

**TRAFFIC IMPACT STUDY**  
**LONG SAULT LOGISTICS VILLAGE**  
**850 MOULINETTE ROAD AND**  
**5410 AVONMORE ROAD**  
**TOWNSHIP OF SOUTH STORMONT**  
**UNITED COUNTIES OF STORMONT, DUNDAS AND**  
**GLENGARY**

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Revision Number	Date	Comments
Rev.0	February 2023	1 <sup>st</sup> Submission
Rev.1	September 2024	2 <sup>nd</sup> Submission



## 1.0 Executive Summary

### Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Avenue 31 Capital Inc. to undertake a Traffic Impact Study (TIS) to support a Planning Application for the proposed Long Sault Logistics Village development located in the Township of South Stormont, United Counties of Stormont, Dundas, and Glengarry (UCSDG). The purpose of this TIS is to assess the impacts of the proposed Long Sault Logistics Village development on the boundary road network and recommends required mitigation measures, if warranted.

Per the Draft Plan of Subdivision prepared by Annis, O'Sullivan, Vollebekk Ltd., the proposed development consists of fifteen industrial warehouse buildings with a combined Gross Floor Area of approximately 450,000m<sup>2</sup>, and an intermodal rail yard. An internal local roadway is proposed to service the development via connections to Avonmore Road and Moulinette Road.

As confirmed in the Terms of Reference, the Traffic Impact Study analyzes the following intersections:

- County Road 35 (Moulinette Road) and County Road 29
- Highway 401 westbound (WB) ramp terminal at County Road 35
- Highway 401 eastbound (EB) ramp terminal at County Road 35
- County Road 15 (Avonmore Road) and County Road 29
- County Road 15 and County Road 36 (north leg)
- County Road 15 and County Road 36 / Jenkins Road (south leg)
- County Road 2 and County Road 15

### Existing Conditions

The existing conditions traffic volumes used for traffic analysis were established using three sets of traffic data obtained through Turning Movement Count Surveys. The turning movement counts were adjusted as required to account for pandemic induced travel demand impacts, to normalize the traffic data to 2023 levels, and to balance volumes between intersections.

The boundary road network is operating acceptably under 2023 existing conditions. Apart from the intersection of County Road 2 and County Road 15, which operates at a LOS "C" during the peak hours, all study intersections operate efficiently at a LOS "B" or better during the peak hours.

### Future Background Conditions

Though not supported by any studies, the MTO has identified potential future interchange improvements to the existing interchange at Highway 401 and Moulinette Road. Given the proposed location of the subject lands, the MTO has requested an Environmental Assessment Study (EA) will be undertaken to assess alternatives for an eastbound on-ramp for long term future direct access of northbound County Road 35 traffic without need of turning left onto the existing clover on-ramp. Subject to the EA study findings, if required, an appropriate land area will be protected through an agreement between the proponent and the MTO. No interchange improvements are considered in this study as the proposed Street A connection to County Road 35 at Highway 401 eastbound ramp intersection along with the recommendations in this study are sufficient.

The future background traffic volumes under the 2035, 2040, and 2045 horizon years were forecasted by growing the existing conditions traffic volumes based on UCSDG population growth projections and by adding Long Sault background residential development traffic. Apart from the intersection of County Road 2 and County Road 15, under the 2045 future background conditions, traffic operations on the boundary road network is forecast to deteriorate

only slightly compared the existing situation, with these study intersections forecast to operate at a LOS "C" or better during the peak hours. The intersection of County Road 2 and County Road 15 was analyzed under two scenarios: two-way stop control and signal control. Under the two-way stop control scenario, the intersection is forecast to operate at a LOS "F" in the 2045 horizon year with a maximum control delay of 85.5s and volume-to-capacity ratio of 0.97 in the critical a.m. peak hour. Under signal control, traffic operations are forecast to improve to a LOS "B" during the peak hours.

### **Site Generated Traffic**

Based on trip generation estimates from the Institute of Transportation Engineers' Trip Generation Manual, 11<sup>th</sup> Edition, and information provided by the proponent, the full build-out of the proposed development is expected to generate 734 and 877 two-way vehicle trips in the a.m. and p.m. peak hours, respectively.

### **Future Total Conditions**

A Warrants Assessment was conducted to understand the traffic related requirements to support the development proposal. The intersection of County Road 2 and County Road 15 was found to be warranted for signalization in the 2040 Future Background scenario, or earlier in the 2035 Future Total scenario. Further, the intersection of County Road 35 and Highway 401 eastbound ramps / Street A site access is warranted for signalization in the 2035 Future Total scenario, and is not warranted in the future background (i.e., without the development). Further, left-turn storage lanes, nor traffic signalization are warranted at the Street A connection to County Road 15 under the study horizons.

Under ultimate 2045 total traffic conditions (includes site generated traffic), the study intersections are projected to operate similarly to future background conditions at a LOS "C" or better during the a.m. and p.m. peak hours. Similar to the 2045 future background operations forecast, no significant capacity or queuing issues are identified, the proposed Street A connections to County Roads 15 and 35 are projected to operate effectively and safely without any issues related to sight-lines, corner clearance and access conflicts.

### **Conclusion and Recommendations**

Given the findings of the warrants and analysis as part of this study, the following are recommended:

- Implementation of traffic signals, with auxiliary northbound and southbound left turn storage lanes and an auxiliary westbound right-turn storage lane at the proposed Street A connection to the Moulinette Road and Highway 401 EB ramp intersection at the time of construction of the connection.
- Future traffic signalization of the County Road 2 and County Road 15 intersection in 2035 or by 2040 at the latest. This improvement may be cost shared by the proponent based on contributing traffic to the intersection.
- Though not warranted, consideration should be given to traffic signalization with a northbound left turn lane at the Street A and County Road 15 intersection in future should there be material truck traffic at the subject intersection. This is mainly to reduce potential safety issues at the intersection given the existing 80 km/h speed limit on County Road 15 and slower turning maneuvers for trucks.

In conclusion, the traffic generated from the proposed Long Sault Logistics Village Master Plan development can be accommodated by the boundary road network along with the identified improvements herein. Therefore, the Development Application can be supported from a traffic operations perspective as no material capacity constraints are identified.

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## 2.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by Avenue 31 Capital Inc. to undertake a Traffic Impact Study in support of a Planning Application for the proposed Long Sault Logistics Village Master Plan development located in the Township of South Stormont, United Counties of Stormont, Dundas, and Glengarry (UCSDG).

### 2.1 Development Lands

The subject lands are legally known as Lots 1-3 of Registered Plan 276 and Part of Lots 31, 32, 34, 36, 37 & 38 Concession 5, within the Township of South Stormont, UCSDG. The subject lands cover an area of approximately 285 ha and currently consists exclusively of vacant, vegetated land. The site is bounded by Highway 401 to the north, vegetated lands and Avonmore Road to the east, the CN rail corridor to the south, and Moulinette Road to the west. The land is currently zoned as MH-h (Heavy Industrial, holding provision) under the Township of South Stormont Zoning By-law No. 2011-100. **Figure 1** identifies the location of the site.

### 2.2 Development Proposal

Per the Draft Plan of Subdivision, prepared by Annis, O'Sullivan, Vollebekk Ltd, the proposed development consists of fifteen industrial buildings with a combined Gross Floor Area of approximately 450,000m<sup>2</sup>, and an intermodal rail yard. The land use of the buildings are expected to be warehousing. Furthermore, an internal local roadway (designated on the Draft Plan as "Street A") is proposed to service the development via connections to Avonmore Road and Moulinette Road. **Table 1** provides a complete picture of site statistics and anticipated timing for development within the blocks. The estimated buildout timings for the blocks are preliminary may change in future, though the full buildout is expected to still occur by 2035. **Appendix A** includes the Site Plan.

**Table 1: Development Proposal**

Building / Element		Gross Floor Area (m <sup>2</sup> )	Estimated Buildout Year
Block	Building		
<b>Total Development Proposal</b>		<b>450000</b>	<b>2035</b>
Block 5	Building 6	47300	2024
	Building 7	47300	2025
Block 6	Building 8	23200	2025
Block 15	Rail & Intermodal Yard	N/A	2025
Block 7	Building 9	23200	2026
Block 8	Building 10	23200	2026
Block 9	Building 11	7900	2027
Block 10	Building 12	10300	2027
Block 11	Building 13	23200	2028
Block 12	Building 14	23200	2028
Block 13	Building 15	92900	2029
Block 1	Building 1	3500	2030
	Building 2	9000	2030
Block 2	Building 3	20400	2031
Block 3	Building 4	20000	2031
Block 4	Building 5	22300	2031
Block 14	Building 16	11100	2032
	Building 17	10300	2032
	Building 18	10300	2032
	Building 19	10300	2033
	Building 20	11100	2033

## 2.3 Project History

Previously, a Traffic Impact Study was completed by Crozier, titled "Long Sault Industrial Park – Phase A Traffic Impact Study" (Original dated November 2022, update dated March 2022). The study considered the traffic impacts related to a proposed multi-modal railyard and associated ancillary facilities. The current development proposal considered in this study preserves the multimodal railyard from the previous plans while including details on the subsequent industrial development phases.

Some elements of the previous submitted Long Sault Industrial Park – Phase A Traffic Impact Study have been incorporated into this study. However, this study has been created as a standalone study as the increase in scale of the development proposal necessitates this approach.

This study was originally submitted in February 2023 based on the Draft Plan of Subdivision in **Appendix A**. Since then, the access onto Avonmore Road (County Road 15) was shifted further north. An Access Safety Review Letter (March 2024) was prepared by Crozier to evaluate the new access location. The subject letter has been appended to this study (in **Appendix K**) as part of this updated submission to keep all transportation materials in one document as requested by municipal staff. No other changes to the traffic analysis or findings of the Study are expected, as a result, the only change in this submission is the addition of the Safety Letter.

## 2.4 Purpose and Scope

The purpose of the study is to assess the transportation related impacts of the proposed development, and to recommend or confirm any mitigation measures, if warranted. To support the planning application, a Traffic Impact Study is required to assess feasibility of the development proposal from a transportation engineering perspective. Additionally, if applicable, the study may yield traffic planning recommendations unrelated to the development application that may be considered by the reviewing agencies.

This study reviews the following main aspects of the proposed development from a transportation engineering perspective:

- Existing, future background, and future total traffic operations on the boundary road network during the weekday a.m. and p.m. peak hours;
- Traffic signal and auxiliary turn-lane requirements;
- Forecasted trip generation of the proposed development; and,
- Traffic Safety Elements, such as sight lines and access spacing.

This TIS was conducted in accordance with the Ministry of Transportation (MTO) requirements outlined in the "General Guidelines for the Preparation of Traffic Impact Studies (February 2021)". The study scope was further coordinated with staff of the MTO and the United Counties of SDG through a terms of reference correspondence (excerpts included in **Appendix B**).

## 3.0 Existing Conditions

### 3.1 Study Intersections

This study considers the following intersections as part of its analysis scope:

- County Road 35 (Moulinette Road) and County Road 29
- Highway 401 westbound (WB) ramp terminal at County Road 35
- Highway 401 eastbound (EB) ramp terminal at County Road 35
- County Road 15 (Avonmore Road) and County Road 29

- County Road 15 and County Road 36 (north leg)
- County Road 15 and County Road 36 / Jenkins Road (south leg)
- County Road 2 and County Road 15

Selection of the study intersections were confirmed through the Terms of Reference correspondence process with UCSDG. **Appendix B** contains the correspondence excerpts.

### 3.2 Study Road Network

This section details the existing road network considered within this study, which includes the study intersections and the adjoining roadway segments.

**Table 2** summarizes the roadway characteristics of the roadway segments that connect at the study intersections.

**Table 2: Study Road Network – Roadways**

Roadway	Highway 401 Ramps	County Road 35 Moulinette Road	County Road 29	County Road 15 Avonmore Road	County Road 2	County Road 36
Direction	East-West	North-South	East-West	North-South	East-West	East-West
Classification	Provincial Highway	County Arterial	County Arterial	County Arterial	County Arterial	County Arterial
Jurisdiction	MTO	United Counties of Stormont, Dundas, and Glengarry	United Counties of Stormont, Dundas, and Glengarry	United Counties of Stormont, Dundas, and Glengarry	United Counties of Stormont, Dundas, and Glengarry	United Counties of Stormont, Dundas, and Glengarry
Span	Windsor – Quebec	County Road 29 to County Road 2	County Road 12 to County Road 15 <sup>1</sup>	County Road 43 to County Road 2	Approximately 7km west of the community of Iroquois to Quebec / Ontario border	County Road 2 to County Road 18 <sup>2</sup>
Speed Limit	30-40 km/h (advised) <sup>1</sup>	80 km/h (posted)	80 km/h (posted)	80 km/h (posted)	80 km/h (posted)	70 km/h (west of CR15) 80 km/h (east of CR15)
Total Number of Travel Lanes	4 lanes	2 lanes	2 lanes	2 lanes	2 lanes	2 lanes
Interchanges	Full Moves at County Road 35	Full Moves at Highway 401	None	None	None	None
Ramp Terminal Control	Off-Ramp Approach Stop-Controlled (Free Flow on County Road 35)		N/A	N/A	N/A	N/A

Note 1: County Road 29 is not continuous across County Road 35, with an approximately 100m gap separating the eastern and western portions of the road.

Note 2: County Road 36 is not continuous across County Road 15, with an approximately 300m gap separating the eastern and western portions of the road.

**Table 3** outlines the existing traffic control and lane configurations at the study intersections.

**Table 3: Study Road Network – Intersections**

Intersection	Control	Approaches	Major Street	Lane Configurations (Storage <sup>2</sup> )
County Road 35 and County Road 29	Stop (Minor Street)	4 <sup>1</sup>	County Road 35	EBLTR; WBLTR; NBLTR; SBLTR
Highway 401 WB ramp terminal at County Road 35	Stop (Minor Street)	4	County Road 35	EBLTR; WBLTR; NBLTR; SBLTR
Highway 401 EB ramp terminal at County Road 35	Stop (Minor Street)	3	County Road 35	EBLTR; NBLTR; SBLTR
County Road 15 and County Road 29	Stop (Minor Street)	4	County Road 15	EBLTR; WBLTR; NBLTR; SBLTR
County Road 15 and County Road 36 (north leg)	Stop (Minor Street)	3	County Road 15	WBLR; NBTR; SBLT
County Road 15 and County Road 36 (south leg) / Jenkins Road	Stop (Minor Street)	4	County Road 15	EBLTR; WBLTR; NBLTR; SBLTR
County Road 2 and County Road 15	Stop (Minor Street)	4	County Road 2	EBL (80m); EBTR WBLT; WBR (60m) NBLTR; SBLTR

Note 1: The west approach is a private driveway which is located at the intersection, opposite to County Road 29.

Note 2: Storage refers to the length (in metres) of an auxiliary turn storage lane, excluding taper. Lanes without a storage length indicated signify that these are travel lanes.

### 3.3 Traffic Data

Existing traffic volume data was compiled from multiple sources to inform the traffic demand for the different volume scenarios that have been forecasted in this study.

Traffic data was collected at most of the study intersections in a single TMC survey, undertaken on Tuesday June 22, 2021, between the hours of 6:00 a.m. to 10:00 a.m. along with 3:00 p.m. to 7:00 p.m. To supplement this traffic data, a TMC survey was commissioned for this study at the two County Road 36 intersections with County Road 15 and the County Road 15 intersection with County Road 2. The survey was conducted on Tuesday January 17, 2023, and collected data during the same study hours as the 2021 TMC survey.

The purpose of conducting the follow up 2023 TMC survey study can be summarized as follows:

- To collect traffic data at the County Road 36 (west leg) / Jenkins Road connection to County Road 15, as this intersection was added into scope of this study through the Terms of Reference (refer to **Appendix B**);
- To allow for comparison of the traffic data to previous counts, thus, the nearby County Road 36 (east leg) and County Road 2 intersections with County Road 15 were included in the survey; and,
- To understand the current 2023 traffic demand situation compared to the 2021 counts given the impact of the COVID-19 pandemic induced travel demand changes is anticipated to be less pronounced in the 2023 traffic counts.



Furthermore, a full TMC survey at all study intersections was considered in 2023 but could not be undertaken in time given time constraints related to this submission.

In addition, available pre-pandemic traffic count data was obtained from MTO for the ramp terminals only. The MTO traffic survey was conducted on Tuesday April 10<sup>th</sup>, 2018. For both intersections, the counts were undertaken between 7:00 – 11:00 a.m. and between 2:00 – 6:00 p.m.

**Table 4** below outlines the TMC data used in this study for the traffic analysis, including the identified peak hour and associated peak hour factor demonstrating the difference between the peak hour and peak 15 minute period traffic volumes.

**Table 4: Traffic Data Summary**

Intersection	Surveyor	Count Date	Count Hours	Identified Peak Hour	Peak Hour Factor
County Road 35 (Moulinette Road) and County Road 29	Spectrum Traffic Data Inc.	June 22, 2021	6:00 – 10:00 a.m.	6:30 – 7:30 a.m.	0.95
			3:00 – 7:00 p.m.	4:45 – 5:45 p.m.	0.70
County Road 35 (Moulinette Road) and County Road 29 / Highway 401 WB ramp terminal	Spectrum Traffic Data Inc.	June 22, 2021	6:00 – 10:00 a.m.	7:00 – 8:00 a.m.	0.95
			3:00 – 7:00 p.m.	4:15 – 5:15 p.m.	0.79
	MTO	April 10, 2018	7:00 – 11:00 a.m.	7:15 – 8:15 a.m.	0.95
			2:00 – 6:00 p.m.	4:30 – 5:30 p.m.	0.94
Highway 401 EB ramp terminal at County Road 35	Spectrum Traffic Data Inc.	June 22, 2021	6:00 – 10:00 a.m.	6:15 – 7:15 a.m.	0.86
			3:00 – 7:00 p.m.	4:15 – 5:15 p.m.	0.93
	MTO	April 10, 2018	7:00 – 11:00 a.m.	7:15 – 8:15 a.m.	0.86
			2:00 – 6:00 p.m.	4:30 – 5:30 p.m.	0.89
County Road 29 and County Road 15	Spectrum Traffic Data Inc.	June 22, 2021	6:00 – 10:00 a.m.	7:30 – 8:30 a.m.	0.82
			3:00 – 7:00 p.m.	4:15 – 5:15 p.m.	0.81
County Road 15 and County Road 36 (north leg)	Spectrum Traffic Data Inc.	June 22, 2021	6:00 – 10:00 a.m.	7:15 – 8:15 a.m.	0.89
			3:00 – 7:00 p.m.	4:15 – 5:15 p.m.	0.96
	The Traffic Specialist	January 17, 2023	6:00 – 10:00 a.m.	7:30 – 8:30 a.m.	0.92
			3:00 – 7:00 p.m.	4:30 – 5:30 p.m.	0.79
County Road 15 and County Road 36 (south leg) / Jenkins Road	The Traffic Specialist	January 17, 2023	6:00 – 10:00 a.m.	7:15 – 8:15 a.m.	0.91
			3:00 – 7:00 p.m.	3:00 – 4:00 p.m.	0.86
County Road 15 and County Road 2	Spectrum Traffic Data Inc.	June 22, 2021	6:00 – 10:00 a.m.	7:30 – 8:30 a.m.	0.94
			3:00 – 7:00 p.m.	4:15 – 5:15 p.m.	0.94
	The Traffic Specialist	January 17, 2023	6:00 – 10:00 a.m.	7:15 – 8:15 a.m.	0.85
			3:00 – 7:00 p.m.	4:00 – 5:00 p.m.	0.93

It is noted that the TMC traffic data, including the MTO TMC data that was conducted both pre-pandemic and during slightly different time periods to the other counts, generally agree on the times of the peak hours, occurring at approximately 7:15 – 8:15 a.m. and 4:30 – 5:30 p.m. for the a.m. and p.m. peak hours, respectively. Given this finding, it is expected that the slightly differing data collection periods between the MTO TMCs and the remaining TMC data in this study will not impact the traffic analysis results.

Additionally, SDG Counties provided Crozier with 24 hour mid-block traffic counts from 2018 and 2022 at a variety of locations within the Township of South Stormont near the subject site. The County midblock count traffic data was reviewed but was not incorporated into the study due to a limited dataset and the counts only being a lump 24-hour volume, which does not allow for peak hour traffic patterns to be distinguished.

All traffic data discussed herein is provided in **Appendix C. Figure 2** outlines the 2018 MTO TMC traffic volumes, **Figure 3** outlines the 2021 Spectrum TMC traffic volumes, and **Figure 4** outlines the 2023 Traffic Specialist TMC traffic volumes.

### 3.4 Determining Existing Conditions Traffic Volumes

Given the different traffic data, review and refinement of the traffic data was required to establish traffic volumes for the existing conditions analysis scenario.

Three adjustments were applied to modify the traffic data described in **Section 3.3** to establish traffic volumes for the 2023 existing conditions scenario. These adjustments were applied sequentially and to the volumes resulting from the previous step. For example, after the first adjustment is applied to the 2021 traffic data to result in a new set of volumes, the second adjustment continues with and uses the new set of volumes, rather than basing the adjustment on the original 2021 traffic data. The adjustments are described below in the order they were applied.

First, an adjustment to the 2021 traffic volumes was undertaken to account for potential post restrictions lingering impacts of COVID-19 pandemic on the 2021 traffic data outlined in **Section 3.3**. This adjustment is consistent with the methodology of the Phase A TIS and as confirmed through the Terms of Reference (correspondence provided in **Appendix B**).

To determine what adjustment to apply to account for the pandemic traffic demand impact, traffic data from Spectrum in 2021 at the MTO ramp terminals was compared to the traffic data from MTO in 2018 to identify changes in traffic volumes.

**Table 5** summarizes the total intersection traffic for 2018 and 2021 data, along with associated percent change for each of the ramp terminal intersections.

**Table 5: Traffic Volumes Comparison – 2018 and 2021 Turning Movement Counts**

Intersection	Peak Hour	2018 MTO Counts	2021 Spectrum Counts	Percentage Change
Moulinette Road and Hwy. 401 EB ramps	A.M.	293	203	-31%
	P.M.	271	241	-11%
Moulinette Road and Hwy. 401 WB ramps / County Road 29	A.M.	273	193	-29%
	P.M.	300	257	-14%
Average and Multiplier Factors	A.M.	A.M. Multiplier Factor $-1/(-30\%)=1.43$		-30%
	P.M.	P.M. Multiplier Factor $-1/(-13\%)=1.15$		-13%

Based on the traffic data, the a.m. and p.m. peak hour volumes at the ramp terminal intersections have decreased by approximately 30% and 13%, respectively from 2018 to 2021. Accordingly, in order to grow the 2021 Spectrum Traffic Data to the 2018 MTO Traffic Data levels, the 2021 turning movement volumes at intersections with only the 2021 TMC's were multiplied by 1.43 and 1.15 adjustment factors for the a.m. and p.m. peak hours, respectively. These intersections are the County Road 35 and County Road 15 intersections with County Road 29. The pandemic traffic volume additions as a result of applying these multiplier factors is outlined in **Figure 5**. The pandemic

adjusted 2018 existing conditions traffic volumes are shown in **Figure 6**.

The 2018 volumes established in the previous step includes only the County Road 29 study intersections and the Highway 401 ramp terminal / County Road 35 study intersections. A second adjustment was made to grow the volumes from 2018 to 2023 levels. The annually compounded growth rate from **Section 4.3** was applied to all major turning movements at the four study intersections. The 2018 to 2023 traffic growth volume additions as a result of applying the growth rates to the 2018 traffic volumes in **Figure 6** are outlined in **Figure 7**, which when adding the volumes from the two aforementioned figures together result in the pre-balanced 2023 existing conditions traffic volumes in **Figure 8**.

And thirdly, given no roadway connections exist between the Highway 401 ramps on Moulinette Road, the existing traffic volumes were further adjusted to result in balanced volumes at the ramp terminal intersections given the data was collected same day and the peak hours coincide. This third adjustment was performed by increasing movement volumes at the lower volume intersection to match the higher side, distributing proportionally based on existing contributing turning movement volumes. This approach was employed along Moulinette Road between the three intersections at County Road 29 / Private Access, and Highway 401 WB ramps and Highway 401 EB ramps. The volume additions as a result of balancing three noted study intersections are outlined in **Figure 9**.

Therefore, the addition of the **Figure 9** volume balancing additions to the pre-balanced 2023 existing conditions traffic volumes in **Figure 8**, while incorporating the recorded newly undertaken 2023 turning movement counts at the three study intersections (i.e., County Road 15 intersections with County Road 2 and the two County Road 36 connections), results in the 2023 existing conditions traffic volumes. **Figure 10** outlines the 2023 existing conditions traffic volumes used for the existing conditions traffic analysis and as base for all future traffic volumes forecast.

### 3.5 Traffic Modelling

The study road network was modelled in Synchro 11 using existing roadway geometrics and default modelling parameters such as ideal saturation flow rates and lost time values.

The assessment of intersections is based on the "Highway Capacity Manual (HCM), 2000" methodology. Intersections are assessed using a Level of Service (LOS) metric with ranges of delay assigned a letter from "A" to "F". For stop-controlled intersections, a Level of Service "A" or "B" would typically be measured during off-peak hours when lesser traffic volumes are on the roadways. Levels of Service "C" through "F" would typically be measured in the commuter peak hours when greater vehicle volumes cause longer travel times. The LOS for a signalized intersection is typically based on the average intersection delay. The Level of Service (LOS) definitions for signalized and unsignalized intersections are presented in **Appendix E**.

### 3.6 Intersection Operations

Intersection operations were analyzed in Synchro modelling software based on the adjusted 2023 existing conditions traffic volumes presented in **Figure 10. Table 6** outlines the existing operations and level of service (LOS) at the study intersections. Detailed capacity analyses result sheets are included in **Appendix F**.

**Table 6: 2023 Existing Levels of Service**

Intersection	Control	Peak Hour	Level of Service	Control Delay	v/c ratio <sup>1</sup>	95 <sup>th</sup> Percentile Queue Length > Storage Length
CR. 35 and Hwy. 401 EB ramps	Stop (minor street)	A.M.	A	9.6s	0.10 (SB)	None
		P.M.	A	9.7s	0.09 (SB)	None
CR. 35 and Hwy. 401 WB ramps / CR. 29	Stop (minor street)	A.M.	B	10.5s	0.08 (WB)	None
		P.M.	B	10.9s	0.16 (WB)	None
CR. 35 and CR. 29 / Private Driveway	Stop (minor street)	A.M.	A	9.5s	0.05 (WB)	None
		P.M.	A	9.8s	0.08 (WB)	None
CR. 15 and CR. 29 / Prieur Road	Stop (minor street)	A.M.	B	10.7s	0.07 (EB)	None
		P.M.	B	10.9s	0.09 (EB)	None
CR. 15 and CR. 36 (east leg)	Stop (minor street)	A.M.	A	9.5s	0.05 (WB)	None
		P.M.	A	9.8s	0.09 (NB)	None
CR. 15 and CR. 36 (west leg) / Jenkins Road	Stop (minor street)	A.M.	A	9.6s	0.10 (EB)	None
		P.M.	B	10.6s	0.13 (EB)	None
CR. 2 and CR. 15	Stop (minor street)	A.M.	C	21.3s	0.42 (SB)	None
		P.M.	C	20.9s	0.26 (SB)	None

Notes: V/C Ratio – illustrates the maximum and other volume to capacity ratios greater than 0.85.

The Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The existing signal timing plans obtained from the MTO were used. The LOS for unsignalized is based on the critical control delay per approach. The 95<sup>th</sup> percentile queue lengths were derived from Sim-Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

The boundary road network is operating acceptably under 2023 existing conditions. Apart from the intersection of County Road 2 and County Road 15, all study intersections operate with minimal delays at a LOS “B” or better during the peak hours. The intersection of County Road 2 and County Road 15 operates at a LOS “C” during the peak hours, with a maximum approach delay of under 25 seconds being and volume-to-capacity ratios below 0.5 during the peak hours. These operational metrics do not indicate any notable operational concerns at any of the study intersections.

## 4.0 Future Background Conditions

### 4.1 Horizon Years

To evaluate future traffic operations at the study intersections, the following future scenarios were considered for the analysis:

- Full-buildout year for the development proposal – 2035
- Five year horizon beyond full-buildout – 2040
- Ten-year horizon beyond full-buildout – 2045

The selected study horizons are consistent with the MTO TIS Guidelines and were further confirmed through email correspondence with MTO and SDG County staff.

## 4.2 Future Study Road Network Improvements

Though not supported by any studies, the MTO has identified potential future interchange improvements to the existing interchange at Highway 401 and Moulinette Road. The improvements would involve the upgrade of the existing interchange from a Parclo A-2 to a Parclo A-4 (or a variation thereof). Similarly, the MTO has also identified the potential for a future interchange at Highway 401 and Avonmore Road. The interchange would be a Parclo A-4, similar to their plans for a future interchange layout at Highway 401 and Moulinette Road. These potential future improvements are long-term according to MTO staff and timing of these interchange improvements is unknown.

As part of the proposed Long Sault Logistics Village development herein, the Street A is proposed to connect to County Road 35 at the existing location of the eastbound ramp intersection. As part of the analysis for the development as presented in subsequent sections, the proposed connection is expected to suffice in serving traffic from the site and future background area traffic growth without need for on-ramp improvements or any of the identified potential future interchange improvements of the MTO. Following discussions with the MTO, it is however identified that an Environmental Assessment Study (EA) will be undertaken to assess alternatives for an eastbound on-ramp for direct access of northbound County Road 35 traffic without need of turning left onto the existing clover on-ramp. The purpose of the EA will be to determine the ideal eastbound on-ramp option (if required) for which the MTO and the proponent can enter into an agreement to protect lands for the long-term implementation by the MTO.

Therefore, this study assumes the existing lane configurations under all future background scenarios considered in this study and incorporates only improvements as warranted at the study intersections. Further discussion on the road improvements associated with the development proposal is provided in **Section 6.4**.

## 4.3 Future Traffic Volume Forecast

The methodology described below for forecasting future background traffic volumes was confirmed with County staff through correspondence (refer to **Appendix B**).

The following annual growth rates (compounded annually) were applied to the adjusted 2023 existing traffic volumes outlined in **Figure 10** to forecast future traffic growth on the study road network:

- For movements related to the Highway 401 ramps at County Road 35 and for County Road related movements, an annual growth rate of 0.75% has been applied.
- For all other movements, no growth rate has been applied.

The noted growth methodology is based on the median population and employment growth forecast of the UCSDG Growth Management Presentation (May 2022), which was forecast at 0.75% per year. Furthermore, the 0.75% growth rate is higher than the UCSDG Official Plan expectation of 0.2%, therefore, the applied growth rate of 0.75% is conservative for forecast of future traffic volumes on the study road network.

Per the request of the County, additional traffic volumes related to future background residential developments have been incorporated into the volume forecast. The County provided Crozier with a planning application map outlining recent development applications that have either been approved or are in review. Without supplementary information, Crozier undertook a unit yield

projection by looking at existing densities of residential development in Long Sault and applied this density to the areas planned for development. Based on an average of two subdivisions within Long Sault, a density of 0.69 dwelling units per 1000m<sup>2</sup> was established and applied for the purposes of determining background development trip generation for the undeveloped background lands.

It was also advised by County staff that some of the approved development applications shown in the map had already reached buildout. Therefore, Google Earth Imagery from October 2022 was relied upon to understand which developments had reached buildout to remove them from the projection.

Considering only the background developments which have yet to reach buildout, a total of approximately 926,900 m<sup>2</sup> of land area was recorded. Using the Long Sault average residential density of 0.69 dwelling units per 1000m<sup>2</sup>, 642 low-rise dwelling units were estimated for the future development parcels. Excerpts of the background development yield estimates are provided in **Appendix G**.

The vehicle trips forecast for the background developments used a similar methodology to the site generated traffic methodology, outlined in **Section 5.0**. The trip generation, using the fitted curve methodology for the Land Use Category 210 "Single-Family Detached Housing" of the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11<sup>th</sup> Edition, is outlined in **Table 7**.

**Table 7: Trip Generation – Background Development**

# of Dwelling Units	ITE Land Use Category	Peak Hour	Background Development Trip Generation		
			IN	OUT	TOTAL
642	LUC 210 – Single-Family Detached Housing	A.M.	191	394	405
		P.M.	359	212	571

The trip distribution in **Figure 11** was applied to the background development trip generation in **Table 7** to result in the background development trips in **Figure 12**.

Therefore, applying the growth rates to the 2023 existing traffic volumes in **Figure 10** and adding the background development traffic volumes in **Figure 12** results in the future background traffic volumes at the study intersections under the future horizons. **Figures 13, 14, and 15** outline the 2035, 2040, and 2045 future background traffic volumes, respectively, that were used for traffic operations analysis.

#### 4.4 Intersection Operations

The 2035, 2040 and 2045 future background traffic operational measures of effectiveness are outlined in **Tables 8, 9 and 10**. These operations are based on the future background traffic volumes illustrated in **Figures 13, 14 and 15** for the 2035, 2040 and 2045 background traffic scenarios, respectively. Level of Service definitions are included in **Appendix E**. Detailed capacity analyses result sheets are included in **Appendix F**.

**Table 8: 2035 Future Background Levels of Service**

Intersection	Control	Peak Hour	Level of Service	Control Delay	v/c ratio <sup>1</sup>	95 <sup>th</sup> Percentile Queue Length > Storage Length
CR. 35 and Hwy. 401 EB ramps	Stop (minor street)	A.M.	B	10.4s	0.14 (SB)	None
		P.M.	B	11.7s	0.21 (EB)	None
CR. 35 and Hwy. 401 WB ramps / CR. 29	Stop (minor street)	A.M.	B	12.2s	0.15 (WB)	None
		P.M.	B	14.4s	0.37 (WB)	None
CR. 35 and CR. 29 / Private Driveway	Stop (minor street)	A.M.	A	9.7s	0.07 (WB)	None
		P.M.	B	10.4s	0.15 (WB)	None
CR. 15 and CR. 29 / Prieur Road	Stop (minor street)	A.M.	B	12.1s	0.15 (EB)	None
		P.M.	B	12.8s	0.17 (EB)	None
CR. 2 and CR. 15	Stop (minor street)	A.M.	F	55.1s	<b>0.84 (SB)</b>	None
		P.M.	E	37.6s	0.59 (SB)	None
	Signal	A.M.	B	15.6s	0.77 (EBT)	None
		P.M.	B	12.9s	0.73 (WBT)	None
CR. 15 and CR. 36 (east leg)	Stop (minor street)	A.M.	A	9.8s	0.06 (WB)	None
		P.M.	B	10.4s	0.11 (NB)	None
CR. 15 and CR. 36 (west leg) / Jenkins Road	Stop (minor street)	A.M.	B	10.9s	0.26 (EB)	None
		P.M.	B	14.6s	0.32 (EB)	None

Notes: V/C Ratio – illustrates the maximum and other volume to capacity ratios greater than 0.85.

The Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The existing signal timing plans obtained from the MTO were used. The LOS for unsignalized is based on the critical control delay per approach. The 95<sup>th</sup> percentile queue lengths were derived from Sim-Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.



**Table 9: 2040 Future Background Levels of Service**

Intersection	Control	Peak Hour	Level of Service	Control Delay	v/c ratio <sup>1</sup>	95 <sup>th</sup> Percentile Queue Length > Storage Length
CR. 35 and Hwy. 401 EB ramps	Stop (minor street)	A.M.	B	10.6s	0.14 (SB)	None
		P.M.	B	11.9s	0.21 (EB)	None
CR. 35 and Hwy. 401 WB ramps / CR. 29	Stop (minor street)	A.M.	B	12.4s	0.16 (WB)	None
		P.M.	B	14.7s	0.38 (WB)	None
CR. 35 and CR. 29 / Private Driveway	Stop (minor street)	A.M.	A	9.8s	0.07 (WB)	None
		P.M.	B	10.5s	0.15 (WB)	None
CR. 15 and CR. 29 / Prieur Road	Stop (minor street)	A.M.	B	12.2s	0.15 (EB)	None
		P.M.	B	13.0s	0.18 (EB)	None
CR. 2 and CR. 15	Stop (minor street)	A.M.	F	68.9s	<b>0.91 (SB)</b>	None
		P.M.	E	43.2s	0.64 (SB)	None
	Signal	A.M.	B	16.0s	0.79 (EBT)	None
		P.M.	B	13.2s	0.75 (WBT)	None
CR. 15 and CR. 36 (east leg)	Stop (minor street)	A.M.	A	9.9s	0.06 (WB)	None
		P.M.	B	10.5s	0.12 (NB)	None
CR. 15 and CR. 36 (west leg) / Jenkins Road	Stop (minor street)	A.M.	B	11.0s	0.27 (EB)	None
		P.M.	B	14.9s	0.33 (EB)	None

Notes: Ditto Notes Table 8.

**Table 10: 2045 Future Background Levels of Service**

Intersection	Control	Peak Hour	Level of Service	Control Delay	v/c ratio <sup>1</sup>	95 <sup>th</sup> Percentile Queue Length > Storage Length
CR. 35 and Hwy. 401 EB ramps	Stop (minor street)	A.M.	B	10.6s	0.15 (SB)	None
		P.M.	B	11.9s	0.22 (EB)	None
CR. 35 and Hwy. 401 WB ramps / CR. 29	Stop (minor street)	A.M.	B	12.6s	0.16 (WB)	None
		P.M.	C	15.2s	0.40 (WB)	None
CR. 35 and CR. 29 / Private Driveway	Stop (minor street)	A.M.	A	9.8s	0.07 (WB)	None
		P.M.	B	10.5s	0.16 (WB)	None
CR. 15 and CR. 29 / Prieur Road	Stop (minor street)	A.M.	B	12.4s	0.16 (EB)	None
		P.M.	B	13.3s	0.19 (EB)	None
CR. 2 and CR. 15	Stop (minor street)	A.M.	F	85.5s	<b>0.97 (SB)</b>	None
		P.M.	F	50.1s	0.69 (SB)	None
	Signal	A.M.	B	16.5s	0.80 (EBT)	None
		P.M.	B	13.6s	0.77 (WBT)	None
CR. 15 and CR. 36 (east leg)	Stop (minor street)	A.M.	A	9.9s	0.06 (WB)	None
		P.M.	B	10.6s	0.12 (NB)	None
CR. 15 and CR. 36 (west leg) / Jenkins Road	Stop (minor street)	A.M.	B	11.1s	0.28 (EB)	None
		P.M.	C	15.1s	0.34 (EB)	None

Notes: Ditto Notes Table 8.

Apart from the intersection of County Road 2 and County Road 15, under the 2045 future background conditions, traffic operations on the boundary road network is forecast to deteriorate only slightly compared the existing situation.

Under the future background scenarios, the study intersection of County Road 2 and County Road 15 was analyzed under two scenarios: two-way stop control and signal control (as warranted in 2040 Future Background Conditions. Refer to **Section 6.2**). Under the two-way stop control scenario, the intersection is forecast to operate at a LOS "F" in the 2045 horizon year with a maximum control delay of 85.5s and volume-to-capacity ratio of 0.97 in the critical a.m. peak hour. Under signal control, intersection operations are forecast to improve to a LOS "B" during the peak hours

The remaining study intersections are forecast to operate with reserve capacity in the 2045 future background analysis scenario. A LOS "C" is forecast at the intersection of County Road 35 and the Highway 401 westbound ramp terminal, and at the intersection of County Road 15 and County Road 36 (west leg) / Jenkins Road, during the more critical p.m. peak hour. For the remaining study intersections along the boundary road network, operations are forecast to be acceptable at a LOS "B" or better during the peak hours.

The study intersections are forecast to operate similarly or better under the 2035 and 2040 horizons compared to the ultimate 2045 horizon. No traffic operation issues are forecast on the boundary

road network with implementation of the identified recommendations in **Section 9.1**.

## **5.0 Site Generated Traffic**

### **5.1 Trip Generation**

To forecast the site trip generation, the analysis herein separately forecasted the passenger car and truck traffic associated with the proposed development to capture all vehicular traffic movements.

To forecast the passenger car trips generated by the proposed development, the ITE Trip Generation Manual, 11<sup>th</sup> Edition was used. Warehousing is the predominant land use expected for all of the buildings included in the development proposal, therefore, the ITE Land Use Category (LUC) 150 "Warehousing" was applied to the proposed fifteen buildings, using the fitted curve methodology. Based on a review of proponent supplied information and a similar site at the United Counties of Prescott Russell (UCPR), which is north of UCSDG, 100 employees per half million square feet of GFA was identified. However as confirmed through the terms of reference, 120 employees per half million square feet of GFA (24 employees per 100,000 Sq.ft. GFA) was applied for determination of employee volumes for the trip generation forecast. The ITE trip generation rates for employees was then applied to the employee volume to calculate passenger car trips associated with the warehousing buildings. Gross Floor Area was used to calculate truck trips at the site, as truck volumes to and from the site will likely be dependent on the storage capacity of the warehouse buildings rather than the number of employees given the rise of automation at large industrial facilities.

In addition, for the intermodal rail yard, passenger car trips were forecast using the expected 40 employees to be employed at the site (based on proponent information), and using the ITE trip generation rates for the LUC 030 "Intermodal Truck Terminal". Land Use Category (LUC) 030, "Intermodal Truck Terminal" is described as "a facility where goods are transferred between trucks, between trucks and railroads, or between trucks and ports", which was deemed to be appropriate in describing the facility associated with the proposed development. Further, it is expected that a maximum of 60 daily truck trips will be generated by the railyard based on proponent information. It is standard practice that 10% of the expected daily trips be considered to occur in the peak hours for a land use such as the rail yard/ industrial. For conservative analysis. As such, 10% of the expected total daily truck trips were assigned to each of the a.m. and p.m. peak hours.

**Table 11** outlines the passenger car and truck trip generation for the development proposal, separated by development phase.

**Table 11: Site Trip Generation**

Buildings / Element	ITE Land Use Code	GFA (1000s ft²)	Employee Estimate	Passenger Car Trips			Truck Trips			Total Vehicle Trips		
				In	Out	Tot.	In	Out	Tot.	In	Out	Tot.
A.M Peak Hour												
Total		4843.14	1169	442	184	626	56	52	108	498	236	734
Industrial Buildings	LUC 150	4843.14	1129	426	166	592	50	46	96	476	212	688
Intermodal Yard	LUC 030	N/A	40	16	18	34	6	6	12	22	24	46
P.M Peak Hour												
Total		4843.14	1169	263	456	719	82	76	158	345	532	877
Industrial Buildings	LUC 150	4843.14	60	249	442	691	76	70	146	325	512	837
Intermodal Yard	LUC 030	N/A	60	14	14	28	6	6	12	20	20	40

Therefore, under full buildout of the proposed development, the trip generation forecast results in the following trips generated by the development proposal:

- A total of 734 and 877 vehicle trips in the a.m. and p.m. peak hours, respectively.
- A total of 688 and 837 passenger car trips in the a.m. and p.m. peak hours, respectively.
- A total of 46 and 40 truck trips in the a.m. and peak hours, respectively.

## 5.2 Trip Distribution and Assignment

Trip distribution was applied separately for passenger car (employee) traffic and heavy truck traffic given that the traffic patterns for each vehicle are expected to be materially different: passenger car trips to and from the site are expected to be much shorter compared to truck trips. Passenger car trip distribution relied upon reviewing expected catchment areas, which involved reviewing the populations and proximity to the development proposal of nearby communities. Truck trip distribution was determined through correspondence with the proponent.

The trip distribution used to assign proposed development traffic to the study road network is summarized in **Table 12**.

**Table 12: Trip Distribution**

Destinations	Direction	Vehicle Trip Distribution	Truck Trip Distribution	Study Road Network Entry/Exit Location
Highway 401	West	30%	75%	Kingston, Ottawa, Toronto
Highway 401	East	35%	25%	Cornwall, Montreal
Avonmore Road (CR15)	North	10%	0%	Ottawa, Hawkesbury
County Road 35	South	10%	0%	Long Sault, Ingleside
Highway 2	East	15%	0%	Cornwall
Total	N/A	<b>100%</b>	<b>100%</b>	

Vehicle trips were assigned to the study road network based on shortest expected travel times for particular journeys. **Table 12** outlines the entry and exit locations of traffic associated with a particular destination. **Figures 16 and 17** outline the trip distribution for trucks and passenger cars, respectively, while **Figures 18 and 19** define the full trip assignment of vehicle trips associated with trucks and passenger cars, respectively.

## 6.0 Future Total Conditions

### 6.1 Basis of Assessment

The traffic impacts arising from the proposed development were assessed on the basis of the site generated traffic illustrated in **Figures 18 and 19** superimposed on the future background traffic volumes. The resulting future total traffic volumes for the weekday a.m. and p.m. peak hours are illustrated in **Figures 20, 21, and 22** for the 2035, 2040 and 2045 horizon years, respectively.

### 6.2 Traffic Signal Warrant Assessment

Traffic signal warrant analysis was conducted using an Ontario Traffic Manual (OTM) Book 12 configured excel sheet based on the average hourly volume approach. **Table 13** outlines the signal warrant analysis undertaken by study intersection and horizon year.

**Table 13: Traffic Signal Warrant Assessment**

Location	Horizon Year	Traffic Signals Warranted?
County Road 2 and Avonmore Road	2040 Future Background / 2035 Future Total	Yes
Moulinette Road and Hwy. 401 EB ramps/ Street A	2035 Future Total	Yes
Moulinette Road and Hwy. 401 WB ramps / County Road 29	2045 Future Total	No
Moulinette Road and County Road 29 / Private Driveway	2045 Future Total	No
Avonmore Road and County Road 29 / Prieur Road	2045 Future Total	No
CR. 15 and CR. 36 (east leg)	2045 Future Total	No
CR. 15 and CR. 36 (west leg) / Jenkins Road	2045 Future Total	No
Avonmore Road and the Site Access	2045 Future Total	No

As shown in **Table 13**, traffic signals are warranted at two intersections: the intersection of County Road 2 and Avonmore Road and the intersection of Moulinette Road and Hwy. 401 EB ramps. Though the Moulinette Road and Hwy. 401 EB ramp/ Street A intersection is warranted at full buildout of the development (i.e., in 2035), it is recommended that the intersection be fully improved with traffic signals at the time of construction of the Street A connection.

As discussed in **Section 6.4**, these study intersections are both recommended to be signalized in the future based on this result and have been modelled as such for future horizon scenarios. For all other study intersections, signals are not warranted under the ultimate 2045 horizon scenario.

Given the information provided by the proponent, all trucks are expected to access the site via the Street A connection at the Moulinette Road and Hwy. 401 EB ramp intersection. However, should truck volumes be experienced in future at the Street A and County Road 15 intersection, consideration should be given to traffic signalization with a northbound left turn lane. This is to reduce potential safety issues at the intersection given the 80 km/h speed limit on County Road 15 and slower turning manoeuvres for trucks.

Signal Warrant analysis excerpts are included in **Appendix H**.

### **6.3 Auxiliary Turn Lane Warrant Assessment**

A left-turn lane warrant analysis was conducted for the following movements at the noted study intersections under the ultimate horizon 2045 future total conditions:

- Site Access (Proposed Street A) at Avonmore Road (Northbound Left)

The auxiliary left-turn lane requirements were assessed using the MTO "Design Supplement for the Geometrics Design Guide for Canadian Roads" (June 2017).

Under the ultimate horizon 2045 future total conditions, northbound left turn lane was not warranted at the proposed site access to Avonmore Road. Excerpts for the left-turn lane warrant assessment are provided in **Appendix I**.

Given the signalization of Moulinette Road and Highway 401 EB ramp/ Street A intersection, a northbound left turn lane with 30m storage length, and a southbound left turn lane with 35m storage length is recommended to ensure efficient traffic operations and improved safety at the intersection. Further, considering the westbound right turn trips at the proposed access connection to Moulinette Road is forecast to exceed 200 trips during the peak hours, a right turn lane with 40m storage length is recommended. These recommendations for turn lane storages were confirmed as part of the modeling analysis to be adequate in accommodating peak queues. Refer to **Appendix J** for a conceptual sketch of the proposed Street A connection to the Moulinette Road and Highway 401 EB ramp intersection.

### **6.4 Intersection Operations**

**Tables 14, 15 and 16** outline the future total traffic conditions in the 2035, 2040 and 2045 scenarios, respectively. These operations are based on the 2035, 2040 and 2045 future total traffic volumes illustrated in **Figures 20, 21 and 22**, respectively. Level of Service definitions are provided in **Appendix E**. Detailed capacity analyses result sheets are included in **Appendix F**.

**Table 14: 2035 Future Total Levels of Service**

Intersection	Control	Peak Hour	Level of Service	Control Delay	v/c ratio <sup>1</sup>	95 <sup>th</sup> Percentile Queue Length > Storage Length
CR. 35 and Hwy. 401 EB ramps	Signal (With Auxiliary Turn Lanes)	A.M.	A	9.0s	0.51 (EBT)	None
		P.M.	A	8.7s	0.53 (EBT)	None
CR. 35 and Hwy. 401 WB ramps / County Road 29	Stop (minor street)	A.M.	C	21.8s	0.56 (WB)	None
		P.M.	D	30.4s	0.73 (WB)	None
CR. 35 and CR. 29 / Private Driveway	Stop (minor street)	A.M.	A	9.9s	0.10 (WB)	None
		P.M.	B	10.7s	0.18 (WB)	None
CR. 15 and CR. 29 / Prieur Road	Stop (minor street)	A.M.	B	12.9s	0.18 (EB)	None
		P.M.	B	14.3s	0.24 (EB)	None
CR. 2 and CR. 15	Stop (minor street)	A.M.	<b>F</b>	77.6s	<b>0.96 (SB)</b>	24.8m > 15.0m (SBR)
		P.M.	<b>F</b>	78.3s	<b>0.91 (SB)</b>	21.4m > 15.0m (SBR)
	Signal	A.M.	B	15.0s	0.77 (EBT)	None
		P.M.	B	12.7s	0.73 (WBT)	None
CR. 15 and CR. 36 (east leg)	Stop (minor street)	A.M.	B	10.5s	0.10 (NB)	None
		P.M.	B	11.4s	0.14 (NB)	None
CR. 15 and CR. 36 (west leg) / Jenkins Road	Stop (minor street)	A.M.	B	11.7s	0.29 (EB)	None
		P.M.	C	16.7s	0.37 (EB)	None
CR. 15 and the Site Access	Stop (minor street)	A.M.	A	9.6s	0.08 (SB)	None
		P.M.	A	9.9s	0.12 (EB)	None

Notes: V/C Ratio – illustrates the maximum and other volume to capacity ratios greater than 0.85.

The Level of Service (LOS) of a signalized intersection is based on the average control delay per vehicle. The existing signal timing plans obtained from the MTO were used. The LOS for unsignalized is based on the critical control delay per approach. The 95<sup>th</sup> percentile queue lengths were derived from Sim-Traffic reports using 15-minute seeding, 60-minute simulation and an average of five runs.

**Table 15: 2040 Future Total Levels of Service**

Intersection	Control	Peak Hour	Level of Service	Control Delay	v/c ratio <sup>1</sup>	95 <sup>th</sup> Percentile Queue Length > Storage Length
CR. 35 and Hwy. 401 EB ramps	Signal (With Auxiliary Turn Lanes)	A.M.	A	9.0s	0.51 (EBT)	None
		P.M.	A	8.8s	0.54 (EBT)	None
CR. 35 and Hwy. 401 WB ramps / County Road 29	Stop (minor street)	A.M.	C	22.6s	0.57 (WB)	None
		P.M.	D	32.6s	0.75 (WB)	None
CR. 35 and CR. 29 / Private Driveway	Stop (minor street)	A.M.	A	9.9s	0.10 (WB)	None
		P.M.	B	10.7s	0.18 (WB)	None
CR. 15 and CR. 29 / Prieur Road	Stop (minor street)	A.M.	B	13.0s	0.18 (EB)	None
		P.M.	B	14.6s	0.25 (EB)	None
CR. 2 and CR. 15	Stop (minor street)	A.M.	F	97.4s	<b>1.03 (SB)</b>	26.5m > 15.0m (SBR)
		P.M.	F	97.6s	<b>0.97 (SB)</b>	23.0m > 15.0m (SBR)
	Signal	A.M.	B	15.4s	0.79 (EBT)	16.0m > 15.0m (SBR)
		P.M.	B	13.1s	0.75 (WBT)	None
CR. 15 and CR. 36 (east leg)	Stop (minor street)	A.M.	B	10.6s	0.10 (NB)	None
		P.M.	B	11.5s	0.15 (NB)	None
CR. 15 and CR. 36 (west leg) / Jenkins Road	Stop (minor street)	A.M.	B	11.9s	0.29 (EB)	None
		P.M.	C	17.0s	0.38 (EB)	None
CR. 15 and the Site Access	Stop (minor street)	A.M.	A	9.6s	0.08 (SB)	None
		P.M.	A	9.9s	0.12 (EB)	None

Notes: Ditto Notes Table 14.



**Table 16: 2045 Future Total Levels of Service**

Intersection	Control	Peak Hour	Level of Service	Control Delay	v/c ratio <sup>1</sup>	95 <sup>th</sup> Percentile Queue Length > Storage Length
CR. 35 and Hwy. 401 EB ramps	Signal (With Auxiliary Turn Lanes)	A.M.	A	9.1s	0.51 (EBT)	None
		P.M.	A	8.8s	0.54 (EBT)	None
CR. 35 and Hwy. 401 WB ramps / County Road 29	Stop (minor street)	A.M.	C	23.5s	0.59 (WB)	None
		P.M.	E	35.1s	0.77 (WB)	None
CR. 35 and CR. 29 / Private Driveway	Stop (minor street)	A.M.	A	9.9s	0.10 (WB)	None
		P.M.	B	10.8s	0.19 (WB)	None
CR. 15 and CR. 29 / Prieur Road	Stop (minor street)	A.M.	B	13.3s	0.19 (EB)	None
		P.M.	B	14.9s	0.26 (EB)	None
CR. 2 and CR. 15	Stop (minor street)	A.M.	F	120.9s	<b>1.10 (SB)</b>	28.4m > 15.0m (SBR)
		P.M.	F	121.2s	<b>1.05 (SB)</b>	24.7m > 15.0m (SBR)
	Signal	A.M.	B	16.4s	0.81 (EBT)	18.1m > 15.0m (SBR)
		P.M.	B	13.5s	0.77 (WBT)	None
CR. 15 and CR. 36 (east leg)	Stop (minor street)	A.M.	B	10.6s	0.10 (NB)	None
		P.M.	B	11.6s	0.15 (NB)	None
CR. 15 and CR. 36 (west leg) / Jenkins Road	Stop (minor street)	A.M.	B	12.0s	0.30 (EB)	None
		P.M.	C	17.3s	0.40 (EB)	None
CR. 15 and the Site Access	Stop (minor street)	A.M.	A	9.6s	0.09 (SB)	None
		P.M.	A	9.9s	0.12 (EB)	None

Notes: Ditto Notes Table 14.

Under the ultimate 2045 future total conditions, the boundary road network is projected to operate similarly compared to the corresponding 2045 future background scenario, with minor additional delays attributable to the proposed development traffic.

The stop controlled minor connection of Highway 401 WB ramps / County Road 29 at Moulinette Road is projected to operate at a LOS "E" or better with a maximum control delay of 35.1 seconds and volume-to-capacity ratio of 0.77 in the p.m. peak hour. A maximum control delay increment of 19.9 seconds and volume-to-capacity increase of 0.37 (p.m. peak hour) from Future Background operations is expected.

The stop controlled minor connection of County Road 29 / Private Driveway at Moulinette Road is projected to operate below capacity at a LOS "B" or better with a maximum control delay of 10.8 seconds and volume-to-capacity ratio of 0.19 in the p.m. peak hour. Compared to the 2045 Future Background scenario, the addition of site trips from the proposed development amounts to an increase of 0.3 seconds and 0.03 for maximum control delay and maximum volume to capacity

ratio, respectively.

The stop controlled minor connection of east leg of County Road 36 at County Road 15 is projected to operate below capacity at a LOS "B" with a maximum control delay of 11.6 seconds and volume-to-capacity ratio of 0.15 in the p.m. peak hour. Compared to the 2045 Future Background scenario, the addition of site trips from the proposed development amounts to an increase of 1.0 seconds and 0.03 for maximum control delay and maximum volume to capacity ratio, respectively.

With Highway 401 EB off-ramp / Street A at Moulinette Road under signal control, it is projected to operate below capacity at a LOS "A" with an average intersection control delay of 9.1 seconds and a maximum volume-to-capacity ratio of 0.51 in the a.m. and p.m. peak hour, respectively.

The study intersection of County Road 2 and County Road 15 was analyzed under two scenarios: existing two-way stop control and future warranted signal control. Under the two-way stop control scenario, the intersection is forecast to operate at a LOS "F" in the 2045 horizon year with a maximum control delay of 121.2s and volume-to-capacity ratio of 1.10 in the p.m. and a.m. peak hours, respectively.

Under the signal control scenario, the intersection is forecast to operate at a LOS "B" in the 2045 horizon year with an average intersection control delay of 16.4s. Similar operational improvements are forecast under the 2035 and 2040 horizon years. These findings support the recommendation to provide signalization at the intersection of County Road 2 and County Road 15 in 2035 or by 2040 at the latest to support existing background traffic growth and future traffic contribution from the proposed Long sault development. Compared to future background conditions (under signal control analysis), the intersection of County Road 2 and County Road 15 is not expected to experience a significant intersection control delay increment nor a volume-to-capacity increase.

The proposed Street A connection to County Road 15 is projected to operate below capacity at a LOS "A", with a maximum control delay of 9.9 seconds and volume-to-capacity ratio of 0.12 in the p.m. peak hour.

Overall, the boundary road network is projected to operate adequately without significant capacity constraints under the ultimate 2045 future total scenario. The boundary road network is expected to operate similarly or better under the 2035 and 2040 horizon years.

Based on the analysis herein, the proposed development is not expected to significantly alter the traffic operations of the study intersections. The proposed development can be supported from a traffic operations perspective.

## 7.0 Site Access Safety Review

As noted in **Section 2.3**, the only proposed new site access location onto Country Road 15 (Avonmore Road) was changed from that assumed in the original Long Sault TIS submission. As a result, the original County Road 15 access safety assessment is no longer valid, and the assessment contained in the March 2024 Site Access Safety Letter by Crozier takes precedence. **Appendix K** contains the appended Access Safety Review Letter, detailing how the proposed site access is adequate from a transportation safety perspective.

The Street A connection to County Road 35 is at the location of an existing intersection and is expected to continue to operate with similar sight distances as under existing conditions for the Highway 401 EB ramp. An online review shows vertical curvature approximately 250m north and south of the intersection which may limit extended sight lines, however, should this be an existing issue, the situation will be further improved by the proposed Street A connection and traffic signalization along with warning signage upstream on both the north and south approaches of

County Road 35.

## 8.0 Conclusions and Recommendations

This study has assessed the transportation impacts of the proposed Long Sault Logistics Village development located in the Township of South Stormont, United Counties of Stormont, Dundas, and Glengarry. The analysis herein regarding the proposed development has resulted in the following key findings:

- Under 2023 existing conditions, aside the intersection of County Road 2 and County Road 15, all study intersections operate with minimal delays at a LOS "B" or better during the peak hours. The intersection of County Road 2 and County Road 15 operates at a LOS "C" during the peak hours, with approach delays of under 25 seconds for the stop controlled minor connections.
- Apart from the intersection of County Road 2 and County Road 15, under the 2045 future background conditions, traffic operations on the boundary road network is forecast to only slightly deteriorate compared to the existing situation.
  - The intersection of County Road 2 and County Road 15 was analyzed under two scenarios: two-way stop control (existing) and signal control (future warranted). Under the two-way stop control scenario, the intersection is forecast to operate at a LOS "F" in the 2045 horizon year with a maximum control delay of 85.5s and volume-to-capacity ratio of 0.97 in the critical a.m. peak hour.
  - With a traffic signal, the intersection of County Road 2 and County Road 15 is forecast to operate at a LOS "B" or better. These findings support the recommendation to signalize the intersection of County Road 2 and County Road 15 in future (i.e., in 2035 or by 2040 at the latest).
  - The remaining study intersections are forecast to operate at a LOS "C" or better during the peak hours, with no critical volume-to-capacity ratios being projected for any of the associated movements.
- The proposed industrial development is forecast to generate a total of 734 and 877 two-way trips during the weekday a.m. and p.m. peak hours, respectively.
- A Warrants Assessment was conducted to understand the traffic related requirements to support the development proposal:
  - The intersection of County Road 2 and County Road 15 was found to be warranted for signalization in the 2040 Future Background scenario, or earlier in the 2035 Future Total scenario (if full buildout of the proposed development is achieved).
  - The intersection of County Road 35 and Highway 401 eastbound ramps / Street A site access was found to be warranted for signalization in the 2035 Future Total scenario. Traffic signals are not warranted under any of the study future background horizon years (i.e., without the development).
  - Neither an auxiliary left-turn storage lane for the northbound left-turn movement nor traffic signalization at the Street A connection to County Road 15 is warranted under the ultimate 2045 future total traffic volumes.
- Under the ultimate horizon 2045 total traffic conditions (includes site generated trips), the

study intersections are projected to operate similarly to future background conditions at a LOS "C" or better during the a.m. and p.m. peak hours. Similar to the 2045 future background operations forecast, no significant capacity or queuing issues are identified. Traffic operations are better in the prior 2035 and 240 study horizons at all intersections.

- The proposed Street A connections to County Roads 15 and 35 are projected to operate effectively and safely without any issues related to sight-lines, corner clearance and access conflicts, as supported by the findings of the Access Safety Letter.
- Given the findings of the warrants and analysis as part of this study, **the following are recommended.**
  - Implementation of traffic signals, with auxiliary northbound and southbound left turn storage lanes and an auxiliary westbound right-turn storage lane at the proposed Street A connection to the Moulinette Road and Highway 401 EB ramp intersection at the time of construction of the connection.
  - Future traffic signalization of the County Road 2 and County Road 15 intersection in 2035 or by 2040 at the latest. This improvement may be cost shared by the proponent based on contributing traffic to the intersection.
  - Though not warranted, consideration should be given to traffic signalization with a northbound left turn lane at the Street A and County Road 15 intersection in future should there be material truck traffic at the subject intersection. This is mainly to reduce potential safety issues at the intersection given the existing 80 km/h speed limit on County Road 15 and slower turning maneuvers for trucks.

In conclusion, the traffic generated from the proposed Long Sault Logistics Village Master Plan development can be accommodated by the boundary road network along with the identified improvements herein. Therefore, the Development Application can be supported from a traffic operations perspective as no material capacity constraints are identified.

Minor changes to the site plan will not materially affect the conclusions contained within this Study. Should you have any questions or require further information, please contact the undersigned.

