd. Flow (perm)	0	1500	0	0	1401	0	0	1347	0	0	1268	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	18%	2%	0%
Adj. Flow (vph)	0	3	0	22	3	3	0	8	13	12	4	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	28	0	0	21	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 22.9%	ICU Level of Service A											
Analysis Period (min) 15												

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh		7.2										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	3	0	20	3	3	0	7	12	11	4	0
Future Vol, veh/h	0	3	0	20	3	3	0	7	12	11	4	0
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, %	0	0	2	2	0	0	2	2	2	18	2	0
Mvmt Flow	0	3	0	22	3	3	0	8	13	12	4	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	7	0	0	3	0	0	52	53	3	55	52	5
Stage 1	-	-	-	-	-	-	3	3	-	48	48	-
Stage 2	-	-	-	-	-	-	49	50	-	7	3	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.28	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.28	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.28	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.662	4.018	3.3
Pot Cap-1 Maneuver	1627	-	-	1619	-	-	947	838	1081	904	840	1084
Stage 1	-	-	-	-	-	-	1019	893	-	926	855	-
Stage 2	-	-	-	-	-	-	964	853	-	975	893	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1627	-	-	1619	-	-	929	827	1081	873	828	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	929	827	-	873	828	-
Stage 1	-	-	-	-	-	-	1019	893	-	913	843	-
Stage 2	-	-	-	-	-	-	946	842	-	955	893	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			5.58			8.79			9.26		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	971	1627	-	-	1259	-	-	861				
HCM Lane V/C Ratio	0.021	-	-	-	0.013	-	-	0.019				
HCM Control Delay (s/veh)	8.8	0	-	-	7.3	0	-	9.3				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	0	1	0	1	1	119	0	0	0	66	0	0
Future Volume (vph)	0	1	0	1	1	119	0	0	0	66	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.867							
Flt Protected											0.950	
Satd. Flow (prot)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Flt Permitted											0.950	
Satd. Flow (perm)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		48.6			122.4			53.3			51.7	
Travel Time (s)		3.5			8.8			3.8			3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	1	0	1	1	129	0	0	0	72	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	131	0	0	0	0	0	72	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 21.9%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2040 Total PM

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	1	0	1	1	119	0	0	0	66	0	0
Future Vol, veh/h	0	1	0	1	1	119	0	0	0	66	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	1	0	1	1	129	0	0	0	72	0	0
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	130	0	0	1	0	0	4	134	1	69	69	66
Stage 1	-	-	-	-	-	-	1	1	-	68	68	-
Stage 2	-	-	-	-	-	-	3	133	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1455	-	-	1635	-	-	1022	757	1089	923	822	998
Stage 1	-	-	-	-	-	-	1027	895	-	942	838	-
Stage 2	-	-	-	-	-	-	1025	787	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1455	-	-	1635	-	-	1021	757	1089	923	821	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	1021	757	-	923	821	-
Stage 1	-	-	-	-	-	-	1027	895	-	942	838	-
Stage 2	-	-	-	-	-	-	1024	786	-	1022	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0.06			0			9.23		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1455	-	-	12	-	-	923				
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	0.078				
HCM Control Delay (s/veh)	0	0	-	-	7.2	0	-	9.2				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.3				

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	104	98	63	54	15	108	264	105	16	291	43
Future Volume (vph)	40	104	98	63	54	15	108	264	105	16	291	43
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	45.0		0.0	80.0		80.0
Storage Lanes	0		0	0		0	1		1	1		1
Taper Length (m)	7.6			7.6			25.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.945			0.985				0.850		0.981	
Flt Protected		0.992			0.977		0.950		0.950			
Satd. Flow (prot)	0	1406	0	0	1430	0	1615	1782	1445	1495	3114	0
Flt Permitted		0.929			0.612		0.484		0.584			
Satd. Flow (perm)	0	1317	0	0	896	0	823	1782	1445	919	3114	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			7				114		23	
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		145.1			185.2			229.0			235.8	
Travel Time (s)		8.7			11.1			13.7			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	0%	0%	0%	1%	0%	8%	2%	0%
Adj. Flow (vph)	43	113	107	68	59	16	117	287	114	17	316	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	263	0	0	143	0	117	287	114	17	363	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		4			4		5	2		1	6	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

