APPENDIX

2 Detailed Transportation Assessment

If technical reports are required in an alternative format for accessibility needs, please contact:

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Thirty Road (Regional Road 14) & Young Street Class EA

Detailed Transportation Assessment

Final

Prepared for:
Niagara Region

RVA 226468

May 30, 2023

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May 30, 2023

Hamed Esmaeeli, P.Eng., PhD
Niagara Region
1815 Sir Isaac Brock Way, Thorold, ON L2V 4Y6
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Attention: Hamed Esmaeeli, P.Eng., PhD

Dear Hamed:

Re: Thirty Road (Regional Road 14) & Young Street Class EA
Detailed Transportation Assessment

Please find attached our Detailed Transportation Assessment as part of the Thirty Road (Regional Road 14) & Young Street intersection Class Environmental Assessment (EA). If you have any questions about the study, please contact the undersigned at AHussain@rvanderson.com or (289) 348-1234 ext. 4516.

Yours very truly,

R.V. ANDERSON ASSOCIATES LIMITED

Michael Kong
Transportation Planner

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 Introduction

R.V. Anderson Associates (RVA) has been retained by the Niagara Region (Region) to complete a Schedule "C" Municipal Class Environmental Assessment (MCEA), Detailed Transportation Assessment, and Preliminary design for the potential re-alignment and intersection improvements at Thirty Road (Regional Road 14) and Young Street, in the Township of West Lincoln.

The intersection operated under two-way stop control (TWSC) with free-flow movement along Thirty Road up until November 2022, but has since been changed to all-way stop control (AWSC) as an interim measure. This temporary remedial measure was put in place as a response to significant resident concern regarding traffic safety, with key issues being insufficient sightlines due the reverse curve on Thirty Road, as well as skewed intersection alignment at Clayson Road and Thirty Road, which is a three-legged intersection just north of the subject intersection. An aerial view of the subject intersections can be seen in **Figure 1.1** below.

Figure 1.1 – Thirty Road Horizontal Alignment

Further to addressing safety issues, the proposed intersection alternatives must consider heavy vehicle accommodation as these corridors, particularly Young Street, serve as important routes for farm vehicles and trucks.

The findings of this report can be used to identify feasible improvement alternatives for the study area, with specific consideration given to enhancing sightlines and safety. The feasibility of each solution will also be appraised based on their ability to maintain the overall functionality of the arterial roadways.

2.0 Existing (2022) Conditions

2.1 Study Area Road Network

The study area, inclusive of Thirty Road at Young Street, Young Street at Clayson Road, and Thirty Road at Clayson Road, is shown in Figure 2.1.

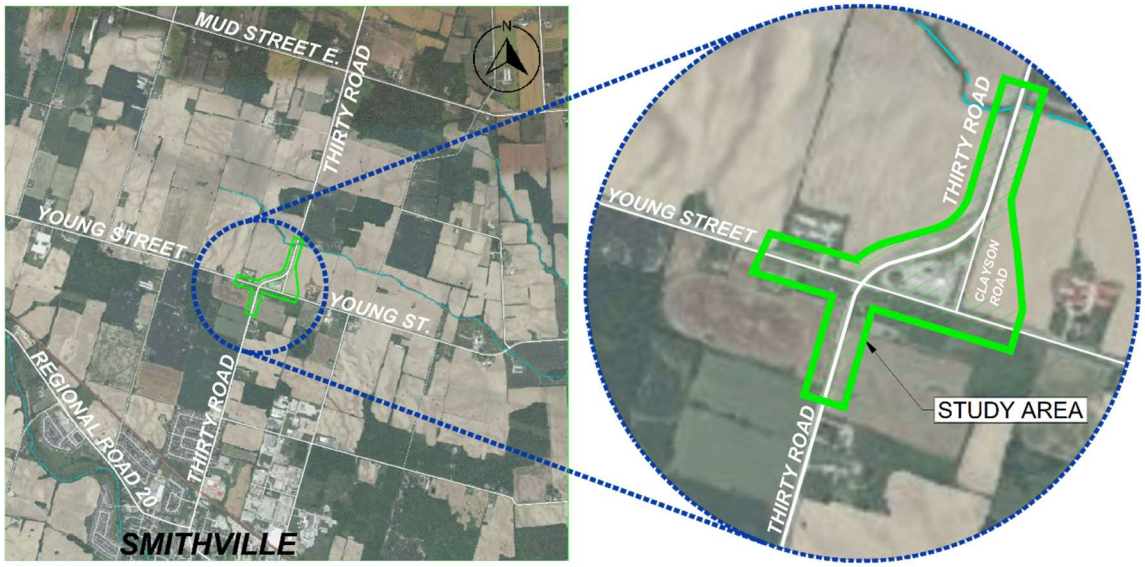


Figure 2.1 – Study Area

Thirty Road (RR14) is a two-lane rural arterial under the jurisdiction of the Region. As noted previously, Thirty Road presents a reverse curve north of Young Street, where it eventually aligns with Clayson Road. The roadway consists of a 26.2-metre right-of-way with a posted speed limit of 60km/hr south of Young Street and along the reverse curve, where it eventually transitions to 80km/hr north of the study area. Bike lanes are provided along Thirty Road, but there is no dedicated pedestrian accommodation in the vicinity of the study area.

Young Street is a two-lane rural arterial under the jurisdiction of the Township of West Lincoln. The corridor consists of a 20-metre right-of-way and a posted speed limit of 80km/hr. There is no infrastructure dedicated for pedestrians or cyclists in the vicinity of the study area.

Clayson Road is a two-lane rural corridor under the jurisdiction of the Township of West Lincoln. Approximately 200 metres in its entirety, the roadway is an additional link between Young Street and Thirty Road, and also provides access to the lands on the northeast corner of Thirty Road and Young Street. Due to the reverse curve on Thirty Road, the intersection of Clayson Road and Thirty Road exhibits a skewed intersection alignment. There is no active transportation infrastructure along the roadway.

2.2 Existing Lane Configurations

As noted in *Section 1.0*, the intersection of Thirty Road (RR14) and Young Street was previously controlled by a two-way stop with free-flow traffic along Thirty Road; however, the intersection has recently been converted to an all-way stop to address safety concerns. The intersection currently consists of four approaches, all of which provide a single lane with no turning restrictions.

The intersection of Young Street at Clayson Road is a three-leg intersection, with Young Street serving as the southern terminus for Clayson Road. The intersection consists of a single lane on each approach with free-flow traffic along Young Street and stop-control along Clayson Road.

The intersection of Thirty Road and Clayson Road exhibits a skewed alignment, as Clayson Road intersects near the end of the reverse curve along Thirty Road. While the skewed alignment makes it unsafe for turning movements to and from Clayson Road, there is no signage or infrastructure restricting the movements. The intersection consists of a single lane for each approach with stop control along Clayson Road.

The mode of control and lane configurations for the study area are presented in Figure 2.2.

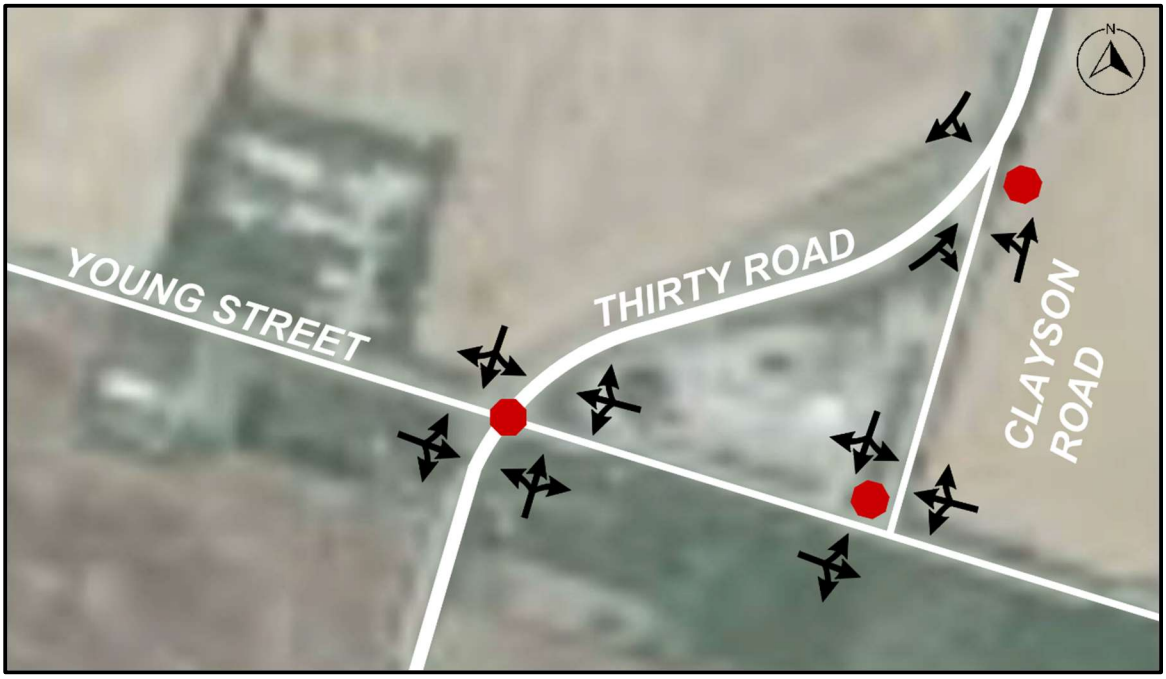


Figure 2.2 – Existing Intersection Configuration

2.3 Existing Traffic Volumes

Intersection turning movement count (TMC) data was collected on December 1st, 2022, for all three (3) intersections within the study area. Through analysis of the 8-hour counts for the entire study area, the morning and afternoon peak hours have been identified from 7:45am to 8:45am, and 4:15pm to 5:15pm, respectively.

In regard to active transportation users, the study area experiences nominal pedestrian activity, with the counts capturing only one pedestrian at the Thirty Road and Young Street intersection throughout the 8-hour period (outside of the peak hours). Furthermore, with the counts being completed in the winter, there were no cyclists recorded at any of the study area intersections. The morning and afternoon peak hour volumes are presented in **Figure 2.3**, with the full count data provided in **Appendix 1**.

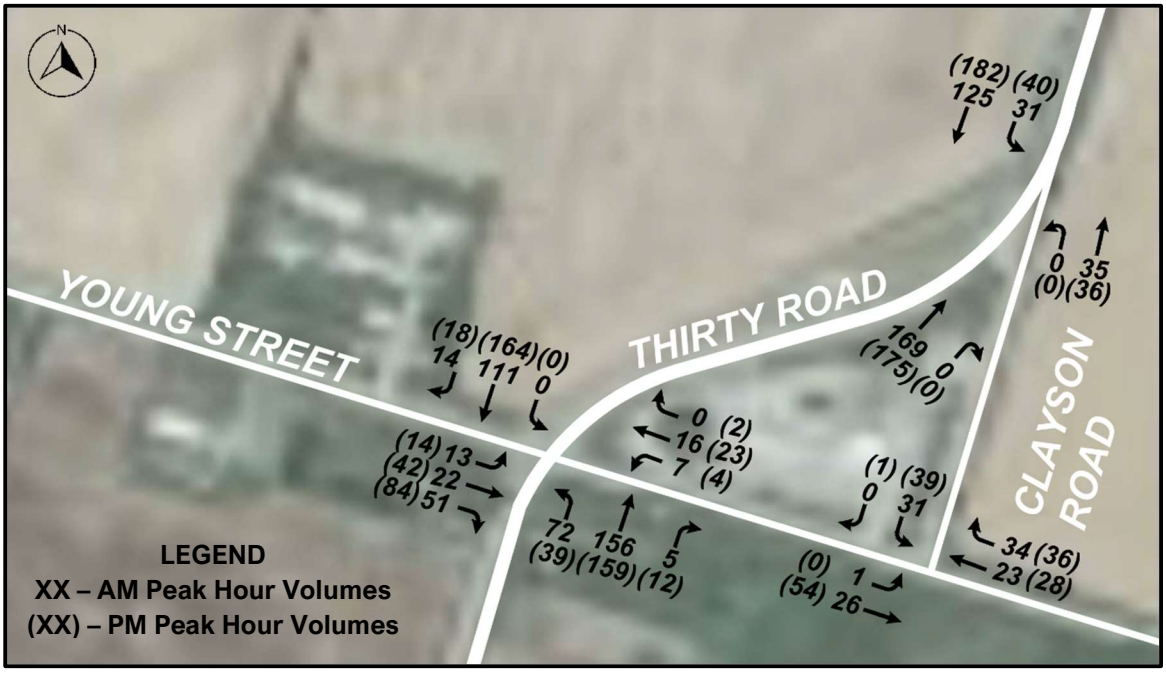


Figure 2.3 – Existing (2022) Traffic Volumes

2.4 Collision History (2017-2022)

The collision history at all three (3) study area intersections were reviewed as part of this study, inclusive of all collisions within a 5-year period of study commencement (Summer 2022). The earliest date recorded in this analysis occurred on August 3rd, 2017, and the most recent occurrence took place on June 29th, 2022. The collision data collected is presented in Appendix 2.

For Clayson Road & Young Street, a total of two (2) collisions took place in 2017, with one (1) involving a vehicle reversing into a stopped car, and the other involving a vehicle running off the road due to ice; neither collision resulted in a personal injury. Similarly, for Clayson Road and Thirty Road, one (1) collision took place in the 2017-2022 timeframe, with that collision involving a vehicle running off the road due to snow, with no personal injuries sustained as a result.

For Thirty Road & Young Street however, a total of 14 collisions took place in the 5-year period; the collision history is summarized in Table 2.1.

Table 2.1 – Thirty Road & Young Street Collision Summary (2017-2022)

Collision Type	Number of Collisions							% Distribution
	2017	2018	2019	2020	2021	2022	Total	
Angle	2	1	3	2	3	0	11	79%
Turning Movement	0	0	0	0	1	0	1	7%
Single Motor Vehicle	0	0	0	0	0	1	1	7%
Other	0	1	0	0	0	0	1	7%
Total	**2**	**2**	**3**	**2**	**4**	**1**	**14**	**100%**

As seen in the table, 79% of the collisions that have taken place at Thirty Road & Young Street in the most recent 5 years of collision data are classified as an angle collision, which is largely known to be one of the most severe collision types. Other collisions that have taken place at the intersection include a turning movement collision, a single motor vehicle collision, and a near-miss resulting in a vehicle running off the road to avoid a collision (classified as "other").

Further to the staggering percentage of angle collisions at the intersection, the review identified that eight (8) of the angle collisions included a westbound vehicle, six (6) of which were hit by vehicle travelling southbound along the spiral curve. It can be inferred from these numbers that sightline issues exist at this intersection for the westbound approach, largely due to the horizontal alignment of Thirty Road north of Young Street.

2.5 Traffic Operations Analysis Parameters

Intersection operations analysis has been completed for all the focus intersections using the industry standard macroscopic traffic analysis software, Synchro 11. The analysis adopts analysis parameters in accordance with the *Region of Niagara Guidelines for Transportation Impact Studies, 2012*; this information is summarized as follows:

Synchro

- Saturation flow rate of 1750 was used for intersection analysis.

Critical Movements

Movements are to be deemed 'critical' when one or more of the following statements are true:

- Level of Service (LOS) based on average delay per vehicle, on individual movements exceeds LOS "D"; and

- The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Key performance measures such as Level of Service (LOS), volume-to-capacity ratio (v/c ratio), and 95th percentile queuing was reported, and are defined below:

- Average vehicle control delay is used to characterize LOS for the entire intersection, an approach, or movement. Delay quantifies the variations in travel time and is also a surrogate measure of driver discomfort and fuel consumption.
- V/c ratio quantifies the degree to which the capacity of each signal phase is utilized by a defined lane group.
- 95th percentile queue is the queue length which is expected to be exceeded only 5% of the time; it is common practice to identify preferred storage length requirements for auxiliary turn lanes at signalized intersections based on estimated peak hour 95th percentile queueing.

The delay thresholds that dictate the LOS for unsignalized intersections, as per the Highway Capacity Manual (HCM 2000) methodology, are shown in Table 2.2.

Table 2.2 – Characteristics of Level of Service at Unsignalized Intersections

Level of Service (LOS)	Control Delay (seconds / vehicle)
	Unsignalized Intersection
A	≤ 10
B	> 10 to 15
C	> 15 to 25
D	> 25 to 35
E	> 35 to 50
F	> 50

2.6 Intersection Operations Analysis - Existing (2022) Traffic Conditions

Given the low traffic volumes at the study area intersections, an all-way stop warrant analysis for the intersection of Thirty Road and Young Street was performed and is presented in Appendix 3. The analysis concludes that all-way stop control is not warranted at this intersection using existing traffic volumes. However, due to the sightline concerns and safety issues identified in *Section 2.4 Collision History*, all-way stop control under existing conditions is warranted.

Traffic operations analysis has been undertaken for the existing (2022) traffic operations; the results of this analysis are summarized in Table 2.3. The detailed Synchro analysis outputs are provided in Appendix 3.

Table 2.3 – Existing (2022) Conditions - Traffic Operations Analysis Results

Intersection *Traffic Control*	Movement	Peak Hour							
		Weekday AM				Weekday PM			
		V/C	LOS	Delay (s)	95%^{tile} Queue (m)	V/C	LOS	Delay (s)	95%^{tile} Queue (m)
Thirty Road & Young Street *All-Way Stop Control*	EBLTR	0.32	A	9.6	1.4	0.30	A	9.6	1.2
	WBLTR	0.12	A	8.1	0.4	0.20	A	8.7	0.7
	NBLTR	0.04	A	8.2	0.1	0.05	A	8.4	0.1
	SBLTR	0.18	A	8.6	0.6	0.26	A	9.2	1.0
	Intersection	-	A	9.0	-	-	A	9.2	-
Young Street & Clayson Road *Minor Stop Control*	EBTL	0.00	A	0.3	0.0	0.00	A	0.0	0.0
	WBTR	0.04	A	0.0	0.0	0.04	A	0.0	0.0
	SBLR	0.04	A	9.2	1.0	0.05	A	9.3	1.2
	Intersection	-	A	2.6	-	-	A	2.3	-
Thirty Road & Clayson Road *Minor Stop Control*	WBLR	0.05	A	9.5	1.1	0.05	A	9.5	1.2
	NBTR	0.11	A	0.0	0.0	0.11	A	0.0	0.0
	SBTL	0.02	A	1.7	0.6	0.03	A	1.6	0.8
	Intersection	-	A	1.7	-	-	A	1.6	-

As seen in Table 2.3, the intersection of Thirty Road & Young Street operates with ample reserve capacity, delays at LOS "A" (less than 10 seconds of delay), and no queuing issues under the existing all-way stop control.

For the intersections of Thirty Road & Clayson Road, as well as Young Street & Clayson Road, both intersections are operating with substantial reserve capacity, nominal delays, and no queuing concerns under existing conditions.

2.7 Warrant Analysis – Existing Conditions

The left-turn lane warrant analysis for the northbound movement at Thirty Road and Young Street intersection was performed using the criteria outlined in Appendix 9A of the Ministry of Ontario Transportation (MTO) Design Supplement for Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads June 2017.

The analyses concludes that an exclusive left-turn lane for the northbound movement at Thirty Road and Young Street intersection is not required under the existing conditions. The warrant analysis is presented in Appendix 4.

3.0 Future (2041) Traffic Estimation and Planned Network Improvements

3.1 Traffic Growth Rate

A screenline analysis has been completed in the proximity of the intersection, north and south of Young Street, using link volumes from Regional EMME model output provided by the Region. These link volumes are summarized in Table 3.1, with the outputs provided in Appendix 5.

Table 3.1 – Traffic Growth Rates – EMME Model Data

Roadway Name	Movement	Analysis Scenario				Traffic Growth Rate
		2016		2041		
		Weekday AM	Weekday PM	Weekday AM	Weekday PM	
Thirty Road (RR 14)	Northbound	494	474	814	846	2.3%
	Southbound	489	473	834	918	2.7%
Young Street	Eastbound	8	11	12	18	2.0%
	Westbound	15	26	25	76	4.4%

Based on the results of the screenline analysis, in addition to consultation with Regional staff, a conservative growth rate of 2.5% has been adopted for the study area. The resulting 2041 traffic volumes are shown in Figure 3.1.

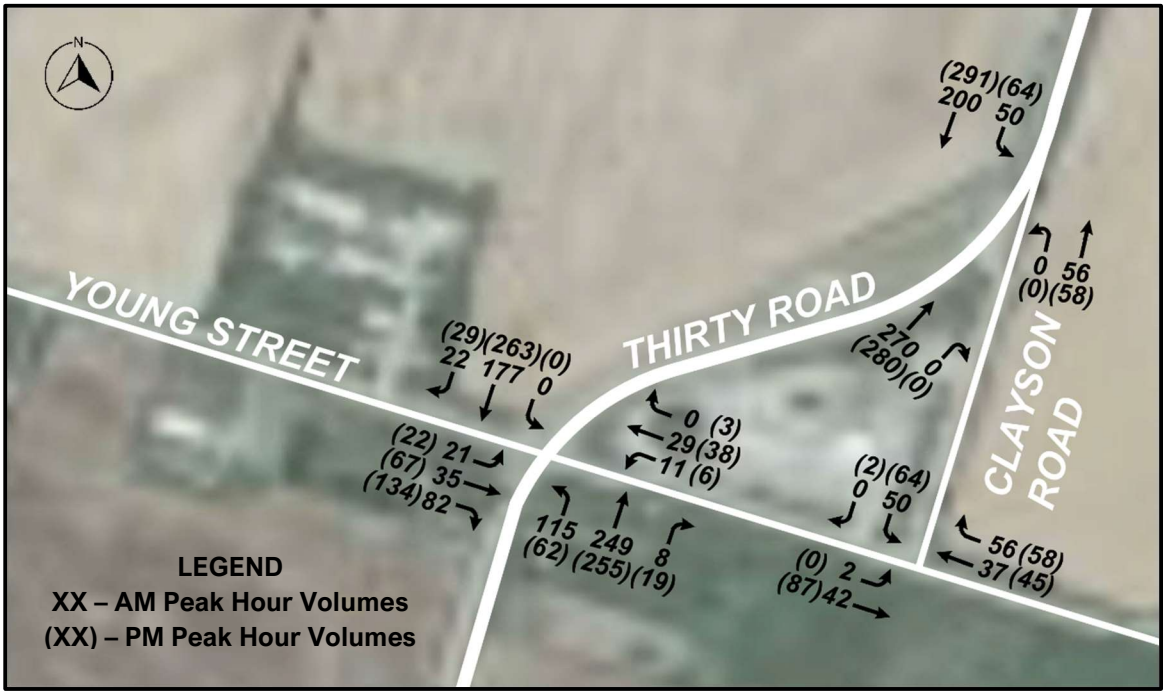


Figure 3.1 – Future (2041) Volumes (Annualized Growth Rate Only)

Given the alternatives include road closures, volume redistributions have been calculated accordingly for each alternative scenario; the projected traffic volumes adopted for each of the alternative scenarios are discussed under each improvement alternative.

3.2 Future Transportation Planned Network Improvements

As part of the *Smithville Transportation Master Plan (January 2023)*, a number of recommendations for new links and bypasses have been made for the Smithville area. Two (2) of these recommendations would have a substantial impact on the volumes in the study area, these two (2) recommendations are as follows:

a. Implement a new connector road (classified as a collector or arterial) that travels east-west along the existing hydro corridor, from Industrial Park Road to Regional Road 20; and

b. Provide a one (1) kilometre extension to Spring Creek Road that travels west and eventually curves north to intersect with the new connector road noted above.

The implementation of these corridors would provide alternative routes for east-west travel and would significantly reduce volumes along Young Street as a result. However, given the uncertainty of timelines for these projects, paired with the immediate need for operational

improvements within the study area, the analysis adopts the existing road network for future volume projections.

4.0 Future Traffic Operations - Improvement Alternatives

In consultation with the Regional staff, five (5) alternatives are being evaluated for the study area. The details of the alternative solutions considered are summarized in Table 4.1.

Table 4.1 – Summary of Alternative Solution

Alternative	Description
1 - Do Nothing	Maintain the existing alignment with the intersection operating as two-way stop control or all-way stop control
2 - Clayson Road Closure	Close Clayson Road and direct all traffic to an improved Thirty Road & Young Street intersection (i.e., traffic signal, roundabout).
3 - Thirty Road North Segment Closure	Close Thirty Road north of Young Street and provide two T-intersections with potential for improved traffic control (i.e., traffic signals, roundabouts).
4 - Realign Thirty Road north of Young Street	Close Clayson Road and realign Thirty Road, north of Young Street, to provide enhanced sightlines.
5 - Extend Clayson Road south of Young Street	Realign the south segment of Thirty Road to meet with Clayson Road.

An illustration and list of expected outcomes for each alternative is included in Appendix 6.

4.1 Forecast (2041) Traffic Volumes

The study adopts an ultimate horizon year of 2041 to align with the Region's EMME traffic forecast model, which is calibrated to the 2041 horizon year. Review of the Smithville TMP (2017) concluded that an extension of Industrial Park Road, as well as three (3) new corridors, named "New Western Link", "New Northern Connector", and "New Eastern Link", will be implemented as part of a by-pass through the Smithville downtown area. This by-pass has been recommended to mitigate cut-through traffic through the downtown Smithville area.

It was noted that the 2041 Emme model considers these additional links, which results in a significant decrease in traffic volumes along Young Street. However, given the by-pass links do not exist at the time of this study, a sensitivity analysis has been undertaken using the traffic volumes estimated in the 2041 Emme modelling, while still maintaining Young Street as a primary east-west corridor.

It should be noted that a cursory review of the current road network indicates that without the implementation of the "New Western Link" and "New Northern Connector", most drivers would utilize Townline Road to by-pass downtown Smithville, rather than Young Street. To maintain east-west volumes and align with the Region's 2041 traffic volume projections along Thirty Road, an annualized growth rate of 2.5% (as confirmed in *Section 3.1)* has been applied to all existing turning movements at the three (3) study area intersections, with additional through volumes along the Thirty Road corridor being taken from the Emme 2041 modelling south of Young Street. Given the Regional 2041 EMME model is inclusive of planned growth within the area, the model projections are considered to be the future total volumes, and are summarized in **Figure 4.1**.