Respectfully submitted,

**C.F. CROZIER & ASSOCIATES INC.**



Peter Apasnore, M.A.Sc., P.Eng., PTOE  
Project Manager

**C.F. CROZIER & ASSOCIATES INC.**



Aidan Hallsworth, EIT  
Transportation

/AH

I:\1900\1909 - Avenue 31\5629\_Long Sault Bus Pk\Reports\Traffic\2024 (X-Phased Full Site)\2024.09.06\_Long Sault Industrial Park TIS (CROZIER).docx

# APPENDIX A

## Site Plan



Site (Block) Number	Building Number	Building Area (SF)	Total Employees (Warehouse / Distribution)	Total Employees (per Block)	Timing
1	1	37600	9	32	2030
	2	97280	23		2030
2	3	219600	53	53	2031
3	4	216000	52	52	2031
4	5	240000	58	58	2031
5	6	509400	122	244	2024
	7	509400	122		2025
6	8	249860	60	60	2025
7	9	249860	60	60	2026
8	10	249860	60	60	2026
9	11	85120	20	20	2027
10	12	110400	26	26	2027
11	13	249860	60	60	2028
12	14	249860	60	60	2028
13	15	999440	240	240	2029
14	16	119200	29	136	2032
	17	110400	26		2032
	18	110400	26		2032
	19	110400	26		2033
	20	119200	29		2033
15	Rail & Intermodal Yard		40	40	2025

TOTAL - ENTIRE SITE

4843140

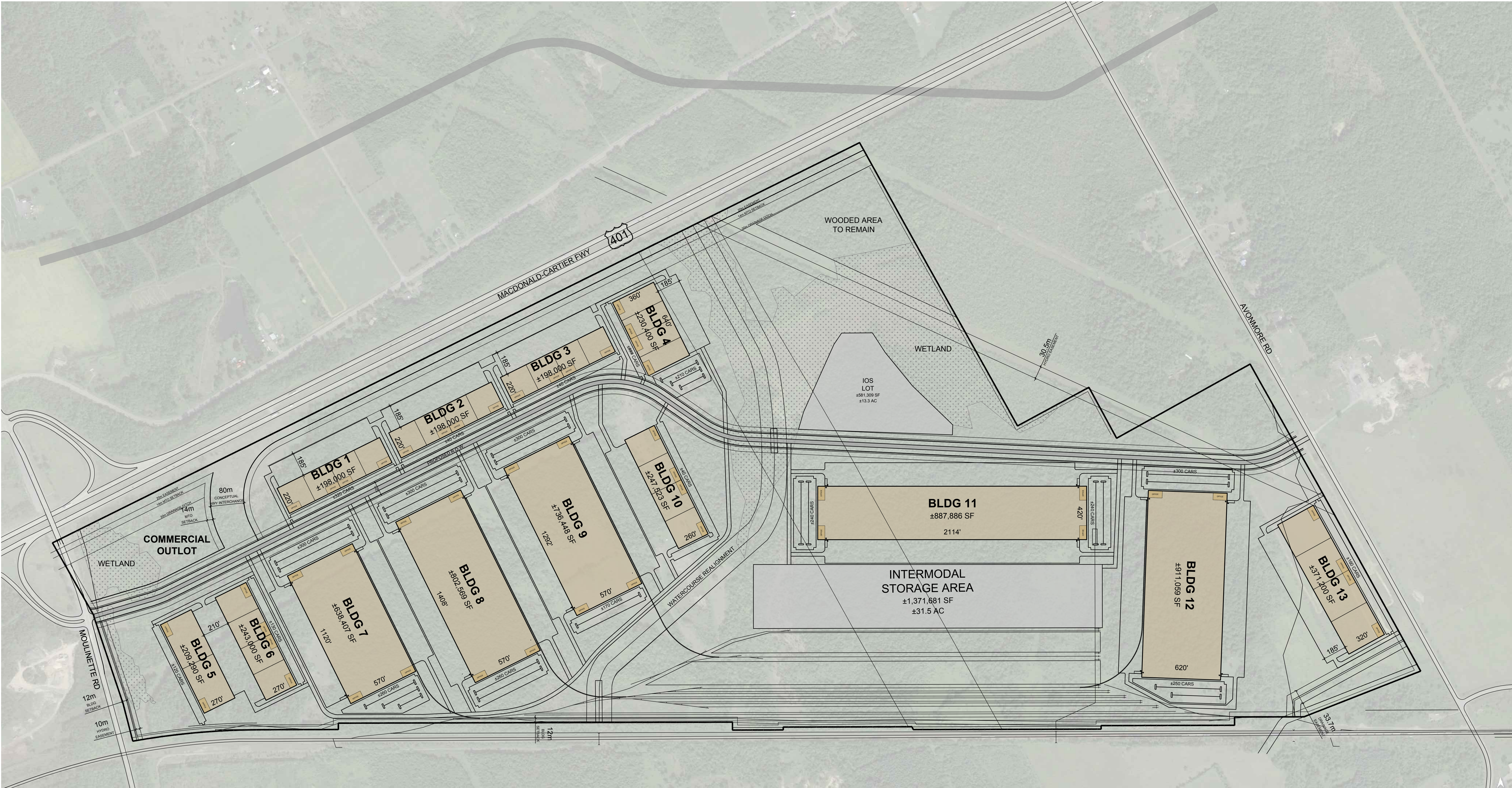
1169

2035

0.00024

120 employees per half million Square Feet





Total BLDG GFA:  
±5,871,782 SF

DEVELOPMENT STANDARDS:	
ZONING:	MH-h
MAX. COVERAGE:	20%
MAX. HEIGHT:	30m
BUILDING SETBACKS:	
FRONT:	12m
SIDE:	7.5m
REAR:	12m
LANDSCAPE SETBACKS:	
FRONT:	3m
EXT. SIDE:	3m
INT. SIDE:	n/a
REAR:	n/a
LANDSCAPE REQ.:	
OFF-STREET PARKING:	
STANDARD:	2.75x5.5 m
DRIVE AISLE:	6.7 m
REQ. PARKING RATIO BY USE:	
WAREHOUSE:	1/95m2
MANUF	1/80m2
OFFICE:	1/80m2

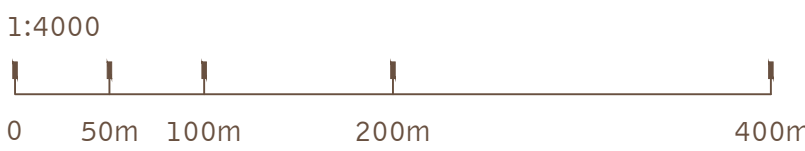
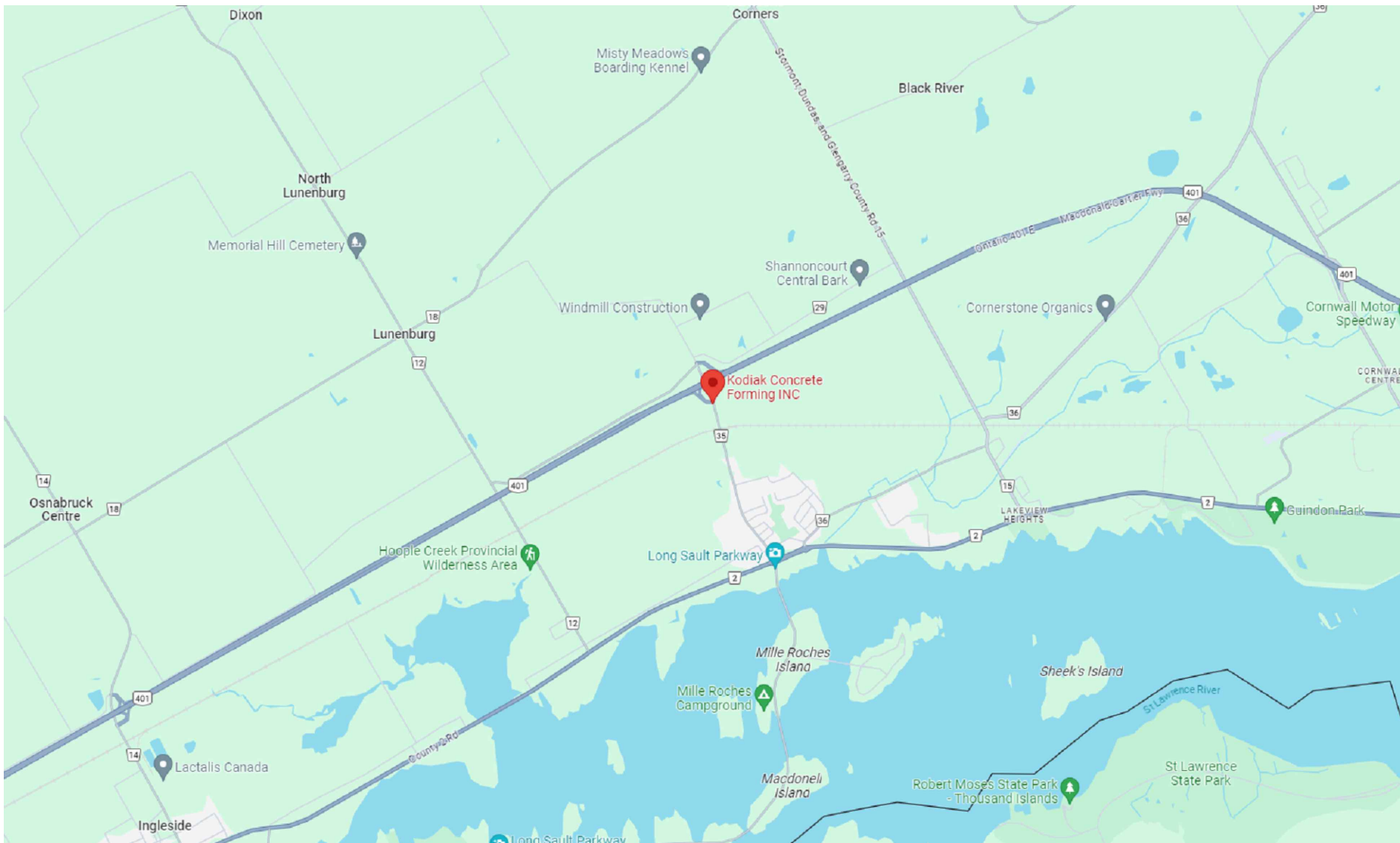
- NOTES:
- 12m for exterior side yard.
  - Development on full services (municipal water and sanitary sewers):  
Front - 7.5m  
Rear - 7.5m  
Exterior Side - 7.5m  
Interior Side - 3m  
Lot Coverage - 40%
  - 3m landscape required from Residential Zone and adjacent a street.
  - From Provincial Highway:  
Building Setback - 14m  
Parking Setback - 3m
  - One (1) space per 95 square metres of floor area plus one (1) space for every three (3) employees per shift
  - Where any road or street crosses a railway at the same grade, no building or structure shall be erected closer to the point of intersection of the centreline of railway and the roadway than 30 metres at signalized crossings and 45 metres at uncontrolled crossings

A PORTION OF THE ZONING INFORMATION IS UNKNOWN AT THIS TIME AND REQUIREMENTS MAY DIFFER THAN WHAT IS SHOWN IN THE SITE PLAN.

This conceptual design is based upon a preliminary review of entitlement requirements and on unverified and possibly incomplete site and/or building information, and is intended merely to assist in exploring how the project might be developed.

Stormwater Management Design: AVERAGE REGIONAL REQUIRED PROVIDED

Boundary Source: CIVIL CAD FILE



scheme: 05

Conceptual Site Plan

Avenue 31 Camino  
Moulinette Rd, Long Sault, ON, Canada

WARE MALCOMB

OTW23-0022-00  
2023.11.16

SHEET  
1



# APPENDIX B

## Correspondence

## Aidan Hallsworth

---

**From:** Mike Jans <mjans@sdgcounties.ca>  
**Sent:** Tuesday, January 17, 2023 9:05 AM  
**To:** Peter Apasnore; Benjamin De Haan  
**Cc:** Aidan Hallsworth  
**Subject:** RE: Long Sault Industrial Subdivision Development (Traffic Study Terms of Reference)

Hi Peter,

For the dark brown areas, the lots have been created however I do not believe that all developments on those lots have been “already built.” That is to say, those areas may not be generating their “full build out” trips, and counts taken in the near future would not capture those area’s fully built trip generations.

To my knowledge, assuming comparative density for the future development areas will be adequate.

Regards,



**Michael Jans, P.Eng.,**  
Manager of Infrastructure

P: (613) 932-1515 x 219

E: [mjans@sdgcounties.ca](mailto:mjans@sdgcounties.ca)

---

**From:** Peter Apasnore <papasnore@cfcrozier.ca>  
**Sent:** January 17, 2023 8:52 AM  
**To:** Mike Jans <mjans@sdgcounties.ca>; Benjamin De Haan <bdehaan@sdgcounties.ca>  
**Cc:** Aidan Hallsworth <ahallsworth@cfcrozier.ca>  
**Subject:** RE: Long Sault Industrial Subdivision Development (Traffic Study Terms of Reference)

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Hi Mike,

Thank you for the data and information regarding background developments.

It does appear that all of the areas highlighted brown are already built and will be captured in the existing counts. This will leave us with only the yellow and lighter brown areas as background developments. Do you have development details for those lands given they are in the approval process? Otherwise, we will assume a comparative density based on the low-rise development lands in the area.

Thank you,

**Peter Apasnore, M.A.Sc., P.Eng., PTOE**  
Project Engineer

211 Yonge Street, Suite 600 | Toronto, ON M5B 1M4  
T: 416.477.3392



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**From:** Mike Jans <[mjans@sdgcounties.ca](mailto:mjans@sdgcounties.ca)>

**Sent:** January 12, 2023 1:52 PM

**To:** Peter Apasnore <[papasnore@cfcrozier.ca](mailto:papasnore@cfcrozier.ca)>; Benjamin De Haan <[bdehaan@sdgcounties.ca](mailto:bdehaan@sdgcounties.ca)>

**Cc:** Aidan Hallsworth <[ahallsworth@cfcrozier.ca](mailto:ahallsworth@cfcrozier.ca)>

**Subject:** RE: Long Sault Industrial Subdivision Development (Traffic Study Terms of Reference)

Hi Peter,

See below. I believe the brown blocks are approved and the orange block is in the approvals process. The yellow block is currently at the concept stage.

Attached are the traffic counts available for CR 15, CR 35, CR36, CR 29 and CR 2, in both 2018 and 2022.

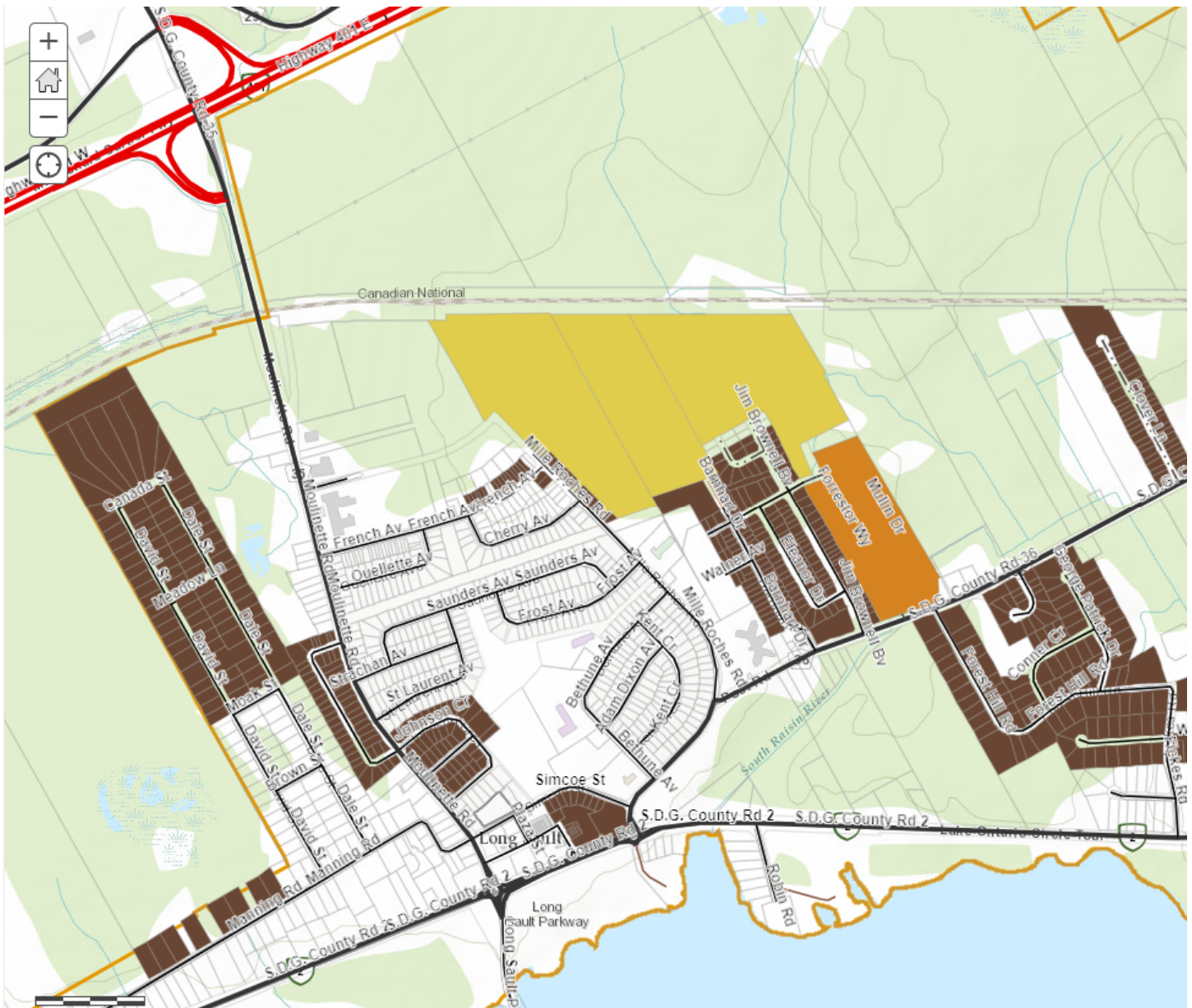
Regards,



**Michael Jans, P.Eng.,**  
Manager of Infrastructure

P: (613) 932-1515 x 219

E: [mjans@sdgcounties.ca](mailto:mjans@sdgcounties.ca)



**From:** Peter Apasnore <[papasnore@cfcrozier.ca](mailto:papasnore@cfcrozier.ca)>  
**Sent:** January 11, 2023 10:11 AM  
**To:** Benjamin De Haan <[bdehaan@sdgcounties.ca](mailto:bdehaan@sdgcounties.ca)>  
**Cc:** Mike Jans <[mjans@sdgcounties.ca](mailto:mjans@sdgcounties.ca)>; Aidan Hallsworth <[ahallsworth@cfcrozier.ca](mailto:ahallsworth@cfcrozier.ca)>  
**Subject:** RE: Long Sault Industrial Subdivision Development (Traffic Study Terms of Reference)

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Hi Benjamin,

Thanks for the feedback.

What locations of the mid-block volumes for 2018 to 2022 are available? We would like to obtain if available for CR 15, CR 35, CR 29 and CR 2.

Per your #3 comment, can you please provide the subdivision plans and or their traffic studies for the specific sites that should be included as background developments? Otherwise, may we assume a densification based on the existing developed lands for the subject area?

Thank you,

**Peter Apasnore**, M.A.Sc., P.Eng., PTOE  
Project Engineer  
211 Yonge Street, Suite 600 | Toronto, ON M5B 1M4  
T: 416.477.3392



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**From:** Benjamin De Haan <[bdehaan@sdgcounties.ca](mailto:bdehaan@sdgcounties.ca)>  
**Sent:** January 10, 2023 4:14 PM  
**To:** Peter Apasnore <[papasnore@cfcrozier.ca](mailto:papasnore@cfcrozier.ca)>  
**Cc:** Mike Jans <[mjans@sdgcounties.ca](mailto:mjans@sdgcounties.ca)>  
**Subject:** RE: Long Sault Industrial Subdivision Development (Traffic Study Terms of Reference)

Hi Peter,

Thank you for your patience while we took the opportunity to review what was provided below. The County has the following comments with respect to the scope. Note these comments correspond to the numbers provided within your email.

1. Analysis of existing intersections:
  - a. SDG would like to include the following intersections as part of the scope of review
    - i. County Road 15 & County Road 2
    - ii. County Road 15 & County Road 36 (both east and west legs)
2. The County can provide mid-block traffic counts from 2018 to 2022. We ask you review this data as part of the study and use this data in conjunction with the 2018 MTO data to recommend adjustments to the 2021 counts
3. There are several existing approved and proposed plans of subdivisions on the west leg of County Road 36 (west leg) between County Road 15 and Long Sault. By 2045, lands between the CNR tracks and SDG 36 may be infilled, leading to higher trip generation.
4. Please ensure to include copies of relevant material in an appendix as supporting documentation.
9. SDG interprets this to mean, any intersection listed in #1, above.

---

**From:** Peter Apasnore <[papasnore@cfcrozier.ca](mailto:papasnore@cfcrozier.ca)>  
**Sent:** January 4, 2023 9:52 AM

**To:** Benjamin De Haan <[bdehaan@sdgcounties.ca](mailto:bdehaan@sdgcounties.ca)>

**Subject:** RE: Long Sault Industrial Subdivision Development (Traffic Study Terms of Reference)

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Benjamin,

Can you please provide your feedback on this or if preferred we can have a short meeting to discuss.

Thanks,

**Peter Apasnore**, M.A.Sc., P.Eng., PTOE  
Project Engineer  
211 Yonge Street, Suite 600 | Toronto, ON M5B 1M4  
T: 416.477.3392



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**From:** Peter Apasnore

**Sent:** December 21, 2022 11:37 AM

**To:** Kapusta, Stephen (MTO) <[Stephen.Kapusta@ontario.ca](mailto:Stephen.Kapusta@ontario.ca)>; Benjamin De Haan <[b\\_dehaan@sdgcounties.ca](mailto:b_dehaan@sdgcounties.ca)>

**Subject:** Long Sault Industrial Subdivision Development (Traffic Study Terms of Reference)

Hi Stephen and Benjamin,

I hope this email finds you both well. I am reaching out to coordinate a Terms of Reference for a Traffic Impact Study (TIS) pertaining to the proposed industrial development located in Long Sault, Township of South Stormont, United Counties of Stormont, Dundas, and Glengarry (UCSDG). Please have a read and reach out if you have any feedback or questions regarding the scope below.

Many Thanks,

---

### Long Sault Industrial Subdivision TIS

We have been retained by Avenue 31 Capital Inc. to prepare a TIS for the proposed industrial development. The subject property is approximately 285 ha and bound by a CN Rail Corridor to the south, Mouinette Road (County Road 35) to the

west, Highway 401 to the north and Avonmore Road (County Road 15) to the east. The subject property is located within the MTO's Permit Control Area, is currently vacant and is zoned MH-h (Heavy Industrial – holding) under the Township of South Stormont Zoning By-law No. 2011-100.

Per the Plan of Subdivision (attached), the development proposes 15 industrial blocks including an industrial rail & intermodal yard. The remaining 14 blocks will consist of 20 industrial buildings with approximately 4.8 million square feet of GFA. The second attachment shows the employee forecast per building based on a conservative employee expectation of 120 employees per half million square feet of GFA for all industrial buildings. This employee forecast is based on a finding of 100 employees per half million square feet of GFA per proponent supplied data and a review of a comparative development in UCPR, which is north of UCSDG.

Our proposed scope of work is outlined below and conforms to the MTO's "General Guidelines for the Preparation of Traffic Impact Studies" (February 2021; the MTO were coordinated on a separate email. At the earliest please confirm or provide feedback on the scope.

### Study Scope

1. The TIS will analyze the following study intersections:
  - County Road 35 (Moulinette Road) / Windfall Road and County Road 29
  - County Road 35 and Highway 401 Westbound Ramp/ County Road 29
  - County Road 35 and Highway 401 Eastbound Ramp
  - County Road 15 (Avonmore Road) and County Road 29
  - County Road 15 at the Proposed Street A
  - County Road 35 at the Proposed Street A
2. The TIS will analyze the weekday a.m. and p.m. peak periods. We will use existing traffic counts at the study intersections on a typical weekday between 6:00 a.m. – 10:00 a.m. and 3:00 p.m. – 7:00 p.m. These counts were undertaken in June 2021 and used for the previous Phase A (train yards portion of the site) with pre-pandemic adjustments using existing 2018 volumes at the MTO ramps.
3. Future background traffic volumes will be forecasted for the anticipated year of full build-out (2035), five-year horizon (2040) and ten-year horizon (2045). An annual growth rate of 0.75% will be applied to the Highway 401 Off-Ramps and through movements at the remaining study intersections. This is consistent with the median population and employment growth forecast of the UCSDG Growth Management Presentation (May 2022) and higher than the UCSDG official plan expectation of 0.2% population growth. No background developments have been identified; **please confirm if any background developments should be incorporated.**
4. Trip generation for the proposed industrial yard will be forecasted using the employment statistics presented in the attached and following the Institute of Transportation Engineers Manual (10th edition). Trips will be categorized into passenger cars and heavy trucks.
5. Site generated traffic will be assigned to and from the boundary road network using existing travel patterns and expected catchment areas for employees and heavy truck traffic.
6. Existing, future background and future total traffic operations at the study intersections will be analyzed using Synchro 11 modelling software during the identified peak hours. Standard traffic operations metrics such as delays, volume-to-capacity ratios, and 95<sup>th</sup> percentile queue lengths will be analyzed and reported.
7. Future total traffic operations will be compared to future background traffic operations to determine what mitigation measures are required on the boundary road network to accommodate the full build-out of the development.

8. We are aware that MTO has identified potential future interchange improvements to the existing interchange at Highway 401 and County Road 35, which include upgrading the interchange from a Parclo A-2 to a Parclo A-4 (or a variation thereof) and incorporating roadway geometry improvements. Further, we are aware that County Road 15 has been identified as a potential future Parclo A-4 interchange with Highway 401, similar to the potential future layout at Highway 401 and County Road 35. At this time, no EA study is available and future timing is unknown. This TIS will only review the subject intersections and proposed Street A connections. Should operational deficiencies be identified, appropriate mitigation measures will be recommended.
9. Auxiliary left-turn lane requirements at the future Street A connections and critical intersections will be analyzed using the MTO's "Design Supplement for the Geometric Design Guide for Canadian Roads". Similarly, traffic signal requirements at the Street A connections and critical intersections will be analyzed using the warrants set out in the Ontario Traffic Manual (OTM) Book 12 "Traffic Signals".
10. Sight distance availability at the proposed Street A connections will be assessed based on the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR, June 2017). Other traffic safety components such as vehicle turning conflicts, access spacing and geometric requirements, internal site circulation and vehicle maneuverability etc. will be assessed.
11. Document all analysis and recommendations regarding the findings of the study to maintain acceptable operations of the boundary road network.



# APPENDIX C

## Municipal Excerpts

**THE CORPORATION OF  
THE TOWNSHIP OF SOUTH STORMONT**

**BY-LAW NO. 2011-100**

December 14, 2011

Prepared by

**J.L. RICHARDS & ASSOCIATES LIMITED**  
Consulting Engineers, Architects & Planners  
864 Lady Ellen Place  
Ottawa, Ontario  
K1Z 5M2

JLR 22160

**July 2021 Office Consolidation**

**Legend**

Amendments to Zoning By-law No. 2011-100 are indicated as follows:

~~Text that is stroked out has been removed from this by-law.~~

Text that is highlighted in grey has been added to this by-law.

### 3.14 Loading Requirements

For every building or structure hereafter erected for a commercial or industrial use, involving the shipping, loading or unloading of persons, animals, wares, merchandise, goods or raw materials, there shall be provided and maintained on the lot occupied by the building or structure loading facilities or spaces in accordance with the following requirements:

- (a) Each loading space shall have a minimum vertical clearance of 4.5 metres and shall be at least 3.5 metres wide by 14 metres long;
- (b) The required loading spaces shall be provided on the lot occupied by the building or structure for which the spaces are required and such spaces shall not form part of any street or required parking area, and shall not be located within a required front yard or exterior side yard;
- (c) Access to loading spaces shall be by means of a lane at least 3.5 metres wide for one way traffic and 6 metres wide for two way traffic and located on the same lot. Access to loading spaces shall not pass through a Residential Zone;
- (d) The number of required loading spaces shall be based on net floor area of the building or structure as follows:

(i) Commercial

**Net Floor Area**

Less than 200 m<sup>2</sup>  
Over 200 m<sup>2</sup>

**Spaces Required**

None  
1 per 2000 m<sup>2</sup> or part thereof

(ii) Industrial

**Net Floor Area**

less than 200 m<sup>2</sup>  
200 - 500 m<sup>2</sup>  
500 -2000 m<sup>2</sup>  
Over 2000 m<sup>2</sup>

**Spaces Required**

0  
1  
2  
3

- (e) The loading space requirements stated in (d) shall not apply to buildings or structures in existence as of the date of passing of this By-law so long as the floor area, as it existed at such date, is not increased. If an addition is made to the building or structure which increases the floor area, then additional loading spaces shall be provided as required above for such addition.

### 3.15 Lots Containing More Than One Use

- (c) where open storage areas abut a Residential Zone, the required setback of the open storage area shall be increased by 6 metres and must also be visually screened from any residential zone;
- (d) any areas used for open storage shall be in addition to any minimum off-street parking or loading areas required by this By-law; and
- (e) open storage shall not exceed a maximum height of 3 metres.

### **3.21 Organics Soils**

Lands identified in the United Counties of Stormont, Dundas and Glengarry Official Plan on the Constraints Plan (B4) as Environmental Protection Lands (Constraints Overlay) - Organic Soils are subject to the following:

Development may be permitted in exceptional circumstances only where the Corporation receives a study that demonstrates that the hazard can be overcome using acceptable engineering techniques and where safe access can be provided.

### **3.22 Outdoor Commercial Patios**

- (a) No outdoor commercial patio shall be located closer than 1.5 metres to any portion of a travelled street unless under an encroachment agreement;
- (b) No outdoor commercial patio shall be permitted to encroach upon any required parking space, loading zone or driving aisle, unless under an encroachment agreement;
- (c) No outdoor commercial patio shall be established in a yard which abuts lands zoned other than commercial or industrial; and
- (d) No part of a outdoor commercial patio shall be permitted on a sight triangle as defined in this By-law.

### **3.23 Parking and Storage of Vehicles**

All parking spaces shall be usable in all seasons. The driveway and parking spaces shall be constructed of crushed stone, asphalt paving, concrete, paver stones, or similar materials and shall be maintained and treated so as to reduce dust, scattering of stones and similar undesirable effects on adjoining properties and shall incorporate drainage facilities that comply with the requirements of the Corporation.

#### **(a) Residential Zones**

- (i) Except as provided herein, no vehicles shall be parked or stored in a Residential Zone unless the vehicle is located within a garage, carport,

driveway, designed parking area or on a street as permitted by Municipal By-law;

BY-LAW  
2019-095

- (ii) No Residential Zone shall be used for the outdoor parking or storage of a ~~motor~~ vehicle unless such vehicle is used in operations incidental to the residential use of the lot on which it is parked or stored and bears a ~~motor~~ vehicle license plate or sticker which is currently within a year of latest validation date; and

- (iii) Parking spaces for Single Detached, Semi-Detached, Duplex and in Residential Zones; Supplementary regulations:

- No more than fifty (50%) percent of the area of any required front yard shall be used or constructed as a driveway or parking space;
- No more than fifty (50%) percent of the lot frontage as defined by this By-law shall be used or constructed as a driveway or parking space;

BY-LAW  
2018-079

- (iv) Each required parking space shall be accessible at all times for parking a vehicle without the necessity of moving any other vehicle, except in any part of a driveway accessory to a Single Detached, Semi-Detached, Duplex, or Townhouse Dwelling, or private detached garage.

(b) Parking Space Dimensions

BY-LAW  
2017-068

Each parking space, except for barrier free parking spaces, shall have a minimum width of ~~2.6~~ 2.75 metres and a minimum length of 5.5 metres. ~~Where parking spaces having access to a street that provide for the exclusive use of single detached, semi-detached or townhouse dwellings, every parking space shall be provided with unobstructed access to a street by a driveway, or aisle.~~

BY-LAW  
2019-095

(c) Barrier Free Parking

Each barrier free parking space shall have a minimum width of 3.66 metres and a minimum length of 5.5 metres with a ~~6-6.7~~ metre aisle.

BY-LAW  
2017-068

Every owner and/or operator of a public or private parking area on lands zoned Commercial, Industrial and Institutional shall provide not less than 2% of the total number of parking spaces for barrier free parking with a minimum of one space. Where the minimum barrier free parking requirements conflict with the Integrated Accessibility Standards under Accessibility for Ontarians with Disabilities Act, 2005, the higher requirement shall apply.

(d) Cumulative Standards

Unless permitted elsewhere in this By-law, where two or more uses are permitted in any one building or on any one lot, then the off-street parking requirements for each use shall be calculated as if each use is a separate use, and the total number of off-street parking spaces so calculated shall be provided, except in the case of a shopping centre.

(e) Addition to Existing Use

The parking space requirements shall not apply to any building in existence at the date of passing of this By-law so long as the gross floor area, as it existed at such date, is not increased and no change in use occurs. If an addition is made to the building or structure which increases the gross floor area, or a change in use occurs then parking spaces for the addition or area changed in use shall be provided.

(f) Access to Parking Spaces and Parking Areas

Parking Area for more than four vehicles; Supplementary regulations:

BY-LAW  
2017-068

- (i) Ingress and egress directly to and from every parking space shall be by means of a driveway, lane or aisle having a width of at least 6.7 metres for two-way traffic.
- (ii) A driveway or lane which does not provide ingress and egress directly to a parking space, shall have a minimum width of 4 metres where designed for one-way vehicular circulation or 6 metres where designed for two-way vehicular circulation.

(g) Location

Except where permitted elsewhere in this By-law the required parking in a Residential Zone shall be provided on the same lot as the dwelling unit. In all other zones, parking shall be provided within 90 metres of the building it is intended to serve and no part of any parking area required for use other than Residential shall be permitted in a Residential Zone. Where required parking is not provided on the same lot, the lot or part of the lot where the parking is located shall be in the same ownership or be leased by a long term renewable agreement and the parking spaces shall be retained for the duration of the use.

BY-LAW  
2017-068

(h) ~~Accessory Buildings~~

~~A structure, not more than 5 metres in height and not more than 5 square metres in area may be erected in the parking area for the use of attendants in the area.~~

(h) Buffering

- (i) Where, in a yard in any zone, a required parking area providing more than four (4) parking spaces abuts a lot in a Residential Zone, then a continuous strip of landscaped open space a minimum width of 3 metres shall be provided along the abutting lot line;
- (ii) Where, in any yard in any zone, a required parking area providing more than four (4) parking spaces abuts a street, then a strip of landscaped open space a minimum width of 3 metres shall be provided along the lot line abutting the street and the landscaped strip shall be continuous except for aisles and driveways required for access to the parking area.

(i) Vehicle Parking Requirements

BY-LAW  
2019-095

In any zone, the owner or occupant of any building or structure erected, enlarged or changed in use after the date of passing of this By-law shall provide and maintain for the sole use of the owner, occupants, or other persons entering upon or making use of the said premises from time to time, one or more off-street parking spaces in accordance with the following provisions:

BY-LAW  
2019-095

### Schedule for Parking Requirements

Use	Minimum Number of Required Parking Spaces
Apartment dwellings or townhouse	1.5 units per dwelling unit, 15% of which shall be reserved as visitor parking
Boarding House	0.5 spaces per guest room with a minimum of 2
Group Home	0.5 spaces per guest room with a minimum of 2
Single detached, semi-detached, duplex or street townhouse	Two (2) spaces per dwelling unit
Other Residential Uses	One (1) space per dwelling unit
Agricultural Use, Forestry Use	None
Automobile Body Shop, Automotive Repair Garage, Automobile Service Station, Automotive Store, Gasoline Bar	Three (3) spaces per service bay plus one (1) space per employee
Auditorium, Community Centre, Club, Non-Profit, Theatre	One (1) space for every four (4) seats, fixed or otherwise and where there are no seats one (1) space for every 10 square metres of assembly space
Building Supply Store, Farm Supply Establishment, Farm Equipment Sales and Service Facility, Lumber Yard, Equipment Rental Establishment – Domestic, Equipment Rental Establishment – Industrial, Equipment Sales Establishment, Equipment Service and Repair Establishment – Industrial	One (1) space for each 20 square metres of gross floor area

BY-LAW  
2017-068

One (1) space per every 100 square metres of ~~gross~~ floor area

Clinic	Six (6) spaces per practitioner
Convenience Store	One (1) space per 18 square metres of <del>gross</del> floor area
Day Nursery – Licensed	One (1) space per employee and one (1) space per five (5) children
Farmer's Market, Farm Produce Outlet, Garden Centre, Greenhouse (Commercial), Nursery	One (1) space per 20 square metres of <del>gross</del> floor area
General Business (other than those listed separately herein), Business or Professional Office, Bank or Financial Office, Personal Service Establishment, Retail Store or Funeral Home	One (1) space per 20 square metres of <del>gross</del> floor area
Home-based Business, Home-based Industry	One (1) parking space per employee, in addition to the parking requirements of the dwelling
Hospital	One (1) space per bed
Industrial Establishment	One (1) parking space per 80 square meters of manufacturing floor area and associated office area or portion thereof plus one (1) parking space per 100 square metres of warehousing or storage floor area or portion thereof.



BY-LAW  
2020-090

Library	One (1) space per 95 square metres of <del>gross</del> floor area
Mini-warehouse and Storage	One (1) space per 50 square metres of office / administration space, plus one (1) space per 1,000 square metres of floor area of storage buildings/units
<del>Mini-warehouse and Storage,</del> Transportation Terminal, Warehouse	One (1) space per 95 square metres of <del>gross</del> floor area plus one (1) space for every three (3) employees per shift
Nursing home	One (1) space for every six (6) patient beds plus one (1) space for every four (4) employees
Place of amusement	One (1) space for every four (4) persons that can be accommodated
Place of worship	One (1) space for every five (5) seats, fixed or otherwise
Restaurant, Restaurant – Drive-In, Bar	One (1) space for every four (4) seats of designated seating capacity and where no seats are provided one (1) space per 6 square metres of <del>gross</del> floor area
Restaurant – Take Out	One (1) space per 10 square metres of <del>gross</del> floor area
School – Elementary	Two (2) spaces per classroom
School – Secondary or Commercial	Four (4) spaces per classroom
Shopping Centre	One (1) space per 160 square metres of net floor area

BY-LAW  
2015-050

Tourist Lodging Establishment

One (1) space per guest room or suite plus one (1) space for each four (4) persons that can be accommodated at any one time in a beverage room, dining room or meeting room

Veterinary Establishment, Kennel

One (1) parking space per 20 square metres of floor area

The greater of:

- Other non-residential uses permitted by this By-law
- (a) One (1) space per 25 square metres of floor area or portion thereof, or
  - (b) One (1) space for four (4) persons design capacity, or
  - (c) One (1) space per two (2) persons employed on the lot

BY-LAW  
2019-095

k) Requirements for Bicycle Parking

- i) Bicycle Parking shall be provided in the RS3, CG, CH, CT, I, ML, MM, and MH zones at the following rates:

One bicycle rack for principle uses over 1,000 sq m floor area, plus one additional rack for every 30 standard parking spaces provided.

- ii) A bicycle parking space may be located in any yard.

### 3.24 Parts of Buildings or Structures Permitted Above Height Level

Where height limitations are set forth in this By-law, such limitations shall not apply to air conditioning systems, bridges, chimneys, communication towers, electrical supply facilities, elevator or stairway enclosure, enclosed mechanical and electrical equipment, flag poles, grain elevators, hydroelectric transition tower, lightening rods or lightening standards, ornamental dome or clocktower, place of worship spire or belfry or steeples, receiving and transmitting antenna and satellite dish, receiving station, silo, solar panel, ventilating fan or skylight, water tanks or water towers and windmill or wind turbine.

Notwithstanding the foregoing, limitations prescribed by the Federal Ministry of Transport or practices recommended by the Ministry with respect to height limitations and appropriate lighting in the vicinity of airfields shall prevail.

### 3.25 Permitted Projections

For the purpose of this Section, a rear yard adjacent to a street, and/or an exterior side yard shall have the same requirements as a front yard.

BY-LAW  
2017-068

Structure	Maximum Projection Into Required Yard
Belt courses, sills, cornices, eaves, gutters, chimneys, bay windows, pilasters, fireplaces, chimney boxes, or other ornamental structures structures	0.6 metres into any required front, rear or any side yard

### 7.3 Heavy Industrial (MH) Zone

(a) Permitted Uses:

BY-LAW  
2018-079

- bakery;
- cannabis production and processing;
- industrial use, class 2 industry and class 3 industry;
- transportation terminal;
- warehouse;
- accessory uses such as a cafeteria, an office.
- Ancillary railway facilities
- Asphalt batching plant
- Concrete batching plant
- Grain drying facility
- Greenhouse commercial
- Livestock sales outlet
- Railway yard
- Recycling deport
- Recycling yard
- Sawmill
- Transfer station
- Transportation depot
- workshop

(b) Zone Requirements:

(i) Development on private or partial services (municipal water or sanitary sewers):

Lot Area (minimum)	1 ha	(2.5 acres)
Lot Frontage (minimum)	60 m	(196.85 ft.)
Yard Requirements (minimum)		
Front	12 m	(39.37 ft.)
Rear	12 m	(39.37 ft.)
Exterior Side	12 m	(39.37 ft.)
Interior Side	7.5 m	(24.61 ft.)
Building Height (maximum)	30 m	(98.43 ft.)
Accessory Building	12 m	(39.37 ft.)
Lot Coverage (maximum)	20%	

(ii) Development on full services (municipal water and sanitary sewers)

Lot Area (minimum)	1000 m <sup>2</sup>	(5005.22 sq.ft.)
Lot Frontage (minimum)	20 m	(49.21 ft.)
Yard Requirements (minimum)		
Front	7.5 m	(24.61 ft.)
Rear	7.5 m	(24.61 ft.)
Exterior Side	7.5 m	(24.61 ft.)
Interior Side	3 m	(9.84 ft.)

Building Height (maximum)	30 m	(98.43 ft.)
Accessory Building	12 m	(93.37 ft.)
Lot Coverage (maximum)	40%	

- (c) If an industrial use is severed or separated through consent, plan of subdivision or through the lifting of part lot control, the zone requirements continue to apply to the original lot except that no minimum side yard requirement shall apply along the common lot line.

(d) Special Exceptions:

**MH-1**

Notwithstanding the provisions of Section 7.3 (a) to the contrary, for the lands zoned MH-1, the following uses shall not be permitted:

Automobile Body Shop;  
Contractor's Shop or Yard;  
Fuel Depot, Bulk.

(e) Holding Zones:

**MH-1-h**

Notwithstanding the provisions of Section 4.3 to the contrary, for the lands zoned MH-1-h, the holding (h) symbol will not be lifted until Municipal services are available to the site.

(f) Temporary Zones:



# APPENDIX D

## Traffic Data





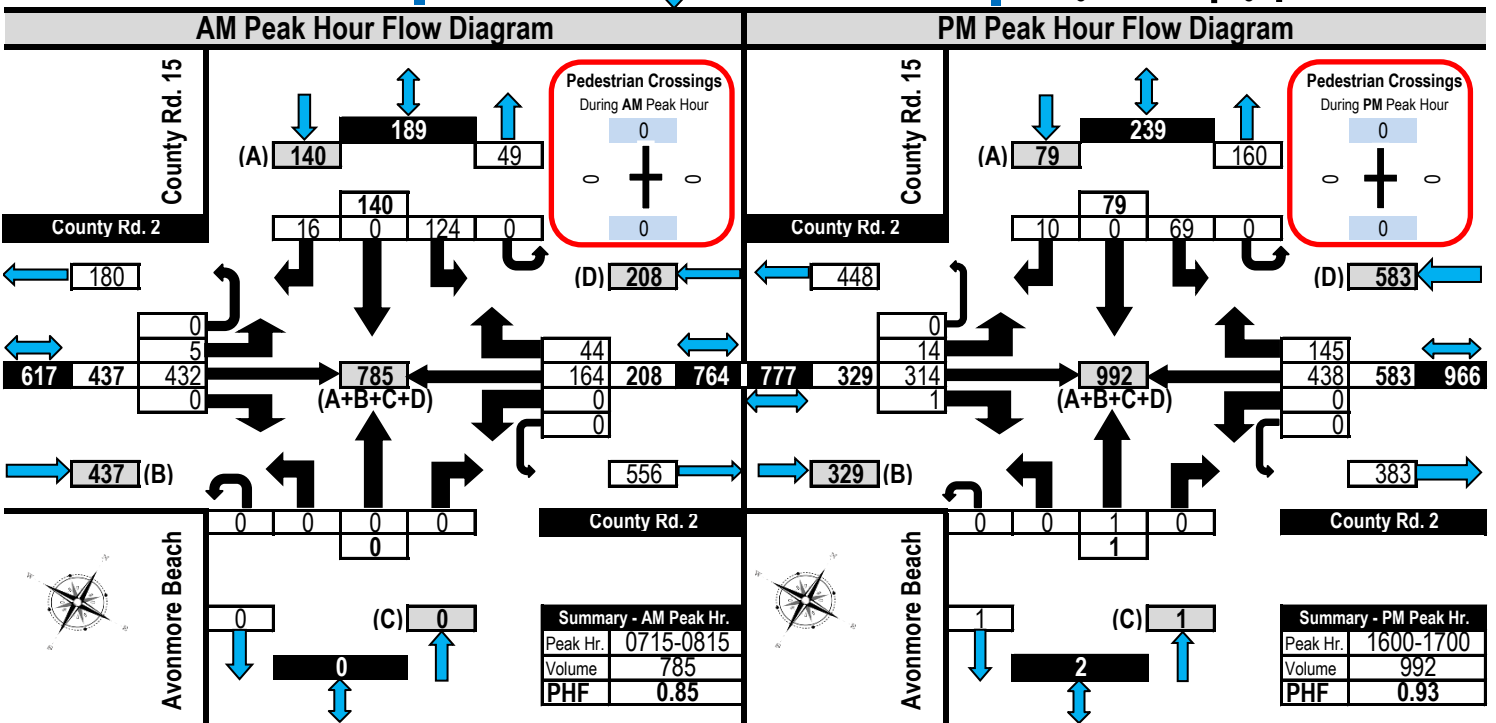
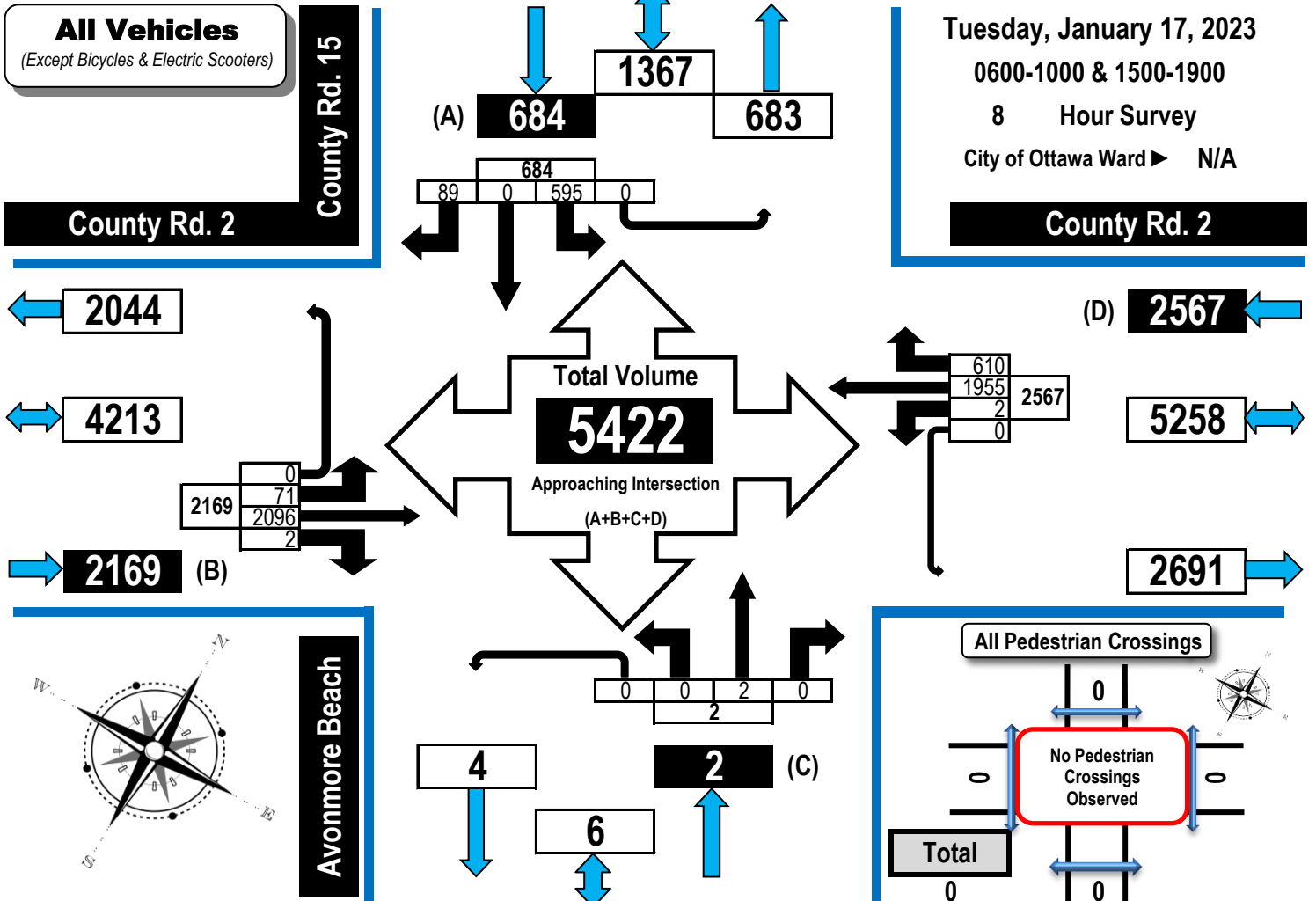


# Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams All Vehicles Except Bicycles



County Road 2 & County Road 15 (Avonmore Road)

Long Sault, ON





# Turning Movement Count

## Heavy Vehicle Summary (FHWA Class 4-13)

### Flow Diagram



County Road 2 & County Road 15 (Avonmore Road)

Long Sault, ON

#### Heavy Vehicles

(Construction Vehicles, Heavy Trucks, Buses & School Buses).  
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

County Rd. 15

County Rd. 2

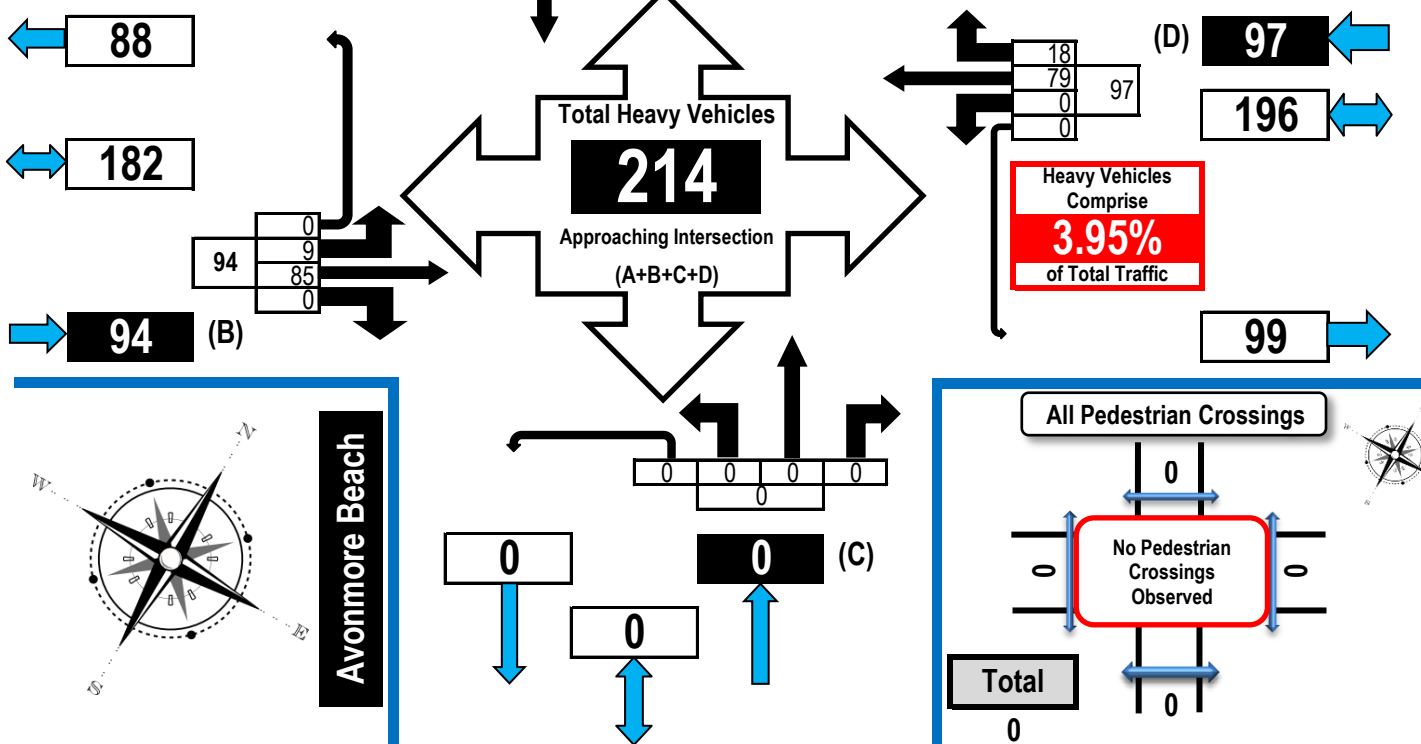
Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A

County Rd. 2



County Rd. 2

County Rd. 2

Avonmore Beach

County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700	1	8	0	0	9	0	4	0	0	4	0	0	0	0	0	2	0	1	0	3	16
0700-0800	1	23	0	0	24	0	12	2	0	14	0	0	0	0	0	2	0	2	0	4	42
0800-0900	1	10	0	0	11	0	17	3	0	20	0	0	0	0	0	2	0	3	0	5	36
0900-1000	5	10	0	0	15	0	21	5	0	26	0	0	0	0	0	2	0	2	0	4	45
1500-1600	0	18	0	0	18	0	10	4	0	14	0	0	0	0	0	5	0	0	0	5	37
1600-1700	1	12	0	0	13	0	11	3	0	14	0	0	0	0	0	1	0	1	0	2	29
1700-1800	0	1	0	0	1	0	2	1	0	3	0	0	0	0	0	0	0	0	0	0	4
1800-1900	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
Totals	9	85	0	0	94	0	79	18	0	97	0	0	0	0	0	14	0	9	0	23	214



# Turning Movement Count All Buses Summary (FHWA Class 4 ONLY) Flow Diagram



County Road 2 & County Road 15 (Avonmore Road)

Long Sault, ON

## Buses ONLY

(Transit, Intercity, School Buses & Other Buses).  
Bus totals ARE included in the all vehicles summary, heavy vehicle summary & flow diagrams.

County Rd. 15

County Rd. 2

Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A

County Rd. 2

25

45

20

(A) 10 19 9

6 0 10 4 0

Total Bus Volume  
54

Approaching Intersection  
(A+B+C+D)

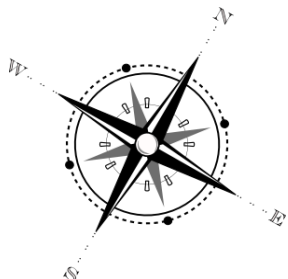
(D) 24

44

All Buses  
Comprise  
1.00%  
of Total Traffic

and  
25.23%  
of the Heavy  
Vehicle Traffic

20



Avonmore Beach

0 0 0 0 0

0 0

(C) 0

All Pedestrian Crossings

No Pedestrian  
Crossings  
Observed

Total  
0

County Rd. 2

Eastbound

County Rd. 2

Westbound

Avonmore Beach

Northbound

County Rd. 15

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
0700-0800	1	8	0	0	9	0	3	0	0	3	0	0	0	0	0	1	0	1	0	2	14
0800-0900	0	1	0	0	1	0	5	1	0	6	0	0	0	0	0	1	0	2	0	3	10
0900-1000	1	2	0	0	3	0	3	0	0	3	0	0	0	0	0	1	0	1	0	2	8
1500-1600	0	3	0	0	3	0	4	4	0	8	0	0	0	0	0	0	0	0	0	0	11
1600-1700	1	2	0	0	3	0	4	0	0	4	0	0	0	0	0	1	0	1	0	2	9
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	4	16	0	0	20	0	19	5	0	24	0	0	0	0	0	4	0	6	0	10	54

# Turning Movement Count Bicycle Summary Flow Diagram



County Road 2 & County Road 15 (Avonmore Road)

Long Sault, ON

## Bicycles

(Including electric bicycles and electric scooters)

### Note:

Bicycle volumes are **NOT** included in vehicle totals.

Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A

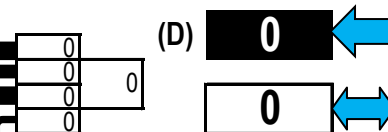
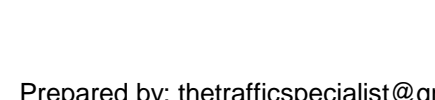
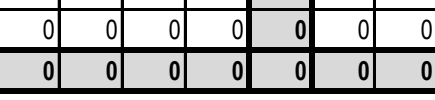
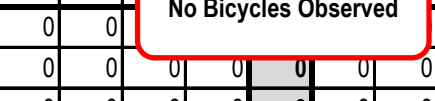
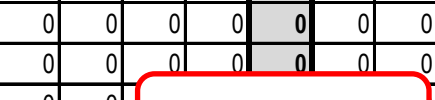
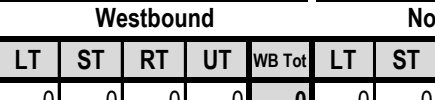
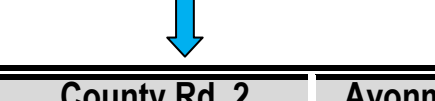
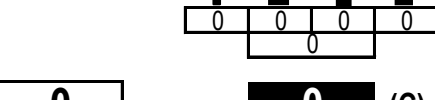
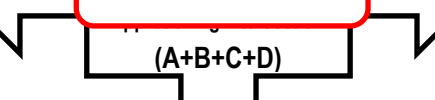
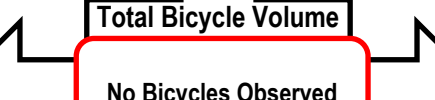
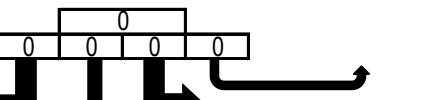
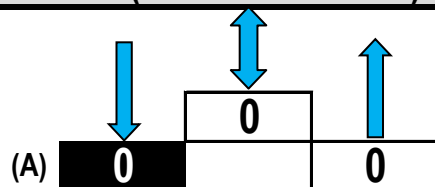
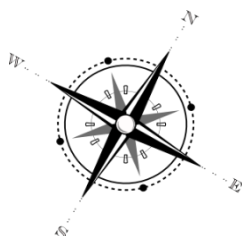
County Rd. 2

County Rd. 2

County Rd. 15

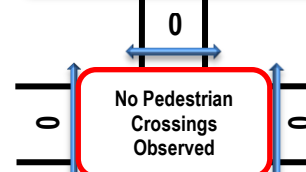
Avonmore Beach

Includes all bicycles travelling on sidewalks.



Bicycles comprise  
**0.00%**  
of total traffic

All Pedestrian Crossings



No Pedestrian Crossings Observed

Total  
0

County Rd. 2

County Rd. 2

Avonmore Beach

County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

No Bicycles Observed



County Road 2 & County Road 15 (Avonmore Road)

Long Sault, ON

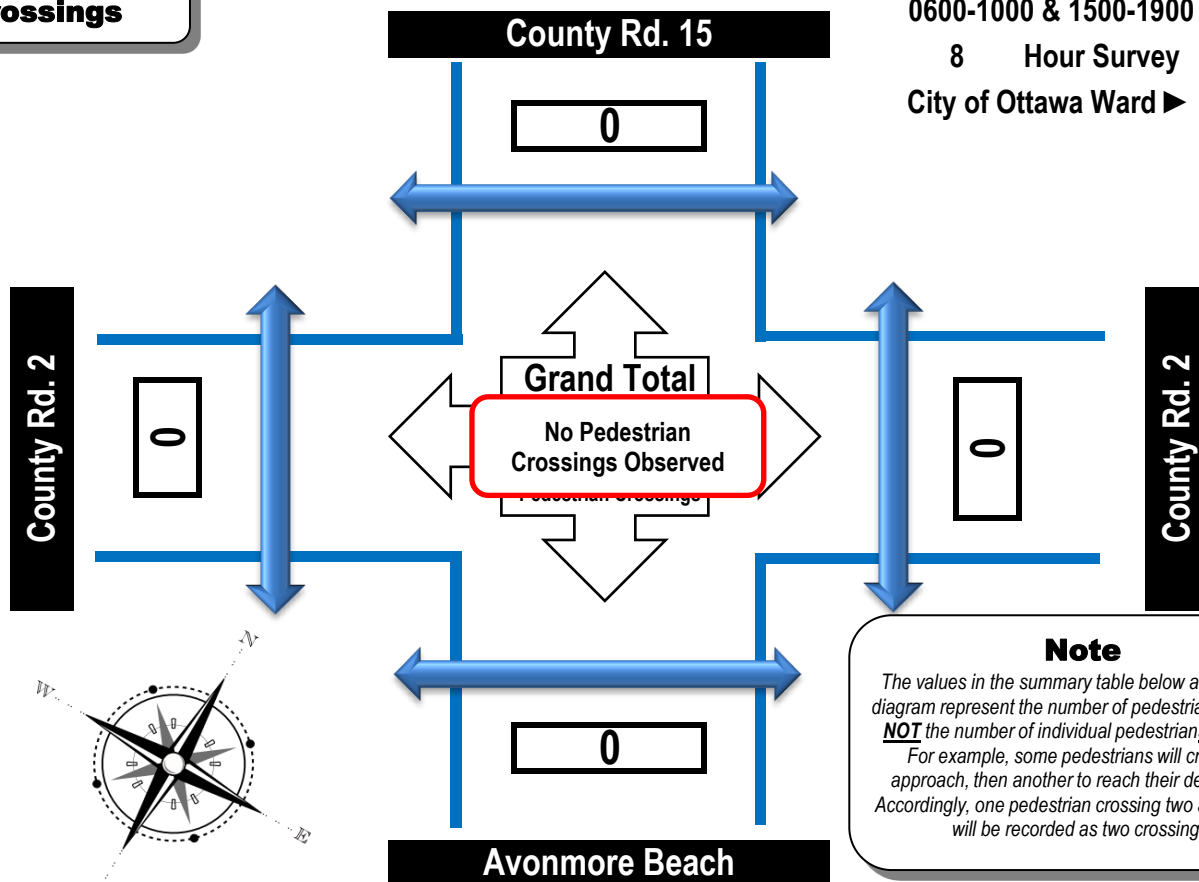
**Pedestrian  
Crossings**

Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A



Time Period	West Side Crossing County Rd. 2	East Side Crossing County Rd. 2	Street Total	South Side Crossing Avonmore Beach	North Side Crossing County Rd. 15	Street Total	Grand Total
0600-0700	0	0	0	0	0	0	0
0700-0800	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	No Pedestrian Crossings Observed		0	0	0
1500-1600	0	0			0	0	0
1600-1700	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0

**Comments:**

School buses comprise 25.23% of the heavy vehicle traffic. Neither bicycles nor pedestrian crossings were observed. The roadway to Avonmore Beach is not maintained; however, some vehicle activity was observed.



# Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams All Vehicles Except Bicycles



County Road 15 & County Road 36 (North)

Long Sault, ON

## All Vehicles

(Except Bicycles & Electric Scooters)

Total vehicle volume,  
all approaches.  
(A + C + D)

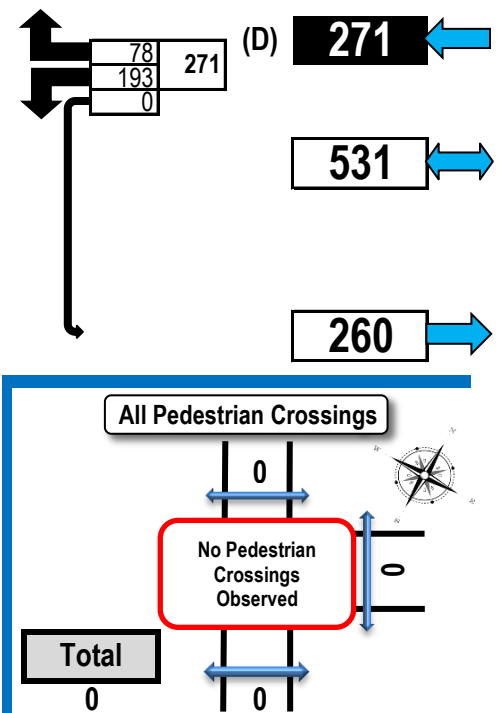
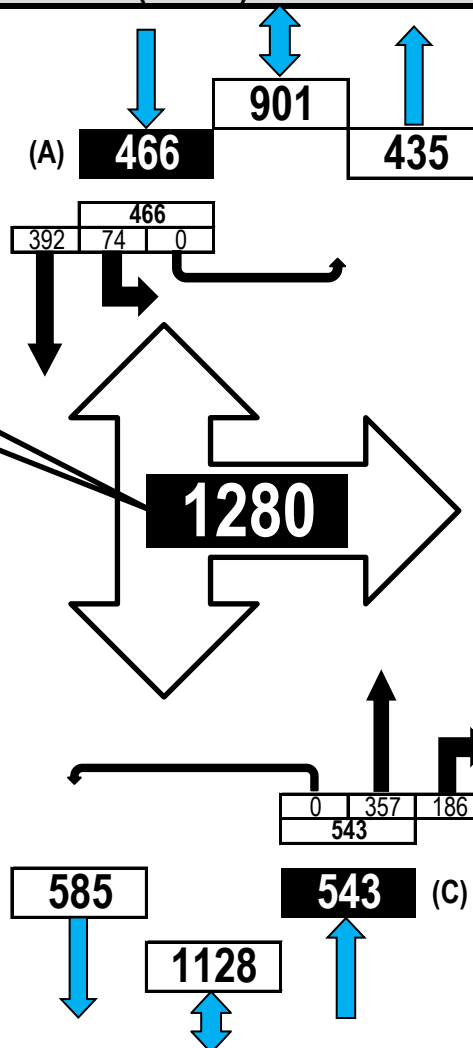
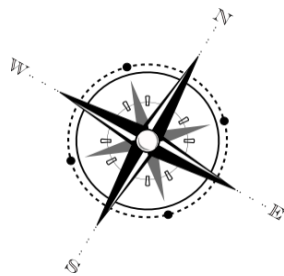
Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

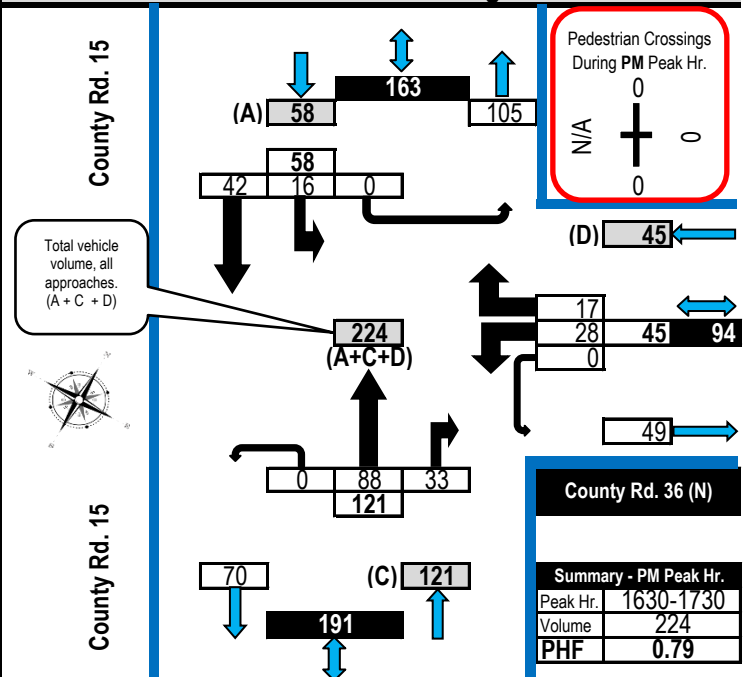
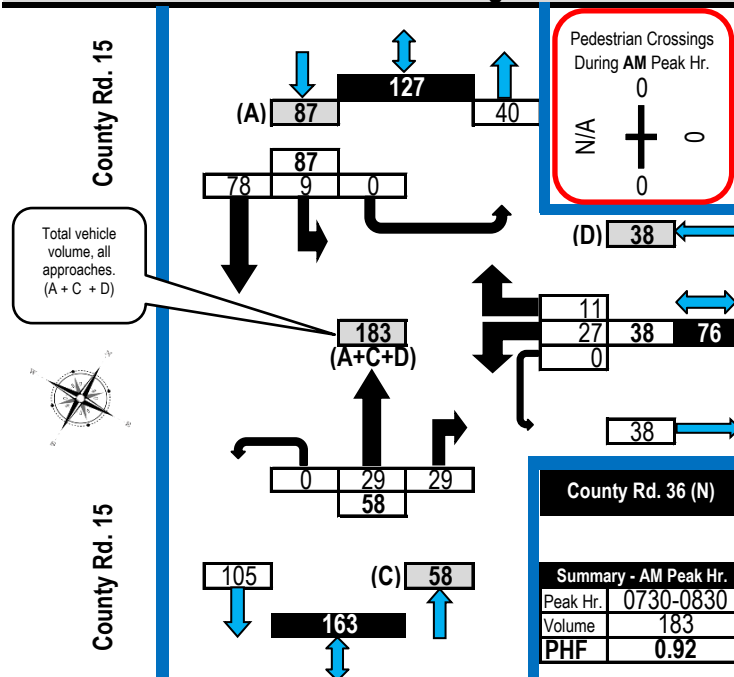
City of Ottawa Ward ► N/A

County Rd. 36 (N)



## AM Peak Hour Flow Diagram

## PM Peak Hour Flow Diagram





# Turning Movement Count

## Heavy Vehicle Summary (FHWA Class 4 to 13)

### Flow Diagram



#### County Road 15 & County Road 36 (North)

Long Sault, ON

#### Heavy Vehicles

(Construction Vehicles, Heavy Trucks, Buses & School Buses). Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Total heavy vehicle volume, all approaches. (A + C + D)

Heavy Vehicles Comprise  
**6.64%**  
of Total Traffic

Tuesday, January 17, 2023

0600-1000 & 1500-1900

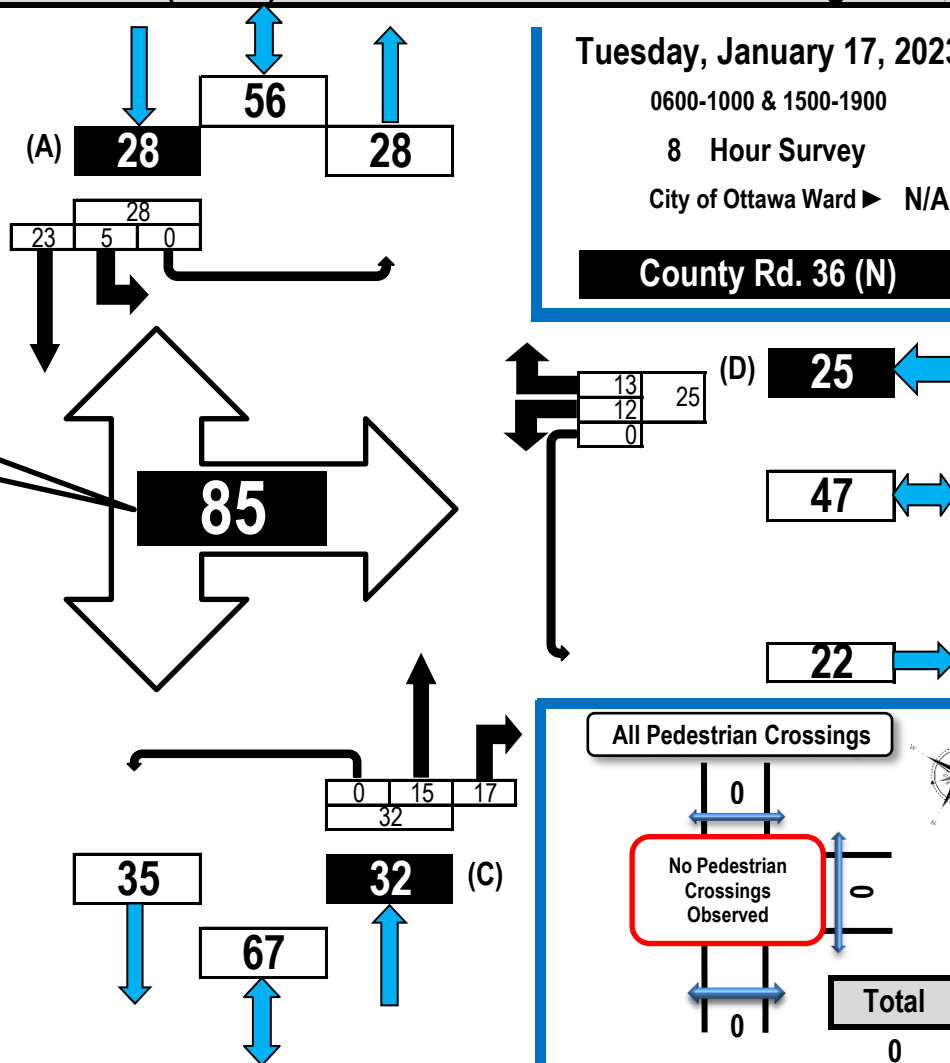
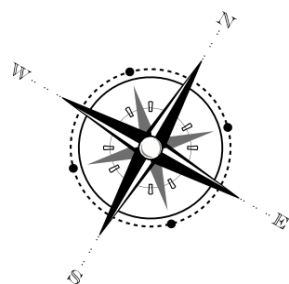
8 Hour Survey

City of Ottawa Ward ► N/A

County Rd. 36 (N)

County Rd. 15

County Rd. 15



N/A

County Rd. 36 (N)

County Rd. 15

County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700						1		3	0	4		2	0	0	2	0	4		0	4	10
0700-0800						4		3	0	7		2	2	0	4	1	5		0	6	17
0800-0900						3		2	0	5		2	4	0	6	0	0		0	0	11
0900-1000						2		1	0	3		4	2	0	6	1	4		0	5	14
1500-1600						0		0	0	0		1	4	0	5	1	7		0	8	13
1600-1700						1		3	0	4		2	4	0	6	0	1		0	1	11
1700-1800						0		0	0	0		1	1	0	2	2	0		0	2	4
1800-1900						1		1	0	2		1	0	0	1	0	2		0	2	5
Totals						12		13	0	25		15	17	0	32	5	23		0	28	85



# Turning Movement Count

## All Buses Summary (FHWA Class 4 ONLY)

### Flow Diagram



## County Road 15 & County Road 36 (North)

Long Sault, ON

### Buses ONLY

(Transit, Intercity, School Buses & Other Buses).  
Bus totals ARE included in the all vehicles summary, heavy vehicle summary & flow diagrams.