1: St. Clair Street & Pioneer Line

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			4			2		2	6		
Detector Phase	4	4		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	35.0	35.0	5.0	35.0	
Minimum Split (s)	16.0	16.0		16.0	16.0		9.0	41.0	41.0	9.0	41.0	
Total Split (s)	31.0	31.0		31.0	31.0		15.0	41.0	41.0	15.0	41.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%		17.2%	47.1%	47.1%	17.2%	47.1%	
Maximum Green (s)	25.0	25.0		25.0	25.0		11.0	35.0	35.0	11.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		6.0			6.0		4.0	6.0	6.0	4.0	6.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Max	Max	None	Max	
Act Effct Green (s)	17.8			17.8			47.9	44.0	44.0	42.4	35.8	
Actuated g/C Ratio	0.23			0.23			0.63	0.58	0.58	0.56	0.47	
v/c Ratio	0.78			0.67			0.19	0.28	0.13	0.03	0.25	
Control Delay (s/veh)	39.8			41.7			7.4	10.9	3.0	7.1	14.0	
Queue Delay	0.0			0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	39.8			41.7			7.4	10.9	3.0	7.1	14.0	
LOS	D			D			A	B	A	A	B	
Approach Delay (s/veh)	39.8			41.7			8.4				13.7	
Approach LOS	D			D			A				B	

Intersection Summary

Area Type: Other

Cycle Length: 87

Actuated Cycle Length: 75.9

Natural Cycle: 70

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.78

Intersection Signal Delay (s/veh): 19.9

Intersection LOS: B

Intersection Capacity Utilization 70.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: St. Clair Street & Pioneer Line



PTSL

Synchro 12 Report

Queues

1: St. Clair Street & Pioneer Line

2040 Total SAT
770 St. Clair Street, Chatham-Kent TIS

	→	←	↖	↑	↗	↘	↓
Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	263	143	117	287	114	17	363
v/c Ratio	0.78	0.67	0.19	0.28	0.13	0.03	0.25
Control Delay (s/veh)	39.8	41.7	7.4	10.9	3.0	7.1	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.8	41.7	7.4	10.9	3.0	7.1	14.0
Queue Length 50th (m)	31.0	18.3	6.0	17.8	0.0	0.8	15.8
Queue Length 95th (m)	58.5	38.2	14.6	48.3	8.5	3.5	29.5
Internal Link Dist (m)	121.1	161.2		205.0			211.8
Turn Bay Length (m)			45.0			80.0	
Base Capacity (vph)	469	306	636	1032	884	644	1480
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.47	0.18	0.28	0.13	0.03	0.25
Intersection Summary							

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Total SAT
770 St. Clair Street, Chatham-Kent TIS

	↖	→	↗	↘	←	↖	↗	↑	↘	↙	↓	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↖		↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	43	74	143	296	52	79	162	323	196	50	302	15
Future Volume (vph)	43	74	143	296	52	79	162	323	196	50	302	15
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	140.0		0.0	115.0		0.0
Storage Lanes	1		1	2		0	1		0	1		0
Taper Length (m)	2.5			2.5			60.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor			0.99	1.00	0.99							
Frt			0.850		0.910			0.943			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	3133	1435	0	1615	3046	0	1615	3207	0
Flt Permitted	0.121			0.705			0.440			0.361		
Satd. Flow (perm)	206	1800	1426	2320	1435	0	748	3046	0	614	3207	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155		54			90			3	
Link Speed (k/h)		50			50			60			60	
Link Distance (m)		91.3			77.0			75.7			229.0	
Travel Time (s)		6.6			5.5			4.5			13.7	
Confl. Peds. (#/hr)	2		1	1		2						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	47	80	155	322	57	86	176	351	213	54	328	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	80	155	322	143	0	176	564	0	54	344	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