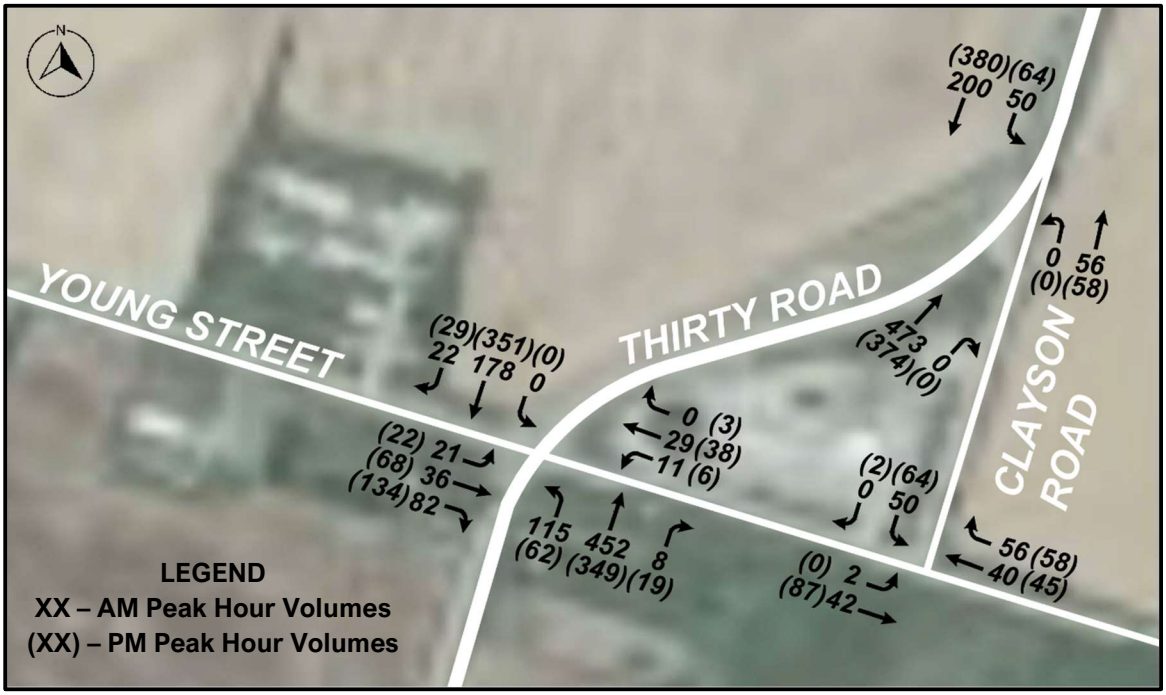


Figure 4.1 – Future (2041) Traffic Volumes – Do Nothing (Alternative #1)

It is concluded from the sensitivity analysis that the volumes shown in Figure 4.1 are more representative of the Thirty Road and Young Street intersection, especially in the event that the implementation of the new by-pass links are delayed. As a result, these volumes have been carried forward for future analysis.

The future (2041) traffic volumes in each of the proposed improvement alternatives are estimated based on the corresponding road closures in each of the proposed improvement alternatives. It should be noted that while there are significant differences in geometric characteristics for Alternatives 2, 4, and 5, the traffic distribution will be similar for each option.

The estimated future (2041) traffic volumes are discussed in the following sections.

4.1.1 Alternative 1: Do Nothing

The future (2041) traffic volumes in the Do-Nothing scenario are presented in Figure 4.1.

4.1.2 Alternatives 2, 4, and 5: Clayson Road Closure, and Extend Clayson Road south of Young Street Closure

The future (2041) traffic volumes in Alternatives #2, #4, and #5 is presented in Figure 4.2. It is important to note that Figure 4.2 reflects the Alternative #2 geometric alignment, and is

not reflective of the Alternative #4 and #5 geometric alignment. The figure should be referenced for traffic volumes only.

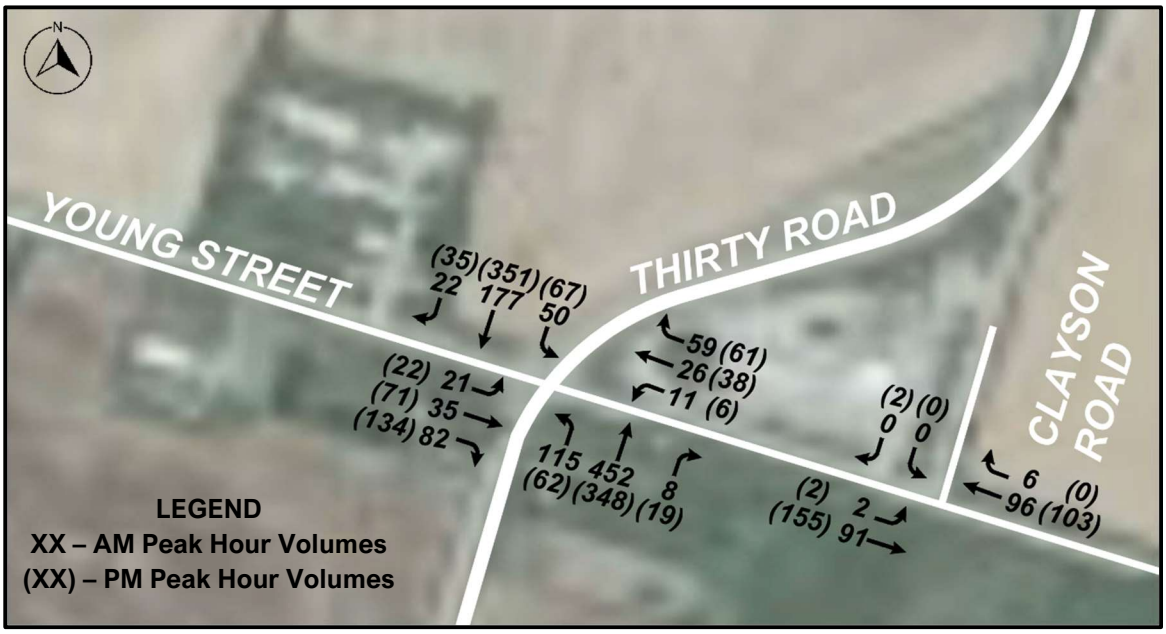


Figure 4.2 – Future (2041) Traffic Volumes – Clayson Road Closure (Alternatives #2 and 4) and Extend Clayson Road south of Young Street closure (Alternatives #5)

4.1.3 Alternatives 3: Thirty Road North Segment Closure

The future (2041) traffic volumes in Thirty Road north segment closure scenario is presented in Figure 4.3.

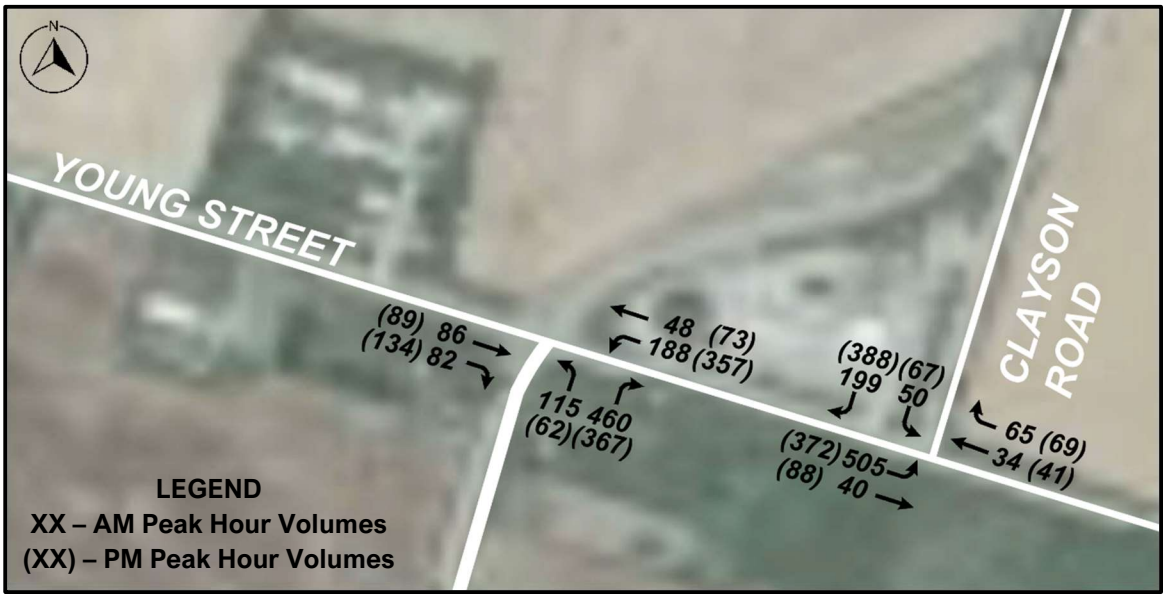


Figure 4.3 – Future (2041) Traffic Volumes – Thirty Road North Segment Closure (Alternatives #3)

4.2 Warrant Analysis – Future (2041) Traffic Conditions

Comparison of the future (2041) traffic volumes at the intersection of Thirty Road and Young Street among the proposed alternatives reveal that the Alternatives #2, #4, and #5 have the highest traffic volumes.

An all-way stop warrant analysis for the intersection of Thirty Road and Young Street was performed under the future (2041) traffic conditions and is presented in Appendix 7.

The left-turn lane warrant analysis for the northbound and southbound movements at Thirty Road and Young Street intersection was performed using the criteria outlined in Appendix 9A of the Ministry of Ontario Transportation (MTO) Design Supplement for Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads June 2017.

The analyses concludes that an exclusive left-turn lane for the northbound and southbound movements at Thirty Road and Young Street intersection is required under the future (2041) traffic conditions with unsignalized control. The warrant analysis is presented in Appendix 7.

Signal warrant analysis for Thirty Road and Young Street intersection under future (2041) traffic conditions was analyzed using the guidelines provided under the Justification 7 (Projected Volumes) of Ontario Traffic Manual (OTM) Book 12. The analyses concludes that traffic signal is not required at Thirty Road and Young Street intersection under the future (2041) traffic conditions. The warrant analyses results are presented in Appendix 7.

4.3 Intersection Operations Analysis - Future (2041) Traffic Conditions

4.3.1 Alternative 1: Do Nothing

Traffic operations analysis has been undertaken for the Alternative 1 (Do Nothing) using Synchro software. The results of this analysis are summarized in Table 4.2. The detailed Synchro analysis outputs are provided in Appendix 8.

Table 4.2 – Future (2041) Conditions – Traffic Operations Analysis Results (Alternative 1 – Do Nothing)

Intersection *Traffic Control*	Movement	Peak Hour							
		Weekday AM				Weekday PM			
		V/C	LOS	Delay (s)	95%^{tile} Queue (m)	V/C	LOS	Delay (s)	95%^{tile} Queue (m)
Thirty Road & Young Street *All-Way Stop Control*	EBLTR	0.24	B	10.7	0.9	0.41	C	22.0	6.1
	WBLTR	0.08	B	10.1	0.3	0.10	B	13.2	2.0
	NBLTR	0.86	D	31.4	12.7	0.72	B	10.8	0.3
	SBLTR	0.33	B	11.3	1.5	0.65	C	18.3	4.6
	Intersection	-	C	23.3	-	-	C	18.4	-
Young Street & Clayson Road *Minor Stop Control*	EBTL	0.00	A	0.3	0.0	0.00	A	0.0	0.0
	WBTR	0.06	A	0.0	0.0	0.07	A	0.0	0.0
	SBLR	0.06	A	9.6	1.7	0.09	A	9.8	2.3
	Intersection	-	A	2.6	-	-	A	2.5	-
Thirty Road & Clayson Road *Minor Stop Control*	WBLR	0.11	B	12.5	3.0	0.10	B	11.3	2.6
	NBTR	0.30	A	0.0	0.0	0.24	A	0.0	0.0
	SBTL	0.06	A	2.2	1.4	0.06	A	1.8	1.6
	Intersection	-	A	1.6	-	-	A	1.7	-

As shown in Table 4.2, the intersection of Thirty Road & Clayson Road is forecast to exhibit overall intersection delays of LOS "C" (15 to 25 seconds of delay), with v/c ratios peaking at 0.86 for the eastbound movement in the a.m. peak hour. There are no queueing concerns anticipated through to the ultimate 2041 horizon year.

For the other two intersections along Clayson Road, both intersections are forecast to operate with reserve capacity, delays less than 15 seconds (LOS "B") for individual movements and no queueing concerns through to the ultimate 2041 horizon year.

4.3.2 Alternative 2: Close Clayson Road and Provide Traffic Control Improvements to Thirty Road & Young Street

Traffic operations analysis has been undertaken for the Alternative 2 (Clayson Closure) using Synchro software (for unsignalized traffic control intersections) and Arcady software (for roundabout). The results of this analysis are summarized in Table 4.3. The detailed Synchro and Arcady analyses outputs are provided in Appendix 9.

Table 4.3 - Future (2041) Conditions – Traffic Operations Analysis Results (Alternative 2 – Clayson Closure)

Intersection *Traffic Control*	Movement	Peak Hour							
		Weekday AM				Weekday PM			
		V/C	LOS	Delay (s)	95%^{tile} Queue (m)	V/C	LOS	Delay (s)	95%^{tile} Queue (m)
Thirty Road & Young Street *All-Way Stop Control*	EBLTR	0.33	B	12.7	1.4	0.45	C	15.3	2.3
	WBLTR	0.19	B	11.2	0.7	0.23	B	12.5	0.9
	NBLTR	0.95	**E**	47.4	13.3	0.81	D	30.2	7.9
	SBLTR	0.47	B	14.7	2.5	0.83	D	33.2	8.8
	Intersection	-	D	31.4	-	-	D	31.1	-
Thirty Road & Clayson Road *Roundabout Control*	EBLTR	0.15	A	7.5	3.6	0.13	A	5.8	3.0
	WBLTR	0.23	A	5.2	4.2	0.29	A	7.3	7.2
	NBLTR	0.17	A	5.8	6.0	0.40	A	7.1	12.0
	SBLTR	0.53	A	9.5	21.0	0.40	A	7.4	12.6
	Intersection	-	A	7.8	-	-	A	7.1	-

As shown in Table 4.3, the redistribution of traffic associated with closing Clayson Road results in capacity constraints for the all-way stop scenario; in particular, the increased traffic results in substantial delays for the northbound movement, with v/c ratios peaking at 0.95 in the a.m. peak hour.

For roundabout control, the intersection is forecast to operate with ample reserve capacity (v/c ratios not exceeding 0.53), delays less than 10 seconds (LOS "A"), and no queueing concerns. Furthermore, the conversion to roundabout control would serve to reduce angle collisions at this intersection.

4.3.3 Alternative 3: Close North Segment of Thirty Road and Create Two T-Intersections along Young Street

Traffic operations analysis has been undertaken for the Alternative 3 (Close north segment of Thirty Road and create two T-Intersections along Young Street) using Synchro software (for unsignalized traffic control intersections) and Arcady software (for roundabout). The results of this analysis are summarized in Table 4.4. The detailed Synchro and Arcady analysis outputs are provided in Appendix 10.

Table 4.4 - Future (2041) Conditions – Traffic Operations Analysis Results (Alternative 3 – Thirty Closure)

Intersection *Traffic Control*	Movement	Peak Hour							
		Weekday AM				Weekday PM			
		V/C	LOS	Delay (s)	95%tile Queue (m)	V/C	LOS	Delay (s)	95%tile Queue (m)
Thirty Road & Young Street (West Junction) *Minor Stop Control*	EBTR	0.11	A	0.0	0.0	0.14	A	0.0	0.0
	WBLT	0.15	A	6.8	4.3	0.30	A	7.9	10.0
	NBLR	0.88	**E**	36.0	88.2	0.83	**E**	35.2	68.2
	Intersection	-	C	22.8	-	-	C	17.1	-
Thirty Road & Young Street (East Junction) *Minor Stop Control*	EBTR	0.38	A	8.6	14.5	0.28	A	7.3	9.1
	WBLT	0.06	A	0.0	0.0	0.07	A	0.0	0.0
	SBLR	0.69	D	32.8	40.7	0.80	D	30.4	64.1
	Intersection	-	B	14.4	-	-	C	16.8	-
Thirty Road & Young Street (West Junction) *Roundabout Control*	EBTR	0.21	A	5.3	5.4	0.36	A	6.4	10.2
	WBLT	0.16	A	5.0	3.6	0.27	A	6.6	6.6
	NBLR	0.50	A	8.7	18.6	0.37	A	6.7	10.8
	Intersection	-	A	7.2	-	-	A	6.5	-
Thirty Road & Young Street (East Junction) *Roundabout Control*	EBTR	0.45	A	7.3	14.4	0.39	A	6.7	11.4
	WBLT	0.14	A	6.0	3.0	0.13	A	5.5	3.0
	SBLR	0.20	A	4.4	4.8	0.38	A	6.4	10.8
	Intersection	-	A	6.7	-	-	A	6.4	-

Table 4.4 shows that closing the north segment of Thirty Road and providing two T-intersections will result in significant delays (LOS "E") for the movements along Thirty Road when implementing stop control. In contrast, the implementation of roundabouts provides better levels of service, with all movements operating with reserve capacity and delays less than ten (10) seconds; however, despite the individual roundabouts operating well under 2041 traffic conditions, this alternative makes Thirty Road discontinuous and is therefore not desirable for a primary arterial.

4.3.4 Alternatives 4 & 5: Realign Thirty Road North/South of Young Street

Alternatives 4 and 5 consist of realigning Thirty Road to improve sightlines and create a more accommodating horizontal alignment, with Alternative 4 realigning Thirty Road north of Young Street and Alternative 5 realigning Thirty Road south of Young Street. From an operations analysis perspective, both of these options, as well as Alternative 3 (Clayson Road closure) result in the same volume distribution, and therefore yield the same results.

Given the volume scenarios do not meet the warrant thresholds for an all-way stop, in addition to the sightlines being greatly enhanced by the realignment of Thirty Road,

Alternative 4 and 5 include an analysis for two-way stop control, with free-flow movement along Thirty Road.

Traffic operations analysis has been undertaken for the Alternatives 4 and 5 (realign Thirty Road north/south of Young Street) using Synchro software (for unsignalized traffic control intersections) and Arcady software (for roundabout). The results of this analysis are summarized in Table 4.5. The detailed Synchro and Arcady analyses outputs are provided in Appendix 9.

Table 4.5 - Future (2041) Conditions – Traffic Operations Analysis Results (Alternatives 4 & 5 – Realigning Thirty Road North/South of Young Street)

Intersection *Traffic Control*	Movement	Peak Hour							
		Weekday AM				Weekday PM			
		V/C	LOS	Delay (s)	95%^{tile} Queue (m)	V/C	LOS	Delay (s)	95%^{tile} Queue (m)
Thirty Road & Young Street *Two-Way Stop Control*	EBLTR	0.76	F	54.9	42.9	0.80	F	51.5	52.1
	WBLTR	0.38	D	25.7	13.5	0.41	D	26.9	15.4
	NBLTR	0.09	A	2.5	2.5	0.06	A	1.8	1.5
	SBLTR	0.05	A	2.2	2.2	0.06	A	1.8	1.6
	Intersection	-	C	12.5	-	-	B	13.2	-
Thirty Road & Young Street *All-Way Stop Control*	EBLTR	0.33	B	12.7	1.4	0.45	C	15.3	2.3
	WBLTR	0.19	B	11.2	0.7	0.23	B	12.5	0.9
	NBLTR	0.95	E	47.4	13.3	0.81	D	30.2	7.9
	SBLTR	0.47	B	14.7	2.5	0.83	D	33.2	8.8
	Intersection	-	D	31.4	-	-	D	31.1	-
Thirty Road & Clayson Road *Roundabout Control*	EBLTR	0.17	A	7.3	3.6	0.14	A	5.7	3.0
	WBLTR	0.27	A	5.7	6.6	0.42	A	7.2	12.6
	NBLTR	0.19	A	5.4	4.2	0.29	A	7.4	7.2
	SBLTR	0.57	A	9.9	22.2	0.42	A	7.5	12.6
	Intersection	-	A	8.0	-	-	A	7.2	-

As shown in Table 4.5, the realigned Thirty Road and Young Street intersection is forecast to operate with significant delays (LOS "F") for the minor approach movements under two-way stop control. For all-way stop control, overall intersection delays are increased to LOS "D" (25 to 35 seconds of delay) for both peak periods, with v/c ratios peaking at 0.95 for the northbound movement.

Under roundabout configuration, the intersection operates with substantial reserve capacity, delays less than 10 seconds (LOS "A"), and no queuing concerns. Therefore, the roundabout control is forecast to provide the most desirable performance measures under the realigned Thirty Road alternatives.

5.0 Summary of Findings and Recommendations

The findings and recommendations from the transportation assessment can be summarized as follows:

- The intersection of Thirty Road & Young Street has been reviewed in response to significant resident concern regarding traffic safety, largely due to the spiral curve along Thirty Road, north of Young Street.
- A review of collision history from 2017-2022 identified that 14 collisions have taken place, 11 of which were classified as angle collisions, which are largely known to be one of the most severe collision types.
- The collision history showed that 8 of the 11 angle collisions included a westbound vehicle, 6 of which also included a southbound vehicle, which infers that a sightline issue exists on the westbound and southbound approaches due to the horizontal alignment along Thirty Road, north of Young Street.
- Future (2041) intersection volumes were developed by undertaking a sensitivity analysis using the estimated growth rate of 2.5% applied to the existing (2022) traffic volumes, in addition to using information from the Smithville TMP (2017) and 2041 Emme model outputs.
- OTM warrant analyses for all-way stop control and signals have been undertaken for the Thirty Road and Young Street intersection, with the results indicating that neither all-way stop controls, nor traffic signals, are warranted at this intersection under existing or future volume scenarios. However, the collision analysis concluded that all-way stop control is warranted due to sightline issues.
- The all-way stop control scenarios are anticipated to cause some additional delays for traffic along Thirty Road.
- The roundabout configuration is forecast to operate with substantial reserve capacity, nominal delays, and no queueing concerns. Furthermore, the roundabout configuration will serve to reduce angle collisions at Thirty Road & Young Street.
- For traffic accommodation, it is recommended that Improvement Alternatives 3, 4 or 5 under roundabout control be implemented, as these alternatives under roundabout control maintain the arterial functionality of Thirty Road while also servicing the minor volumes along Young Street.

APPENDIX 1

Turning Movement Count (TMC) Data

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #22-410 - RV Anderson

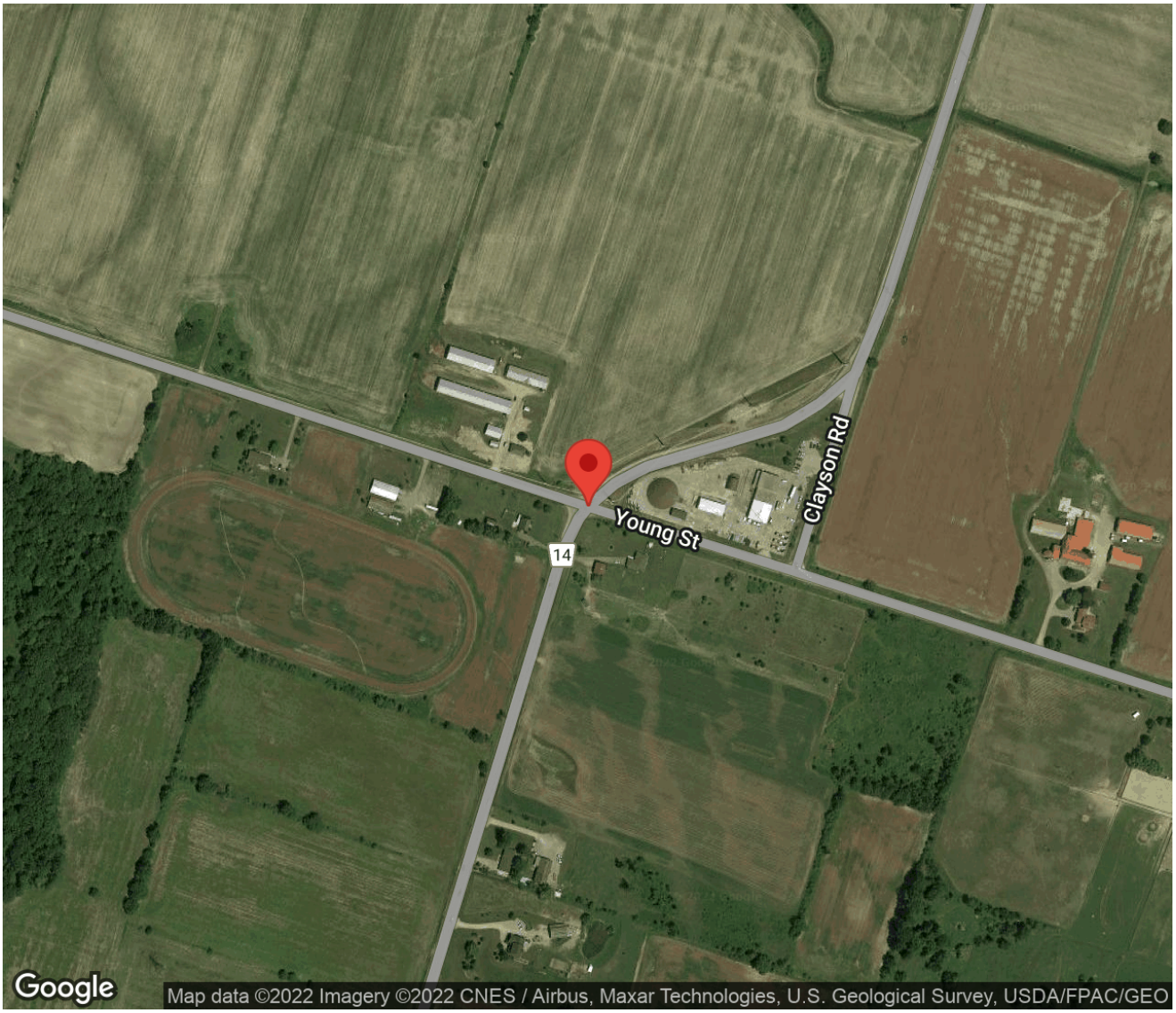
Intersection Count Report

Intersection:	Thirty Rd & Young St
Municipality:	Smithville
Count Date:	Thursday, Dec 01, 2022
Site Code:	2241000002
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 11:00-14:00, 15:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Thirty Rd & Young St
Site Code:	2241000002
Municipality:	Smithville
Count Date:	Dec 01, 2022



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

Thirty Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	75	6	0	81	0	77	139	6	0	222	0	303
08:00 - 09:00	0	94	18	0	112	0	63	151	3	0	217	0	329
BREAK													
11:00 - 12:00	0	74	7	0	81	1	49	103	3	0	155	0	236
12:00 - 13:00	0	91	7	0	98	0	40	86	6	0	132	0	230
13:00 - 14:00	0	76	8	0	84	0	35	84	4	0	123	0	207
BREAK													
15:00 - 16:00	0	131	15	0	146	0	58	140	3	0	201	0	347
16:00 - 17:00	1	162	15	0	178	0	41	153	11	0	205	0	383
17:00 - 18:00	0	144	15	0	159	0	31	103	4	0	138	0	297
GRAND TOTAL	**1**	**847**	**91**	**0**	**939**	**1**	**394**	**959**	**40**	**0**	**1393**	**0**	**2332**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