Total bus volume,  
all approaches.  
(A + C + D)

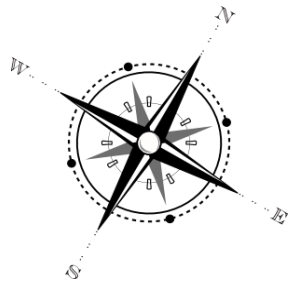
All Buses  
Comprise

**2.11%**

of Total Traffic  
and

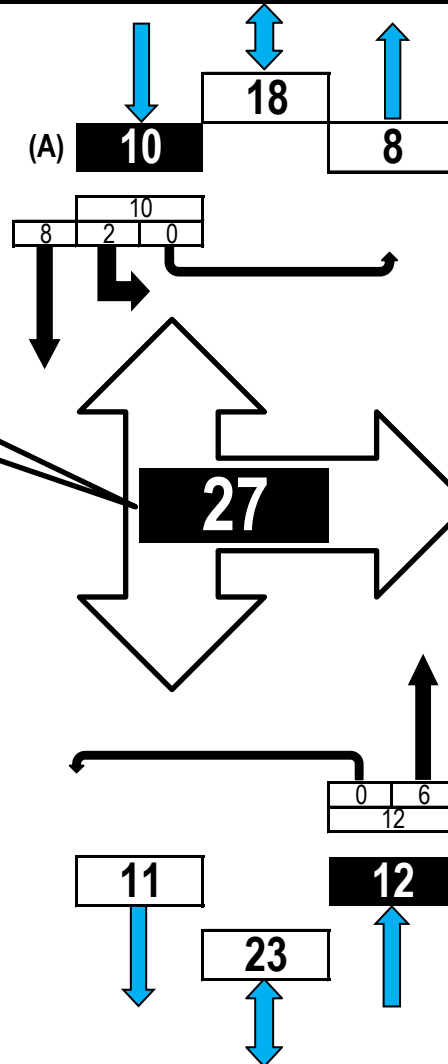
**31.76%**

of the Heavy  
Vehicle Traffic



County Rd. 15

County Rd. 15



Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A

County Rd. 36 (N)

All Pedestrian Crossings

No Pedestrian  
Crossings  
Observed

Total

0

N/A

County Rd. 36 (N)

County Rd. 15

County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700						0		1	0	1		1	0	0	1	0	1		0	1	3
0700-0800						0		0	0	0		1	2	0	3	1	4		0	5	8
0800-0900						1		0	0	1		1	0	0	1	0	0		0	0	2
0900-1000						2		0	0	2		1	0	0	1	0	1		0	1	4
1500-1600						0		0	0	0		1	2	0	3	0	2		0	2	5
1600-1700						0		0	0	0		1	1	0	2	0	0		0	0	2
1700-1800						0		0	0	0		0	1	0	1	1	0		0	1	2
1800-1900						0		1	0	1		0	0	0	0	0	0		0	0	1
Totals						3		2	0	5		6	6	0	12	2	8		0	10	27

# Turning Movement Count Bicycle Summary Flow Diagram



County Road 15 & County Road 36 (North)

Long Sault, ON

## Bicycles

(Including electric bicycles and electric scooters)

### Note:

Bicycle volumes are **NOT** included in vehicle totals.

Total bicycle volume, all approaches.  
(A + C + D)

Bicycles comprise

**0.00%**

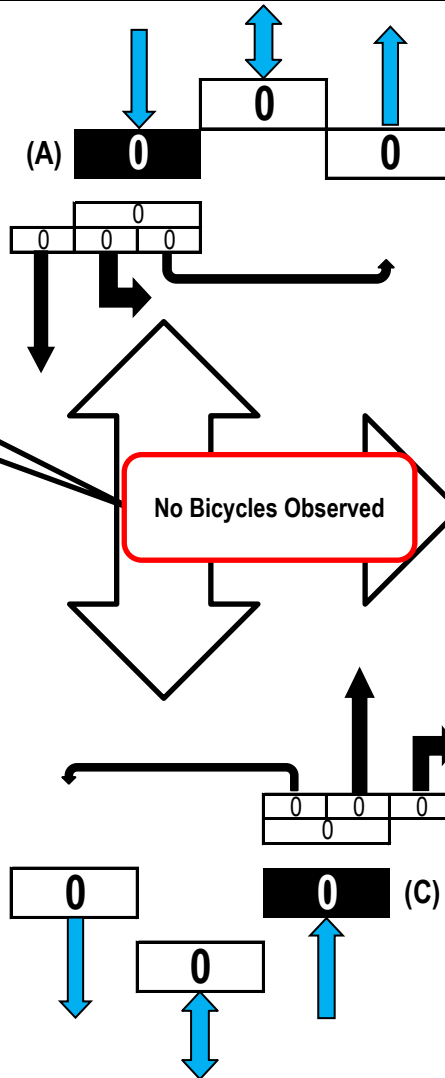
of total traffic

Includes all bicycles travelling on sidewalks.



County Rd. 15

County Rd. 15



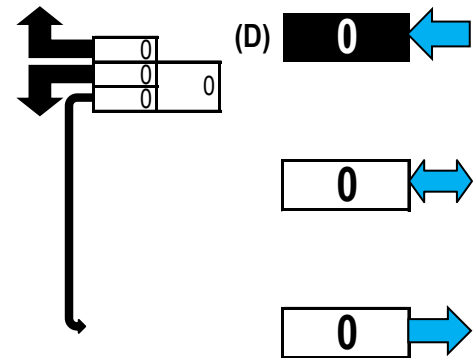
Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A

County Rd. 36 (N)



All Pedestrian Crossings

No Pedestrian Crossings Observed

Total

0

N/A

County Rd. 36 (N)

County Rd. 15

County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700						0		0	0	0		0	0	0	0	0	0		0	0	0
0700-0800						0		0	0	0		0	0	0	0	0	0		0	0	0
0800-0900						0		0	0	0		0	0	0	0	0	0		0	0	0
0900-1000						0		0	0	0		0	0	0	0	0	0		0	0	0
1500-1600						0		0	0	0		0	0	0	0	0	0		0	0	0
1600-1700						0		0	0	0		0	0	0	0	0	0		0	0	0
1700-1800						0		0	0	0		0	0	0	0	0	0		0	0	0
1800-1900						0		0	0	0		0	0	0	0	0	0		0	0	0
Totals						0		0	0	0		0	0	0	0	0	0		0	0	0

No Bicycles Observed



### County Road 15 & County Road 36 (North)

Long Sault, ON

#### Pedestrian Crossings

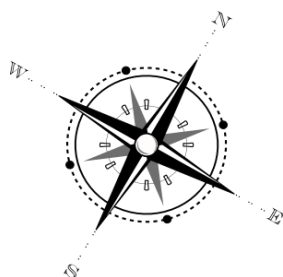
Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A

Total number of  
all pedestrian  
crossings



County Rd. 15

0

Grand Total

No Pedestrian  
Crossings Observed

0

County Rd. 15

County Rd. 36 (N)

#### Note

The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.

Time Period	West Side Crossing N/A	East Side Crossing County Rd. 36 (N)	Street Total	South Side Crossing County Rd. 15	North Side Crossing County Rd. 15	Street Total	Grand Total
0600-0700		0	0	0	0	0	0
0700-0800		0	0	0	0	0	0
0800-0900		0	0	0	0	0	0
0900-1000		0	0	0	0	0	0
1500-1600		0	0	0	0	0	0
1600-1700		0	0	0	0	0	0
1700-1800		0	0	0	0	0	0
1800-1900		0	0	0	0	0	0
Totals	0	0	0	0	0	0	0

#### Comments:

School buses comprise 31.76% of the heavy vehicle traffic. Neither bicycles nor pedestrian crossings were observed.



# Turning Movement Count

## Summary Report Including AM, OFF Peak, PM, Evening Peak Hours, and PHF

All Vehicles Except Bicycles



### County Road 15 & County Road 36 (North)

Long Sault, ON

Survey Date: Tuesday, January 17, 2023

Start Time: 0600

AADT Factor: 1.1

Weather AM: Mostly Clear -11° C

Survey Duration: 8 Hrs.

Survey Hours: 0600-1000 & 1500-1900

Weather PM: Overcast -2° C

Surveyor(s): T. Carmody

N/A						County Rd. 36 (N)						County Rd. 15						County Rd. 15					
Eastbound						Westbound						Northbound						Southbound					
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0600-0700	0	0	0	0	0	14	0	4	0	18	18	0	20	13	0	33	8	41	0	0	49	82	100
0700-0800	0	0	0	0	0	34	0	13	0	47	47	0	30	20	0	50	7	72	0	0	79	129	176
0800-0900	0	0	0	0	0	20	0	10	0	30	30	0	27	29	0	56	6	71	0	0	77	133	163
0900-1000	0	0	0	0	0	28	0	8	0	36	36	0	29	23	0	52	8	46	0	0	54	106	142
1500-1600	0	0	0	0	0	38	0	12	0	50	50	0	55	40	0	95	13	51	0	0	64	159	209
1600-1700	0	0	0	0	0	24	0	18	0	42	42	0	88	29	0	117	18	42	0	0	60	177	219
1700-1800	0	0	0	0	0	22	0	10	0	32	32	0	74	23	0	97	11	33	0	0	44	141	173
1800-1900	0	0	0	0	0	13	0	3	0	16	16	0	34	9	0	43	3	36	0	0	39	82	98
Totals	0	0	0	0	0	193	0	78	0	271	271	0	357	186	0	543	74	392	0	0	466	1009	1280

Average daily 12-hour (0700-1900 ONLY) traffic. These volumes are calculated by multiplying the 12-hour totals (0700-1900) by the AADT factor of: 1.1

AADT 12 Hr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➔ 24 expansion factor of 1.31

AADT 24 Hr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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### AADT and Expansion Factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.92						Highest Hourly Vehicle Volume Between 0500h & 1000h																	
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Grd. Tot.
0730-0830	0	0	0	0	0	27	0	11	0	38	38	0	29	29	0	58	9	78	0	0	87	145	183
PM Peak Hour Factor ➡ 0.79						Highest Hourly Vehicle Volume Between 1500h & 1900h																	
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Grd. Tot.
1630-1730	0	0	0	0	0	28	0	17	0	45	45	0	88	33	0	121	16	42	0	0	58	179	224

#### Comments:

School buses comprise 31.76% of the heavy vehicle traffic. Neither bicycles nor pedestrian crossings were observed.

#### Notes:

1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.



# Turning Movement Count

## Summary Report Including AM, OFF Peak, PM, Evening Peak Hours, and PHF

All Vehicles Except Bicycles



### County Road 15 & County Road 36 (S)/Jenkins Road Long Sault, ON

Survey Date: Tuesday, January 17, 2023

Start Time: 0600

AADT Factor: 1.1

Weather AM: Mostly Clear -11° C

Survey Duration: 8 Hrs.

Survey Hours: 0600-1000 & 1500-1900

Weather PM: Overcast -2° C

Surveyor(s): T. Carmody

#### County Rd. 36 (S)

#### Jenkins Rd.

#### County Rd. 15

#### County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0600-0700	14	0	21	0	35	1	0	1	0	2	37	28	18	0	0	46	0	35	19	0	54	100	137
0700-0800	24	0	48	0	72	1	0	2	0	3	75	18	24	2	0	44	2	73	33	0	108	152	227
0800-0900	28	1	35	0	64	0	0	0	0	0	64	21	30	0	0	51	1	63	25	0	89	140	204
0900-1000	32	0	36	0	68	1	0	1	0	2	70	24	19	0	0	43	1	45	30	0	76	119	189
1500-1600	38	0	50	0	88	2	0	1	0	3	91	63	56	1	0	120	1	48	40	0	89	209	300
1600-1700	28	3	41	0	72	2	1	1	0	4	76	60	87	7	0	154	2	29	36	0	67	221	297
1700-1800	22	0	25	1	48	4	1	0	0	5	53	51	75	7	0	133	1	35	18	0	54	187	240
1800-1900	11	0	17	0	28	0	0	0	0	0	28	29	31	0	0	60	1	28	22	0	51	111	139
Totals	197	4	273	1	475	11	2	6	0	19	494	294	340	17	0	651	9	356	223	0	588	1239	1733

Average daily 12-hour (0700-1900 ONLY) traffic. These volumes are calculated by multiplying the 12-hour totals (0700-1900) by the AADT factor of: 1.1

AADT 12 Hr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 → 24 expansion factor of 1.31

AADT 24 Hr	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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### AADT and Expansion Factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.91						Highest Hourly Vehicle Volume Between 0500h & 1000h																	
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Grd. Tot.
0715-0815	33	0	49	0	82	0	0	0	0	0	82	21	21	1	0	43	2	78	29	0	109	152	234
PM Peak Hour Factor ➡ 0.86						Highest Hourly Vehicle Volume Between 1500h & 1900h																	
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Grd. Tot.
1500-1600	38	0	50	0	88	2	0	1	0	3	91	63	56	1	0	120	1	48	40	0	89	209	300

#### Comments:

School buses comprise 38.55% of the heavy vehicle traffic. No bicycles were observed.

#### Notes:

1. Includes all vehicle types except bicycles and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.



# Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams All Vehicles Except Bicycles



County Road 15 & County Road 36 (S)/Jenkins Road

Long Sault, ON

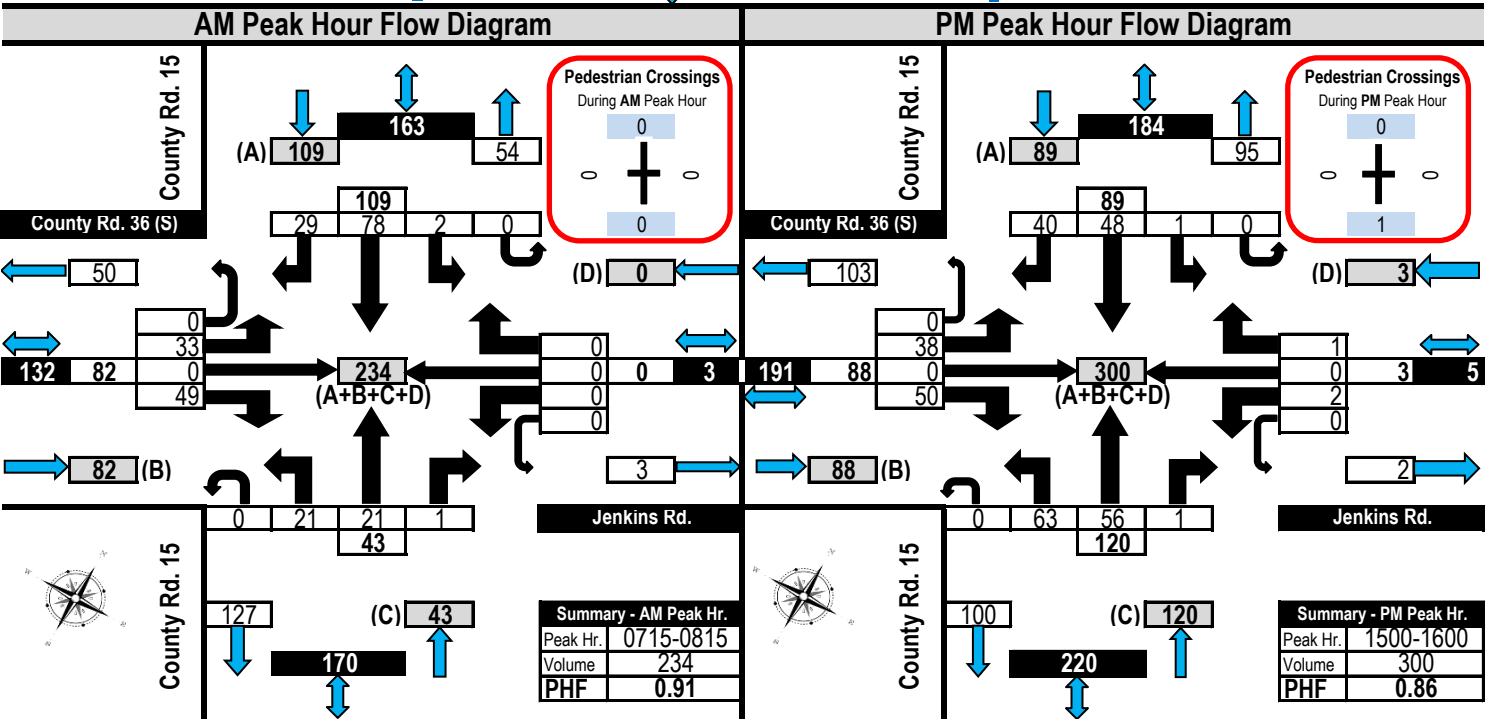
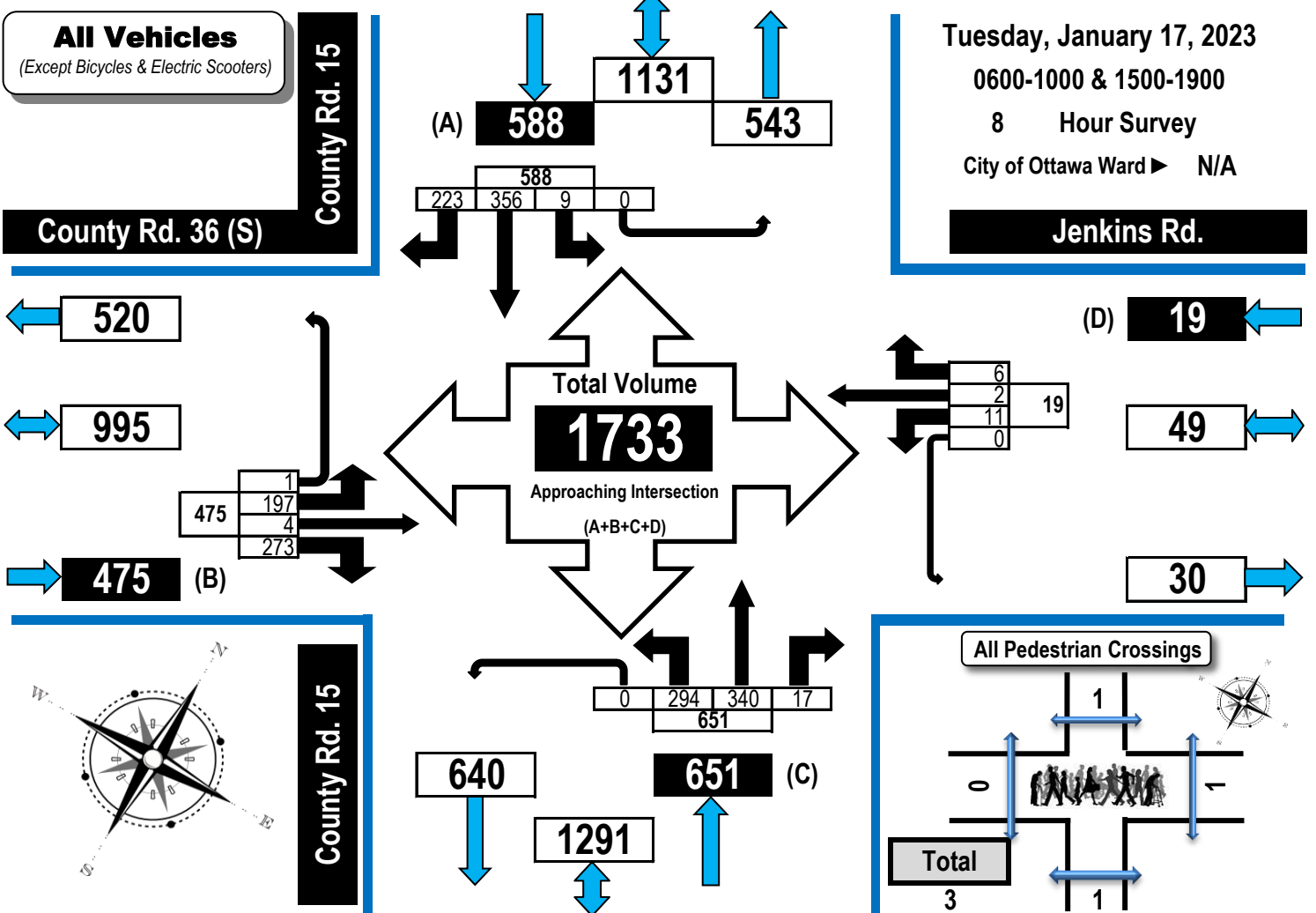
**All Vehicles**  
(Except Bicycles & Electric Scooters)

Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A





# Turning Movement Count

## Heavy Vehicle Summary (FHWA Class 4-13)

### Flow Diagram



County Road 15 & County Road 36 (S)/Jenkins Road

Long Sault, ON

#### Heavy Vehicles

(Construction Vehicles, Heavy Trucks, Buses & School Buses). Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

County Rd. 15

Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A

County Rd. 36 (S)

Jenkins Rd.

22

42

20

(A) 35 67 32

14 35 17 4 0

Total Heavy Vehicles  
83

Approaching Intersection  
(A+B+C+D)

(D) 2

7

Heavy Vehicles  
Comprise  
**4.79%**  
of Total Traffic

5

All Pedestrian Crossings

1

Total  
3

County Rd. 36 (S)

Jenkins Rd.

County Rd. 15

County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	2	2	0	4	7
0700-0800	2	0	3	0	5	0	0	1	0	1	1	1	0	0	2	2	3	4	0	9	17
0800-0900	2	1	1	0	4	0	0	0	0	0	0	3	0	0	3	1	0	2	0	3	10
0900-1000	3	0	0	0	3	0	0	0	0	0	3	3	0	0	6	0	4	3	0	7	16
1500-1600	2	0	1	0	3	0	0	0	0	0	2	3	0	0	5	1	6	0	0	7	15
1600-1700	2	0	1	0	3	0	0	1	0	1	1	3	0	0	4	0	1	1	0	2	10
1700-1800	1	0	1	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4
1800-1900	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	2	0	3	4
Totals	12	1	7	0	20	0	0	2	0	2	8	18	0	0	26	4	17	14	0	35	83





# Turning Movement Count All Buses Summary (FHWA Class 4 ONLY) Flow Diagram



## County Road 15 & County Road 36 (S)/Jenkins Road Long Sault, ON

### Buses ONLY

(Transit, Intercity, School Buses & Other Buses).  
Bus totals ARE included in the all vehicles summary, heavy vehicle summary & flow diagrams.

Tuesday, January 17, 2023

0600-1000 & 1500-1900

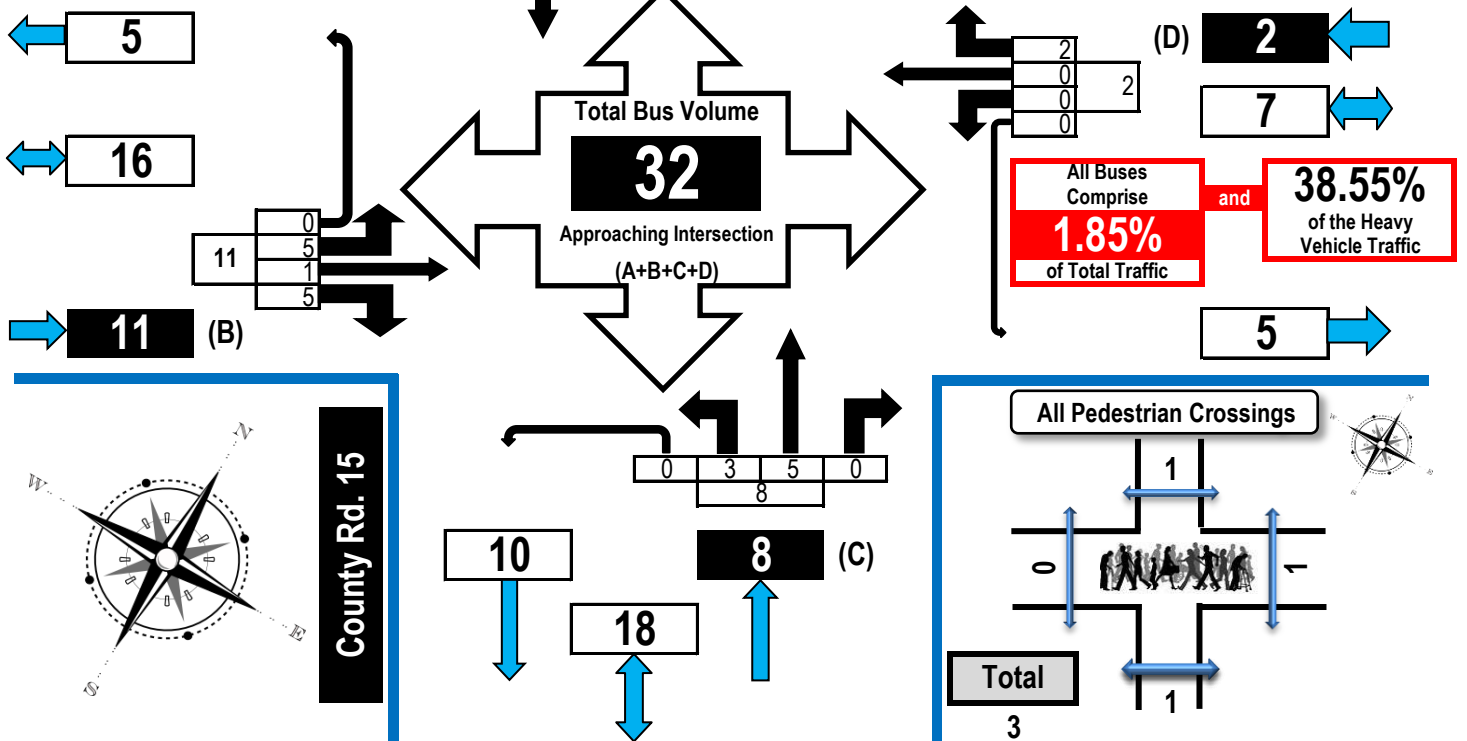
8 Hour Survey

City of Ottawa Ward ► N/A

County Rd. 36 (S)

County Rd. 15

Jenkins Rd.



County Rd. 36 (S)

Jenkins Rd.

County Rd. 15

County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	3
0700-0800	2	0	3	0	5	0	0	1	0	1	0	0	0	0	0	2	1	1	0	4	10
0800-0900	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	4
0900-1000	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	4
1500-1600	1	0	0	0	1	0	0	0	0	0	2	2	0	0	4	1	1	0	0	2	7
1600-1700	1	0	1	0	2	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	4
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	5	1	5	0	11	0	0	2	0	2	3	5	0	0	8	4	5	2	0	11	32



# Turning Movement Count Bicycle Summary Flow Diagram



County Road 15 & County Road 36 (S)/Jenkins Road

Long Sault, ON

## Bicycles

(Including electric bicycles and electric scooters)

### Note:

Bicycle volumes are **NOT** included in vehicle totals.

Tuesday, January 17, 2023

0600-1000 & 1500-1900

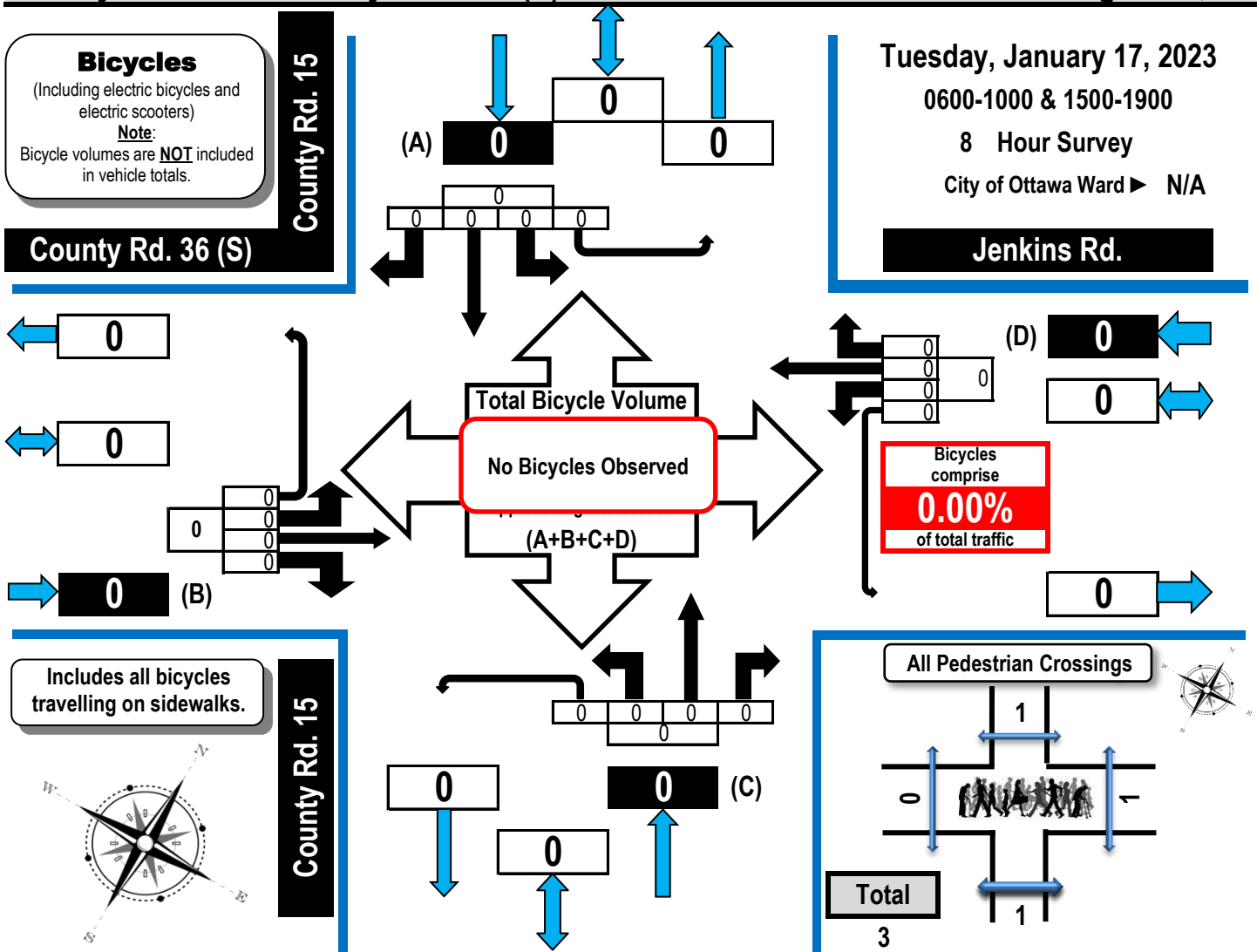
8 Hour Survey

City of Ottawa Ward ► N/A

County Rd. 36 (S)

County Rd. 15

Jenkins Rd.



County Rd. 36 (S)

Jenkins Rd.

County Rd. 15

County Rd. 15

Eastbound

Westbound

Northbound

Southbound

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0600-0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

No Bicycles Observed



County Road 15 & County Road 36 (S)/Jenkins Road

Long Sault, ON

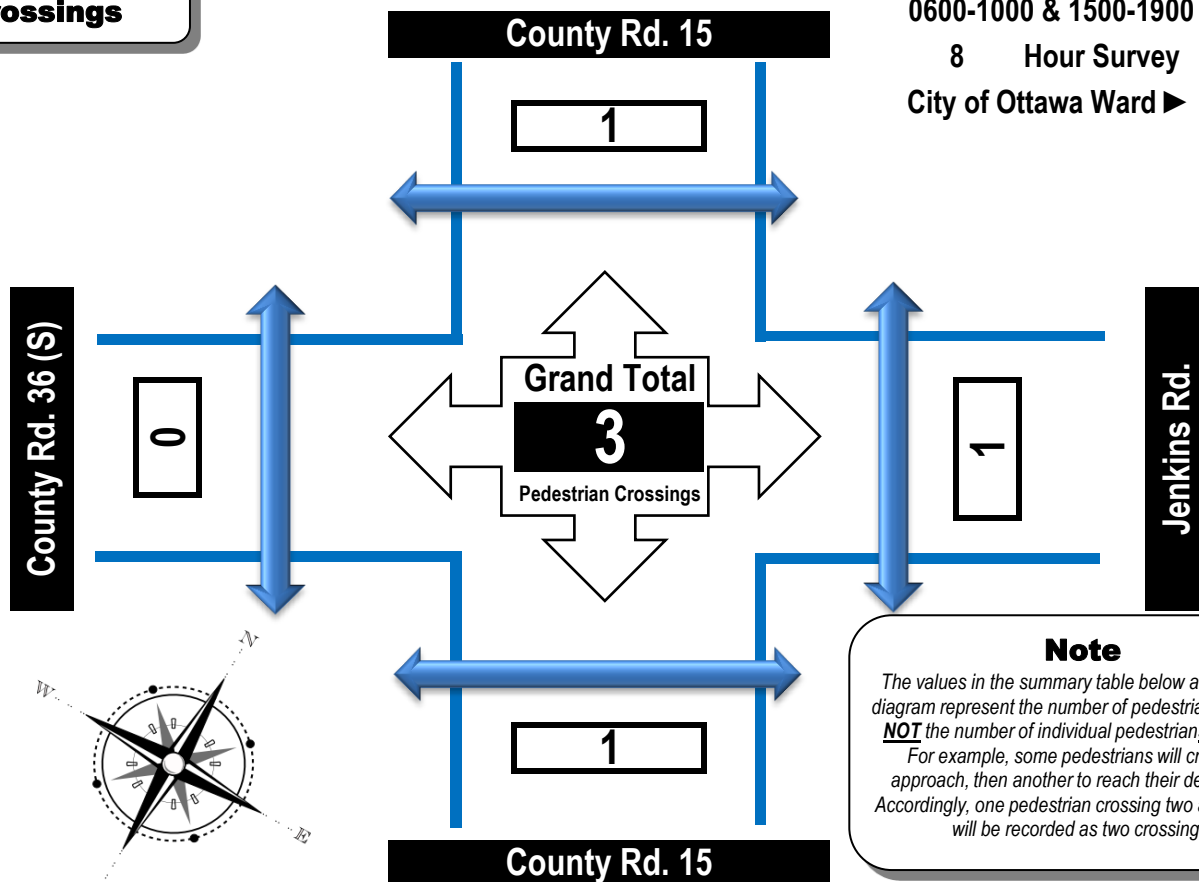
**Pedestrian  
Crossings**

Tuesday, January 17, 2023

0600-1000 & 1500-1900

8 Hour Survey

City of Ottawa Ward ► N/A



**Note**

The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.

Time Period	West Side Crossing County Rd. 36 (S)	East Side Crossing Jenkins Rd.	Street Total	South Side Crossing County Rd. 15	North Side Crossing County Rd. 15	Street Total	Grand Total
0600-0700	0	0	0	0	0	0	0
0700-0800	0	1	1	0	0	0	1
0800-0900	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0
1500-1600	0	0	0	1	0	1	1
1600-1700	0	0	0	0	1	1	1
1700-1800	0	0	0	0	0	0	0
1800-1900	0	0	0	0	0	0	0
Totals	0	1	1	1	1	2	3

**Comments:**

School buses comprise 38.55% of the heavy vehicle traffic. No bicycles were observed.



Turning Movement Count (7 . COUNTY RD 15 & COUNTY RD 2)

Start Time	N Approach COUNTY RD 15						E Approach COUNTY RD 2						S Approach COUNTY RD 15						W Approach COUNTY RD 2						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
06:00:00	4	1	4	0	0	9	11	20	0	0	0	31	0	0	0	0	0	0	0	26	5	0	0	31	71		
06:15:00	3	0	4	0	0	7	12	21	1	0	0	34	0	0	0	0	0	0	0	62	2	0	0	64	105		
06:30:00	6	0	23	0	0	29	3	31	0	0	2	34	0	0	0	0	1	0	0	65	3	0	0	68	131		
06:45:00	11	0	17	0	0	28	13	35	0	0	2	48	1	0	0	0	1	1	1	57	3	0	0	61	138	445	
07:00:00	9	0	14	0	0	23	10	44	0	0	0	54	0	0	1	0	0	1	0	64	1	0	0	65	143	517	
07:15:00	13	0	18	0	0	31	13	33	0	0	1	46	0	0	0	0	0	0	0	68	5	0	0	73	150	562	
07:30:00	11	0	20	0	0	31	5	26	0	0	1	31	0	0	0	0	0	0	1	115	3	0	0	119	181	612	
07:45:00	11	0	20	0	0	31	11	37	0	0	0	48	0	0	0	0	0	0	0	95	3	0	0	98	177	651	
08:00:00	12	0	18	0	0	30	10	33	0	0	0	43	0	1	0	0	0	1	0	82	6	0	0	88	162	670	
08:15:00	9	0	16	0	0	25	11	40	0	0	1	51	0	0	0	0	0	0	0	85	2	0	0	87	163	683	
08:30:00	13	0	10	0	0	23	10	37	0	0	0	47	0	0	0	0	0	0	0	83	6	0	0	89	159	661	
08:45:00	8	0	14	0	0	22	20	47	0	0	0	67	0	1	0	0	0	1	1	79	6	0	0	86	176	660	
09:00:00	18	1	14	0	0	33	12	45	0	0	0	57	0	0	0	0	0	0	0	72	5	0	0	77	167	665	
09:15:00	10	0	11	0	0	21	10	48	0	0	2	58	0	1	0	0	2	1	0	65	12	0	0	77	157	659	
09:30:00	9	0	9	0	0	18	8	53	1	0	0	62	1	0	0	0	0	1	1	82	4	0	0	87	168	668	
09:45:00	13	0	16	0	0	29	13	33	0	0	2	46	0	0	0	0	2	0	0	76	3	0	1	79	154	646	
***BREAK***																											
15:00:00	16	1	22	0	0	39	23	95	0	0	0	118	0	1	1	0	0	2	1	73	8	0	0	82	241		
15:15:00	8	0	11	0	0	19	20	100	0	0	0	120	0	0	1	0	0	1	0	86	14	0	0	100	240		
15:30:00	15	1	13	0	0	29	19	105	0	0	1	124	0	0	0	0	0	0	0	109	7	0	0	116	269		
15:45:00	16	3	22	0	0	41	27	92	0	0	1	119	1	2	0	0	0	3	0	101	9	0	0	110	273	1023	
16:00:00	22	1	14	0	0	37	28	100	2	0	0	130	2	1	1	0	0	4	1	86	3	0	0	90	261	1043	
16:15:00	25	0	20	0	0	45	27	131	0	0	0	158	2	0	0	0	0	2	0	88	11	0	0	99	304	1107	
16:30:00	15	0	18	0	0	33	39	110	0	0	0	149	0	0	1	0	0	1	1	97	13	0	0	111	294	1132	
16:45:00	21	1	10	0	0	32	27	105	0	0	0	132	0	0	0	0	0	0	0	72	11	0	0	83	247	1106	
17:00:00	18	0	12	0	0	30	45	146	0	0	0	191	1	0	1	0	0	2	1	63	8	0	0	72	295	1140	
17:15:00	16	0	12	0	0	28	19	100	0	0	2	119	0	0	0	0	0	0	0	86	6	0	0	92	239	1075	
17:30:00	10	0	9	0	0	19	20	87	0	0	0	107	0	0	0	0	0	0	1	73	5	0	0	79	205	986	
17:45:00	18	0	14	0	0	32	17	81	0	0	0	98	1	1	0	0	0	2	0	56	3	0	0	59	191	930	
18:00:00	16	0	9	0	0	25	25	82	0	0	0	107	0	1	0	0	1	1	1	48	4	0	0	53	186	821	
18:15:00	10	0	8	0	0	18	18	69	0	0	0	87	0	0	0	0	0	0	0	70	3	0	0	73	178	760	
18:30:00	14	0	13	0	0	27	10	54	1	0	0	65	0	0	0	0	0	0	0	72	6	0	0	78	170	725	
18:45:00	8	0	7	0	0	15	10	50	0	0	0	60	0	1	1	0	0	2	0	43	4	0	0	47	124	658	
Grand Total	408	9	442	0	0	859	546	2090	5	0	15	2641	9	10	7	0	7	26	10	2399	184	0	1	2593	6119	-	
Approach%	47.5%	1%	51.5%	0%		-	20.7%	79.1%	0.2%	0%		-	34.6%	38.5%	26.9%	0%		-	0.4%	92.5%	7.1%	0%		-	-	-	
Totals %	6.7%	0.1%	7.2%	0%		14%	8.9%	34.2%	0.1%	0%		43.2%	0.1%	0.2%	0.1%	0%		0.4%	0.2%	39.2%	3%	0%		42.4%	-	-	
Heavy	22	0	36	0		-	43	42	0	0		-	0	0	0	0		-	0	48	8	0		-	-	-	
Heavy %	5.4%	0%	8.1%	0%		-	7.9%	2%	0%	0%		-	0%	0%	0%	0%		-	0%	2%	4.3%	0%		-	-	-	
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	



Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (13.63 °C)

Start Time	N Approach COUNTY RD 15						E Approach COUNTY RD 2						S Approach COUNTY RD 15						W Approach COUNTY RD 2						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:30:00	11	0	20	0	0	31	5	26	0	0	1	31	0	0	0	0	0	0	1	115	3	0	0	119	181
07:45:00	11	0	20	0	0	31	11	37	0	0	0	48	0	0	0	0	0	0	0	95	3	0	0	98	177
08:00:00	12	0	18	0	0	30	10	33	0	0	0	43	0	1	0	0	0	1	0	82	6	0	0	88	162
08:15:00	9	0	16	0	0	25	11	40	0	0	1	51	0	0	0	0	0	0	0	85	2	0	0	87	163
Grand Total	43	0	74	0	0	117	37	136	0	0	2	173	0	1	0	0	0	1	1	377	14	0	0	392	683
Approach%	36.8%	0%	63.2%	0%		-	21.4%	78.6%	0%	0%		-	0%	100%	0%	0%		-	0.3%	96.2%	3.6%	0%		-	-
Totals %	6.3%	0%	10.8%	0%		17.1%	5.4%	19.9%	0%	0%		25.3%	0%	0.1%	0%	0%		0.1%	0.1%	55.2%	2%	0%		57.4%	-
PHF	0.9	0	0.93	0		0.94	0.84	0.85	0	0		0.85	0	0.25	0	0		0.25	0.25	0.82	0.58	0		0.82	-
Heavy	8	0	5	0		13	7	6	0	0		13	0	0	0	0		0	0	8	0	0		8	-
Heavy %	18.6%	0%	6.8%	0%		11.1%	18.9%	4.4%	0%	0%		7.5%	0%	0%	0%	0%		0%	0%	2.1%	0%	0%		2%	-
Lights	35	0	69	0		104	30	130	0	0		160	0	1	0	0		1	1	368	14	0		383	-
Lights %	81.4%	0%	93.2%	0%		88.9%	81.1%	95.6%	0%	0%		92.5%	0%	100%	0%	0%		100%	100%	97.6%	100%	0%		97.7%	-
Single-Unit Trucks	5	0	1	0		6	3	3	0	0		6	0	0	0	0		0	0	4	0	0		4	-
Single-Unit Trucks %	11.6%	0%	1.4%	0%		5.1%	8.1%	2.2%	0%	0%		3.5%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1%	-
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Articulated Trucks	3	0	4	0		7	4	3	0	0		7	0	0	0	0		0	0	4	0	0		4	-
Articulated Trucks %	7%	0%	5.4%	0%		6%	10.8%	2.2%	0%	0%		4%	0%	0%	0%	0%		0%	0%	1.1%	0%	0%		1%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	100%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (15.37 °C)

Start Time	N Approach COUNTY RD 15						E Approach COUNTY RD 2						S Approach COUNTY RD 15						W Approach COUNTY RD 2						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	25	0	20	0	0	45	27	131	0	0	0	158	2	0	0	0	0	2	0	88	11	0	0	99	304
16:30:00	15	0	18	0	0	33	39	110	0	0	0	149	0	0	1	0	0	1	1	97	13	0	0	111	294
16:45:00	21	1	10	0	0	32	27	105	0	0	0	132	0	0	0	0	0	0	0	72	11	0	0	83	247
17:00:00	18	0	12	0	0	30	45	146	0	0	0	191	1	0	1	0	0	2	1	63	8	0	0	72	295
Grand Total	79	1	60	0	0	140	138	492	0	0	0	630	3	0	2	0	0	5	2	320	43	0	0	365	1140
Approach%	56.4%	0.7%	42.9%	0%		-	21.9%	78.1%	0%	0%		-	60%	0%	40%	0%		-	0.5%	87.7%	11.8%	0%		-	-
Totals %	6.9%	0.1%	5.3%	0%		12.3%	12.1%	43.2%	0%	0%		55.3%	0.3%	0%	0.2%	0%		0.4%	0.2%	28.1%	3.8%	0%		32%	-
PHF	0.79	0.25	0.75	0		0.78	0.77	0.84	0	0		0.82	0.38	0	0.5	0		0.63	0.5	0.82	0.83	0		0.82	-
Heavy	0	0	3	0		3	6	3	0	0		9	0	0	0	0		0	0	10	4	0		14	-
Heavy %	0%	0%	5%	0%		2.1%	4.3%	0.6%	0%	0%		1.4%	0%	0%	0%	0%		0%	0%	3.1%	9.3%	0%		3.8%	-
Lights	75	1	57	0		133	132	489	0	0		621	3	0	2	0		5	2	310	39	0		351	-
Lights %	94.9%	100%	95%	0%		95%	95.7%	99.4%	0%	0%		98.6%	100%	0%	100%	0%		100%	100%	96.9%	90.7%	0%		96.2%	-
Single-Unit Trucks	0	0	3	0		3	5	3	0	0		8	0	0	0	0		0	0	8	3	0		11	-
Single-Unit Trucks %	0%	0%	5%	0%		2.1%	3.6%	0.6%	0%	0%		1.3%	0%	0%	0%	0%		0%	0%	2.5%	7%	0%		3%	-
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Articulated Trucks	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	0	2	1	0		3	-
Articulated Trucks %	0%	0%	0%	0%		0%	0.7%	0%	0%	0%		0.2%	0%	0%	0%	0%		0%	0%	0.6%	2.3%	0%		0.8%	-
Bicycles on Road	4	0	0	0		4	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	5.1%	0%	0%	0%		2.9%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Bicycles on Crosswalk%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (13.63 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (15.37 °C)





Turning Movement Count (5 . COUNTY RD 15 & COUNTY RD 36 N)

Start Time	N Approach COUNTY RD 15					E Approach COUNTY RD 36 N					S Approach COUNTY RD 15					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	UTurn S:S	Peds S:	Approach Total		
06:00:00	7	1	0	0	8	1	5	0	0	6	2	7	0	0	9	23	
06:15:00	7	1	0	0	8	3	5	0	0	8	3	5	0	0	8	24	
06:30:00	13	1	0	0	14	1	7	0	0	8	8	2	0	0	10	32	
06:45:00	18	2	0	0	20	2	7	0	0	9	0	6	0	0	6	35	114
07:00:00	12	1	0	0	13	2	8	0	0	10	2	7	0	0	9	32	123
07:15:00	16	4	0	0	20	3	10	0	0	13	5	8	0	0	13	46	145
07:30:00	21	3	0	0	24	6	7	0	0	13	3	7	0	0	10	47	160
07:45:00	20	3	0	0	23	1	3	0	0	4	2	3	0	0	5	32	157
08:00:00	19	0	0	0	19	1	7	0	0	8	5	7	0	0	12	39	164
08:15:00	17	6	0	0	23	3	4	0	0	7	3	7	0	0	10	40	158
08:30:00	12	2	0	0	14	0	4	0	0	4	3	7	0	0	10	28	139
08:45:00	18	2	0	0	20	0	4	0	0	4	4	15	0	0	19	43	150
09:00:00	11	1	0	0	12	0	7	0	0	7	3	10	0	0	13	32	143
09:15:00	15	3	0	0	18	3	3	0	0	6	7	10	0	1	17	41	144
09:30:00	9	3	0	0	12	0	6	0	1	6	4	6	0	0	10	28	144
09:45:00	15	3	0	0	18	2	8	0	0	10	5	13	0	0	18	46	147
***BREAK***																	
15:00:00	12	6	0	0	18	3	6	0	0	9	4	21	0	0	25	52	
15:15:00	10	4	0	0	14	5	4	1	0	10	6	12	0	0	18	42	
15:30:00	18	4	0	0	22	6	10	0	0	16	7	12	0	0	19	57	
15:45:00	20	4	0	0	24	4	7	0	0	11	8	19	0	0	27	62	213
16:00:00	14	4	0	0	18	2	13	0	0	15	2	28	1	0	31	64	225
16:15:00	17	6	0	0	23	9	10	0	0	19	7	19	0	0	26	68	251
16:30:00	19	9	0	0	28	3	6	0	0	9	10	25	0	0	35	72	266
16:45:00	14	6	0	0	20	4	16	0	0	20	8	26	0	0	34	74	278
17:00:00	11	3	0	0	14	6	9	0	0	15	7	35	0	0	42	71	285
17:15:00	10	9	0	0	19	4	6	0	0	10	3	14	0	0	17	46	263
17:30:00	11	2	0	0	13	3	6	0	0	9	3	11	0	0	14	36	227
17:45:00	14	1	0	0	15	5	10	0	0	15	2	9	0	0	11	41	194
18:00:00	11	7	0	0	18	3	2	1	0	6	4	15	0	0	19	43	166
18:15:00	11	1	0	0	12	5	4	0	0	9	2	9	0	0	11	32	152
18:30:00	13	5	0	0	18	3	10	0	0	13	4	12	0	0	16	47	163
18:45:00	7	1	0	0	8	2	4	0	0	6	3	6	0	0	9	23	145





Grand Total	442	108	0	0	550	95	218	2	1	315	139	393	1	1	533	1398	-
Approach%	80.4%	19.6%	0%		-	30.2%	69.2%	0.6%		-	26.1%	73.7%	0.2%		-	-	-
Totals %	31.6%	7.7%	0%		39.3%	6.8%	15.6%	0.1%		22.5%	9.9%	28.1%	0.1%		38.1%	-	-
Heavy	43	17	0		-	9	17	0		-	6	38	0		-	-	-
Heavy %	9.7%	15.7%	0%		-	9.5%	7.8%	0%		-	4.3%	9.7%	0%		-	-	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	-	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	-	-



Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (13.63 °C)

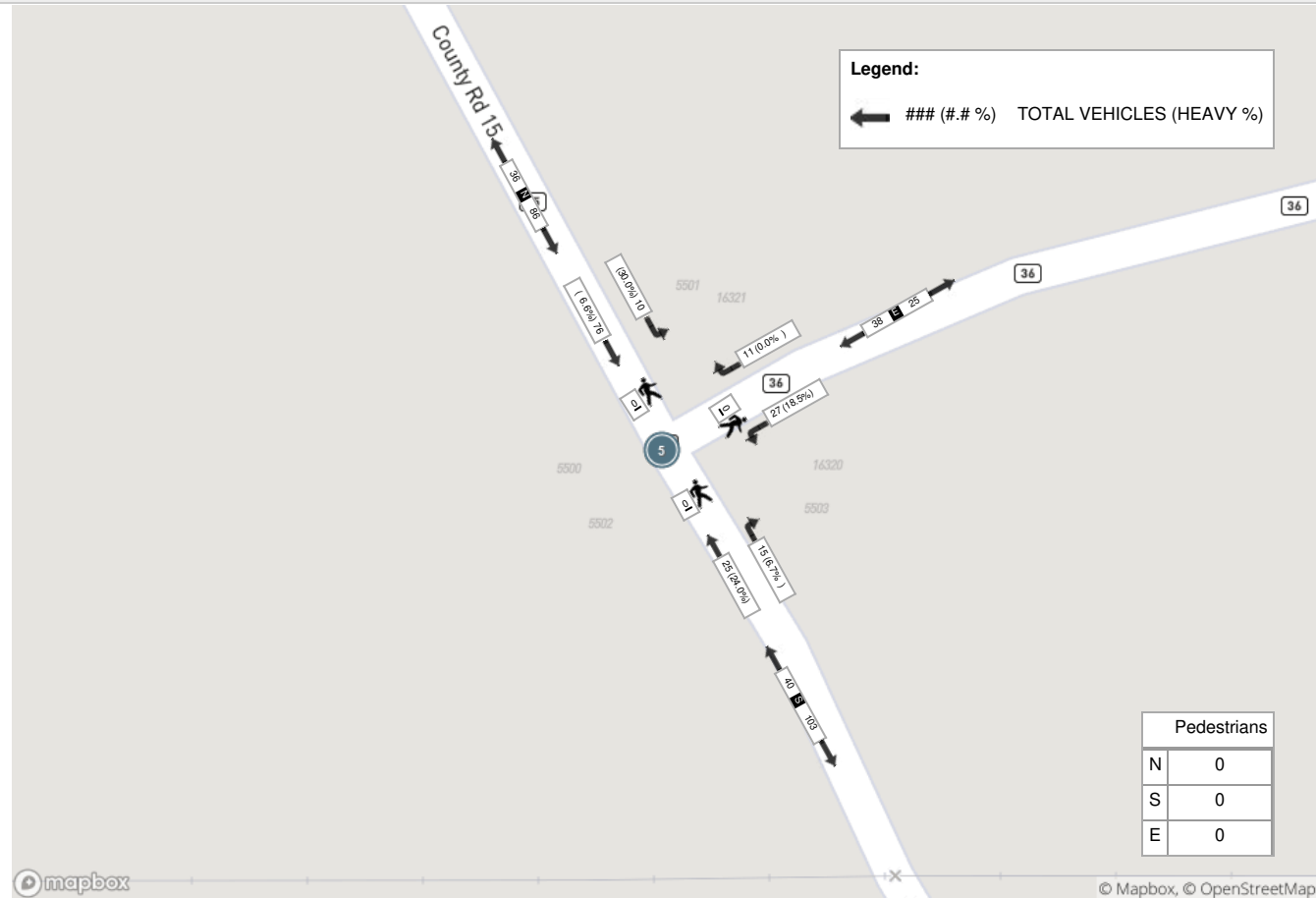
Start Time	N Approach COUNTY RD 15					E Approach COUNTY RD 36 N					S Approach COUNTY RD 15					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
07:15:00	16	4	0	0	20	3	10	0	0	13	5	8	0	0	13	46
07:30:00	21	3	0	0	24	6	7	0	0	13	3	7	0	0	10	47
07:45:00	20	3	0	0	23	1	3	0	0	4	2	3	0	0	5	32
08:00:00	19	0	0	0	19	1	7	0	0	8	5	7	0	0	12	39
Grand Total	76	10	0	0	86	11	27	0	0	38	15	25	0	0	40	164
Approach%	88.4%	11.6%	0%		-	28.9%	71.1%	0%		-	37.5%	62.5%	0%		-	-
Totals %	46.3%	6.1%	0%		52.4%	6.7%	16.5%	0%		23.2%	9.1%	15.2%	0%		24.4%	-
PHF	0.9	0.63	0		0.9	0.46	0.68	0		0.73	0.75	0.78	0		0.77	-
Heavy	5	3	0		8	0	5	0		5	1	6	0		7	-
Heavy %	6.6%	30%	0%		9.3%	0%	18.5%	0%		13.2%	6.7%	24%	0%		17.5%	-
Lights	71	7	0		78	11	22	0		33	14	19	0		33	-
Lights %	93.4%	70%	0%		90.7%	100%	81.5%	0%		86.8%	93.3%	76%	0%		82.5%	-
Single-Unit Trucks	2	3	0		5	0	3	0		3	1	2	0		3	-
Single-Unit Trucks %	2.6%	30%	0%		5.8%	0%	11.1%	0%		7.9%	6.7%	8%	0%		7.5%	-
Buses	0	0	0		0	0	0	0		0	0	0	0		0	-
Buses %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Articulated Trucks	3	0	0		3	0	2	0		2	0	4	0		4	-
Articulated Trucks %	3.9%	0%	0%		3.5%	0%	7.4%	0%		5.3%	0%	16%	0%		10%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-



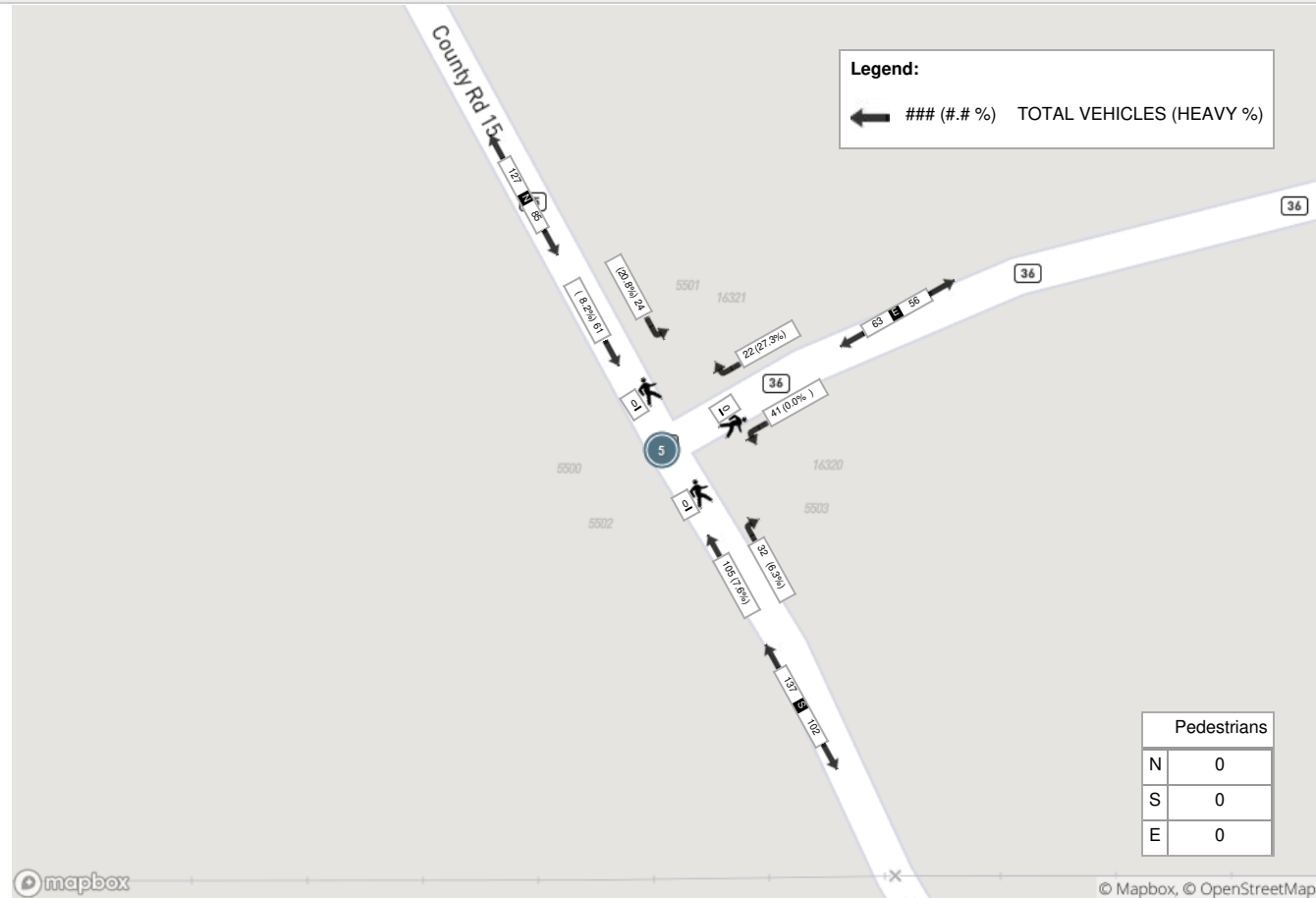
Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (15.37 °C)

Start Time	N Approach COUNTY RD 15					E Approach COUNTY RD 36 N					S Approach COUNTY RD 15					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
16:15:00	17	6	0	0	23	9	10	0	0	19	7	19	0	0	26	68
16:30:00	19	9	0	0	28	3	6	0	0	9	10	25	0	0	35	72
16:45:00	14	6	0	0	20	4	16	0	0	20	8	26	0	0	34	74
17:00:00	11	3	0	0	14	6	9	0	0	15	7	35	0	0	42	71
Grand Total	61	24	0	0	85	22	41	0	0	63	32	105	0	0	137	285
Approach%	71.8%	28.2%	0%		-	34.9%	65.1%	0%		-	23.4%	76.6%	0%		-	-
Totals %	21.4%	8.4%	0%		29.8%	7.7%	14.4%	0%		22.1%	11.2%	36.8%	0%		48.1%	-
PHF	0.8	0.67	0		0.76	0.61	0.64	0		0.79	0.8	0.75	0		0.82	-
Heavy	5	5	0		10	6	0	0		6	2	8	0		10	-
Heavy %	8.2%	20.8%	0%		11.8%	27.3%	0%	0%		9.5%	6.3%	7.6%	0%		7.3%	-
Lights	56	19	0		75	16	37	0		53	30	97	0		127	-
Lights %	91.8%	79.2%	0%		88.2%	72.7%	90.2%	0%		84.1%	93.8%	92.4%	0%		92.7%	-
Single-Unit Trucks	5	4	0		9	5	0	0		5	1	7	0		8	-
Single-Unit Trucks %	8.2%	16.7%	0%		10.6%	22.7%	0%	0%		7.9%	3.1%	6.7%	0%		5.8%	-
Buses	0	0	0		0	0	0	0		0	0	0	0		0	-
Buses %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
Articulated Trucks	0	1	0		1	1	0	0		1	1	1	0		2	-
Articulated Trucks %	0%	4.2%	0%		1.2%	4.5%	0%	0%		1.6%	3.1%	1%	0%		1.5%	-
Bicycles on Road	0	0	0		0	0	4	0		4	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	9.8%	0%		6.3%	0%	0%	0%		0%	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
Pedestrians%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-

**Peak Hour: 07:15 AM - 08:15 AM Weather: Overcast Clouds (13.63 °C)**



**Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (15.37 °C)**





Turning Movement Count (4 . COUNTY RD 15 (AVONMORE RD) & COUNTY RD 29)