2: St. Clair Street & Pioneer Square Access

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	NA
Protected Phases		3			4		5	2		1	6	
Permitted Phases	3		3	4			2			6		
Detector Phase	3	3	3	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		7.0	31.0		7.0	31.0	
Minimum Split (s)	35.0	35.0	35.0	37.0	37.0		11.0	37.5		11.0	37.5	
Total Split (s)	40.0	40.0	40.0	40.0	40.0		15.0	40.0		15.0	40.0	
Total Split (%)	29.6%	29.6%	29.6%	29.6%	29.6%		11.1%	29.6%		11.1%	29.6%	
Maximum Green (s)	34.0	34.0	34.0	34.0	34.0		11.0	33.5		11.0	33.5	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		3.0	4.5		3.0	4.5	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max		None	Max	
Walk Time (s)	8.0	8.0	8.0	8.0	8.0		8.0			8.0		
Flash Don't Walk (s)	21.0	21.0	21.0	23.0	23.0		22.0			20.0		
Pedestrian Calls (#/hr)	0	0	0	0	0		0			0		
Act Effct Green (s)	33.0	33.0	33.0	22.5	22.5		49.6	38.5		44.5	33.6	
Actuated g/C Ratio	0.27	0.27	0.27	0.18	0.18		0.40	0.31		0.36	0.27	
v/c Ratio	0.85	0.17	0.31	0.75	0.46		0.47	0.55		0.19	0.39	
Control Delay (s/veh)	132.0	36.9	7.5	59.1	32.1		30.1	33.6		25.7	38.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	132.0	36.9	7.5	59.1	32.1		30.1	33.6		25.7	38.6	
LOS	F	D	A	E	C		C	C		C	D	
Approach Delay (s/veh)		36.6			50.8			32.8			36.9	
Approach LOS		D			D			C			D	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 122.5

Natural Cycle: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay (s/veh): 38.7

Intersection LOS: D

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: St. Clair Street & Pioneer Square Access



PTSL

Synchro 12 Report

Queues

2: St. Clair Street & Pioneer Square Access

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	80	155	322	143	176	564	54	344
v/c Ratio	0.85	0.17	0.31	0.75	0.46	0.47	0.55	0.19	0.39
Control Delay (s/veh)	132.0	36.9	7.5	59.1	32.1	30.1	33.6	25.7	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	132.0	36.9	7.5	59.1	32.1	30.1	33.6	25.7	38.6
Queue Length 50th (m)	10.7	14.7	0.0	38.6	19.1	27.6	51.3	7.8	35.4
Queue Length 95th (m)	#37.3	29.9	16.8	54.2	38.8	49.8	79.5	18.0	54.2
Internal Link Dist (m)		67.3			53.0		51.7		205.0
Turn Bay Length (m)						140.0		115.0	
Base Capacity (vph)	57	501	509	646	438	380	1019	326	882
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.16	0.30	0.50	0.33	0.46	0.55	0.17	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

3: St. Clair Street & Northerly RIRO

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	33	0	837	857	24
Future Volume (vph)	0	33	0	837	857	24
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.996	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3386	3186	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3386	3186	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	198.5			88.4	75.7	
Travel Time (s)	14.3			5.3	4.5	
Confl. Peds. (#/hr)			1			1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Adj. Flow (vph)	0	36	0	910	932	26
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	36	0	910	958	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.3%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

3: St. Clair Street & Northerly RIRO

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	33	0	837	857	24
Future Vol, veh/h	0	33	0	837	857	24
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	36	0	910	932	26
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 480	-	0	-	0	
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	- 6.9	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	- 3.3	-	-	-	-	-
Pot Cap-1 Maneuver	0 538	0	-	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	- 537	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s/v12.18		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	537	-	-		
HCM Lane V/C Ratio	-	0.067	-	-		
HCM Control Delay (s/veh)	-	12.2	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