Young St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	6	23	1	0	30	0	16	23	48	0	87	0	117
08:00 - 09:00	5	15	0	0	20	0	12	27	53	1	93	0	113
BREAK													
11:00 - 12:00	2	11	1	0	14	0	10	17	36	0	63	0	77
12:00 - 13:00	6	12	2	0	20	0	6	20	54	0	80	0	100
13:00 - 14:00	6	18	3	0	27	0	12	26	48	0	86	0	113
BREAK													
15:00 - 16:00	5	30	0	0	35	0	12	19	83	0	114	0	149
16:00 - 17:00	5	24	2	0	31	0	13	37	94	0	144	0	175
17:00 - 18:00	2	17	1	0	20	0	13	35	62	0	110	0	130
GRAND TOTAL	**37**	**150**	**10**	**0**	**197**	**0**	**94**	**204**	**478**	**1**	**777**	**0**	**974**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	8	1	0	9	0	0	0	0	0	0	0	0	0	0	0
07:15	0	16	1	0	17	0	2	0	0	2	0	0	0	0	0	0
07:30	0	16	2	0	18	0	2	0	0	2	0	0	0	0	0	0
07:45	0	28	2	0	30	0	3	0	0	3	0	0	0	0	0	0
08:00	0	22	4	0	26	0	3	0	0	3	0	0	0	0	0	0
08:15	0	27	3	0	30	0	4	0	0	4	0	0	0	0	0	0
08:30	0	19	4	0	23	0	5	1	0	6	0	0	0	0	0	0
08:45	0	14	3	0	17	0	0	3	0	3	0	0	0	0	0	0
SUBTOTAL	0	150	20	0	170	0	19	4	0	23	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
11:00	0	19	0	0	19	0	1	0	0	1	0	0	0	0	0	0
11:15	0	13	2	0	15	0	3	0	0	3	0	0	0	0	0	0
11:30	0	14	1	0	15	0	3	1	0	4	0	0	0	0	0	0
11:45	0	18	3	0	21	0	3	0	0	3	0	0	0	0	0	1
12:00	0	17	1	0	18	0	2	0	0	2	0	0	0	0	0	0
12:15	0	22	0	0	22	0	0	0	0	0	0	0	0	0	0	0
12:30	0	27	1	0	28	0	3	0	0	3	0	0	0	0	0	0
12:45	0	19	5	0	24	0	1	0	0	1	0	0	0	0	0	0
13:00	0	14	1	0	15	0	4	0	0	4	0	0	0	0	0	0
13:15	0	18	1	0	19	0	0	1	0	1	0	0	0	0	0	0
13:30	0	17	4	0	21	0	0	0	0	0	0	0	0	0	0	0
13:45	0	23	1	0	24	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	221	20	0	241	0	20	2	0	22	0	0	0	0	0	1

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	0	15	4	0	19	0	1	1	0	2	0	0	0	0	0	0
15:15	0	40	2	0	42	0	2	1	0	3	0	0	0	0	0	0
15:30	0	34	3	0	37	0	2	0	0	2	0	0	0	0	0	0
15:45	0	35	4	0	39	0	2	0	0	2	0	0	0	0	0	0
16:00	1	34	3	0	38	0	2	0	0	2	0	0	0	0	0	0
16:15	0	35	2	0	37	0	0	1	0	1	0	0	0	0	0	0
16:30	0	41	3	0	44	0	3	0	0	3	0	0	0	0	0	0
16:45	0	45	6	0	51	0	2	0	0	2	0	0	0	0	0	0
17:00	0	35	6	0	41	0	2	0	0	2	0	0	0	0	0	0
17:15	0	40	2	0	42	0	1	0	0	1	0	0	0	0	0	0
17:30	0	40	3	0	43	0	3	0	0	3	0	0	0	0	0	0
17:45	0	22	4	0	26	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	1	416	42	0	459	0	21	3	0	24	0	0	0	0	0	0
GRAND TOTAL	1	787	82	0	870	0	60	9	0	69	0	0	0	0	0	1

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

South Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	11	38	1	0	50	0	0	0	0	0	0	0	0	0	0	0
07:15	12	31	0	0	43	0	3	1	0	4	0	0	0	0	0	0
07:30	29	31	0	0	60	1	3	1	0	5	0	0	0	0	0	0
07:45	22	29	3	0	54	2	4	0	0	6	0	0	0	0	0	0
08:00	11	35	1	0	47	2	6	0	0	8	0	0	0	0	0	0
08:15	18	36	1	0	55	2	3	0	0	5	0	0	0	0	0	0
08:30	15	42	0	0	57	0	1	0	0	1	0	0	0	0	0	0
08:45	15	27	1	0	43	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	133	269	7	0	409	7	21	2	0	30	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

South Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
11:00	13	25	1	0	39	0	1	0	0	1	0	0	0	0	0	0
11:15	8	27	0	0	35	0	2	0	0	2	0	0	0	0	0	0
11:30	16	30	1	0	47	1	0	0	0	1	0	0	0	0	0	0
11:45	9	15	0	0	24	2	3	1	0	6	0	0	0	0	0	0
12:00	9	16	1	0	26	0	1	0	0	1	0	0	0	0	0	0
12:15	9	19	0	0	28	0	4	0	0	4	0	0	0	0	0	0
12:30	12	19	1	0	32	0	1	1	0	2	0	0	0	0	0	0
12:45	8	24	2	0	34	2	2	1	0	5	0	0	0	0	0	0
13:00	8	19	0	0	27	1	1	0	0	2	0	0	0	0	0	0
13:15	7	13	2	0	22	0	2	0	0	2	0	0	0	0	0	0
13:30	11	21	0	0	32	0	1	1	0	2	0	0	0	0	0	0
13:45	8	25	1	0	34	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	118	253	9	0	380	6	20	4	0	30	0	0	0	0	0	0

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Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

South Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	13	42	1	0	56	0	0	0	0	0	0	0	0	0	0	0
15:15	15	34	0	0	49	2	1	0	0	3	0	0	0	0	0	0
15:30	16	29	0	0	45	0	1	1	0	2	0	0	0	0	0	0
15:45	12	31	0	0	43	0	2	1	0	3	0	0	0	0	0	0
16:00	10	28	1	0	39	0	0	0	0	0	0	0	0	0	0	0
16:15	11	43	1	0	55	0	1	2	0	3	0	0	0	0	0	0
16:30	10	47	5	0	62	1	2	0	0	3	0	0	0	0	0	0
16:45	9	32	2	0	43	0	0	0	0	0	0	0	0	0	0	0
17:00	7	31	2	0	40	1	2	0	0	3	0	0	0	0	0	0
17:15	9	30	0	0	39	0	1	0	0	1	0	0	0	0	0	0
17:30	9	16	1	0	26	0	1	0	0	1	0	0	0	0	0	0
17:45	5	22	1	0	28	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	126	385	14	0	525	4	11	4	0	19	0	0	0	0	0	0
GRAND TOTAL	377	907	30	0	1314	17	52	10	0	79	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
07:15	3	3	0	0	6	0	0	0	0	0	0	0	0	0	0	0
07:30	0	8	1	0	9	1	3	0	0	4	0	0	0	0	0	0
07:45	2	5	0	0	7	0	1	0	0	1	0	0	0	0	0	0
08:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
08:15	3	2	0	0	5	0	0	0	0	0	0	0	0	0	0	0
08:30	2	5	0	0	7	0	1	0	0	1	0	0	0	0	0	0
08:45	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	10	31	1	0	42	1	7	0	0	8	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
11:00	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0
11:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
11:30	0	3	1	0	4	1	0	0	0	1	0	0	0	0	0	0
11:45	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
12:00	0	4	0	0	4	1	0	0	0	1	0	0	0	0	0	0
12:15	2	4	0	0	6	0	1	0	0	1	0	0	0	0	0	0
12:30	1	1	0	0	2	1	0	1	0	2	0	0	0	0	0	0
12:45	0	1	1	0	2	1	1	0	0	2	0	0	0	0	0	0
13:00	2	3	0	0	5	1	2	0	0	3	0	0	0	0	0	0
13:15	0	3	0	0	3	0	2	1	0	3	0	0	0	0	0	0
13:30	0	3	0	0	3	1	1	0	0	2	0	0	0	0	0	0
13:45	0	4	2	0	6	2	0	0	0	2	0	0	0	0	0	0
SUBTOTAL	6	34	4	0	44	8	7	2	0	17	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
15:00	1	10	0	0	11	0	0	0	0	0	0	0	0	0	0	0
15:15	1	3	0	0	4	0	1	0	0	1	0	0	0	0	0	0
15:30	1	5	0	0	6	1	3	0	0	4	0	0	0	0	0	0
15:45	0	8	0	0	8	1	0	0	0	1	0	0	0	0	0	0
16:00	1	6	0	0	7	0	0	0	0	0	0	0	0	0	0	0
16:15	1	5	0	0	6	0	1	0	0	1	0	0	0	0	0	0
16:30	1	5	0	0	6	0	0	0	0	0	0	0	0	0	0	0
16:45	2	7	2	0	11	0	0	0	0	0	0	0	0	0	0	0
17:00	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0
17:15	2	8	0	0	10	0	0	0	0	0	0	0	0	0	0	0
17:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
17:45	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	10	66	3	0	79	2	5	0	0	7	0	0	0	0	0	0
GRAND TOTAL	26	131	8	0	165	11	19	2	0	32	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

West Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	3	5	5	0	13	0	1	0	0	1	0	0	0	0	0	0
07:15	8	5	11	0	24	0	1	1	0	2	0	0	0	0	0	0
07:30	0	6	10	0	16	0	1	1	0	2	0	0	0	0	0	0
07:45	5	4	19	0	28	0	0	1	0	1	0	0	0	0	0	0
08:00	3	4	4	0	11	0	2	2	0	4	0	0	0	0	0	0
08:15	1	3	13	0	17	0	0	1	0	1	0	0	0	0	0	0
08:30	4	8	11	0	23	0	1	0	0	1	0	0	0	0	0	0
08:45	3	8	20	0	31	1	1	2	1	5	0	0	0	0	0	0
SUBTOTAL	27	43	93	0	163	1	7	8	1	17	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

West Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
11:00	4	1	8	0	13	1	2	1	0	4	0	0	0	0	0	0
11:15	2	4	7	0	13	0	1	0	0	1	0	0	0	0	0	0
11:30	0	6	10	0	16	0	0	0	0	0	0	0	0	0	0	0
11:45	1	2	8	0	11	2	1	2	0	5	0	0	0	0	0	0
12:00	3	2	16	0	21	1	1	1	0	3	0	0	0	0	0	0
12:15	0	3	10	0	13	0	0	0	0	0	0	0	0	0	0	0
12:30	1	5	11	0	17	0	0	0	0	0	0	0	0	0	0	0
12:45	1	8	14	0	23	0	1	2	0	3	0	0	0	0	0	0
13:00	2	3	13	0	18	0	1	0	0	1	0	0	0	0	0	0
13:15	3	7	11	0	21	0	1	1	0	2	0	0	0	0	0	0
13:30	1	3	9	0	13	0	2	1	0	3	0	0	0	0	0	0
13:45	4	8	12	0	24	2	1	1	0	4	0	0	0	0	0	0
SUBTOTAL	22	52	129	0	203	6	11	9	0	26	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Municipality: Smithville
Count Date: Dec 01, 2022

West Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	3	4	20	0	27	0	2	1	0	3	0	0	0	0	0	0
15:15	1	2	14	0	17	0	1	1	0	2	0	0	0	0	0	0
15:30	2	4	25	0	31	1	2	0	0	3	0	0	0	0	0	0
15:45	5	4	22	0	31	0	0	0	0	0	0	0	0	0	0	0
16:00	2	8	31	0	41	0	0	1	0	1	0	0	0	0	0	0
16:15	4	9	21	0	34	0	0	0	0	0	0	0	0	0	0	0
16:30	5	8	21	0	34	0	0	0	0	0	0	0	0	0	0	0
16:45	2	12	20	0	34	0	0	0	0	0	0	0	0	0	0	0
17:00	3	13	21	0	37	0	0	1	0	1	0	0	0	0	0	0
17:15	5	5	12	0	22	0	0	3	0	3	0	0	0	0	0	0
17:30	2	9	12	0	23	0	0	2	0	2	0	0	0	0	0	0
17:45	3	8	10	0	21	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	37	86	229	0	352	1	5	10	0	16	0	0	0	0	0	0
GRAND TOTAL	86	181	451	0	718	8	23	27	1	59	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:45:00
To:	09:00:00	To:	08:45:00

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Thirty Rd runs N/S

North Approach

	Out	In	Total
Cars	109	155	264
Trucks	16	14	30
Bicycles	0	0	0
	125	**169**	**294**

Thirty Rd

Bicycles	0	0	0	0
Trucks	1	15	0	0
Cars	13	96	0	0
Totals	**14**	**111**	**0**	**0**

East Approach

	Out	In	Total
Cars	19	24	43
Trucks	3	3	6
Bicycles	0	0	0
	22	**27**	**49**

Young St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	13	**13**	
0	3	19	**22**	
0	4	47	**51**	

Peds: 0

Peds: 0

Peds: 0

Young St

Totals	Cars	Trucks	Bicycles
0	0	0	0
0	0	0	0
15	12	3	0
7	7	0	0

West Approach

	Out	In	Total
Cars	79	91	170
Trucks	7	10	17
Bicycles	0	0	0
	86	**101**	**187**

Thirty Rd

Totals	**72**	**156**	**5**	**0**
Cars	66	142	5	0
Trucks	6	14	0	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	213	150	363
Trucks	20	19	39
Bicycles	0	0	0
	233	**169**	**402**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Thirty Rd & Young St
Site Code:	2241000002
Count Date:	Dec 01, 2022
Period:	07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Thirty Rd						South Approach Thirty Rd						East Approach Young St						West Approach Young St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	0	31	2	0	0	33	24	33	3	0	0	60	2	6	0	0	0	8	5	4	20	0	0	29	130
08:00	0	25	4	0	0	29	13	41	1	0	0	55	0	1	0	0	0	1	3	6	6	0	0	15	100
08:15	0	31	3	0	0	34	20	39	1	0	0	60	3	2	0	0	0	5	1	3	14	0	0	18	117
08:30	0	24	5	0	0	29	15	43	0	0	0	58	2	6	0	0	0	8	4	9	11	0	0	24	119
Grand Total	**0**	**111**	**14**	**0**	**0**	**125**	**72**	**156**	**5**	**0**	**0**	**233**	**7**	**15**	**0**	**0**	**0**	**22**	**13**	**22**	**51**	**0**	**0**	**86**	**466**
Approach %	0	88.8	11.2	0		-	30.9	67	2.1	0		-	31.8	68.2	0	0		-	15.1	25.6	59.3	0		-	
Totals %	0	23.8	3	0		26.8	15.5	33.5	1.1	0		50	1.5	3.2	0	0		4.7	2.8	4.7	10.9	0		18.5	
PHF	**0**	**0.9**	**0.7**	**0**		**0.92**	**0.75**	**0.91**	**0.42**	**0**		**0.97**	**0.58**	**0.63**	**0**	**0**		**0.69**	**0.65**	**0.61**	**0.64**	**0**		**0.74**	**0.9**
Cars	0	96	13	0		109	66	142	5	0		213	7	12	0	0		19	13	19	47	0		79	420
% Cars	0	86.5	92.9	0		87.2	91.7	91	100	0		91.4	100	80	0	0		86.4	100	86.4	92.2	0		91.9	90.1
Trucks	0	15	1	0		16	6	14	0	0		20	0	3	0	0		3	0	3	4	0		7	46
% Trucks	0	13.5	7.1	0		12.8	8.3	9	0	0		8.6	0	20	0	0		13.6	0	13.6	7.8	0		8.1	9.9
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	11:00:00	From:	12:00:00
To:	14:00:00	To:	13:00:00

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Thirty Rd runs N/S

North Approach

	Out	In	Total
Cars	92	84	176
Trucks	6	10	16
Bicycles	0	0	0
	98	**94**	**192**

Thirty Rd

Bicycles	0	0	0	0
Trucks	0	6	0	0
Cars	7	85	0	0
Totals	**7**	**91**	**0**	**0**

East Approach

	Out	In	Total
Cars	14	22	36
Trucks	6	4	10
Bicycles	0	0	0
	20	**26**	**46**

Young St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	1	5	**6**	
0	2	18	**20**	
0	3	51	**54**	

Peds: 0

Peds: 0

Peds: 0

Young St

Totals	Cars	Trucks	Bicycles
0	0	0	0
2	1	1	0
12	10	2	0
6	3	3	0

West Approach

	Out	In	Total
Cars	74	55	129
Trucks	6	4	10
Bicycles	0	0	0
	80	**59**	**139**

Thirty Rd

Totals	**40**	**86**	**6**	**0**
Cars	38	78	4	0
Trucks	2	8	2	0
Bicycles	0	0	0	0

South Approach

	Out	In	Total
Cars	120	139	259
Trucks	12	12	24
Bicycles	0	0	0
	132	**151**	**283**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Count Date: Dec 01, 2022
Period: 11:00 - 14:00

Peak Hour Data (12:00 - 13:00)

Start Time	North Approach Thirty Rd						South Approach Thirty Rd						East Approach Young St						West Approach Young St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
12:00	0	19	1	0	0	20	9	17	1	0	0	27	1	4	0	0	0	5	4	3	17	0	0	24	76
12:15	0	22	0	0	0	22	9	23	0	0	0	32	2	5	0	0	0	7	0	3	10	0	0	13	74
12:30	0	30	1	0	0	31	12	20	2	0	0	34	2	1	1	0	0	4	1	5	11	0	0	17	86
12:45	0	20	5	0	0	25	10	26	3	0	0	39	1	2	1	0	0	4	1	9	16	0	0	26	94
Grand Total	**0**	**91**	**7**	**0**	**0**	**98**	**40**	**86**	**6**	**0**	**0**	**132**	**6**	**12**	**2**	**0**	**0**	**20**	**6**	**20**	**54**	**0**	**0**	**80**	**330**
Approach %	0	92.9	7.1	0		-	30.3	65.2	4.5	0		-	30	60	10	0		-	7.5	25	67.5	0		-	
Totals %	0	27.6	2.1	0		29.7	12.1	26.1	1.8	0		40	1.8	3.6	0.6	0		6.1	1.8	6.1	16.4	0		24.2	
PHF	**0**	**0.76**	**0.35**	**0**		**0.79**	**0.83**	**0.83**	**0.5**	**0**		**0.85**	**0.75**	**0.6**	**0.5**	**0**		**0.71**	**0.38**	**0.56**	**0.79**	**0**		**0.77**	**0.88**
Cars	0	85	7	0		92	38	78	4	0		120	3	10	1	0		14	5	18	51	0		74	300
% Cars	0	93.4	100	0		93.9	95	90.7	66.7	0		90.9	50	83.3	50	0		70	83.3	90	94.4	0		92.5	90.9
Trucks	0	6	0	0		6	2	8	2	0		12	3	2	1	0		6	1	2	3	0		6	30
% Trucks	0	6.6	0	0		6.1	5	9.3	33.3	0		9.1	50	16.7	50	0		30	16.7	10	5.6	0		7.5	9.1
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	15:00:00	From:	16:15:00
To:	18:00:00	To:	17:15:00

Intersection: Thirty Rd & Young St
Site Code: 2241000002
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Thirty Rd runs N/S

North Approach

	Out	In	Total
Cars	173	169	342
Trucks	8	5	13
Bicycles	0	0	0
	181	**174**	**355**

Thirty Rd

Bicycles	0	0	0	0
Trucks	1	7	0	0
Cars	17	156	0	0
Totals	**18**	**163**	**0**	**0**

East Approach

	Out	In	Total
Cars	28	52	80
Trucks	1	2	3
Bicycles	0	0	0
	29	**54**	**83**

Young St

Bicycles	Trucks	Cars	Totals
0	0	0	**0**
0	0	14	**14**
0	0	42	**42**
0	1	83	**84**

Peds: 0

Peds: 0

Peds: 0

Young St

Totals	Cars	Trucks	Bicycles
0	0	0	0
2	2	0	0
23	22	1	0
4	4	0	0

West Approach

	Out	In	Total
Cars	139	76	215
Trucks	1	4	5
Bicycles	0	0	0
	140	**80**	**220**

Totals	**39**	**158**	**12**	**0**
Cars	37	153	10	0
Trucks	2	5	2	0
Bicycles	0	0	0	0

Thirty Rd

South Approach

	Out	In	Total
Cars	200	243	443
Trucks	9	8	17
Bicycles	0	0	0
	209	**251**	**460**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Thirty Rd & Young St
Site Code:	2241000002
Count Date:	Dec 01, 2022
Period:	15:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Thirty Rd						South Approach Thirty Rd						East Approach Young St						West Approach Young St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	0	35	3	0	0	38	11	44	3	0	0	58	1	6	0	0	0	7	4	9	21	0	0	34	137
16:30	0	44	3	0	0	47	11	49	5	0	0	65	1	5	0	0	0	6	5	8	21	0	0	34	152
16:45	0	47	6	0	0	53	9	32	2	0	0	43	2	7	2	0	0	11	2	12	20	0	0	34	141
17:00	0	37	6	0	0	43	8	33	2	0	0	43	0	5	0	0	0	5	3	13	22	0	0	38	129
Grand Total	**0**	**163**	**18**	**0**	**0**	**181**	**39**	**158**	**12**	**0**	**0**	**209**	**4**	**23**	**2**	**0**	**0**	**29**	**14**	**42**	**84**	**0**	**0**	**140**	**559**
Approach %	0	90.1	9.9	0		-	18.7	75.6	5.7	0		-	13.8	79.3	6.9	0		-	10	30	60	0		-	
Totals %	0	29.2	3.2	0		32.4	7	28.3	2.1	0		37.4	0.7	4.1	0.4	0		5.2	2.5	7.5	15	0		25	
PHF	**0**	**0.87**	**0.75**	**0**		**0.85**	**0.89**	**0.81**	**0.6**	**0**		**0.8**	**0.5**	**0.82**	**0.25**	**0**		**0.66**	**0.7**	**0.81**	**0.95**	**0**		**0.92**	**0.92**
Cars	0	156	17	0		173	37	153	10	0		200	4	22	2	0		28	14	42	83	0		139	540
% Cars	0	95.7	94.4	0		95.6	94.9	96.8	83.3	0		95.7	100	95.7	100	0		96.6	100	100	98.8	0		99.3	96.6
Trucks	0	7	1	0		8	2	5	2	0		9	0	1	0	0		1	0	0	1	0		1	19
% Trucks	0	4.3	5.6	0		4.4	5.1	3.2	16.7	0		4.3	0	4.3	0	0		3.4	0	0	1.2	0		0.7	3.4
Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
% Bicycles	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Project #22-410 - RV Anderson

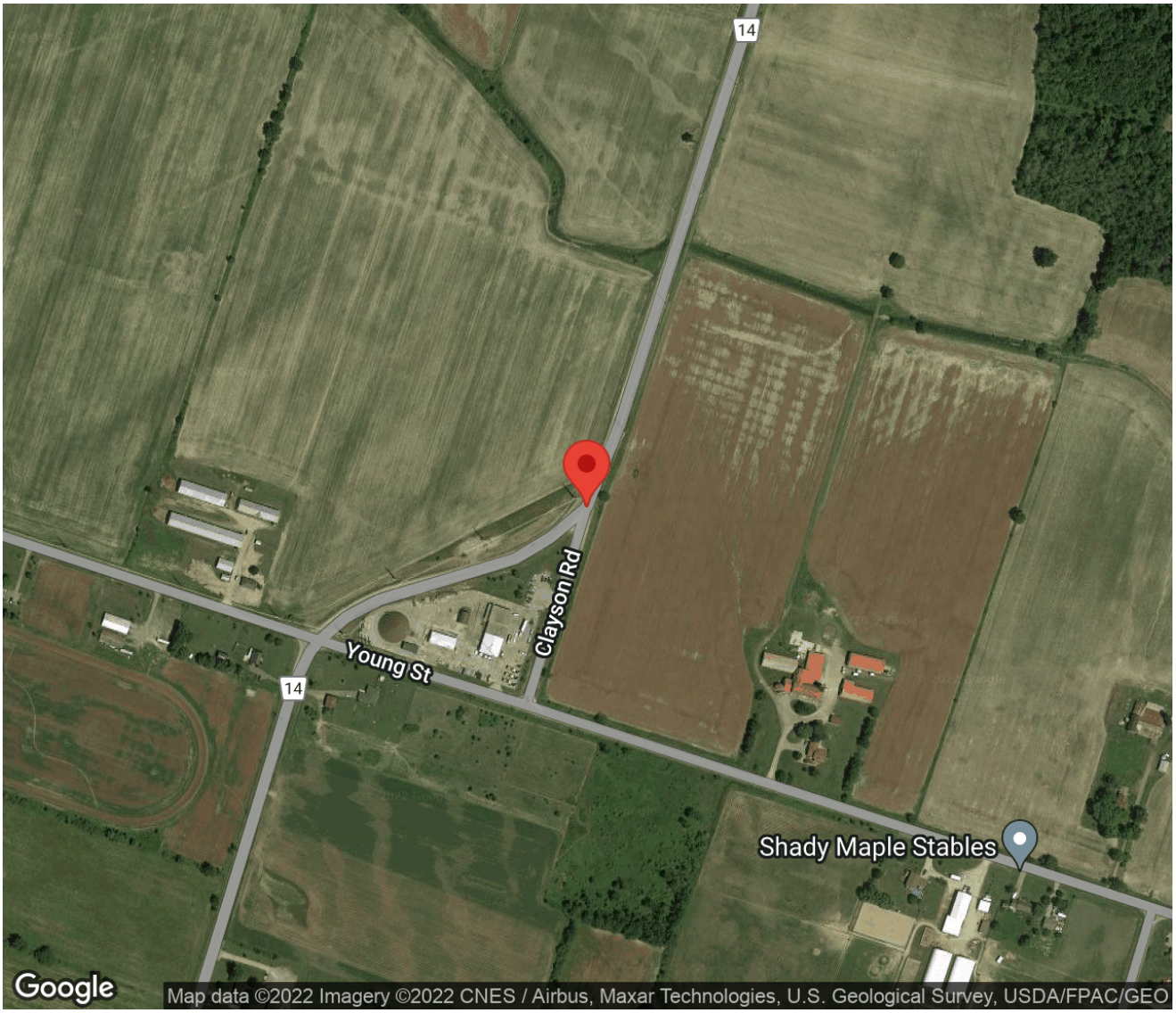
Intersection Count Report

Intersection:	Thirty Rd & Clayson Rd
Municipality:	Smithville
Count Date:	Thursday, Dec 01, 2022
Site Code:	2241000001
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 11:00-14:00, 15:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Map

Intersection:	Thirty Rd & Clayson Rd
Site Code:	2241000001
Municipality:	Smithville
Count Date:	Dec 01, 2022



Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

Thirty Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	29	80	0	0	109	0	0	154	0	0	154	0	263
08:00 - 09:00	25	111	0	0	136	0	0	165	0	0	165	0	301
BREAK													
11:00 - 12:00	32	81	0	0	113	0	0	113	1	0	114	0	227
12:00 - 13:00	38	95	0	0	133	0	0	92	0	0	92	0	225
13:00 - 14:00	32	83	0	0	115	0	0	100	1	0	101	0	216
BREAK													
15:00 - 16:00	54	145	0	0	199	0	0	152	0	0	152	0	351
16:00 - 17:00	51	178	0	0	229	0	0	169	0	0	169	0	398
17:00 - 18:00	36	159	0	0	195	0	0	116	0	0	116	0	311
GRAND TOTAL	**297**	**932**	**0**	**0**	**1229**	**0**	**0**	**1061**	**2**	**0**	**1063**	**0**	**2292**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Summary

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

Clayson Rd - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	1	0	45	0	46	0	0	0	0	0	0	0	46
08:00 - 09:00	1	0	35	0	36	0	0	0	0	0	0	0	36
BREAK													
11:00 - 12:00	0	0	21	0	21	0	0	0	0	0	0	0	21
12:00 - 13:00	3	0	25	0	28	0	0	0	0	0	0	0	28
13:00 - 14:00	1	0	30	0	31	0	0	0	0	0	0	0	31
BREAK													
15:00 - 16:00	1	0	38	0	39	0	0	0	0	0	0	0	39
16:00 - 17:00	0	0	34	0	34	0	0	0	0	0	0	0	34
17:00 - 18:00	0	0	21	0	21	0	0	0	0	0	0	0	21
GRAND TOTAL	**7**	**0**	**249**	**0**	**256**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**256**