Start Time	N Approach COUNTY RD 15 (AVONMORE RD)						E Approach PRIEUR RD						S Approach COUNTY RD 15 (AVONMORE RD)						W Approach COUNTY RD 23						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
06:00:00	5	8	0	0	0	13	0	0	0	0	0	0	0	9	0	0	0	0	9	0	0	5	0	0	5	27	
06:15:00	6	6	0	0	0	12	0	0	0	0	0	0	0	6	1	0	0	0	7	2	0	5	0	0	7	26	
06:30:00	7	14	0	0	0	21	0	2	0	0	0	2	0	3	1	0	0	0	4	3	0	2	0	0	5	32	
06:45:00	5	17	0	0	0	22	0	0	0	0	0	0	0	8	0	0	0	0	8	2	0	6	0	0	8	38	123
07:00:00	4	11	0	0	0	15	0	0	0	0	0	0	0	7	2	0	0	0	9	2	0	8	0	0	10	34	130
07:15:00	2	15	0	0	0	17	0	0	1	0	0	1	0	8	2	0	0	0	10	1	0	9	0	0	10	38	142
07:30:00	7	21	0	0	0	28	0	0	0	0	0	0	0	12	2	0	0	0	14	0	0	9	0	0	9	51	161
07:45:00	7	22	0	0	0	29	0	0	0	0	0	0	0	4	0	0	0	0	4	3	0	7	0	0	10	43	166
08:00:00	2	20	0	0	0	22	0	0	0	0	0	0	0	4	3	0	0	0	7	0	0	3	0	0	3	32	164
08:15:00	5	22	0	0	0	27	0	0	0	0	0	0	0	8	3	0	0	0	11	1	0	2	0	0	3	41	167
08:30:00	2	11	0	0	0	13	0	0	0	0	0	0	0	6	0	0	0	0	6	2	0	4	0	0	6	25	141
08:45:00	4	17	0	0	0	21	0	0	0	0	0	0	0	15	0	0	0	0	15	1	0	4	0	0	5	41	139
09:00:00	5	13	0	0	0	18	0	0	0	0	0	0	0	8	2	0	0	0	10	1	0	4	0	0	5	33	140
09:15:00	4	13	0	0	0	17	0	0	0	0	0	0	0	11	2	0	0	0	13	2	0	2	0	0	4	34	133
09:30:00	3	10	0	0	0	13	0	0	0	0	0	0	0	7	0	0	0	0	7	2	0	7	0	0	9	29	137
09:45:00	5	19	0	0	0	24	0	0	0	0	0	0	0	14	0	0	0	0	14	0	0	5	1	0	6	44	140
***BREAK***																											
15:00:00	6	18	0	0	0	24	0	0	0	0	0	0	0	18	4	0	0	0	22	2	0	7	0	0	9	55	
15:15:00	3	8	0	0	0	11	0	0	0	0	0	0	0	12	1	0	0	0	13	4	0	9	0	0	13	37	
15:30:00	4	19	0	0	0	23	0	0	0	0	0	0	0	16	2	0	0	0	18	3	0	6	0	0	9	50	
15:45:00	3	19	0	0	1	22	0	0	1	0	2	1	1	20	4	0	0	0	25	4	0	9	0	0	13	61	203
16:00:00	5	17	0	1	0	23	1	0	0	0	0	1	0	29	4	0	0	0	33	2	0	9	0	0	11	68	216
16:15:00	2	20	0	0	0	22	0	0	1	0	0	1	0	18	3	0	0	0	21	3	0	6	0	0	9	53	232
16:30:00	6	20	0	0	0	26	0	0	0	0	0	0	0	22	1	1	0	0	24	2	0	7	0	0	9	59	241
16:45:00	7	16	0	0	0	23	0	0	1	0	0	1	0	28	1	0	0	0	29	4	0	5	0	0	9	62	242
17:00:00	5	14	0	0	0	19	0	0	0	0	0	0	0	36	6	0	0	0	42	2	1	13	0	0	16	77	251
17:15:00	3	16	0	0	0	19	0	0	1	0	0	1	0	17	3	0	0	0	20	3	0	7	0	0	10	50	248
17:30:00	5	12	0	0	0	17	0	0	0	0	0	0	0	11	2	0	0	0	13	1	0	13	0	0	14	44	233
17:45:00	5	11	0	0	0	16	0	1	0	0	0	1	0	11	4	0	0	0	15	2	0	6	0	0	8	40	211
18:00:00	2	12	0	0	0	14	0	0	1	0	0	1	0	15	2	0	0	0	17	3	0	7	0	0	10	42	176
18:15:00	5	14	0	0	0	19	0	0	0	0	0	0	0	7	5	0	0	0	12	1	0	4	0	0	5	36	162
18:30:00	1	11	0	0	0	12	0	0	0	0	0	0	0	10	2	0	0	0	12	3	0	1	0	0	4	28	146
18:45:00	4	8	0	0	0	12	0	0	0	0	0	0	0	6	3	0	0	0	9	1	0	5	0	0	6	27	133
Grand Total	139	474	0	1	1	614	1	3	6	0	2	10	1	406	65	1	0	0	473	62	1	196	1	0	260	1357	-
Approach%	22.6%	77.2%	0%	0.2%	-	-	10%	30%	60%	0%	-	-	0.2%	85.8%	13.7%	0.2%	-	-	-	23.8%	0.4%	75.4%	0.4%	-	-	-	-
Totals %	10.2%	34.9%	0%	0.1%	45.2%	0.1%	0.2%	0.4%	0%	0.7%	0.1%	29.9%	4.8%	0.1%	34.9%	4.6%	0.1%	14.4%	0.1%	19.2%	-	-	-	-	-	-	
Heavy	25	52	0	0	-	-	0	0	1	0	-	-	0	46	2	0	-	-	-	7	0	32	0	-	-	-	-
Heavy %	18%	11%	0%	0%	-	-	0%	0%	16.7%	0%	-	-	0%	11.3%	3.1%	0%	-	-	-	11.3%	0%	16.3%	0%	-	-	-	-
Bicycles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycle %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (13.63 °C)

Start Time	N Approach COUNTY RD 15 (AVONMORE RD)						E Approach PRIEUR RD						S Approach COUNTY RD 15 (AVONMORE RD)						W Approach COUNTY RD 29						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:30:00	7	21	0	0	0	28	0	0	0	0	0	0	0	12	2	0	0	14	0	0	9	0	0	9	51
07:45:00	7	22	0	0	0	29	0	0	0	0	0	0	0	4	0	0	0	4	3	0	7	0	0	10	43
08:00:00	2	20	0	0	0	22	0	0	0	0	0	0	0	4	3	0	0	7	0	0	3	0	0	3	32
08:15:00	5	22	0	0	0	27	0	0	0	0	0	0	0	8	3	0	0	11	1	0	2	0	0	3	41
Grand Total	21	85	0	0	0	106	0	0	0	0	0	0	0	28	8	0	0	36	4	0	21	0	0	25	167
Approach%	19.8%	80.2%	0%	0%		-	0%	0%	0%	0%		-	0%	77.8%	22.2%	0%		-	16%	0%	84%	0%		-	-
Totals %	12.6%	50.9%	0%	0%		63.5%	0%	0%	0%	0%		0%	0%	16.8%	4.8%	0%		21.6%	2.4%	0%	12.6%	0%		15%	-
PHF	0.75	0.97	0	0		0.91	0	0	0	0		0	0	0.58	0.67	0		0.64	0.33	0	0.58	0		0.63	-
Heavy	8	7	0	0		15	0	0	0	0		0	0	5	0	0		5	0	0	5	0		5	-
Heavy %	38.1%	8.2%	0%	0%		14.2%	0%	0%	0%	0%		0%	0%	17.9%	0%	0%		13.9%	0%	0%	23.8%	0%		20%	-
Lights	13	78	0	0		91	0	0	0	0		0	0	23	8	0		31	4	0	16	0		20	-
Lights %	61.9%	91.8%	0%	0%		85.8%	0%	0%	0%	0%		0%	0%	82.1%	100%	0%		86.1%	100%	0%	76.2%	0%		80%	-
Single-Unit Trucks	4	4	0	0		8	0	0	0	0		0	0	2	0	0		2	0	0	1	0		1	-
Single-Unit Trucks %	19%	4.7%	0%	0%		7.5%	0%	0%	0%	0%		0%	0%	7.1%	0%	0%		5.6%	0%	0%	4.8%	0%		4%	-
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Articulated Trucks	4	3	0	0		7	0	0	0	0		0	0	3	0	0		3	0	0	4	0		4	-
Articulated Trucks %	19%	3.5%	0%	0%		6.6%	0%	0%	0%	0%		0%	0%	10.7%	0%	0%		8.3%	0%	0%	19%	0%		16%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

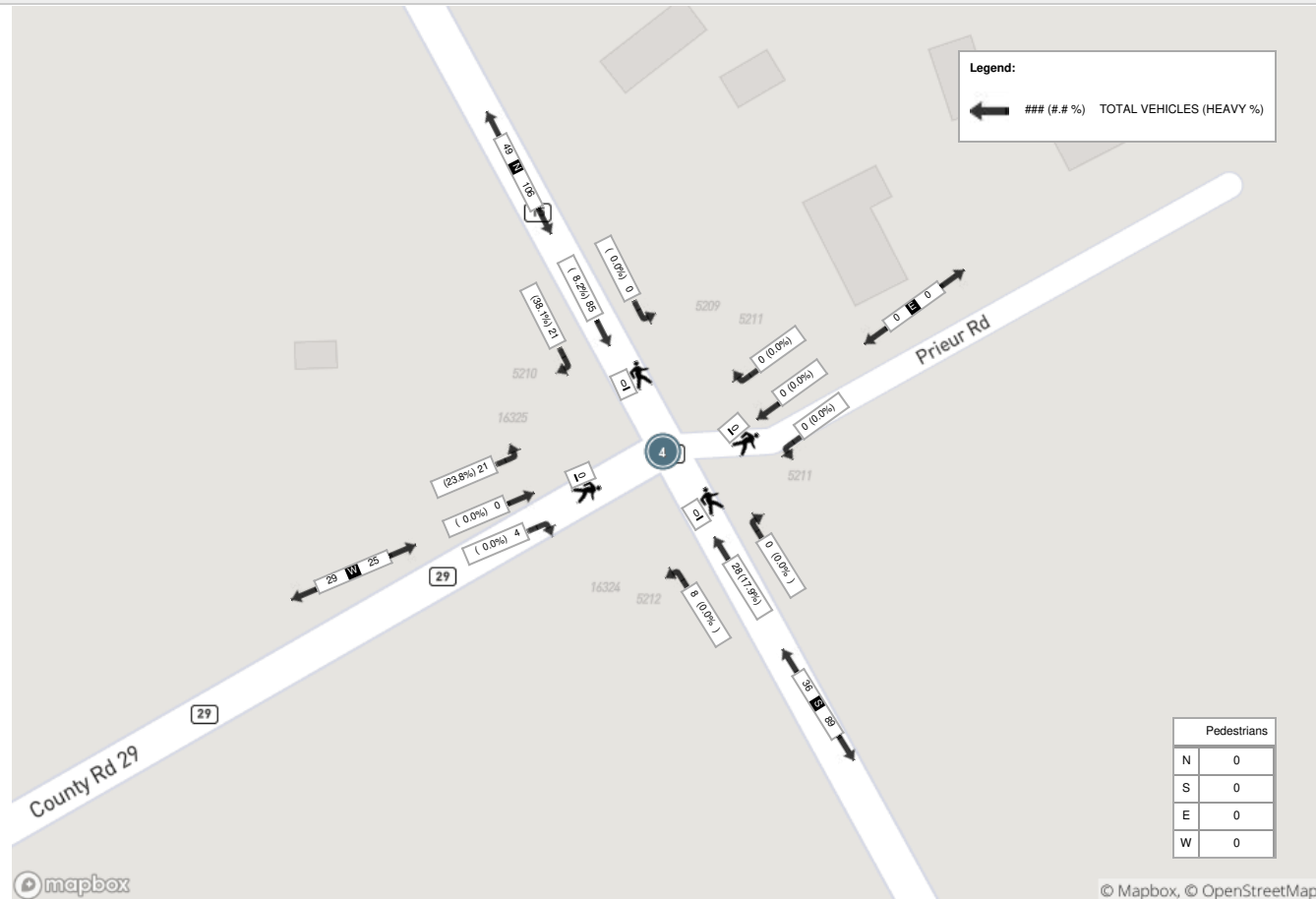


Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (15.37 °C)

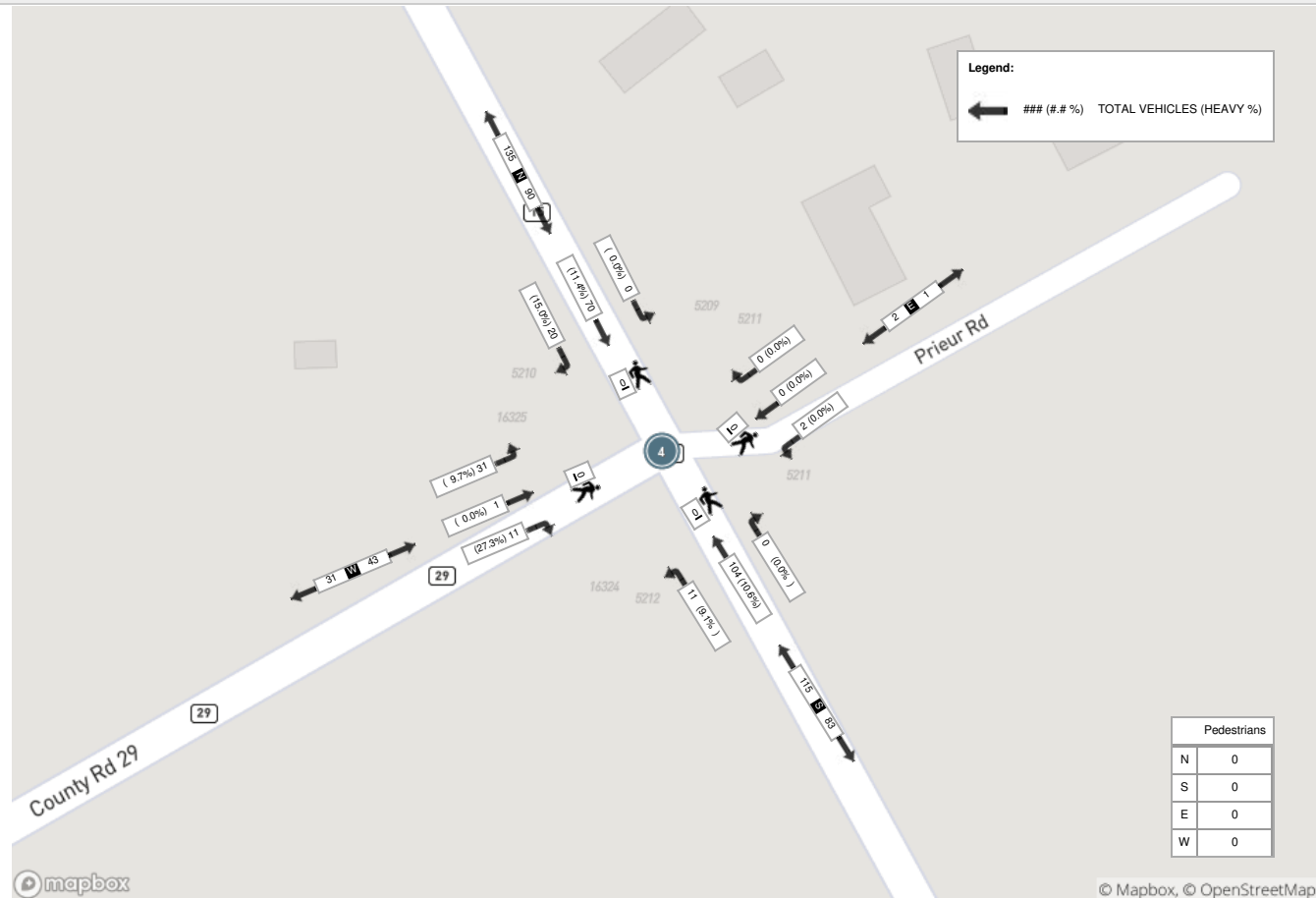
Start Time	N Approach COUNTY RD 15 (AVONMORE RD)						E Approach PRIEUR RD						S Approach COUNTY RD 15 (AVONMORE RD)						W Approach COUNTY RD 29						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	2	20	0	0	0	22	0	0	1	0	0	1	0	18	3	0	0	21	3	0	6	0	0	9	53
16:30:00	6	20	0	0	0	26	0	0	0	0	0	0	0	22	1	1	0	24	2	0	7	0	0	9	59
16:45:00	7	16	0	0	0	23	0	0	1	0	0	1	0	28	1	0	0	29	4	0	5	0	0	9	62
17:00:00	5	14	0	0	0	19	0	0	0	0	0	0	0	36	6	0	0	42	2	1	13	0	0	16	77
Grand Total	20	70	0	0	0	90	0	0	2	0	0	2	0	104	11	1	0	116	11	1	31	0	0	43	251
Approach%	22.2%	77.8%	0%	0%		-	0%	0%	100%	0%		-	0%	89.7%	9.5%	0.9%		-	25.6%	2.3%	72.1%	0%		-	-
Totals %	8%	27.9%	0%	0%		35.9%	0%	0%	0.8%	0%		0.8%	0%	41.4%	4.4%	0.4%		46.2%	4.4%	0.4%	12.4%	0%		17.1%	-
PHF	0.71	0.88	0	0		0.87	0	0	0.5	0		0.5	0	0.72	0.46	0.25		0.69	0.69	0.25	0.6	0		0.67	-
Heavy	3	8	0	0		11	0	0	0	0		0	0	11	1	0		12	3	0	3	0		6	-
Heavy %	15%	11.4%	0%	0%		12.2%	0%	0%	0%	0%		0%	0%	10.6%	9.1%	0%		10.3%	27.3%	0%	9.7%	0%		14%	-
Lights	17	61	0	0		78	0	0	2	0		2	0	93	10	1		104	8	1	28	0		37	-
Lights %	85%	87.1%	0%	0%		86.7%	0%	0%	100%	0%		100%	0%	89.4%	90.9%	100%		89.7%	72.7%	100%	90.3%	0%		86%	-
Single-Unit Trucks	0	7	0	0		7	0	0	0	0		0	0	9	1	0		10	2	0	2	0		4	-
Single-Unit Trucks %	0%	10%	0%	0%		7.8%	0%	0%	0%	0%		0%	0%	8.7%	9.1%	0%		8.6%	18.2%	0%	6.5%	0%		9.3%	-
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Articulated Trucks	3	1	0	0		4	0	0	0	0		0	0	2	0	0		2	1	0	1	0		2	-
Articulated Trucks %	15%	1.4%	0%	0%		4.4%	0%	0%	0%	0%		0%	0%	1.9%	0%	0%		1.7%	9.1%	0%	3.2%	0%		4.7%	-
Bicycles on Road	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0%	1.4%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



Peak Hour: 07:30 AM - 08:30 AM Weather: Overcast Clouds (13.63 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (15.37 °C)





Turning Movement Count (1 . COUNTY RD 35 & COUNTY RD 29)

Start Time	N Approach COUNTY RD 35						E Approach COUNTY RD 29						S Approach COUNTY RD 35						W Approach COUNTY RD 29						Int. Total (15 min)	Int. Total (1 hr)	
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total			
06:00:00	0	1	0	0	0	1	0	0	5	0	0	5	4	0	0	0	0	4	0	0	0	0	0	0	10		
06:15:00	0	4	0	0	0	4	1	0	6	0	0	7	7	1	2	0	0	10	2	0	0	0	0	2	23		
06:30:00	0	7	1	0	0	8	0	2	6	0	0	8	4	3	1	0	0	8	0	0	0	0	0	0	24		
06:45:00	0	8	0	0	0	8	0	0	7	0	0	7	9	1	2	0	0	12	0	0	0	0	0	0	27	84	
07:00:00	0	3	0	0	0	3	0	0	7	0	0	7	9	4	0	0	0	13	3	0	0	0	0	3	26	100	
07:15:00	0	4	2	0	0	6	1	0	3	0	0	4	10	4	0	0	0	14	2	0	0	0	0	2	26	103	
07:30:00	0	7	0	0	0	7	0	0	8	0	0	8	7	0	0	0	0	7	0	0	0	0	0	0	22	101	
07:45:00	0	3	0	0	0	3	0	0	8	0	0	8	8	4	1	0	0	13	0	0	0	0	0	0	24	98	
08:00:00	0	5	0	0	0	5	0	0	5	0	0	5	3	2	0	1	0	6	0	0	0	0	0	0	16	88	
08:15:00	0	2	0	0	0	2	1	0	7	1	0	9	3	1	0	1	0	5	0	0	0	0	0	0	16	78	
08:30:00	0	4	0	0	0	4	0	0	2	0	0	2	8	2	0	0	0	10	0	0	0	0	0	0	16	72	
08:45:00	0	4	0	0	0	4	0	0	4	0	0	4	1	6	1	0	0	8	0	0	0	0	0	0	16	64	
09:00:00	0	5	1	0	0	6	0	0	7	0	0	7	4	3	1	0	0	8	0	0	0	0	0	0	21	69	
09:15:00	0	2	1	0	0	3	0	0	7	0	0	7	2	3	1	0	0	6	0	0	0	0	0	0	16	69	
09:30:00	0	2	1	0	0	3	0	0	4	0	0	4	7	2	0	0	0	9	0	1	0	0	0	1	17	70	
09:45:00	0	1	0	0	0	1	0	0	5	0	0	5	5	2	0	0	0	7	0	0	0	0	0	0	13	67	
***BREAK***																											
15:00:00	0	0	0	0	0	0	2	0	6	0	0	8	4	6	1	0	0	11	2	0	0	0	0	2	21		
15:15:00	0	1	1	0	0	2	0	0	7	0	0	7	15	7	1	0	0	23	0	0	0	0	0	0	32		
15:30:00	0	1	1	0	0	2	0	0	6	0	0	6	7	6	0	0	0	13	0	0	0	0	0	0	21		
15:45:00	0	3	0	0	0	3	0	0	4	0	0	4	11	4	0	0	0	15	3	0	0	0	0	3	25	99	
16:00:00	0	2	0	0	0	2	0	0	6	0	0	6	8	4	0	0	0	12	2	0	0	0	0	2	22	100	
16:15:00	0	0	0	0	0	0	0	0	6	0	0	6	6	8	2	0	0	16	0	1	1	0	0	2	24	92	
16:30:00	0	1	1	0	0	2	1	0	5	0	1	6	9	7	0	0	0	16	2	0	0	0	1	2	26	97	
16:45:00	0	4	0	0	0	4	2	0	8	0	0	10	6	11	0	0	0	17	0	0	0	0	0	0	31	103	
17:00:00	0	5	2	0	0	7	1	0	11	0	0	12	14	12	0	1	0	27	0	0	0	0	0	0	46	127	
17:15:00	0	2	1	0	0	3	2	0	4	0	0	6	9	2	0	1	0	12	2	0	0	0	0	2	23	126	
17:30:00	0	5	0	0	0	5	0	0	6	0	0	6	13	4	0	0	0	17	0	0	0	0	0	0	28	128	
17:45:00	0	4	1	0	0	5	0	0	8	0	0	8	9	6	0	0	0	15	0	0	0	0	0	0	28	125	
18:00:00	0	4	1	0	0	5	0	0	2	0	0	2	5	3	0	0	0	8	0	0	0	0	0	0	15	94	
18:15:00	0	5	0	0	0	5	0	0	6	0	0	6	6	2	0	0	0	8	0	0	0	0	0	0	19	90	
18:30:00	0	2	0	0	0	2	0	0	3	0	0	3	5	2	0	1	0	8	0	0	0	0	0	0	13	75	
18:45:00	0	2	0	0	0	2	1	0	1	0	0	2	6	1	0	0	0	7	0	0	0	0	0	0	11	58	
Grand Total	0	103	14	0	0	117	12	2	180	1	1	195	224	123	13	5	0	365	18	2	1	0	1	21	698	-	
Approach%	0%	88%	12%	0%		-	6.2%	1%	92.3%	0.5%		-	61.4%	33.7%	3.6%	1.4%		-	85.7%	9.5%	4.8%	0%		-	-	-	
Totals %	0%	14.8%	2%	0%		16.8%	1.7%	0.3%	25.8%	0.1%		27.9%	32.1%	17.6%	1.9%	0.7%		52.3%	2.6%	0.3%	0.1%	0%		3%	-	-	
Heavy	0	0	1	0		-	0	0	28	0		-	36	0	3	1		-	1	1	0	0		-	-	-	
Heavy %	0%	0%	7.1%	0%		-	0%	0%	15.6%	0%		-	16.1%	0%	23.1%	20%		-	5.6%	50%	0%	0%		-	-	-	
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	



Peak Hour: 06:30 AM - 07:30 AM Weather: Overcast Clouds (13.63 °C)

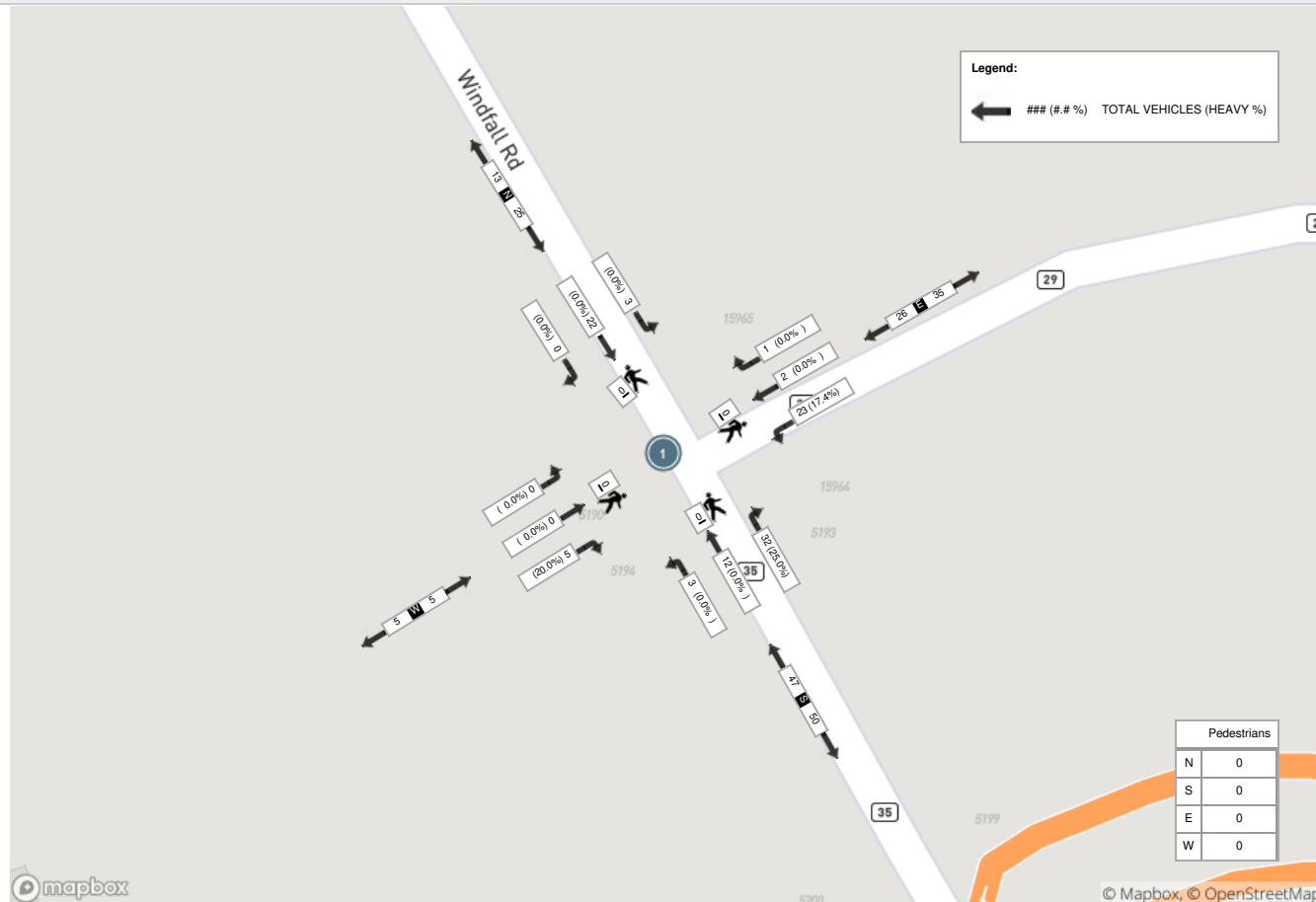
Start Time	N Approach COUNTY RD 35						E Approach COUNTY RD 29						S Approach COUNTY RD 35						W Approach COUNTY RD 29						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
06:30:00	0	7	1	0	0	8	0	2	6	0	0	8	4	3	1	0	0	8	0	0	0	0	0	0	24
06:45:00	0	8	0	0	0	8	0	0	7	0	0	7	9	1	2	0	0	12	0	0	0	0	0	0	27
07:00:00	0	3	0	0	0	3	0	0	7	0	0	7	9	4	0	0	0	13	3	0	0	0	0	3	26
07:15:00	0	4	2	0	0	6	1	0	3	0	0	4	10	4	0	0	0	14	2	0	0	0	0	2	26
Grand Total	0	22	3	0	0	25	1	2	23	0	0	26	32	12	3	0	0	47	5	0	0	0	0	5	103
Approach%	0%	88%	12%	0%		-	3.8%	7.7%	88.5%	0%		-	68.1%	25.5%	6.4%	0%		-	100%	0%	0%	0%		-	-
Totals %	0%	21.4%	2.9%	0%		24.3%	1%	1.9%	22.3%	0%		25.2%	31.1%	11.7%	2.9%	0%		45.6%	4.9%	0%	0%	0%		4.9%	-
PHF	0	0.69	0.38	0		0.78	0.25	0.25	0.82	0		0.81	0.8	0.75	0.38	0		0.84	0.42	0	0	0		0.42	-
Heavy	0	0	0	0		0	0	0	4	0		4	8	0	0	0		8	1	0	0	0		1	-
Heavy %	0%	0%	0%	0%		0%	0%	0%	17.4%	0%		15.4%	25%	0%	0%	0%		17%	20%	0%	0%	0%		20%	-
Lights	0	22	3	0		25	1	2	19	0		22	23	12	3	0		38	4	0	0	0		4	-
Lights %	0%	100%	100%	0%		100%	100%	100%	82.6%	0%		84.6%	71.9%	100%	100%	0%		80.9%	80%	0%	0%	0%		80%	-
Single-Unit Trucks	0	0	0	0		0	0	0	4	0		4	0	0	0	0		0	0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	17.4%	0%		15.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Articulated Trucks	0	0	0	0		0	0	0	0	0		0	8	0	0	0		8	1	0	0	0		1	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	25%	0%	0%	0%		17%	20%	0%	0%	0%		20%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	1	0	0	0		1	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	3.1%	0%	0%	0%		2.1%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



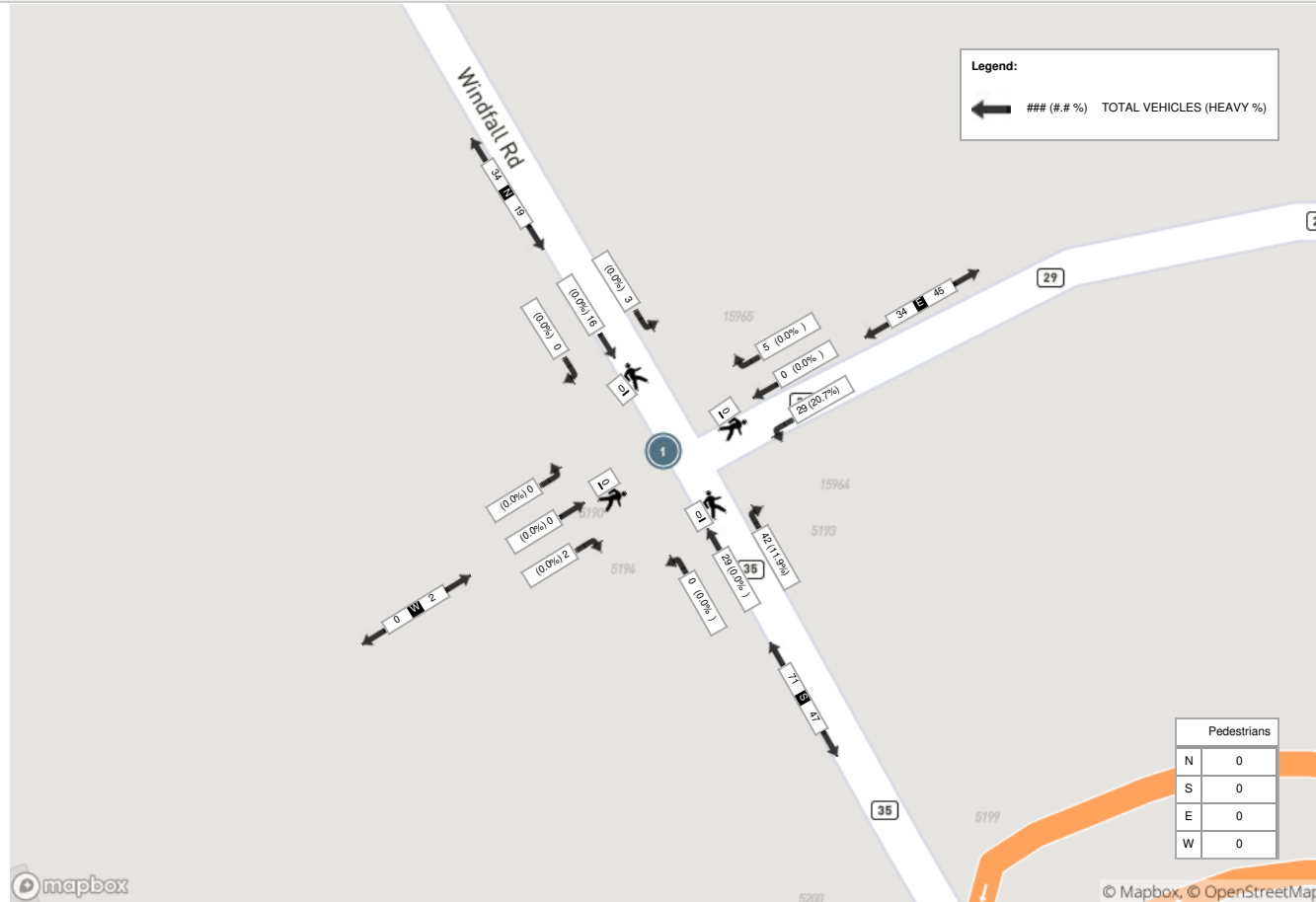
Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast Clouds (15.37 °C)

Start Time	N Approach COUNTY RD 35						E Approach COUNTY RD 29						S Approach COUNTY RD 35						W Approach COUNTY RD 29						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:45:00	0	4	0	0	0	4	2	0	8	0	0	10	6	11	0	0	0	17	0	0	0	0	0	0	31
17:00:00	0	5	2	0	0	7	1	0	11	0	0	12	14	12	0	1	0	27	0	0	0	0	0	0	46
17:15:00	0	2	1	0	0	3	2	0	4	0	0	6	9	2	0	1	0	12	2	0	0	0	0	2	23
17:30:00	0	5	0	0	0	5	0	0	6	0	0	6	13	4	0	0	0	17	0	0	0	0	0	0	28
Grand Total	0	16	3	0	0	19	5	0	29	0	0	34	42	29	0	2	0	73	2	0	0	0	0	2	128
Approach%	0%	84.2%	15.8%	0%		-	14.7%	0%	85.3%	0%		-	57.5%	39.7%	0%	2.7%		-	100%	0%	0%	0%		-	-
Totals %	0%	12.5%	2.3%	0%		14.8%	3.9%	0%	22.7%	0%		26.6%	32.8%	22.7%	0%	1.6%		57%	1.6%	0%	0%	0%		1.6%	-
PHF	0	0.8	0.38	0		0.68	0.63	0	0.66	0		0.71	0.75	0.6	0	0.5		0.68	0.25	0	0	0		0.25	-
Heavy	0	0	0	0		0	0	0	6	0		6	5	0	0	0		5	0	0	0	0		0	-
Heavy %	0%	0%	0%	0%		0%	0%	0%	20.7%	0%		17.6%	11.9%	0%	0%	0%		6.8%	0%	0%	0%	0%		0%	-
Lights	0	16	3	0		19	5	0	23	0		28	37	29	0	2		68	2	0	0	0		2	-
Lights %	0%	100%	100%	0%		100%	100%	0%	79.3%	0%		82.4%	88.1%	100%	0%	100%		93.2%	100%	0%	0%	0%		100%	-
Single-Unit Trucks	0	0	0	0		0	0	0	1	0		1	3	0	0	0		3	0	0	0	0		0	-
Single-Unit Trucks %	0%	0%	0%	0%		0%	0%	0%	3.4%	0%		2.9%	7.1%	0%	0%	0%		4.1%	0%	0%	0%	0%		0%	-
Buses	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Buses %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Articulated Trucks	0	0	0	0		0	0	0	5	0		5	2	0	0	0		2	0	0	0	0		0	-
Articulated Trucks %	0%	0%	0%	0%		0%	0%	0%	17.2%	0%		14.7%	4.8%	0%	0%	0%		2.7%	0%	0%	0%	0%		0%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

Peak Hour: 06:30 AM - 07:30 AM Weather: Overcast Clouds (13.63 °C)



Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast Clouds (15.37 °C)





Turning Movement Count (3 . COUNTY RD 35 & HWY 401 EB RAMP TERMINAL)

Start Time	N Approach COUNTY RD 35					S Approach COUNTY RD 35					W Approach HWY 401 EB RAMP TERMINAL					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	7	5	0	0	12	5	2	0	0	7	1	3	0	0	4	23	
06:15:00	11	19	0	0	30	10	10	0	0	20	5	4	0	0	9	59	
06:30:00	7	18	0	0	25	10	10	0	0	20	7	0	1	0	8	53	
06:45:00	7	17	0	0	24	8	10	0	0	18	2	4	0	0	6	48	183
07:00:00	1	20	0	0	21	13	4	0	0	17	3	3	0	0	6	44	204
07:15:00	7	15	0	0	22	16	5	0	0	21	5	5	0	0	10	53	198
07:30:00	7	19	0	0	26	8	10	0	0	18	4	2	0	0	6	50	195
07:45:00	5	15	0	0	20	17	9	0	0	26	2	1	0	0	3	49	196
08:00:00	12	14	0	0	26	12	11	0	0	23	2	0	0	0	2	51	203
08:15:00	5	9	0	0	14	6	5	0	0	11	2	1	0	0	3	28	178
08:30:00	3	8	0	0	11	11	6	0	0	17	2	4	0	0	6	34	162
08:45:00	3	11	0	0	14	8	7	0	0	15	6	3	0	0	9	38	151
09:00:00	10	13	0	0	23	12	9	0	0	21	4	0	0	0	4	48	148
09:15:00	4	16	0	0	20	5	3	0	0	8	2	4	0	0	6	34	154
09:30:00	4	12	0	0	16	12	7	0	0	19	1	3	1	0	5	40	160
09:45:00	5	12	0	0	17	6	1	0	0	7	2	3	0	0	5	29	151
***BREAK***																	
15:00:00	3	18	0	0	21	12	1	0	0	13	7	6	0	0	13	47	
15:15:00	3	15	0	0	18	18	5	0	0	23	4	3	1	0	8	49	
15:30:00	4	15	0	0	19	16	7	0	0	23	2	3	0	0	5	47	
15:45:00	4	28	0	0	32	11	3	0	0	14	3	6	0	0	9	55	198
16:00:00	4	19	0	0	23	17	11	0	0	28	2	2	0	0	4	55	206
16:15:00	5	15	0	0	20	20	11	0	0	31	5	7	0	0	12	63	220
16:30:00	5	16	0	0	21	15	6	0	0	21	3	2	0	0	5	47	220
16:45:00	4	27	0	0	31	16	5	0	0	21	4	2	0	0	6	58	223
17:00:00	4	21	0	0	25	28	2	0	0	30	2	8	0	0	10	65	233
17:15:00	6	19	0	0	25	9	11	0	0	20	7	4	0	0	11	56	226
17:30:00	7	16	0	0	23	22	11	0	0	33	5	1	0	0	6	62	241
17:45:00	5	24	0	0	29	7	5	0	0	12	4	6	0	0	10	51	234
18:00:00	2	14	0	0	16	10	2	0	0	12	1	1	0	0	2	30	199
18:15:00	7	17	0	0	24	9	8	0	0	17	5	2	0	0	7	48	191
18:30:00	2	11	0	0	13	7	5	0	0	12	2	3	0	0	5	30	159
18:45:00	1	7	0	0	8	8	2	0	0	10	7	1	0	0	8	26	134





Grand Total	164	505	0	0	669	384	204	0	0	588	113	97	3	0	213	1470	-
Approach%	24.5%	75.5%	0%		-	65.3%	34.7%	0%		-	53.1%	45.5%	1.4%		-	-	-
Totals %	11.2%	34.4%	0%		45.5%	26.1%	13.9%	0%		40%	7.7%	6.6%	0.2%		14.5%	-	-
Heavy	8	13	0		-	10	8	0		-	9	37	1		-	-	-
Heavy %	4.9%	2.6%	0%		-	2.6%	3.9%	0%		-	8%	38.1%	33.3%		-	-	-
Bicycles	-	-	-		-	-	-	-		-	-	-	-		-	-	-
Bicycle %	-	-	-		-	-	-	-		-	-	-	-		-	-	-



Peak Hour: 06:15 AM - 07:15 AM Weather: Overcast Clouds (13.63 °C)

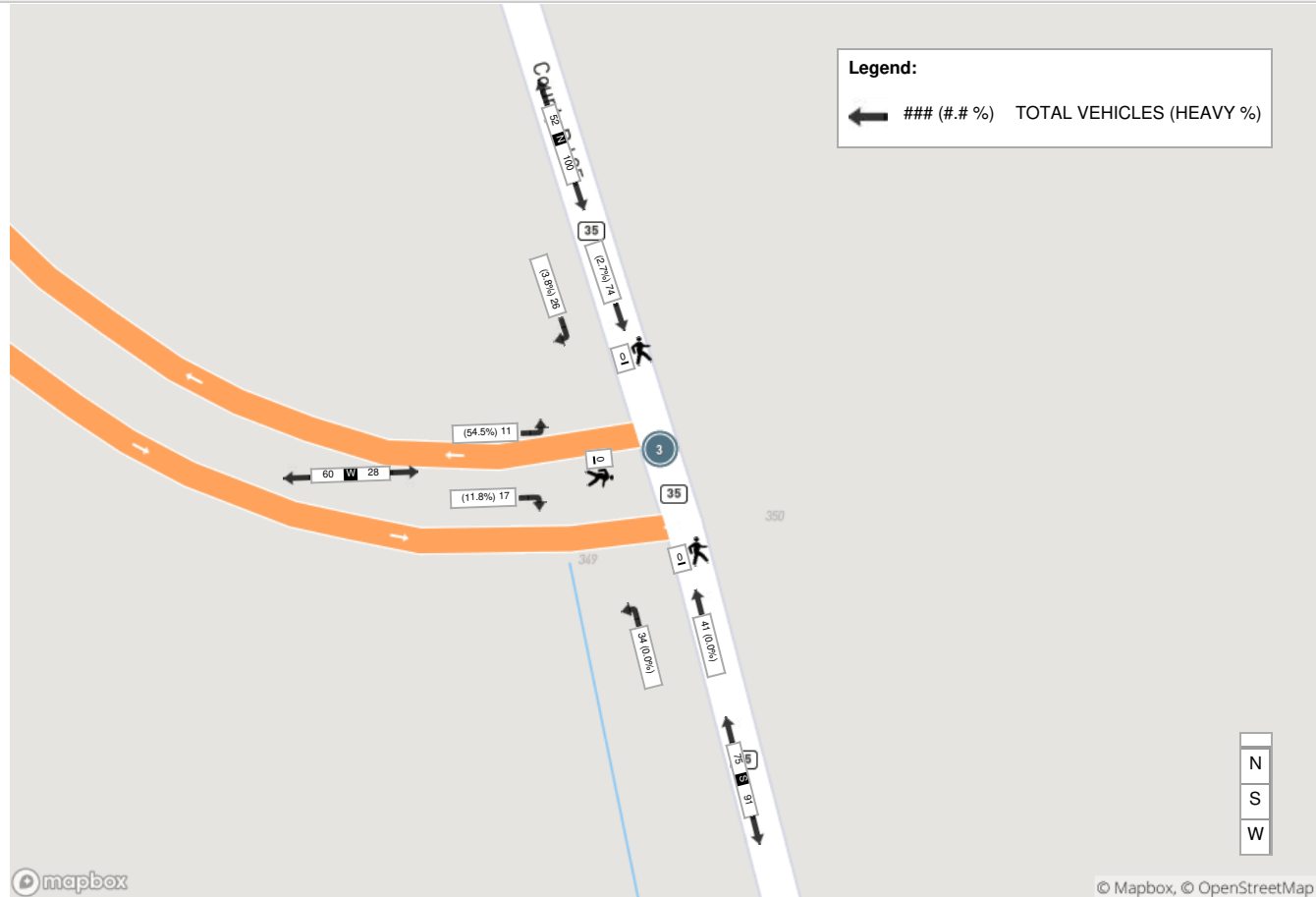
Start Time	N Approach COUNTY RD 35					S Approach COUNTY RD 35					W Approach HWY 401 EB RAMP TERMINAL					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
06:15:00	11	19	0	0	30	10	10	0	0	20	5	4	0	0	9	59
06:30:00	7	18	0	0	25	10	10	0	0	20	7	0	1	0	8	53
06:45:00	7	17	0	0	24	8	10	0	0	18	2	4	0	0	6	48
07:00:00	1	20	0	0	21	13	4	0	0	17	3	3	0	0	6	44
Grand Total	26	74	0	0	100	41	34	0	0	75	17	11	1	0	29	204
Approach%	26%	74%	0%		-	54.7%	45.3%	0%		-	58.6%	37.9%	3.4%		-	-
Totals %	12.7%	36.3%	0%		49%	20.1%	16.7%	0%		36.8%	8.3%	5.4%	0.5%		14.2%	-
PHF	0.59	0.93	0		0.83	0.79	0.85	0		0.94	0.61	0.69	0.25		0.81	-
Heavy	1	2	0		3	0	0	0		0	2	6	1		9	-
Heavy %	3.8%	2.7%	0%		3%	0%	0%	0%		0%	11.8%	54.5%	100%		31%	-
Lights	25	72	0		97	40	34	0		74	15	5	0		20	-
Lights %	96.2%	97.3%	0%		97%	97.6%	100%	0%		98.7%	88.2%	45.5%	0%		69%	-
Single-Unit Trucks	1	2	0		3	0	0	0		0	1	0	0		1	-
Single-Unit Trucks %	3.8%	2.7%	0%		3%	0%	0%	0%		0%	5.9%	0%	0%		3.4%	-
Articulated Trucks	0	0	0		0	0	0	0		0	1	6	1		8	-
Articulated Trucks %	0%	0%	0%		0%	0%	0%	0%		0%	5.9%	54.5%	100%		27.6%	-
Bicycles on Road	0	0	0		0	1	0	0		1	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	2.4%	0%	0%		1.3%	0%	0%	0%		0%	-



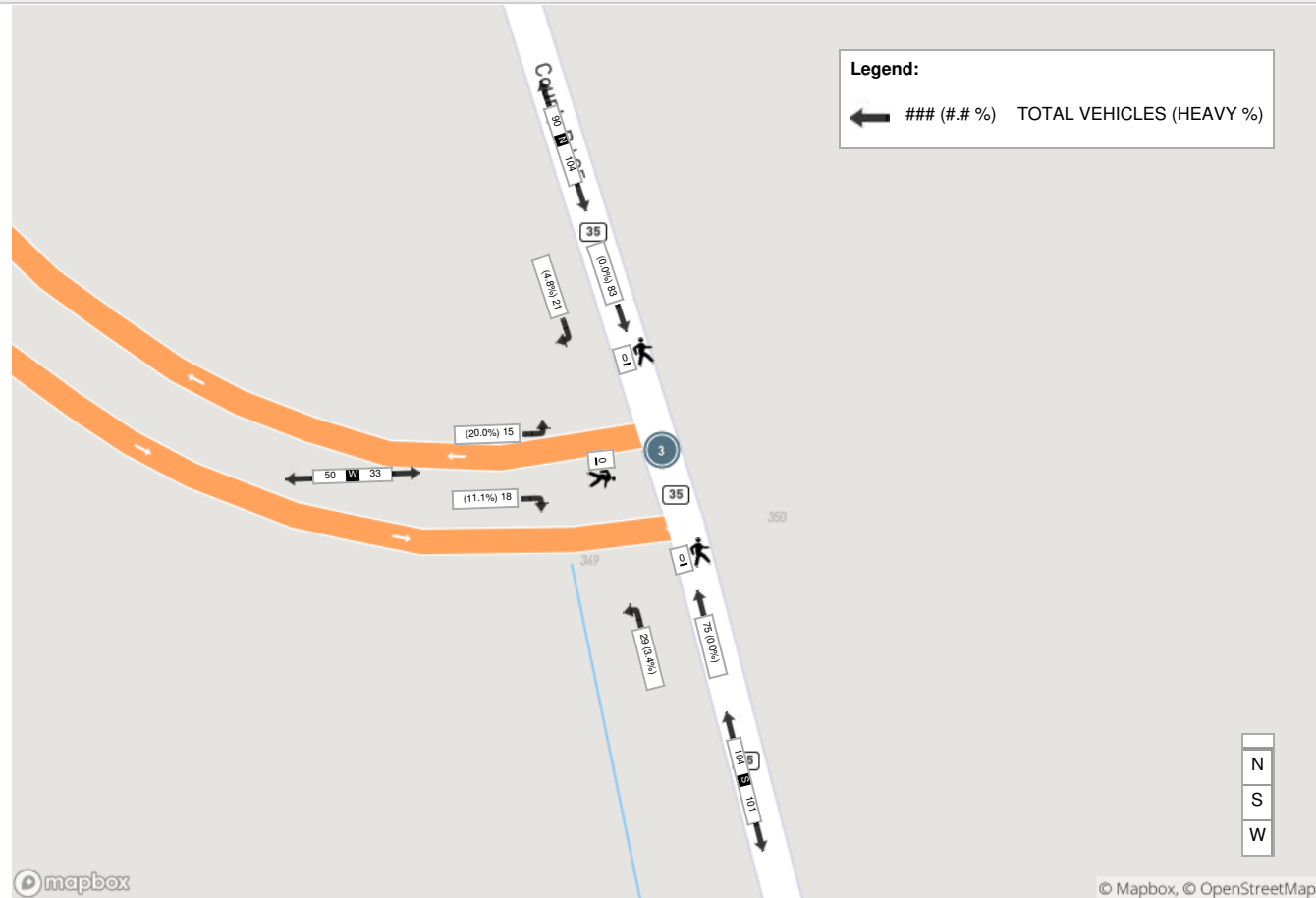
Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast Clouds (15.37 °C)

Start Time	N Approach COUNTY RD 35					S Approach COUNTY RD 35					W Approach HWY 401 EB RAMP TERMINAL					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
16:45:00	4	27	0	0	31	16	5	0	0	21	4	2	0	0	6	58
17:00:00	4	21	0	0	25	28	2	0	0	30	2	8	0	0	10	65
17:15:00	6	19	0	0	25	9	11	0	0	20	7	4	0	0	11	56
17:30:00	7	16	0	0	23	22	11	0	0	33	5	1	0	0	6	62
Grand Total	21	83	0	0	104	75	29	0	0	104	18	15	0	0	33	241
Approach%	20.2%	79.8%	0%		-	72.1%	27.9%	0%		-	54.5%	45.5%	0%		-	-
Totals %	8.7%	34.4%	0%		43.2%	31.1%	12%	0%		43.2%	7.5%	6.2%	0%		13.7%	-
PHF	0.75	0.77	0		0.84	0.67	0.66	0		0.79	0.64	0.47	0		0.75	-
Heavy	1	0	0		1	0	1	0		1	2	3	0		5	-
Heavy %	4.8%	0%	0%		1%	0%	3.4%	0%		1%	11.1%	20%	0%		15.2%	-
Lights	20	83	0		103	75	28	0		103	16	12	0		28	-
Lights %	95.2%	100%	0%		99%	100%	96.6%	0%		99%	88.9%	80%	0%		84.8%	-
Single-Unit Trucks	0	0	0		0	0	1	0		1	0	1	0		1	-
Single-Unit Trucks %	0%	0%	0%		0%	0%	3.4%	0%		1%	0%	6.7%	0%		3%	-
Articulated Trucks	1	0	0		1	0	0	0		0	2	2	0		4	-
Articulated Trucks %	4.8%	0%	0%		1%	0%	0%	0%		0%	11.1%	13.3%	0%		12.1%	-
Bicycles on Road	0	0	0		0	0	0	0		0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-

**Peak Hour: 06:15 AM - 07:15 AM Weather: Overcast Clouds (13.63 °C)**



**Peak Hour: 04:45 PM - 05:45 PM Weather: Overcast Clouds (15.37 °C)**





Turning Movement Count (2 . COUNTY RD 35 & HWY 401 WB RAMP TERMINAL)

Start Time	N Approach COUNTY RD 35						E Approach HWY 401 WB RAMP TERMINAL						S Approach COUNTY RD 35						W Approach COUNTY RD 29						Int. Total (15 min)	Int. Total (1 hr)	
	Right N-W	Thru N-S	Left N-E	UTurn N-N	Peds N:	Approach Total	Right E-N	Thru E-W	Left E-S	UTurn E-E	Peds E:	Approach Total	Right S-E	Thru S-N	Left S-W	UTurn S-S	Peds S:	Approach Total	Right W-S	Thru W-E	Left W-N	UTurn W-W	Peds W:	Approach Total			
06:00:00	0	2	4	0	0	6	0	1	1	0	0	2	4	4	0	0	0	8	10	0	0	0	0	10	26		
06:15:00	0	7	4	0	0	11	0	2	6	0	0	8	5	7	1	0	0	13	17	0	3	0	0	20	52		
06:30:00	0	11	2	0	0	13	1	3	7	0	0	11	2	7	0	0	0	9	7	0	1	0	0	8	41		
06:45:00	0	11	4	0	0	15	0	2	6	0	0	8	1	12	1	0	0	14	6	0	0	0	0	6	43	162	
07:00:00	1	8	4	0	0	13	2	7	8	0	0	17	2	11	3	0	0	16	5	0	0	0	0	5	51	187	
07:15:00	2	7	0	0	0	9	2	1	5	0	0	8	2	13	6	0	0	21	10	0	0	0	0	10	48	183	
07:30:00	4	7	4	0	0	15	0	3	8	0	0	11	3	6	1	0	0	10	11	0	1	0	0	12	48	190	
07:45:00	1	8	2	0	0	11	1	3	6	0	0	10	3	10	5	0	0	18	6	0	1	0	0	7	46	193	
08:00:00	1	9	1	0	0	11	1	5	4	0	0	10	3	5	4	0	0	12	14	0	1	0	0	15	48	190	
08:15:00	1	6	2	0	0	9	0	1	1	0	0	2	0	3	2	0	0	5	6	0	1	0	0	7	23	165	
08:30:00	0	5	1	0	0	6	0	2	2	0	0	4	6	9	2	0	0	17	4	0	1	0	2	5	32	149	
08:45:00	0	5	3	0	0	8	0	3	5	0	0	8	2	7	1	0	0	10	3	0	0	0	0	3	29	132	
09:00:00	0	5	6	0	0	11	1	3	10	0	0	14	1	8	3	0	0	12	11	0	0	0	0	11	48	132	
09:15:00	0	7	2	0	0	9	0	1	2	0	0	3	3	4	1	0	0	8	8	0	2	0	0	10	30	139	
09:30:00	0	7	0	0	0	7	0	3	5	0	0	8	3	9	4	0	0	16	5	0	0	0	0	5	36	143	
09:45:00	0	3	3	0	0	6	1	2	6	0	0	9	1	5	0	0	0	6	7	0	0	0	0	7	28	142	
***BREAK***																											
15:00:00	2	7	0	0	0	9	0	7	7	0	0	14	1	11	5	0	0	17	6	0	0	0	0	6	46		
15:15:00	2	4	2	0	0	8	4	6	9	1	0	20	2	18	3	0	0	23	5	0	1	0	0	6	57		
15:30:00	0	6	1	0	0	7	3	7	6	0	0	16	2	11	6	0	0	19	7	0	0	0	0	7	49		
15:45:00	2	8	0	0	0	10	0	4	19	0	0	23	2	14	1	0	0	17	7	0	1	0	0	8	58	210	
16:00:00	1	9	0	0	0	10	2	5	5	0	0	12	4	9	6	0	0	19	8	0	1	0	0	9	50	214	
16:15:00	1	4	1	0	0	6	2	13	9	0	0	24	4	13	7	0	0	24	7	0	1	0	0	8	62	219	
16:30:00	1	5	2	0	1	8	3	5	9	0	0	17	2	12	4	0	0	18	6	0	1	0	0	7	50	220	
16:45:00	0	9	3	0	0	12	5	5	13	0	0	23	2	11	5	0	0	18	9	1	1	0	0	11	64	226	
17:00:00	2	9	5	0	0	16	7	6	10	0	0	23	3	20	13	0	0	36	6	0	0	0	0	6	81	257	
17:15:00	0	4	2	0	0	6	3	6	14	0	0	23	0	8	4	0	0	12	8	0	1	0	0	9	50	245	
17:30:00	0	9	4	0	0	13	2	4	6	0	0	12	4	14	5	0	0	23	8	0	0	0	0	8	56	251	
17:45:00	3	9	0	0	0	12	4	9	7	0	0	20	1	12	3	0	0	16	13	0	0	0	0	13	61	248	
18:00:00	1	5	0	0	0	6	0	4	5	0	0	9	0	8	3	0	0	11	4	0	0	0	0	4	30	197	
18:15:00	1	7	3	0	0	11	1	6	8	0	0	15	1	6	4	0	0	11	10	0	0	0	0	10	47	194	
18:30:00	0	4	2	0	0	6	3	5	3	0	0	11	2	6	2	0	0	10	6	0	0	0	0	6	33	171	
18:45:00	0	2	1	0	0	3	0	3	2	0	0	5	2	7	0	0	0	9	4	0	0	0	0	4	21	131	
Grand Total	26	209	68	0	1	303	48	137	214	1	0	400	73	300	105	0	0	478	244	1	18	0	2	263	1444	-	
Approach%	8.6%	69%	22.4%	0%		-	12%	34.3%	53.5%	0.3%		-	15.3%	62.8%	22%	0%		-	92.8%	0.4%	6.8%	0%		-	-	-	
Totals %	1.8%	14.5%	4.7%	0%		21%	3.3%	9.5%	14.8%	0.1%		27.7%	5.1%	20.8%	7.3%	0%		33.1%	16.9%	0.1%	1.2%	0%		18.2%	-	-	
Heavy	3	2	26	0		-	1	9	11	0		-	5	34	3	0		-	7	0	5	0		-	-	-	
Heavy %	11.5%	1%	38.2%	0%		-	2.1%	6.6%	5.1%	0%		-	6.8%	11.3%	2.9%	0%		-	2.9%	0%	27.8%	0%		-	-	-	
Bicycles	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	
Bicycle %	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	-	-		-	-	-	



Peak Hour: 07:00 AM - 08:00 AM Weather: Overcast Clouds (13.63 °C)

Start Time	N Approach COUNTY RD 35						E Approach HWY 401 WB RAMP TERMINAL						S Approach COUNTY RD 35						W Approach COUNTY RD 29						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
07:00:00	1	8	4	0	0	13	2	7	8	0	0	17	2	11	3	0	0	16	5	0	0	0	0	5	51
07:15:00	2	7	0	0	0	9	2	1	5	0	0	8	2	13	6	0	0	21	10	0	0	0	0	10	48
07:30:00	4	7	4	0	0	15	0	3	8	0	0	11	3	6	1	0	0	10	11	0	1	0	0	12	48
07:45:00	1	8	2	0	0	11	1	3	6	0	0	10	3	10	5	0	0	18	6	0	1	0	0	7	46
Grand Total	8	30	10	0	0	48	5	14	27	0	0	46	10	40	15	0	0	65	32	0	2	0	0	34	193
Approach%	16.7%	62.5%	20.8%	0%		-	10.9%	30.4%	58.7%	0%		-	15.4%	61.5%	23.1%	0%		-	94.1%	0%	5.9%	0%		-	-
Totals %	4.1%	15.5%	5.2%	0%		24.9%	2.6%	7.3%	14%	0%		23.8%	5.2%	20.7%	7.8%	0%		33.7%	16.6%	0%	1%	0%		17.6%	-
PHF	0.5	0.94	0.63	0		0.8	0.63	0.5	0.84	0		0.68	0.83	0.77	0.63	0		0.77	0.73	0	0.5	0		0.71	-
Heavy	2	1	7	0		10	0	2	3	0		5	0	8	0	0		8	0	0	0	0		0	-
Heavy %	25%	3.3%	70%	0%		20.8%	0%	14.3%	11.1%	0%		10.9%	0%	20%	0%	0%		12.3%	0%	0%	0%	0%		0%	-
Lights	6	29	3	0		38	5	12	24	0		41	10	32	15	0		57	32	0	2	0		34	-
Lights %	75%	96.7%	30%	0%		79.2%	100%	85.7%	88.9%	0%		89.1%	100%	80%	100%	0%		87.7%	100%	0%	100%	0%		100%	-
Single-Unit Trucks	1	1	4	0		6	0	1	3	0		4	0	1	0	0		1	0	0	0	0		0	-
Single-Unit Trucks %	12.5%	3.3%	40%	0%		12.5%	0%	7.1%	11.1%	0%		8.7%	0%	2.5%	0%	0%		1.5%	0%	0%	0%	0%		0%	-
Articulated Trucks	1	0	3	0		4	0	1	0	0		1	0	7	0	0		7	0	0	0	0		0	-
Articulated Trucks %	12.5%	0%	30%	0%		8.3%	0%	7.1%	0%	0%		2.2%	0%	17.5%	0%	0%		10.8%	0%	0%	0%	0%		0%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

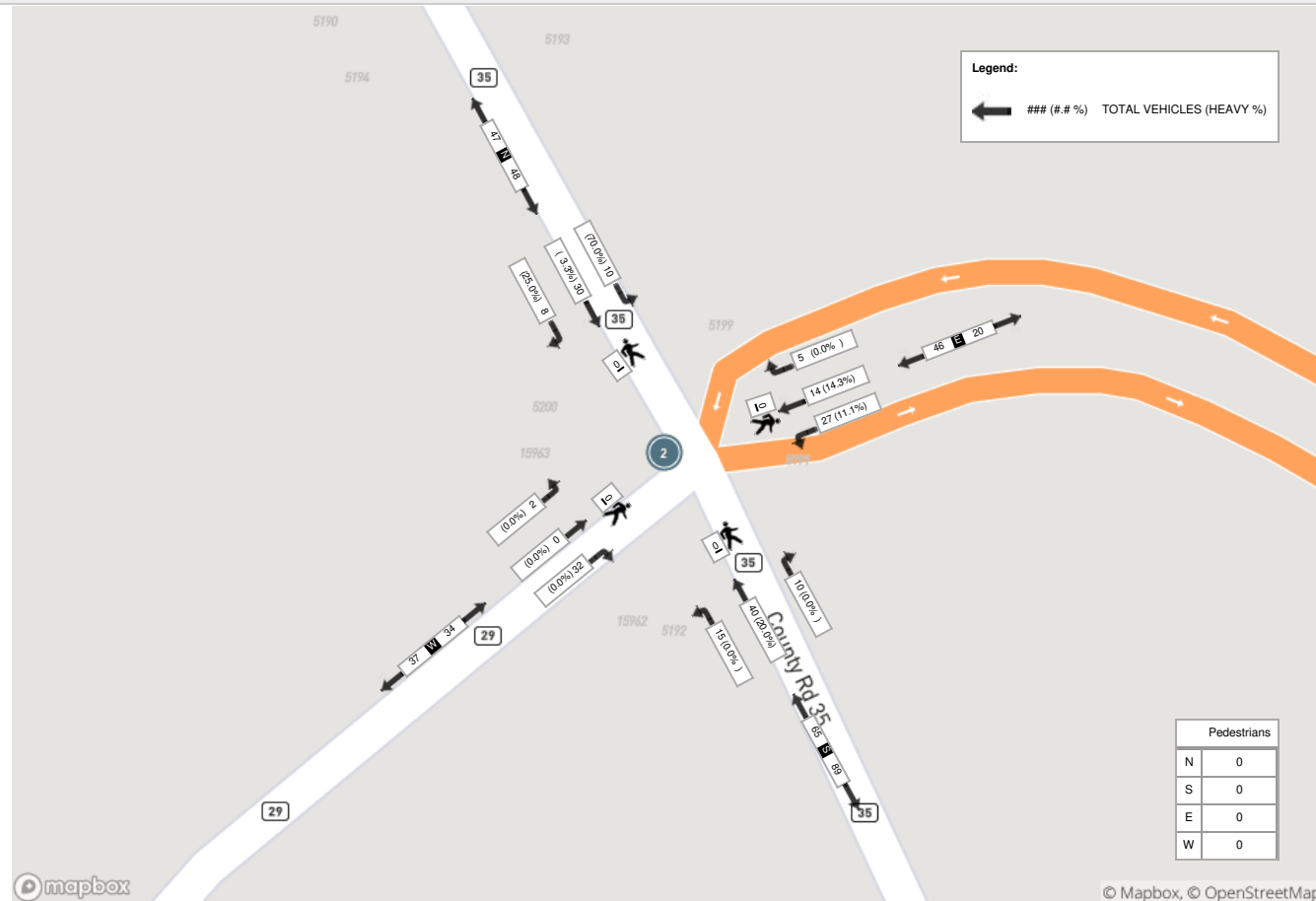


Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (15.37 °C)