4: St. Clair Street & Southerly RIRO

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 	 	
Traffic Volume (vph)	0	34	0	876	864	32
Future Volume (vph)	0	34	0	876	864	32
Ideal Flow (vphpl)	1900	1700	1800	1800	1700	1700
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.865			0.995	
Flt Protected						
Satd. Flow (prot)	0	1470	0	3420	3214	0
Flt Permitted						
Satd. Flow (perm)	0	1470	0	3420	3214	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	75.3			109.2	88.4	
Travel Time (s)	5.4			6.6	5.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	37	0	952	939	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	37	0	952	974	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			3.6	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.00	1.15	1.07	1.07	1.15	1.15
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.8%			ICU Level of Service A		
Analysis Period (min)	15					

PTSL

Synchro 12 Report

HCM 7th TWSC

4: St. Clair Street & Southerly RIRO

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗	↗↗	
Traffic Vol, veh/h	0	34	0	876	864	32
Future Vol, veh/h	0	34	0	876	864	32
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	0	0	0	0	0
Mvmt Flow	0	37	0	952	939	35
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	- 490	-	0	-	0	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Critical Hdwy	- 6.9	-	-	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	
Follow-up Hdwy	- 3.3	-	-	-	-	
Pot Cap-1 Maneuver	0 529	0	-	-	-	
Stage 1	0	-	0	-	-	
Stage 2	0	-	0	-	-	
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	- 528	-	-	-	-	
Mov Cap-2 Maneuver	-	-	-	-	-	
Stage 1	-	-	-	-	-	
Stage 2	-	-	-	-	-	
Approach	EB	NB		SB		
HCM Control Delay, s/v12.33		0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR		
Capacity (veh/h)	-	528	-	-		
HCM Lane V/C Ratio	-	0.07	-	-		
HCM Control Delay (s/veh)	-	12.3	-	-		
HCM Lane LOS	-	B	-	-		
HCM 95th %tile Q(veh)	-	0.2	-	-		

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (vph)	40	19	126	350	38	28	215	775	421	46	784	19
Future Volume (vph)	40	19	126	350	38	28	215	775	421	46	784	19
Ideal Flow (vphpl)	1700	1800	1700	1700	1600	1600	1700	1800	1700	1700	1700	1700
Storage Length (m)	0.0		0.0	0.0		0.0	160.0		25.0	25.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	7.6			7.6			100.0			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor	1.00				0.99				0.97	1.00		
Frt			0.850		0.937				0.850		0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1615	1800	1445	1599	1489	0	1615	3386	1431	1553	3186	0
Flt Permitted	0.711			0.555			0.194			0.315		
Satd. Flow (perm)	1203	1800	1445	934	1489	0	330	3386	1393	514	3186	0
Right Turn on Red			Yes		Yes			Yes			Yes	
Satd. Flow (RTOR)			137		30			209			2	
Link Speed (k/h)		50			50		60				60	
Link Distance (m)		67.3			53.1		900.2				109.2	
Travel Time (s)		4.8			3.8		54.0				6.6	
Confl. Peds. (#/hr)	4				4			3	3			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	0%	1%	1%	4%	1%	0%
Adj. Flow (vph)	43	21	137	380	41	30	234	842	458	50	852	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	43	21	137	380	71	0	234	842	458	50	873	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.15	1.07	1.15	1.15	1.24	1.24	1.15	1.07	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