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	4	9	0	0	13	1	0	0	0	1	0	0	0	0	0	0
07:15	4	17	0	0	21	0	1	0	0	1	0	0	0	0	0	0
07:30	8	18	0	0	26	2	2	0	0	4	0	0	0	0	0	0
07:45	7	30	0	0	37	3	3	0	0	6	0	0	0	0	0	0
08:00	6	26	0	0	32	0	3	0	0	3	0	0	0	0	0	0
08:15	10	30	0	0	40	2	5	0	0	7	0	0	0	0	0	0
08:30	2	23	0	0	25	1	5	0	0	6	0	0	0	0	0	0
08:45	4	17	0	0	21	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	45	170	0	0	215	9	21	0	0	30	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
11:00	5	19	0	0	24	1	1	0	0	2	0	0	0	0	0	0
11:15	4	15	0	0	19	0	3	0	0	3	0	0	0	0	0	0
11:30	8	15	0	0	23	2	4	0	0	6	0	0	0	0	0	0
11:45	9	21	0	0	30	3	3	0	0	6	0	0	0	0	0	0
12:00	7	17	0	0	24	0	2	0	0	2	0	0	0	0	0	0
12:15	9	22	0	0	31	2	0	0	0	2	0	0	0	0	0	0
12:30	6	28	0	0	34	2	1	0	0	3	0	0	0	0	0	0
12:45	12	24	0	0	36	0	1	0	0	1	0	0	0	0	0	0
13:00	8	14	0	0	22	0	4	0	0	4	0	0	0	0	0	0
13:15	9	19	0	0	28	0	1	0	0	1	0	0	0	0	0	0
13:30	7	22	0	0	29	1	0	0	0	1	0	0	0	0	0	0
13:45	7	23	0	0	30	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	91	239	0	0	330	11	20	0	0	31	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	9	19	0	0	28	0	2	0	0	2	0	0	0	0	0	0
15:15	11	42	0	0	53	0	2	0	0	2	0	0	0	0	0	0
15:30	12	37	0	0	49	2	2	0	0	4	0	0	0	0	0	0
15:45	20	39	0	0	59	0	2	0	0	2	0	0	0	0	0	0
16:00	15	37	0	0	52	3	2	0	0	5	0	0	0	0	0	0
16:15	10	37	0	0	47	0	1	0	0	1	0	0	0	0	0	0
16:30	13	45	0	0	58	0	3	0	0	3	0	0	0	0	0	0
16:45	10	51	0	0	61	0	2	0	0	2	0	0	0	0	0	0
17:00	6	41	0	0	47	1	2	0	0	3	0	0	0	0	0	0
17:15	13	42	0	0	55	0	1	0	0	1	0	0	0	0	0	0
17:30	6	43	0	0	49	1	3	0	0	4	0	0	0	0	0	0
17:45	9	26	0	0	35	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	134	459	0	0	593	7	23	0	0	30	0	0	0	0	0	0
GRAND TOTAL	270	868	0	0	1138	27	64	0	0	91	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

South Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
07:00	0	41	0	0	41	0	0	0	0	0	0	0	0	0	0	0
07:15	0	38	0	0	38	0	3	0	0	3	0	0	0	0	0	0
07:30	0	33	0	0	33	0	3	0	0	3	0	0	0	0	0	0
07:45	0	32	0	0	32	0	4	0	0	4	0	0	0	0	0	0
08:00	0	40	0	0	40	0	6	0	0	6	0	0	0	0	0	0
08:15	0	36	0	0	36	0	3	0	0	3	0	0	0	0	0	0
08:30	0	47	0	0	47	0	1	0	0	1	0	0	0	0	0	0
08:45	0	30	0	0	30	0	2	0	0	2	0	0	0	0	0	0
SUBTOTAL	0	297	0	0	297	0	22	0	0	22	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

South Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
11:00	0	29	0	0	29	0	2	0	0	2	0	0	0	0	0	0
11:15	0	29	0	0	29	0	2	0	0	2	0	0	0	0	0	0
11:30	0	32	0	0	32	0	0	0	0	0	0	0	0	0	0	0
11:45	0	15	0	0	15	0	4	1	0	5	0	0	0	0	0	0
12:00	0	20	0	0	20	0	2	0	0	2	0	0	0	0	0	0
12:15	0	19	0	0	19	0	3	0	0	3	0	0	0	0	0	0
12:30	0	19	0	0	19	0	3	0	0	3	0	0	0	0	0	0
12:45	0	24	0	0	24	0	2	0	0	2	0	0	0	0	0	0
13:00	0	22	1	0	23	0	1	0	0	1	0	0	0	0	0	0
13:15	0	16	0	0	16	0	3	0	0	3	0	0	0	0	0	0
13:30	0	19	0	0	19	0	1	0	0	1	0	0	0	0	0	0
13:45	0	34	0	0	34	0	4	0	0	4	0	0	0	0	0	0
SUBTOTAL	0	278	1	0	279	0	27	1	0	28	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

South Approach - Thirty Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	↰	↑	↱	↷	Total	
15:00	0	45	0	0	45	0	0	0	0	0	0	0	0	0	0	0
15:15	0	35	0	0	35	0	1	0	0	1	0	0	0	0	0	0
15:30	0	31	0	0	31	0	2	0	0	2	0	0	0	0	0	0
15:45	0	36	0	0	36	0	2	0	0	2	0	0	0	0	0	0
16:00	0	29	0	0	29	0	0	0	0	0	0	0	0	0	0	0
16:15	0	49	0	0	49	0	0	0	0	0	0	0	0	0	0	0
16:30	0	48	0	0	48	0	3	0	0	3	0	0	0	0	0	0
16:45	0	40	0	0	40	0	0	0	0	0	0	0	0	0	0	0
17:00	0	33	0	0	33	0	2	0	0	2	0	0	0	0	0	0
17:15	0	33	0	0	33	0	1	0	0	1	0	0	0	0	0	0
17:30	0	20	0	0	20	0	1	0	0	1	0	0	0	0	0	0
17:45	0	26	0	0	26	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	425	0	0	425	0	12	0	0	12	0	0	0	0	0	0
GRAND TOTAL	0	1000	1	0	1001	0	61	1	0	62	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Clayson Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
					Total					Total					Total	
07:00	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	11	0	11	1	0	4	0	5	0	0	0	0	0	0
07:30	0	0	16	0	16	0	0	1	0	1	0	0	0	0	0	0
07:45	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	10	0	10	0	0	1	0	1	0	0	0	0	0	0
08:15	0	0	6	0	6	0	0	1	0	1	0	0	0	0	0	0
08:30	0	0	8	0	8	0	0	2	0	2	0	0	0	0	0	0
08:45	0	0	5	0	5	1	0	2	0	3	0	0	0	0	0	0
SUBTOTAL	0	0	69	0	69	2	0	11	0	13	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Clayson Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
11:00	0	0	3	0	3	0	0	1	0	1	0	0	0	0	0	0
11:15	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0
12:00	1	0	6	0	7	0	0	2	0	2	0	0	0	0	0	0
12:15	0	0	4	0	4	0	0	1	0	1	0	0	0	0	0	0
12:30	0	0	8	0	8	2	0	1	0	3	0	0	0	0	0	0
12:45	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
13:00	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	5	0	5	0	0	1	0	1	0	0	0	0	0	0
13:30	0	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	9	0	9	0	0	1	0	1	0	0	0	0	0	0
SUBTOTAL	2	0	69	0	71	2	0	7	0	9	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Clayson Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	0	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	5	0	5	1	0	0	0	1	0	0	0	0	0	0
15:30	0	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	8	0	8	0	0	2	0	2	0	0	0	0	0	0
16:00	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	16	0	16	0	0	2	0	2	0	0	0	0	0	0
16:45	0	0	5	0	5	0	0	1	0	1	0	0	0	0	0	0
17:00	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0	88	0	88	1	0	5	0	6	0	0	0	0	0	0
GRAND TOTAL	2	0	226	0	228	5	0	23	0	28	0	0	0	0	0	0

Peak Hour Diagram

Specified Period
From: 07:00:00
To: 09:00:00

One Hour Peak
From: 07:45:00
To: 08:45:00

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Thirty Rd runs N/S

North Approach

	Out	In	Total
Cars	134	186	320
Trucks	22	18	40
Bicycles	0	0	0
	156	**204**	**360**

Thirty Rd

Bicycles	0	0	0
Trucks	16	6	0
Cars	109	25	0
Totals	**125**	**31**	**0**

Peds: 0

Peds: 0

Peds: 0

Totals	**169**	**0**	**0**
Cars	155	0	0
Trucks	14	0	0
Bicycles	0	0	0

Thirty Rd

East Approach

	Out	In	Total
Cars	31	25	56
Trucks	4	6	10
Bicycles	0	0	0
	35	**31**	**66**

Clayson Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	35	31	4	0
	0	0	0	0

South Approach

	Out	In	Total
Cars	155	109	264
Trucks	14	16	30
Bicycles	0	0	0
	169	**125**	**294**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Thirty Rd & Clayson Rd
Site Code:	2241000001
Count Date:	Dec 01, 2022
Period:	07:00 - 09:00

Peak Hour Data (07:45 - 08:45)

Start Time	North Approach Thirty Rd						South Approach Thirty Rd						East Approach Clayson Rd						West Approach						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:45	10	33		0	0	43		36	0	0	0	36	0		7	0	0	7					0		86
08:00	6	29		0	0	35		46	0	0	0	46	0		11	0	0	11					0		92
08:15	12	35		0	0	47		39	0	0	0	39	0		7	0	0	7					0		93
08:30	3	28		0	0	31		48	0	0	0	48	0		10	0	0	10					0		89
Grand Total	**31**	**125**		**0**	**0**	**156**		**169**	**0**	**0**	**0**	**169**	**0**		**35**	**0**	**0**	**35**					**0**	**0**	**360**
Approach %	19.9	80.1		0		-		100	0	0		-	0		100	0		-						-	
Totals %	8.6	34.7		0		43.3		46.9	0	0		46.9	0		9.7	0		9.7						0	
PHF	**0.65**	**0.89**		**0**		**0.83**		**0.88**	**0**	**0**		**0.88**	**0**		**0.8**	**0**		**0.8**						**0**	**0.97**
Cars	25	109		0		134		155	0	0		155	0		31	0		31						0	320
% Cars	80.6	87.2		0		85.9		91.7	0	0		91.7	0		88.6	0		88.6						0	88.9
Trucks	6	16		0		22		14	0	0		14	0		4	0		4						0	40
% Trucks	19.4	12.8		0		14.1		8.3	0	0		8.3	0		11.4	0		11.4						0	11.1
Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
% Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	11:00:00	From:	12:00:00
To:	14:00:00	To:	13:00:00

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Thirty Rd runs N/S

North Approach

	Out	In	Total
Cars	125	103	228
Trucks	8	14	22
Bicycles	0	0	0
	133	**117**	**250**

Thirty Rd

Bicycles	0	0	0
Trucks	4	4	0
Cars	91	34	0
Totals	**95**	**38**	**0**

Peds: 0

Peds: 0

Peds: 0

Totals	**92**	**0**	**0**
Cars	82	0	0
Trucks	10	0	0
Bicycles	0	0	0

Thirty Rd

East Approach

	Out	In	Total
Cars	22	34	56
Trucks	6	4	10
Bicycles	0	0	0
	28	**38**	**66**

Clayson Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	25	21	4	0
	3	1	2	0

South Approach

	Out	In	Total
Cars	82	92	174
Trucks	10	6	16
Bicycles	0	0	0
	92	**98**	**190**

- Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection:	Thirty Rd & Clayson Rd
Site Code:	2241000001
Count Date:	Dec 01, 2022
Period:	11:00 - 14:00

Peak Hour Data (12:00 - 13:00)

Start Time	North Approach Thirty Rd						South Approach Thirty Rd						East Approach Clayson Rd						West Approach						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
12:00	7	19		0	0	26		22	0	0	0	22	1		8	0	0	9					0		57
12:15	11	22		0	0	33		22	0	0	0	22	0		5	0	0	5					0		60
12:30	8	29		0	0	37		22	0	0	0	22	2		9	0	0	11					0		70
12:45	12	25		0	0	37		26	0	0	0	26	0		3	0	0	3					0		66
Grand Total	**38**	**95**		**0**	**0**	**133**		**92**	**0**	**0**	**0**	**92**	**3**		**25**	**0**	**0**	**28**					**0**	**0**	**253**
Approach %	28.6	71.4		0		-		100	0	0		-	10.7		89.3	0		-						-	
Totals %	15	37.5		0		52.6		36.4	0	0		36.4	1.2		9.9	0		11.1						0	
PHF	**0.79**	**0.82**		**0**		**0.9**		**0.88**	**0**	**0**		**0.88**	**0.38**		**0.69**	**0**		**0.64**						**0**	**0.9**
Cars	34	91		0		125		82	0	0		82	1		21	0		22						0	229
% Cars	89.5	95.8		0		94		89.1	0	0		89.1	33.3		84	0		78.6						0	90.5
Trucks	4	4		0		8		10	0	0		10	2		4	0		6						0	24
% Trucks	10.5	4.2		0		6		10.9	0	0		10.9	66.7		16	0		21.4						0	9.5
Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
% Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	15:00:00	From:	16:15:00
To:	18:00:00	To:	17:15:00

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Thirty Rd runs N/S

North Approach

	Out	In	Total
Cars	213	203	416
Trucks	9	8	17
Bicycles	0	0	0
	222	**211**	**433**

Thirty Rd

Bicycles	0	0	0
Trucks	8	1	0
Cars	174	39	0
Totals	**182**	**40**	**0**

Peds: 0

Peds: 0

Peds: 0

Totals	**175**	**0**	**0**
Cars	170	0	0
Trucks	5	0	0
Bicycles	0	0	0

Thirty Rd

East Approach

	Out	In	Total
Cars	33	39	72
Trucks	3	1	4
Bicycles	0	0	0
	36	**40**	**76**

Clayson Rd

	Totals	Cars	Trucks	Bicycles
	0	0	0	0
	36	33	3	0
	0	0	0	0

South Approach

	Out	In	Total
Cars	170	174	344
Trucks	5	8	13
Bicycles	0	0	0
	175	**182**	**357**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
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Peak Hour Summary

Intersection: Thirty Rd & Clayson Rd
Site Code: 2241000001
Count Date: Dec 01, 2022
Period: 15:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Thirty Rd						South Approach Thirty Rd						East Approach Clayson Rd						West Approach						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	10	38		0	0	48		49	0	0	0	49	0		6	0	0	6					0		103
16:30	13	48		0	0	61		51	0	0	0	51	0		18	0	0	18					0		130
16:45	10	53		0	0	63		40	0	0	0	40	0		6	0	0	6					0		109
17:00	7	43		0	0	50		35	0	0	0	35	0		6	0	0	6					0		91
Grand Total	**40**	**182**		**0**	**0**	**222**		**175**	**0**	**0**	**0**	**175**	**0**		**36**	**0**	**0**	**36**					**0**	**0**	**433**
Approach %	18	82		0		-		100	0	0		-	0		100	0		-						-	
Totals %	9.2	42		0		51.3		40.4	0	0		40.4	0		8.3	0		8.3						0	
PHF	**0.77**	**0.86**		**0**		**0.88**		**0.86**	**0**	**0**		**0.86**	**0**		**0.5**	**0**		**0.5**						**0**	**0.83**
Cars	39	174		0		213		170	0	0		170	0		33	0		33						0	416
% Cars	97.5	95.6		0		95.9		97.1	0	0		97.1	0		91.7	0		91.7						0	96.1
Trucks	1	8		0		9		5	0	0		5	0		3	0		3						0	17
% Trucks	2.5	4.4		0		4.1		2.9	0	0		2.9	0		8.3	0		8.3						0	3.9
Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
% Bicycles	0	0		0		0		0	0	0		0	0		0	0		0						0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
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Project #22-410 - RV Anderson

Intersection Count Report

Intersection:	Young St & Clayson Rd
Municipality:	Smithville
Count Date:	Thursday, Dec 01, 2022
Site Code:	2241000003
Count Categories:	Cars, Trucks, Bicycles, Pedestrians
Count Period:	07:00-09:00, 11:00-14:00, 15:00-18:00
Weather:	Clear
Comments:	

Ontario Traffic Inc.
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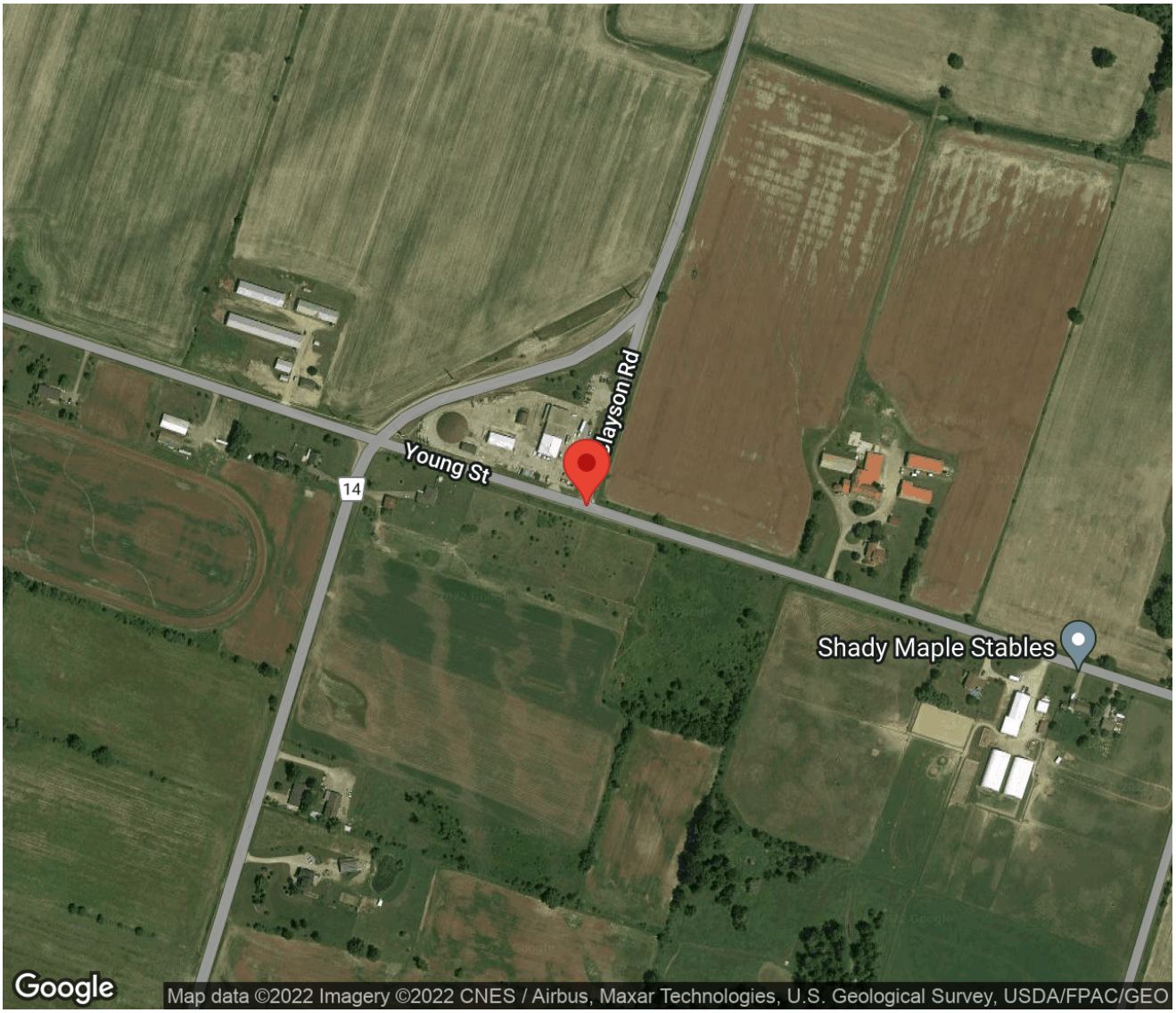
Traffic Count Map

Intersection:	Young St & Clayson Rd
Site Code:	2241000003
Municipality:	Smithville
Count Date:	Dec 01, 2022



Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

Clayson Rd - Traffic Summary

	North Approach Totals						South Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	30	0	0	0	30	0	0	0	0	0	0	0	30
08:00 - 09:00	25	0	0	0	25	0	0	0	0	0	0	0	25
BREAK													
11:00 - 12:00	31	0	0	0	31	0	0	0	0	0	0	0	31
12:00 - 13:00	38	0	0	0	38	0	0	0	0	0	0	0	38
13:00 - 14:00	31	0	1	0	32	0	0	0	0	0	0	0	32
BREAK													
15:00 - 16:00	54	0	3	0	57	0	0	0	0	0	0	0	57
16:00 - 17:00	49	0	1	0	50	0	0	0	0	0	0	0	50
17:00 - 18:00	36	0	0	0	36	0	0	0	0	0	0	0	36
GRAND TOTAL	**294**	**0**	**5**	**0**	**299**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**299**

Ontario Traffic Inc.
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Traffic Count Summary

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

Young St - Traffic Summary

	East Approach Totals						West Approach Totals						
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
Hour	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Total
07:00 - 08:00	0	31	45	0	76	0	0	29	0	0	29	0	105
08:00 - 09:00	0	20	34	0	54	0	2	28	0	0	30	0	84
BREAK													
11:00 - 12:00	0	14	23	0	37	0	1	19	0	0	20	0	57
12:00 - 13:00	0	20	25	0	45	0	0	25	0	0	25	0	70
13:00 - 14:00	0	26	30	0	56	0	0	31	0	0	31	0	87
BREAK													
15:00 - 16:00	0	32	35	0	67	0	1	20	0	0	21	0	88
16:00 - 17:00	0	30	35	0	65	0	0	50	0	0	50	0	115
17:00 - 18:00	0	20	20	0	40	0	0	39	0	0	39	0	79
GRAND TOTAL	**0**	**193**	**247**	**0**	**440**	**0**	**4**	**241**	**0**	**0**	**245**	**0**	**685**

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Clayson Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	5	0	0	0	5	1	0	0	0	1	0	0	0	0	0	0
07:15	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
07:30	8	0	0	0	8	2	0	0	0	2	0	0	0	0	0	0
07:45	7	0	0	0	7	3	0	0	0	3	0	0	0	0	0	0
08:00	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
08:15	10	0	0	0	10	2	0	0	0	2	0	0	0	0	0	0
08:30	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0
08:45	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	46	0	0	0	46	9	0	0	0	9	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Clayson Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
11:00	5	0	0	0	5	1	0	0	0	1	0	0	0	0	0	0
11:15	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
11:30	8	0	0	0	8	1	0	0	0	1	0	0	0	0	0	0
11:45	9	0	0	0	9	3	0	0	0	3	0	0	0	0	0	0
12:00	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
12:15	9	0	0	0	9	2	0	0	0	2	0	0	0	0	0	0
12:30	6	0	0	0	6	2	0	0	0	2	0	0	0	0	0	0
12:45	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0
13:00	7	0	1	0	8	0	0	0	0	0	0	0	0	0	0	0
13:15	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
13:30	7	0	0	0	7	1	0	0	0	1	0	0	0	0	0	0
13:45	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	90	0	1	0	91	10	0	0	0	10	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

North Approach - Clayson Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	10	0	3	0	13	0	0	0	0	0	0	0	0	0	0	0
15:15	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
15:30	12	0	0	0	12	2	0	0	0	2	0	0	0	0	0	0
15:45	20	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0
16:00	15	0	0	0	15	3	0	0	0	3	0	0	0	0	0	0
16:15	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
16:30	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0
16:45	8	0	1	0	9	0	0	0	0	0	0	0	0	0	0	0
17:00	6	0	0	0	6	1	0	0	0	1	0	0	0	0	0	0
17:15	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0
17:30	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
17:45	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	133	0	4	0	137	6	0	0	0	6	0	0	0	0	0	0
GRAND TOTAL	269	0	5	0	274	25	0	0	0	25	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	3	6	0	9	0	0	1	0	1	0	0	0	0	0	0
07:15	0	7	11	0	18	0	0	3	0	3	0	0	0	0	0	0
07:30	0	8	16	0	24	0	4	1	0	5	0	0	0	0	0	0
07:45	0	7	7	0	14	0	2	0	0	2	0	0	0	0	0	0
08:00	0	0	10	0	10	0	1	0	0	1	0	0	0	0	0	0
08:15	0	5	5	0	10	0	1	0	0	1	0	0	0	0	0	0
08:30	0	7	8	0	15	0	0	3	0	3	0	0	0	0	0	0
08:45	0	6	5	0	11	0	0	3	0	3	0	0	0	0	0	0
SUBTOTAL	0	43	68	0	111	0	8	11	0	19	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
11:00	0	5	3	0	8	0	0	1	0	1	0	0	0	0	0	0
11:15	0	1	6	0	7	0	0	0	0	0	0	0	0	0	0	0
11:30	0	4	4	0	8	0	1	2	0	3	0	0	0	0	0	0
11:45	0	3	7	0	10	0	0	0	0	0	0	0	0	0	0	0
12:00	0	4	8	0	12	0	1	1	0	2	0	0	0	0	0	0
12:15	0	6	4	0	10	0	1	1	0	2	0	0	0	0	0	0
12:30	0	2	7	0	9	0	2	1	0	3	0	0	0	0	0	0
12:45	0	2	3	0	5	0	2	0	0	2	0	0	0	0	0	0
13:00	0	4	3	0	7	0	3	0	0	3	0	0	0	0	0	0
13:15	0	3	5	0	8	0	3	1	0	4	0	0	0	0	0	0
13:30	0	4	11	0	15	0	2	0	0	2	0	0	1	0	1	0
13:45	0	5	8	0	13	0	2	1	0	3	0	0	0	0	0	0
SUBTOTAL	0	43	69	0	112	0	17	8	0	25	0	0	1	0	1	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

East Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	↰	↑	↱	↩	Total	
15:00	0	8	10	0	18	0	0	0	0	0	0	0	0	0	0	0
15:15	0	4	4	0	8	0	1	0	0	1	0	0	0	0	0	0
15:30	0	7	11	0	18	0	4	0	0	4	0	0	0	0	0	0
15:45	0	7	8	0	15	0	1	2	0	3	0	0	0	0	0	0
16:00	0	7	4	0	11	0	0	0	0	0	0	0	0	0	0	0
16:15	0	6	6	0	12	0	1	0	0	1	0	0	0	0	0	0
16:30	0	6	16	0	22	0	0	2	0	2	0	0	0	0	0	0
16:45	0	10	6	0	16	0	0	1	0	1	0	0	0	0	0	0
17:00	0	5	5	0	10	0	0	0	0	0	0	0	0	0	0	0
17:15	0	10	4	0	14	0	0	0	0	0	0	0	0	0	0	0
17:30	0	1	6	0	7	0	0	0	0	0	0	0	0	0	0	0
17:45	0	4	5	0	9	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	75	85	0	160	0	7	5	0	12	0	0	0	0	0	0
GRAND TOTAL	0	161	222	0	383	0	32	24	0	56	0	0	1	0	1	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

West Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
07:00	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0
07:15	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0
07:30	0	6	0	0	6	0	2	0	0	2	0	0	0	0	0	0
07:45	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
08:00	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0
08:15	1	3	0	0	4	0	1	0	0	1	0	0	0	0	0	0
08:30	0	8	0	0	8	0	1	0	0	1	0	0	0	0	0	0
08:45	0	9	0	0	9	1	0	0	0	1	0	0	0	0	0	0
SUBTOTAL	1	49	0	0	50	1	8	0	0	9	0	0	0	0	0	0

Ontario Traffic Inc.
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Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

West Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	↰	↑	↱	↻	Total	
11:00	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0
11:15	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0
11:30	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0
11:45	0	2	0	0	2	1	1	0	0	2	0	0	0	0	0	0
12:00	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0
12:15	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
12:30	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0
12:45	0	9	0	0	9	0	2	0	0	2	0	0	0	0	0	0
13:00	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0
13:15	0	8	0	0	8	0	1	0	0	1	0	0	0	0	0	0
13:30	0	4	0	0	4	0	3	0	0	3	0	0	0	0	0	0
13:45	0	9	0	0	9	0	1	0	0	1	0	0	0	0	0	0
SUBTOTAL	0	61	0	0	61	1	14	0	0	15	0	0	0	0	0	0

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Traffic Count Data

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Municipality: Smithville
Count Date: Dec 01, 2022

West Approach - Young St

Start Time	Cars					Trucks					Bicycles					Total Peds
	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	↰	↑	↱	↶	Total	
15:00	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0
15:15	0	2	0	0	2	1	1	0	0	2	0	0	0	0	0	0
15:30	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0
15:45	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0
16:00	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0
16:15	0	10	0	0	10	0	2	0	0	2	0	0	0	0	0	0
16:30	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0
16:45	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0
17:00	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	0
17:15	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
17:30	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0
17:45	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	101	0	0	101	1	8	0	0	9	0	0	0	0	0	0
GRAND TOTAL	1	211	0	0	212	3	30	0	0	33	0	0	0	0	0	0

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Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:00:00
To:	09:00:00	To:	08:00:00

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Young St runs E/W

North Approach

	Out	In	Total
Cars	24	40	64
Trucks	6	5	11
Bicycles	0	0	0
	30	**45**	**75**

Clayson Rd

Bicycles	0	0	0
Trucks	0	6	0
Cars	0	24	0
Totals	**0**	**30**	**0**

East Approach

	Out	In	Total
Cars	65	48	113
Trucks	11	11	22
Bicycles	0	0	0
	76	**59**	**135**

Young St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	0	**0**	
0	5	24	**29**	

Peds: 0

Peds: 0

Peds: 0

Young St

Totals	Cars	Trucks	Bicycles
0	0	0	0
45	40	5	0
31	25	6	0

West Approach

	Out	In	Total
Cars	24	25	49
Trucks	5	6	11
Bicycles	0	0	0
	29	**31**	**60**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Count Date: Dec 01, 2022
Period: 07:00 - 09:00

Peak Hour Data (07:00 - 08:00)

Start Time	North Approach Clayson Rd						South Approach						East Approach Young St						West Approach Young St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:00	6		0	0	0	6					0			3	7	0	0	10	0	7		0	0	7	23
07:15	4		0	0	0	4					0			7	14	0	0	21	0	7		0	0	7	32
07:30	10		0	0	0	10					0			12	17	0	0	29	0	8		0	0	8	47
07:45	10		0	0	0	10					0			9	7	0	0	16	0	7		0	0	7	33
Grand Total	**30**		**0**	**0**	**0**	**30**					**0**	**0**		**31**	**45**	**0**	**0**	**76**	**0**	**29**		**0**	**0**	**29**	**135**
Approach %	100		0	0		-						-		40.8	59.2	0		-	0	100		0		-	
Totals %	22.2		0	0		22.2						0		23	33.3	0		56.3	0	21.5		0		21.5	
PHF	**0.75**		**0**	**0**		**0.75**						**0**		**0.65**	**0.66**	**0**		**0.66**	**0**	**0.91**		**0**		**0.91**	**0.72**
Cars	24		0	0		24						0		25	40	0		65	0	24		0		24	113
% Cars	80		0	0		80						0		80.6	88.9	0		85.5	0	82.8		0		82.8	83.7
Trucks	6		0	0		6						0		6	5	0		11	0	5		0		5	22
% Trucks	20		0	0		20						0		19.4	11.1	0		14.5	0	17.2		0		17.2	16.3
Bicycles	0		0	0		0						0		0	0	0		0	0	0		0		0	0
% Bicycles	0		0	0		0						0		0	0	0		0	0	0		0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	11:00:00	From:	13:00:00
To:	14:00:00	To:	14:00:00

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Young St runs E/W

North Approach

	Out	In	Total
Cars	31	27	58
Trucks	1	2	3
Bicycles	0	1	1
	32	**30**	**62**

Clayson Rd

Bicycles	0	0	0
Trucks	0	1	0
Cars	1	30	0
Totals	**1**	**31**	**0**

East Approach

	Out	In	Total
Cars	43	55	98
Trucks	12	7	19
Bicycles	1	0	1
	56	**62**	**118**

Young St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	0	**0**	
0	6	25	**31**	

Peds: 0

Peds: 0

Peds: 0

Young St

Totals	Cars	Trucks	Bicycles	
0	0	0	0	
30	27	2	1	
26	16	10	0	

West Approach

	Out	In	Total
Cars	25	17	42
Trucks	6	10	16
Bicycles	0	0	0
	31	**27**	**58**

Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
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Peak Hour Summary

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Count Date: Dec 01, 2022
Period: 11:00 - 14:00

Peak Hour Data (13:00 - 14:00)

Start Time	North Approach Clayson Rd						South Approach						East Approach Young St						West Approach Young St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
13:00	7		1	0	0	8					0			7	3	0	0	10	0	5		0	0	5	23
13:15	9		0	0	0	9					0			6	6	0	0	12	0	9		0	0	9	30
13:30	8		0	0	0	8					0			6	12	0	0	18	0	7		0	0	7	33
13:45	7		0	0	0	7					0			7	9	0	0	16	0	10		0	0	10	33
Grand Total	**31**		**1**	**0**	**0**	**32**					**0**	**0**		**26**	**30**	**0**	**0**	**56**	**0**	**31**		**0**	**0**	**31**	**119**
Approach %	96.9		3.1	0		-						-		46.4	53.6	0		-	0	100		0		-	
Totals %	26.1		0.8	0		26.9						0		21.8	25.2	0		47.1	0	26.1		0		26.1	
PHF	**0.86**		**0.25**	**0**		**0.89**						**0**		**0.93**	**0.63**	**0**		**0.78**	**0**	**0.78**		**0**		**0.78**	**0.9**
Cars	30		1	0		31						0		16	27	0		43	0	25		0		25	99
% Cars	96.8		100	0		96.9						0		61.5	90	0		76.8	0	80.6		0		80.6	83.2
Trucks	1		0	0		1						0		10	2	0		12	0	6		0		6	19
% Trucks	3.2		0	0		3.1						0		38.5	6.7	0		21.4	0	19.4		0		19.4	16
Bicycles	0		0	0		0						0		0	1	0		1	0	0		0		0	1
% Bicycles	0		0	0		0						0		0	3.3	0		1.8	0	0		0		0	0.8
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Diagram

Specified Period		One Hour Peak	
From:	15:00:00	From:	15:45:00
To:	18:00:00	To:	16:45:00

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Count Date: Dec 01, 2022

Weather conditions: Clear

**** Unsignalized Intersection ****

Major Road: Young St runs E/W

North Approach

	Out	In	Total
Cars	58	34	92
Trucks	3	4	7
Bicycles	0	0	0
	61	**38**	**99**

Clayson Rd

Bicycles	0	0	0
Trucks	0	3	0
Cars	0	58	0
Totals	**0**	**61**	**0**

East Approach

	Out	In	Total
Cars	60	95	155
Trucks	6	6	12
Bicycles	0	0	0
	66	**101**	**167**

Young St

Bicycles	Trucks	Cars	Totals	
0	0	0	**0**	
0	0	0	**0**	
0	3	37	**40**	

Peds: 0

N
W E
S

Peds: 0

Peds: 0

Young St

Totals	Cars	Trucks	Bicycles
0	0	0	0
38	34	4	0
28	26	2	0

West Approach

	Out	In	Total
Cars	37	26	63
Trucks	3	2	5
Bicycles	0	0	0
	40	**28**	**68**

- Cars - Trucks - Bicycles

Comments

Ontario Traffic Inc.
Traffic Monitoring • Services & Products

Peak Hour Summary

Intersection: Young St & Clayson Rd
Site Code: 2241000003
Count Date: Dec 01, 2022
Period: 15:00 - 18:00

Peak Hour Data (15:45 - 16:45)

Start Time	North Approach Clayson Rd						South Approach						East Approach Young St						West Approach Young St						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
15:45	20		0	0	0	20					0			8	10	0	0	18	0	4		0	0	4	42
16:00	18		0	0	0	18					0			7	4	0	0	11	0	11		0	0	11	40
16:15	10		0	0	0	10					0			7	6	0	0	13	0	12		0	0	12	35
16:30	13		0	0	0	13					0			6	18	0	0	24	0	13		0	0	13	50
Grand Total	**61**		**0**	**0**	**0**	**61**					**0**	**0**		**28**	**38**	**0**	**0**	**66**	**0**	**40**		**0**	**0**	**40**	**167**
Approach %	100		0	0		-						-		42.4	57.6	0		-	0	100		0		-	
Totals %	36.5		0	0		36.5						0		16.8	22.8	0		39.5	0	24		0		24	
PHF	**0.76**		**0**	**0**		**0.76**						**0**		**0.88**	**0.53**	**0**		**0.69**	**0**	**0.77**		**0**		**0.77**	**0.84**
Cars	58		0	0		58						0		26	34	0		60	0	37		0		37	155
% Cars	95.1		0	0		95.1						0		92.9	89.5	0		90.9	0	92.5		0		92.5	92.8
Trucks	3		0	0		3						0		2	4	0		6	0	3		0		3	12
% Trucks	4.9		0	0		4.9						0		7.1	10.5	0		9.1	0	7.5		0		7.5	7.2
Bicycles	0		0	0		0						0		0	0	0		0	0	0		0		0	0
% Bicycles	0		0	0		0						0		0	0	0		0	0	0		0		0	0
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

APPENDIX 2

Historical Collision Data

Collision Details Report

From: January 1, 2017 **To:** August 22, 2022

Location ..... Clayson Road @ Thirty Road **Municipality.....** WEST LINCOLN

Traffic Control.... Unknown **Total Collisions....** 1

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
219800	2021-Feb-02, Tue,22:33	Drifting Snow	SMV other	P.D. only	North	Loose snow	Going ahead	Automobile, station wagon	Concrete guide rail	Driving properly	
Comments:						Loose snow					

Collision Details Report

From: January 1, 2017 **To:** August 22, 2022

Location ..... Clayson Road @ Young Street **Municipality.....** WEST LINCOLN

Traffic Control.... Unknown **Total Collisions....** 2

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
17118068	2017-Dec-08, Fri,09:55	Snow	Other	P.D. only	South	Wet	Stopped	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:	d2 charged				South	Wet	Reversing	Truck - tractor	Other motor vehicle	Failed to yield right-of-way	
17122869	2017-Dec-23, Sat,00:19	Freezing Rain	SMV other	P.D. only	South	Ice	Stopped	Automobile, station wagon	Skidding/sliding	Driving properly	
Comments:						Ice					

Collision Details Report

From: January 1, 2017 **To:** August 22, 2022

Location ..... Thirty Road @ Young Street **Municipality.....** WEST LINCOLN

Traffic Control.... Stop sign **Total Collisions....** 14

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
1772233	2017-Aug-03, Thu,17:23	Clear	Angle	P.D. only	East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Disobeyed traffic control	
Comments:	d1 charged				South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
17107379	2017-Nov-06, Mon,07:44	Clear	Angle	P.D. only	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:	d1 charged				South	Dry	Going ahead	Truck - closed	Other motor vehicle	Driving properly	
1820500	2018-Mar-09, Fri,16:11	Clear	Angle	P.D. only	West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:	d1 charged				South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
1881058	2018-Aug-18, Sat,13:30	Clear	Other	Non-fatal injury	East	Dry	Going ahead	Passenger van	Skidding/sliding	Failed to yield right-of-way	
Comments:	d1 charged				South	Dry	Going ahead	Motorcycle	Ran off road	Driving properly	
1940325	2019-May-07, Tue,07:14	Rain	Angle	P.D. only	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:	d1 charged				North	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly	
1961432	2019-Jul-01, Mon,13:56	Clear	Angle	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
Comments:	d2 charged				West	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
19116838	2019-Nov-16, Sat,17:59	Clear	Angle	P.D. only	East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
1609	2020-Jan-06, Mon,08:30	Clear	Angle	P.D. only	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way	
Comments:					North	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	
20111991	2020-Nov-16, Mon,16:03	Clear	Angle	P.D. only	West	Dry	Going ahead	Passenger van	Other motor vehicle	Other	
Comments:					South	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	

2128201	2021-Mar-30, Tue,17:10	Clear	Angle	Non-fatal injury	East	Dry	Going ahead	Pick-up truck	Other motor vehicle	Failed to yield right-of-way
Comments:					North	Dry	Going ahead	Passenger van	Other motor vehicle	Driving properly
2151898	2021-May-28, Fri,13:25	Rain	Angle	P.D. only	West	Wet	Going ahead	Automobile, station wagon	Other motor vehicle	Failed to yield right-of-way
Comments:					South	Wet	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
2169451	2021-Jul-03, Sat,10:36	Clear	Angle	Non-fatal injury	South	Dry	Going ahead	Pick-up truck	Other motor vehicle	Disobeyed traffic control
Comments:					West	Dry	Going ahead	Pick-up truck	Other motor vehicle	Driving properly
2188642	2021-Aug-11, Wed,11:20	Clear	Turning movement	P.D. only	West	Dry	Turning left	Automobile, station wagon	Other motor vehicle	Driving properly
Comments:					East	Dry	Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly
2270903	2022-Jun-29, Wed,19:01	Clear	SMV other	P.D. only	North	Dry	Going ahead	Automobile, station wagon	Ran off road	Other
Comments:										

Collision Details Report

From: January 1, 2017 **To:** August 22, 2022

Location ..... Thirty Road btwn Spring Creek Road & Station Street & Young Street **Municipality.....** WEST LINCOLN

Traffic Control.... Unknown **Total Collisions....** 5

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
171778	2017-Jan-07, Sat,02:19	Clear	SMV other	P.D. only	North	Dry	Pulling onto shoulder or toward curb	Automobile, station wagon	Ran off road	Lost control	
Comments:	d1 charged										
1837759	2018-May-02, Wed,21:15	Clear	SMV other	P.D. only	North	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	deer										
20117303	2020-Dec-03, Thu,00:07	Clear	SMV other	P.D. only	East	Dry	Going ahead	Pick-up truck	Ran off road	Lost control	
Comments:											
2229857	2022-Mar-24, Thu,13:08	Clear	SMV other	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Ran off road	Other	
Comments:											
2254106	2022-May-22, Sun,18:34	Clear	SMV other	P.D. only	South	Dry	Going ahead	Automobile, station wagon	Animal - wild	Driving properly	
Comments:	animal										

Collision Details Report

From: January 1, 2017 **To:** August 22, 2022

Location ..... Thirty Road btwn Young Street & Clayson Road **Municipality.....** WEST LINCOLN

Traffic Control.... Unknown **Total Collisions....** 1

Collision ID	Date/Day/Time	Environment	Impact Type	Classification	Direction	Surface Cond'n	Vehicle Manoeuver	Vehicle type	First Event	Driver Action	No. Ped
1919721	2019-Mar-05, Tue,08:06	Snow	Approaching	Non-fatal injury	North	Ice	Going ahead	Automobile, station wagon	Other motor vehicle	Lost control	
Comments:					South		Going ahead	Automobile, station wagon	Other motor vehicle	Driving properly	

APPENDIX 3

All-Way Stop Control and Left-Turn Lane Warrant Analysis – Existing Conditions

OTM Arterial/Major Intersection All-Way Stop Warrant Analysis

Intersection:	Thirty Road & Young Street		
Major Roadway:	Thirty Road	**Orientation:**	North-South
Minor Roadway:	Young Street	**Orientation:**	East-West
Analysis Scenario:	Existing (2022) Conditions		
Analysis Period:	8 Hours		
T-Intersection:	No		

Traffic & Pedestrian Volumes

Start Time	Major Roadway	Peds (Minor)	Minor Roadway	Peds (Major)	Minor Volume	Total Vehicular Volume	Volume Split	Interval Satisfied
7:00	325	0	128	0	128	453	70 / 30	✕
8:00	360	0	125	0	125	485	75 / 25	✕
11:00	257	0	88	1	89	345	75 / 25	✕
12:00	248	0	112	0	112	360	70 / 30	✕
13:00	220	0	133	0	133	353	60 / 40	✕
15:00	364	0	163	0	163	527	70 / 30	✕
16:00	397	0	177	0	177	574	70 / 30	✕
17:00	309	0	137	0	137	446	70 / 30	✕

AWS Warrant 80% Satisfied: **No**
AWS Warrant 100% Satisfied: **No**

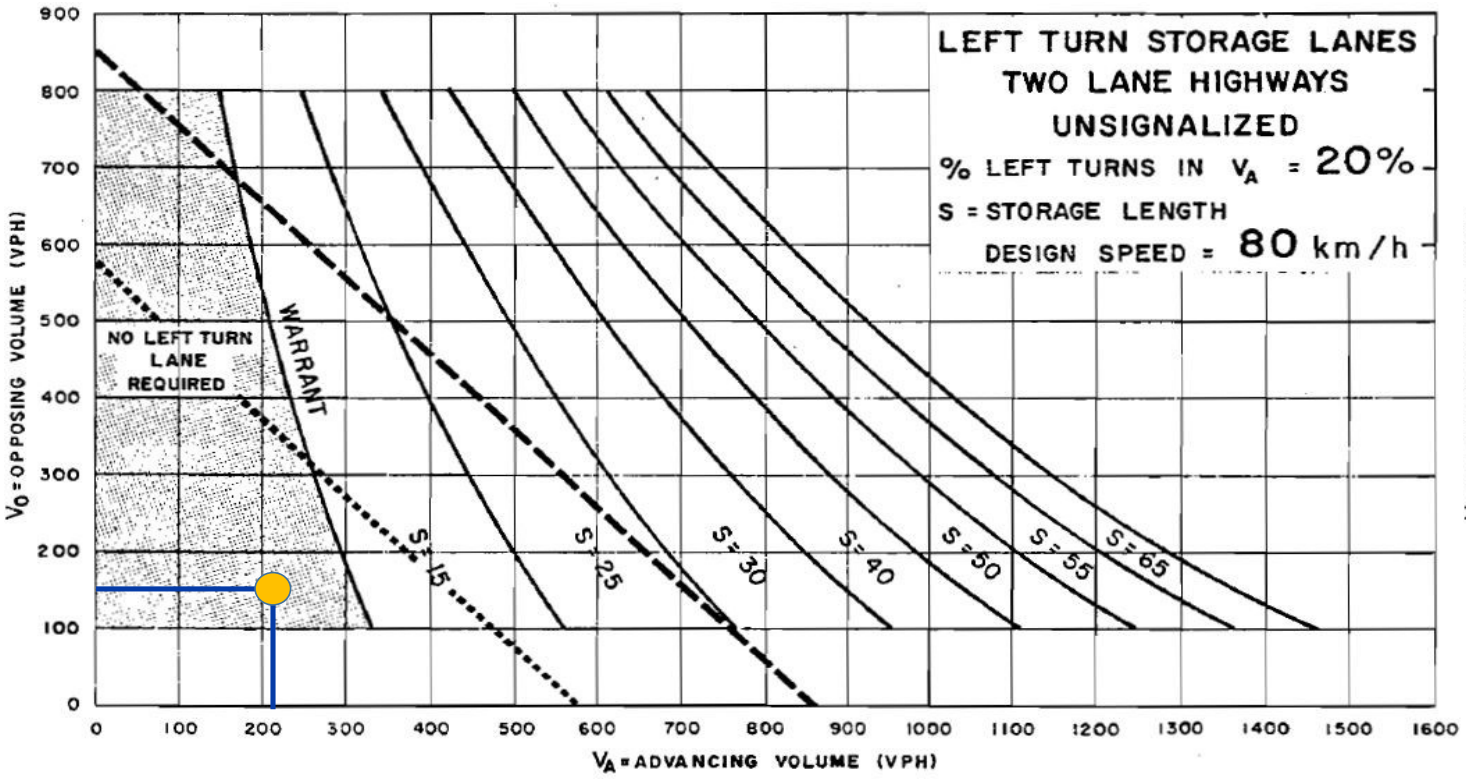
Notes:
-Average delays to minor street traffic (vehicular and pedestrian) for the same eight hour period should exceed 30 seconds for AWS to be warranted.

-AWS control should also be considered where four or more right angle or turning collisions per year have occurred over a period of three years and other mitigation measures have been deemed inadequate.

LEFT-TURN WARRANT ANALYSIS

SCENARIO	Existing Conditions
PEAK HOUR	PM Peak Hour
MOVEMENT	Northbound Left-turn

Number of Lanes	2-Lane Undivided
Design Speed Limit	80
Advancing Traffic Volume	210
Opposing Traffic Volume	182
Left Turn Traffic Volume	39
Percentage of Left-Turn Traffic	20%



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

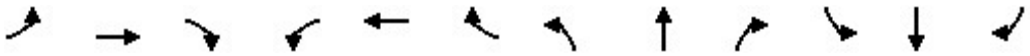
TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

Opposing Volume

Advancing Volume

APPENDIX 4

Detailed Synchro Analysis Outputs – Existing Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	22	51	7	16	0	72	156	5	0	111	14
Future Volume (vph)	13	22	51	7	16	0	72	156	5	0	111	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	24	55	8	17	0	78	170	5	0	121	15

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	93	25	253	136
Volume Left (vph)	14	8	78	0
Volume Right (vph)	55	0	5	15
Hadj (s)	-0.18	0.30	0.19	0.16
Departure Headway (s)	4.7	5.2	4.6	4.6
Degree Utilization, x	0.12	0.04	0.32	0.18
Capacity (veh/h)	705	622	766	739
Control Delay (s)	8.3	8.4	9.7	8.6
Approach Delay (s)	8.3	8.4	9.7	8.6
Approach LOS	A	A	A	A

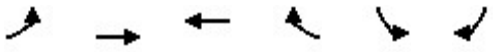
Intersection Summary				
Delay	9.1			
Level of Service	A			
Intersection Capacity Utilization	36.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	22	51	7	16	0	72	156	5	0	111	14
Future Vol, veh/h	13	22	51	7	16	0	72	156	5	0	111	14
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	14	8	0	20	0	8	9	0	0	14	7
Mvmt Flow	14	24	55	8	17	0	78	170	5	0	121	15
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.2	9.6	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	15%	30%	0%
Vol Thru, %	67%	26%	70%	89%
Vol Right, %	2%	59%	0%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	86	23	125
LT Vol	72	13	7	0
Through Vol	156	22	16	111
RT Vol	5	51	0	14
Lane Flow Rate	253	93	25	136
Geometry Grp	1	1	1	1
Degree of Util (X)	0.318	0.117	0.035	0.175
Departure Headway (Hd)	4.515	4.508	4.982	4.627
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	798	795	718	776
Service Time	2.539	2.538	3.018	2.654
HCM Lane V/C Ratio	0.317	0.117	0.035	0.175
HCM Control Delay	9.6	8.1	8.2	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.4	0.4	0.1	0.6



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	26	23	34	31	0
Future Volume (Veh/h)	1	26	23	34	31	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	28	25	37	34	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	62				74	44
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62				74	44
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				96	100
cM capacity (veh/h)	1554				889	1032

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	29	62	34
Volume Left	1	0	34
Volume Right	0	37	0
cSH	1554	1700	889
Volume to Capacity	0.00	0.04	0.04
Queue Length 95th (m)	0.0	0.0	1.0
Control Delay (s)	0.3	0.0	9.2
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	9.2
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	13.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	35	169	0	31	125
Future Volume (Veh/h)	0	35	169	0	31	125
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	38	184	0	34	136
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	388	184			184	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	388	184			184	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	100	95			98	
cM capacity (veh/h)	604	836			1385	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	184	170
Volume Left	0	0	34
Volume Right	38	0	0
cSH	836	1700	1385
Volume to Capacity	0.05	0.11	0.02
Queue Length 95th (m)	1.1	0.0	0.6
Control Delay (s)	9.5	0.0	1.7
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	1.7
Approach LOS	A		

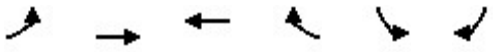
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	25.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	42	84	4	23	2	39	159	12	0	164	18
Future Vol, veh/h	14	42	84	4	23	2	39	159	12	0	164	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	1	0	4	0	5	3	0	0	4	6
Mvmt Flow	15	46	91	4	25	2	42	173	13	0	178	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	8.4	9.6	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	10%	14%	0%
Vol Thru, %	76%	30%	79%	90%
Vol Right, %	6%	60%	7%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	140	29	182
LT Vol	39	14	4	0
Through Vol	159	42	23	164
RT Vol	12	84	2	18
Lane Flow Rate	228	152	32	198
Geometry Grp	1	1	1	1
Degree of Util (X)	0.295	0.194	0.044	0.253
Departure Headway (Hd)	4.649	4.586	5.073	4.608
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	772	779	702	777
Service Time	2.688	2.63	3.13	2.648
HCM Lane V/C Ratio	0.295	0.195	0.046	0.255
HCM Control Delay	9.6	8.7	8.4	9.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.2	0.7	0.1	1



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	54	28	36	39	1
Future Volume (Veh/h)	0	54	28	36	39	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	59	30	39	42	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	69				108	50
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	69				108	50
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	100
cM capacity (veh/h)	1545				886	1025

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	59	69	43
Volume Left	0	0	42
Volume Right	0	39	1
cSH	1545	1700	889
Volume to Capacity	0.00	0.04	0.05
Queue Length 95th (m)	0.0	0.0	1.2
Control Delay (s)	0.0	0.0	9.3
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	14.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	36	175	0	40	182
Future Volume (Veh/h)	0	36	175	0	40	182
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	39	190	0	43	198
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	474	190			190	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	474	190			190	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	100	95			97	
cM capacity (veh/h)	535	837			1378	