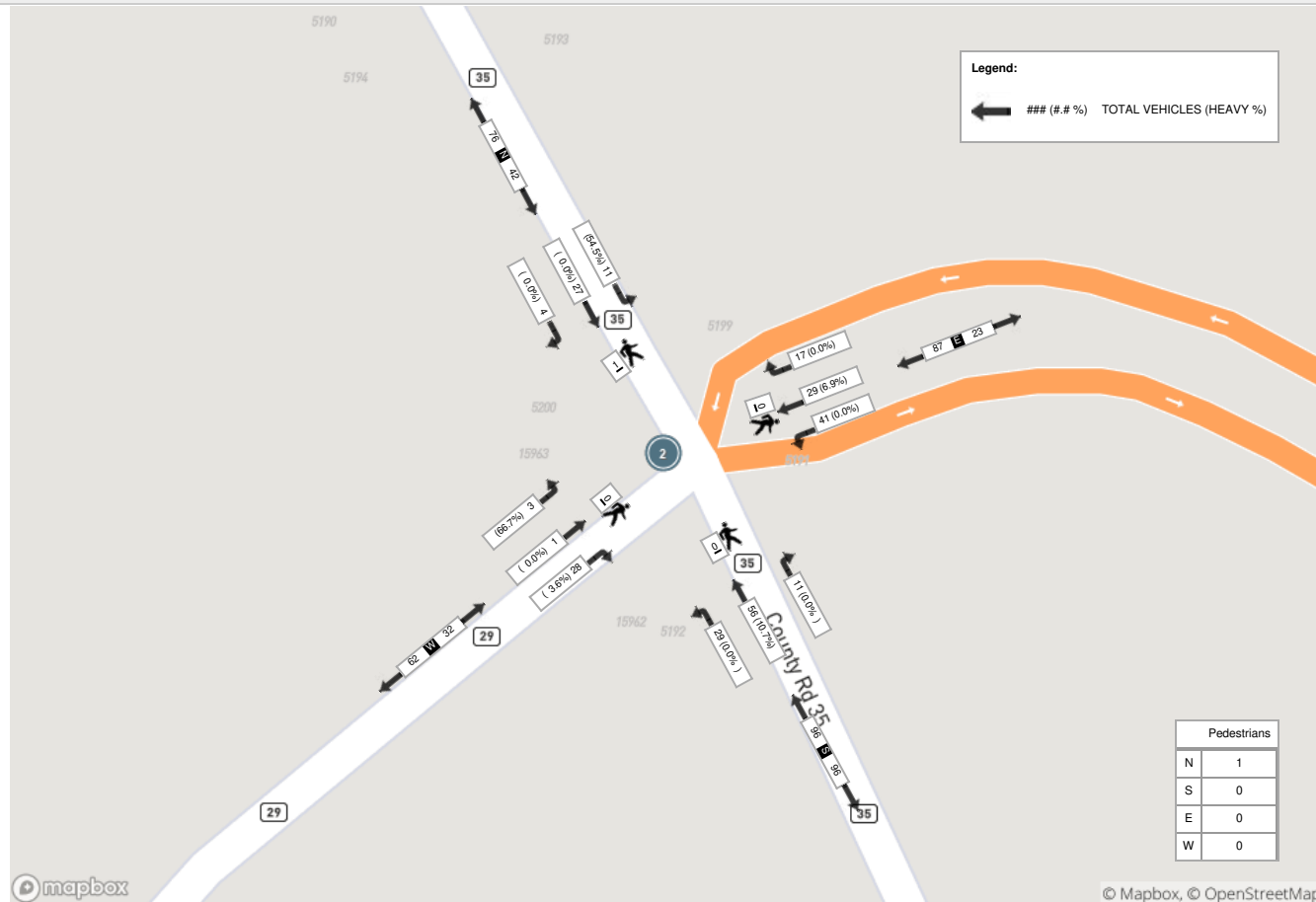
Start Time	N Approach COUNTY RD 35						E Approach HWY 401 WB RAMP TERMINAL						S Approach COUNTY RD 35						W Approach COUNTY RD 29						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	1	4	1	0	0	6	2	13	9	0	0	24	4	13	7	0	0	24	7	0	1	0	0	8	62
16:30:00	1	5	2	0	1	8	3	5	9	0	0	17	2	12	4	0	0	18	6	0	1	0	0	7	50
16:45:00	0	9	3	0	0	12	5	5	13	0	0	23	2	11	5	0	0	18	9	1	1	0	0	11	64
17:00:00	2	9	5	0	0	16	7	6	10	0	0	23	3	20	13	0	0	36	6	0	0	0	0	6	81
Grand Total	4	27	11	0	1	42	17	29	41	0	0	87	11	56	29	0	0	96	28	1	3	0	0	32	257
Approach%	9.5%	64.3%	26.2%	0%		-	19.5%	33.3%	47.1%	0%		-	11.5%	58.3%	30.2%	0%		-	87.5%	3.1%	9.4%	0%		-	-
Totals %	1.6%	10.5%	4.3%	0%		16.3%	6.6%	11.3%	16%	0%		33.9%	4.3%	21.8%	11.3%	0%		37.4%	10.9%	0.4%	1.2%	0%		12.5%	-
PHF	0.5	0.75	0.55	0		0.66	0.61	0.56	0.79	0		0.91	0.69	0.7	0.56	0		0.67	0.78	0.25	0.75	0		0.73	-
Heavy	0	0	6	0		6	0	2	0	0		2	0	6	0	0		6	1	0	2	0		3	-
Heavy %	0%	0%	54.5%	0%		14.3%	0%	6.9%	0%	0%		2.3%	0%	10.7%	0%	0%		6.3%	3.6%	0%	66.7%	0%		9.4%	-
Lights	4	27	5	0		36	17	27	41	0		85	11	49	29	0		89	27	1	1	0		29	-
Lights %	100%	100%	45.5%	0%		85.7%	100%	93.1%	100%	0%		97.7%	100%	87.5%	100%	0%		92.7%	96.4%	100%	33.3%	0%		90.6%	-
Single-Unit Trucks	0	0	1	0		1	0	2	0	0		2	0	2	0	0		2	1	0	2	0		3	-
Single-Unit Trucks %	0%	0%	9.1%	0%		2.4%	0%	6.9%	0%	0%		2.3%	0%	3.6%	0%	0%		2.1%	3.6%	0%	66.7%	0%		9.4%	-
Articulated Trucks	0	0	5	0		5	0	0	0	0		0	0	4	0	0		4	0	0	0	0		0	-
Articulated Trucks %	0%	0%	45.5%	0%		11.9%	0%	0%	0%	0%		0%	0%	7.1%	0%	0%		4.2%	0%	0%	0%	0%		0%	-
Bicycles on Road	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	-
Bicycles on Road %	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	1.8%	0%	0%		1%	0%	0%	0%	0%		0%	-
Pedestrians	-	-	-	-	1	-	-	-	-	0		-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	100%	-	-	-	-	0%		-	-	-	-	-	0%	-	-	-	-	-	0%	-	-



Peak Hour: 07:00 AM - 08:00 AM Weather: Overcast Clouds (13.63 °C)



Peak Hour: 04:15 PM - 05:15 PM Weather: Overcast Clouds (15.37 °C)



# 15 MIN REPORT

Intersection ID:472700000(--N--)

HWY 401 @ MOULINETTE RD IC-778-S D & G RD 35

Municipality: Eastern

Date: 10-Apr-2018

NORTH APPROACH									EAST APPROACH									SOUTH APPROACH									WEST APPROACH									
Time	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total					
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right							
Period1																																				
14:15	0	8	0	0	0	0	0	0	0	6	3	3	0	0	0	0	0	0	0	6	8	2	0	0	0	0	0	0	0	46						
14:30	0	9	0	0	1	0	0	0	0	5	5	1	0	0	1	0	0	0	0	2	7	5	1	1	0	0	0	0	0	44						
14:45	0	7	2	0	1	0	0	1	0	6	4	0	0	0	0	0	0	0	0	8	15	3	1	0	0	0	0	0	0	55						
15:00	0	11	0	0	0	0	1	0	0	6	5	4	0	0	0	1	0	0	0	4	13	2	0	0	0	1	0	9	0	60						
15:15	1	8	0	0	1	0	0	1	1	0	4	4	3	0	0	0	0	1	0	3	13	7	0	1	1	0	0	0	0	59						
15:30	0	11	0	0	0	1	0	0	0	6	4	2	0	0	0	1	0	0	0	6	5	2	0	1	0	0	0	0	0	48						
15:45	1	16	0	0	0	0	1	3	1	0	7	8	0	0	0	0	0	0	0	4	19	4	0	0	0	0	0	0	1	74						
16:00	0	8	1	0	0	0	1	2	0	0	7	12	5	0	0	0	0	0	0	4	12	5	0	0	0	1	1	0	0	67						
16:15	2	16	0	0	0	0	0	1	0	0	10	5	3	0	0	0	1	0	0	6	8	2	0	0	0	0	1	0	0	61						
16:30	0	11	0	0	0	0	1	1	1	0	11	8	2	0	0	1	0	0	0	5	12	2	0	1	0	0	0	0	0	66						
16:45	0	8	1	0	0	0	0	0	0	15	6	2	0	0	0	0	0	0	0	6	13	6	0	1	0	0	0	0	1	65						
17:00	0	19	0	0	0	0	0	0	0	13	7	5	0	0	0	0	0	0	0	4	18	4	0	0	0	0	0	0	0	79						
17:15	0	11	1	0	0	0	0	0	0	11	12	8	0	0	1	0	0	0	0	5	14	2	0	1	0	0	0	0	0	76						
17:30	1	11	0	0	2	0	2	0	0	10	9	7	0	0	0	0	0	0	0	9	18	0	0	0	0	0	1	0	10	80						
17:45	3	11	0	0	0	0	0	0	0	6	4	4	0	0	0	0	0	0	0	8	12	0	0	0	0	0	1	0	8	57						
18:00	0	7	0	0	0	0	0	0	0	4	10	0	0	0	0	0	0	0	0	4	11	2	0	0	0	0	0	0	0	51						
Period2																																				
7:15	2	8	0	0	0	0	1	0	0	0	3	3	0	0	0	1	0	0	2	1	9	4	0	0	0	0	0	0	0	0	51					
7:30	1	10	1	3	2	0	0	1	0	0	10	5	0	0	0	0	0	0	0	3	12	9	0	0	0	1	1	0	0	0	71					
7:45	2	9	0	0	0	0	0	2	1	0	6	4	2	0	0	0	0	0	1	3	5	5	0	0	0	0	1	0	0	0	62					
8:00	2	20	0	0	0	0	0	0	0	0	5	2	3	0	0	0	0	0	0	5	8	6	0	1	0	1	1	0	0	0	72					
8:15	2	13	0	0	1	0	2	0	0	0	2	5	4	0	0	1	0	0	0	2	11	3	0	2	0	1	0	0	0	0	68					
8:30	2	11	0	0	1	0	1	0	0	0	3	1	1	1	0	0	1	1	0	2	13	4	0	0	0	0	4	0	0	0	60					
8:45	0	14	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2	5	4	0	1	0	0	1	0	0	0	40					
9:00	0	10	0	1	0	0	1	1	0	0	7	4	2	0	0	0	1	0	0	0	1	5	2	0	0	0	0	0	0	0	47					
9:15	0	6	0	0	0	0	2	0	0	0	4	1	0	2	0	0	0	0	0	4	8	1	0	1	0	0	0	0	0	0	37					
9:30	2	14	0	0	1	0	1	0	0	0	5	2	1	0	0	0	0	0	0	6	9	4	0	1	1	0	0	0	1	0	58					
9:45	0	9	0	1	0	0	0	0	0	0	3	3	2	0	1	0	0	0	0	2	15	4	1	1	0	0	1	0	0	0	52					
10:00	1	12	1	0	0	1	1	0	0	0	5	2	0	0	0	0	0	0	0	3	6	2	0	0	0	0	1	0	0	0	50					
10:15	2	4	0	0	1	0	1	1	0	0	6	1	0	0	0	0	1	0	0	1	9	1	0	1	0	0	1	0	10	0	41					
10:30	1	9	0	0	1	0	0	0	0	0	2	0	1	0	1	0	1	0	0	4	11	1	0	0	0	0	0	0	0	0	41					
10:45	1	8	0	0	0	0	0	0	0	0	5	3	3	0	0	0	0	0	0	2	7	4	0	0	0	0	0	1	0	0	43					
11:00	0	9	0	0	0	0	0	0	0	0	6	0	1	2	0	0	0	0	0	1	4	2	0	0	0	0	1	0	6	0	34					

# 15 MIN REPORT

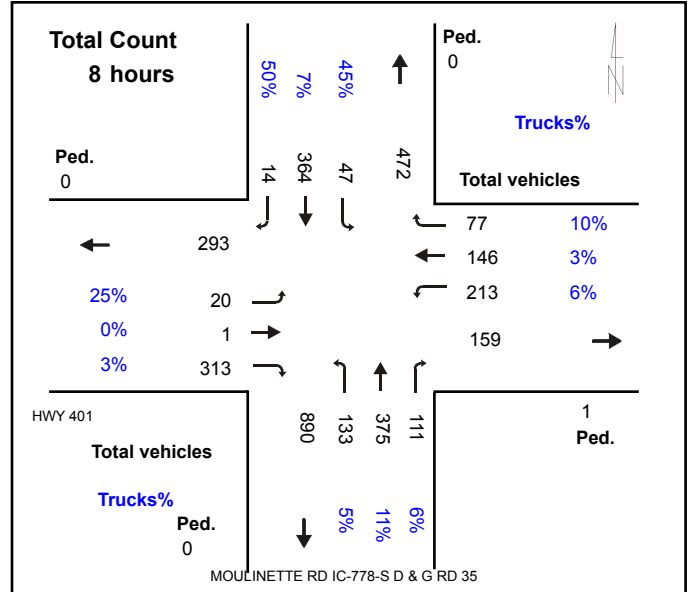
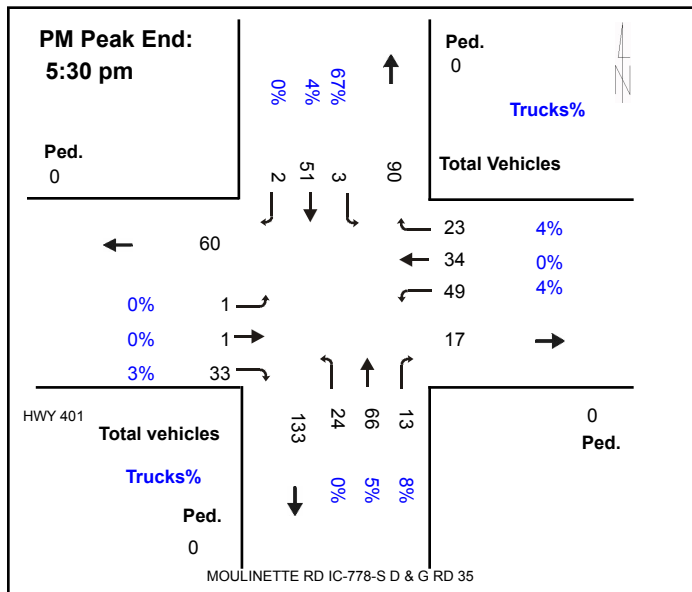
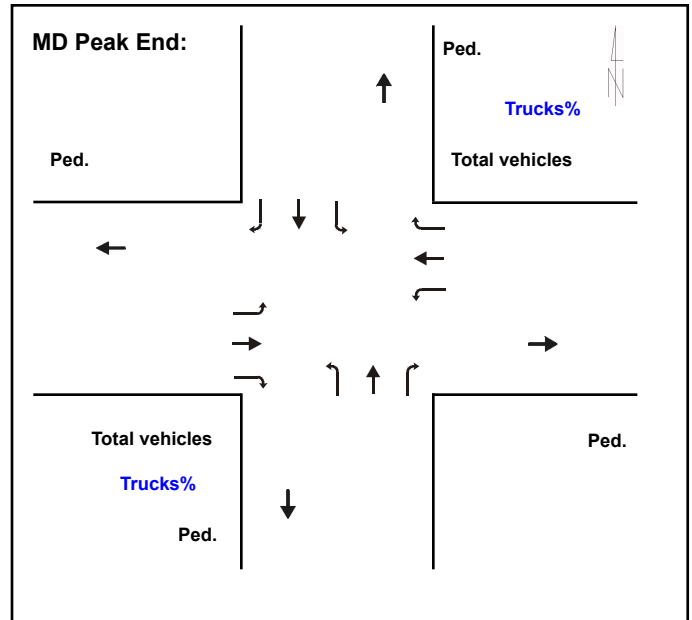
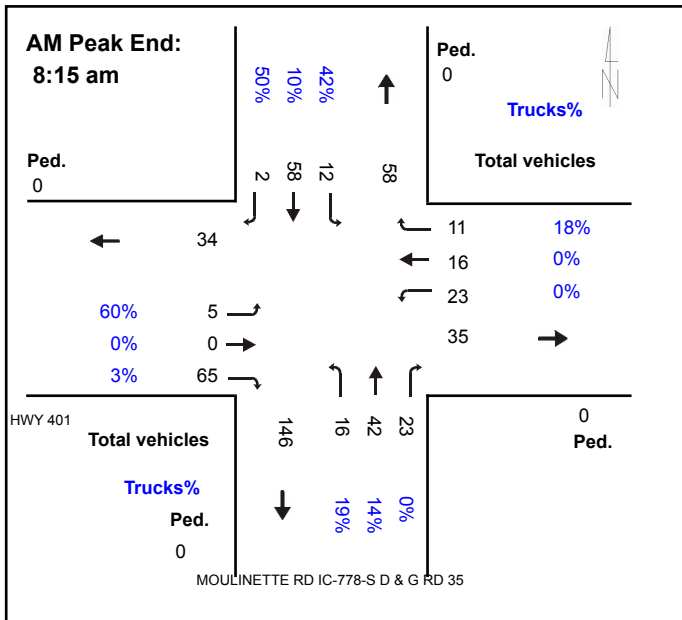
Intersection ID:472700000(--S--)

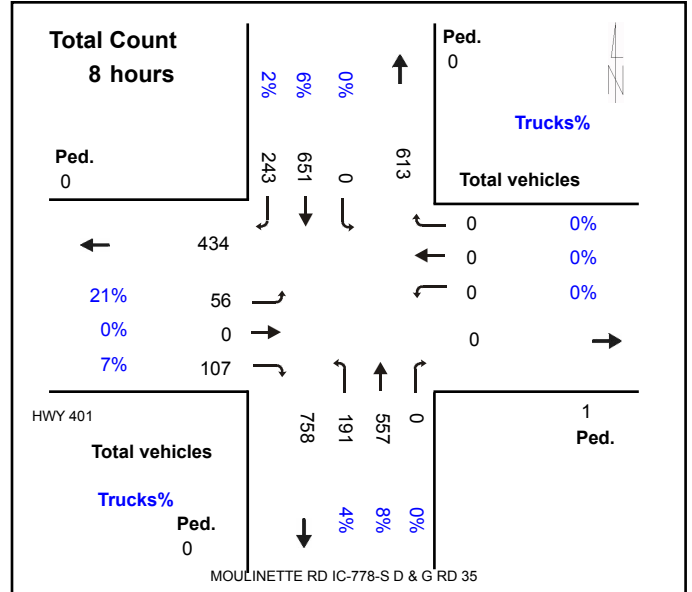
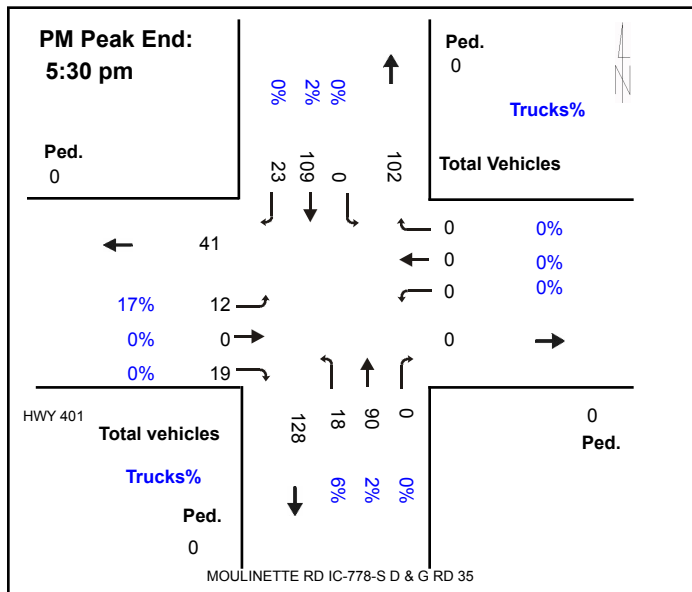
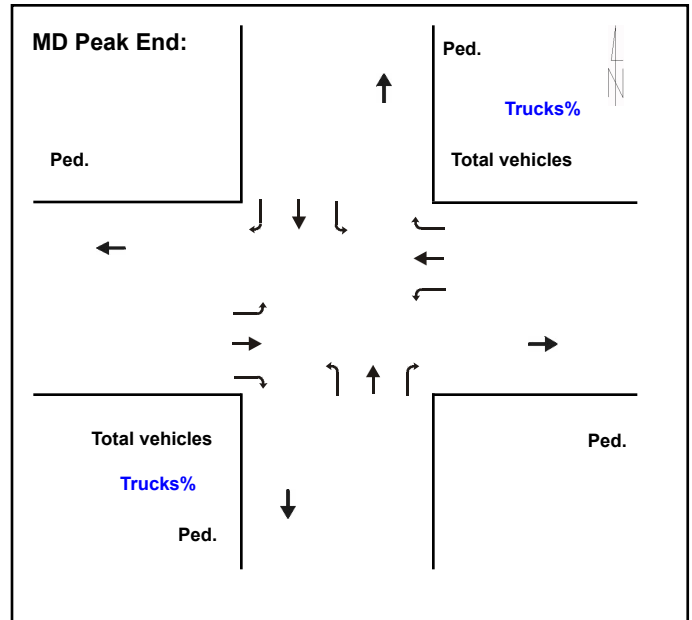
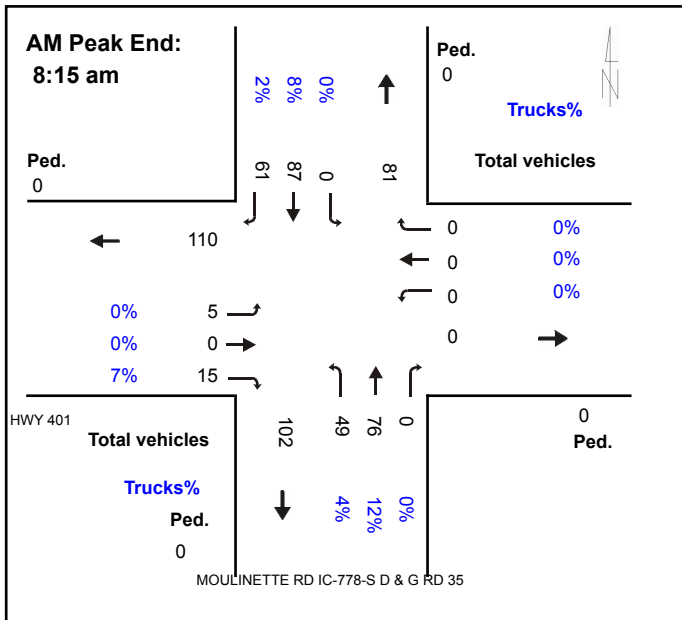
HWY 401 @ MOULINETTE RD IC-778-S D & G RD 35

Municipality: Eastern

Date: 10-Apr-2018

NORTH APPROACH									EAST APPROACH									SOUTH APPROACH									WEST APPROACH											
Time	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Cars			Trucks			Heavies			Ped	Total							
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right									
Period1																																						
14:15	0	23	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8	15	0	1	0	0	0	1	0	3	0	0	0	1	0	0	0	56
14:30	0	11	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	14	0	0	1	0	0	0	0	4	1	0	0	0	0	0	47	
14:45	0	17	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	25	0	0	1	0	0	1	0	3	0	0	0	0	0	0	57	
15:00	0	23	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	18	0	0	0	0	0	0	0	3	0	0	0	0	0	1	54	
15:15	0	13	7	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	2	0	0	1	0	2	0	0	0	0	2	54		
15:30	0	24	5	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7	12	0	0	1	0	0	1	0	3	0	0	0	0	0	0	55	
15:45	0	26	5	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	7	24	0	0	0	0	1	1	0	0	3	0	0	0	0	0	73	
16:00	0	16	4	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	6	16	0	0	0	0	0	3	0	0	5	0	1	0	0	0	53	
16:15	0	30	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	16	0	0	0	0	1	0	0	0	0	0	0	0	0	0	59	
16:30	0	22	9	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4	16	0	0	0	0	0	0	0	3	1	0	0	0	0	0	58	
16:45	0	26	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	24	0	0	1	0	0	1	0	10	0	0	0	0	0	0	70	
17:00	0	34	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	23	0	0	0	0	0	0	0	4	3	0	0	0	0	0	76	
17:15	0	20	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	18	0	1	0	0	0	0	0	2	1	0	0	1	0	0	60	
17:30	0	27	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	23	0	0	0	0	0	0	0	3	0	0	0	0	0	0	65	
17:45	0	21	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	17	0	0	0	0	0	0	0	1	0	0	0	0	0	0	50	
18:00	0	14	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	14	0	0	0	0	0	0	0	4	0	0	1	0	0	0	46	
Period2																																						
7:15	0	15	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	11	0	0	0	0	0	1	0	7	0	0	0	0	0	1	57		
7:30	0	19	11	0	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	7	22	0	0	0	0	1	2	0	0	2	0	3	0	0	0	1	72	
7:45	0	18	16	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	15	14	0	0	0	0	0	1	0	0	0	0	0	0	0	0	67		
8:00	0	25	18	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	12	19	0	0	1	0	0	2	0	0	0	7	0	0	0	0	0	85	
8:15	0	18	15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	12	0	1	2	0	0	1	0	0	3	0	3	0	0	0	0	69	
8:30	0	15	14	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8	17	0	0	0	0	0	3	0	0	2	0	4	0	0	0	1	66	
8:45	0	15	8	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	10	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	45	
9:00	0	13	12	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5	9	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0	48	
9:15	0	13	7	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	13	0	1	1	0	0	0	0	0	4	0	0	0	0	0	0	48	
9:30	0	15	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	15	0	0	2	0	0	1	0	0	3	0	3	0	0	0	1	55	
9:45	0	16	5	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5	20	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	52	
10:00	0	23	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	12	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	48	
10:15	0	18	4	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3	11	0	0	0	0	0	1	0	0	1	1	0	1	0	0	0	43	
10:30	0	9	7	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	15	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	40	
10:45	0	14	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	12	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	40	
11:00	0	16	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	38	





# APPENDIX E

## Level of Service Definitions

## Level of Service Definitions

### Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	$\leq 10$	EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare.
B	$> 10$ and $\leq 15$	VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal.
C	$> 15$ and $\leq 25$	GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable.
D	$> 25$ and $\leq 35$	FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street.
E	$> 35$ and $\leq 50$	POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable.
F	$> 50$	UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board



## Level of Service Definitions

### Signalized Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	$\leq 10$	EXCELLENT. Extremely favourable progression with most vehicles arriving during the green phase. Most vehicles do not stop and short cycle lengths may contribute to low delay.
B	$> 10$ and $\leq 20$	VERY GOOD. Very good progression and/or short cycle lengths with slightly more vehicles stopping than LOS "A" causing slightly higher levels of average delay.
C	$> 20$ and $\leq 35$	GOOD. Fair progression and longer cycle lengths lead to a greater number of vehicles stopping than LOS "B".
D	$> 35$ and $\leq 55$	FAIR. Congestion becomes noticeable with higher average delays resulting from a combination of long cycle lengths, high volume-to-capacity ratios and unfavourable progression.
E	$> 55$ and $\leq 80$	POOR. Lengthy delays values are indicative of poor progression, long cycle lengths and high volume-to-capacity ratios. Individual cycle failures are common with individual movement failures also common.
F	$> 80$	UNSATISFACTORY. Indicative of oversaturated conditions with vehicular demand greater than the capacity of the intersection.










Adapted from Highway Capacity Manual 2000, Transportation Research Board

# APPENDIX F

## Detailed Capacity Analysis Reports

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps










2023 Existing AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	16	51	86	90	63
Future Volume (vph)	5	16	51	86	90	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.897	0.945				
Flt Protected	0.988	0.982				
Satd. Flow (prot)	1617	0	0	1730	1720	0
Flt Permitted	0.988	0.982				
Satd. Flow (perm)	1617	0	0	1730	1720	0
Link Speed (k/h)	30	80				
Link Distance (m)	181.7	243.4				
Travel Time (s)	21.8	11.0				
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	7%	4%	12%	8%	2%
Adj. Flow (vph)	6	19	59	100	105	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	0	0	159	178	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	8.0	0.0				
Link Offset(m)	0.0	0.0				
Crosswalk Width(m)	4.9	4.9				
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop	Free			Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.3%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis

## 1: Moulinette Road & Hwy 401 EB Ramps

2023 Existing AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	16	51	86	90	63
Future Volume (Veh/h)	5	16	51	86	90	63
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	6	19	59	100	105	73
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	360	142	178			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	360	142	178			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	99	98	96			
cM capacity (veh/h)	616	893	1386			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	25	159	178			
Volume Left	6	59	0			
Volume Right	19	0	73			
cSH	806	1386	1700			
Volume to Capacity	0.03	0.04	0.10			
Queue Length 95th (m)	0.7	1.0	0.0			
Control Delay (s)	9.6	3.1	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.6	3.1	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		2.0				
Intersection Capacity Utilization		29.3%		ICU Level of Service		A
Analysis Period (min)		15				

















## 2: Moulinette Road &amp; County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	0	68	24	17	13	17	50	24	12	61	2
Future Volume (vph)	6	0	68	24	17	13	17	50	24	12	61	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.875			0.967			0.965			0.997	
Flt Protected		0.996			0.979			0.991			0.992	
Satd. Flow (prot)	0	1559	0	0	1742	0	0	1651	0	0	1634	0
Flt Permitted		0.996			0.979			0.991			0.992	
Satd. Flow (perm)	0	1559	0	0	1742	0	0	1651	0	0	1634	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	60%	0%	3%	0%	0%	18%	19%	14%	0%	42%	10%	50%
Adj. Flow (vph)	6	0	72	25	18	14	18	53	25	13	64	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	78	0	0	57	0	0	96	0	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	23.5%						ICU Level of Service A					
Analysis Period (min)	15											

















# HCM Unsignalized Intersection Capacity Analysis

## 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

2023 Existing AM

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Traffic Volume (veh/h)	6	0	68	24	17	13	17	50	24	12	61	2								
Future Volume (Veh/h)	6	0	68	24	17	13	17	50	24	12	61	2								
Sign Control		Stop			Stop			Free			Free									
Grade		0%			0%			0%			0%									
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95								
Hourly flow rate (vph)	6	0	72	25	18	14	18	53	25	13	64	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	216	205	65	264	194	66	66			78										
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
vCu, unblocked vol	216	205	65	264	194	66	66			78										
tC, single (s)	7.7	6.5	6.2	7.1	6.5	6.4	4.3			4.5										
tC, 2 stage (s)																				
tF (s)	4.0	4.0	3.3	3.5	4.0	3.5	2.4			2.6										
p0 queue free %	99	100	93	96	97	99	99			99										
cM capacity (veh/h)	601	679	996	631	689	955	1434			1302										
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																
Volume Total	78	57	96	79																
Volume Left	6	25	18	13																
Volume Right	72	14	25	2																
cSH	948	709	1434	1302																
Volume to Capacity	0.08	0.08	0.01	0.01																
Queue Length 95th (m)	2.0	2.0	0.3	0.2																
Control Delay (s)	9.1	10.5	1.5	1.4																
Lane LOS	A	B	A	A																
Approach Delay (s)	9.1	10.5	1.5	1.4																
Approach LOS	A	B																		
Intersection Summary																				
Average Delay				5.0																
Intersection Capacity Utilization				23.5%	ICU Level of Service				A											
Analysis Period (min)				15																

















## 3: Moulinette Road &amp; Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	36	3	1	4	17	48	4	32	0
Future Volume (vph)	0	0	7	36	3	1	4	17	48	4	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.997			0.906				
Flt Protected					0.957			0.997			0.995	
Satd. Flow (prot)	0	1385	0	0	1589	0	0	1477	0	0	1912	0
Flt Permitted					0.957			0.997			0.995	
Satd. Flow (perm)	0	1385	0	0	1589	0	0	1477	0	0	1912	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	20%	17%	0%	0%	0%	0%	25%	0%	0%	0%
Adj. Flow (vph)	0	0	7	38	3	1	4	18	51	4	34	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	42	0	0	73	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	20.3%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis

















## 3: Moulinette Road & Private Driveway/County Road 29

2023 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	36	3	1	4	17	48	4	32	0
Future Volume (Veh/h)	0	0	7	36	3	1	4	17	48	4	32	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	7	38	3	1	4	18	51	4	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	96	119	34	100	94	44	34			69		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	96	119	34	100	94	44	34			69		
tC, single (s)	7.1	6.5	6.4	7.3	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	95	100	100	100			100		
cM capacity (veh/h)	885	771	990	837	796	1032	1591			1545		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	42	73	38								
Volume Left	0	38	4	4								
Volume Right	7	1	51	0								
cSH	990	838	1591	1545								
Volume to Capacity	0.01	0.05	0.00	0.00								
Queue Length 95th (m)	0.2	1.2	0.1	0.1								
Control Delay (s)	8.7	9.5	0.4	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	9.5	0.4	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.3									
Intersection Capacity Utilization			20.3%		ICU Level of Service				A			
Analysis Period (min)			15									



















## 4: Avonmore Road/Avnomore Road &amp; County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	0	6	0	0	0	11	42	0	0	127	31
Future Volume (vph)	31	0	6	0	0	0	11	42	0	0	127	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.979									0.973	
Flt Protected		0.959						0.990				
Satd. Flow (prot)	0	1500	0	0	1921	0	0	1663	0	0	1641	0
Flt Permitted		0.959						0.990				
Satd. Flow (perm)	0	1500	0	0	1921	0	0	1663	0	0	1641	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	24%	0%	0%	0%	0%	0%	0%	18%	0%	0%	8%	38%
Adj. Flow (vph)	38	0	7	0	0	0	13	51	0	0	155	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	0	0	0	0	0	64	0	0	193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	21.7%											
Analysis Period (min)	15											
	ICU Level of Service A											

# HCM Unsignalized Intersection Capacity Analysis




















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

2023 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	0	6	0	0	0	11	42	0	0	127	31
Future Volume (Veh/h)	31	0	6	0	0	0	11	42	0	0	127	31
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	38	0	7	0	0	0	13	51	0	0	155	38
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	251	251	174	258	270	51	193				51	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	251	251	174	258	270	51	193				51	
tC, single (s)	7.3	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	94	100	99	100	100	100	99				100	
cM capacity (veh/h)	655	649	875	689	634	1023	1392				1568	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	45	0	64	193								
Volume Left	38	0	13	0								
Volume Right	7	0	0	38								
cSH	681	1700	1392	1568								
Volume to Capacity	0.07	0.00	0.01	0.00								
Queue Length 95th (m)	1.6	0.0	0.2	0.0								
Control Delay (s)	10.7	0.0	1.6	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	10.7	0.0	1.6	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay			1.9									
Intersection Capacity Utilization			21.7%	ICU Level of Service				A				
Analysis Period (min)			15									

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2



















2023 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	432	0	0	164	44	0	0	0	124	0	16
Future Volume (vph)	5	432	0	0	164	44	0	0	0	124	0	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	5%	0%	0%	0%	2%	0%	14%
Adj. Flow (vph)	6	508	0	0	193	52	0	0	0	146	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	508	0	0	193	52	0	0	0	0	146	19
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	36.3%											
Analysis Period (min)	15											
	ICU Level of Service A											

# HCM Unsignalized Intersection Capacity Analysis










## 5: Avonmore Road & County Road 2

2023 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	432	0	0	164	44	0	0	0	124	0	16
Future Volume (Veh/h)	5	432	0	0	164	44	0	0	0	124	0	16
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	508	0	0	193	52	0	0	0	146	0	19
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	245			508			722	765	508	713	713	193
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	245			508			722	765	508	713	713	193
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	100	58	100	98
cM capacity (veh/h)	1223			1067			335	334	569	346	358	819
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	6	508	193	52	0	165						
Volume Left	6	0	0	0	0	146						
Volume Right	0	0	0	52	0	19						
cSH	1223	1700	1067	1700	1700	391						
Volume to Capacity	0.00	0.30	0.00	0.03	0.00	0.42						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	15.6						
Control Delay (s)	8.0	0.0	0.0	0.0	0.0	21.3						
Lane LOS	A				A	C						
Approach Delay (s)	0.1		0.0		0.0	21.3						
Approach LOS					A	C						
Intersection Summary												
Average Delay				3.9								
Intersection Capacity Utilization				36.3%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings  
6: County Road 15 & County Road 36










2023 Existing AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	11	29	29	9	78
Future Volume (vph)	27	11	29	29	9	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.960		0.932			
Flt Protected	0.966					0.995
Satd. Flow (prot)	1537	0	1650	0	0	1850
Flt Permitted	0.966					0.995
Satd. Flow (perm)	1537	0	1650	0	0	1850
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	23%	7%	10%	6%	3%
Adj. Flow (vph)	29	12	32	32	10	85
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	64	0	0	95
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.3%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

















## 6: County Road 15 & County Road 36

2023 Existing AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	11	29	29	9	78
Future Volume (Veh/h)	27	11	29	29	9	78
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)	29	12	32	32	10	85
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	153	48			64	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	153	48			64	
tC, single (s)	6.5	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.3	
p0 queue free %	96	99			99	
cM capacity (veh/h)	808	964			1513	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	41	64	95			
Volume Left	29	0	10			
Volume Right	12	32	0			
cSH	848	1700	1513			
Volume to Capacity	0.05	0.04	0.01			
Queue Length 95th (m)	1.2	0.0	0.2			
Control Delay (s)	9.5	0.0	0.8			
Lane LOS	A		A			
Approach Delay (s)	9.5	0.0	0.8			
Approach LOS	A					
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization			21.3%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
7: County Road 15 & County Road 36/Jenkins Road

















2023 Existing AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	0	49	0	0	0	21	21	1	2	78	29
Future Volume (vph)	33	0	49	0	0	0	21	21	1	2	78	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.919						0.997			0.964	
Flt Protected		0.980						0.976			0.999	
Satd. Flow (prot)	0	1642	0	0	1921	0	0	1774	0	0	1732	0
Flt Permitted		0.980						0.976			0.999	
Satd. Flow (perm)	0	1642	0	0	1921	0	0	1774	0	0	1732	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	0%	5%	0%	0%	0%	4%	7%	0%	88%	3%	12%
Adj. Flow (vph)	36	0	54	0	0	0	23	23	1	2	86	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	0	0	0	47	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	20.5%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis

## 7: County Road 15 & County Road 36/Jenkins Road

2023 Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	0	49	0	0	0	21	21	1	2	78	29
Future Volume (Veh/h)	33	0	49	0	0	0	21	21	1	2	78	29
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	36	0	54	0	0	0	23	23	1	2	86	32
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	176	176	102	230	192	24	118			24		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176	176	102	230	192	24	118			24		
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1			5.0		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2			3.0		
p0 queue free %	95	100	94	100	100	100	98			100		
cM capacity (veh/h)	768	709	945	679	695	1059	1458			1176		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	90	0	47	120								
Volume Left	36	0	23	2								
Volume Right	54	0	1	32								
cSH	865	1700	1458	1176								
Volume to Capacity	0.10	0.00	0.02	0.00								
Queue Length 95th (m)	2.6	0.0	0.4	0.0								
Control Delay (s)	9.6	0.0	3.7	0.1								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.6	0.0	3.7	0.1								
Approach LOS	A	A										
Intersection Summary												
Average Delay				4.1								
Intersection Capacity Utilization				20.5%	ICU Level of Service				A			
Analysis Period (min)				15								



Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	14.5	14.4	1.2
Average Queue (m)	5.2	2.1	0.0
95th Queue (m)	13.3	8.9	0.9
Link Distance (m)	172.0	233.5	111.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	19.8	19.8	5.0	6.8
Average Queue (m)	9.1	8.4	0.4	0.3
95th Queue (m)	16.3	17.0	3.2	3.5
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (m)	12.6	20.9
Average Queue (m)	1.7	7.0
95th Queue (m)	8.2	15.9
Link Distance (m)	87.5	216.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	20.4	3.0
Average Queue (m)	7.1	0.1
95th Queue (m)	16.3	1.8
Link Distance (m)	300.4	1758.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	SB	SB
Directions Served	L	LT	R
Maximum Queue (m)	2.4	43.1	23.0
Average Queue (m)	0.1	16.0	4.4
95th Queue (m)	1.5	31.7	15.7
Link Distance (m)		387.5	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	80.0		15.0
Storage Blk Time (%)		14	0
Queuing Penalty (veh)		2	1

Intersection: 6: County Road 15 & County Road 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	22.4	7.3
Average Queue (m)	8.1	0.3
95th Queue (m)	18.0	3.0
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 7: County Road 15 & County Road 36/Jenkins Road

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Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	20.1	8.9
Average Queue (m)	9.1	0.7
95th Queue (m)	16.2	4.7
Link Distance (m)	178.3	206.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 8: Avonmore Road & Site Access

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	19.5	6.6
Average Queue (m)	5.3	0.3
95th Queue (m)	16.1	2.8
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 3
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Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps










2023 Existing PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	20	19	95	114	24
Future Volume (vph)	12	20	19	95	114	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.915				0.976	
Flt Protected	0.982				0.992	
Satd. Flow (prot)	1624	0	0	1856	1845	0
Flt Permitted	0.982				0.992	
Satd. Flow (perm)	1624	0	0	1856	1845	0
Link Speed (k/h)	30				80	80
Link Distance (m)	181.7				243.4	132.3
Travel Time (s)	21.8				11.0	6.0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	17%	0%	6%	2%	2%	0%
Adj. Flow (vph)	13	22	21	107	128	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	128	155	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	8.0				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	4.9				4.9	4.9
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24	14		
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.8%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis

## 1: Moulinette Road & Hwy 401 EB Ramps

2023 Existing PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	20	19	95	114	24
Future Volume (Veh/h)	12	20	19	95	114	24
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	13	22	21	107	128	27
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	290	142	155			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	290	142	155			
tC, single (s)	6.6	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.7	3.3	2.3			
p0 queue free %	98	98	99			
cM capacity (veh/h)	660	912	1401			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	35	128	155			
Volume Left	13	21	0			
Volume Right	22	0	27			
cSH	798	1401	1700			
Volume to Capacity	0.04	0.01	0.09			
Queue Length 95th (m)	1.0	0.3	0.0			
Control Delay (s)	9.7	1.4	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.7	1.4	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		26.8%		ICU Level of Service		A
Analysis Period (min)		15				

















## 2: Moulinette Road &amp; County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	34	51	35	24	25	69	13	3	53	2
Future Volume (vph)	1	1	34	51	35	24	25	69	13	3	53	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.872			0.970			0.983			0.996	
Flt Protected		0.999			0.977			0.988			0.998	
Satd. Flow (prot)	0	1627	0	0	1772	0	0	1791	0	0	1859	0
Flt Permitted		0.999			0.977			0.988			0.998	
Satd. Flow (perm)	0	1627	0	0	1772	0	0	1791	0	0	1859	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	3%	4%	0%	4%	0%	5%	8%	55%	0%	0%
Adj. Flow (vph)	1	1	36	54	37	26	27	73	14	3	56	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	0	0	117	0	0	114	0	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	31.9%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis

















## 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

2023 Existing PM

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Traffic Volume (veh/h)	1	1	34	51	35	24	25	69	13	3	53	2								
Future Volume (Veh/h)	1	1	34	51	35	24	25	69	13	3	53	2								
Sign Control		Stop			Stop			Free			Free									
Grade		0%			0%			0%			0%									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94								
Hourly flow rate (vph)	1	1	36	54	37	26	27	73	14	3	56	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	242	204	57	234	198	80	58			87										
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
vCu, unblocked vol	242	204	57	234	198	80	58			87										
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.6										
tC, 2 stage (s)																				
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.7										
p0 queue free %	100	100	96	92	95	97	98			100										
cM capacity (veh/h)	659	682	1006	680	687	975	1559			1233										
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																
Volume Total	38	117	114	61																
Volume Left	1	54	27	3																
Volume Right	36	26	14	2																
cSH	981	732	1559	1233																
Volume to Capacity	0.04	0.16	0.02	0.00																
Queue Length 95th (m)	0.9	4.3	0.4	0.1																
Control Delay (s)	8.8	10.9	1.8	0.4																
Lane LOS	A	B	A	A																
Approach Delay (s)	8.8	10.9	1.8	0.4																
Approach LOS	A	B																		
Intersection Summary																				
Average Delay			5.6																	
Intersection Capacity Utilization			31.9%	ICU Level of Service					A											
Analysis Period (min)			15																	

Lanes, Volumes, Timings  
3: Moulinette Road & Private Driveway/County Road 29

2023 Existing PM

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	2	37	0	6	0	37	57	3	19	0
Future Volume (vph)	0	0	2	37	0	6	0	37	57	3	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865			0.980			0.918					
Flt Protected				0.959						0.994		
Satd. Flow (prot)	0	1662	0	0	1531	0	0	1654	0	0	1910	0
Flt Permitted				0.959						0.994		
Satd. Flow (perm)	0	1662	0	0	1531	0	0	1654	0	0	1910	0
Link Speed (k/h)	50			80			80			50		
Link Distance (m)	94.7			225.1			82.0			149.3		
Travel Time (s)	6.8			10.1			3.7			10.7		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	21%	0%	0%	0%	0%	11%	0%	0%	0%
Adj. Flow (vph)	0	0	3	53	0	9	0	53	81	4	27	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	62	0	0	134	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			0.0			0.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	1.6			4.9			4.9			4.9		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control	Stop			Stop			Free			Free		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	21.2%						ICU Level of Service A					
Analysis Period (min)	15											



















# HCM Unsignalized Intersection Capacity Analysis

## 3: Moulinette Road & Private Driveway/County Road 29

2023 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	37	0	6	0	37	57	3	19	0
Future Volume (Veh/h)	0	0	2	37	0	6	0	37	57	3	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	0	0	3	53	0	9	0	53	81	4	27	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	138	169	27	132	128	94	27			134		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	138	169	27	132	128	94	27			134		
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	93	100	99	100			100		
cM capacity (veh/h)	828	726	1054	795	764	969	1600			1463		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	62	134	31								
Volume Left	0	53	0	4								
Volume Right	3	9	81	0								
cSH	1054	816	1600	1463								
Volume to Capacity	0.00	0.08	0.00	0.00								
Queue Length 95th (m)	0.1	1.9	0.0	0.1								
Control Delay (s)	8.4	9.8	0.0	1.0								
Lane LOS	A	A		A								
Approach Delay (s)	8.4	9.8	0.0	1.0								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			21.2%	ICU Level of Service						A		
Analysis Period (min)			15									

















## 4: Avonmore Road/Avnomore Road &amp; County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	1	13	2	0	0	13	125	0	0	84	24
Future Volume (vph)	37	1	13	2	0	0	13	125	0	0	84	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.966									0.970	
Flt Protected		0.965			0.950			0.995				
Satd. Flow (prot)	0	1569	0	0	1825	0	0	1725	0	0	1665	0
Flt Permitted		0.965			0.950			0.995				
Satd. Flow (perm)	0	1569	0	0	1825	0	0	1725	0	0	1665	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	10%	0%	27%	0%	0%	0%	9%	11%	0%	0%	11%	15%
Adj. Flow (vph)	46	1	16	2	0	0	16	154	0	0	104	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	63	0	0	2	0	0	170	0	0	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	24.0%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis




















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

2023 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1	13	2	0	0	13	125	0	0	84	24
Future Volume (Veh/h)	37	1	13	2	0	0	13	125	0	0	84	24
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	46	1	16	2	0	0	16	154	0	0	104	30
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	305	305	119	322	320	154	134				154	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	305	305	119	322	320	154	134				154	
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.2				4.1	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.3				2.2	
p0 queue free %	93	100	98	100	100	100	99				100	
cM capacity (veh/h)	626	605	869	617	593	897	1408				1439	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	63	2	170	134								
Volume Left	46	2	16	0								
Volume Right	16	0	0	30								
cSH	674	617	1408	1439								
Volume to Capacity	0.09	0.00	0.01	0.00								
Queue Length 95th (m)	2.3	0.1	0.3	0.0								
Control Delay (s)	10.9	10.8	0.8	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	10.9	10.8	0.8	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay				2.3								
Intersection Capacity Utilization				24.0%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2




















2023 Existing PM










												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	314	1	0	438	145	0	1	0	69	0	10
Future Volume (vph)	14	314	1	0	438	145	0	1	0	69	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	15	338	1	0	471	156	0	1	0	74	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	339	0	0	471	156	0	1	0	0	74	11
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	40.2%											
Analysis Period (min)	15											
	ICU Level of Service A											










# HCM Unsignalized Intersection Capacity Analysis

## 5: Avonmore Road & County Road 2

2023 Existing PM

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	314	1	0	438	145	0	1	0	69	0	10
Future Volume (Veh/h)	14	314	1	0	438	145	0	1	0	69	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	15	338	1	0	471	156	0	1	0	74	0	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	627			339			845	996	338	840	840	471
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	627			339			845	996	338	840	840	471
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	98			100			100	100	100	74	100	98
cM capacity (veh/h)	931			1231			276	243	708	282	299	577
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	15	339	471	156	1	85						
Volume Left	15	0	0	0	0	74						
Volume Right	0	1	0	156	0	11						
cSH	931	1700	1231	1700	243	324						
Volume to Capacity	0.02	0.20	0.00	0.09	0.00	0.26						
Queue Length 95th (m)	0.4	0.0	0.0	0.0	0.1	7.8						
Control Delay (s)	8.9	0.0	0.0	0.0	19.9	20.9						
Lane LOS	A				C	C						
Approach Delay (s)	0.4		0.0		19.9	20.9						
Approach LOS					C	C						
Intersection Summary												
Average Delay				1.8								
Intersection Capacity Utilization				40.2%	ICU Level of Service				A			
Analysis Period (min)				15								

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	28	17	88	33	16	42
Future Volume (vph)	28	17	88	33	16	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.948		0.963			
Flt Protected	0.970					0.986
Satd. Flow (prot)	1687	0	1785	0	0	1850
Flt Permitted	0.970					0.986
Satd. Flow (perm)	1687	0	1785	0	0	1850
Link Speed (k/h)	48		48			48
Link Distance (m)	130.8		142.4			194.0
Travel Time (s)	9.8		10.7			14.6
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	9%	2%	8%	6%	1%
Adj. Flow (vph)	35	22	111	42	20	53
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	153	0	0	73
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.3%			ICU Level of Service A		
Analysis Period (min)	15					

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	28	17	88	33	16	42
Future Volume (Veh/h)	28	17	88	33	16	42
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	35	22	111	42	20	53
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	225	132			153	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	225	132			153	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	95	98			99	
cM capacity (veh/h)	752	899			1403	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	57	153	73			
Volume Left	35	0	20			
Volume Right	22	42	0			
cSH	803	1700	1403			
Volume to Capacity	0.07	0.09	0.01			
Queue Length 95th (m)	1.7	0.0	0.3			
Control Delay (s)	9.8	0.0	2.2			
Lane LOS	A		A			
Approach Delay (s)	9.8	0.0	2.2			
Approach LOS	A					
Intersection Summary						
Average Delay		2.5				
Intersection Capacity Utilization		23.3%	ICU Level of Service	A		
Analysis Period (min)		15				

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

2023 Existing PM

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	0	50	2	0	1	63	56	1	1	48	40
Future Volume (vph)	38	0	50	2	0	1	63	56	1	1	48	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.923			0.955			0.999			0.939	
Flt Protected		0.979			0.968			0.974				
Satd. Flow (prot)	0	1681	0	0	1776	0	0	1808	0	0	1671	0
Flt Permitted		0.979			0.968			0.974				
Satd. Flow (perm)	0	1681	0	0	1776	0	0	1808	0	0	1671	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		112.2			145.8			127.1			176.1	
Travel Time (s)		8.4			10.9			9.5			13.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	2%	5%	0%	100%	13%	0%
Adj. Flow (vph)	44	0	58	2	0	1	73	65	1	1	56	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	102	0	0	3	0	0	139	0	0	104	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.2%						ICU Level of Service A					
Analysis Period (min)	15											



# HCM Unsignalized Intersection Capacity Analysis

## 7: CR 15 & CR 36/Jenkins Road

2023 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	0	50	2	0	1	63	56	1	1	48	40
Future Volume (Veh/h)	38	0	50	2	0	1	63	56	1	1	48	40
Sign Control	Stop		Stop		Free		Free		Free		Free	
Grade	0%		0%		0%		0%		0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	44	0	58	2	0	1	73	65	1	1	56	47
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	294	294	80	351	316	66	103				66	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	294	294	80	351	316	66	103				66	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				5.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				3.1	
p0 queue free %	93	100	94	100	100	100	95				100	
cM capacity (veh/h)	627	590	981	550	573	1004	1489				1088	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	102	3	139	104								
Volume Left	44	2	73	1								
Volume Right	58	1	1	47								
cSH	789	647	1489	1088								
Volume to Capacity	0.13	0.00	0.05	0.00								
Queue Length 95th (m)	3.4	0.1	1.2	0.0								
Control Delay (s)	10.2	10.6	4.1	0.1								
Lane LOS	B	B	A	A								
Approach Delay (s)	10.2	10.6	4.1	0.1								
Approach LOS	B	B										
Intersection Summary												
Average Delay			4.8									
Intersection Capacity Utilization			25.2%	ICU Level of Service				A				
Analysis Period (min)			15									

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	17.9	10.6
Average Queue (m)	7.0	0.7
95th Queue (m)	15.7	4.7
Link Distance (m)	172.0	233.5
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	12.8	23.4	8.0	6.4
Average Queue (m)	5.5	11.3	0.5	0.2
95th Queue (m)	11.9	19.0	3.9	3.3
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	6.8	21.3	5.3
Average Queue (m)	0.4	7.3	0.2
95th Queue (m)	3.2	17.0	2.6
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	20.9	7.2	5.8
Average Queue (m)	8.7	0.5	0.3
95th Queue (m)	18.1	4.0	2.6
Link Distance (m)	300.4	60.6	1758.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	WB	NB	SB	SB
Directions Served	L	R	LTR	LT	R
Maximum Queue (m)	9.3	0.4	6.5	29.4	17.8
Average Queue (m)	1.3	0.0	0.4	11.0	2.6
95th Queue (m)	5.9	0.3	3.3	22.3	11.3
Link Distance (m)			51.8	387.5	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	80.0	60.0			15.0
Storage Blk Time (%)				10	0
Queuing Penalty (veh)				1	0

Intersection: 6: CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	18.4	7.4
Average Queue (m)	7.6	0.6
95th Queue (m)	15.4	4.3
Link Distance (m)	125.5	185.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 7: CR 15 & CR 36/Jenkins Road

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Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	22.4	6.1	11.6
Average Queue (m)	10.7	0.7	2.2
95th Queue (m)	17.5	4.2	9.0
Link Distance (m)	107.0	133.6	122.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Intersection: 8: Avonmore Road & Site Access

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	19.5	8.0
Average Queue (m)	4.6	0.4
95th Queue (m)	15.2	3.9
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 1
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Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps










2035 Future Background AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	43	132	200	133	69
Future Volume (vph)	5	43	132	200	133	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879				0.954	
Flt Protected	0.995				0.981	
Satd. Flow (prot)	1581	0	0	1732	1730	0
Flt Permitted	0.995				0.981	
Satd. Flow (perm)	1581	0	0	1732	1730	0
Link Speed (k/h)	30				80	80
Link Distance (m)	181.7				243.4	132.3
Travel Time (s)	21.8				11.0	6.0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	7%	4%	12%	8%	2%
Adj. Flow (vph)	6	50	153	233	155	80
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	0	0	386	235	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	8.0				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	4.9				4.9	4.9
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	42.4%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 1: Moulinette Road & Hwy 401 EB Ramps

















2035 Future Background AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	43	132	200	133	69
Future Volume (Veh/h)	5	43	132	200	133	69
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	6	50	153	233	155	80
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	734	195	235			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	734	195	235			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	98	94	88			
cM capacity (veh/h)	345	834	1321			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	56	386	235			
Volume Left	6	153	0			
Volume Right	50	0	80			
cSH	724	1321	1700			
Volume to Capacity	0.08	0.12	0.14			
Queue Length 95th (m)	1.9	3.0	0.0			
Control Delay (s)	10.4	3.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.4	3.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.1				
Intersection Capacity Utilization		42.4%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings

















2035 Future Background AM

2: Moulinette Road & County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	74	51	19	14	19	85	102	13	77	2
Future Volume (vph)	7	0	74	51	19	14	19	85	102	13	77	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.876			0.977			0.933			0.997	
Flt Protected		0.996			0.971			0.995			0.993	
Satd. Flow (prot)	0	1556	0	0	1769	0	0	1659	0	0	1648	0
Flt Permitted		0.996			0.971			0.995			0.993	
Satd. Flow (perm)	0	1556	0	0	1769	0	0	1659	0	0	1648	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	60%	0%	3%	0%	0%	18%	19%	14%	0%	42%	10%	50%
Adj. Flow (vph)	7	0	78	54	20	15	20	89	107	14	81	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	89	0	0	216	0	0	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.2%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















2035 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	74	51	19	14	19	85	102	13	77	2
Future Volume (Veh/h)	7	0	74	51	19	14	19	85	102	13	77	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	0	78	54	20	15	20	89	107	14	81	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	318	346	82	370	294	142	83			196		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	318	346	82	370	294	142	83			196		
tC, single (s)	7.7	6.5	6.2	7.1	6.5	6.4	4.3			4.5		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.5	2.4			2.6		
p0 queue free %	99	100	92	90	97	98	99			99		
cM capacity (veh/h)	504	565	975	532	605	864	1413			1170		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	85	89	216	97								
Volume Left	7	54	20	14								
Volume Right	78	15	107	2								
cSH	905	586	1413	1170								
Volume to Capacity	0.09	0.15	0.01	0.01								
Queue Length 95th (m)	2.4	4.1	0.3	0.3								
Control Delay (s)	9.4	12.2	0.8	1.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.4	12.2	0.8	1.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization			32.2%		ICU Level of Service				A			
Analysis Period (min)			15									



















Lanes, Volumes, Timings  
3: Moulinette Road & Private Driveway/County Road 29

2035 Future Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	49	3	1	4	17	83	4	32	0
Future Volume (vph)	0	0	7	49	3	1	4	17	83	4	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.998			0.892				
Flt Protected					0.956			0.998			0.995	
Satd. Flow (prot)	0	1385	0	0	1583	0	0	1426	0	0	1912	0
Flt Permitted					0.956			0.998			0.995	
Satd. Flow (perm)	0	1385	0	0	1583	0	0	1426	0	0	1912	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	20%	17%	0%	0%	0%	0%	25%	0%	0%	0%
Adj. Flow (vph)	0	0	7	52	3	1	4	18	87	4	34	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	56	0	0	109	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	23.1%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

















2035 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	49	3	1	4	17	83	4	32	0
Future Volume (Veh/h)	0	0	7	49	3	1	4	17	83	4	32	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	7	52	3	1	4	18	87	4	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	114	155	34	118	112	62	34			105		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	114	155	34	118	112	62	34			105		
tC, single (s)	7.1	6.5	6.4	7.3	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	94	100	100	100			100		
cM capacity (veh/h)	861	737	990	814	778	1009	1591			1499		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	56	109	38								
Volume Left	0	52	4	4								
Volume Right	7	1	87	0								
cSH	990	815	1591	1499								
Volume to Capacity	0.01	0.07	0.00	0.00								
Queue Length 95th (m)	0.2	1.7	0.1	0.1								
Control Delay (s)	8.7	9.7	0.3	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	9.7	0.3	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay	3.2											
Intersection Capacity Utilization	23.1%			ICU Level of Service					A			
Analysis Period (min)	15											

Lanes, Volumes, Timings

2035 Future Background AM

















4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	0	7	0	0	0	12	76	0	0	149	44
Future Volume (vph)	64	0	7	0	0	0	12	76	0	0	149	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986									0.969	
Flt Protected		0.957						0.993				
Satd. Flow (prot)	0	1492	0	0	1921	0	0	1652	0	0	1621	0
Flt Permitted		0.957						0.993				
Satd. Flow (perm)	0	1492	0	0	1921	0	0	1652	0	0	1621	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	24%	0%	0%	0%	0%	0%	0%	18%	0%	0%	8%	38%
Adj. Flow (vph)	78	0	9	0	0	0	15	93	0	0	182	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	0	0	0	108	0	0	236	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	24.8%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis




















2035 Future Background AM

## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	0	7	0	0	0	12	76	0	0	149	44
Future Volume (Veh/h)	64	0	7	0	0	0	12	76	0	0	149	44
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	78	0	9	0	0	0	15	93	0	0	182	54
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	332	332	209	341	359	93	236				93	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	332	332	209	341	359	93	236				93	
tC, single (s)	7.3	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	86	100	99	100	100	100	99				100	
cM capacity (veh/h)	577	584	836	605	564	970	1343				1514	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	87	0	108	236								
Volume Left	78	0	15	0								
Volume Right	9	0	0	54								
cSH	596	1700	1343	1514								
Volume to Capacity	0.15	0.00	0.01	0.00								
Queue Length 95th (m)	3.9	0.0	0.3	0.0								
Control Delay (s)	12.1	0.0	1.1	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	12.1	0.0	1.1	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay				2.7								
Intersection Capacity Utilization				24.8%	ICU Level of Service				A			
Analysis Period (min)				15								




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	488	0	0	184	73	0	0	0	212	0	18
Future Volume (vph)	5	488	0	0	184	73	0	0	0	212	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	5%	0%	0%	0%	2%	0%	14%
Adj. Flow (vph)	6	574	0	0	216	86	0	0	0	249	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	574	0	0	216	86	0	0	0	0	249	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	44.1%						ICU Level of Service A					
Analysis Period (min)	15											




















# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2035 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	488	0	0	184	73	0	0	0	212	0	18
Future Volume (Veh/h)	5	488	0	0	184	73	0	0	0	212	0	18
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	574	0	0	216	86	0	0	0	249	0	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	302			574			812	888	574	802	802	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	302			574			812	888	574	802	802	216
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	17	100	97
cM capacity (veh/h)	1163			1009			291	283	522	301	318	795
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	6	574	216	86	0	270						
Volume Left	6	0	0	0	0	249						
Volume Right	0	0	0	86	0	21						
cSH	1163	1700	1009	1700	1700	320						
Volume to Capacity	0.01	0.34	0.00	0.05	0.00	0.84						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	56.2						
Control Delay (s)	8.1	0.0	0.0	0.0	0.0	55.1						
Lane LOS	A				A	F						
Approach Delay (s)	0.1		0.0		0.0	55.1						
Approach LOS					A	F						
Intersection Summary												
Average Delay				13.0								
Intersection Capacity Utilization				44.1%	ICU Level of Service				A			
Analysis Period (min)				15								













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Background AM- Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	488	0	0	184	73	0	0	0	212	0	18
Future Volume (vph)	5	488	0	0	184	73	0	0	0	212	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Flt Permitted	0.623										0.757	
Satd. Flow (perm)	997	1830	0	0	1779	1555	0	1921	0	0	1426	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						86						30
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	5%	0%	0%	0%	2%	0%	14%
Adj. Flow (vph)	6	574	0	0	216	86	0	0	0	249	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	574	0	0	216	86	0	0	0	0	249	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm				Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Background AM- Int#5 Signalized

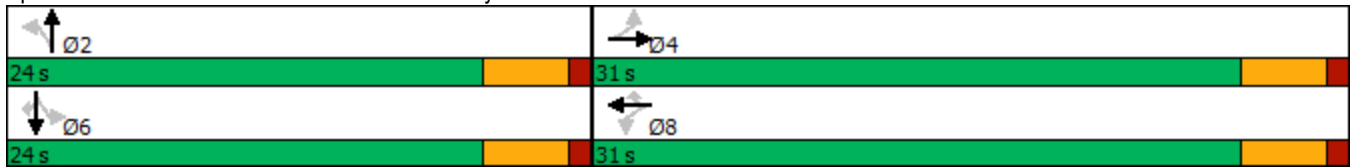
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	31.0	31.0		31.0	31.0	31.0	24.0	24.0		24.0	24.0	24.0
Total Split (%)	56.4%	56.4%		56.4%	56.4%	56.4%	43.6%	43.6%		43.6%	43.6%	43.6%
Maximum Green (s)	26.5	26.5		26.5	26.5	26.5	19.5	19.5		19.5	19.5	19.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	19.7	19.7			19.7	19.7					19.7	19.7
Actuated g/C Ratio	0.41	0.41			0.41	0.41					0.41	0.41
v/c Ratio	0.01	0.77			0.30	0.13					0.43	0.04
Control Delay	7.8	20.2			10.4	2.8					15.0	4.5
Queue Delay	0.0	0.0			0.0	0.0					0.0	0.0
Total Delay	7.8	20.2			10.4	2.8					15.0	4.5
LOS	A	C			B	A					B	A
Approach Delay		20.1			8.3						14.2	
Approach LOS		C			A						B	
Queue Length 50th (m)	0.3	39.8			11.7	0.0					15.0	0.0
Queue Length 95th (m)	1.6	61.6			20.7	4.7					33.5	2.6
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	551	1011			983	898					580	600
Starvation Cap Reductn	0	0			0	0					0	0
Spillback Cap Reductn	0	0			0	0					0	0
Storage Cap Reductn	0	0			0	0					0	0
Reduced v/c Ratio	0.01	0.57			0.22	0.10					0.43	0.04
Intersection Summary												
Area Type: Other												
Cycle Length: 55												
Actuated Cycle Length: 48.5												
Natural Cycle: 55												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.77												
Intersection Signal Delay: 15.6 Intersection LOS: B												
Intersection Capacity Utilization 44.9% ICU Level of Service A												
Analysis Period (min) 15												



Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2035 Future Background AM- Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2



Lanes, Volumes, Timings  
6: CR 15 & CR 36










2035 Future Background AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	12	62	32	10	95
Future Volume (vph)	30	12	62	32	10	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962		0.954			
Flt Protected	0.965					0.995
Satd. Flow (prot)	1540	0	1697	0	0	1851
Flt Permitted	0.965					0.995
Satd. Flow (perm)	1540	0	1697	0	0	1851
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	23%	7%	10%	6%	3%
Adj. Flow (vph)	33	13	67	35	11	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	102	0	0	114
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.2%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

















## 6: CR 15 & CR 36

2035 Future Background AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	12	62	32	10	95
Future Volume (Veh/h)	30	12	62	32	10	95
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)	33	13	67	35	11	103
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	210	84			102	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	210	84			102	
tC, single (s)	6.5	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.3	
p0 queue free %	96	99			99	
cM capacity (veh/h)	749	920			1465	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	46	102	114			
Volume Left	33	0	11			
Volume Right	13	35	0			
cSH	791	1700	1465			
Volume to Capacity	0.06	0.06	0.01			
Queue Length 95th (m)	1.4	0.0	0.2			
Control Delay (s)	9.8	0.0	0.8			
Lane LOS	A		A			
Approach Delay (s)	9.8	0.0	0.8			
Approach LOS	A					
Intersection Summary						
Average Delay		2.1				
Intersection Capacity Utilization		22.2%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2035 Future Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	130	0	0	0	48	23	1	2	85	42
Future Volume (vph)	66	0	130	0	0	0	48	23	1	2	85	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911						0.998			0.956	
Flt Protected		0.983						0.968			0.999	
Satd. Flow (prot)	0	1633	0	0	1921	0	0	1769	0	0	1712	0
Flt Permitted		0.983						0.968			0.999	
Satd. Flow (perm)	0	1633	0	0	1921	0	0	1769	0	0	1712	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	0%	5%	0%	0%	0%	4%	7%	0%	88%	3%	12%
Adj. Flow (vph)	73	0	143	0	0	0	53	25	1	2	93	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	216	0	0	0	0	0	79	0	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.7%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 7: CR 15 & CR 36/Jenkins Road

2035 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	0	130	0	0	0	48	23	1	2	85	42
Future Volume (Veh/h)	66	0	130	0	0	0	48	23	1	2	85	42
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	73	0	143	0	0	0	53	25	1	2	93	46
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	252	252	116	394	274	26	139				26	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	252	252	116	394	274	26	139				26	
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1				5.0	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2				3.0	
p0 queue free %	89	100	85	100	100	100	96				100	
cM capacity (veh/h)	673	629	928	467	612	1056	1432				1173	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	216	0	79	141								
Volume Left	73	0	53	2								
Volume Right	143	0	1	46								
cSH	823	1700	1432	1173								
Volume to Capacity	0.26	0.00	0.04	0.00								
Queue Length 95th (m)	8.0	0.0	0.9	0.0								
Control Delay (s)	10.9	0.0	5.2	0.1								
Lane LOS	B	A	A	A								
Approach Delay (s)	10.9	0.0	5.2	0.1								
Approach LOS	B	A										
Intersection Summary												
Average Delay				6.4								
Intersection Capacity Utilization				32.7%	ICU Level of Service				A			
Analysis Period (min)				15								

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	16.1	29.6	5.8
Average Queue (m)	8.3	7.9	0.2
95th Queue (m)	15.1	20.3	2.8
Link Distance (m)	172.0	233.5	111.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.0	28.5	12.4	15.9
Average Queue (m)	8.8	11.0	0.7	1.1
95th Queue (m)	15.6	19.3	5.9	6.8
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	14.6	19.3	1.8
Average Queue (m)	2.1	8.4	0.1
95th Queue (m)	9.2	16.1	1.7
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	23.2	7.2	1.3
Average Queue (m)	10.8	0.6	0.0
95th Queue (m)	20.4	3.7	0.9
Link Distance (m)	300.4	1758.1	238.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	SB	SB
Directions Served	L	LT	R
Maximum Queue (m)	5.0	94.5	22.6
Average Queue (m)	0.3	37.5	8.0
95th Queue (m)	2.5	81.2	23.7
Link Distance (m)		387.5	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	80.0		15.0
Storage Blk Time (%)		52	1
Queuing Penalty (veh)		9	1