5: St. Clair Street & St. Clair Centre Access

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases	8		8	4			2		2	6		
Detector Phase	3	8	8	7	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	35.0	35.0	7.0	35.0	
Minimum Split (s)	11.0	32.0	32.0	11.0	32.0		11.0	41.5	41.5	11.0	41.5	
Total Split (s)	15.0	40.0	40.0	15.0	40.0		15.0	40.0	40.0	15.0	40.0	
Total Split (%)	13.6%	36.4%	36.4%	13.6%	36.4%		13.6%	36.4%	36.4%	13.6%	36.4%	
Maximum Green (s)	11.0	35.0	35.0	11.0	35.0		11.0	33.5	33.5	11.0	33.5	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	4.5	4.5	3.0	4.5	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		1.0	2.0	2.0	1.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0		4.0	6.5	6.5	4.0	6.5	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None		None	Max	Max	None	Max	
Walk Time (s)		8.0	8.0		8.0			8.0	8.0		8.0	
Flash Don't Walk (s)		19.0	19.0		19.0			17.0	17.0		17.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	18.8	10.2	10.2	25.6	18.0		50.8	41.7	41.7	43.2	33.5	
Actuated g/C Ratio	0.22	0.12	0.12	0.30	0.21		0.60	0.49	0.49	0.51	0.39	
v/c Ratio	0.14	0.10	0.47	1.04	0.21		0.65	0.51	0.58	0.14	0.70	
Control Delay (s/veh)	22.6	34.6	12.3	88.0	22.4		18.0	17.2	12.6	8.6	25.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay (s/veh)	22.6	34.6	12.3	88.0	22.4		18.0	17.2	12.6	8.6	25.2	
LOS	C	C	B	F	C		B	B	B	A	C	
Approach Delay (s/veh)		16.8			77.7			16.0			24.3	
Approach LOS		B			E			B			C	
Intersection Summary												
Area Type:		Other										
Cycle Length: 110												
Actuated Cycle Length: 85.2												
Natural Cycle: 100												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.04												
Intersection Signal Delay (s/veh): 27.5								Intersection LOS: C				
Intersection Capacity Utilization 83.7%								ICU Level of Service E				
Analysis Period (min) 15												

Splits and Phases: 5: St. Clair Street & St. Clair Centre Access



PTSL

Synchro 12 Report

Queues

5: St. Clair Street & St. Clair Centre Access

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	43	21	137	380	71	234	842	458	50	873
v/c Ratio	0.14	0.10	0.47	1.04	0.21	0.65	0.51	0.58	0.14	0.70
Control Delay (s/veh)	22.6	34.6	12.3	88.0	22.4	18.0	17.2	12.6	8.6	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.6	34.6	12.3	88.0	22.4	18.0	17.2	12.6	8.6	25.2
Queue Length 50th (m)	5.0	3.1	0.0	~57.8	5.8	16.2	51.6	28.6	3.1	60.5
Queue Length 95th (m)	12.2	9.5	15.5	#94.3	17.7	31.7	71.8	62.3	7.4	82.8
Internal Link Dist (m)	43.3			29.1		876.2			85.2	
Turn Bay Length (m)					160.0			25.0	25.0	
Base Capacity (vph)	366	739	674	366	629	362	1658	788	417	1253
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.03	0.20	1.04	0.11	0.65	0.51	0.58	0.12	0.70

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↲	↰	↱	↲	↰	↱	↲	↰	↱	↲
Traffic Volume (vph)	198	47	34	47	20	315	24	1165	35	196	1076	157
Future Volume (vph)	198	47	34	47	20	315	24	1165	35	196	1076	157
Ideal Flow (vphpl)	1700	1600	1600	1700	1600	1600	1700	1700	1700	1700	1700	1700
Storage Length (m)	30.0		0.0	25.0		0.0	50.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	25.0			25.0			7.5			40.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	1.00	0.99		0.99	0.98			1.00		1.00		1.00
Frt	0.937			0.859				0.996		0.981		
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1599	1430	0	1568	1337	0	1568	3153	0	1615	3100	0
Flt Permitted	0.183			0.700			0.111			0.088		
Satd. Flow (perm)	307	1430	0	1149	1337	0	183	3153	0	150	3100	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	32			233			3			16		
Link Speed (k/h)	50			50			50			50		
Link Distance (m)	157.0			124.1			207.7			900.2		
Travel Time (s)	11.3			8.9			15.0			64.8		
Confl. Peds. (#/hr)	5		5	5		5	3		2	2		3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	7%	0%	3%	2%	1%	3%	2%	0%	0%	2%	1%
Adj. Flow (vph)	215	51	37	51	22	342	26	1266	38	213	1170	171
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	88	0	51	364	0	26	1304	0	213	1341	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane								Yes				
Headway Factor	1.15	1.24	1.24	1.15	1.24	1.24	1.15	1.15	1.15	1.15	1.15	1.15
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