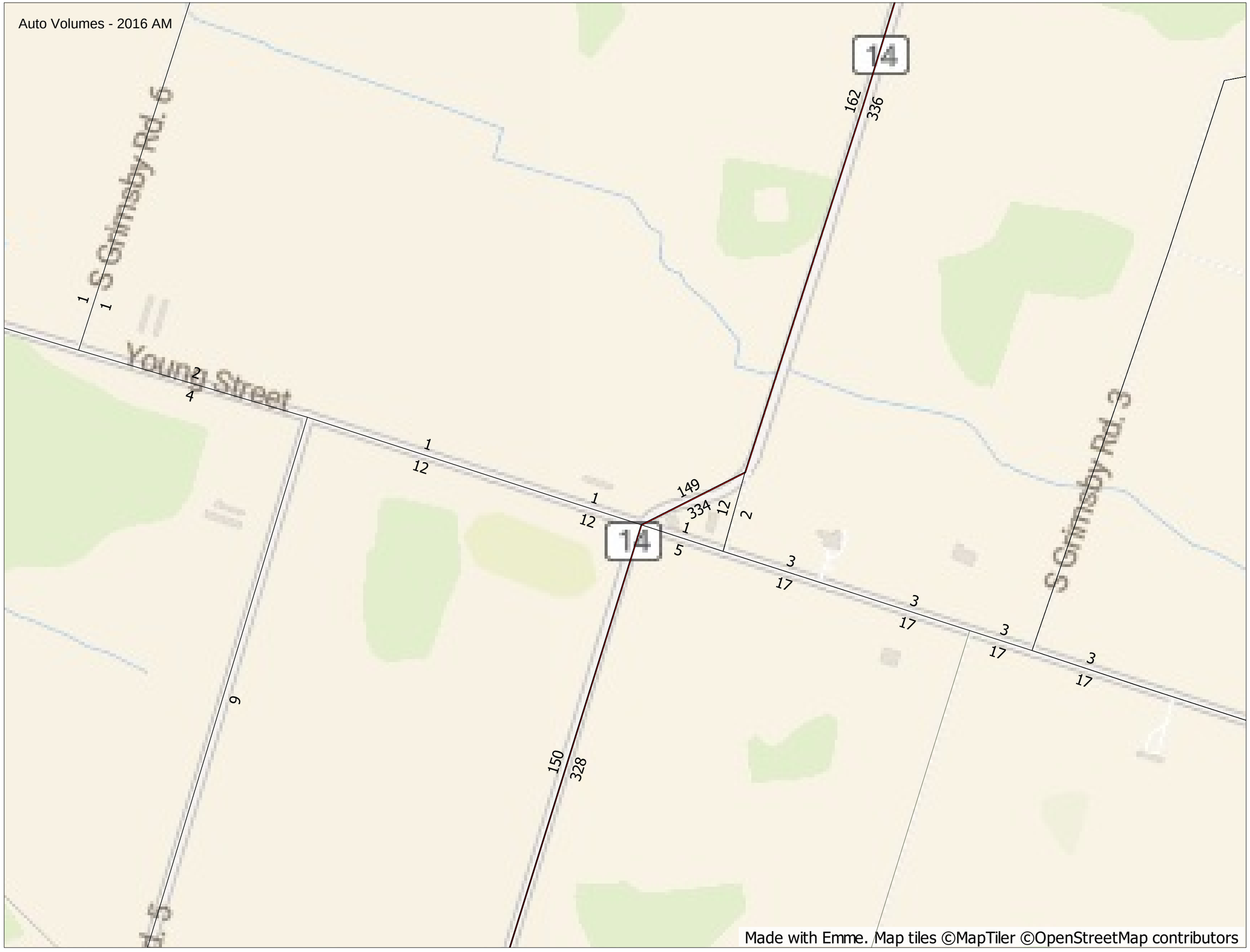
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	190	241
Volume Left	0	0	43
Volume Right	39	0	0
cSH	837	1700	1378
Volume to Capacity	0.05	0.11	0.03
Queue Length 95th (m)	1.2	0.0	0.8
Control Delay (s)	9.5	0.0	1.6
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	1.6
Approach LOS	A		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

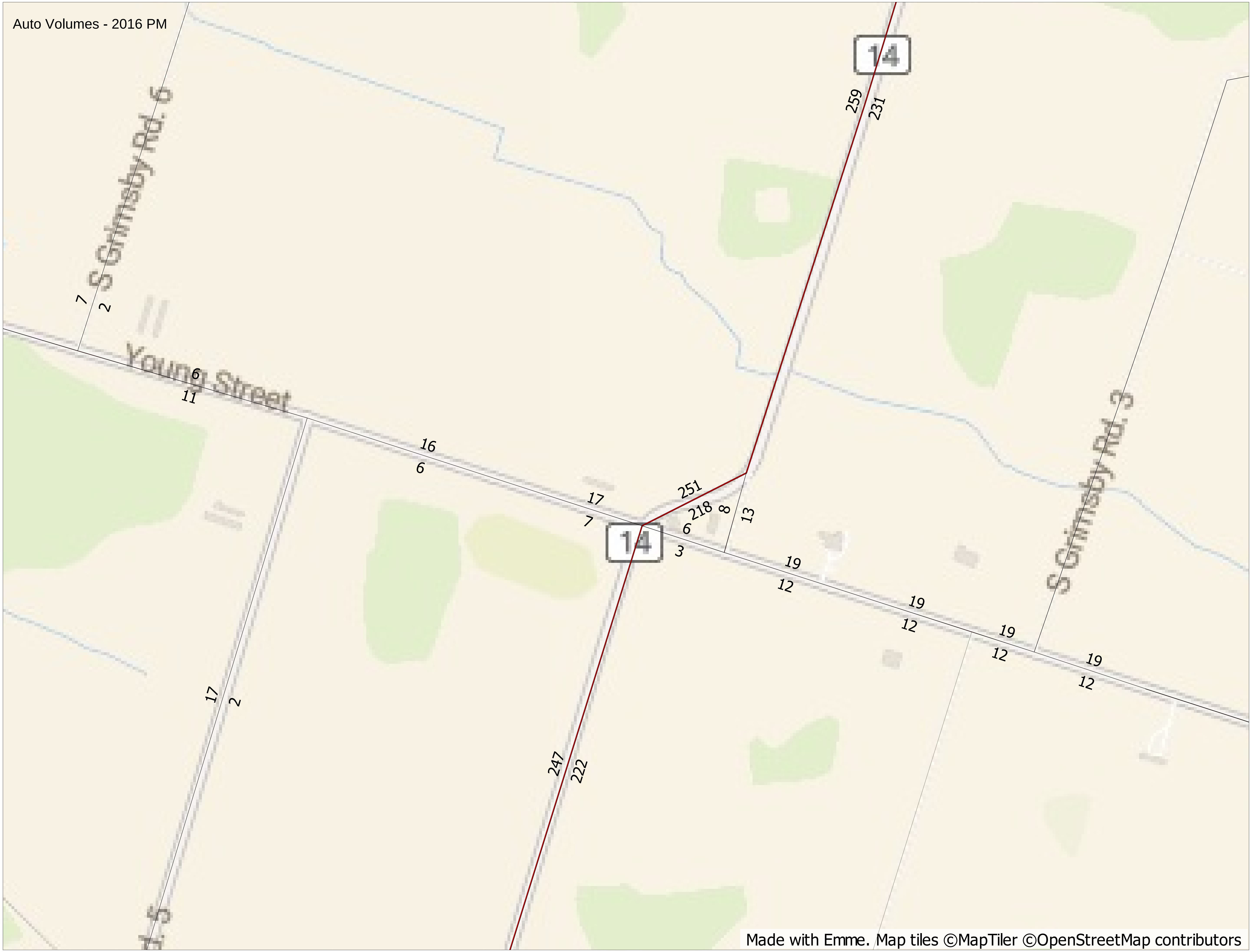
APPENDIX 5

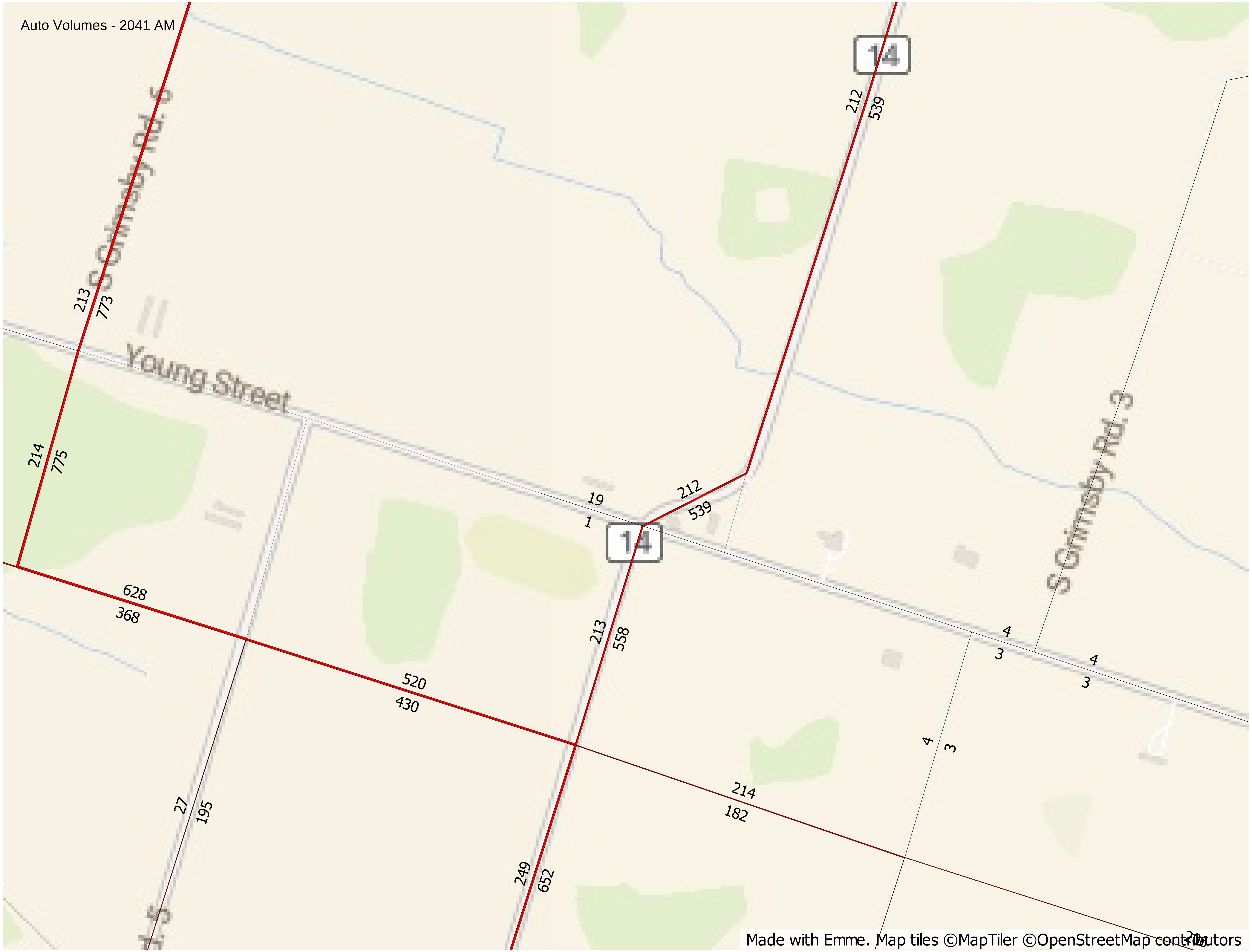
EMME Model Outputs

Auto Volumes - 2016 AM



Auto Volumes - 2016 PM





Auto Volumes - 2041 AM
S Grimsby Rd. 6
Young Street
S Grimsby Rd. 3
14
14
213
773
214
775
628
368
520
430
19
1
212
539
212
539
213
558
249
652
27
195
214
182
4
3
4
3
4
3
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Auto Volumes - 2041 PM

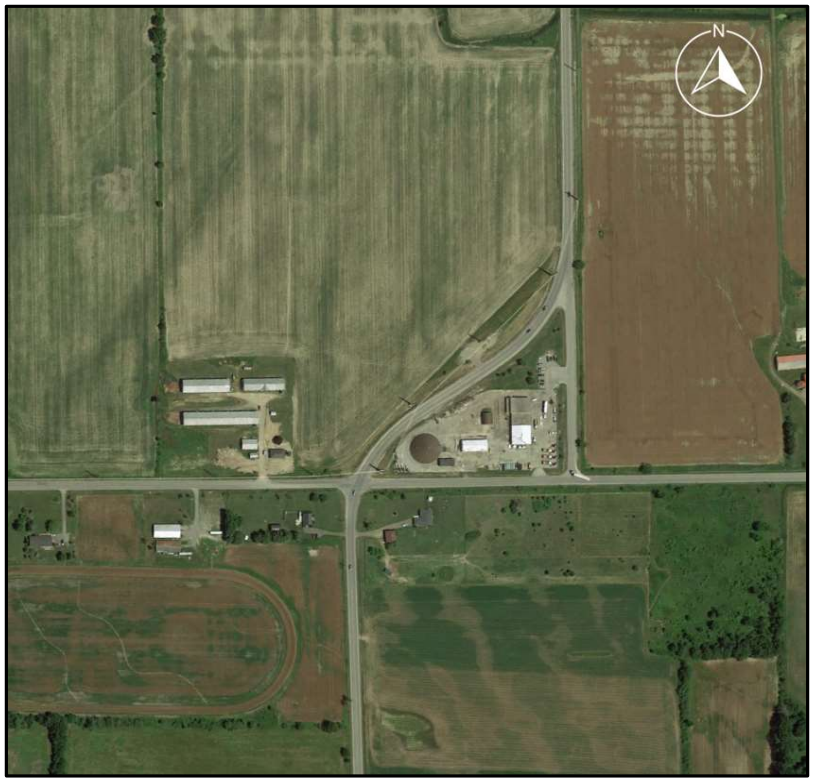
APPENDIX 6

Alternative Solutions

Alternative 1: Do Nothing

Intersection remains as is, with no improvements (prior to all-way stop temporary condition). Required to be considered as part of the EA planning & design process.

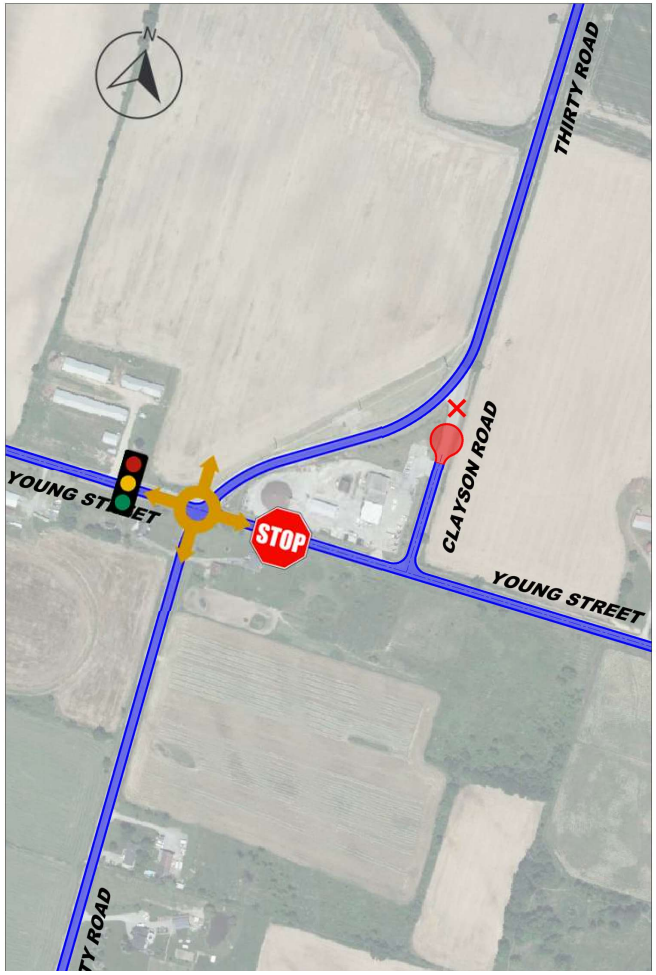
- ✗ Does not address insufficient stopping sightline distance caused by reverse curve alignment
- ✗ Does not address right-of-way conflict at Thirty Road / Clayson Road
- ✗ Does not address westbound traffic utilizing Clayson Road as cut-through



Alternative 2: Intersection Improvements & Close Clayson Road at Northern Terminus

Close Clayson Road and direct traffic to improved Thirty Road at Young Street intersection i.e., all-way stop, roundabout or traffic signal (to be confirmed in Phase 3).

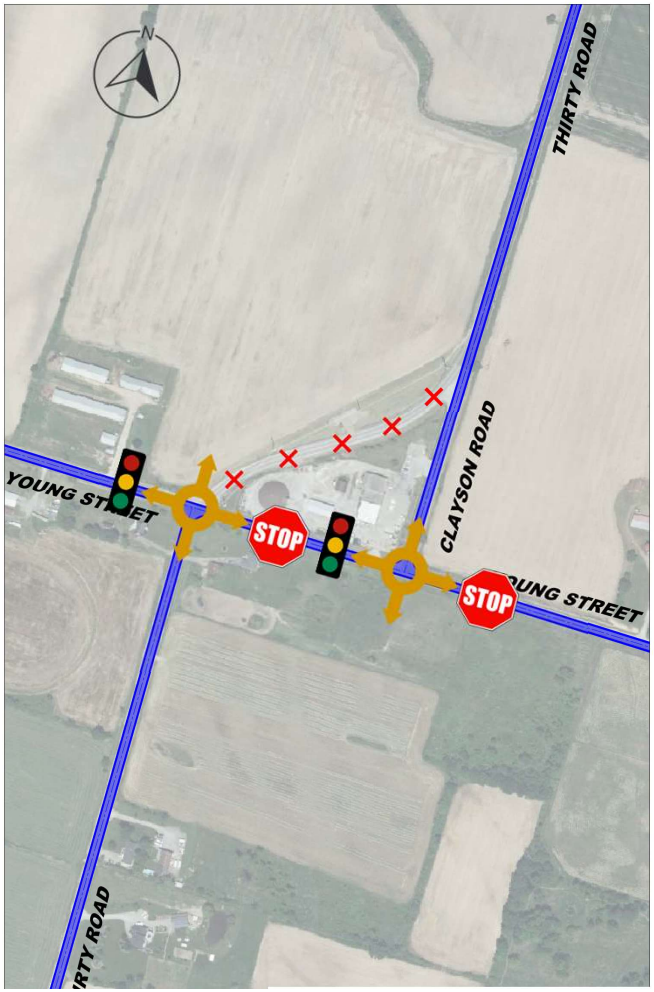
- ✓ Addresses insufficient stopping sightline distance caused by reverse curve alignment at Young Street / Thirty Road (dependent on intersection control selected in Phase 3)
- ✓ Eliminates right-of-way conflict at Thirty Road / Clayson Road
- ✓ Addresses east bound traffic utilizing Clayson Road as cut-through
- ✓ N/S traffic flow is maintained
- ✓ Minimal impact to adjacent lands



Alternative 3: Improvements at Clayson Rd & Young St Intersections & Close Thirty Road Segment

Close north segment of Thirty Road and direct traffic to Thirty Road at Clayson Road Street intersection.

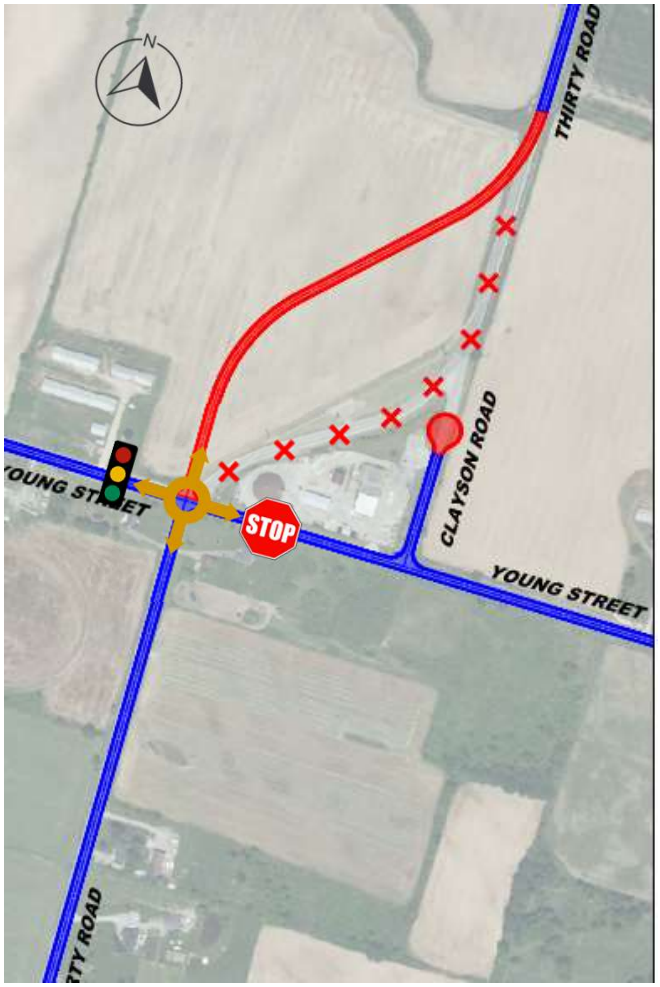
- ✓ Eliminates stopping sightline distance issues at Young Street / Thirty Road
- ✓ Removes right-of-way conflict at Thirty Road and Clayson Road
- ✗ Minimal-moderate property requirements (to be determined based on type of intersection control)
- ✗ Results in minor delays to N/S traffic flow
- ✗ Requires upgrades to Clayson Road and Young Street



Alternative 4: Realign Thirty Road North of Young Street

Segment of Thirty Road north of Young Street is closed and realigned with Clayson Road closed at northern terminus.

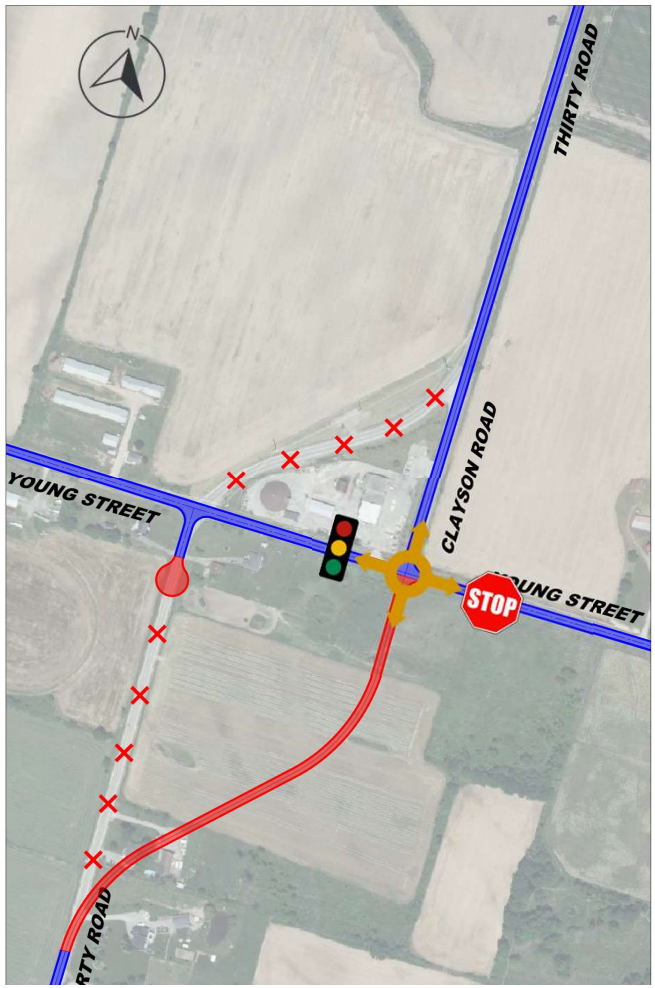
- ✓ Improves stopping sightline distance at Young Street/Thirty Road
- ✓ Addresses right-of-way conflict at Thirty Road / Clayson Road
- ✓ Maintains N/S traffic flow
- × Impacts watercourse and highly vulnerable aquifer
- × Significant property impacts (bisects property north of Young)
- × High cost to implement



Alternative 5: Extend Clayson Road South of Young Street

Clayson Road is extended south of Young Street. Segment of Thirty Road north of Young Street is closed and Thirty Road is cul-de-sac'd at southern terminus.

- ✓ Addresses stopping sightline distance issue at Young Street / Thirty Road
- ✓ Removes right-of-way conflict at Thirty Road / Clayson Road
- ✓ Maintains N/S traffic flow
- ✗ Significant property impacts including potential cultural heritage property (farm south of Young and 3049 Thirty Road)
- ✗ High cost to implement



APPENDIX 7

All-Way Stop Control, Left-Turn Lane, and Traffic Signal Warrant Analysis – Future (2041) Traffic Conditions

OTM Arterial/Major Intersection All-Way Stop Warrant Analysis

Intersection:	Thirty Road & Young Street		
Major Roadway:	Thirty Road	**Orientation:**	North-South
Minor Roadway:	Young Street	**Orientation:**	East-West
Analysis Scenario:	Future (2042) Conditions (Alternative 2)		
Analysis Period:	8 Hours		
T-Intersection:	No		

Traffic & Pedestrian Volumes

Start Time	Major Roadway	Peds (Minor)	Minor Roadway	Peds (Major)	Minor Volume	Total Vehicular Volume	Volume Split	Interval Satisfied
7:00	520	0	205	0	205	725	70 / 30	✓
8:00	576	0	200	0	200	776	75 / 25	✕
11:00	411	0	141	1	142	552	75 / 25	✕
12:00	396	0	179	0	179	575	70 / 30	✕
13:00	352	0	213	0	213	565	60 / 40	✓
15:00	582	0	261	0	261	843	70 / 30	✓
16:00	635	0	283	0	283	918	70 / 30	✓
17:00	494	0	219	0	219	713	70 / 30	✓

AWS Warrant 80% Satisfied: **No**
AWS Warrant 100% Satisfied: **No**

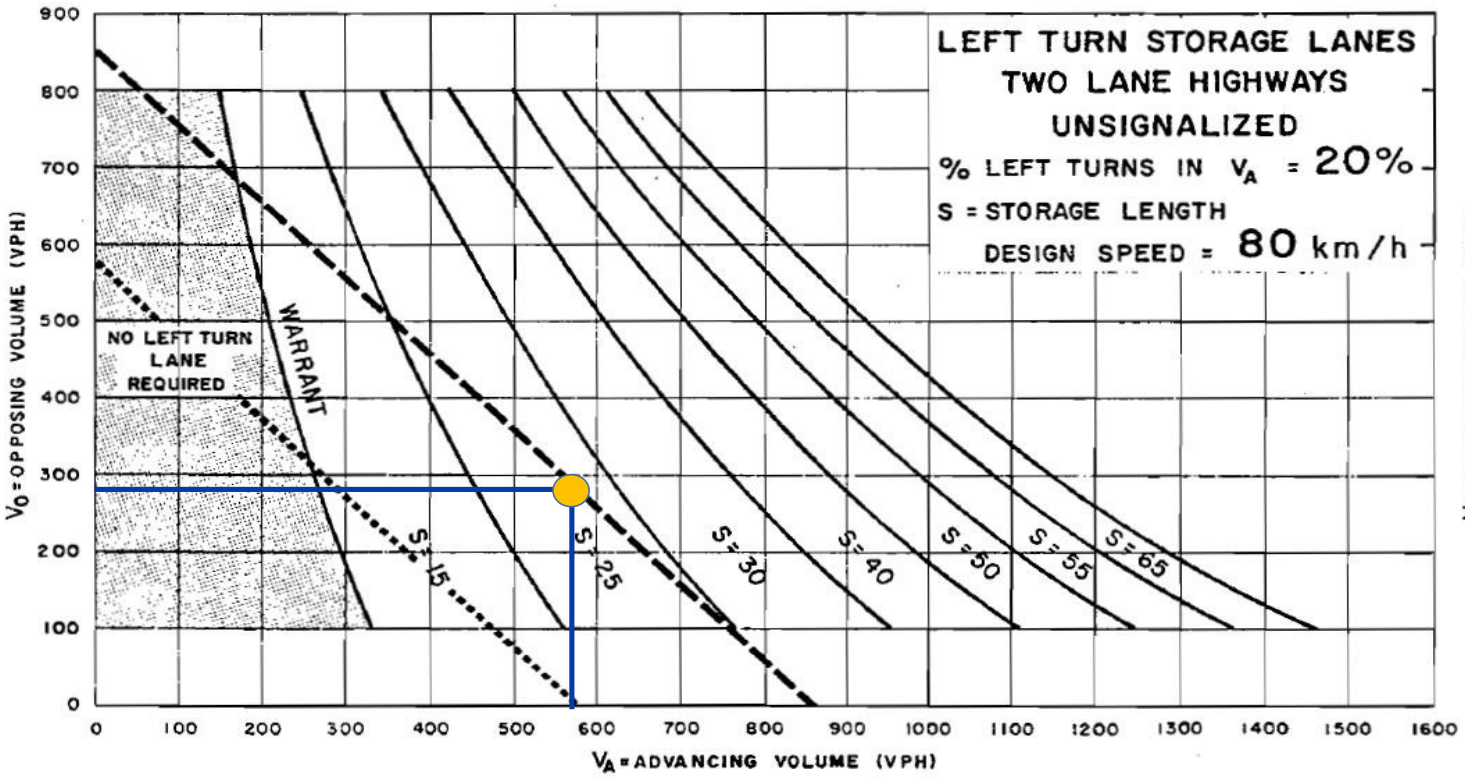
Notes:
-Average delays to minor street traffic (vehicular and pedestrian) for the same eight hour period should exceed 30 seconds for AWS to be warranted.