Intersection: 6: CR 15 & CR 36

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	25.4	3.3	3.7
Average Queue (m)	9.1	0.1	0.2
95th Queue (m)	19.3	2.4	2.3
Link Distance (m)	147.0	140.5	178.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Intersection: 7: CR 15 & CR 36/Jenkins Road

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Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	25.6	11.9
Average Queue (m)	13.8	1.6
95th Queue (m)	22.1	7.6
Link Distance (m)	178.3	206.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 8: Avonmore Road & Site Access

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	26.3	4.6
Average Queue (m)	5.4	0.2
95th Queue (m)	17.5	1.9
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 11

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Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	LT	R	LT	R
Maximum Queue (m)	8.4	79.4	25.5	8.6	41.9	22.3
Average Queue (m)	1.0	33.8	10.5	2.6	17.5	3.6
95th Queue (m)	5.0	59.6	21.1	6.4	33.0	14.3
Link Distance (m)		163.6	189.1		387.5	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			60.0		15.0
Storage Blk Time (%)		0			10	0
Queuing Penalty (veh)		0			2	1

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps










2035 Future Background PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	112	74	178	251	26
Future Volume (vph)	13	112	74	178	251	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879	0.987				
Flt Protected	0.995	0.986				
Satd. Flow (prot)	1650	0	0	1836	1862	0
Flt Permitted	0.995	0.986				
Satd. Flow (perm)	1650	0	0	1836	1862	0
Link Speed (k/h)	30	80				
Link Distance (m)	181.7	243.4				
Travel Time (s)	21.8	11.0				
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	17%	0%	6%	2%	2%	0%
Adj. Flow (vph)	15	126	83	200	282	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	141	0	0	283	311	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	8.0	0.0				
Link Offset(m)	0.0	0.0				
Crosswalk Width(m)	4.9	4.9				
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop	Free			Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.9%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 1: Moulinette Road & Hwy 401 EB Ramps

















2035 Future Background PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	112	74	178	251	26
Future Volume (Veh/h)	13	112	74	178	251	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	15	126	83	200	282	29
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	662	296	311			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	662	296	311			
tC, single (s)	6.6	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.7	3.3	2.3			
p0 queue free %	96	83	93			
cM capacity (veh/h)	377	748	1227			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	141	283	311			
Volume Left	15	83	0			
Volume Right	126	0	29			
cSH	677	1227	1700			
Volume to Capacity	0.21	0.07	0.18			
Queue Length 95th (m)	5.9	1.7	0.0			
Control Delay (s)	11.7	2.8	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.7	2.8	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.3				
Intersection Capacity Utilization		45.9%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings

2035 Future Background PM

















2: Moulinette Road & County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	37	146	38	26	27	96	67	3	94	2
Future Volume (vph)	1	1	37	146	38	26	27	96	67	3	94	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.872			0.983			0.953			0.997	
Flt Protected		0.999			0.966			0.993			0.999	
Satd. Flow (prot)	0	1627	0	0	1766	0	0	1726	0	0	1884	0
Flt Permitted		0.999			0.966			0.993			0.999	
Satd. Flow (perm)	0	1627	0	0	1766	0	0	1726	0	0	1884	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	3%	4%	0%	4%	0%	5%	8%	55%	0%	0%
Adj. Flow (vph)	1	1	39	155	40	28	29	102	71	3	100	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	223	0	0	202	0	0	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.3%					ICU Level of Service A						
Analysis Period (min)	15											

















# HCM Unsignalized Intersection Capacity Analysis

## 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

2035 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	37	146	38	26	27	96	67	3	94	2
Future Volume (Veh/h)	1	1	37	146	38	26	27	96	67	3	94	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	1	39	155	40	28	29	102	71	3	100	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	350	338	101	342	304	138	102			173		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	350	338	101	342	304	138	102			173		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.7		
p0 queue free %	100	100	96	73	93	97	98			100		
cM capacity (veh/h)	550	574	952	573	600	906	1503			1139		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	41	223	202	105								
Volume Left	1	155	29	3								
Volume Right	39	28	71	2								
cSH	920	606	1503	1139								
Volume to Capacity	0.04	0.37	0.02	0.00								
Queue Length 95th (m)	1.1	12.8	0.4	0.1								
Control Delay (s)	9.1	14.4	1.2	0.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.1	14.4	1.2	0.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			6.7									
Intersection Capacity Utilization			42.3%		ICU Level of Service				A			
Analysis Period (min)			15									

















## 3: Moulinette Road &amp; Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	2	76	0	6	0	37	83	3	19	0
Future Volume (vph)	0	0	2	76	0	6	0	37	83	3	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.990			0.907				
Flt Protected					0.956						0.994	
Satd. Flow (prot)	0	1662	0	0	1523	0	0	1619	0	0	1910	0
Flt Permitted					0.956						0.994	
Satd. Flow (perm)	0	1662	0	0	1523	0	0	1619	0	0	1910	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	21%	0%	0%	0%	0%	11%	0%	0%	0%
Adj. Flow (vph)	0	0	3	109	0	9	0	53	119	4	27	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	118	0	0	172	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.0%						ICU Level of Service A					
Analysis Period (min)	15											

















# HCM Unsignalized Intersection Capacity Analysis

## 3: Moulinette Road & Private Driveway/County Road 29

2035 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	76	0	6	0	37	83	3	19	0
Future Volume (Veh/h)	0	0	2	76	0	6	0	37	83	3	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	0	0	3	109	0	9	0	53	119	4	27	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	156	207	27	150	148	112	27	172				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	156	207	27	150	148	112	27	172				
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.2	4.1	4.1				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2	2.2				
p0 queue free %	100	100	100	86	100	99	100	100				
cM capacity (veh/h)	805	691	1054	772	746	946	1600	1417				
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	118	172	31								
Volume Left	0	109	0	4								
Volume Right	3	9	119	0								
cSH	1054	783	1600	1417								
Volume to Capacity	0.00	0.15	0.00	0.00								
Queue Length 95th (m)	0.1	4.0	0.0	0.1								
Control Delay (s)	8.4	10.4	0.0	1.0								
Lane LOS	A	B		A								
Approach Delay (s)	8.4	10.4	0.0	1.0								
Approach LOS	A	B										
Intersection Summary												
Average Delay	4.0											
Intersection Capacity Utilization	25.0%			ICU Level of Service					A			
Analysis Period (min)	15											

## 4: Avonmore Road/Avnomore Road &amp; County Road 29/Pieur Road

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1	14	2	0	0	14	158	0	0	128	62
Future Volume (vph)	61	1	14	2	0	0	14	158	0	0	128	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975									0.956	
Flt Protected		0.961			0.950			0.996				
Satd. Flow (prot)	0	1593	0	0	1825	0	0	1726	0	0	1635	0
Flt Permitted		0.961			0.950			0.996				
Satd. Flow (perm)	0	1593	0	0	1825	0	0	1726	0	0	1635	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	10%	0%	27%	0%	0%	0%	9%	11%	0%	0%	11%	15%
Adj. Flow (vph)	75	1	17	2	0	0	17	195	0	0	158	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	0	0	2	0	0	212	0	0	235	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	30.5%											
Analysis Period (min)	15											
	ICU Level of Service A											



# HCM Unsignalized Intersection Capacity Analysis




















2035 Future Background PM

## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	1	14	2	0	0	14	158	0	0	128	62
Future Volume (Veh/h)	61	1	14	2	0	0	14	158	0	0	128	62
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	75	1	17	2	0	0	17	195	0	0	158	77
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	426	426	196	443	464	195	235				195	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	426	426	196	443	464	195	235				195	
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.2				4.1	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.3				2.2	
p0 queue free %	86	100	98	100	100	100	99				100	
cM capacity (veh/h)	520	517	785	511	492	851	1292				1390	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	93	2	212	235								
Volume Left	75	2	17	0								
Volume Right	17	0	0	77								
cSH	554	511	1292	1390								
Volume to Capacity	0.17	0.00	0.01	0.00								
Queue Length 95th (m)	4.5	0.1	0.3	0.0								
Control Delay (s)	12.8	12.1	0.7	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	12.8	12.1	0.7	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay				2.5								
Intersection Capacity Utilization				30.5%	ICU Level of Service				A			
Analysis Period (min)				15								




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	354	1	0	497	249	0	1	0	128	0	11
Future Volume (vph)	15	354	1	0	497	249	0	1	0	128	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	16	381	1	0	534	268	0	1	0	138	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	382	0	0	534	268	0	1	0	0	138	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	47.4%						ICU Level of Service A					
Analysis Period (min)	15											




















# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2035 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	354	1	0	497	249	0	1	0	128	0	11
Future Volume (Veh/h)	15	354	1	0	497	249	0	1	0	128	0	11
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	16	381	1	0	534	268	0	1	0	138	0	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	802			382			954	1216	382	948	948	534
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	802			382			954	1216	382	948	948	534
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	98			100			100	99	100	42	100	98
cM capacity (veh/h)	800			1188			232	179	670	237	258	531
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	16	382	534	268	1	150						
Volume Left	16	0	0	0	0	138						
Volume Right	0	1	0	268	0	12						
cSH	800	1700	1188	1700	179	255						
Volume to Capacity	0.02	0.22	0.00	0.16	0.01	0.59						
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.1	25.9						
Control Delay (s)	9.6	0.0	0.0	0.0	25.2	37.6						
Lane LOS	A				D	E						
Approach Delay (s)	0.4		0.0		25.2	37.6						
Approach LOS					D	E						
Intersection Summary												
Average Delay				4.3								
Intersection Capacity Utilization				47.4%	ICU Level of Service				A			
Analysis Period (min)				15								













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Background PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	354	1	0	497	249	0	1	0	128	0	11
Future Volume (vph)	15	354	1	0	497	249	0	1	0	128	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.279										0.757	
Satd. Flow (perm)	501	1847	0	0	1865	1601	0	1921	0	0	1440	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						268						33
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	16	381	1	0	534	268	0	1	0	138	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	382	0	0	534	268	0	1	0	0	138	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm		NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

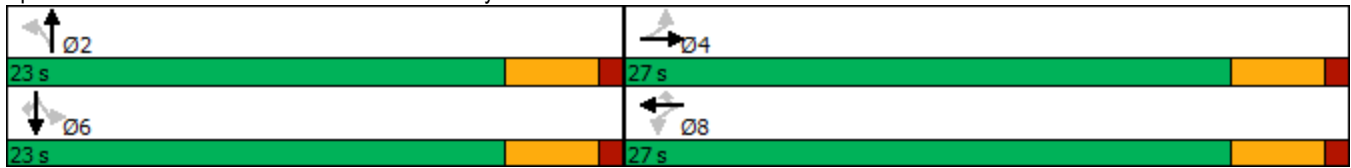
2035 Future Background PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	27.0	27.0		27.0	27.0	27.0	23.0	23.0		23.0	23.0	23.0
Total Split (%)	54.0%	54.0%		54.0%	54.0%	54.0%	46.0%	46.0%		46.0%	46.0%	46.0%
Maximum Green (s)	22.5	22.5		22.5	22.5	22.5	18.5	18.5		18.5	18.5	18.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	17.9	17.9			17.9	17.9		18.7			18.7	18.7
Actuated g/C Ratio	0.39	0.39			0.39	0.39		0.41			0.41	0.41
v/c Ratio	0.08	0.53			0.73	0.34		0.00			0.23	0.02
Control Delay	9.2	13.3			18.3	2.8		10.0			11.8	2.0
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	9.2	13.3			18.3	2.8		10.0			11.8	2.0
LOS	A	B			B	A		A			B	A
Approach Delay		13.1			13.1			10.0			11.0	
Approach LOS		B			B			A			B	
Queue Length 50th (m)	0.8	21.9			34.0	0.0		0.1			7.3	0.0
Queue Length 95th (m)	3.4	39.4			59.7	9.2		0.8			18.1	1.2
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	249	919			928	931		786			589	626
Starvation Cap Reductn	0	0			0	0		0			0	0
Spillback Cap Reductn	0	0			0	0		0			0	0
Storage Cap Reductn	0	0			0	0		0			0	0
Reduced v/c Ratio	0.06	0.42			0.58	0.29		0.00			0.23	0.02
Intersection Summary												
Area Type: Other												
Cycle Length: 50												
Actuated Cycle Length: 45.7												
Natural Cycle: 50												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.73												
Intersection Signal Delay: 12.9 Intersection LOS: B												
Intersection Capacity Utilization 49.5% ICU Level of Service A												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2035 Future Background PM-Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2












Lanes, Volumes, Timings  
6: CR 15 & CR 36

2035 Future Background PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	31	19	117	36	18	82
Future Volume (vph)	31	19	117	36	18	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949		0.968			
Flt Protected	0.970					0.991
Satd. Flow (prot)	1690	0	1798	0	0	1868
Flt Permitted	0.970					0.991
Satd. Flow (perm)	1690	0	1798	0	0	1868
Link Speed (k/h)	48		48			48
Link Distance (m)	130.8		142.4			194.0
Travel Time (s)	9.8		10.7			14.6
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	9%	2%	8%	6%	1%
Adj. Flow (vph)	39	24	148	46	23	104
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	0	194	0	0	127
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.0%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis6: CR 15 & CR 36

















2035 Future Background PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	19	117	36	18	82
Future Volume (Veh/h)	31	19	117	36	18	82
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	39	24	148	46	23	104
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	321	171			194	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	321	171			194	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	94	97			98	
cM capacity (veh/h)	661	855			1355	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	63	194	127			
Volume Left	39	0	23			
Volume Right	24	46	0			
cSH	724	1700	1355			
Volume to Capacity	0.09	0.11	0.02			
Queue Length 95th (m)	2.2	0.0	0.4			
Control Delay (s)	10.4	0.0	1.5			
Lane LOS	B		A			
Approach Delay (s)	10.4	0.0	1.5			
Approach LOS	B					
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		27.0%		ICU Level of Service		A
Analysis Period (min)		15				



Lanes, Volumes, Timings  
7: CR 15 /CR 15 & CR 36/Jenkins Road

















2035 Future Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	0	108	2	0	1	159	61	1	1	53	80
Future Volume (vph)	63	0	108	2	0	1	159	61	1	1	53	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.915			0.955			0.999			0.920	
Flt Protected		0.982			0.968			0.965				
Satd. Flow (prot)	0	1674	0	0	1776	0	0	1801	0	0	1670	0
Flt Permitted		0.982			0.968			0.965				
Satd. Flow (perm)	0	1674	0	0	1776	0	0	1801	0	0	1670	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		112.2			145.8			127.1			176.1	
Travel Time (s)		8.4			10.9			9.5			13.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	2%	5%	0%	100%	13%	0%
Adj. Flow (vph)	73	0	126	2	0	1	185	71	1	1	62	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	3	0	0	257	0	0	156	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	40.2%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 7: CR 15 /CR 15 & CR 36/Jenkins Road

2035 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	0	108	2	0	1	159	61	1	1	53	80
Future Volume (Veh/h)	63	0	108	2	0	1	159	61	1	1	53	80
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	73	0	126	2	0	1	185	71	1	1	62	93
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	553	552	108	678	598	72	155				72	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	553	552	108	678	598	72	155				72	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				5.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				3.1	
p0 queue free %	82	100	87	99	100	100	87				100	
cM capacity (veh/h)	395	386	945	288	364	996	1425				1082	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	199	3	257	156								
Volume Left	73	2	185	1								
Volume Right	126	1	1	93								
cSH	625	377	1425	1082								
Volume to Capacity	0.32	0.01	0.13	0.00								
Queue Length 95th (m)	10.4	0.2	3.4	0.0								
Control Delay (s)	13.4	14.6	6.0	0.1								
Lane LOS	B	B	A	A								
Approach Delay (s)	13.4	14.6	6.0	0.1								
Approach LOS	B	B										
Intersection Summary												
Average Delay				6.9								
Intersection Capacity Utilization				40.2%	ICU Level of Service				A			
Analysis Period (min)				15								

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	23.5	23.2	1.2
Average Queue (m)	12.4	5.3	0.0
95th Queue (m)	20.5	16.1	0.8
Link Distance (m)	172.0	233.5	111.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	14.4	37.4	13.5	4.6
Average Queue (m)	6.0	17.0	1.1	0.2
95th Queue (m)	12.1	28.3	6.6	2.3
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	6.7	20.8	3.4
Average Queue (m)	0.3	10.0	0.1
95th Queue (m)	2.7	18.3	1.7
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	24.6	8.9	3.0
Average Queue (m)	10.4	0.5	0.2
95th Queue (m)	19.5	4.0	2.1
Link Distance (m)	300.4	60.6	1758.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	WB	NB	SB	SB
Directions Served	L	R	LTR	LT	R
Maximum Queue (m)	11.8	0.9	8.3	79.6	22.6
Average Queue (m)	2.1	0.0	0.4	32.2	5.9
95th Queue (m)	8.2	0.6	3.0	68.0	20.7
Link Distance (m)			51.8	387.5	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	80.0	60.0			15.0
Storage Blk Time (%)				52	1
Queuing Penalty (veh)				6	1

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	19.3	10.5
Average Queue (m)	8.3	1.2
95th Queue (m)	16.2	6.3
Link Distance (m)	125.5	185.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: CR 15 /CR 15 & CR 36/Jenkins Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	27.1	7.3	19.7	0.2
Average Queue (m)	13.3	0.6	6.0	0.0
95th Queue (m)	22.3	4.0	15.9	0.1
Link Distance (m)	107.0	133.6	122.0	161.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Avonmore Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	21.2	3.0
Average Queue (m)	5.6	0.2
95th Queue (m)	17.1	2.5
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary










Network wide Queuing Penalty: 7
---------------------------------

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	LT	R
Maximum Queue (m)	21.3	53.0	61.9	23.1	1.7	28.8	19.3
Average Queue (m)	3.4	22.1	30.3	9.8	0.1	12.3	2.7
95th Queue (m)	13.4	40.9	51.2	19.1	1.2	23.8	11.5
Link Distance (m)		163.6	189.1		51.8	387.5	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	80.0			60.0			15.0
Storage Blk Time (%)			0			6	0
Queuing Penalty (veh)			0			1	0

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps










2040 Future Background AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	43	134	204	137	72
Future Volume (vph)	6	43	134	204	137	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882				0.953	
Flt Protected	0.994				0.981	
Satd. Flow (prot)	1587	0	0	1732	1728	0
Flt Permitted	0.994				0.981	
Satd. Flow (perm)	1587	0	0	1732	1728	0
Link Speed (k/h)	30				80	80
Link Distance (m)	181.7				243.4	132.3
Travel Time (s)	21.8				11.0	6.0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	7%	4%	12%	8%	2%
Adj. Flow (vph)	7	50	156	237	159	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	393	243	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	8.0				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	4.9				4.9	4.9
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24	14		
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	43.1%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 1: Moulinette Road & Hwy 401 EB Ramps

2040 Future Background AM

















						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	43	134	204	137	72
Future Volume (Veh/h)	6	43	134	204	137	72
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	7	50	156	237	159	84
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	750	201	243			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	750	201	243			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	98	94	88			
cM capacity (veh/h)	336	827	1312			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	57	393	243			
Volume Left	7	156	0			
Volume Right	50	0	84			
cSH	702	1312	1700			
Volume to Capacity	0.08	0.12	0.14			
Queue Length 95th (m)	2.0	3.1	0.0			
Control Delay (s)	10.6	3.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.6	3.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			3.1			
Intersection Capacity Utilization			43.1%	ICU Level of Service		A
Analysis Period (min)			15			



Lanes, Volumes, Timings

2040 Future Background AM

















2: Moulinette Road & County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	77	52	19	15	19	87	103	14	79	2
Future Volume (vph)	7	0	77	52	19	15	19	87	103	14	79	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.876			0.976			0.934			0.997	
Flt Protected		0.996			0.971			0.995			0.993	
Satd. Flow (prot)	0	1559	0	0	1765	0	0	1660	0	0	1645	0
Flt Permitted		0.996			0.971			0.995			0.993	
Satd. Flow (perm)	0	1559	0	0	1765	0	0	1660	0	0	1645	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	60%	0%	3%	0%	0%	18%	19%	14%	0%	42%	10%	50%
Adj. Flow (vph)	7	0	81	55	20	16	20	92	108	15	83	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	91	0	0	220	0	0	100	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.3%											
Analysis Period (min)	15											
	ICU Level of Service A											

# HCM Unsignalized Intersection Capacity Analysis

## 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















2040 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	77	52	19	15	19	87	103	14	79	2
Future Volume (Veh/h)	7	0	77	52	19	15	19	87	103	14	79	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	0	81	55	20	16	20	92	108	15	83	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	326	354	84	381	301	146	85	200				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	326	354	84	381	301	146	85	200				
tC, single (s)	7.7	6.5	6.2	7.1	6.5	6.4	4.3	4.5				
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.5	2.4	2.6				
p0 queue free %	99	100	92	89	97	98	99	99				
cM capacity (veh/h)	496	559	972	521	598	860	1411	1166				
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	88	91	220	100								
Volume Left	7	55	20	15								
Volume Right	81	16	108	2								
cSH	904	578	1411	1166								
Volume to Capacity	0.10	0.16	0.01	0.01								
Queue Length 95th (m)	2.5	4.2	0.3	0.3								
Control Delay (s)	9.4	12.4	0.8	1.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.4	12.4	0.8	1.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization			32.3%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

2040 Future Background AM

















3: Moulinette Road & Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	51	3	1	4	17	85	4	32	0
Future Volume (vph)	0	0	7	51	3	1	4	17	85	4	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.998			0.892				
Flt Protected					0.956			0.998			0.995	
Satd. Flow (prot)	0	1385	0	0	1582	0	0	1425	0	0	1912	0
Flt Permitted					0.956			0.998			0.995	
Satd. Flow (perm)	0	1385	0	0	1582	0	0	1425	0	0	1912	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	20%	17%	0%	0%	0%	0%	25%	0%	0%	0%
Adj. Flow (vph)	0	0	7	54	3	1	4	18	89	4	34	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	58	0	0	111	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	23.4%						ICU Level of Service A					
Analysis Period (min)	15											

















# HCM Unsignalized Intersection Capacity Analysis

## 3: Moulinette Road & Private Driveway/County Road 29

2040 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	51	3	1	4	17	85	4	32	0
Future Volume (Veh/h)	0	0	7	51	3	1	4	17	85	4	32	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	7	54	3	1	4	18	89	4	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	115	157	34	120	112	62	34			107		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	115	157	34	120	112	62	34			107		
tC, single (s)	7.1	6.5	6.4	7.3	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	93	100	100	100			100		
cM capacity (veh/h)	860	735	990	813	777	1008	1591			1497		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	58	111	38								
Volume Left	0	54	4	4								
Volume Right	7	1	89	0								
cSH	990	814	1591	1497								
Volume to Capacity	0.01	0.07	0.00	0.00								
Queue Length 95th (m)	0.2	1.7	0.1	0.1								
Control Delay (s)	8.7	9.8	0.3	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	9.8	0.3	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			23.4%	ICU Level of Service						A		
Analysis Period (min)			15									

















## 4: Avonmore Road/Avnomore Road &amp; County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	0	7	0	0	0	12	78	0	0	154	45
Future Volume (vph)	65	0	7	0	0	0	12	78	0	0	154	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986									0.969	
Flt Protected		0.957						0.993				
Satd. Flow (prot)	0	1491	0	0	1921	0	0	1651	0	0	1622	0
Flt Permitted		0.957						0.993				
Satd. Flow (perm)	0	1491	0	0	1921	0	0	1651	0	0	1622	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	24%	0%	0%	0%	0%	0%	0%	18%	0%	0%	8%	38%
Adj. Flow (vph)	79	0	9	0	0	0	15	95	0	0	188	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	0	0	0	110	0	0	243	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	24.9%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis




















2040 Future Background AM

## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	0	7	0	0	0	12	78	0	0	154	45
Future Volume (Veh/h)	65	0	7	0	0	0	12	78	0	0	154	45
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	79	0	9	0	0	0	15	95	0	0	188	55
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	340	340	216	350	368	95	243			95		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	340	340	216	350	368	95	243			95		
tC, single (s)	7.3	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	100	99	100	100	100	99			100		
cM capacity (veh/h)	569	578	829	597	558	967	1335			1512		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	88	0	110	243								
Volume Left	79	0	15	0								
Volume Right	9	0	0	55								
cSH	588	1700	1335	1512								
Volume to Capacity	0.15	0.00	0.01	0.00								
Queue Length 95th (m)	4.0	0.0	0.3	0.0								
Control Delay (s)	12.2	0.0	1.1	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	12.2	0.0	1.1	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utilization			24.9%		ICU Level of Service					A		
Analysis Period (min)			15									




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	506	0	0	191	75	0	0	0	217	0	18
Future Volume (vph)	6	506	0	0	191	75	0	0	0	217	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	5%	0%	0%	0%	2%	0%	14%
Adj. Flow (vph)	7	595	0	0	225	88	0	0	0	255	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	595	0	0	225	88	0	0	0	0	255	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	45.3%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2




















2040 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	506	0	0	191	75	0	0	0	217	0	18
Future Volume (Veh/h)	6	506	0	0	191	75	0	0	0	217	0	18
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	7	595	0	0	225	88	0	0	0	255	0	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	313			595			844	922	595	834	834	225
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	313			595			844	922	595	834	834	225
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	11	100	97
cM capacity (veh/h)	1152			991			276	271	508	286	304	785
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	7	595	225	88	0	276						
Volume Left	7	0	0	0	0	255						
Volume Right	0	0	0	88	0	21						
cSH	1152	1700	991	1700	1700	304						
Volume to Capacity	0.01	0.35	0.00	0.05	0.00	0.91						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	65.3						
Control Delay (s)	8.1	0.0	0.0	0.0	0.0	68.9						
Lane LOS	A				A	F						
Approach Delay (s)	0.1		0.0		0.0	68.9						
Approach LOS					A	F						
Intersection Summary												
Average Delay				16.0								
Intersection Capacity Utilization				45.3%	ICU Level of Service				A			
Analysis Period (min)				15								















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Background AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	506	0	0	191	75	0	0	0	217	0	18
Future Volume (vph)	6	506	0	0	191	75	0	0	0	217	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Flt Permitted	0.618										0.757	
Satd. Flow (perm)	989	1830	0	0	1779	1555	0	1921	0	0	1426	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						88						30
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	5%	0%	0%	0%	2%	0%	14%
Adj. Flow (vph)	7	595	0	0	225	88	0	0	0	255	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	595	0	0	225	88	0	0	0	0	255	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm				Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

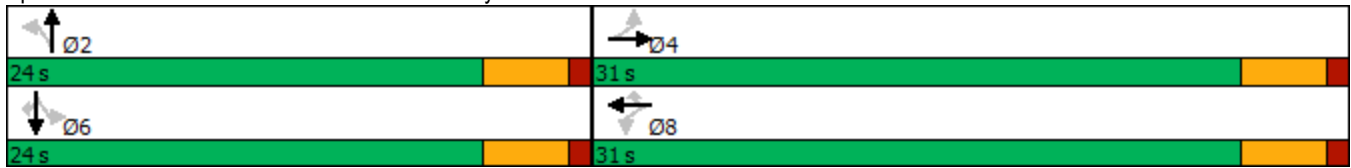
2040 Future Background AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	31.0	31.0		31.0	31.0	31.0	24.0	24.0		24.0	24.0	24.0
Total Split (%)	56.4%	56.4%		56.4%	56.4%	56.4%	43.6%	43.6%		43.6%	43.6%	43.6%
Maximum Green (s)	26.5	26.5		26.5	26.5	26.5	19.5	19.5		19.5	19.5	19.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	20.2	20.2			20.2	20.2					19.7	19.7
Actuated g/C Ratio	0.41	0.41			0.41	0.41					0.40	0.40
v/c Ratio	0.02	0.79			0.31	0.13					0.45	0.04
Control Delay	7.8	20.8			10.4	2.8					15.5	4.6
Queue Delay	0.0	0.0			0.0	0.0					0.0	0.0
Total Delay	7.8	20.8			10.4	2.8					15.5	4.6
LOS	A	C			B	A					B	A
Approach Delay		20.6			8.3						14.7	
Approach LOS		C			A						B	
Queue Length 50th (m)	0.3	41.9			12.3	0.0					16.0	0.0
Queue Length 95th (m)	1.8	65.0			21.5	4.7					34.4	2.6
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	540	999			972	889					573	593
Starvation Cap Reductn	0	0			0	0					0	0
Spillback Cap Reductn	0	0			0	0					0	0
Storage Cap Reductn	0	0			0	0					0	0
Reduced v/c Ratio	0.01	0.60			0.23	0.10					0.45	0.04
Intersection Summary												
Area Type:	Other											
Cycle Length: 55												
Actuated Cycle Length: 49.1												
Natural Cycle: 55												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.79												
Intersection Signal Delay: 16.0							Intersection LOS: B					
Intersection Capacity Utilization 46.2%							ICU Level of Service A					
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2040 Future Background AM-Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2












Lanes, Volumes, Timings  
6: CR 15 & CR 36

2040 Future Background AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	31	12	63	33	10	99
Future Volume (vph)	31	12	63	33	10	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.963		0.953			
Flt Protected	0.965					0.995
Satd. Flow (prot)	1542	0	1695	0	0	1851
Flt Permitted	0.965					0.995
Satd. Flow (perm)	1542	0	1695	0	0	1851
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	23%	7%	10%	6%	3%
Adj. Flow (vph)	34	13	68	36	11	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	104	0	0	119
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.4%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis6: CR 15 & CR 36

2040 Future Background AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	12	63	33	10	99
Future Volume (Veh/h)	31	12	63	33	10	99
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)	34	13	68	36	11	108
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	216	86			104	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	216	86			104	
tC, single (s)	6.5	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.3	
p0 queue free %	95	99			99	
cM capacity (veh/h)	743	918			1463	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	47	104	119			
Volume Left	34	0	11			
Volume Right	13	36	0			
cSH	784	1700	1463			
Volume to Capacity	0.06	0.06	0.01			
Queue Length 95th (m)	1.5	0.0	0.2			
Control Delay (s)	9.9	0.0	0.7			
Lane LOS	A		A			
Approach Delay (s)	9.9	0.0	0.7			
Approach LOS	A					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			22.4%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2040 Future Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	0	132	0	0	0	49	24	1	2	89	43
Future Volume (vph)	67	0	132	0	0	0	49	24	1	2	89	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911						0.998			0.957	
Flt Protected		0.983						0.968			0.999	
Satd. Flow (prot)	0	1633	0	0	1921	0	0	1769	0	0	1716	0
Flt Permitted		0.983						0.968			0.999	
Satd. Flow (perm)	0	1633	0	0	1921	0	0	1769	0	0	1716	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	0%	5%	0%	0%	0%	4%	7%	0%	88%	3%	12%
Adj. Flow (vph)	74	0	145	0	0	0	54	26	1	2	98	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	219	0	0	0	0	0	81	0	0	147	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	33.3%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 7: CR 15 & CR 36/Jenkins Road

2040 Future Background AM

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Traffic Volume (veh/h)	67	0	132	0	0	0	49	24	1	2	89	43								
Future Volume (Veh/h)	67	0	132	0	0	0	49	24	1	2	89	43								
Sign Control	Stop				Stop				Free											
Grade	0%				0%				0%											
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91								
Hourly flow rate (vph)	74	0	145	0	0	0	54	26	1	2	98	47								
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	260	260	122	405	284	26	145				27									
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
vCu, unblocked vol	260	260	122	405	284	26	145				27									
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1				5.0									
tC, 2 stage (s)																				
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2				3.0									
p0 queue free %	89	100	84	100	100	100	96				100									
cM capacity (veh/h)	664	622	922	457	604	1055	1425				1172									
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																
Volume Total	219	0	81	147																
Volume Left	74	0	54	2																
Volume Right	145	0	1	47																
cSH	815	1700	1425	1172																
Volume to Capacity	0.27	0.00	0.04	0.00																
Queue Length 95th (m)	8.3	0.0	0.9	0.0																
Control Delay (s)	11.0	0.0	5.2	0.1																
Lane LOS	B	A	A	A																
Approach Delay (s)	11.0	0.0	5.2	0.1																
Approach LOS	B	A																		
Intersection Summary																				
Average Delay				6.4																
Intersection Capacity Utilization				33.3%	ICU Level of Service				A											
Analysis Period (min)				15																

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	19.6	25.1	5.7
Average Queue (m)	9.0	7.7	0.2
95th Queue (m)	16.5	18.5	2.6
Link Distance (m)	172.0	233.5	111.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	20.0	26.4	11.3	17.1
Average Queue (m)	8.7	11.1	1.0	1.5
95th Queue (m)	15.3	20.4	6.4	8.4
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	15.8	18.5	3.6
Average Queue (m)	2.1	8.5	0.2
95th Queue (m)	9.6	16.3	2.4
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			



Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	21.7	8.9	1.3
Average Queue (m)	10.1	0.8	0.0
95th Queue (m)	19.0	4.9	0.9
Link Distance (m)	300.4	1758.1	238.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	SB	SB
Directions Served	L	LT	R
Maximum Queue (m)	8.2	89.0	23.2
Average Queue (m)	0.6	41.8	8.2
95th Queue (m)	4.1	83.0	24.6
Link Distance (m)		387.5	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	80.0		15.0
Storage Blk Time (%)		62	1
Queuing Penalty (veh)		11	1

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	23.6	11.0
Average Queue (m)	8.8	0.5
95th Queue (m)	17.9	4.9
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 7: CR 15 & CR 36/Jenkins Road

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Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	24.7	12.8
Average Queue (m)	14.0	2.0
95th Queue (m)	21.8	8.4
Link Distance (m)	178.3	206.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 8: Avonmore Road & Site Access

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	25.4	5.4
Average Queue (m)	5.0	0.4
95th Queue (m)	16.7	3.8
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 13










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Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	LT	R	LT	R
Maximum Queue (m)	9.8	67.5	32.8	11.8	37.8	19.5
Average Queue (m)	1.3	32.5	12.1	3.0	18.5	3.9
95th Queue (m)	6.1	53.8	25.2	8.2	33.1	15.3
Link Distance (m)		163.6	189.1		387.5	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			60.0		15.0
Storage Blk Time (%)		0			13	0
Queuing Penalty (veh)		0			2	1

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps










2040 Future Background PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	113	75	182	255	27
Future Volume (vph)	14	113	75	182	255	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.880				0.987	
Flt Protected	0.994			0.986		
Satd. Flow (prot)	1649	0	0	1836	1862	0
Flt Permitted	0.994			0.986		
Satd. Flow (perm)	1649	0	0	1836	1862	0
Link Speed (k/h)	30			80	80	
Link Distance (m)	181.7			243.4	132.3	
Travel Time (s)	21.8			11.0	6.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	17%	0%	6%	2%	2%	0%
Adj. Flow (vph)	16	127	84	204	287	30
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	0	0	288	317	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	8.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	46.5%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis

## 1: Moulinette Road & Hwy 401 EB Ramps

2040 Future Background PM

















						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	113	75	182	255	27
Future Volume (Veh/h)	14	113	75	182	255	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	16	127	84	204	287	30
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	674	302	317			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	674	302	317			
tC, single (s)	6.6	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.7	3.3	2.3			
p0 queue free %	96	83	93			
cM capacity (veh/h)	370	742	1221			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	143	288	317			
Volume Left	16	84	0			
Volume Right	127	0	30			
cSH	667	1221	1700			
Volume to Capacity	0.21	0.07	0.19			
Queue Length 95th (m)	6.1	1.7	0.0			
Control Delay (s)	11.9	2.8	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.9	2.8	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.4				
Intersection Capacity Utilization		46.5%		ICU Level of Service		A
Analysis Period (min)		15				

## 2: Moulinette Road &amp; County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	39	148	40	27	28	99	68	3	96	2
Future Volume (vph)	1	1	39	148	40	27	28	99	68	3	96	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.871			0.983			0.953			0.997	
Flt Protected		0.999			0.967			0.993			0.999	
Satd. Flow (prot)	0	1625	0	0	1769	0	0	1726	0	0	1884	0
Flt Permitted		0.999			0.967			0.993			0.999	
Satd. Flow (perm)	0	1625	0	0	1769	0	0	1726	0	0	1884	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	3%	4%	0%	4%	0%	5%	8%	55%	0%	0%
Adj. Flow (vph)	1	1	41	157	43	29	30	105	72	3	102	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	0	229	0	0	207	0	0	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.9%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















2040 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	39	148	40	27	28	99	68	3	96	2
Future Volume (Veh/h)	1	1	39	148	40	27	28	99	68	3	96	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	1	41	157	43	29	30	105	72	3	102	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	360	346	103	352	311	141	104			177		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	360	346	103	352	311	141	104			177		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.6		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.7		
p0 queue free %	100	100	96	72	93	97	98			100		
cM capacity (veh/h)	538	567	949	563	593	902	1500			1135		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	43	229	207	107								
Volume Left	1	157	30	3								
Volume Right	41	29	72	2								
cSH	918	597	1500	1135								
Volume to Capacity	0.05	0.38	0.02	0.00								
Queue Length 95th (m)	1.1	13.6	0.5	0.1								
Control Delay (s)	9.1	14.7	1.2	0.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.1	14.7	1.2	0.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			6.9									
Intersection Capacity Utilization			42.9%	ICU Level of Service						A		
Analysis Period (min)			15									

# Lanes, Volumes, Timings

2040 Future Background PM

















## 3: Moulinette Road & Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	2	78	0	6	0	37	86	3	19	0
Future Volume (vph)	0	0	2	78	0	6	0	37	86	3	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865			0.990			0.906					
Flt Protected				0.956						0.994		
Satd. Flow (prot)	0	1662	0	0	1522	0	0	1616	0	0	1910	0
Flt Permitted				0.956						0.994		
Satd. Flow (perm)	0	1662	0	0	1522	0	0	1616	0	0	1910	0
Link Speed (k/h)	50			80			80			50		
Link Distance (m)	94.7			225.1			82.0			149.3		
Travel Time (s)	6.8			10.1			3.7			10.7		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	21%	0%	0%	0%	0%	11%	0%	0%	0%
Adj. Flow (vph)	0	0	3	111	0	9	0	53	123	4	27	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	120	0	0	176	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			0.0			0.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	1.6			4.9			4.9			4.9		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control	Stop			Stop			Free			Free		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.3%			ICU Level of Service A								
Analysis Period (min)	15											



















# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

2040 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	78	0	6	0	37	86	3	19	0
Future Volume (Veh/h)	0	0	2	78	0	6	0	37	86	3	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	0	0	3	111	0	9	0	53	123	4	27	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	158	211	27	152	150	114	27				176	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	158	211	27	152	150	114	27				176	
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	86	100	99	100				100	
cM capacity (veh/h)	802	688	1054	770	744	943	1600				1412	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	120	176	31								
Volume Left	0	111	0	4								
Volume Right	3	9	123	0								
cSH	1054	780	1600	1412								
Volume to Capacity	0.00	0.15	0.00	0.00								
Queue Length 95th (m)	0.1	4.1	0.0	0.1								
Control Delay (s)	8.4	10.5	0.0	1.0								
Lane LOS	A	B		A								
Approach Delay (s)	8.4	10.5	0.0	1.0								
Approach LOS	A	B										
Intersection Summary												
Average Delay				4.0								
Intersection Capacity Utilization				25.3%	ICU Level of Service				A			
Analysis Period (min)				15								

















## 4: Avonmore Road/Avnomore Road &amp; County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1	15	2	0	0	15	163	0	0	131	63
Future Volume (vph)	63	1	15	2	0	0	15	163	0	0	131	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974									0.956	
Flt Protected		0.962			0.950			0.996				
Satd. Flow (prot)	0	1590	0	0	1825	0	0	1726	0	0	1635	0
Flt Permitted		0.962			0.950			0.996				
Satd. Flow (perm)	0	1590	0	0	1825	0	0	1726	0	0	1635	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	10%	0%	27%	0%	0%	0%	9%	11%	0%	0%	11%	15%
Adj. Flow (vph)	78	1	19	2	0	0	19	201	0	0	162	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	0	2	0	0	220	0	0	240	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	31.8%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis




















2040 Future Background PM

## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1	15	2	0	0	15	163	0	0	131	63
Future Volume (Veh/h)	63	1	15	2	0	0	15	163	0	0	131	63
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	78	1	19	2	0	0	19	201	0	0	162	78
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	440	440	201	460	479	201	240			201		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	440	440	201	460	479	201	240			201		
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.3			2.2		
p0 queue free %	85	100	98	100	100	100	99			100		
cM capacity (veh/h)	508	507	780	496	482	845	1287			1383		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	98	2	220	240								
Volume Left	78	2	19	0								
Volume Right	19	0	0	78								
cSH	545	496	1287	1383								
Volume to Capacity	0.18	0.00	0.01	0.00								
Queue Length 95th (m)	4.9	0.1	0.3	0.0								
Control Delay (s)	13.0	12.3	0.8	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	13.0	12.3	0.8	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay	2.6											
Intersection Capacity Utilization	31.8%			ICU Level of Service					A			
Analysis Period (min)	15											




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	368	1	0	515	255	0	1	0	131	0	11
Future Volume (vph)	16	368	1	0	515	255	0	1	0	131	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	17	396	1	0	554	274	0	1	0	141	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	397	0	0	554	274	0	1	0	0	141	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 48.6%						ICU Level of Service A						
Analysis Period (min) 15												




















# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2040 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	368	1	0	515	255	0	1	0	131	0	11
Future Volume (Veh/h)	16	368	1	0	515	255	0	1	0	131	0	11
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	17	396	1	0	554	274	0	1	0	141	0	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	828			397			990	1258	396	984	985	554
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	828			397			990	1258	396	984	985	554
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	98			100			100	99	100	37	100	98
cM capacity (veh/h)	782			1173			218	169	657	224	245	517
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	397	554	274	1	153						
Volume Left	17	0	0	0	0	141						
Volume Right	0	1	0	274	0	12						
cSH	782	1700	1173	1700	169	240						
Volume to Capacity	0.02	0.23	0.00	0.16	0.01	0.64						
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.1	29.6						
Control Delay (s)	9.7	0.0	0.0	0.0	26.5	43.2						
Lane LOS	A				D	E						
Approach Delay (s)	0.4		0.0		26.5	43.2						
Approach LOS					D	E						
Intersection Summary												
Average Delay				4.9								
Intersection Capacity Utilization				48.6%	ICU Level of Service				A			
Analysis Period (min)				15								













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Background PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	368	1	0	515	255	0	1	0	131	0	11
Future Volume (vph)	16	368	1	0	515	255	0	1	0	131	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.261										0.757	
Satd. Flow (perm)	469	1847	0	0	1865	1601	0	1921	0	0	1440	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						274						33
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	17	396	1	0	554	274	0	1	0	141	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	397	0	0	554	274	0	1	0	0	141	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm		NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

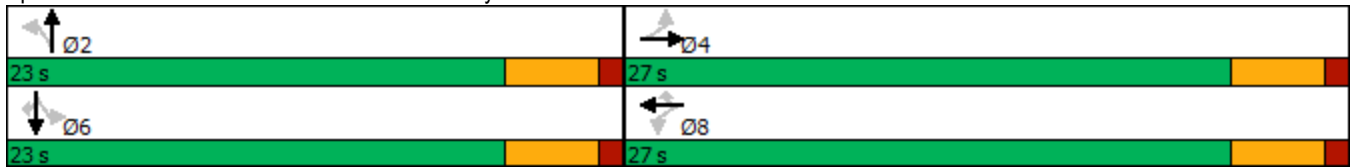
2040 Future Background PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	27.0	27.0		27.0	27.0	27.0	23.0	23.0		23.0	23.0	23.0
Total Split (%)	54.0%	54.0%		54.0%	54.0%	54.0%	46.0%	46.0%		46.0%	46.0%	46.0%
Maximum Green (s)	22.5	22.5		22.5	22.5	22.5	18.5	18.5		18.5	18.5	18.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	18.2	18.2			18.2	18.2		18.7			18.7	18.7
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.41			0.41	0.41
v/c Ratio	0.09	0.54			0.75	0.34		0.00			0.24	0.02
Control Delay	9.4	13.5			19.0	2.8		10.0			11.9	2.0
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	9.4	13.5			19.0	2.8		10.0			11.9	2.0
LOS	A	B			B	A		A			B	A
Approach Delay		13.3			13.6			10.0			11.1	
Approach LOS		B			B			A			B	
Queue Length 50th (m)	0.8	23.0			35.8	0.0		0.1			7.6	0.0
Queue Length 95th (m)	3.6	41.1			63.0	9.3		0.8			18.4	1.2
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	231	913			921	930		780			585	622
Starvation Cap Reductn	0	0			0	0		0			0	0
Spillback Cap Reductn	0	0			0	0		0			0	0
Storage Cap Reductn	0	0			0	0		0			0	0
Reduced v/c Ratio	0.07	0.43			0.60	0.29		0.00			0.24	0.02
Intersection Summary												
Area Type: Other												
Cycle Length: 50												
Actuated Cycle Length: 46												
Natural Cycle: 50												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.75												
Intersection Signal Delay: 13.2												
Intersection LOS: B												
Intersection Capacity Utilization 50.6%												
ICU Level of Service A												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Background PM-Int#5 Signalized










Splits and Phases: 5: Avonmore Road & County Road 2














Lanes, Volumes, Timings  
6: CR 15 & CR 36

2040 Future Background PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	19	121	37	18	84
Future Volume (vph)	32	19	121	37	18	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950		0.968			
Flt Protected	0.969					0.991
Satd. Flow (prot)	1691	0	1798	0	0	1868
Flt Permitted	0.969					0.991
Satd. Flow (perm)	1691	0	1798	0	0	1868
Link Speed (k/h)	48		48			48
Link Distance (m)	130.8		142.4			194.0
Travel Time (s)	9.8		10.7			14.6
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	9%	2%	8%	6%	1%
Adj. Flow (vph)	41	24	153	47	23	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	200	0	0	129
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.4%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis 6: CR 15 & CR 36

2040 Future Background PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	19	121	37	18	84
Future Volume (Veh/h)	32	19	121	37	18	84
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	41	24	153	47	23	106
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	328	176			200	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	328	176			200	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	94	97			98	
cM capacity (veh/h)	655	849			1349	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	65	200	129			
Volume Left	41	0	23			
Volume Right	24	47	0			
cSH	715	1700	1349			
Volume to Capacity	0.09	0.12	0.02			
Queue Length 95th (m)	2.3	0.0	0.4			
Control Delay (s)	10.5	0.0	1.5			
Lane LOS	B		A			
Approach Delay (s)	10.5	0.0	1.5			
Approach LOS	B					
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		27.4%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2040 Future Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	0	110	2	0	1	162	64	1	1	55	81
Future Volume (vph)	64	0	110	2	0	1	162	64	1	1	55	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.914			0.955			0.999			0.920	
Flt Protected		0.982			0.968			0.965				
Satd. Flow (prot)	0	1672	0	0	1776	0	0	1801	0	0	1670	0
Flt Permitted		0.982			0.968			0.965				
Satd. Flow (perm)	0	1672	0	0	1776	0	0	1801	0	0	1670	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		112.2			145.8			127.1			176.1	
Travel Time (s)		8.4			10.9			9.5			13.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	2%	5%	0%	100%	13%	0%
Adj. Flow (vph)	74	0	128	2	0	1	188	74	1	1	64	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	202	0	0	3	0	0	263	0	0	159	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	40.8%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 7: CR 15 & CR 36/Jenkins Road

2040 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	0	110	2	0	1	162	64	1	1	55	81
Future Volume (Veh/h)	64	0	110	2	0	1	162	64	1	1	55	81
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	74	0	128	2	0	1	188	74	1	1	64	94
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	564	564	111	692	610	74	158				75	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	564	564	111	692	610	74	158				75	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				5.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				3.1	
p0 queue free %	81	100	86	99	100	100	87				100	
cM capacity (veh/h)	387	379	942	280	357	993	1422				1078	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	202	3	263	159								
Volume Left	74	2	188	1								
Volume Right	128	1	1	94								
cSH	618	368	1422	1078								
Volume to Capacity	0.33	0.01	0.13	0.00								
Queue Length 95th (m)	10.8	0.2	3.5	0.0								
Control Delay (s)	13.6	14.9	6.0	0.1								
Lane LOS	B	B	A	A								
Approach Delay (s)	13.6	14.9	6.0	0.1								
Approach LOS	B	B										
Intersection Summary												
Average Delay				7.0								
Intersection Capacity Utilization				40.8%	ICU Level of Service				A			
Analysis Period (min)				15								

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	21.5	19.2
Average Queue (m)	12.5	5.0
95th Queue (m)	19.6	14.3
Link Distance (m)	172.0	233.5
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	12.9	40.0	9.6	4.6
Average Queue (m)	5.2	17.8	0.8	0.2
95th Queue (m)	11.6	30.8	5.2	2.5
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	6.7	20.8	1.7
Average Queue (m)	0.5	10.6	0.1
95th Queue (m)	3.9	18.2	1.2
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.1	8.9	8.8	1.2
Average Queue (m)	10.1	0.5	0.6	0.0
95th Queue (m)	18.4	4.0	4.0	0.8
Link Distance (m)	300.4	60.6	1758.1	238.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	WB	NB	SB	SB
Directions Served	L	R	LTR	LT	R
Maximum Queue (m)	12.0	0.5	1.7	79.6	22.6
Average Queue (m)	2.2	0.0	0.1	34.1	4.6
95th Queue (m)	8.0	0.3	1.7	71.0	17.3
Link Distance (m)			51.8	387.5	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	80.0	60.0			15.0
Storage Blk Time (%)				56	1
Queuing Penalty (veh)				6	1

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	18.9	13.3
Average Queue (m)	8.5	0.9
95th Queue (m)	16.1	6.2
Link Distance (m)	125.5	185.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: CR 15 & CR 36/Jenkins Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	23.9	7.2	22.0
Average Queue (m)	12.7	0.8	6.2
95th Queue (m)	19.9	4.4	16.2
Link Distance (m)	107.0	133.6	122.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 8: Avonmore Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	22.3	8.8
Average Queue (m)	5.0	0.4
95th Queue (m)	16.2	4.9
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 7
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Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	LT	R
Maximum Queue (m)	17.2	49.0	65.4	22.1	1.7	28.0	17.5
Average Queue (m)	4.1	21.4	32.0	9.8	0.1	12.5	1.6
95th Queue (m)	12.5	38.2	55.1	18.9	1.2	23.4	8.9
Link Distance (m)		163.6	189.1		51.8	387.5	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	80.0			60.0			15.0
Storage Blk Time (%)			0			6	0
Queuing Penalty (veh)			1			1	0



Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps










2045 Future Background AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	44	136	207	141	74
Future Volume (vph)	6	44	136	207	141	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.881				0.954	
Flt Protected	0.994				0.981	
Satd. Flow (prot)	1585	0	0	1732	1730	0
Flt Permitted	0.994				0.981	
Satd. Flow (perm)	1585	0	0	1732	1730	0
Link Speed (k/h)	30				80	80
Link Distance (m)	181.7				243.4	132.3
Travel Time (s)	21.8				11.0	6.0
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	7%	4%	12%	8%	2%
Adj. Flow (vph)	7	51	158	241	164	86
Shared Lane Traffic (%)						
Lane Group Flow (vph)	58	0	0	399	250	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	8.0				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	4.9				4.9	4.9
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24	14		
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	43.7%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 1: Moulinette Road & Hwy 401 EB Ramps

















2045 Future Background AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	44	136	207	141	74
Future Volume (Veh/h)	6	44	136	207	141	74
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	7	51	158	241	164	86
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	764	207	250			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	764	207	250			
tC, single (s)	6.4	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.4	2.2			
p0 queue free %	98	94	88			
cM capacity (veh/h)	329	821	1304			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	58	399	250			
Volume Left	7	158	0			
Volume Right	51	0	86			
cSH	696	1304	1700			
Volume to Capacity	0.08	0.12	0.15			
Queue Length 95th (m)	2.1	3.1	0.0			
Control Delay (s)	10.6	3.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.6	3.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.1				
Intersection Capacity Utilization		43.7%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings

2045 Future Background AM

















2: Moulinette Road & County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	80	53	20	15	20	89	104	14	82	2
Future Volume (vph)	7	0	80	53	20	15	20	89	104	14	82	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.875			0.977			0.934			0.997	
Flt Protected		0.996			0.971			0.995			0.993	
Satd. Flow (prot)	0	1559	0	0	1768	0	0	1658	0	0	1648	0
Flt Permitted		0.996			0.971			0.995			0.993	
Satd. Flow (perm)	0	1559	0	0	1768	0	0	1658	0	0	1648	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	60%	0%	3%	0%	0%	18%	19%	14%	0%	42%	10%	50%
Adj. Flow (vph)	7	0	84	56	21	16	21	94	109	15	86	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	91	0	0	93	0	0	224	0	0	103	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.9%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

















## 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

2045 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	80	53	20	15	20	89	104	14	82	2
Future Volume (Veh/h)	7	0	80	53	20	15	20	89	104	14	82	2
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	0	84	56	21	16	21	94	109	15	86	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	334	362	87	392	308	148	88				203	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	334	362	87	392	308	148	88				203	
tC, single (s)	7.7	6.5	6.2	7.1	6.5	6.4	4.3				4.5	
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.5	2.4				2.6	
p0 queue free %	99	100	91	89	96	98	99				99	
cM capacity (veh/h)	489	553	969	511	592	858	1407				1163	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	91	93	224	103								
Volume Left	7	56	21	15								
Volume Right	84	16	109	2								
cSH	901	568	1407	1163								
Volume to Capacity	0.10	0.16	0.01	0.01								
Queue Length 95th (m)	2.6	4.4	0.3	0.3								
Control Delay (s)	9.4	12.6	0.8	1.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.4	12.6	0.8	1.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			32.9%	ICU Level of Service				A				
Analysis Period (min)			15									

















Lanes, Volumes, Timings  
3: Moulinette Road & Private Driveway/County Road 29

2045 Future Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	52	3	1	4	17	87	4	32	0
Future Volume (vph)	0	0	7	52	3	1	4	17	87	4	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.998			0.891				
Flt Protected					0.955			0.998			0.995	
Satd. Flow (prot)	0	1385	0	0	1581	0	0	1421	0	0	1912	0
Flt Permitted					0.955			0.998			0.995	
Satd. Flow (perm)	0	1385	0	0	1581	0	0	1421	0	0	1912	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	20%	17%	0%	0%	0%	0%	25%	0%	0%	0%
Adj. Flow (vph)	0	0	7	55	3	1	4	18	92	4	34	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	59	0	0	114	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	23.5%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

















2045 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	52	3	1	4	17	87	4	32	0
Future Volume (Veh/h)	0	0	7	52	3	1	4	17	87	4	32	0
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	7	55	3	1	4	18	92	4	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	116	160	34	121	114	64	34				110	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	116	160	34	121	114	64	34				110	
tC, single (s)	7.1	6.5	6.4	7.3	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.7	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	99	93	100	100	100				100	
cM capacity (veh/h)	858	732	990	811	776	1006	1591				1493	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	59	114	38								
Volume Left	0	55	4	4								
Volume Right	7	1	92	0								
cSH	990	812	1591	1493								
Volume to Capacity	0.01	0.07	0.00	0.00								
Queue Length 95th (m)	0.2	1.8	0.1	0.1								
Control Delay (s)	8.7	9.8	0.3	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	9.8	0.3	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			23.5%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

2045 Future Background AM

















4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	0	7	0	0	0	13	80	0	0	160	47
Future Volume (vph)	67	0	7	0	0	0	13	80	0	0	160	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987									0.969	
Flt Protected		0.957						0.993				
Satd. Flow (prot)	0	1492	0	0	1921	0	0	1652	0	0	1622	0
Flt Permitted		0.957						0.993				
Satd. Flow (perm)	0	1492	0	0	1921	0	0	1652	0	0	1622	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	24%	0%	0%	0%	0%	0%	0%	18%	0%	0%	8%	38%
Adj. Flow (vph)	82	0	9	0	0	0	16	98	0	0	195	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	91	0	0	0	0	0	114	0	0	252	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	26.0%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

2045 Future Background AM




















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	0	7	0	0	0	13	80	0	0	160	47
Future Volume (Veh/h)	67	0	7	0	0	0	13	80	0	0	160	47
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	82	0	9	0	0	0	16	98	0	0	195	57
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	354	354	224	362	382	98	252				98	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	354	354	224	362	382	98	252				98	
tC, single (s)	7.3	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	85	100	99	100	100	100	99				100	
cM capacity (veh/h)	557	568	821	585	547	963	1325				1508	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	91	0	114	252								
Volume Left	82	0	16	0								
Volume Right	9	0	0	57								
cSH	575	1700	1325	1508								
Volume to Capacity	0.16	0.00	0.01	0.00								
Queue Length 95th (m)	4.2	0.0	0.3	0.0								
Control Delay (s)	12.4	0.0	1.2	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	12.4	0.0	1.2	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay				2.8								
Intersection Capacity Utilization				26.0%	ICU Level of Service				A			
Analysis Period (min)				15								






















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2045 Future Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	524	0	0	198	77	0	0	0	222	0	19
Future Volume (vph)	6	524	0	0	198	77	0	0	0	222	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	5%	0%	0%	0%	2%	0%	14%
Adj. Flow (vph)	7	616	0	0	233	91	0	0	0	261	0	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	616	0	0	233	91	0	0	0	0	261	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	46.5%						ICU Level of Service A					
Analysis Period (min)	15											




















# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2045 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	524	0	0	198	77	0	0	0	222	0	19
Future Volume (Veh/h)	6	524	0	0	198	77	0	0	0	222	0	19
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	7	616	0	0	233	91	0	0	0	261	0	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	324			616			874	954	616	863	863	233
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	324			616			874	954	616	863	863	233
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	5	100	97
cM capacity (veh/h)	1141			974			263	259	494	274	293	777
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	7	616	233	91	0	283						
Volume Left	7	0	0	0	0	261						
Volume Right	0	0	0	91	0	22						
cSH	1141	1700	974	1700	1700	291						
Volume to Capacity	0.01	0.36	0.00	0.05	0.00	0.97						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	74.8						
Control Delay (s)	8.2	0.0	0.0	0.0	0.0	85.5						
Lane LOS	A				A	F						
Approach Delay (s)	0.1		0.0		0.0	85.5						
Approach LOS					A	F						
Intersection Summary												
Average Delay				19.7								
Intersection Capacity Utilization				46.5%	ICU Level of Service				A			
Analysis Period (min)				15								













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2045 Future Background AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	524	0	0	198	77	0	0	0	222	0	19
Future Volume (vph)	6	524	0	0	198	77	0	0	0	222	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1555	0	1921	0	0	1789	1432
Flt Permitted	0.613										0.757	
Satd. Flow (perm)	981	1830	0	0	1779	1555	0	1921	0	0	1426	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						91						27
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	5%	0%	0%	0%	2%	0%	14%
Adj. Flow (vph)	7	616	0	0	233	91	0	0	0	261	0	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	616	0	0	233	91	0	0	0	0	261	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm				Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

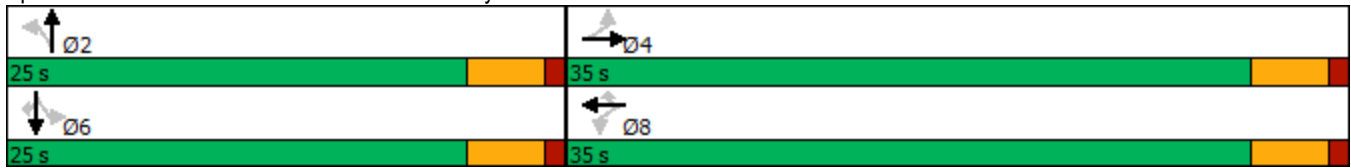
2045 Future Background AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	35.0	35.0		35.0	35.0	35.0	25.0	25.0		25.0	25.0	25.0
Total Split (%)	58.3%	58.3%		58.3%	58.3%	58.3%	41.7%	41.7%		41.7%	41.7%	41.7%
Maximum Green (s)	30.5	30.5		30.5	30.5	30.5	20.5	20.5		20.5	20.5	20.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	22.0	22.0			22.0	22.0					20.8	20.8
Actuated g/C Ratio	0.42	0.42			0.42	0.42					0.40	0.40
v/c Ratio	0.02	0.80			0.31	0.13					0.46	0.04
Control Delay	7.8	21.2			10.6	2.7					16.7	5.6
Queue Delay	0.0	0.0			0.0	0.0					0.0	0.0
Total Delay	7.8	21.2			10.6	2.7					16.7	5.6
LOS	A	C			B	A					B	A
Approach Delay		21.0			8.3						15.8	
Approach LOS		C			A						B	
Queue Length 50th (m)	0.4	46.1			13.3	0.0					17.4	0.0
Queue Length 95th (m)	1.8	69.5			22.7	4.7					38.9	3.1
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	584	1091			1060	964					571	590
Starvation Cap Reductn	0	0			0	0					0	0
Spillback Cap Reductn	0	0			0	0					0	0
Storage Cap Reductn	0	0			0	0					0	0
Reduced v/c Ratio	0.01	0.56			0.22	0.09					0.46	0.04
Intersection Summary												
Area Type: Other												
Cycle Length: 60												
Actuated Cycle Length: 51.9												
Natural Cycle: 60												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.80												
Intersection Signal Delay: 16.5 Intersection LOS: B												
Intersection Capacity Utilization 47.4% ICU Level of Service A												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2045 Future Background AM-Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2












Lanes, Volumes, Timings  
6: CR 15 & CR 36

2045 Future Background AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	13	64	34	11	102
Future Volume (vph)	32	13	64	34	11	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961		0.953			
Flt Protected	0.966					0.995
Satd. Flow (prot)	1539	0	1695	0	0	1851
Flt Permitted	0.966					0.995
Satd. Flow (perm)	1539	0	1695	0	0	1851
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	23%	7%	10%	6%	3%
Adj. Flow (vph)	35	14	70	37	12	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	107	0	0	123
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.6%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis 6: CR 15 & CR 36

2045 Future Background AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	13	64	34	11	102
Future Volume (Veh/h)	32	13	64	34	11	102
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)	35	14	70	37	12	111
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	224	88			107	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	224	88			107	
tC, single (s)	6.5	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.3	
p0 queue free %	95	98			99	
cM capacity (veh/h)	735	915			1459	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	49	107	123			
Volume Left	35	0	12			
Volume Right	14	37	0			
cSH	779	1700	1459			
Volume to Capacity	0.06	0.06	0.01			
Queue Length 95th (m)	1.5	0.0	0.2			
Control Delay (s)	9.9	0.0	0.8			
Lane LOS	A		A			
Approach Delay (s)	9.9	0.0	0.8			
Approach LOS	A					
Intersection Summary						
Average Delay		2.1				
Intersection Capacity Utilization		22.6%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

2045 Future Background AM

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	0	134	0	0	0	50	25	1	2	92	44
Future Volume (vph)	69	0	134	0	0	0	50	25	1	2	92	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911						0.998			0.957	
Flt Protected		0.983						0.968			0.999	
Satd. Flow (prot)	0	1633	0	0	1921	0	0	1769	0	0	1717	0
Flt Permitted		0.983						0.968			0.999	
Satd. Flow (perm)	0	1633	0	0	1921	0	0	1769	0	0	1717	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	0%	5%	0%	0%	0%	4%	7%	0%	88%	3%	12%
Adj. Flow (vph)	76	0	147	0	0	0	55	27	1	2	101	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	223	0	0	0	0	0	83	0	0	151	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	33.8%						ICU Level of Service A					
Analysis Period (min)	15											



# HCM Unsignalized Intersection Capacity Analysis

## 7: CR 15 & CR 36/Jenkins Road

2045 Future Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	0	134	0	0	0	50	25	1	2	92	44
Future Volume (Veh/h)	69	0	134	0	0	0	50	25	1	2	92	44
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	76	0	147	0	0	0	55	27	1	2	101	48
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	266	267	125	414	290	28	149				28	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	266	267	125	414	290	28	149				28	
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1				5.0	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2				3.0	
p0 queue free %	88	100	84	100	100	100	96				100	
cM capacity (veh/h)	657	616	918	450	598	1054	1420				1171	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	223	0	83	151								
Volume Left	76	0	55	2								
Volume Right	147	0	1	48								
cSH	808	1700	1420	1171								
Volume to Capacity	0.28	0.00	0.04	0.00								
Queue Length 95th (m)	8.6	0.0	0.9	0.0								
Control Delay (s)	11.1	0.0	5.2	0.1								
Lane LOS	B	A	A	A								
Approach Delay (s)	11.1	0.0	5.2	0.1								
Approach LOS	B	A										
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			33.8%	ICU Level of Service				A				
Analysis Period (min)			15									

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (m)	20.7	25.0	3.9
Average Queue (m)	9.6	8.2	0.1
95th Queue (m)	17.6	19.8	2.0
Link Distance (m)	172.0	233.5	111.4
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.9	22.5	14.6	12.6
Average Queue (m)	9.5	10.9	0.8	1.0
95th Queue (m)	16.5	18.3	6.3	6.5
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (m)	15.8	19.5
Average Queue (m)	2.6	8.4
95th Queue (m)	10.5	16.6
Link Distance (m)	87.5	216.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	26.3	5.8
Average Queue (m)	11.1	0.3
95th Queue (m)	21.3	2.6
Link Distance (m)	300.4	1758.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	SB	SB
Directions Served	L	LT	R
Maximum Queue (m)	8.1	167.7	22.6
Average Queue (m)	0.7	85.1	8.8
95th Queue (m)	4.1	196.7	25.9
Link Distance (m)		387.5	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	80.0		15.0
Storage Blk Time (%)		82	1
Queuing Penalty (veh)		16	1

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	19.9	6.9
Average Queue (m)	7.7	0.3
95th Queue (m)	16.3	3.3
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 7: CR 15 & CR 36/Jenkins Road

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Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	28.9	9.0
Average Queue (m)	13.5	1.3
95th Queue (m)	22.3	6.5
Link Distance (m)	178.3	206.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 8: Avonmore Road & Site Access

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	19.6	11.3
Average Queue (m)	5.6	0.4
95th Queue (m)	16.6	5.1
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 17










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Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	LT	R	LT	R
Maximum Queue (m)	13.7	81.1	32.3	13.6	39.0	20.1
Average Queue (m)	1.4	35.7	13.0	3.1	19.2	3.5
95th Queue (m)	7.4	61.9	25.6	8.1	34.3	13.7
Link Distance (m)		163.6	189.1		387.5	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			60.0		15.0
Storage Blk Time (%)		0			14	0
Queuing Penalty (veh)		0			3	1

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps










2045 Future Background PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	14	114	75	186	260	28
Future Volume (vph)	14	114	75	186	260	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.880	0.987				
Flt Protected	0.994	0.986				
Satd. Flow (prot)	1649	0	0	1836	1862	0
Flt Permitted	0.994	0.986				
Satd. Flow (perm)	1649	0	0	1836	1862	0
Link Speed (k/h)	30	80				
Link Distance (m)	181.7	243.4				
Travel Time (s)	21.8	11.0				
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	17%	0%	6%	2%	2%	0%
Adj. Flow (vph)	16	128	84	209	292	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	144	0	0	293	323	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	8.0	0.0				
Link Offset(m)	0.0	0.0				
Crosswalk Width(m)	4.9	4.9				
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop	Free			Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	47.1%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis

## 1: Moulinette Road & Hwy 401 EB Ramps

2045 Future Background PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	114	75	186	260	28
Future Volume (Veh/h)	14	114	75	186	260	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	16	128	84	209	292	31
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	684	308	323			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	684	308	323			
tC, single (s)	6.6	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.7	3.3	2.3			
p0 queue free %	96	83	93			
cM capacity (veh/h)	365	737	1215			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	144	293	323			
Volume Left	16	84	0			
Volume Right	128	0	31			
cSH	662	1215	1700			
Volume to Capacity	0.22	0.07	0.19			
Queue Length 95th (m)	6.3	1.7	0.0			
Control Delay (s)	11.9	2.8	0.0			
Lane LOS	B	A				
Approach Delay (s)	11.9	2.8	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.3				
Intersection Capacity Utilization		47.1%		ICU Level of Service		A
Analysis Period (min)		15				

## 2: Moulinette Road &amp; County Road 29/Hwy 401 WB ramps
















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	40	150	41	28	29	102	68	4	98	2
Future Volume (vph)	1	1	40	150	41	28	29	102	68	4	98	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.871			0.983			0.954			0.998	
Flt Protected		0.999			0.967			0.993			0.998	
Satd. Flow (prot)	0	1625	0	0	1769	0	0	1729	0	0	1876	0
Flt Permitted		0.999			0.967			0.993			0.998	
Satd. Flow (perm)	0	1625	0	0	1769	0	0	1729	0	0	1876	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	3%	4%	0%	4%	0%	5%	8%	55%	0%	0%
Adj. Flow (vph)	1	1	43	160	44	30	31	109	72	4	104	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	0	0	234	0	0	212	0	0	110	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	43.3%											
Analysis Period (min)	15											
	ICU Level of Service A											



















# HCM Unsignalized Intersection Capacity Analysis

## 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

2045 Future Background PM

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	40	150	41	28	29	102	68	4	98	2
Future Volume (Veh/h)	1	1	40	150	41	28	29	102	68	4	98	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	1	43	160	44	30	31	109	72	4	104	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	372	356	105	364	321	145	106	181				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372	356	105	364	321	145	106	181				
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4.6				
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	2.7				
p0 queue free %	100	100	95	71	92	97	98	100				
cM capacity (veh/h)	526	559	947	551	585	897	1498	1131				
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	45	234	212	110								
Volume Left	1	160	31	4								
Volume Right	43	30	72	2								
cSH	916	586	1498	1131								
Volume to Capacity	0.05	0.40	0.02	0.00								
Queue Length 95th (m)	1.2	14.5	0.5	0.1								
Control Delay (s)	9.1	15.2	1.2	0.3								
Lane LOS	A	C	A	A								
Approach Delay (s)	9.1	15.2	1.2	0.3								
Approach LOS	A	C										
Intersection Summary												
Average Delay			7.1									
Intersection Capacity Utilization			43.3%	ICU Level of Service					A			
Analysis Period (min)			15									

## 3: Moulinette Road &amp; Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	2	80	0	6	0	37	88	3	19	0
Future Volume (vph)	0	0	2	80	0	6	0	37	88	3	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.990			0.905				
Flt Protected					0.956						0.994	
Satd. Flow (prot)	0	1662	0	0	1522	0	0	1614	0	0	1910	0
Flt Permitted					0.956						0.994	
Satd. Flow (perm)	0	1662	0	0	1522	0	0	1614	0	0	1910	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	21%	0%	0%	0%	0%	11%	0%	0%	0%
Adj. Flow (vph)	0	0	3	114	0	9	0	53	126	4	27	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	123	0	0	179	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.5%				ICU Level of Service A							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

















2045 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	80	0	6	0	37	88	3	19	0
Future Volume (Veh/h)	0	0	2	80	0	6	0	37	88	3	19	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	0	0	3	114	0	9	0	53	126	4	27	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	160	214	27	154	151	116	27				179	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	160	214	27	154	151	116	27				179	
tC, single (s)	7.1	6.5	6.2	7.3	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.7	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	85	100	99	100				100	
cM capacity (veh/h)	801	685	1054	768	742	942	1600				1409	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	123	179	31								
Volume Left	0	114	0	4								
Volume Right	3	9	126	0								
cSH	1054	778	1600	1409								
Volume to Capacity	0.00	0.16	0.00	0.00								
Queue Length 95th (m)	0.1	4.3	0.0	0.1								
Control Delay (s)	8.4	10.5	0.0	1.0								
Lane LOS	A	B		A								
Approach Delay (s)	8.4	10.5	0.0	1.0								
Approach LOS	A	B										
Intersection Summary												
Average Delay				4.0								
Intersection Capacity Utilization				25.5%	ICU Level of Service				A			
Analysis Period (min)				15								

# Lanes, Volumes, Timings

2045 Future Background PM

















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	1	15	2	0	0	15	168	0	0	135	64
Future Volume (vph)	65	1	15	2	0	0	15	168	0	0	135	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974									0.957	
Flt Protected		0.962			0.950			0.996				
Satd. Flow (prot)	0	1591	0	0	1825	0	0	1726	0	0	1637	0
Flt Permitted		0.962			0.950			0.996				
Satd. Flow (perm)	0	1591	0	0	1825	0	0	1726	0	0	1637	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	10%	0%	27%	0%	0%	0%	9%	11%	0%	0%	11%	15%
Adj. Flow (vph)	80	1	19	2	0	0	19	207	0	0	167	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	0	0	2	0	0	226	0	0	246	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.1%											
Analysis Period (min)	15											
	ICU Level of Service A											

# HCM Unsignalized Intersection Capacity Analysis




















2045 Future Background PM

## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1	15	2	0	0	15	168	0	0	135	64
Future Volume (Veh/h)	65	1	15	2	0	0	15	168	0	0	135	64
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	80	1	19	2	0	0	19	207	0	0	167	79
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	452	452	206	471	491	207	246				207	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	452	452	206	471	491	207	246				207	
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.2				4.1	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.3				2.2	
p0 queue free %	84	100	98	100	100	100	99				100	
cM capacity (veh/h)	499	499	775	488	474	839	1280				1376	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	100	2	226	246								
Volume Left	80	2	19	0								
Volume Right	19	0	0	79								
cSH	535	488	1280	1376								
Volume to Capacity	0.19	0.00	0.01	0.00								
Queue Length 95th (m)	5.2	0.1	0.3	0.0								
Control Delay (s)	13.3	12.4	0.8	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	13.3	12.4	0.8	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay				2.7								
Intersection Capacity Utilization				32.1%	ICU Level of Service				A			
Analysis Period (min)				15								




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2045 Future Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	381	1	0	534	261	0	1	0	134	0	12
Future Volume (vph)	17	381	1	0	534	261	0	1	0	134	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	18	410	1	0	574	281	0	1	0	144	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	411	0	0	574	281	0	1	0	0	144	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	49.6%						ICU Level of Service A					
Analysis Period (min)	15											




















# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2045 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	381	1	0	534	261	0	1	0	134	0	12
Future Volume (Veh/h)	17	381	1	0	534	261	0	1	0	134	0	12
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	18	410	1	0	574	281	0	1	0	144	0	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	855			411			1027	1302	410	1020	1021	574
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	855			411			1027	1302	410	1020	1021	574
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	98			100			100	99	100	32	100	97
cM capacity (veh/h)	764			1159			205	159	646	211	233	503
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	18	411	574	281	1	157						
Volume Left	18	0	0	0	0	144						
Volume Right	0	1	0	281	0	13						
cSH	764	1700	1159	1700	159	227						
Volume to Capacity	0.02	0.24	0.00	0.17	0.01	0.69						
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.1	33.8						
Control Delay (s)	9.8	0.0	0.0	0.0	27.9	50.1						
Lane LOS	A				D	F						
Approach Delay (s)	0.4		0.0		27.9	50.1						
Approach LOS					D	F						
Intersection Summary												
Average Delay				5.6								
Intersection Capacity Utilization				49.6%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2













2045 Future Background PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	381	1	0	534	261	0	1	0	134	0	12
Future Volume (vph)	17	381	1	0	534	261	0	1	0	134	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.243										0.757	
Satd. Flow (perm)	436	1847	0	0	1865	1601	0	1921	0	0	1440	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						281						33
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	18	410	1	0	574	281	0	1	0	144	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	411	0	0	574	281	0	1	0	0	144	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm		NA		Perm	NA	Perm
Protected Phases		4			8			2			6	



Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

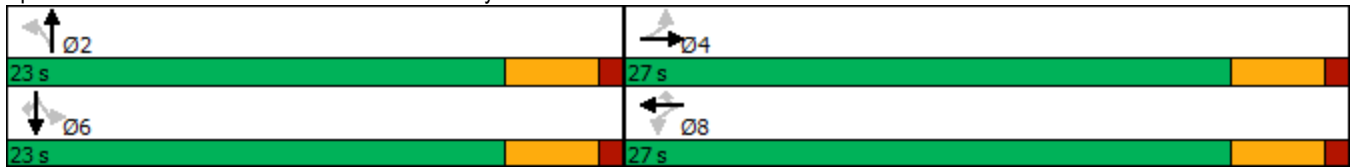
2045 Future Background PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	27.0	27.0		27.0	27.0	27.0	23.0	23.0		23.0	23.0	23.0
Total Split (%)	54.0%	54.0%		54.0%	54.0%	54.0%	46.0%	46.0%		46.0%	46.0%	46.0%
Maximum Green (s)	22.5	22.5		22.5	22.5	22.5	18.5	18.5		18.5	18.5	18.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	18.5	18.5			18.5	18.5		18.7			18.7	18.7
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40			0.40	0.40
v/c Ratio	0.10	0.56			0.77	0.35		0.00			0.25	0.02
Control Delay	9.8	13.7			19.7	2.8		10.0			12.1	2.1
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	9.8	13.7			19.7	2.8		10.0			12.1	2.1
LOS	A	B			B	A		A			B	A
Approach Delay		13.5			14.1			10.0			11.3	
Approach LOS		B			B			A			B	
Queue Length 50th (m)	0.9	24.0			37.6	0.0		0.1			8.1	0.0
Queue Length 95th (m)	3.7	43.0			66.2	9.4		0.8			18.8	1.3
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	214	906			915	929		775			581	618
Starvation Cap Reductn	0	0			0	0		0			0	0
Spillback Cap Reductn	0	0			0	0		0			0	0
Storage Cap Reductn	0	0			0	0		0			0	0
Reduced v/c Ratio	0.08	0.45			0.63	0.30		0.00			0.25	0.02
Intersection Summary												
Area Type: Other												
Cycle Length: 50												
Actuated Cycle Length: 46.3												
Natural Cycle: 50												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.77												
Intersection Signal Delay: 13.6												
Intersection LOS: B												
Intersection Capacity Utilization 51.7%												
ICU Level of Service A												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2045 Future Background PM-Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2












Lanes, Volumes, Timings  
6: CR 15 & CR 36

2045 Future Background PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	20	125	39	19	86
Future Volume (vph)	33	20	125	39	19	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950		0.968			
Flt Protected	0.970					0.991
Satd. Flow (prot)	1692	0	1798	0	0	1868
Flt Permitted	0.970					0.991
Satd. Flow (perm)	1692	0	1798	0	0	1868
Link Speed (k/h)	48		48			48
Link Distance (m)	130.8		142.4			194.0
Travel Time (s)	9.8		10.7			14.6
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	9%	2%	8%	6%	1%
Adj. Flow (vph)	42	25	158	49	24	109
Shared Lane Traffic (%)						
Lane Group Flow (vph)	67	0	207	0	0	133
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.9%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis6: CR 15 & CR 36

2045 Future Background PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	20	125	39	19	86
Future Volume (Veh/h)	33	20	125	39	19	86
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	42	25	158	49	24	109
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	340	182			207	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	340	182			207	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	93	97			98	
cM capacity (veh/h)	645	842			1341	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	67	207	133			
Volume Left	42	0	24			
Volume Right	25	49	0			
cSH	706	1700	1341			
Volume to Capacity	0.09	0.12	0.02			
Queue Length 95th (m)	2.4	0.0	0.4			
Control Delay (s)	10.6	0.0	1.5			
Lane LOS	B		A			
Approach Delay (s)	10.6	0.0	1.5			
Approach LOS	B					
Intersection Summary						
Average Delay		2.2				
Intersection Capacity Utilization		27.9%	ICU Level of Service	A		
Analysis Period (min)		15				

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2045 Future Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	112	2	0	1	164	66	1	1	57	83
Future Volume (vph)	66	0	112	2	0	1	164	66	1	1	57	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.915			0.955			0.999			0.920	
Flt Protected		0.982			0.968			0.966				
Satd. Flow (prot)	0	1674	0	0	1776	0	0	1803	0	0	1670	0
Flt Permitted		0.982			0.968			0.966				
Satd. Flow (perm)	0	1674	0	0	1776	0	0	1803	0	0	1670	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		112.2			145.8			127.1			176.1	
Travel Time (s)		8.4			10.9			9.5			13.2	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	2%	5%	0%	100%	13%	0%
Adj. Flow (vph)	77	0	130	2	0	1	191	77	1	1	66	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	3	0	0	269	0	0	164	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	41.5%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 7: CR 15 & CR 36/Jenkins Road

2045 Future Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	0	112	2	0	1	164	66	1	1	57	83
Future Volume (Veh/h)	66	0	112	2	0	1	164	66	1	1	57	83
Sign Control	Stop		Stop		Free		Free		Free		Free	
Grade	0%		0%		0%		0%		0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	77	0	130	2	0	1	191	77	1	1	66	97
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	577	576	114	706	624	78	163				78	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	577	576	114	706	624	78	163				78	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				5.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				3.1	
p0 queue free %	80	100	86	99	100	100	87				100	
cM capacity (veh/h)	379	372	938	273	349	989	1416				1075	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	207	3	269	164								
Volume Left	77	2	191	1								
Volume Right	130	1	1	97								
cSH	605	359	1416	1075								
Volume to Capacity	0.34	0.01	0.13	0.00								
Queue Length 95th (m)	11.5	0.2	3.5	0.0								
Control Delay (s)	14.0	15.1	6.0	0.1								
Lane LOS	B	C	A	A								
Approach Delay (s)	14.0	15.1	6.0	0.1								
Approach LOS	B	C										
Intersection Summary												
Average Delay				7.1								
Intersection Capacity Utilization				41.5%	ICU Level of Service				A			
Analysis Period (min)				15								

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	24.9	20.7
Average Queue (m)	12.5	6.0
95th Queue (m)	20.6	15.9
Link Distance (m)	172.0	233.5
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	12.2	35.9	12.6	4.7
Average Queue (m)	5.8	17.7	1.2	0.2
95th Queue (m)	11.5	29.2	6.7	2.4
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (m)	6.9	20.7
Average Queue (m)	0.4	10.4
95th Queue (m)	3.6	17.7
Link Distance (m)	87.5	216.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	23.1	8.9	10.6
Average Queue (m)	10.2	0.5	0.7
95th Queue (m)	18.7	4.0	5.4
Link Distance (m)	300.4	60.6	1758.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	WB	NB	SB	SB
Directions Served	L	R	LTR	LT	R
Maximum Queue (m)	14.8	0.4	4.9	94.7	22.8
Average Queue (m)	2.8	0.0	0.3	42.7	7.0
95th Queue (m)	9.7	0.3	2.8	91.7	22.9
Link Distance (m)			51.8	387.5	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	80.0	60.0			15.0
Storage Blk Time (%)				65	1
Queuing Penalty (veh)				8	2

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	16.8	16.0
Average Queue (m)	8.3	1.3
95th Queue (m)	15.1	7.6
Link Distance (m)	125.5	185.4
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Intersection: 7: CR 15 & CR 36/Jenkins Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	25.0	7.4	19.1	0.2
Average Queue (m)	13.2	1.1	6.4	0.0
95th Queue (m)	21.1	5.4	15.8	0.1
Link Distance (m)	107.0	133.6	122.0	161.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Avonmore Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	20.8	3.1
Average Queue (m)	4.3	0.1
95th Queue (m)	15.2	1.6
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

















Network wide Queuing Penalty: 9
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Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	LT	R
Maximum Queue (m)	15.2	48.4	68.0	43.5	1.7	27.9	21.5
Average Queue (m)	4.0	22.4	32.7	11.0	0.1	11.9	2.5
95th Queue (m)	11.8	38.5	56.3	26.6	1.2	23.3	11.1
Link Distance (m)		163.6	189.1		51.8	387.5	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	80.0			60.0			15.0
Storage Blk Time (%)			1			6	0
Queuing Penalty (veh)			2			1	0













Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2035 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	174	43	18	77	102	132	200	44	191	133	69
Future Volume (vph)	5	174	43	18	77	102	132	200	44	191	133	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		15.0	0.0		15.0	15.0		0.0	15.0		0.0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (m)	7.6			2.5			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.930			0.984			0.976	
Flt Protected		0.999			0.995			0.983			0.976	
Satd. Flow (prot)	0	1556	0	0	1413	0	0	1724	0	0	1719	0
Flt Permitted		0.991			0.954			0.754			0.664	
Satd. Flow (perm)	0	1543	0	0	1355	0	0	1322	0	0	1169	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			93			17			28	
Link Speed (k/h)		30			48			80			80	
Link Distance (m)		181.7			207.4			243.4			132.3	
Travel Time (s)		21.8			15.6			11.0			6.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	24%	7%	0%	17%	37%	4%	12%	0%	7%	8%	2%
Adj. Flow (vph)	6	202	50	21	90	119	153	233	51	222	155	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	258	0	0	230	0	0	437	0	0	457	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		8.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	30.5		2.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	1.8		2.0	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

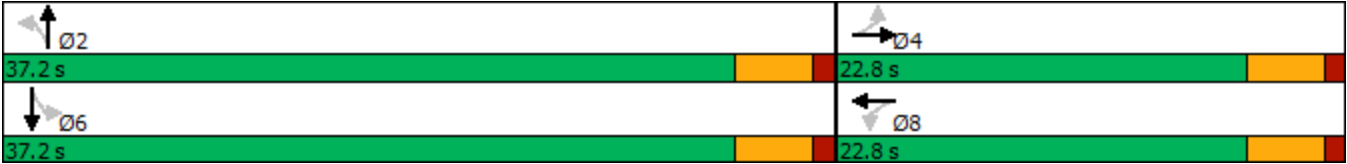
2035 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.8	22.8		22.8	22.8		37.2	37.2		37.2	37.2	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	18.3	18.3		18.3	18.3		32.7	32.7		32.7	32.7	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		12.3			12.3			22.6			22.6	
Actuated g/C Ratio		0.28			0.28			0.51			0.51	
v/c Ratio		0.59			0.52			0.64			0.75	
Control Delay		20.2			14.3			13.3			18.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.2			14.3			13.3			18.2	
LOS		C			B			B			B	
Approach Delay		20.2			14.3			13.3			18.2	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		14.8			8.0			19.8			22.0	
Queue Length 95th (m)		37.9			26.4			48.4			57.5	
Internal Link Dist (m)		157.7			183.4			219.4			108.3	
Turn Bay Length (m)												
Base Capacity (vph)		690			648			1019			904	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.37			0.35			0.43			0.51	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 44.6												
Natural Cycle: 60												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.75												
Intersection Signal Delay: 16.4							Intersection LOS: B					
Intersection Capacity Utilization 60.6%							ICU Level of Service B					
Analysis Period (min) 15												

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2035 Future Total AM

















Splits and Phases: 1: Moulinette Road & Hwy 401 EB Ramps



Lanes, Volumes, Timings

















2035 Future Total AM

2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	74	220	19	14	19	94	195	13	99	2
Future Volume (vph)	7	0	74	220	19	14	19	94	195	13	99	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.876			0.992			0.915			0.998	
Flt Protected		0.996			0.958			0.997			0.994	
Satd. Flow (prot)	0	1556	0	0	1719	0	0	1496	0	0	1692	0
Flt Permitted		0.996			0.958			0.997			0.994	
Satd. Flow (perm)	0	1556	0	0	1719	0	0	1496	0	0	1692	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	60%	0%	3%	6%	0%	18%	19%	13%	19%	42%	8%	50%
Adj. Flow (vph)	7	0	78	232	20	15	20	99	205	14	104	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	267	0	0	324	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	48.3%				ICU Level of Service A							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

2035 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	74	220	19	14	19	94	195	13	99	2
Future Volume (Veh/h)	7	0	74	220	19	14	19	94	195	13	99	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	0	78	232	20	15	20	99	205	14	104	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	400	477	105	452	376	202	106			304		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	400	477	105	452	376	202	106			304		
tC, single (s)	7.7	6.5	6.2	7.2	6.5	6.4	4.3			4.5		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.6	4.0	3.5	2.4			2.6		
p0 queue free %	98	100	92	49	96	98	99			99		
cM capacity (veh/h)	439	477	947	459	543	800	1385			1061		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	85	267	324	120								
Volume Left	7	232	20	14								
Volume Right	78	15	205	2								
cSH	865	476	1385	1061								
Volume to Capacity	0.10	0.56	0.01	0.01								
Queue Length 95th (m)	2.5	25.8	0.3	0.3								
Control Delay (s)	9.6	21.8	0.6	1.1								
Lane LOS	A	C	A	A								
Approach Delay (s)	9.6	21.8	0.6	1.1								
Approach LOS	A	C										
Intersection Summary												
Average Delay			8.8									
Intersection Capacity Utilization			48.3%	ICU Level of Service						A		
Analysis Period (min)			15									

















## 3: Moulinette Road &amp; Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	71	3	1	4	17	92	4	32	0
Future Volume (vph)	0	0	7	71	3	1	4	17	92	4	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.998			0.890				
Flt Protected					0.955			0.998			0.995	
Satd. Flow (prot)	0	1385	0	0	1644	0	0	1437	0	0	1912	0
Flt Permitted					0.955			0.998			0.995	
Satd. Flow (perm)	0	1385	0	0	1644	0	0	1437	0	0	1912	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	20%	12%	0%	0%	0%	0%	23%	0%	0%	0%
Adj. Flow (vph)	0	0	7	75	3	1	4	18	97	4	34	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	79	0	0	119	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	24.9%											
Analysis Period (min)	15											
ICU Level of Service A												



















# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

2035 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	71	3	1	4	17	92	4	32	0
Future Volume (Veh/h)	0	0	7	71	3	1	4	17	92	4	32	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	7	75	3	1	4	18	97	4	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	119	165	34	124	116	66	34			115		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	119	165	34	124	116	66	34			115		
tC, single (s)	7.1	6.5	6.4	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	855	727	990	819	773	1003	1591			1487		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	79	119	38								
Volume Left	0	75	4	4								
Volume Right	7	1	97	0								
cSH	990	819	1591	1487								
Volume to Capacity	0.01	0.10	0.00	0.00								
Queue Length 95th (m)	0.2	2.4	0.1	0.1								
Control Delay (s)	8.7	9.9	0.3	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	9.9	0.3	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay	3.7											
Intersection Capacity Utilization	24.9%			ICU Level of Service					A			
Analysis Period (min)	15											

















## 4: Avonmore Road/Avnomore Road &amp; County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	73	0	7	0	0	0	12	85	0	0	171	66
Future Volume (vph)	73	0	7	0	0	0	12	85	0	0	171	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988									0.963	
Flt Protected		0.957						0.994				
Satd. Flow (prot)	0	1526	0	0	1921	0	0	1675	0	0	1648	0
Flt Permitted		0.957						0.994				
Satd. Flow (perm)	0	1526	0	0	1921	0	0	1675	0	0	1648	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	21%	0%	0%	0%	0%	0%	0%	16%	0%	0%	7%	26%
Adj. Flow (vph)	89	0	9	0	0	0	15	104	0	0	209	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	0	0	0	0	119	0	0	289	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.7%											
Analysis Period (min)	15											
	ICU Level of Service A											

# HCM Unsignalized Intersection Capacity Analysis




















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

2035 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	0	7	0	0	0	12	85	0	0	171	66
Future Volume (Veh/h)	73	0	7	0	0	0	12	85	0	0	171	66
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	89	0	9	0	0	0	15	104	0	0	209	80
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	383	383	249	392	423	104	289				104	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	383	383	249	392	423	104	289				104	
tC, single (s)	7.3	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	83	100	99	100	100	100	99				100	
cM capacity (veh/h)	537	547	795	559	519	956	1284				1500	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	98	0	119	289								
Volume Left	89	0	15	0								
Volume Right	9	0	0	80								
cSH	554	1700	1284	1500								
Volume to Capacity	0.18	0.00	0.01	0.00								
Queue Length 95th (m)	4.8	0.0	0.3	0.0								
Control Delay (s)	12.9	0.0	1.1	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	12.9	0.0	1.1	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay				2.7								
Intersection Capacity Utilization				25.7%	ICU Level of Service				A			
Analysis Period (min)				15								



















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	488	0	0	184	139	0	0	0	241	0	18
Future Volume (vph)	5	488	0	0	184	139	0	0	0	241	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	3%	0%	0%	0%	1%	0%	14%
Adj. Flow (vph)	6	574	0	0	216	164	0	0	0	284	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	574	0	0	216	164	0	0	0	0	284	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	45.7%						ICU Level of Service A					
Analysis Period (min)	15											




















# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2035 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	488	0	0	184	139	0	0	0	241	0	18
Future Volume (Veh/h)	5	488	0	0	184	139	0	0	0	241	0	18
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	574	0	0	216	164	0	0	0	284	0	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	380			574			812	966	574	802	802	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	380			574			812	966	574	802	802	216
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	6	100	97
cM capacity (veh/h)	1086			1009			290	255	522	302	318	795
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	6	574	216	164	0	305						
Volume Left	6	0	0	0	0	284						
Volume Right	0	0	0	164	0	21						
cSH	1086	1700	1009	1700	1700	318						
Volume to Capacity	0.01	0.34	0.00	0.10	0.00	0.96						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	75.3						
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	77.6						
Lane LOS	A				A	F						
Approach Delay (s)	0.1		0.0		0.0	77.6						
Approach LOS					A	F						
Intersection Summary												
Average Delay	18.7											
Intersection Capacity Utilization	45.7%			ICU Level of Service			A					
Analysis Period (min)	15											













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Total AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	488	0	0	184	139	0	0	0	241	0	18
Future Volume (vph)	5	488	0	0	184	139	0	0	0	241	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Flt Permitted	0.623										0.757	
Satd. Flow (perm)	997	1830	0	0	1779	1585	0	1921	0	0	1440	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						164						30
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	3%	0%	0%	0%	1%	0%	14%
Adj. Flow (vph)	6	574	0	0	216	164	0	0	0	284	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	574	0	0	216	164	0	0	0	0	284	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm				Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

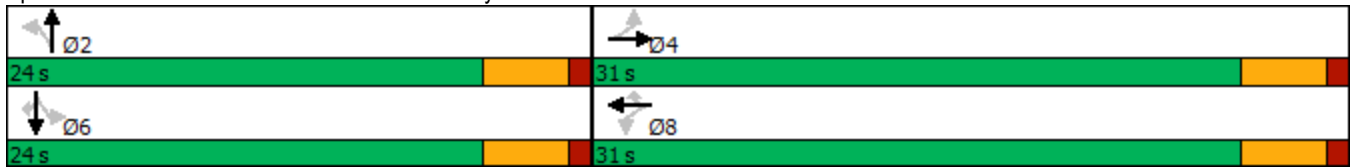
2035 Future Total AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	31.0	31.0		31.0	31.0	31.0	24.0	24.0		24.0	24.0	24.0
Total Split (%)	56.4%	56.4%		56.4%	56.4%	56.4%	43.6%	43.6%		43.6%	43.6%	43.6%
Maximum Green (s)	26.5	26.5		26.5	26.5	26.5	19.5	19.5		19.5	19.5	19.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	19.7	19.7			19.7	19.7					19.7	19.7
Actuated g/C Ratio	0.41	0.41			0.41	0.41					0.41	0.41
v/c Ratio	0.01	0.77			0.30	0.22					0.49	0.04
Control Delay	7.8	20.2			10.4	2.6					15.9	4.5
Queue Delay	0.0	0.0			0.0	0.0					0.0	0.0
Total Delay	7.8	20.2			10.4	2.6					15.9	4.5
LOS	A	C			B	A					B	A
Approach Delay		20.1			7.1						15.1	
Approach LOS		C			A						B	
Queue Length 50th (m)	0.3	39.8			11.7	0.0					17.7	0.0
Queue Length 95th (m)	1.6	61.6			20.7	6.2					38.5	2.6
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	551	1011			983	949					585	600
Starvation Cap Reductn	0	0			0	0					0	0
Spillback Cap Reductn	0	0			0	0					0	0
Storage Cap Reductn	0	0			0	0					0	0
Reduced v/c Ratio	0.01	0.57			0.22	0.17					0.49	0.04
Intersection Summary												
Area Type: Other												
Cycle Length: 55												
Actuated Cycle Length: 48.5												
Natural Cycle: 55												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.77												
Intersection Signal Delay: 15.0 Intersection LOS: B												
Intersection Capacity Utilization 46.5% ICU Level of Service A												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Total AM-Int#5 Signalized










Splits and Phases: 5: Avonmore Road & County Road 2














Lanes, Volumes, Timings  
6: CR 15 & CR 36

2035 Future Total AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	12	128	32	10	124
Future Volume (vph)	30	12	128	32	10	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.962		0.973			
Flt Protected	0.965					0.996
Satd. Flow (prot)	1540	0	1790	0	0	1870
Flt Permitted	0.965					0.996
Satd. Flow (perm)	1540	0	1790	0	0	1870
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	23%	3%	10%	6%	2%
Adj. Flow (vph)	33	13	139	35	11	135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	174	0	0	146
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.8%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis 6: CR 15 & CR 36

2035 Future Total AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	12	128	32	10	124
Future Volume (Veh/h)	30	12	128	32	10	124
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)	33	13	139	35	11	135
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	314	156			174	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	314	156			174	
tC, single (s)	6.5	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.3	
p0 queue free %	95	98			99	
cM capacity (veh/h)	652	837			1379	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	46	174	146			
Volume Left	33	0	11			
Volume Right	13	35	0			
cSH	695	1700	1379			
Volume to Capacity	0.07	0.10	0.01			
Queue Length 95th (m)	1.6	0.0	0.2			
Control Delay (s)	10.5	0.0	0.6			
Lane LOS	B		A			
Approach Delay (s)	10.5	0.0	0.6			
Approach LOS	B					
Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		24.8%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2035 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	130	0	0	0	48	89	1	2	114	42
Future Volume (vph)	66	0	130	0	0	0	48	89	1	2	114	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911						0.999			0.964	
Flt Protected		0.983						0.983			0.999	
Satd. Flow (prot)	0	1633	0	0	1921	0	0	1837	0	0	1751	0
Flt Permitted		0.983						0.983			0.999	
Satd. Flow (perm)	0	1633	0	0	1921	0	0	1837	0	0	1751	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	0%	5%	0%	0%	0%	4%	2%	0%	88%	2%	12%
Adj. Flow (vph)	73	0	143	0	0	0	53	98	1	2	125	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	216	0	0	0	0	0	152	0	0	173	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	37.7%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis










## 7: CR 15 & CR 36/Jenkins Road

2035 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	0	130	0	0	0	48	89	1	2	114	42
Future Volume (Veh/h)	66	0	130	0	0	0	48	89	1	2	114	42
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	73	0	143	0	0	0	53	98	1	2	125	46
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	356	357	148	500	380	98	171				99	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	356	357	148	500	380	98	171				99	
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1				5.0	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2				3.0	
p0 queue free %	87	100	84	100	100	100	96				100	
cM capacity (veh/h)	573	549	891	395	534	963	1394				1093	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	216	0	152	173								
Volume Left	73	0	53	2								
Volume Right	143	0	1	46								
cSH	750	1700	1394	1093								
Volume to Capacity	0.29	0.00	0.04	0.00								
Queue Length 95th (m)	9.1	0.0	0.9	0.0								
Control Delay (s)	11.7	0.0	2.9	0.1								
Lane LOS	B	A	A	A								
Approach Delay (s)	11.7	0.0	2.9	0.1								
Approach LOS	B	A										
Intersection Summary												
Average Delay			5.5									
Intersection Capacity Utilization			37.7%	ICU Level of Service				A				
Analysis Period (min)			15									

Lanes, Volumes, Timings  
8: Avonmore Road & Site Access










2035 Future Total AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	29	66	74	105	22
Future Volume (vph)	9	29	66	74	105	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.897	0.977				
Flt Protected	0.988	0.977				
Satd. Flow (prot)	1703	0	0	1877	1877	0
Flt Permitted	0.988	0.977				
Satd. Flow (perm)	1703	0	0	1877	1877	0
Link Speed (k/h)	50	80				
Link Distance (m)	186.4	200.6				
Travel Time (s)	13.4	9.0				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	10	32	72	80	114	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	0	152	138	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7	0.0				
Link Offset(m)	0.0	0.0				
Crosswalk Width(m)	1.6	1.6				
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop	Free			Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.7%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 8: Avonmore Road & Site Access

2035 Future Total AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	29	66	74	105	22
Future Volume (Veh/h)	9	29	66	74	105	22
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)	10	32	72	80	114	24
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	350	126	138			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	350	126	138			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	97	95			
cM capacity (veh/h)	619	930	1458			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	42	152	138			
Volume Left	10	72	0			
Volume Right	32	0	24			
cSH	831	1458	1700			
Volume to Capacity	0.05	0.05	0.08			
Queue Length 95th (m)	1.2	1.2	0.0			
Control Delay (s)	9.6	3.8	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.6	3.8	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			3.0			
Intersection Capacity Utilization		27.7%		ICU Level of Service		A
Analysis Period (min)		15				

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	56.6	56.5	57.4	67.4
Average Queue (m)	29.0	24.6	23.6	29.7
95th Queue (m)	50.2	46.4	46.3	52.8
Link Distance (m)	171.9	201.9	228.9	110.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	23.1	43.0	15.7	16.3
Average Queue (m)	9.7	20.7	1.1	1.6
95th Queue (m)	17.2	34.6	7.3	8.4
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	10.4	21.0	8.6
Average Queue (m)	1.2	9.6	0.3
95th Queue (m)	6.2	17.4	3.3
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	26.6	7.6
Average Queue (m)	11.1	0.5
95th Queue (m)	20.5	4.0
Link Distance (m)	300.4	1758.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	SB	SB
Directions Served	L	LT	R
Maximum Queue (m)	8.0	118.2	22.6
Average Queue (m)	0.6	60.4	8.1
95th Queue (m)	4.5	124.2	24.8
Link Distance (m)		387.5	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	80.0		15.0
Storage Blk Time (%)		76	0
Queuing Penalty (veh)		14	1

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	21.6	11.8
Average Queue (m)	8.7	0.6
95th Queue (m)	18.1	4.6
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



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Intersection: 7: CR 15 & CR 36/Jenkins Road

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Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	31.7	10.4	3.0
Average Queue (m)	14.8	1.5	0.2
95th Queue (m)	25.2	7.2	3.0
Link Distance (m)	178.3	206.8	156.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Intersection: 8: Avonmore Road & Site Access

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	11.8	12.8
Average Queue (m)	6.3	2.3
95th Queue (m)	13.1	9.3
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 15






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Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	LT	R	LT	R
Maximum Queue (m)	10.3	66.2	30.2	16.0	36.6	21.7
Average Queue (m)	1.2	33.9	12.4	4.9	18.6	3.3
95th Queue (m)	6.9	57.8	25.9	11.3	32.3	13.3
Link Distance (m)		163.6	189.1		387.5	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			60.0		15.0
Storage Blk Time (%)					13	0
Queuing Penalty (veh)					2	1













Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2035 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	142	112	46	178	216	74	178	26	126	251	26
Future Volume (vph)	13	142	112	46	178	216	74	178	26	126	251	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.943			0.934			0.987			0.991	
Flt Protected		0.998			0.995			0.987			0.985	
Satd. Flow (prot)	0	1455	0	0	1523	0	0	1819	0	0	1760	0
Flt Permitted		0.967			0.936			0.826			0.813	
Satd. Flow (perm)	0	1410	0	0	1433	0	0	1522	0	0	1452	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		96			129			14			9	
Link Speed (k/h)		30			48			80			80	
Link Distance (m)		181.7			207.4			243.4			132.3	
Travel Time (s)		21.8			15.6			11.0			6.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	17%	44%	0%	0%	11%	26%	6%	2%	0%	17%	2%	0%
Adj. Flow (vph)	15	160	126	52	200	243	83	200	29	142	282	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	301	0	0	495	0	0	312	0	0	453	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		8.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	30.5		2.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	1.8		2.0	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

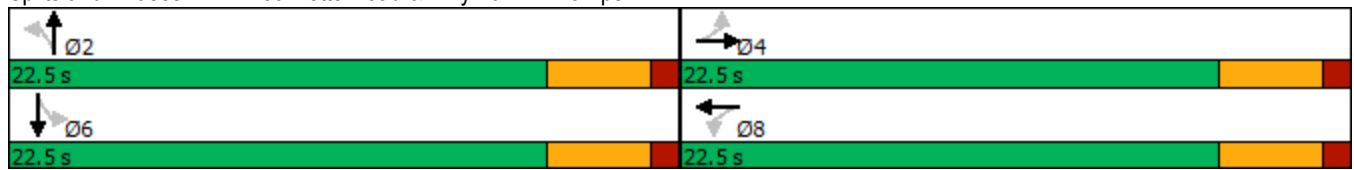
Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2035 Future Total PM

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		14.9			14.9			15.6			15.6	
Actuated g/C Ratio		0.37			0.37			0.39			0.39	
v/c Ratio		0.51			0.80			0.52			0.79	
Control Delay		10.3			21.3			13.1			24.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.3			21.3			13.1			24.4	
LOS		B			C			B			C	
Approach Delay		10.3			21.3			13.1			24.4	
Approach LOS		B			C			B			C	
Queue Length 50th (m)		10.6			22.4			16.5			28.5	
Queue Length 95th (m)		25.4			#63.8			32.7			#67.7	
Internal Link Dist (m)		157.7			183.4			219.4			108.3	
Turn Bay Length (m)												
Base Capacity (vph)		712			740			721			685	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.42			0.67			0.43			0.66	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 39.9												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.80												
Intersection Signal Delay: 18.4							Intersection LOS: B					
Intersection Capacity Utilization 78.6%							ICU Level of Service D					
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

1: Moulinette Road & Hwy 401 EB Ramps

Splits and Phases: 1: Moulinette Road & Hwy 401 EB Ramps



















## 2: Moulinette Road &amp; County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	37	259	38	26	27	119	260	3	107	2
Future Volume (vph)	1	1	37	259	38	26	27	119	260	3	107	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.872			0.989			0.914			0.998	
Flt Protected		0.999			0.961			0.997			0.999	
Satd. Flow (prot)	0	1627	0	0	1685	0	0	1502	0	0	1815	0
Flt Permitted		0.999			0.961			0.997			0.999	
Satd. Flow (perm)	0	1627	0	0	1685	0	0	1502	0	0	1815	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	3%	10%	0%	4%	0%	4%	24%	67%	4%	0%
Adj. Flow (vph)	1	1	39	276	40	28	29	127	277	3	114	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	344	0	0	433	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	61.6%						ICU Level of Service B					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















2035 Future Total PM

																				
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR								
Lane Configurations																				
Traffic Volume (veh/h)	1	1	37	259	38	26	27	119	260	3	107	2								
Future Volume (Veh/h)	1	1	37	259	38	26	27	119	260	3	107	2								
Sign Control		Stop			Stop			Free			Free									
Grade		0%			0%			0%			0%									
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94								
Hourly flow rate (vph)	1	1	39	276	40	28	29	127	277	3	114	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	492	583	115	484	446	266	116			404										
vC1, stage 1 conf vol																				
vC2, stage 2 conf vol																				
vCu, unblocked vol	492	583	115	484	446	266	116			404										
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.8										
tC, 2 stage (s)																				
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.8										
p0 queue free %	100	100	96	39	92	96	98			100										
cM capacity (veh/h)	436	417	935	451	499	768	1485			876										
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																
Volume Total	41	344	433	119																
Volume Left	1	276	29	3																
Volume Right	39	28	277	2																
cSH	883	472	1485	876																
Volume to Capacity	0.05	0.73	0.02	0.00																
Queue Length 95th (m)	1.1	44.7	0.5	0.1																
Control Delay (s)	9.3	30.4	0.7	0.3																
Lane LOS	A	D	A	A																
Approach Delay (s)	9.3	30.4	0.7	0.3																
Approach LOS	A	D																		
Intersection Summary																				
Average Delay			11.9																	
Intersection Capacity Utilization			61.6%	ICU Level of Service						B										
Analysis Period (min)			15																	

Lanes, Volumes, Timings

2035 Future Total PM

















3: Moulinette Road & Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	2	89	0	6	0	37	106	3	19	0
Future Volume (vph)	0	0	2	89	0	6	0	37	106	3	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.991			0.900				
Flt Protected					0.955						0.994	
Satd. Flow (prot)	0	1385	0	0	1557	0	0	1621	0	0	1910	0
Flt Permitted					0.955						0.994	
Satd. Flow (perm)	0	1385	0	0	1557	0	0	1621	0	0	1910	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	20%	18%	0%	0%	0%	0%	9%	0%	0%	0%
Adj. Flow (vph)	0	0	3	127	0	9	0	53	151	4	27	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	136	0	0	204	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	27.1%											
Analysis Period (min)	15											
ICU Level of Service A												



















# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

2035 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	89	0	6	0	37	106	3	19	0
Future Volume (Veh/h)	0	0	2	89	0	6	0	37	106	3	19	0
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	0	0	3	127	0	9	0	53	151	4	27	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	172	239	27	166	164	128	27				204	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	172	239	27	166	164	128	27				204	
tC, single (s)	7.1	6.5	6.4	7.3	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.7	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	83	100	99	100				100	
cM capacity (veh/h)	786	664	999	759	731	927	1600				1380	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	136	204	31								
Volume Left	0	127	0	4								
Volume Right	3	9	151	0								
cSH	999	768	1600	1380								
Volume to Capacity	0.00	0.18	0.00	0.00								
Queue Length 95th (m)	0.1	4.9	0.0	0.1								
Control Delay (s)	8.6	10.7	0.0	1.0								
Lane LOS	A	B		A								
Approach Delay (s)	8.6	10.7	0.0	1.0								
Approach LOS	A	B										
Intersection Summary												
Average Delay				4.0								
Intersection Capacity Utilization				27.1%	ICU Level of Service				A			
Analysis Period (min)				15								

















## 4: Avonmore Road/Avnmore Road &amp; County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	1	14	2	0	0	14	181	0	0	141	75
Future Volume (vph)	84	1	14	2	0	0	14	181	0	0	141	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981									0.953	
Flt Protected		0.959			0.950			0.996				
Satd. Flow (prot)	0	1647	0	0	1825	0	0	1741	0	0	1654	0
Flt Permitted		0.959			0.950			0.996				
Satd. Flow (perm)	0	1647	0	0	1825	0	0	1741	0	0	1654	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	7%	0%	27%	0%	0%	0%	9%	10%	0%	0%	10%	12%
Adj. Flow (vph)	104	1	17	2	0	0	17	223	0	0	174	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	122	0	0	2	0	0	240	0	0	267	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	32.9%											
Analysis Period (min)	15											
	ICU Level of Service A											

# HCM Unsignalized Intersection Capacity Analysis




















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

2035 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	1	14	2	0	0	14	181	0	0	141	75
Future Volume (Veh/h)	84	1	14	2	0	0	14	181	0	0	141	75
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	104	1	17	2	0	0	17	223	0	0	174	93
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	478	478	220	495	524	223	267				223	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478	478	220	495	524	223	267				223	
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.2				4.1	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.3				2.2	
p0 queue free %	79	100	98	100	100	100	99				100	
cM capacity (veh/h)	485	483	760	472	455	822	1257				1358	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	122	2	240	267								
Volume Left	104	2	17	0								
Volume Right	17	0	0	93								
cSH	511	472	1257	1358								
Volume to Capacity	0.24	0.00	0.01	0.00								
Queue Length 95th (m)	7.0	0.1	0.3	0.0								
Control Delay (s)	14.3	12.7	0.7	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	14.3	12.7	0.7	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay				3.1								
Intersection Capacity Utilization				32.9%	ICU Level of Service				A			
Analysis Period (min)				15								




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	354	1	0	497	288	0	1	0	196	0	11
Future Volume (vph)	15	354	1	0	497	288	0	1	0	196	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	16	381	1	0	534	310	0	1	0	211	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	382	0	0	534	310	0	1	0	0	211	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 50.3%	ICU Level of Service A											
Analysis Period (min) 15												




















# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2035 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	354	1	0	497	288	0	1	0	196	0	11
Future Volume (Veh/h)	15	354	1	0	497	288	0	1	0	196	0	11
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	16	381	1	0	534	310	0	1	0	211	0	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	844			382			954	1258	382	948	948	534
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	844			382			954	1258	382	948	948	534
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	98			100			100	99	100	11	100	98
cM capacity (veh/h)	771			1188			231	169	670	237	257	531
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	16	382	534	310	1	223						
Volume Left	16	0	0	0	0	211						
Volume Right	0	1	0	310	0	12						
cSH	771	1700	1188	1700	169	246						
Volume to Capacity	0.02	0.22	0.00	0.18	0.01	0.91						
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.1	59.3						
Control Delay (s)	9.8	0.0	0.0	0.0	26.4	78.3						
Lane LOS	A				D	F						
Approach Delay (s)	0.4		0.0		26.4	78.3						
Approach LOS					D	F						
Intersection Summary												
Average Delay	12.0											
Intersection Capacity Utilization	50.3%			ICU Level of Service			A					
Analysis Period (min)	15											













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Total PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	354	1	0	497	288	0	1	0	196	0	11
Future Volume (vph)	15	354	1	0	497	288	0	1	0	196	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.279										0.757	
Satd. Flow (perm)	501	1847	0	0	1865	1601	0	1921	0	0	1440	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						310						33
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	16	381	1	0	534	310	0	1	0	211	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	382	0	0	534	310	0	1	0	0	211	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm		NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

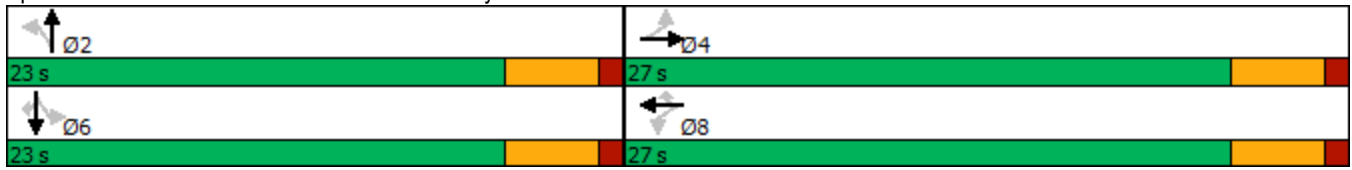
2035 Future Total PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	27.0	27.0		27.0	27.0	27.0	23.0	23.0		23.0	23.0	23.0
Total Split (%)	54.0%	54.0%		54.0%	54.0%	54.0%	46.0%	46.0%		46.0%	46.0%	46.0%
Maximum Green (s)	22.5	22.5		22.5	22.5	22.5	18.5	18.5		18.5	18.5	18.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	17.9	17.9			17.9	17.9		18.7			18.7	18.7
Actuated g/C Ratio	0.39	0.39			0.39	0.39		0.41			0.41	0.41
v/c Ratio	0.08	0.53			0.73	0.38		0.00			0.36	0.02
Control Delay	9.2	13.3			18.3	2.9		10.0			13.0	2.0
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	9.2	13.3			18.3	2.9		10.0			13.0	2.0
LOS	A	B			B	A		A			B	A
Approach Delay		13.1			12.6			10.0			12.4	
Approach LOS		B			B			A			B	
Queue Length 50th (m)	0.8	21.9			34.0	0.0		0.1			11.7	0.0
Queue Length 95th (m)	3.4	39.4			59.7	9.8		0.8			27.1	1.2
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	249	919			928	952		786			589	626
Starvation Cap Reductn	0	0			0	0		0			0	0
Spillback Cap Reductn	0	0			0	0		0			0	0
Storage Cap Reductn	0	0			0	0		0			0	0
Reduced v/c Ratio	0.06	0.42			0.58	0.33		0.00			0.36	0.02
Intersection Summary												
Area Type:	Other											
Cycle Length: 50												
Actuated Cycle Length: 45.7												
Natural Cycle: 50												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.73												
Intersection Signal Delay: 12.7							Intersection LOS: B					
Intersection Capacity Utilization 51.9%							ICU Level of Service A					
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2035 Future Total PM-Int#5 Signalized










Splits and Phases: 5: Avonmore Road & County Road 2














Lanes, Volumes, Timings  
6: CR 15 & CR 36

2035 Future Total PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	31	19	156	36	18	150
Future Volume (vph)	31	19	156	36	18	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949		0.974			
Flt Protected	0.970					0.995
Satd. Flow (prot)	1690	0	1829	0	0	1883
Flt Permitted	0.970					0.995
Satd. Flow (perm)	1690	0	1829	0	0	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	9%	1%	8%	6%	1%
Adj. Flow (vph)	39	24	197	46	23	190
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	0	243	0	0	213
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	32.6%			ICU Level of Service A		
Analysis Period (min)	15					

















# HCM Unsignalized Intersection Capacity Analysis 6: CR 15 & CR 36

2035 Future Total PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	19	156	36	18	150
Future Volume (Veh/h)	31	19	156	36	18	150
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	39	24	197	46	23	190
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	456	220			243	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	456	220			243	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	93	97			98	
cM capacity (veh/h)	552	802			1300	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	63	243	213			
Volume Left	39	0	23			
Volume Right	24	46	0			
cSH	627	1700	1300			
Volume to Capacity	0.10	0.14	0.02			
Queue Length 95th (m)	2.5	0.0	0.4			
Control Delay (s)	11.4	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	11.4	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			32.6%	ICU Level of Service		A
Analysis Period (min)			15			

















Lanes, Volumes, Timings  
7: CR15/CR 15 & CR 36/Jenkins Road

2035 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	0	108	2	0	1	159	100	1	1	121	80
Future Volume (vph)	63	0	108	2	0	1	159	100	1	1	121	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.915			0.955						0.947	
Flt Protected		0.982			0.968			0.970				
Satd. Flow (prot)	0	1674	0	0	1776	0	0	1820	0	0	1749	0
Flt Permitted		0.982			0.968			0.970				
Satd. Flow (perm)	0	1674	0	0	1776	0	0	1820	0	0	1749	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	2%	3%	0%	100%	6%	0%
Adj. Flow (vph)	73	0	126	2	0	1	185	116	1	1	141	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	199	0	0	3	0	0	302	0	0	235	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	45.8%						ICU Level of Service A					
Analysis Period (min)	15											










# HCM Unsignalized Intersection Capacity Analysis 7: CR15/CR 15 & CR 36/Jenkins Road

2035 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	0	108	2	0	1	159	100	1	1	121	80
Future Volume (Veh/h)	63	0	108	2	0	1	159	100	1	1	121	80
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	73	0	126	2	0	1	185	116	1	1	141	93
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	677	676	188	802	722	116	234				117	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	677	676	188	802	722	116	234				117	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				5.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				3.1	
p0 queue free %	77	100	85	99	100	100	86				100	
cM capacity (veh/h)	323	325	855	232	306	941	1333				1034	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	199	3	302	235								
Volume Left	73	2	185	1								
Volume Right	126	1	1	93								
cSH	533	310	1333	1034								
Volume to Capacity	0.37	0.01	0.14	0.00								
Queue Length 95th (m)	13.0	0.2	3.7	0.0								
Control Delay (s)	15.7	16.7	5.5	0.0								
Lane LOS	C	C	A	A								
Approach Delay (s)	15.7	16.7	5.5	0.0								
Approach LOS	C	C										
Intersection Summary												
Average Delay				6.5								
Intersection Capacity Utilization				45.8%	ICU Level of Service				A			
Analysis Period (min)				15								










Lanes, Volumes, Timings  
8: Avonmore Road & Site Access

2035 Future Total PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	23	68	39	136	100	13
Future Volume (vph)	23	68	39	136	100	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.899				0.985	
Flt Protected	0.988				0.989	
Satd. Flow (prot)	1706	0	0	1900	1892	0
Flt Permitted	0.988				0.989	
Satd. Flow (perm)	1706	0	0	1900	1892	0
Link Speed (k/h)	50				80	80
Link Distance (m)	186.4				200.6	1773.8
Travel Time (s)	13.4				9.0	79.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	25	74	42	148	109	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	190	123	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	1.6				1.6	1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.1%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis8: Avonmore Road & Site Access

2035 Future Total PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	68	39	136	100	13
Future Volume (Veh/h)	23	68	39	136	100	13
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)	25	74	42	148	109	14
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	348	116	123			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348	116	123			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	92	97			
cM capacity (veh/h)	634	942	1477			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	99	190	123			
Volume Left	25	42	0			
Volume Right	74	0	14			
cSH	839	1477	1700			
Volume to Capacity	0.12	0.03	0.07			
Queue Length 95th (m)	3.0	0.7	0.0			
Control Delay (s)	9.9	1.8	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.9	1.8	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utilization		28.1%		ICU Level of Service		A
Analysis Period (min)		15				

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	60.8	107.4	45.0	69.4
Average Queue (m)	30.1	45.0	18.9	38.0
95th Queue (m)	54.1	83.9	36.6	62.2
Link Distance (m)	171.9	201.9	228.9	110.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	17.1	72.9	10.4	10.3
Average Queue (m)	5.6	30.4	1.3	0.5
95th Queue (m)	13.2	55.6	6.7	4.6
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.1	21.8	6.9
Average Queue (m)	0.6	11.3	0.2
95th Queue (m)	4.1	20.0	2.5
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	26.1	5.3	13.9
Average Queue (m)	11.4	0.3	1.2
95th Queue (m)	20.6	3.2	7.0
Link Distance (m)	300.4	60.6	1758.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	WB	NB	SB	SB
Directions Served	L	R	LTR	LT	R
Maximum Queue (m)	12.2	0.9	6.7	287.8	22.6
Average Queue (m)	2.0	0.0	0.4	159.1	5.8
95th Queue (m)	7.5	0.5	3.1	332.4	21.4
Link Distance (m)			51.8	387.5	
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (m)	80.0	60.0			15.0
Storage Blk Time (%)				92	1
Queuing Penalty (veh)				10	1

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	20.3	12.6
Average Queue (m)	8.6	1.0
95th Queue (m)	16.6	6.2
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



Intersection: 7: CR15/CR 15 & CR 36/Jenkins Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	32.5	7.5	24.9	0.2
Average Queue (m)	14.3	0.9	7.3	0.0
95th Queue (m)	25.3	4.8	18.6	0.1
Link Distance (m)	178.3	93.2	206.8	156.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Avonmore Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	17.3	12.8
Average Queue (m)	9.0	1.5
95th Queue (m)	14.0	7.2
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary






Network wide Queuing Penalty: 11
----------------------------------

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	LT	R
Maximum Queue (m)	15.0	52.2	60.7	28.2	4.9	35.4	15.5
Average Queue (m)	3.2	22.4	29.6	10.7	0.2	17.1	1.6
95th Queue (m)	9.9	41.5	50.8	20.4	2.0	31.0	8.4
Link Distance (m)		163.6	189.1		51.8	387.5	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	80.0			60.0			15.0
Storage Blk Time (%)			0			11	0
Queuing Penalty (veh)			1			1	0













Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2040 Future Total AM

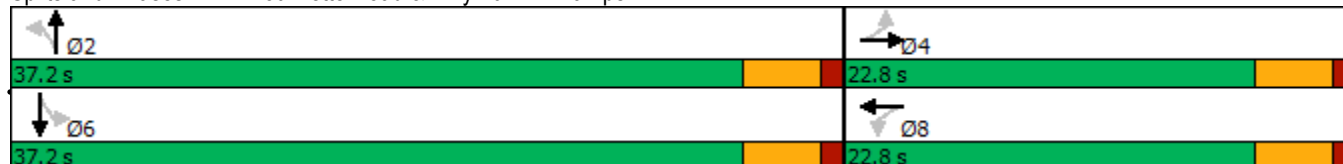
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	174	43	18	77	102	134	204	44	191	137	72
Future Volume (vph)	6	174	43	18	77	102	134	204	44	191	137	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.930			0.984			0.976	
Flt Protected		0.999			0.995			0.983			0.977	
Satd. Flow (prot)	0	1557	0	0	1413	0	0	1724	0	0	1721	0
Flt Permitted		0.989			0.954			0.750			0.665	
Satd. Flow (perm)	0	1541	0	0	1355	0	0	1315	0	0	1171	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			93			17			29	
Link Speed (k/h)		30			48			80			80	
Link Distance (m)		181.7			207.4			243.4			132.3	
Travel Time (s)		21.8			15.6			11.0			6.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	24%	7%	0%	17%	37%	4%	12%	0%	7%	8%	2%
Adj. Flow (vph)	7	202	50	21	90	119	156	237	51	222	159	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	259	0	0	230	0	0	444	0	0	465	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		8.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	30.5		2.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	1.8		2.0	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2040 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.8	22.8		22.8	22.8		37.2	37.2		37.2	37.2	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	18.3	18.3		18.3	18.3		32.7	32.7		32.7	32.7	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		12.4			12.4			23.0			23.0	
Actuated g/C Ratio		0.27			0.27			0.51			0.51	
v/c Ratio		0.59			0.52			0.65			0.76	
Control Delay		20.5			14.5			13.6			18.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.5			14.5			13.6			18.6	
LOS		C			B			B			B	
Approach Delay		20.5			14.5			13.6			18.6	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		15.2			8.2			20.6			22.8	
Queue Length 95th (m)		38.1			26.4			49.7			59.1	
Internal Link Dist (m)		157.7			183.4			219.4			108.3	
Turn Bay Length (m)												
Base Capacity (vph)		681			641			1004			897	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.38			0.36			0.44			0.52	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 45.1												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.76												
Intersection Signal Delay: 16.7						Intersection LOS: B						
Intersection Capacity Utilization 60.2%						ICU Level of Service B						
Analysis Period (min) 15												

















Splits and Phases: 1: Moulinette Road & Hwy 401 EB Ramps



Lanes, Volumes, Timings

2040 Future Total AM

















2: Moulinette Road & County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	77	221	19	15	19	96	196	14	101	2
Future Volume (vph)	7	0	77	221	19	15	19	96	196	14	101	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.876			0.992			0.915			0.998	
Flt Protected		0.996			0.958			0.997			0.994	
Satd. Flow (prot)	0	1559	0	0	1718	0	0	1496	0	0	1689	0
Flt Permitted		0.996			0.958			0.997			0.994	
Satd. Flow (perm)	0	1559	0	0	1718	0	0	1496	0	0	1689	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	60%	0%	3%	6%	0%	18%	19%	13%	19%	42%	8%	50%
Adj. Flow (vph)	7	0	81	233	20	16	20	101	206	15	106	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	269	0	0	327	0	0	123	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	48.4%				ICU Level of Service A							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















2040 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	77	221	19	15	19	96	196	14	101	2
Future Volume (Veh/h)	7	0	77	221	19	15	19	96	196	14	101	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	0	81	233	20	16	20	101	206	15	106	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	407	484	107	462	382	204	108			307		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	407	484	107	462	382	204	108			307		
tC, single (s)	7.7	6.5	6.2	7.2	6.5	6.4	4.3			4.5		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.6	4.0	3.5	2.4			2.6		
p0 queue free %	98	100	91	48	96	98	99			99		
cM capacity (veh/h)	433	472	944	450	538	798	1383			1058		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	88	269	327	123								
Volume Left	7	233	20	15								
Volume Right	81	16	206	2								
cSH	863	468	1383	1058								
Volume to Capacity	0.10	0.57	0.01	0.01								
Queue Length 95th (m)	2.6	27.0	0.3	0.3								
Control Delay (s)	9.6	22.6	0.6	1.1								
Lane LOS	A	C	A	A								
Approach Delay (s)	9.6	22.6	0.6	1.1								
Approach LOS	A	C										
Intersection Summary												
Average Delay			9.0									
Intersection Capacity Utilization			48.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

















2040 Future Total AM

3: Moulinette Road & Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	73	3	1	4	17	94	4	32	0
Future Volume (vph)	0	0	7	73	3	1	4	17	94	4	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.998			0.890				
Flt Protected					0.955			0.998			0.995	
Satd. Flow (prot)	0	1385	0	0	1644	0	0	1436	0	0	1912	0
Flt Permitted					0.955			0.998			0.995	
Satd. Flow (perm)	0	1385	0	0	1644	0	0	1436	0	0	1912	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	20%	12%	0%	0%	0%	0%	23%	0%	0%	0%
Adj. Flow (vph)	0	0	7	77	3	1	4	18	99	4	34	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	81	0	0	121	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.1%						ICU Level of Service A					
Analysis Period (min)	15											

















# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

2040 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	73	3	1	4	17	94	4	32	0
Future Volume (Veh/h)	0	0	7	73	3	1	4	17	94	4	32	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	7	77	3	1	4	18	99	4	34	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None											
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	120	167	34	124	118	68	34			117		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	120	167	34	124	118	68	34			117		
tC, single (s)	7.1	6.5	6.4	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	91	100	100	100			100		
cM capacity (veh/h)	853	726	990	818	772	1002	1591			1484		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	81	121	38								
Volume Left	0	77	4	4								
Volume Right	7	1	99	0								
cSH	990	818	1591	1484								
Volume to Capacity	0.01	0.10	0.00	0.00								
Queue Length 95th (m)	0.2	2.5	0.1	0.1								
Control Delay (s)	8.7	9.9	0.3	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	9.9	0.3	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			25.1%	ICU Level of Service					A			
Analysis Period (min)			15									



















## 4: Avonmore Road/Avnomore Road &amp; County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	0	7	0	0	0	12	87	0	0	176	67
Future Volume (vph)	74	0	7	0	0	0	12	87	0	0	176	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988									0.963	
Flt Protected		0.957						0.994				
Satd. Flow (prot)	0	1525	0	0	1921	0	0	1675	0	0	1648	0
Flt Permitted		0.957						0.994				
Satd. Flow (perm)	0	1525	0	0	1921	0	0	1675	0	0	1648	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	21%	0%	0%	0%	0%	0%	0%	16%	0%	0%	7%	26%
Adj. Flow (vph)	90	0	9	0	0	0	15	106	0	0	215	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	0	0	0	121	0	0	297	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.9%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis




















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

2040 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	0	7	0	0	0	12	87	0	0	176	67
Future Volume (Veh/h)	74	0	7	0	0	0	12	87	0	0	176	67
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	90	0	9	0	0	0	15	106	0	0	215	82
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	392	392	256	401	433	106	297				106	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	392	392	256	401	433	106	297				106	
tC, single (s)	7.3	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	83	100	99	100	100	100	99				100	
cM capacity (veh/h)	530	541	788	552	513	954	1276				1498	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	99	0	121	297								
Volume Left	90	0	15	0								
Volume Right	9	0	0	82								
cSH	546	1700	1276	1498								
Volume to Capacity	0.18	0.00	0.01	0.00								
Queue Length 95th (m)	5.0	0.0	0.3	0.0								
Control Delay (s)	13.0	0.0	1.1	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	13.0	0.0	1.1	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay				2.7								
Intersection Capacity Utilization				25.9%	ICU Level of Service				A			
Analysis Period (min)				15								




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	506	0	0	191	141	0	0	0	246	0	18
Future Volume (vph)	6	506	0	0	191	141	0	0	0	246	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	3%	0%	0%	0%	1%	0%	14%
Adj. Flow (vph)	7	595	0	0	225	166	0	0	0	289	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	595	0	0	225	166	0	0	0	0	289	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	46.9%						ICU Level of Service A					
Analysis Period (min)	15											

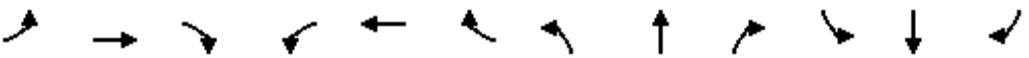







# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2040 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	506	0	0	191	141	0	0	0	246	0	18
Future Volume (Veh/h)	6	506	0	0	191	141	0	0	0	246	0	18
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	7	595	0	0	225	166	0	0	0	289	0	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	391			595			844	1000	595	834	834	225
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	391			595			844	1000	595	834	834	225
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	0	100	97
cM capacity (veh/h)	1076			991			276	243	508	287	304	785
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	7	595	225	166	0	310						
Volume Left	7	0	0	0	0	289						
Volume Right	0	0	0	166	0	21						
cSH	1076	1700	991	1700	1700	302						
Volume to Capacity	0.01	0.35	0.00	0.10	0.00	1.03						
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	85.9						
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	97.4						
Lane LOS	A				A	F						
Approach Delay (s)	0.1		0.0		0.0	97.4						
Approach LOS					A	F						
Intersection Summary												
Average Delay				23.2								
Intersection Capacity Utilization				46.9%	ICU Level of Service				A			
Analysis Period (min)				15								













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Total AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	506	0	0	191	141	0	0	0	246	0	18
Future Volume (vph)	6	506	0	0	191	141	0	0	0	246	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Flt Permitted	0.618										0.757	
Satd. Flow (perm)	989	1830	0	0	1779	1585	0	1921	0	0	1440	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						166						30
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	3%	0%	0%	0%	1%	0%	14%
Adj. Flow (vph)	7	595	0	0	225	166	0	0	0	289	0	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	595	0	0	225	166	0	0	0	0	289	21
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm				Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

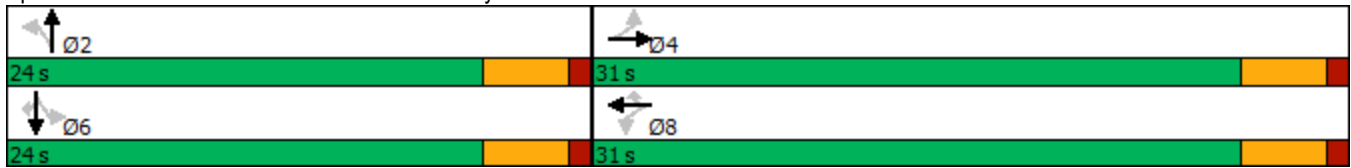
2040 Future Total AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	31.0	31.0		31.0	31.0	31.0	24.0	24.0		24.0	24.0	24.0
Total Split (%)	56.4%	56.4%		56.4%	56.4%	56.4%	43.6%	43.6%		43.6%	43.6%	43.6%
Maximum Green (s)	26.5	26.5		26.5	26.5	26.5	19.5	19.5		19.5	19.5	19.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	20.2	20.2			20.2	20.2					19.7	19.7
Actuated g/C Ratio	0.41	0.41			0.41	0.41					0.40	0.40
v/c Ratio	0.02	0.79			0.31	0.22					0.50	0.04
Control Delay	7.8	20.8			10.4	2.6					16.4	4.6
Queue Delay	0.0	0.0			0.0	0.0					0.0	0.0
Total Delay	7.8	20.8			10.4	2.6					16.4	4.6
LOS	A	C			B	A					B	A
Approach Delay		20.6			7.1						15.6	
Approach LOS		C			A						B	
Queue Length 50th (m)	0.3	41.9			12.3	0.0					18.6	0.0
Queue Length 95th (m)	1.8	65.0			21.5	6.2					39.3	2.6
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	540	999			972	941					579	593
Starvation Cap Reductn	0	0			0	0					0	0
Spillback Cap Reductn	0	0			0	0					0	0
Storage Cap Reductn	0	0			0	0					0	0
Reduced v/c Ratio	0.01	0.60			0.23	0.18					0.50	0.04
Intersection Summary												
Area Type:	Other											
Cycle Length: 55												
Actuated Cycle Length: 49.1												
Natural Cycle: 55												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.79												
Intersection Signal Delay: 15.4							Intersection LOS: B					
Intersection Capacity Utilization 47.8%							ICU Level of Service A					
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2040 Future Total AM-Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2