6: St. Clair Street & Gregory Drive

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	35.0		7.0	35.0	
Minimum Split (s)	11.0	33.1		11.0	34.1		11.0	41.1		11.0	41.1	
Total Split (s)	15.0	35.0		15.0	35.0		15.0	45.0		15.0	45.0	
Total Split (%)	13.6%	31.8%		13.6%	31.8%		13.6%	40.9%		13.6%	40.9%	
Maximum Green (s)	11.0	28.9		11.0	28.9		11.0	38.9		11.0	38.9	
Yellow Time (s)	3.0	4.1		3.0	4.1		3.0	4.1		3.0	4.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.1		4.0	6.1		4.0	6.1		4.0	6.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Max		None	Max	
Walk Time (s)		8.0			8.0			8.0			8.0	
Flash Don't Walk (s)		19.0			20.0			13.0			14.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	33.2	22.5		27.1	17.0		48.4	39.1		56.2	50.0	
Actuated g/C Ratio	0.34	0.23		0.28	0.17		0.49	0.40		0.57	0.51	
v/c Ratio	0.87	0.25		0.15	0.86		0.14	1.04		0.86	0.85	
Control Delay (s/veh)	58.0	23.4		22.0	34.1		13.5	67.5		53.7	30.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay (s/veh)	58.0	23.4		22.0	34.1		13.5	67.5		53.7	30.1	
LOS	E	C		C	C		B	E		D	C	
Approach Delay (s/veh)		48.0			32.6			66.4			33.3	
Approach LOS		D			C			E			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 98.5

Natural Cycle: 120

Control Type: Semi Act-Uncoordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay (s/veh): 46.7

Intersection LOS: D

Intersection Capacity Utilization 103.4%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: St. Clair Street & Gregory Drive

Ø1	Ø2	Ø3	Ø4
15 s	45 s	15 s	35 s
Ø5	Ø6	Ø7	Ø8
15 s	45 s	15 s	35 s

PTSL

Synchro 12 Report

Queues

6: St. Clair Street & Gregory Drive

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	215	88	51	364	26	1304	213	1341
v/c Ratio	0.87	0.25	0.15	0.86	0.14	1.04	0.86	0.85
Control Delay (s/veh)	58.0	23.4	22.0	34.1	13.5	67.5	53.7	30.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.0	23.4	22.0	34.1	13.5	67.5	53.7	30.1
Queue Length 50th (m)	30.4	8.8	6.5	24.6	2.0	~138.4	25.0	95.8
Queue Length 95th (m)	#66.3	21.7	13.9	59.8	7.1	#218.5	#78.1	#216.4
Internal Link Dist (m)		133.0		100.1		183.7		876.2
Turn Bay Length (m)	30.0		25.0		50.0		30.0	
Base Capacity (vph)	248	447	398	558	252	1253	249	1580
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.20	0.13	0.65	0.10	1.04	0.86	0.85

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

7: Site Access/Staples Access & Northerly RIRO

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	0	3	0	22	3	3	0	9	17	11	5	0
Future Volume (vph)	0	3	0	22	3	3	0	9	17	11	5	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.986			0.913				
Flt Protected					0.962						0.966	
Satd. Flow (prot)	0	1500	0	0	1400	0	0	1343	0	0	1441	0
Flt Permitted					0.962						0.966	
Satd. Flow (perm)	0	1500	0	0	1400	0	0	1343	0	0	1441	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		61.6			198.5			53.4			50.2	
Travel Time (s)		4.4			14.3			3.8			3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	0	3	0	24	3	3	0	10	18	12	5	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	30	0	0	28	0	0	17	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			1.6			4.9	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 23.1%	ICU Level of Service A											
Analysis Period (min) 15												