-AWS control should also be considered where four or more right angle or turning collisions per year have occurred over a period of three years and other mitigation measures have been deemed inadequate.

LEFT-TURN WARRANT ANALYSIS

SCENARIO	Future (2041) Conditions
PEAK HOUR	AM Peak Hour
MOVEMENT	Northbound Left-turn

Number of Lanes	2-Lane Undivided
Design Speed Limit	80
Advancing Traffic Volume	575
Opposing Traffic Volume	249
Left Turn Traffic Volume	115
Percentage of Left-Turn Traffic	20%



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

Opposing Volume

Advancing Volume

OTM Book 12 - Signal Warrant Analysis - Justification 7 - Projected Volumes

Intersection:	Thirty Road & Young Street				
Major Roadway:	Thirty Road	**Orientation:**	East-West	**No. of Lanes:**	1
Minor Roadway	Young Street	**Orientation:**	North-South	**No. of Lanes:**	1
Analysis Scenario:	Future Total (2042) Traffic Conditions (Alternative 2)				
Peak Hour[1]**:**	AM & PM Average Hour Volumes				
Existing Intersection[1]**:**	Yes				
T-Intersection[2]**:**	No			**Signal Warrant 150% Satisfied:**	**No**
Flow Conditions[3]**:**	Free Flow			**Signal Warrant 120% Satisfied:**	**No**

Traffic & Pedestrian Volumes

Peak Hour	Major Roadway									Minor Roadway								
	Northbound				Southbound					Eastbound				Westbound				
	Left	Thru	Right	Total	Left	Thru	Right	Total	Peds	Left	Thru	Right	Total	Left	Thru	Right	Total	Peds
AM	115	452	8	**575**	22	178	0	**200**	0	21	36	82	**139**	11	29	0	**40**	0
PM	62	349	19	**430**	29	351	0	**380**	0	22	68	134	**224**	6	38	3	**47**	0
Totals	**177**	**801**	**27**	**1005**	**51**	**529**	**0**	**580**	**0**	**43**	**104**	**216**	**363**	**17**	**67**	**3**	**87**	**0**

Table 21 – Justification 7 – Projected Volumes

Justification	Description	Minimum Requirement 1 Lane Highways		Minimum Requirement 2 or more lanes		Compliance		
						Sectional		Entire %
		Free Flow	Restr. Flow	Free Flow	Restr. Flow	Numerical	%	
1. Minimum Vehicular Volume	A. Vehicle volume, all approaches (average hour)	480	720	600	900	509	106%	94%
	B. Vehicle volume, along minor streets * (average hour)	120	170	120	170	113	94%	
2. Delay to Cross Traffic	A. Vehicle volume, major street (average hour)	480	720	600	900	396	83%	82%
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	75	120	170	41	82%	

Notes:

1. If using Average Hour Volumes, Justifications 1 and 2 should be met to 120% for an existing intersection or 150% for a new intersection.

2. For "T" intersections, these values should be increased by 50%

3. Restricted flow: Operating or posted speed less than 70km/hr. Normally urban areas.
Free flow: Operating or posted speeds equal to or greater than 70km/hr. Normally rural areas.

- Application of Justification 2b:

- The number of pedestrians crossing the main road.

- Total left turns from both the side road approaches.

- The highest through volumes from one of the side road approaches.

- Fifty percent of the heavier left-turn traffic movement from the main road when both of the following criteria are met:

- The left turn volume is greater than 120 vehicles per hour.

- The total of the heavier left-turn volume plus its opposing volume is greater than 720 vph

APPENDIX 8

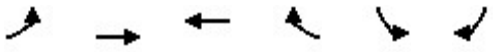
Detailed Synchro Analysis Outputs – Future (2041) Traffic Conditions – Alternative 1

Intersection	
Intersection Delay, s/veh	23.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	35	82	11	29	0	115	452	8	0	178	22
Future Vol, veh/h	21	35	82	11	29	0	115	452	8	0	178	22
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	14	8	0	20	0	8	9	0	0	14	7
Mvmt Flow	23	38	89	12	32	0	125	491	9	0	193	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.7	10.1	31.4	11.3
HCM LOS	B	B	D	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	15%	28%	0%
Vol Thru, %	79%	25%	72%	89%
Vol Right, %	1%	59%	0%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	575	138	40	200
LT Vol	115	21	11	0
Through Vol	452	35	29	178
RT Vol	8	82	0	22
Lane Flow Rate	625	150	43	217
Geometry Grp	1	1	1	1
Degree of Util (X)	0.866	0.242	0.078	0.333
Departure Headway (Hd)	4.987	5.798	6.443	5.507
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	725	618	554	652
Service Time	3.013	3.845	4.502	3.546
HCM Lane V/C Ratio	0.862	0.243	0.078	0.333
HCM Control Delay	31.4	10.7	10.1	11.3
HCM Lane LOS	D	B	B	B
HCM 95th-tile Q	10.4	0.9	0.3	1.5



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	42	40	56	50	0
Future Volume (Veh/h)	2	42	40	56	50	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	46	43	61	54	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	104				124	74
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	104				124	74
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	100				94	100
cM capacity (veh/h)	1500				831	994

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	48	104	54
Volume Left	2	0	54
Volume Right	0	61	0
cSH	1500	1700	831
Volume to Capacity	0.00	0.06	0.06
Queue Length 95th (m)	0.0	0.0	1.7
Control Delay (s)	0.3	0.0	9.6
Lane LOS	A		A
Approach Delay (s)	0.3	0.0	9.6
Approach LOS			A

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	56	473	0	50	200
Future Volume (Veh/h)	0	56	473	0	50	200
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	61	514	0	54	217
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	839	514			514	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	839	514			514	
tC, single (s)	6.4	6.3			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.4	
p0 queue free %	100	89			94	
cM capacity (veh/h)	320	543			970	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	61	514	271
Volume Left	0	0	54
Volume Right	61	0	0
cSH	543	1700	970
Volume to Capacity	0.11	0.30	0.06
Queue Length 95th (m)	3.0	0.0	1.4
Control Delay (s)	12.5	0.0	2.2
Lane LOS	B		A
Approach Delay (s)	12.5	0.0	2.2
Approach LOS	B		

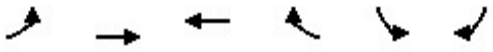
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	18.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	68	134	6	38	3	62	349	19	0	351	29
Future Vol, veh/h	22	68	134	6	38	3	62	349	19	0	351	29
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	1	0	4	0	5	3	0	0	4	6
Mvmt Flow	24	74	146	7	41	3	67	379	21	0	382	32
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.2	10.8	22	18.3
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	10%	13%	0%
Vol Thru, %	81%	30%	81%	92%
Vol Right, %	4%	60%	6%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	430	224	47	380
LT Vol	62	22	6	0
Through Vol	349	68	38	351
RT Vol	19	134	3	29
Lane Flow Rate	467	243	51	413
Geometry Grp	1	1	1	1
Degree of Util (X)	0.724	0.406	0.099	0.642
Departure Headway (Hd)	5.576	6.001	7.004	5.596
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	645	594	515	640
Service Time	3.652	4.095	5.004	3.675
HCM Lane V/C Ratio	0.724	0.409	0.099	0.645
HCM Control Delay	22	13.2	10.8	18.3
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	6.1	2	0.3	4.6



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	87	45	58	64	2
Future Volume (Veh/h)	0	87	45	58	64	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	95	49	63	70	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	112				176	80
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112				176	80
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				91	100
cM capacity (veh/h)	1490				812	985

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	95	112	72
Volume Left	0	0	70
Volume Right	0	63	2
cSH	1490	1700	816
Volume to Capacity	0.00	0.07	0.09
Queue Length 95th (m)	0.0	0.0	2.3
Control Delay (s)	0.0	0.0	9.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	17.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	58	374	0	64	380
Future Volume (Veh/h)	0	58	374	0	64	380
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	63	407	0	70	413
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	960	407			407	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	960	407			407	
tC, single (s)	6.4	6.3			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.2	
p0 queue free %	100	90			94	
cM capacity (veh/h)	270	631			1146	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	63	407	483
Volume Left	0	0	70
Volume Right	63	0	0
cSH	631	1700	1146
Volume to Capacity	0.10	0.24	0.06
Queue Length 95th (m)	2.6	0.0	1.6
Control Delay (s)	11.3	0.0	1.8
Lane LOS	B		A
Approach Delay (s)	11.3	0.0	1.8
Approach LOS	B		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX 9

Detailed Synchro and Arcady Analysis Outputs – Future (2041) Traffic Conditions – Alternatives 2, 4 and 5

Intersection	
Intersection Delay, s/veh	31.4
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	35	82	11	26	59	115	452	8	50	177	22
Future Vol, veh/h	51	35	82	11	26	59	115	452	8	50	177	22
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	14	8	0	19	9	8	9	0	19	14	7
Mvmt Flow	55	38	89	12	28	64	125	491	9	54	192	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.7	11.2	47.4	14.7
HCM LOS	B	B	E	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	30%	11%	20%
Vol Thru, %	79%	21%	27%	71%
Vol Right, %	1%	49%	61%	9%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	575	168	96	249
LT Vol	115	51	11	50
Through Vol	452	35	26	177
RT Vol	8	82	59	22
Lane Flow Rate	625	183	104	271
Geometry Grp	1	1	1	1
Degree of Util (X)	0.95	0.329	0.192	0.471
Departure Headway (Hd)	5.575	6.478	6.613	6.259
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	656	557	544	579
Service Time	3.575	4.499	4.64	4.259
HCM Lane V/C Ratio	0.953	0.329	0.191	0.468
HCM Control Delay	47.4	12.7	11.2	14.7
HCM Lane LOS	E	B	B	B
HCM 95th-tile Q	13.3	1.4	0.7	2.5

Intersection	
Intersection Delay, s/veh	27
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	67	134	6	38	61	62	348	19	67	351	35
Future Vol, veh/h	22	67	134	6	38	61	62	348	19	67	351	35
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	1	0	4	8	5	3	17	3	4	5
Mvmt Flow	24	73	146	7	41	66	67	378	21	73	382	38
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.3	12.5	30.2	33.2
HCM LOS	C	B	D	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	10%	6%	15%
Vol Thru, %	81%	30%	36%	77%
Vol Right, %	4%	60%	58%	8%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	429	223	105	453
LT Vol	62	22	6	67
Through Vol	348	67	38	351
RT Vol	19	134	61	35
Lane Flow Rate	466	242	114	492
Geometry Grp	1	1	1	1
Degree of Util (X)	0.805	0.453	0.231	0.837
Departure Headway (Hd)	6.212	6.721	7.299	6.119
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	578	533	495	591
Service Time	4.288	4.809	5.299	4.195
HCM Lane V/C Ratio	0.806	0.454	0.23	0.832
HCM Control Delay	30.2	15.3	12.5	33.2
HCM Lane LOS	D	C	B	D
HCM 95th-tile Q	7.9	2.3	0.9	8.8

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.3.1598

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Filename: 226468-Arcady Analysis.j10
Path: C:\Users\arcady\Desktop
Report generation date: 2023-05-23 10:12:44 AM

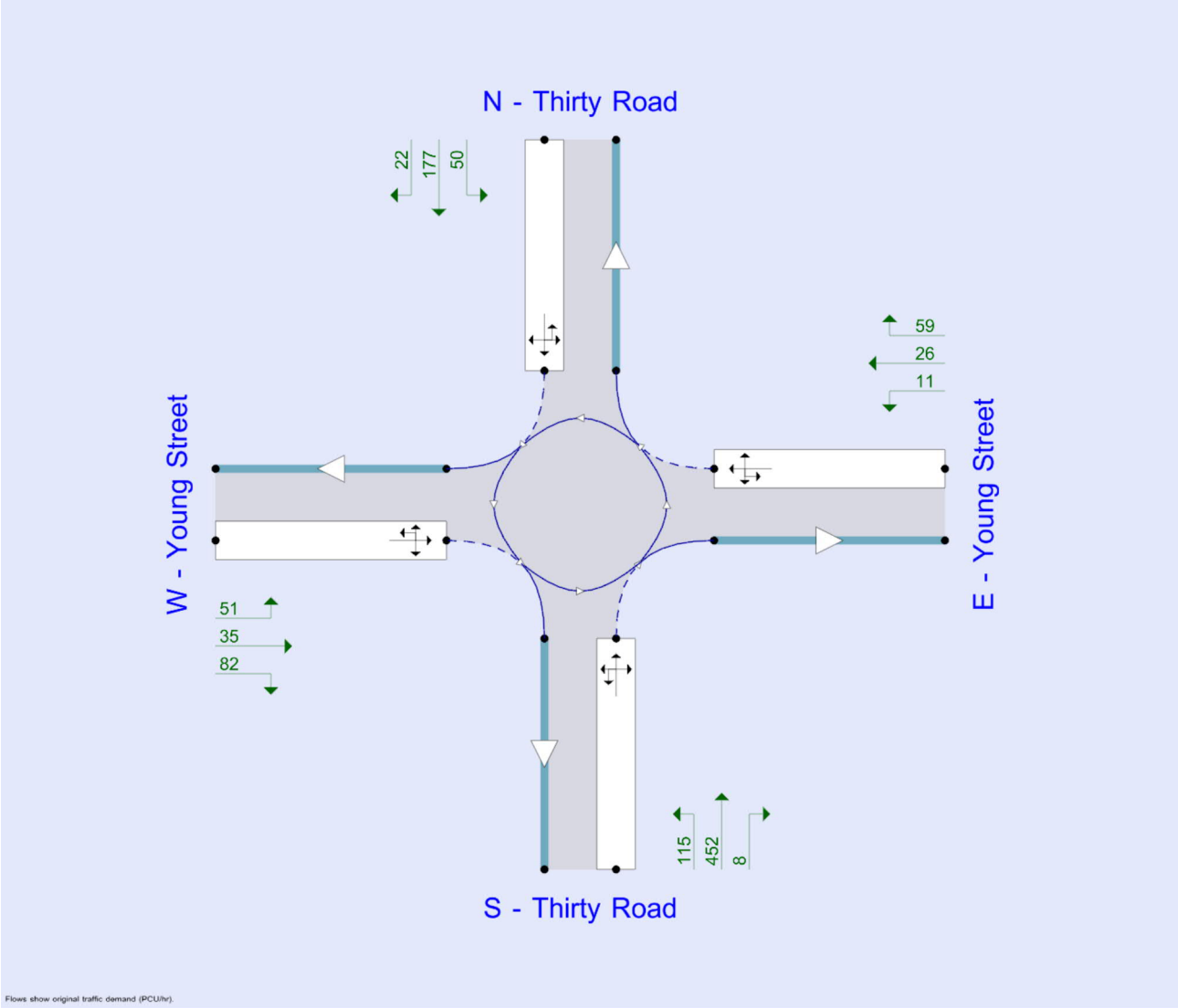
File summary

File Description

Title	
Location	
Site number	
Date	2023-03-03
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	RVAINT\arcady
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓		0.85	36.00	20.00

HCM Calibration

HCM Calibration	Lane type	Num circulating lanes	Num exit lanes	A	B
1	Single lane	1		1380.00	-0.00102
2	Single lane	2		1420.00	-0.00085
3	Nearside	1		1420.00	-0.00091
4	Nearside	2		1420.00	-0.00085
5	Offside	1		1420.00	-0.00091
6	Offside	2		1350.00	-0.00092
7	Yielding bypass		1	1380.00	-0.00102
8	Yielding bypass		2	1420.00	-0.00085
9	Non-yielding bypass		1	99999.00	0.00000

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Roundabout Analysis	100.000

Demand Set Details

Roundabout Analysis - 2042, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	HCM Model	D1 - 2042, AM	Demand Set 1: HCM models are most typically used with PHF traffic flow profiles and single time segments. Use of HCM models with other flow profiles is at the user's own risk
Warning	HCM Model		One or more junctions use HCM methodologies. These methods are not associated with TRL. The user should apply judgement when interpreting the results.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Thirty Road & Young Street	HCM Roundabout		E, N, W, S	7.82	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Right	Normal/unknown	7.82	A

Arms

Arms

Arm	Name	Description
E	Young Street	
N	Thirty Road	
W	Young Street	
S	Thirty Road	

HCM Lanes

Arm	HCM Lane	Lane type	Number of conflicting lanes	Destination arms
E - Young Street	1	Single lane	1	E, N, W, S
N - Thirty Road	1	Single lane	1	E, N, W, S
W - Young Street	1	Single lane	1	E, N, W, S
S - Thirty Road	1	Single lane	1	E, N, W, S

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
E - Young Street		✓	96	100.000
N - Thirty Road		✓	249	100.000
W - Young Street		✓	168	100.000
S - Thirty Road		✓	575	100.000

Peak Hour Factor Data (Traffic)

Arm	Hourly volume (PCU/hr)	Peak hour factor	Peak time segment
E - Young Street	96	0.92	SecondQuarter
N - Thirty Road	249	0.92	SecondQuarter

W - Young Street	168	0.92	SecondQuarter
S - Thirty Road	575	0.92	SecondQuarter

Origin-Destination Data

Demand (PCU/hr)

		To			
		E - Young Street	N - Thirty Road	W - Young Street	S - Thirty Road
From	E - Young Street	0	59	26	11
	N - Thirty Road	50	0	22	177
	W - Young Street	35	51	0	82
	S - Thirty Road	8	452	115	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		E - Young Street	N - Thirty Road	W - Young Street	S - Thirty Road
From	E - Young Street	0	9	19	0
	N - Thirty Road	19	0	7	14
	W - Young Street	14	0	0	8
	S - Thirty Road	0	9	8	0

Detailed Demand Data

Demand for each time segment

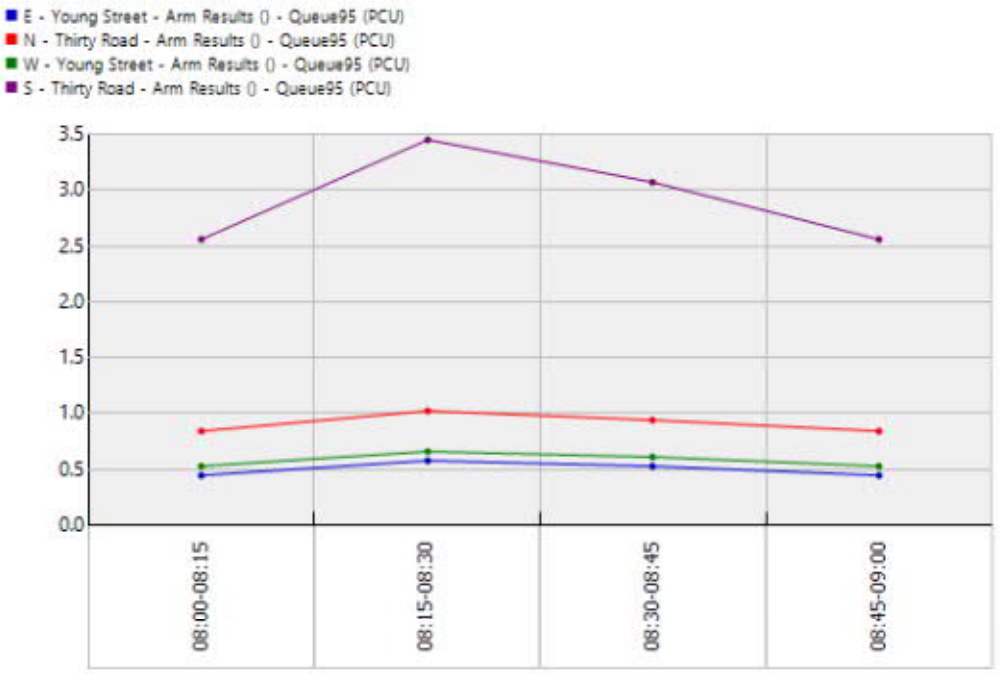
Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)	Pedestrian Demand (Ped/hr)
08:00-08:15	E - Young Street	90	90	0.00
	N - Thirty Road	235	235	0.00
	W - Young Street	158	158	0.00
	S - Thirty Road	542	542	0.00
08:15-08:30	E - Young Street	104	104	0.00
	N - Thirty Road	271	271	0.00
	W - Young Street	183	183	0.00
	S - Thirty Road	625	625	0.00
08:30-08:45	E - Young Street	99	99	0.00
	N - Thirty Road	256	256	0.00
	W - Young Street	173	173	0.00
	S - Thirty Road	592	592	0.00
08:45-09:00	E - Young Street	90	90	0.00
	N - Thirty Road	235	235	0.00
	W - Young Street	158	158	0.00
	S - Thirty Road	542	542	0.00

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max 95th percentile Queue (PCU)	Max LOS
E - Young Street	0.15	7.47	0.6	A
N - Thirty Road	0.23	5.75	1.0	A
W - Young Street	0.17	5.23	0.7	A
S - Thirty Road	0.53	9.53	3.5	A

Graphs


E - Young Street - Arm Results () - Queue95 (PCU)
N - Thirty Road - Arm Results () - Queue95 (PCU)
W - Young Street - Arm Results () - Queue95 (PCU)
S - Thirty Road - Arm Results () - Queue95 (PCU)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
08:00-08:15
08:15-08:30
08:30-08:45
08:45-09:00

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.3.1598

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Filename: 226468-Arcady Analysis.j10
Path: R:\2022\226468 - Niagara-Thirty(Rd) at Young St Class EA\08 Design\11 Transportation Planning\Analysis\Alternatives\4 - Thirty Closure\Arcady
Report generation date: 2023-05-23 10:22:58 AM

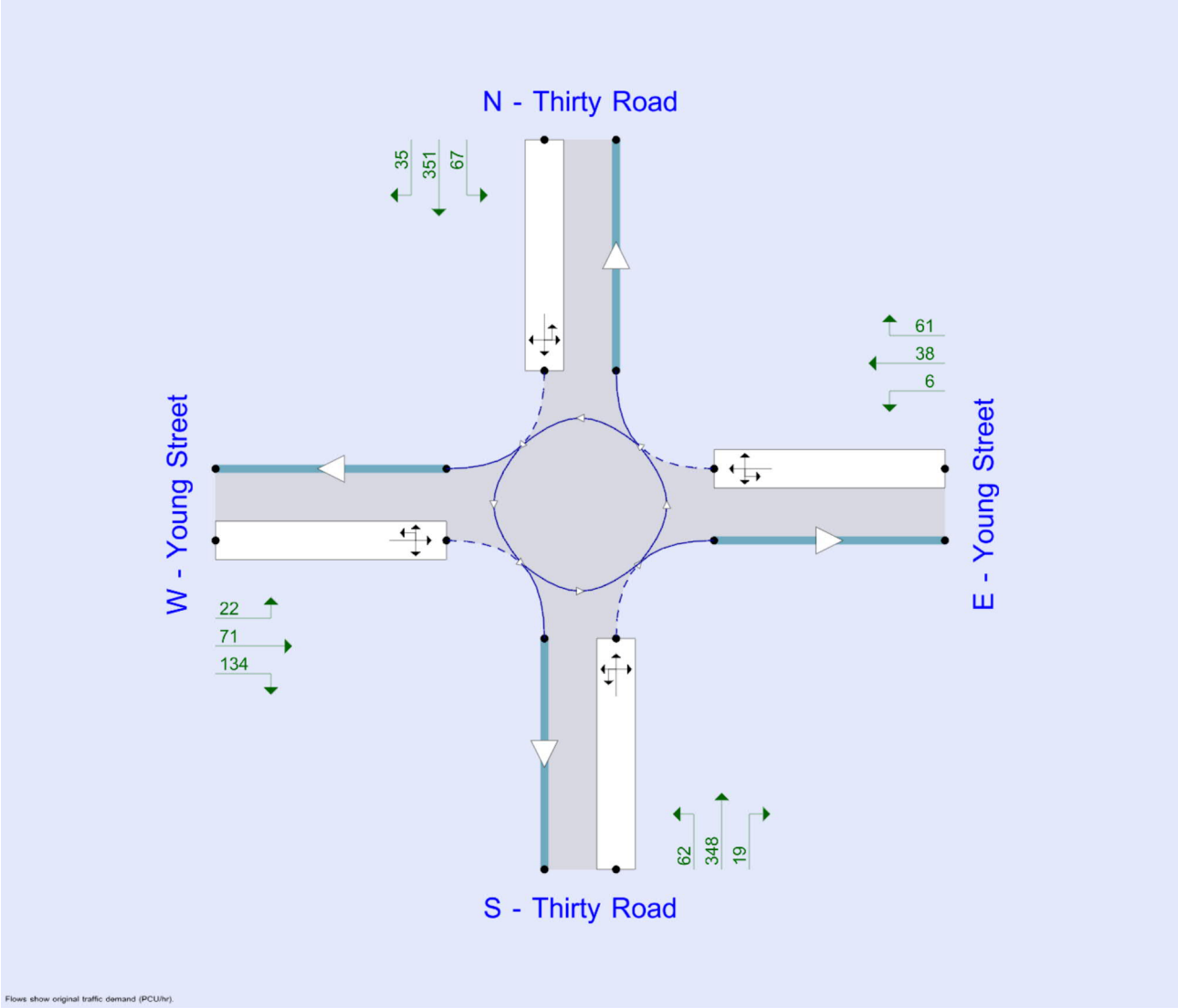
File summary

File Description

Title	
Location	
Site number	
Date	2023-03-03
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	RVAINT\arcady
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓		0.85	36.00	20.00

HCM Calibration

HCM Calibration	Lane type	Num circulating lanes	Num exit lanes	A	B
1	Single lane	1		1380.00	-0.00102
2	Single lane	2		1420.00	-0.00085
3	Nearside	1		1420.00	-0.00091
4	Nearside	2		1420.00	-0.00085
5	Offside	1		1420.00	-0.00091
6	Offside	2		1350.00	-0.00092
7	Yielding bypass		1	1380.00	-0.00102
8	Yielding bypass		2	1420.00	-0.00085
9	Non-yielding bypass		1	99999.00	0.00000

Analysis Set Details

ID	Name	Network flow scaling factor (%)
A1	Roundabout Analysis	100.000

Demand Set Details

Roundabout Analysis - 2042, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	HCM Model	D2 - 2042, PM	Demand Set 2: HCM models are most typically used with PHF traffic flow profiles and single time segments. Use of HCM models with other flow profiles is at the user's own risk
Warning	HCM Model		One or more junctions use HCM methodologies. These methods are not associated with TRL. The user should apply judgement when interpreting the results.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Thirty Road & Young Street	HCM Roundabout		E, N, W, S	7.14	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Right	Normal/unknown	7.14	A

Arms

Arms

Arm	Name	Description
E	Young Street	
N	Thirty Road	
W	Young Street	
S	Thirty Road	

HCM Lanes

Arm	HCM Lane	Lane type	Number of conflicting lanes	Destination arms
E - Young Street	1	Single lane	1	E, N, W, S
N - Thirty Road	1	Single lane	1	E, N, W, S
W - Young Street	1	Single lane	1	E, N, W, S
S - Thirty Road	1	Single lane	1	E, N, W, S

Traffic Demand

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
E - Young Street		✓	105	100.000
N - Thirty Road		✓	453	100.000
W - Young Street		✓	227	100.000
S - Thirty Road		✓	429	100.000

Peak Hour Factor Data (Traffic)

Arm	Hourly volume (PCU/hr)	Peak hour factor	Peak time segment
E - Young Street	105	0.92	SecondQuarter
N - Thirty Road	453	0.92	SecondQuarter

W - Young Street	227	0.92	SecondQuarter
S - Thirty Road	429	0.92	SecondQuarter

Origin-Destination Data

Demand (PCU/hr)

		To			
		E - Young Street	N - Thirty Road	W - Young Street	S - Thirty Road
From	E - Young Street	0	61	38	6
	N - Thirty Road	67	0	35	351
	W - Young Street	71	22	0	134
	S - Thirty Road	19	348	62	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		E - Young Street	N - Thirty Road	W - Young Street	S - Thirty Road
From	E - Young Street	0	8	4	0
	N - Thirty Road	3	0	5	4
	W - Young Street	0	0	0	1
	S - Thirty Road	17	3	5	0

Detailed Demand Data

Demand for each time segment

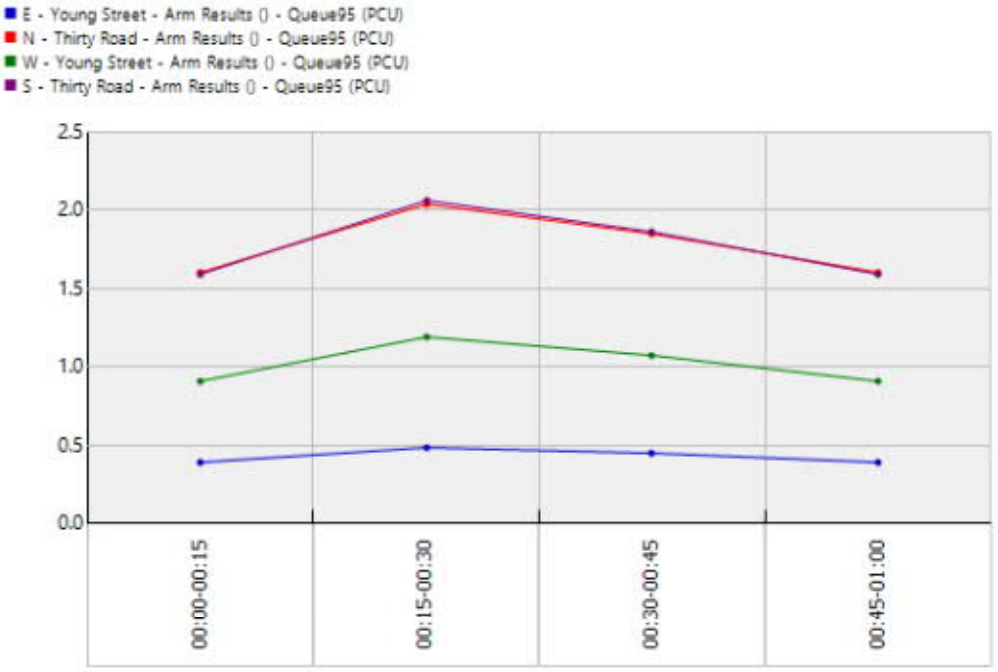
Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)	Pedestrian Demand (Ped/hr)
00:00-00:15	E - Young Street	99	99	0.00
	N - Thirty Road	427	427	0.00
	W - Young Street	214	214	0.00
	S - Thirty Road	404	404	0.00
00:15-00:30	E - Young Street	114	114	0.00
	N - Thirty Road	492	492	0.00
	W - Young Street	247	247	0.00
	S - Thirty Road	466	466	0.00
00:30-00:45	E - Young Street	108	108	0.00
	N - Thirty Road	466	466	0.00
	W - Young Street	234	234	0.00
	S - Thirty Road	441	441	0.00
00:45-01:00	E - Young Street	99	99	0.00
	N - Thirty Road	427	427	0.00
	W - Young Street	214	214	0.00
	S - Thirty Road	404	404	0.00

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max 95th percentile Queue (PCU)	Max LOS
E - Young Street	0.13	5.82	0.5	A
N - Thirty Road	0.40	7.08	2.0	A
W - Young Street	0.29	7.30	1.2	A
S - Thirty Road	0.40	7.42	2.1	A

Graphs


E - Young Street - Arm Results () - Queue95 (PCU)
N - Thirty Road - Arm Results () - Queue95 (PCU)
W - Young Street - Arm Results () - Queue95 (PCU)
S - Thirty Road - Arm Results () - Queue95 (PCU)
2.5
2.0
1.5
1.0
0.5
0.0
00:00-00:15
00:15-00:30
00:30-00:45
00:45-01:00

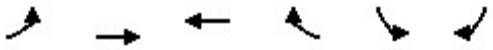
APPENDIX 10

Detailed Synchro Analysis Outputs – Future (2041) Traffic Conditions – Alternative 3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	86	82	188	48	115	460
Future Volume (Veh/h)	86	82	188	48	115	460
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	93	89	204	52	125	500
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			182		598	138
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			182		598	138
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			85		68	44
cM capacity (veh/h)			1330		386	893

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	182	256	625
Volume Left	0	204	125
Volume Right	89	0	500
cSH	1700	1330	707
Volume to Capacity	0.11	0.15	0.88
Queue Length 95th (m)	0.0	4.3	88.2
Control Delay (s)	0.0	6.8	36.0
Lane LOS		A	E
Approach Delay (s)	0.0	6.8	36.0
Approach LOS			E

Intersection Summary			
Average Delay	22.8		
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	505	40	34	65	50	199
Future Volume (Veh/h)	505	40	34	65	50	199
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	549	43	37	71	54	216
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	108				1214	72
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	108				1214	72
tC, single (s)	4.2				6.6	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	62				53	77
cM capacity (veh/h)	1446				115	960

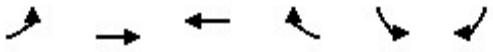
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	592	108	270
Volume Left	549	0	54
Volume Right	0	71	216
cSH	1446	1700	389
Volume to Capacity	0.38	0.06	0.69
Queue Length 95th (m)	14.5	0.0	40.7
Control Delay (s)	8.6	0.0	32.8
Lane LOS	A		D
Approach Delay (s)	8.6	0.0	32.8
Approach LOS			D

Intersection Summary			
Average Delay	14.4		
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	89	134	357	73	62	367
Future Volume (Veh/h)	89	134	357	73	62	367
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	97	146	388	79	67	399
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			243		1025	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			243		1025	170
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			70		63	54
cM capacity (veh/h)			1312		181	869

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	243	467	466
Volume Left	0	388	67
Volume Right	146	0	399
cSH	1700	1312	562
Volume to Capacity	0.14	0.30	0.83
Queue Length 95th (m)	0.0	10.0	68.2
Control Delay (s)	0.0	7.9	35.2
Lane LOS		A	E
Approach Delay (s)	0.0	7.9	35.2
Approach LOS			E

Intersection Summary			
Average Delay	17.1		
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	372	88	41	69	67	388
Future Volume (Veh/h)	372	88	41	69	67	388
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	404	96	45	75	73	422
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	120				986	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	120				986	82
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	72				63	57
cM capacity (veh/h)	1462				198	972

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	500	120	495
Volume Left	404	0	73
Volume Right	0	75	422
cSH	1462	1700	616
Volume to Capacity	0.28	0.07	0.80
Queue Length 95th (m)	9.1	0.0	64.1
Control Delay (s)	7.3	0.0	30.4
Lane LOS	A		D
Approach Delay (s)	7.3	0.0	30.4
Approach LOS			D

Intersection Summary			
Average Delay		16.8	
Intersection Capacity Utilization		66.2%	ICU Level of Service C
Analysis Period (min)		15	

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.3.1598

For sales and distribution information, program advice and maintenance, contact TRL Software:
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

Filename: 226468-Arcady Analysis-Scenario 4-Both Junctions.j10
Path: R:\2022\226468 - Niagara-Thirty(Rd) at Young St Class EA\08 Design\11 Transportation Planning\Analysis\Alternatives\4 - Thirty Closure\Arcady
Report generation date: 2023-05-23 3:46:26 PM

Summary of junction performance

	AM					PM				
	Set ID	95% Queue (PCU)	Delay (s)	RFC	LOS	Set ID	95% Queue (PCU)	Delay (s)	RFC	LOS
	2041									
Thirty Road & Young Street (East Junction) - Young Street (W)	D1	2.4	7.31	0.45	A	D2	1.9	6.69	0.39	A
Thirty Road & Young Street (East Junction) - Young Street (E)		0.5	6.02	0.14	A		0.5	5.49	0.13	A
Thirty Road & Young Street (East Junction) - Thirty Road (N)		0.8	4.44	0.20	A		1.8	6.41	0.38	A
Thirty Road & Young Street (West Junction) - Young Street (E)		0.9	5.30	0.21	A		1.7	6.37	0.36	A
Thirty Road & Young Street (West Junction) - Young Street (W)		0.6	4.98	0.16	A		1.1	6.63	0.27	A
Thirty Road & Young Street (West Junction) - Thirty Road (S)		3.1	8.67	0.50	A		1.8	6.68	0.37	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

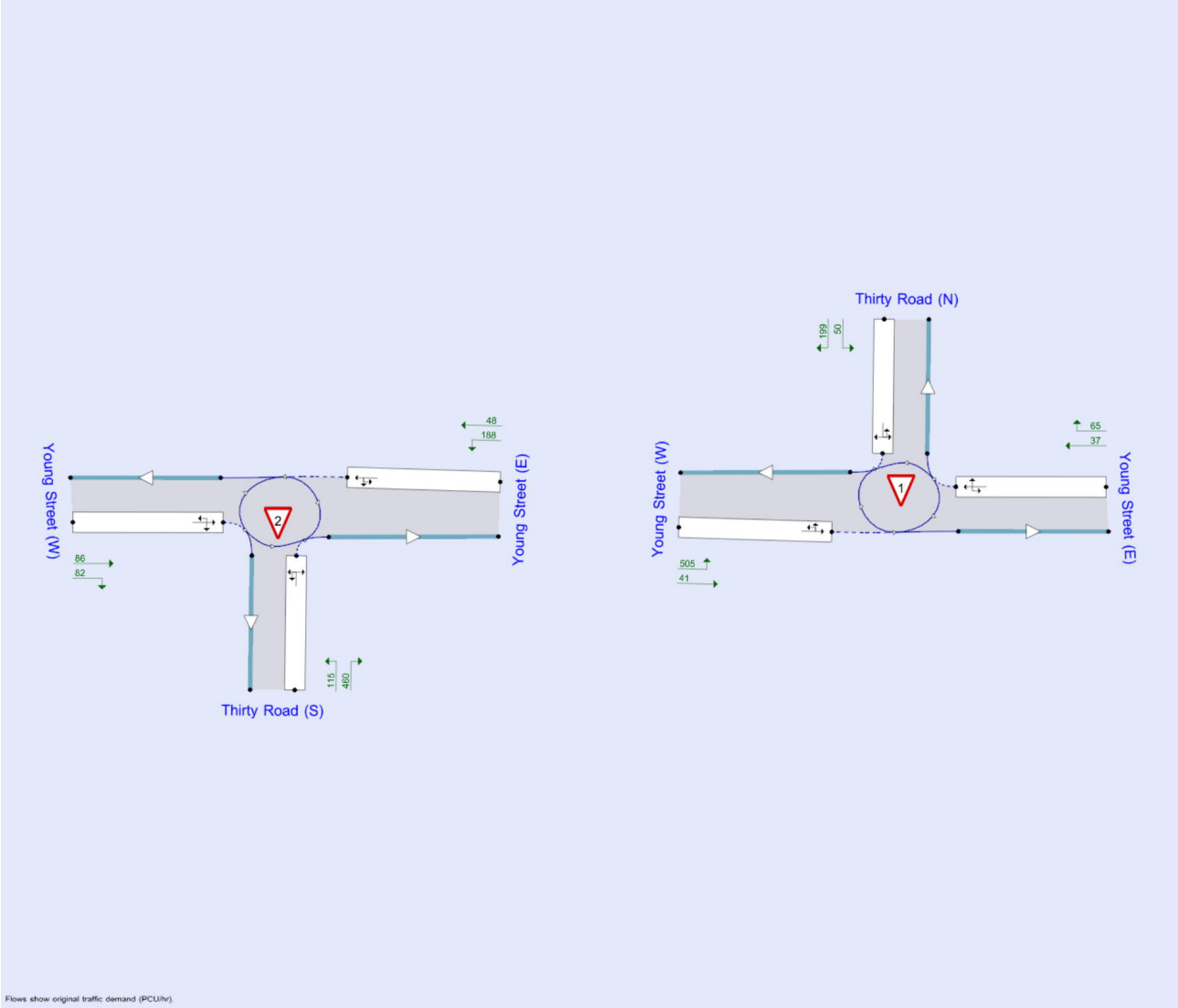
File summary

File Description

Title	
Location	
Site number	
Date	2023-03-31
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	RVAINT\arcady
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
✓		0.85	36.00	20.00

HCM Calibration

HCM Calibration	Lane type	Num circulating lanes	Num exit lanes	A	B
1	Single lane	1		1380.00	-0.00102
2	Single lane	2		1420.00	-0.00085
3	Nearside	1		1420.00	-0.00091
4	Nearside	2		1420.00	-0.00085
5	Offside	1		1420.00	-0.00091
6	Offside	2		1350.00	-0.00092
7	Yielding bypass		1	1380.00	-0.00102
8	Yielding bypass		2	1420.00	-0.00085
9	Non-yielding bypass		1	99999.00	0.00000

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2041	AM	PHF	00:00	01:00	15
D2	2041	PM	PHF	00:00	01:00	15

2041, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	HCM Model	D1 - 2041, AM	Demand Set 1: HCM models are most typically used with PHF traffic flow profiles and single time segments. Use of HCM models with other flow profiles is at the user's own risk
Warning	HCM Model	Thirty Road & Young Street (East Junction)	One or more junctions use HCM methodologies. These methods are not associated with TRL. The user should apply judgement when interpreting the results.
Warning	Vehicle Mix	Thirty Road & Young Street (East Junction)	HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Thirty Road & Young Street (East Junction)	HCM Roundabout		1, 2, 3	6.36	A
2	Thirty Road & Young Street (West Junction)	HCM Roundabout		1, 2, 3	7.22	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Right	Normal/unknown	6.81	A

Arms

Arms

Junction	Arm	Name	Description
Thirty Road & Young Street (East Junction)	1	Young Street (W)	
	2	Young Street (E)	
	3	Thirty Road (N)	
Thirty Road & Young Street (West Junction)	1	Young Street (E)	
	2	Young Street (W)	
	3	Thirty Road (S)	

HCM Lanes

Junction	Arm	HCM Lane	Lane type	Number of conflicting lanes	Destination arms
Thirty Road & Young Street (East Junction)	Young Street (W)	1	Single lane	1	1, 2, 3
	Young Street (E)	1	Single lane	1	1, 2, 3
	Thirty Road (N)	1	Single lane	1	1, 2, 3
Thirty Road & Young Street (West Junction)	Young Street (E)	1	Single lane	1	1, 2, 3
	Young Street (W)	1	Single lane	1	1, 2, 3
	Thirty Road (S)	1	Single lane	1	1, 2, 3

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2041	AM	PHF	00:00	01:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
Thirty Road & Young Street (East Junction)	Young Street (W)		✓	546	100.000
	Young Street (E)		✓	102	100.000
	Thirty Road (N)		✓	249	100.000
Thirty Road & Young Street (West Junction)	Young Street (E)		✓	236	100.000
	Young Street (W)		✓	168	100.000
	Thirty Road (S)		✓	575	100.000

Peak Hour Factor Data (Traffic)

Junction	Arm	Hourly volume (PCU/hr)	Peak hour factor	Peak time segment
Thirty Road & Young Street (East Junction)	Young Street (W)	546	0.92	SecondQuarter
	Young Street (E)	102	0.92	SecondQuarter
	Thirty Road (N)	249	0.92	SecondQuarter
Thirty Road & Young Street (West Junction)	Young Street (E)	236	0.92	SecondQuarter
	Young Street (W)	168	0.92	SecondQuarter
	Thirty Road (S)	575	0.92	SecondQuarter

Origin-Destination Data

Thirty Road & Young Street (East Junction)

Demand (PCU/hr)

		To		
		Young Street (W)	Young Street (E)	Thirty Road (N)
From	Young Street (W)	0	41	505
	Young Street (E)	37	0	65
	Thirty Road (N)	199	50	0

Thirty Road & Young Street (West Junction)

Demand (PCU/hr)

		To		
		Young Street (E)	Young Street (W)	Thirty Road (S)
From	Young Street (E)	0	48	188
	Young Street (W)	86	0	82
	Thirty Road (S)	460	115	0

Vehicle Mix

Thirty Road & Young Street (East Junction)

Heavy Vehicle Percentages

		To		
		Young Street (W)	Young Street (E)	Thirty Road (N)
From	Young Street (W)	0	0	0
	Young Street (E)	0	0	0
	Thirty Road (N)	0	0	0

Thirty Road & Young Street (West Junction)

Heavy Vehicle Percentages

		To		
		Young Street (E)	Young Street (W)	Thirty Road (S)
From	Young Street (E)	0	13	13
	Young Street (W)	9	0	8
	Thirty Road (S)	9	8	0

Detailed Demand Data

Demand for each time segment

Junction	Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)	Pedestrian Demand (Ped/hr)

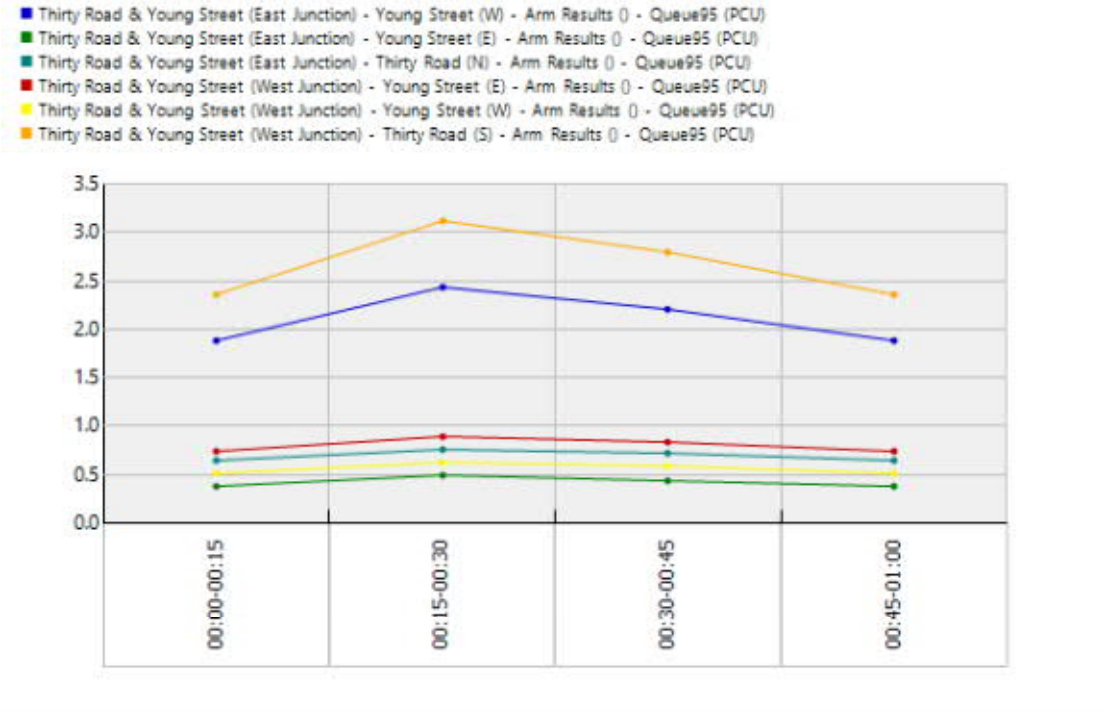
Thirty Road & Young Street (East Junction)	Young Street (W)	00:00-00:15	514	514	0.00
		00:15-00:30	593	593	0.00
		00:30-00:45	562	562	0.00
		00:45-01:00	514	514	0.00
	Young Street (E)	00:00-00:15	96	96	0.00
		00:15-00:30	111	111	0.00
		00:30-00:45	105	105	0.00
		00:45-01:00	96	96	0.00
	Thirty Road (N)	00:00-00:15	235	235	0.00
		00:15-00:30	271	271	0.00
		00:30-00:45	256	256	0.00
		00:45-01:00	235	235	0.00
Thirty Road & Young Street (West Junction)	Young Street (E)	00:00-00:15	222	222	0.00
		00:15-00:30	257	257	0.00
		00:30-00:45	243	243	0.00
		00:45-01:00	222	222	0.00
	Young Street (W)	00:00-00:15	158	158	0.00
		00:15-00:30	183	183	0.00
		00:30-00:45	173	173	0.00
		00:45-01:00	158	158	0.00
	Thirty Road (S)	00:00-00:15	542	542	0.00
		00:15-00:30	625	625	0.00
		00:30-00:45	592	592	0.00
		00:45-01:00	542	542	0.00

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max 95th percentile Queue (PCU)	Max LOS
Thirty Road & Young Street (East Junction)	Young Street (W)	0.45	7.31	2.4	A
	Young Street (E)	0.14	6.02	0.5	A
	Thirty Road (N)	0.20	4.44	0.8	A
Thirty Road & Young Street (West Junction)	Young Street (E)	0.21	5.30	0.9	A
	Young Street (W)	0.16	4.98	0.6	A
	Thirty Road (S)	0.50	8.67	3.1	A

Graphs


Thirty Road & Young Street (East Junction) - Young Street (W) - Arm Results () - Queue95 (PCU)
Thirty Road & Young Street (East Junction) - Young Street (E) - Arm Results () - Queue95 (PCU)
Thirty Road & Young Street (East Junction) - Thirty Road (N) - Arm Results () - Queue95 (PCU)
Thirty Road & Young Street (West Junction) - Young Street (E) - Arm Results () - Queue95 (PCU)
Thirty Road & Young Street (West Junction) - Young Street (W) - Arm Results () - Queue95 (PCU)
Thirty Road & Young Street (West Junction) - Thirty Road (S) - Arm Results () - Queue95 (PCU)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
00:00-00:15
00:15-00:30
00:30-00:45
00:45-01:00

2041, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	HCM Model	D2 - 2041, PM	Demand Set 2: HCM models are most typically used with PHF traffic flow profiles and single time segments. Use of HCM models with other flow profiles is at the user's own risk
Warning	HCM Model	Thirty Road & Young Street (East Junction)	One or more junctions use HCM methodologies. These methods are not associated with TRL. The user should apply judgement when interpreting the results.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Thirty Road & Young Street (East Junction)	HCM Roundabout		1, 2, 3	6.44	A
2	Thirty Road & Young Street (West Junction)	HCM Roundabout		1, 2, 3	6.55	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Right	Normal/unknown	6.49	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2041	PM	PHF	00:00	01:00	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Junction	Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
Thirty Road & Young Street (East Junction)	Young Street (W)		✓	460	100.000
	Young Street (E)		✓	111	100.000
	Thirty Road (N)		✓	455	100.000
Thirty Road & Young Street (West Junction)	Young Street (E)		✓	430	100.000
	Young Street (W)		✓	227	100.000
	Thirty Road (S)		✓	429	100.000

Peak Hour Factor Data (Traffic)

Junction	Arm	Hourly volume (PCU/hr)	Peak hour factor	Peak time segment
Thirty Road & Young Street (East Junction)	Young Street (W)	460	0.92	SecondQuarter
	Young Street (E)	111	0.92	SecondQuarter
	Thirty Road (N)	455	0.92	SecondQuarter
Thirty Road & Young Street (West Junction)	Young Street (E)	430	0.92	SecondQuarter
	Young Street (W)	227	0.92	SecondQuarter
	Thirty Road (S)	429	0.92	SecondQuarter

Origin-Destination Data

Demand (PCU/hr)

	To			

Thirty Road & Young Street (East Junction)

		Young Street (W)	Young Street (E)	Thirty Road (N)
From	Young Street (W)	0	88	372
	Young Street (E)	42	0	69
	Thirty Road (N)	388	67	0

Thirty Road & Young Street (West Junction)

Demand (PCU/hr)

		To		
		Young Street (E)	Young Street (W)	Thirty Road (S)
From	Young Street (E)	0	73	357
	Young Street (W)	93	0	134
	Thirty Road (S)	367	62	0

Vehicle Mix

Thirty Road & Young Street (East Junction)

Heavy Vehicle Percentages

		To		
		Young Street (W)	Young Street (E)	Thirty Road (N)
From	Young Street (W)	0	4	3
	Young Street (E)	4	0	8
	Thirty Road (N)	4	3	0

Thirty Road & Young Street (West Junction)

Heavy Vehicle Percentages

		To		
		Young Street (E)	Young Street (W)	Thirty Road (S)
From	Young Street (E)	0	5	4
	Young Street (W)	0	0	1
	Thirty Road (S)	4	5	0

Detailed Demand Data

Demand for each time segment

Junction	Arm	Time Segment	Demand (PCU/hr)	Demand in PCU (PCU/hr)	Pedestrian Demand (Ped/hr)
Thirty Road & Young Street (East Junction)	Young Street (W)	00:00-00:15	433	433	0.00
		00:15-00:30	500	500	0.00
		00:30-00:45	473	473	0.00
		00:45-01:00	433	433	0.00
	Young Street (E)	00:00-00:15	105	105	0.00
		00:15-00:30	121	121	0.00
		00:30-00:45	114	114	0.00
		00:45-01:00	105	105	0.00
	Thirty Road (N)	00:00-00:15	429	429	0.00
		00:15-00:30	495	495	0.00
		00:30-00:45	468	468	0.00
		00:45-01:00	429	429	0.00
Thirty Road & Young Street (West Junction)	Young Street (E)	00:00-00:15	405	405	0.00
		00:15-00:30	467	467	0.00
		00:30-00:45	442	442	0.00
		00:45-01:00	405	405	0.00
	Young Street (W)	00:00-00:15	214	214	0.00
		00:15-00:30	247	247	0.00
		00:30-00:45	234	234	0.00
		00:45-01:00	214	214	0.00
	Thirty Road (S)	00:00-00:15	404	404	0.00
		00:15-00:30	466	466	0.00

		00:30-00:45	441	441	0.00
		00:45-01:00	404	404	0.00

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max 95th percentile Queue (PCU)	Max LOS
Thirty Road & Young Street (East Junction)	Young Street (W)	0.39	6.69	1.9	A
	Young Street (E)	0.13	5.49	0.5	A
	Thirty Road (N)	0.38	6.41	1.8	A
Thirty Road & Young Street (West Junction)	Young Street (E)	0.36	6.37	1.7	A
	Young Street (W)	0.27	6.63	1.1	A
	Thirty Road (S)	0.37	6.68	1.8	A

Graphs