PTSL

Synchro 12 Report

HCM 7th TWSC

7: Site Access/Staples Access & Northerly RIRO

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	7.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	3	0	22	3	3	0	9	17	11	5	0
Future Vol, veh/h	0	3	0	22	3	3	0	9	17	11	5	0
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, %	0	0	2	2	0	0	2	2	2	0	2	0
Mvmt Flow	0	3	0	24	3	3	0	10	18	12	5	0
Major/Minor												
	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	7	0	0	3	0	0	57	58	3	61	56	5
Stage 1	-	-	-	-	-	-	3	3	-	53	53	-
Stage 2	-	-	-	-	-	-	54	54	-	8	3	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.3
Pot Cap-1 Maneuver	1627	-	-	1619	-	-	940	833	1081	939	835	1084
Stage 1	-	-	-	-	-	-	1019	893	-	965	851	-
Stage 2	-	-	-	-	-	-	959	850	-	1018	893	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1627	-	-	1619	-	-	920	821	1081	899	823	1084
Mov Cap-2 Maneuver	-	-	-	-	-	-	920	821	-	899	823	-
Stage 1	-	-	-	-	-	-	1019	893	-	951	838	-
Stage 2	-	-	-	-	-	-	938	837	-	990	893	-
Approach												
	EB		WB		NB		SB					
HCM Control Delay, s/v	0		5.7		8.81		9.2					
HCM LOS					A		A					
Minor Lane/Major Mvmt												
	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	974	1627	-	-	1286	-	-	874				
HCM Lane V/C Ratio	0.029	-	-	-	0.015	-	-	0.02				
HCM Control Delay (s/veh)	8.8	0	-	-	7.3	0	-	9.2				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

PTSL

Synchro 12 Report

Lanes, Volumes, Timings

8: Galaxy Access/Site Access & St. Clair Centre Access

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	0	1	0	1	1	127	0	0	0	86	0	0
Future Volume (vph)	0	1	0	1	1	127	0	0	0	86	0	0
Ideal Flow (vphpl)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.867							
Flt Protected											0.950	
Satd. Flow (prot)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Flt Permitted											0.950	
Satd. Flow (perm)	0	1500	0	0	1275	0	0	1471	0	0	1397	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		48.6			122.4			53.3			51.7	
Travel Time (s)		3.5			8.8			3.8			3.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	0	1	0	1	1	138	0	0	0	93	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	140	0	0	0	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			1.6	
Two way Left Turn Lane												
Headway Factor	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 23.9%	ICU Level of Service A											
Analysis Period (min) 15												

HCM 7th TWSC

8: Galaxy Access/Site Access & St. Clair Centre Access

2040 Total SAT

770 St. Clair Street, Chatham-Kent TIS

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	0	1	0	1	1	127	0	0	0	86	0	0
Future Vol, veh/h	0	1	0	1	1	127	0	0	0	86	0	0
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	0	0	0	0	2	0	2	0	2	2	2
Mvmt Flow	0	1	0	1	1	138	0	0	0	93	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	139	0	0	1	0	0	4	142	1	73	73	70
Stage 1	-	-	-	-	-	-	1	1	-	72	72	-
Stage 2	-	-	-	-	-	-	3	141	-	1	1	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1444	-	-	1635	-	-	1022	749	1089	917	817	993
Stage 1	-	-	-	-	-	-	1027	895	-	937	835	-
Stage 2	-	-	-	-	-	-	1025	780	-	1022	895	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1444	-	-	1635	-	-	1021	748	1089	917	816	993
Mov Cap-2 Maneuver	-	-	-	-	-	-	1021	748	-	917	816	-
Stage 1	-	-	-	-	-	-	1027	895	-	937	834	-
Stage 2	-	-	-	-	-	-	1024	779	-	1022	895	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s/v	0			0.06			0			9.37		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	-	1444	-	-	12	-	-	917				
HCM Lane V/C Ratio	-	-	-	-	0.001	-	-	0.102				
HCM Control Delay (s/veh)	0	0	-	-	7.2	0	-	9.4				
HCM Lane LOS	A	A	-	-	A	A	-	A				
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.3				