Lanes, Volumes, Timings  
6: CR 15 & CR 36










2040 Future Total AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	31	12	129	33	10	128
Future Volume (vph)	31	12	129	33	10	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.963		0.972			
Flt Protected	0.965					0.996
Satd. Flow (prot)	1542	0	1788	0	0	1871
Flt Permitted	0.965					0.996
Satd. Flow (perm)	1542	0	1788	0	0	1871
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	23%	3%	10%	6%	2%
Adj. Flow (vph)	34	13	140	36	11	139
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	176	0	0	150
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.0%			ICU Level of Service A		
Analysis Period (min)	15					



















# HCM Unsignalized Intersection Capacity Analysis 6: CR 15 & CR 36

2040 Future Total AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	12	129	33	10	128
Future Volume (Veh/h)	31	12	129	33	10	128
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)	34	13	140	36	11	139
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	319	158			176	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	319	158			176	
tC, single (s)	6.5	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.3	
p0 queue free %	95	98			99	
cM capacity (veh/h)	647	835			1376	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	47	176	150			
Volume Left	34	0	11			
Volume Right	13	36	0			
cSH	690	1700	1376			
Volume to Capacity	0.07	0.10	0.01			
Queue Length 95th (m)	1.7	0.0	0.2			
Control Delay (s)	10.6	0.0	0.6			
Lane LOS	B		A			
Approach Delay (s)	10.6	0.0	0.6			
Approach LOS	B					
Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		25.0%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2040 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	0	132	0	0	0	49	90	1	2	118	43
Future Volume (vph)	67	0	132	0	0	0	49	90	1	2	118	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911						0.999			0.965	
Flt Protected		0.983						0.983			0.999	
Satd. Flow (prot)	0	1633	0	0	1921	0	0	1837	0	0	1754	0
Flt Permitted		0.983						0.983			0.999	
Satd. Flow (perm)	0	1633	0	0	1921	0	0	1837	0	0	1754	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	0%	5%	0%	0%	0%	4%	2%	0%	88%	2%	12%
Adj. Flow (vph)	74	0	145	0	0	0	54	99	1	2	130	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	219	0	0	0	0	0	154	0	0	179	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	38.3%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis










## 7: CR 15 & CR 36/Jenkins Road

2040 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	0	132	0	0	0	49	90	1	2	118	43
Future Volume (Veh/h)	67	0	132	0	0	0	49	90	1	2	118	43
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	74	0	145	0	0	0	54	99	1	2	130	47
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	365	366	154	510	388	100	177				100	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	365	366	154	510	388	100	177				100	
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1				5.0	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2				3.0	
p0 queue free %	87	100	84	100	100	100	96				100	
cM capacity (veh/h)	566	543	885	387	527	962	1387				1092	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	219	0	154	179								
Volume Left	74	0	54	2								
Volume Right	145	0	1	47								
cSH	743	1700	1387	1092								
Volume to Capacity	0.29	0.00	0.04	0.00								
Queue Length 95th (m)	9.4	0.0	0.9	0.0								
Control Delay (s)	11.9	0.0	2.9	0.1								
Lane LOS	B	A	A	A								
Approach Delay (s)	11.9	0.0	2.9	0.1								
Approach LOS	B	A										
Intersection Summary												
Average Delay			5.6									
Intersection Capacity Utilization			38.3%	ICU Level of Service				A				
Analysis Period (min)			15									










Lanes, Volumes, Timings  
8: Avonmore Road & Site Access

2040 Future Total AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	29	66	75	109	22
Future Volume (vph)	9	29	66	75	109	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.897				0.977	
Flt Protected	0.988			0.977		
Satd. Flow (prot)	1703	0	0	1877	1877	0
Flt Permitted	0.988			0.977		
Satd. Flow (perm)	1703	0	0	1877	1877	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	186.4			200.6	1773.8	
Travel Time (s)	13.4			9.0	79.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	10	32	72	82	118	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	0	154	142	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.0%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis8: Avonmore Road & Site Access

2040 Future Total AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	29	66	75	109	22
Future Volume (Veh/h)	9	29	66	75	109	22
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)	10	32	72	82	118	24
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	356	130	142			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	356	130	142			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	97	95			
cM capacity (veh/h)	614	925	1453			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	42	154	142			
Volume Left	10	72	0			
Volume Right	32	0	24			
cSH	826	1453	1700			
Volume to Capacity	0.05	0.05	0.08			
Queue Length 95th (m)	1.2	1.2	0.0			
Control Delay (s)	9.6	3.8	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.6	3.8	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		2.9				
Intersection Capacity Utilization		28.0%		ICU Level of Service		A
Analysis Period (min)		15				

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	67.2	54.7	58.1	67.1
Average Queue (m)	29.6	25.8	25.8	31.5
95th Queue (m)	55.4	44.2	46.5	55.9
Link Distance (m)	171.9	201.9	228.9	110.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	17.8	49.7	14.8	25.5
Average Queue (m)	9.1	22.9	1.3	2.3
95th Queue (m)	15.6	39.6	7.7	12.9
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	16.5	21.4	3.6
Average Queue (m)	2.5	9.2	0.1
95th Queue (m)	10.5	17.2	1.8
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	22.4	10.0
Average Queue (m)	10.7	0.6
95th Queue (m)	19.2	4.5
Link Distance (m)	300.4	1758.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	SB	SB
Directions Served	L	LT	R
Maximum Queue (m)	6.5	168.4	22.6
Average Queue (m)	0.5	84.2	8.9
95th Queue (m)	3.3	189.1	26.5
Link Distance (m)		387.5	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	80.0		15.0
Storage Blk Time (%)		78	1
Queuing Penalty (veh)		14	2

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	24.6	6.7
Average Queue (m)	9.2	0.6
95th Queue (m)	20.3	4.5
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Intersection: 7: CR 15 & CR 36/Jenkins Road

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Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	28.6	18.6	2.2
Average Queue (m)	14.2	3.2	0.1
95th Queue (m)	24.2	12.2	1.5
Link Distance (m)	178.3	206.8	156.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

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Intersection: 8: Avonmore Road & Site Access

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Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	13.4	14.2
Average Queue (m)	6.3	2.1
95th Queue (m)	13.2	8.6
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

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Network Summary

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Network wide Queuing Penalty: 16

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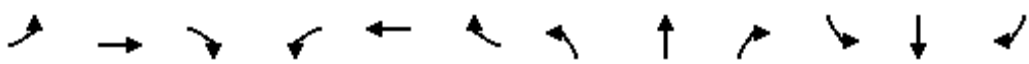






Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	LT	R	LT	R
Maximum Queue (m)	7.5	72.1	32.9	12.9	41.7	22.0
Average Queue (m)	0.8	36.0	12.1	4.9	20.6	4.3
95th Queue (m)	4.5	61.0	24.9	10.5	35.8	16.0
Link Distance (m)		163.6	189.1		387.5	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			60.0		15.0
Storage Blk Time (%)		0			14	0
Queuing Penalty (veh)		0			3	1













Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2040 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	142	113	46	178	216	75	182	26	126	255	27
Future Volume (vph)	14	142	113	46	178	216	75	182	26	126	255	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.943			0.934			0.988			0.991	
Flt Protected		0.997			0.995			0.987			0.985	
Satd. Flow (prot)	0	1455	0	0	1523	0	0	1821	0	0	1761	0
Flt Permitted		0.965			0.936			0.824			0.812	
Satd. Flow (perm)	0	1408	0	0	1433	0	0	1520	0	0	1451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		96			129			13			9	
Link Speed (k/h)		30			48			80			80	
Link Distance (m)		181.7			207.4			243.4			132.3	
Travel Time (s)		21.8			15.6			11.0			6.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	17%	44%	0%	0%	11%	26%	6%	2%	0%	17%	2%	0%
Adj. Flow (vph)	16	160	127	52	200	243	84	204	29	142	287	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	303	0	0	495	0	0	317	0	0	459	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		8.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	30.5		2.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	1.8		2.0	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

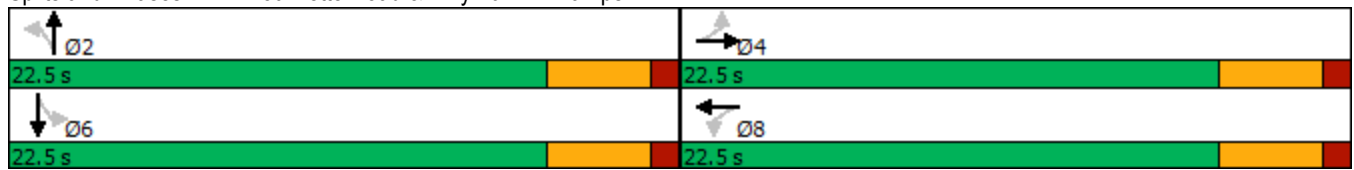
Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2040 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		14.9			14.9			15.7			15.7	
Actuated g/C Ratio		0.37			0.37			0.39			0.39	
v/c Ratio		0.52			0.80			0.52			0.80	
Control Delay		10.4			21.4			13.3			25.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.4			21.4			13.3			25.0	
LOS		B			C			B			C	
Approach Delay		10.4			21.4			13.3			25.0	
Approach LOS		B			C			B			C	
Queue Length 50th (m)		10.8			22.4			16.9			29.1	
Queue Length 95th (m)		25.7			#63.8			33.5			#69.0	
Internal Link Dist (m)		157.7			183.4			219.4			108.3	
Turn Bay Length (m)												
Base Capacity (vph)		707			737			715			681	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.43			0.67			0.44			0.67	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 40												
Natural Cycle: 45												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.80												
Intersection Signal Delay: 18.7							Intersection LOS: B					
Intersection Capacity Utilization 78.2%							ICU Level of Service D					
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

1: Moulinette Road & Hwy 401 EB Ramps

















Splits and Phases: 1: Moulinette Road & Hwy 401 EB Ramps



Lanes, Volumes, Timings

















2040 Future Total PM

2: Moulinette Road & County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	39	261	40	27	28	122	261	3	109	2
Future Volume (vph)	1	1	39	261	40	27	28	122	261	3	109	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.871			0.989			0.914			0.998	
Flt Protected		0.999			0.962			0.997			0.999	
Satd. Flow (prot)	0	1625	0	0	1688	0	0	1504	0	0	1816	0
Flt Permitted		0.999			0.962			0.997			0.999	
Satd. Flow (perm)	0	1625	0	0	1688	0	0	1504	0	0	1816	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	3%	10%	0%	4%	0%	4%	24%	67%	4%	0%
Adj. Flow (vph)	1	1	41	278	43	29	30	130	278	3	116	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	0	350	0	0	438	0	0	121	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	62.2%				ICU Level of Service B							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















2040 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	39	261	40	27	28	122	261	3	109	2
Future Volume (Veh/h)	1	1	39	261	40	27	28	122	261	3	109	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	1	41	278	43	29	30	130	278	3	116	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	502	591	117	494	453	269	118			408		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	502	591	117	494	453	269	118			408		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.8		
p0 queue free %	100	100	96	37	91	96	98			100		
cM capacity (veh/h)	426	412	932	443	494	765	1483			873		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	43	350	438	121								
Volume Left	1	278	30	3								
Volume Right	41	29	278	2								
cSH	882	465	1483	873								
Volume to Capacity	0.05	0.75	0.02	0.00								
Queue Length 95th (m)	1.2	48.1	0.5	0.1								
Control Delay (s)	9.3	32.6	0.7	0.3								
Lane LOS	A	D	A	A								
Approach Delay (s)	9.3	32.6	0.7	0.3								
Approach LOS	A	D										
Intersection Summary												
Average Delay			12.8									
Intersection Capacity Utilization			62.2%		ICU Level of Service				B			
Analysis Period (min)			15									

Lanes, Volumes, Timings

















2040 Future Total PM

3: Moulinette Road & Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	2	91	0	6	0	37	109	3	19	0
Future Volume (vph)	0	0	2	91	0	6	0	37	109	3	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865			0.991			0.899					
Flt Protected				0.955						0.994		
Satd. Flow (prot)	0	1385	0	0	1556	0	0	1618	0	0	1910	0
Flt Permitted				0.955						0.994		
Satd. Flow (perm)	0	1385	0	0	1556	0	0	1618	0	0	1910	0
Link Speed (k/h)	50			80			80			50		
Link Distance (m)	94.7			225.1			82.0			149.3		
Travel Time (s)	6.8			10.1			3.7			10.7		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	20%	18%	0%	0%	0%	0%	9%	0%	0%	0%
Adj. Flow (vph)	0	0	3	130	0	9	0	53	156	4	27	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	139	0	0	209	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			0.0			0.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	1.6			4.9			4.9			4.9		
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control	Stop			Stop			Free			Free		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	27.4%						ICU Level of Service A					
Analysis Period (min)	15											

















# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

2040 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	91	0	6	0	37	109	3	19	0
Future Volume (Veh/h)	0	0	2	91	0	6	0	37	109	3	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	0	0	3	130	0	9	0	53	156	4	27	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	175	244	27	169	166	131	27			209		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	175	244	27	169	166	131	27			209		
tC, single (s)	7.1	6.5	6.4	7.3	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.7	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	83	100	99	100			100		
cM capacity (veh/h)	783	659	999	756	728	924	1600			1374		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	139	209	31								
Volume Left	0	130	0	4								
Volume Right	3	9	156	0								
cSH	999	765	1600	1374								
Volume to Capacity	0.00	0.18	0.00	0.00								
Queue Length 95th (m)	0.1	5.0	0.0	0.1								
Control Delay (s)	8.6	10.7	0.0	1.0								
Lane LOS	A	B		A								
Approach Delay (s)	8.6	10.7	0.0	1.0								
Approach LOS	A	B										
Intersection Summary												
Average Delay				4.1								
Intersection Capacity Utilization				27.4%	ICU Level of Service				A			
Analysis Period (min)				15								



















## 4: Avonmore Road/Avnmore Road &amp; County Road 29/Pieur Road

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	1	15	2	0	0	15	186	0	0	144	76
Future Volume (vph)	86	1	15	2	0	0	15	186	0	0	144	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980									0.953	
Flt Protected		0.960			0.950			0.996				
Satd. Flow (prot)	0	1644	0	0	1825	0	0	1741	0	0	1654	0
Flt Permitted		0.960			0.950			0.996				
Satd. Flow (perm)	0	1644	0	0	1825	0	0	1741	0	0	1654	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	7%	0%	27%	0%	0%	0%	9%	10%	0%	0%	10%	12%
Adj. Flow (vph)	106	1	19	2	0	0	19	230	0	0	178	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	2	0	0	249	0	0	272	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	34.1%											
Analysis Period (min)	15											
ICU Level of Service A												

# HCM Unsignalized Intersection Capacity Analysis




















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

2040 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	1	15	2	0	0	15	186	0	0	144	76
Future Volume (Veh/h)	86	1	15	2	0	0	15	186	0	0	144	76
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	106	1	19	2	0	0	19	230	0	0	178	94
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	493	493	225	512	540	230	272				230	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	493	493	225	512	540	230	272				230	
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.2				4.1	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.3				2.2	
p0 queue free %	78	100	97	100	100	100	98				100	
cM capacity (veh/h)	473	473	756	457	445	814	1252				1350	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	126	2	249	272								
Volume Left	106	2	19	0								
Volume Right	19	0	0	94								
cSH	501	457	1252	1350								
Volume to Capacity	0.25	0.00	0.02	0.00								
Queue Length 95th (m)	7.5	0.1	0.4	0.0								
Control Delay (s)	14.6	12.9	0.7	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	14.6	12.9	0.7	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay				3.2								
Intersection Capacity Utilization				34.1%	ICU Level of Service				A			
Analysis Period (min)				15								




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	368	1	0	515	294	0	1	0	199	0	11
Future Volume (vph)	16	368	1	0	515	294	0	1	0	199	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	17	396	1	0	554	316	0	1	0	214	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	397	0	0	554	316	0	1	0	0	214	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	51.5%											
Analysis Period (min)	15											
	ICU Level of Service A											

# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2040 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	368	1	0	515	294	0	1	0	199	0	11
Future Volume (Veh/h)	16	368	1	0	515	294	0	1	0	199	0	11
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	17	396	1	0	554	316	0	1	0	214	0	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	870			397			990	1300	396	984	985	554
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	870			397			990	1300	396	984	985	554
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	98			100			100	99	100	4	100	98
cM capacity (veh/h)	754			1173			218	159	657	223	244	517
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	17	397	554	316	1	226						
Volume Left	17	0	0	0	0	214						
Volume Right	0	1	0	316	0	12						
cSH	754	1700	1173	1700	159	232						
Volume to Capacity	0.02	0.23	0.00	0.19	0.01	0.97						
Queue Length 95th (m)	0.5	0.0	0.0	0.0	0.1	67.2						
Control Delay (s)	9.9	0.0	0.0	0.0	27.8	97.6						
Lane LOS	A				D	F						
Approach Delay (s)	0.4		0.0		27.8	97.6						
Approach LOS					D	F						
Intersection Summary												
Average Delay				14.7								
Intersection Capacity Utilization				51.5%	ICU Level of Service			A				
Analysis Period (min)				15								













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2040 Future Total PM-Int#5 Signalized

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	368	1	0	515	294	0	1	0	199	0	11
Future Volume (vph)	16	368	1	0	515	294	0	1	0	199	0	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.261										0.757	
Satd. Flow (perm)	469	1847	0	0	1865	1601	0	1921	0	0	1440	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						316						33
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	17	396	1	0	554	316	0	1	0	214	0	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	397	0	0	554	316	0	1	0	0	214	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm		NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

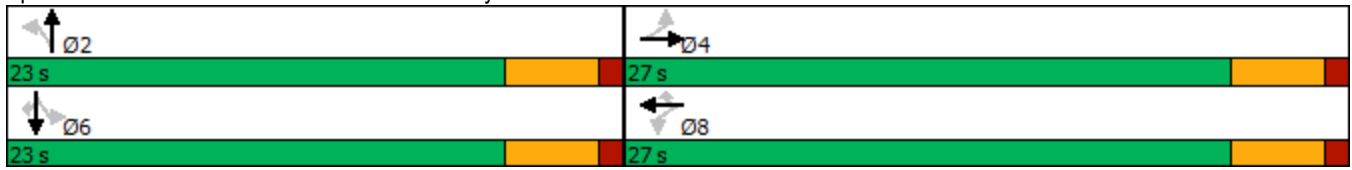
2040 Future Total PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	27.0	27.0		27.0	27.0	27.0	23.0	23.0		23.0	23.0	23.0
Total Split (%)	54.0%	54.0%		54.0%	54.0%	54.0%	46.0%	46.0%		46.0%	46.0%	46.0%
Maximum Green (s)	22.5	22.5		22.5	22.5	22.5	18.5	18.5		18.5	18.5	18.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	18.2	18.2			18.2	18.2		18.7			18.7	18.7
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.41			0.41	0.41
v/c Ratio	0.09	0.54			0.75	0.38		0.00			0.37	0.02
Control Delay	9.4	13.5			19.0	2.9		10.0			13.2	2.0
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	9.4	13.5			19.0	2.9		10.0			13.2	2.0
LOS	A	B			B	A		A			B	A
Approach Delay		13.3			13.1			10.0			12.6	
Approach LOS		B			B			A			B	
Queue Length 50th (m)	0.8	23.0			35.8	0.0		0.1			12.3	0.0
Queue Length 95th (m)	3.6	41.1			63.0	9.9		0.8			27.4	1.2
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	231	913			921	951		780			585	622
Starvation Cap Reductn	0	0			0	0		0			0	0
Spillback Cap Reductn	0	0			0	0		0			0	0
Storage Cap Reductn	0	0			0	0		0			0	0
Reduced v/c Ratio	0.07	0.43			0.60	0.33		0.00			0.37	0.02
Intersection Summary												
Area Type:	Other											
Cycle Length: 50												
Actuated Cycle Length: 46												
Natural Cycle: 50												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.75												
Intersection Signal Delay: 13.1						Intersection LOS: B						
Intersection Capacity Utilization 53.0%						ICU Level of Service A						
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2040 Future Total PM-Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2



Lanes, Volumes, Timings  
6: CR 15 & CR 36

2040 Future Total PM










						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	19	160	37	18	152
Future Volume (vph)	32	19	160	37	18	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950		0.975			
Flt Protected	0.969					0.995
Satd. Flow (prot)	1691	0	1831	0	0	1883
Flt Permitted	0.969					0.995
Satd. Flow (perm)	1691	0	1831	0	0	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	9%	1%	8%	6%	1%
Adj. Flow (vph)	41	24	203	47	23	192
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	250	0	0	215
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.0%			ICU Level of Service A		
Analysis Period (min)	15					



# HCM Unsignalized Intersection Capacity Analysis

















## 6: CR 15 & CR 36

2040 Future Total PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	19	160	37	18	152
Future Volume (Veh/h)	32	19	160	37	18	152
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	41	24	203	47	23	192
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	464	226			250	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	464	226			250	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	92	97			98	
cM capacity (veh/h)	546	796			1293	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	65	250	215			
Volume Left	41	0	23			
Volume Right	24	47	0			
cSH	618	1700	1293			
Volume to Capacity	0.11	0.15	0.02			
Queue Length 95th (m)	2.7	0.0	0.4			
Control Delay (s)	11.5	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	11.5	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			33.0%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2040 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	0	110	2	0	1	162	103	1	1	123	81
Future Volume (vph)	64	0	110	2	0	1	162	103	1	1	123	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.914			0.955						0.947	
Flt Protected		0.982			0.968			0.970				
Satd. Flow (prot)	0	1672	0	0	1776	0	0	1820	0	0	1749	0
Flt Permitted		0.982			0.968			0.970				
Satd. Flow (perm)	0	1672	0	0	1776	0	0	1820	0	0	1749	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	2%	3%	0%	100%	6%	0%
Adj. Flow (vph)	74	0	128	2	0	1	188	120	1	1	143	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	202	0	0	3	0	0	309	0	0	238	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	46.4%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis










## 7: CR 15 & CR 36/Jenkins Road

2040 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	0	110	2	0	1	162	103	1	1	123	81
Future Volume (Veh/h)	64	0	110	2	0	1	162	103	1	1	123	81
Sign Control	Stop		Stop		Free		Free		Free		Free	
Grade	0%		0%		0%		0%		0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	74	0	128	2	0	1	188	120	1	1	143	94
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	690	689	190	816	736	120	237				121	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	690	689	190	816	736	120	237				121	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				5.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				3.1	
p0 queue free %	77	100	85	99	100	100	86				100	
cM capacity (veh/h)	317	318	852	225	299	936	1330				1030	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	202	3	309	238								
Volume Left	74	2	188	1								
Volume Right	128	1	1	94								
cSH	526	302	1330	1030								
Volume to Capacity	0.38	0.01	0.14	0.00								
Queue Length 95th (m)	13.6	0.2	3.7	0.0								
Control Delay (s)	16.0	17.0	5.4	0.0								
Lane LOS	C	C	A	A								
Approach Delay (s)	16.0	17.0	5.4	0.0								
Approach LOS	C	C										
Intersection Summary												
Average Delay			6.6									
Intersection Capacity Utilization			46.4%	ICU Level of Service				A				
Analysis Period (min)			15									










Lanes, Volumes, Timings  
8: Avonmore Road & Site Access

2040 Future Total PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	23	68	39	140	102	13
Future Volume (vph)	23	68	39	140	102	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.899				0.985	
Flt Protected	0.988			0.989		
Satd. Flow (prot)	1706	0	0	1900	1892	0
Flt Permitted	0.988			0.989		
Satd. Flow (perm)	1706	0	0	1900	1892	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	186.4			200.6	1773.8	
Travel Time (s)	13.4			9.0	79.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	25	74	42	152	111	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	194	125	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.3%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis8: Avonmore Road & Site Access

2040 Future Total PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	68	39	140	102	13
Future Volume (Veh/h)	23	68	39	140	102	13
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)	25	74	42	152	111	14
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	354	118	125			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	354	118	125			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	92	97			
cM capacity (veh/h)	629	939	1474			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	99	194	125			
Volume Left	25	42	0			
Volume Right	74	0	14			
cSH	835	1474	1700			
Volume to Capacity	0.12	0.03	0.07			
Queue Length 95th (m)	3.1	0.7	0.0			
Control Delay (s)	9.9	1.8	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.9	1.8	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		3.2				
Intersection Capacity Utilization		28.3%		ICU Level of Service		A
Analysis Period (min)		15				

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	82.9	93.9	54.1	74.6
Average Queue (m)	32.8	43.8	21.1	38.2
95th Queue (m)	59.2	77.2	42.9	64.9
Link Distance (m)	171.9	201.9	228.9	110.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	15.8	69.7	14.5	8.4
Average Queue (m)	5.6	30.8	1.6	0.3
95th Queue (m)	12.9	55.8	8.6	3.7
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.1	21.6	3.5
Average Queue (m)	0.5	11.8	0.2
95th Queue (m)	3.7	19.8	2.1
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	27.2	7.1	12.0
Average Queue (m)	11.3	0.5	1.0
95th Queue (m)	20.2	3.7	5.9
Link Distance (m)	300.4	60.6	1758.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	WB	NB	SB	SB
Directions Served	L	R	LTR	LT	R
Maximum Queue (m)	10.5	1.4	6.7	292.2	22.6
Average Queue (m)	2.1	0.0	0.4	178.2	6.4
95th Queue (m)	7.6	0.6	3.3	362.4	23.0
Link Distance (m)			51.8	387.5	
Upstream Blk Time (%)				4	
Queuing Penalty (veh)				0	
Storage Bay Dist (m)	80.0	60.0			15.0
Storage Blk Time (%)				98	1
Queuing Penalty (veh)				11	1

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	18.5	14.3
Average Queue (m)	8.9	1.2
95th Queue (m)	15.8	7.2
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: CR 15 & CR 36/Jenkins Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	28.6	7.4	24.6	0.4
Average Queue (m)	14.2	0.7	7.8	0.0
95th Queue (m)	24.6	4.3	18.6	0.2
Link Distance (m)	178.3	93.2	206.8	156.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Avonmore Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	15.8	12.7
Average Queue (m)	9.0	1.5
95th Queue (m)	14.0	7.2
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 12
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Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	LT	R
Maximum Queue (m)	14.2	50.9	66.2	27.0	3.3	34.3	16.2
Average Queue (m)	3.6	22.5	32.3	10.7	0.1	15.7	2.1
95th Queue (m)	10.9	41.8	55.2	20.2	1.7	27.9	9.6
Link Distance (m)		163.6	189.1		51.8	387.5	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	80.0			60.0			15.0
Storage Blk Time (%)			0			10	0
Queuing Penalty (veh)			1			1	1













Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2045 Future Total AM

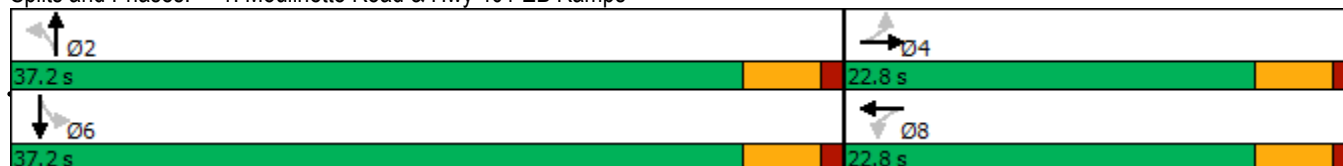
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	174	44	18	77	102	136	207	44	191	141	74
Future Volume (vph)	6	174	44	18	77	102	136	207	44	191	141	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.930			0.985			0.975	
Flt Protected		0.999			0.995			0.983			0.977	
Satd. Flow (prot)	0	1557	0	0	1413	0	0	1725	0	0	1719	0
Flt Permitted		0.989			0.954			0.747			0.665	
Satd. Flow (perm)	0	1542	0	0	1355	0	0	1311	0	0	1170	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			93			17			29	
Link Speed (k/h)		30			48			80			80	
Link Distance (m)		181.7			207.4			243.4			132.3	
Travel Time (s)		21.8			15.6			11.0			6.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	24%	7%	0%	17%	37%	4%	12%	0%	7%	8%	2%
Adj. Flow (vph)	7	202	51	21	90	119	158	241	51	222	164	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	260	0	0	230	0	0	450	0	0	472	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		8.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	30.5		2.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	1.8		2.0	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2045 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.8	22.8		22.8	22.8		37.2	37.2		37.2	37.2	
Total Split (%)	38.0%	38.0%		38.0%	38.0%		62.0%	62.0%		62.0%	62.0%	
Maximum Green (s)	18.3	18.3		18.3	18.3		32.7	32.7		32.7	32.7	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		12.5			12.5			23.5			23.5	
Actuated g/C Ratio		0.27			0.27			0.51			0.51	
v/c Ratio		0.59			0.53			0.66			0.77	
Control Delay		20.9			14.7			13.7			19.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		20.9			14.7			13.7			19.0	
LOS		C			B			B			B	
Approach Delay		20.9			14.7			13.7			19.0	
Approach LOS		C			B			B			B	
Queue Length 50th (m)		15.6			8.4			21.3			23.8	
Queue Length 95th (m)		38.2			26.4			51.0			60.8	
Internal Link Dist (m)		157.7			183.4			219.4			108.3	
Turn Bay Length (m)												
Base Capacity (vph)		674			634			991			888	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.39			0.36			0.45			0.53	
Intersection Summary												
Area Type:	Other											
Cycle Length: 60												
Actuated Cycle Length: 45.7												
Natural Cycle: 60												
Control Type: Actuated-Uncoordinated												
Maximum v/c Ratio: 0.77												
Intersection Signal Delay: 17.0						Intersection LOS: B						
Intersection Capacity Utilization 60.4%						ICU Level of Service B						
Analysis Period (min) 15												

















Splits and Phases: 1: Moulinette Road & Hwy 401 EB Ramps



Lanes, Volumes, Timings

2045 Future Total AM

















2: Moulinette Road & County Road 29/Hwy 401 WB ramps

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	80	222	20	15	20	98	197	14	104	2
Future Volume (vph)	7	0	80	222	20	15	20	98	197	14	104	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.875			0.992			0.916			0.998	
Flt Protected		0.996			0.959			0.997			0.994	
Satd. Flow (prot)	0	1559	0	0	1720	0	0	1498	0	0	1691	0
Flt Permitted		0.996			0.959			0.997			0.994	
Satd. Flow (perm)	0	1559	0	0	1720	0	0	1498	0	0	1691	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	60%	0%	3%	6%	0%	18%	19%	13%	19%	42%	8%	50%
Adj. Flow (vph)	7	0	84	234	21	16	21	103	207	15	109	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	91	0	0	271	0	0	331	0	0	126	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	49.0%				ICU Level of Service A							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















2045 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	80	222	20	15	20	98	197	14	104	2
Future Volume (Veh/h)	7	0	80	222	20	15	20	98	197	14	104	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	7	0	84	234	21	16	21	103	207	15	109	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	415	492	110	472	390	206	111			310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	415	492	110	472	390	206	111			310		
tC, single (s)	7.7	6.5	6.2	7.2	6.5	6.4	4.3			4.5		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.6	4.0	3.5	2.4			2.6		
p0 queue free %	98	100	91	47	96	98	98			99		
cM capacity (veh/h)	426	467	941	441	533	795	1379			1055		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	91	271	331	126								
Volume Left	7	234	21	15								
Volume Right	84	16	207	2								
cSH	861	459	1379	1055								
Volume to Capacity	0.11	0.59	0.02	0.01								
Queue Length 95th (m)	2.7	28.3	0.4	0.3								
Control Delay (s)	9.7	23.5	0.6	1.1								
Lane LOS	A	C	A	A								
Approach Delay (s)	9.7	23.5	0.6	1.1								
Approach LOS	A	C										
Intersection Summary												
Average Delay			9.3									
Intersection Capacity Utilization			49.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings

2045 Future Total AM

















3: Moulinette Road & Private Driveway/County Road 29

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	7	74	3	1	4	17	96	4	32	0
Future Volume (vph)	0	0	7	74	3	1	4	17	96	4	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.998			0.889				
Flt Protected					0.955			0.998			0.995	
Satd. Flow (prot)	0	1385	0	0	1643	0	0	1434	0	0	1912	0
Flt Permitted					0.955			0.998			0.995	
Satd. Flow (perm)	0	1385	0	0	1643	0	0	1434	0	0	1912	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	20%	12%	0%	0%	0%	0%	23%	0%	0%	0%
Adj. Flow (vph)	0	0	7	78	3	1	4	18	101	4	34	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	7	0	0	82	0	0	123	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.3%				ICU Level of Service A							
Analysis Period (min)	15											

















# HCM Unsignalized Intersection Capacity Analysis

## 3: Moulinette Road & Private Driveway/County Road 29

2045 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	74	3	1	4	17	96	4	32	0
Future Volume (Veh/h)	0	0	7	74	3	1	4	17	96	4	32	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	7	78	3	1	4	18	101	4	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	121	169	34	126	118	68	34			119		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	121	169	34	126	118	68	34			119		
tC, single (s)	7.1	6.5	6.4	7.2	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.6	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	90	100	100	100			100		
cM capacity (veh/h)	852	724	990	816	771	1000	1591			1482		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	82	123	38								
Volume Left	0	78	4	4								
Volume Right	7	1	101	0								
cSH	990	817	1591	1482								
Volume to Capacity	0.01	0.10	0.00	0.00								
Queue Length 95th (m)	0.2	2.5	0.1	0.1								
Control Delay (s)	8.7	9.9	0.3	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.7	9.9	0.3	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay	3.7											
Intersection Capacity Utilization	25.3%			ICU Level of Service					A			
Analysis Period (min)	15											

## 4: Avonmore Road/Avnomore Road &amp; County Road 29/Pieur Road

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	7	0	0	0	13	89	0	0	182	69
Future Volume (vph)	76	0	7	0	0	0	13	89	0	0	182	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988									0.963	
Flt Protected		0.956						0.994				
Satd. Flow (prot)	0	1523	0	0	1921	0	0	1676	0	0	1649	0
Flt Permitted		0.956						0.994				
Satd. Flow (perm)	0	1523	0	0	1921	0	0	1676	0	0	1649	0
Link Speed (k/h)		80			50			80			80	
Link Distance (m)		309.2			66.2			1773.8			247.2	
Travel Time (s)		13.9			4.8			79.8			11.1	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	21%	0%	0%	0%	0%	0%	0%	16%	0%	0%	7%	26%
Adj. Flow (vph)	93	0	9	0	0	0	16	109	0	0	222	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	102	0	0	0	0	0	125	0	0	306	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	27.0%						ICU Level of Service A					
Analysis Period (min)	15											



# HCM Unsignalized Intersection Capacity Analysis




















## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

2045 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	76	0	7	0	0	0	13	89	0	0	182	69
Future Volume (Veh/h)	76	0	7	0	0	0	13	89	0	0	182	69
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	93	0	9	0	0	0	16	109	0	0	222	84
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	405	405	264	414	447	109	306				109	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405	405	264	414	447	109	306				109	
tC, single (s)	7.3	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	82	100	99	100	100	100	99				100	
cM capacity (veh/h)	519	531	780	541	503	950	1266				1494	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	102	0	125	306								
Volume Left	93	0	16	0								
Volume Right	9	0	0	84								
cSH	535	1700	1266	1494								
Volume to Capacity	0.19	0.00	0.01	0.00								
Queue Length 95th (m)	5.3	0.0	0.3	0.0								
Control Delay (s)	13.3	0.0	1.1	0.0								
Lane LOS	B	A	A									
Approach Delay (s)	13.3	0.0	1.1	0.0								
Approach LOS	B	A										
Intersection Summary												
Average Delay				2.8								
Intersection Capacity Utilization				27.0%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2



















2045 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	524	0	0	198	143	0	0	0	251	0	19
Future Volume (vph)	6	524	0	0	198	143	0	0	0	251	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	3%	0%	0%	0%	1%	0%	14%
Adj. Flow (vph)	7	616	0	0	233	168	0	0	0	295	0	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	616	0	0	233	168	0	0	0	0	295	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	48.2%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis




















## 5: Avonmore Road & County Road 2

2045 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	524	0	0	198	143	0	0	0	251	0	19
Future Volume (Veh/h)	6	524	0	0	198	143	0	0	0	251	0	19
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	7	616	0	0	233	168	0	0	0	295	0	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	401			616			874	1031	616	863	863	233
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	401			616			874	1031	616	863	863	233
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	0	100	97
cM capacity (veh/h)	1067			974			263	233	494	275	293	777
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	7	616	233	168	0	317						
Volume Left	7	0	0	0	0	295						
Volume Right	0	0	0	168	0	22						
cSH	1067	1700	974	1700	1700	289						
Volume to Capacity	0.01	0.36	0.00	0.10	0.00	1.10						
Queue Length 95th (m)	0.2	0.0	0.0	0.0	0.0	97.3						
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	120.9						
Lane LOS	A				A	F						
Approach Delay (s)	0.1		0.0		0.0	120.9						
Approach LOS					A	F						
Intersection Summary												
Average Delay	28.6											
Intersection Capacity Utilization	48.2%			ICU Level of Service				A				
Analysis Period (min)	15											













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2045 Future Total AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	524	0	0	198	143	0	0	0	251	0	19
Future Volume (vph)	6	524	0	0	198	143	0	0	0	251	0	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1521	1830	0	0	1779	1585	0	1921	0	0	1807	1432
Flt Permitted	0.611										0.757	
Satd. Flow (perm)	978	1830	0	0	1779	1585	0	1921	0	0	1440	1432
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						168						27
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	20%	5%	0%	0%	8%	3%	0%	0%	0%	1%	0%	14%
Adj. Flow (vph)	7	616	0	0	233	168	0	0	0	295	0	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	616	0	0	233	168	0	0	0	0	295	22
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm				Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

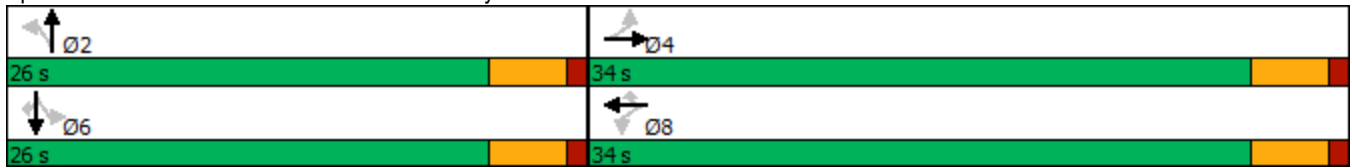
2045 Future Total AM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	34.0	34.0		34.0	34.0	34.0	26.0	26.0		26.0	26.0	26.0
Total Split (%)	56.7%	56.7%		56.7%	56.7%	56.7%	43.3%	43.3%		43.3%	43.3%	43.3%
Maximum Green (s)	29.5	29.5		29.5	29.5	29.5	21.5	21.5		21.5	21.5	21.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	22.1	22.1			22.1	22.1					21.8	21.8
Actuated g/C Ratio	0.42	0.42			0.42	0.42					0.41	0.41
v/c Ratio	0.02	0.81			0.31	0.22					0.50	0.04
Control Delay	8.2	22.4			11.1	2.6					17.1	5.4
Queue Delay	0.0	0.0			0.0	0.0					0.0	0.0
Total Delay	8.2	22.4			11.1	2.6					17.1	5.4
LOS	A	C			B	A					B	A
Approach Delay		22.3			7.5						16.3	
Approach LOS		C			A						B	
Queue Length 50th (m)	0.4	48.1			13.9	0.0					20.5	0.0
Queue Length 95th (m)	1.9	72.3			23.6	6.4					43.0	3.1
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	551	1030			1002	966					591	603
Starvation Cap Reductn	0	0			0	0					0	0
Spillback Cap Reductn	0	0			0	0					0	0
Storage Cap Reductn	0	0			0	0					0	0
Reduced v/c Ratio	0.01	0.60			0.23	0.17					0.50	0.04
Intersection Summary												
Area Type: Other												
Cycle Length: 60												
Actuated Cycle Length: 53												
Natural Cycle: 60												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.81												
Intersection Signal Delay: 16.4 Intersection LOS: B												
Intersection Capacity Utilization 49.0% ICU Level of Service A												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2045 Future Total AM-Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2












Lanes, Volumes, Timings  
6: CR 15 & Cr 36

2045 Future Total AM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	13	130	34	11	131
Future Volume (vph)	32	13	130	34	11	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.961		0.972			
Flt Protected	0.966					0.996
Satd. Flow (prot)	1539	0	1788	0	0	1870
Flt Permitted	0.966					0.996
Satd. Flow (perm)	1539	0	1788	0	0	1870
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	13%	23%	3%	10%	6%	2%
Adj. Flow (vph)	35	14	141	37	12	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	178	0	0	154
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.0%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis 6: CR 15 & Cr 36

















2045 Future Total AM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	13	130	34	11	131
Future Volume (Veh/h)	32	13	130	34	11	131
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)	35	14	141	37	12	142
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	326	160			178	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	326	160			178	
tC, single (s)	6.5	6.4			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.5			2.3	
p0 queue free %	95	98			99	
cM capacity (veh/h)	641	834			1374	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	49	178	154			
Volume Left	35	0	12			
Volume Right	14	37	0			
cSH	686	1700	1374			
Volume to Capacity	0.07	0.10	0.01			
Queue Length 95th (m)	1.7	0.0	0.2			
Control Delay (s)	10.6	0.0	0.7			
Lane LOS	B		A			
Approach Delay (s)	10.6	0.0	0.7			
Approach LOS	B					
Intersection Summary						
Average Delay		1.6				
Intersection Capacity Utilization		26.0%		ICU Level of Service		A
Analysis Period (min)		15				



Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2045 Future Total AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	0	134	0	0	0	50	91	1	2	121	44
Future Volume (vph)	69	0	134	0	0	0	50	91	1	2	121	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911						0.999			0.965	
Flt Protected		0.983						0.983			0.999	
Satd. Flow (prot)	0	1633	0	0	1921	0	0	1837	0	0	1754	0
Flt Permitted		0.983						0.983			0.999	
Satd. Flow (perm)	0	1633	0	0	1921	0	0	1837	0	0	1754	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	6%	0%	5%	0%	0%	0%	4%	2%	0%	88%	2%	12%
Adj. Flow (vph)	76	0	147	0	0	0	55	100	1	2	133	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	223	0	0	0	0	0	156	0	0	183	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	38.8%				ICU Level of Service A							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis










## 7: CR 15 & CR 36/Jenkins Road

2045 Future Total AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	0	134	0	0	0	50	91	1	2	121	44
Future Volume (Veh/h)	69	0	134	0	0	0	50	91	1	2	121	44
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	76	0	147	0	0	0	55	100	1	2	133	48
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	372	372	157	518	396	100	181				101	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372	372	157	518	396	100	181				101	
tC, single (s)	7.2	6.5	6.2	7.1	6.5	6.2	4.1				5.0	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.3	3.5	4.0	3.3	2.2				3.0	
p0 queue free %	86	100	83	100	100	100	96				100	
cM capacity (veh/h)	560	538	881	380	522	960	1382				1091	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	223	0	156	183								
Volume Left	76	0	55	2								
Volume Right	147	0	1	48								
cSH	737	1700	1382	1091								
Volume to Capacity	0.30	0.00	0.04	0.00								
Queue Length 95th (m)	9.7	0.0	0.9	0.0								
Control Delay (s)	12.0	0.0	2.9	0.1								
Lane LOS	B	A	A	A								
Approach Delay (s)	12.0	0.0	2.9	0.1								
Approach LOS	B	A										
Intersection Summary												
Average Delay				5.6								
Intersection Capacity Utilization				38.8%	ICU Level of Service				A			
Analysis Period (min)				15								

Lanes, Volumes, Timings  
8: Avonmore Road & Site Access










2045 Future Total AM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	29	66	77	113	22
Future Volume (vph)	9	29	66	77	113	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.897				0.978	
Flt Protected	0.988			0.977		
Satd. Flow (prot)	1703	0	0	1877	1879	0
Flt Permitted	0.988			0.977		
Satd. Flow (perm)	1703	0	0	1877	1879	0
Link Speed (k/h)	50			80	80	
Link Distance (m)	186.4			200.6	1773.8	
Travel Time (s)	13.4			9.0	79.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	10	32	72	84	123	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	0	156	147	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.3%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 8: Avonmore Road & Site Access

2045 Future Total AM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	29	66	77	113	22
Future Volume (Veh/h)	9	29	66	77	113	22
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)	10	32	72	84	123	24
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	363	135	147			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	363	135	147			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	97	95			
cM capacity (veh/h)	608	919	1447			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	42	156	147			
Volume Left	10	72	0			
Volume Right	32	0	24			
cSH	820	1447	1700			
Volume to Capacity	0.05	0.05	0.09			
Queue Length 95th (m)	1.2	1.2	0.0			
Control Delay (s)	9.6	3.7	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.6	3.7	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization		28.3%		ICU Level of Service		A
Analysis Period (min)		15				

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	68.4	51.5	62.0	63.0
Average Queue (m)	29.1	24.5	25.7	30.9
95th Queue (m)	52.8	43.0	49.4	54.0
Link Distance (m)	171.9	201.9	228.9	110.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	23.3	52.2	18.4	14.2
Average Queue (m)	9.4	21.6	1.3	1.2
95th Queue (m)	17.7	38.5	8.6	7.4
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	14.9	17.4	1.8
Average Queue (m)	2.0	9.2	0.1
95th Queue (m)	8.8	14.9	1.8
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	23.9	7.6
Average Queue (m)	10.7	0.8
95th Queue (m)	19.2	4.7
Link Distance (m)	300.4	1758.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	SB	SB
Directions Served	L	LT	R
Maximum Queue (m)	8.9	276.4	22.6
Average Queue (m)	0.5	167.2	10.2
95th Queue (m)	3.7	315.0	28.4
Link Distance (m)		387.5	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	80.0		15.0
Storage Blk Time (%)		95	1
Queuing Penalty (veh)		18	2

Intersection: 6: CR 15 & Cr 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	20.6	13.0
Average Queue (m)	8.8	0.8
95th Queue (m)	18.0	6.1
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: CR 15 & CR 36/Jenkins Road

Movement	EB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	26.8	11.8
Average Queue (m)	13.9	2.2
95th Queue (m)	22.3	8.9
Link Distance (m)	178.3	206.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Avonmore Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	13.1	12.4
Average Queue (m)	6.1	2.0
95th Queue (m)	13.0	8.3
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 20
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











Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	SB	SB
Directions Served	L	TR	LT	R	LT	R
Maximum Queue (m)	8.4	77.2	34.4	17.9	45.0	22.2
Average Queue (m)	0.7	36.8	12.8	5.2	23.1	5.3
95th Queue (m)	4.3	62.0	26.3	12.3	37.4	18.1
Link Distance (m)		163.6	189.1		387.5	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			60.0		15.0
Storage Blk Time (%)		0			18	0
Queuing Penalty (veh)		0			3	1















Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2045 Future Total PM

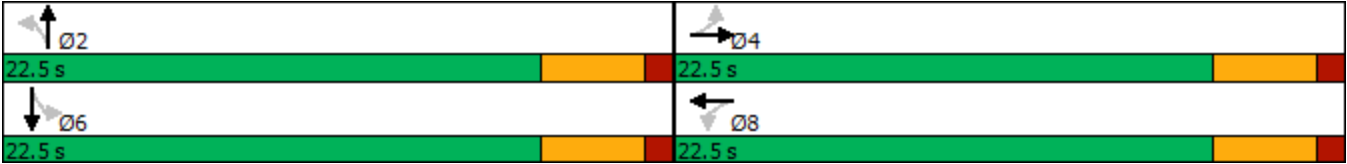
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	142	114	46	178	216	75	186	26	126	260	28
Future Volume (vph)	14	142	114	46	178	216	75	186	26	126	260	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.943			0.934			0.988			0.991	
Flt Protected		0.997			0.995			0.987			0.985	
Satd. Flow (prot)	0	1456	0	0	1523	0	0	1821	0	0	1762	0
Flt Permitted		0.965			0.935			0.824			0.812	
Satd. Flow (perm)	0	1409	0	0	1431	0	0	1520	0	0	1452	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		97			129			13			10	
Link Speed (k/h)		30			48			80			80	
Link Distance (m)		181.7			207.4			243.4			132.3	
Travel Time (s)		21.8			15.6			11.0			6.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	17%	44%	0%	0%	11%	26%	6%	2%	0%	17%	2%	0%
Adj. Flow (vph)	16	160	128	52	200	243	84	209	29	142	292	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	304	0	0	495	0	0	322	0	0	465	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		8.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			1.6			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	10.0		2.0	10.0		6.1	30.5		2.0	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	0.6		2.0	0.6		6.1	1.8		2.0	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			28.7			28.7	
Detector 2 Size(m)		0.6			0.6			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												

Lanes, Volumes, Timings  
1: Moulinette Road & Hwy 401 EB Ramps

2045 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		15.0			15.0			15.8			15.8	
Actuated g/C Ratio		0.37			0.37			0.39			0.39	
v/c Ratio		0.52			0.81			0.53			0.80	
Control Delay		10.4			21.6			13.4			25.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		10.4			21.6			13.4			25.3	
LOS		B			C			B			C	
Approach Delay		10.4			21.6			13.4			25.3	
Approach LOS		B			C			B			C	
Queue Length 50th (m)		10.8			22.4			17.2			29.5	
Queue Length 95th (m)		25.7			#63.9			34.1			#70.1	
Internal Link Dist (m)		157.7			183.4			219.4			108.3	
Turn Bay Length (m)												
Base Capacity (vph)		706			733			712			679	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.43			0.68			0.45			0.68	
Intersection Summary												
Area Type:	Other											
Cycle Length: 45												
Actuated Cycle Length: 40.1												
Natural Cycle: 45												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.81												
Intersection Signal Delay: 18.9							Intersection LOS: B					
Intersection Capacity Utilization 78.7%							ICU Level of Service D					
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

















Splits and Phases: 1: Moulinette Road & Hwy 401 EB Ramps



Lanes, Volumes, Timings

















2045 Future Total PM

2: Moulinette Road & County Road 29/Hwy 401 WB ramps

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	1	40	263	41	28	29	125	261	4	111	2
Future Volume (vph)	1	1	40	263	41	28	29	125	261	4	111	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.871			0.989			0.915			0.998	
Flt Protected		0.999			0.962			0.997			0.998	
Satd. Flow (prot)	0	1625	0	0	1689	0	0	1507	0	0	1806	0
Flt Permitted		0.999			0.962			0.997			0.998	
Satd. Flow (perm)	0	1625	0	0	1689	0	0	1507	0	0	1806	0
Link Speed (k/h)		80			30			80			80	
Link Distance (m)		180.3			180.8			60.6			82.0	
Travel Time (s)		8.1			21.7			2.7			3.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	3%	10%	0%	4%	0%	4%	24%	67%	4%	0%
Adj. Flow (vph)	1	1	43	280	44	30	31	133	278	4	118	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	45	0	0	354	0	0	442	0	0	124	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			8.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	62.6%				ICU Level of Service B							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

2045 Future Total PM

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	1	40	263	41	28	29	125	261	4	111	2
Future Volume (Veh/h)	1	1	40	263	41	28	29	125	261	4	111	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	1	1	43	280	44	30	31	133	278	4	118	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	513	600	119	504	462	272	120			411		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	513	600	119	504	462	272	120			411		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.2	4.1			4.8		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.3	2.2			2.8		
p0 queue free %	100	100	95	36	91	96	98			100		
cM capacity (veh/h)	417	407	930	434	487	762	1480			871		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	45	354	442	124								
Volume Left	1	280	31	4								
Volume Right	43	30	278	2								
cSH	881	457	1480	871								
Volume to Capacity	0.05	0.77	0.02	0.00								
Queue Length 95th (m)	1.2	51.4	0.5	0.1								
Control Delay (s)	9.3	35.1	0.7	0.3								
Lane LOS	A	E	A	A								
Approach Delay (s)	9.3	35.1	0.7	0.3								
Approach LOS	A	E										
Intersection Summary												
Average Delay			13.7									
Intersection Capacity Utilization			62.6%		ICU Level of Service				B			
Analysis Period (min)			15									

## 3: Moulinette Road &amp; Private Driveway/County Road 29

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	2	93	0	6	0	37	111	3	19	0
Future Volume (vph)	0	0	2	93	0	6	0	37	111	3	19	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.865			0.991			0.899				
Flt Protected					0.955						0.994	
Satd. Flow (prot)	0	1385	0	0	1556	0	0	1618	0	0	1910	0
Flt Permitted					0.955						0.994	
Satd. Flow (perm)	0	1385	0	0	1556	0	0	1618	0	0	1910	0
Link Speed (k/h)		50			80			80			50	
Link Distance (m)		94.7			225.1			82.0			149.3	
Travel Time (s)		6.8			10.1			3.7			10.7	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	20%	18%	0%	0%	0%	0%	9%	0%	0%	0%
Adj. Flow (vph)	0	0	3	133	0	9	0	53	159	4	27	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	3	0	0	142	0	0	212	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	27.6%				ICU Level of Service A							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis 3: Moulinette Road & Private Driveway/County Road 29

2045 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	2	93	0	6	0	37	111	3	19	0
Future Volume (Veh/h)	0	0	2	93	0	6	0	37	111	3	19	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Hourly flow rate (vph)	0	0	3	133	0	9	0	53	159	4	27	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	176	247	27	170	168	132	27				212	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176	247	27	170	168	132	27				212	
tC, single (s)	7.1	6.5	6.4	7.3	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.7	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	100	82	100	99	100				100	
cM capacity (veh/h)	781	657	999	755	727	922	1600				1370	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	3	142	212	31								
Volume Left	0	133	0	4								
Volume Right	3	9	159	0								
cSH	999	763	1600	1370								
Volume to Capacity	0.00	0.19	0.00	0.00								
Queue Length 95th (m)	0.1	5.2	0.0	0.1								
Control Delay (s)	8.6	10.8	0.0	1.0								
Lane LOS	A	B		A								
Approach Delay (s)	8.6	10.8	0.0	1.0								
Approach LOS	A	B										
Intersection Summary												
Average Delay				4.1								
Intersection Capacity Utilization				27.6%	ICU Level of Service				A			
Analysis Period (min)				15								

## 4: Avonmore Road/Avnmore Road &amp; County Road 29/Pieur Road

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	1	15	2	0	0	15	191	0	0	148	77
Future Volume (vph)	88	1	15	2	0	0	15	191	0	0	148	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980		0.954									
Flt Protected	0.959		0.950				0.996					
Satd. Flow (prot)	0	1643	0	0	1825	0	0	1741	0	0	1656	0
Flt Permitted	0.959		0.950				0.996					
Satd. Flow (perm)	0	1643	0	0	1825	0	0	1741	0	0	1656	0
Link Speed (k/h)	80		50				80					
Link Distance (m)	309.2		66.2				1773.8					
Travel Time (s)	13.9		4.8				79.8					
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	7%	0%	27%	0%	0%	0%	9%	10%	0%	0%	10%	12%
Adj. Flow (vph)	109	1	19	2	0	0	19	236	0	0	183	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	129	0	0	2	0	0	255	0	0	278	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0				0.0					
Link Offset(m)	0.0		0.0				0.0					
Crosswalk Width(m)	4.9		1.6				4.9					
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control	Stop		Stop				Free					
Free												
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	34.5%				ICU Level of Service A							
Analysis Period (min)	15											



# HCM Unsignalized Intersection Capacity Analysis




















2045 Future Total PM

## 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1	15	2	0	0	15	191	0	0	148	77
Future Volume (Veh/h)	88	1	15	2	0	0	15	191	0	0	148	77
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	109	1	19	2	0	0	19	236	0	0	183	95
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	504	504	230	524	552	236	278				236	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	504	504	230	524	552	236	278				236	
tC, single (s)	7.2	6.5	6.5	7.1	6.5	6.2	4.2				4.1	
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.5	3.5	4.0	3.3	2.3				2.2	
p0 queue free %	77	100	97	100	100	100	98				100	
cM capacity (veh/h)	464	466	750	449	438	808	1246				1343	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	129	2	255	278								
Volume Left	109	2	19	0								
Volume Right	19	0	0	95								
cSH	492	449	1246	1343								
Volume to Capacity	0.26	0.00	0.02	0.00								
Queue Length 95th (m)	7.9	0.1	0.4	0.0								
Control Delay (s)	14.9	13.1	0.7	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	14.9	13.1	0.7	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay				3.2								
Intersection Capacity Utilization				34.5%	ICU Level of Service				A			
Analysis Period (min)				15								




















Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2045 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	381	1	0	534	300	0	1	0	202	0	12
Future Volume (vph)	17	381	1	0	534	300	0	1	0	202	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.950										0.950	
Satd. Flow (perm)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	18	410	1	0	574	323	0	1	0	217	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	411	0	0	574	323	0	1	0	0	217	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	52.6%					ICU Level of Service A						
Analysis Period (min)	15											









# HCM Unsignalized Intersection Capacity Analysis 5: Avonmore Road & County Road 2

2045 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	381	1	0	534	300	0	1	0	202	0	12
Future Volume (Veh/h)	17	381	1	0	534	300	0	1	0	202	0	12
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	18	410	1	0	574	323	0	1	0	217	0	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)	2											
Median type	None			None								
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	897			411			1027	1344	410	1020	1021	574
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	897			411			1027	1344	410	1020	1021	574
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	98			100			100	99	100	0	100	97
cM capacity (veh/h)	736			1159			205	149	646	211	232	503
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	18	411	574	323	1	230						
Volume Left	18	0	0	0	0	217						
Volume Right	0	1	0	323	0	13						
cSH	736	1700	1159	1700	149	219						
Volume to Capacity	0.02	0.24	0.00	0.19	0.01	1.05						
Queue Length 95th (m)	0.6	0.0	0.0	0.0	0.2	75.9						
Control Delay (s)	10.0	0.0	0.0	0.0	29.2	121.2						
Lane LOS	B				D	F						
Approach Delay (s)	0.4		0.0		29.2	121.2						
Approach LOS					D	F						
Intersection Summary												
Average Delay				18.0								
Intersection Capacity Utilization				52.6%	ICU Level of Service				A			
Analysis Period (min)				15								













Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

2045 Future Total PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	381	1	0	534	300	0	1	0	202	0	12
Future Volume (vph)	17	381	1	0	534	300	0	1	0	202	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	80.0		0.0	0.0		60.0	0.0		0.0	0.0		15.0
Storage Lanes	1		0	0		1	0		0	0		1
Taper Length (m)	40.0			7.6			7.6			7.6		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850						0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1706	1847	0	0	1865	1601	0	1921	0	0	1807	1484
Flt Permitted	0.243										0.757	
Satd. Flow (perm)	436	1847	0	0	1865	1601	0	1921	0	0	1440	1484
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						323						33
Link Speed (k/h)		80			80			50			80	
Link Distance (m)		188.5			206.1			70.4			401.1	
Travel Time (s)		8.5			9.3			5.1			18.0	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	7%	4%	0%	0%	3%	2%	0%	0%	0%	1%	0%	10%
Adj. Flow (vph)	18	410	1	0	574	323	0	1	0	217	0	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	411	0	0	574	323	0	1	0	0	217	13
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		15.0			10.0			10.0			5.0	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA	Perm		NA		Perm	NA	Perm
Protected Phases		4			8			2			6	

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2

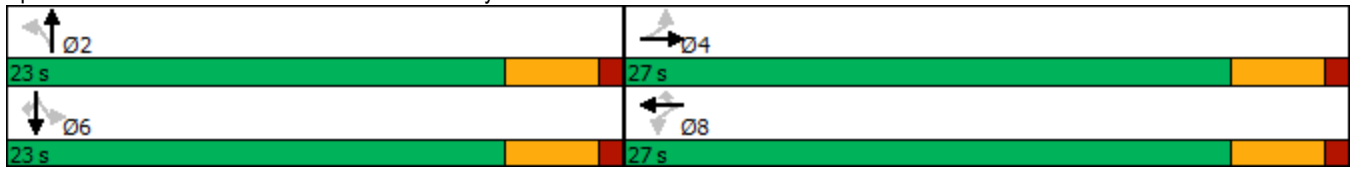
2045 Future Total PM-Int#5 Signalized

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8	2			6		6
Detector Phase	4	4		8	8	8	2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	22.5	22.5		22.5	22.5	22.5
Total Split (s)	27.0	27.0		27.0	27.0	27.0	23.0	23.0		23.0	23.0	23.0
Total Split (%)	54.0%	54.0%		54.0%	54.0%	54.0%	46.0%	46.0%		46.0%	46.0%	46.0%
Maximum Green (s)	22.5	22.5		22.5	22.5	22.5	18.5	18.5		18.5	18.5	18.5
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	Max
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	0
Act Effct Green (s)	18.5	18.5			18.5	18.5		18.7			18.7	18.7
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40			0.40	0.40
v/c Ratio	0.10	0.56			0.77	0.39		0.00			0.37	0.02
Control Delay	9.8	13.7			19.7	2.9		10.0			13.4	2.1
Queue Delay	0.0	0.0			0.0	0.0		0.0			0.0	0.0
Total Delay	9.8	13.7			19.7	2.9		10.0			13.4	2.1
LOS	A	B			B	A		A			B	A
Approach Delay		13.5			13.6			10.0			12.8	
Approach LOS		B			B			A			B	
Queue Length 50th (m)	0.9	24.0			37.6	0.0		0.1			12.9	0.0
Queue Length 95th (m)	3.7	43.0			66.2	10.1		0.8			28.0	1.3
Internal Link Dist (m)		164.5			182.1			46.4			377.1	
Turn Bay Length (m)	80.0					60.0						15.0
Base Capacity (vph)	214	906			915	950		775			581	618
Starvation Cap Reductn	0	0			0	0		0			0	0
Spillback Cap Reductn	0	0			0	0		0			0	0
Storage Cap Reductn	0	0			0	0		0			0	0
Reduced v/c Ratio	0.08	0.45			0.63	0.34		0.00			0.37	0.02
Intersection Summary												
Area Type: Other												
Cycle Length: 50												
Actuated Cycle Length: 46.3												
Natural Cycle: 50												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.77												
Intersection Signal Delay: 13.5 Intersection LOS: B												
Intersection Capacity Utilization 54.1% ICU Level of Service A												
Analysis Period (min) 15												

Lanes, Volumes, Timings  
5: Avonmore Road & County Road 2










2045 Future Total PM-Int#5 Signalized

Splits and Phases: 5: Avonmore Road & County Road 2












Lanes, Volumes, Timings  
6: CR 15 & CR 36

2045 Future Total PM

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	33	20	164	39	19	154
Future Volume (vph)	33	20	164	39	19	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.950		0.974			
Flt Protected	0.970					0.995
Satd. Flow (prot)	1692	0	1828	0	0	1882
Flt Permitted	0.970					0.995
Satd. Flow (perm)	1692	0	1828	0	0	1882
Link Speed (k/h)	48		48			48
Link Distance (m)	152.7		150.5			187.3
Travel Time (s)	11.5		11.3			14.0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	2%	9%	1%	8%	6%	1%
Adj. Flow (vph)	42	25	208	49	24	195
Shared Lane Traffic (%)						
Lane Group Flow (vph)	67	0	257	0	0	219
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.5%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis 6: CR 15 & CR 36

















2045 Future Total PM

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	20	164	39	19	154
Future Volume (Veh/h)	33	20	164	39	19	154
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Hourly flow rate (vph)	42	25	208	49	24	195
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	476	232			257	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	476	232			257	
tC, single (s)	6.4	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.4			2.3	
p0 queue free %	92	97			98	
cM capacity (veh/h)	538	790			1285	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	67	257	219			
Volume Left	42	0	24			
Volume Right	25	49	0			
cSH	610	1700	1285			
Volume to Capacity	0.11	0.15	0.02			
Queue Length 95th (m)	2.8	0.0	0.4			
Control Delay (s)	11.6	0.0	1.0			
Lane LOS	B		A			
Approach Delay (s)	11.6	0.0	1.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			33.5%	ICU Level of Service		A
Analysis Period (min)			15			



Lanes, Volumes, Timings  
7: CR 15 & CR 36/Jenkins Road

















2045 Future Total PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	0	112	2	0	1	164	105	1	1	125	83
Future Volume (vph)	66	0	112	2	0	1	164	105	1	1	125	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.915			0.955						0.946	
Flt Protected		0.982			0.968			0.970				
Satd. Flow (prot)	0	1674	0	0	1776	0	0	1820	0	0	1748	0
Flt Permitted		0.982			0.968			0.970				
Satd. Flow (perm)	0	1674	0	0	1776	0	0	1820	0	0	1748	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		183.7			105.2			212.1			171.4	
Travel Time (s)		13.8			7.9			15.9			12.9	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	5%	0%	2%	0%	0%	0%	2%	3%	0%	100%	6%	0%
Adj. Flow (vph)	77	0	130	2	0	1	191	122	1	1	145	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	3	0	0	314	0	0	243	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	47.1%				ICU Level of Service A							
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis










## 7: CR 15 & CR 36/Jenkins Road

2045 Future Total PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	0	112	2	0	1	164	105	1	1	125	83
Future Volume (Veh/h)	66	0	112	2	0	1	164	105	1	1	125	83
Sign Control	Stop				Stop				Free			
Grade	0%				0%				0%			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	77	0	130	2	0	1	191	122	1	1	145	97
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	701	700	194	830	748	122	242				123	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	701	700	194	830	748	122	242				123	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				5.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				3.1	
p0 queue free %	75	100	85	99	100	100	86				100	
cM capacity (veh/h)	310	313	848	219	293	934	1324				1028	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	207	3	314	243								
Volume Left	77	2	191	1								
Volume Right	130	1	1	97								
cSH	516	295	1324	1028								
Volume to Capacity	0.40	0.01	0.14	0.00								
Queue Length 95th (m)	14.6	0.2	3.8	0.0								
Control Delay (s)	16.6	17.3	5.5	0.0								
Lane LOS	C	C	A	A								
Approach Delay (s)	16.6	17.3	5.5	0.0								
Approach LOS	C	C										
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			47.1%	ICU Level of Service				A				
Analysis Period (min)			15									










Lanes, Volumes, Timings  
8: Avonmore Road & Site Access

2045 Future Total PM

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	23	68	39	145	105	13
Future Volume (vph)	23	68	39	145	105	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.899				0.985	
Flt Protected	0.988				0.990	
Satd. Flow (prot)	1706	0	0	1902	1892	0
Flt Permitted	0.988				0.990	
Satd. Flow (perm)	1706	0	0	1902	1892	0
Link Speed (k/h)	50				80	80
Link Distance (m)	186.4				200.6	1773.8
Travel Time (s)	13.4				9.0	79.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	25	74	42	158	114	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	200	128	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7				0.0	0.0
Link Offset(m)	0.0				0.0	0.0
Crosswalk Width(m)	1.6				1.6	1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24	14		
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.6%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis8: Avonmore Road & Site Access

2045 Future Total PM

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	68	39	145	105	13
Future Volume (Veh/h)	23	68	39	145	105	13
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)	25	74	42	158	114	14
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	363	121	128			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	363	121	128			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	92	97			
cM capacity (veh/h)	622	936	1470			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	99	200	128			
Volume Left	25	42	0			
Volume Right	74	0	14			
cSH	830	1470	1700			
Volume to Capacity	0.12	0.03	0.08			
Queue Length 95th (m)	3.1	0.7	0.0			
Control Delay (s)	9.9	1.8	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.9	1.8	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay		3.1				
Intersection Capacity Utilization		28.6%		ICU Level of Service		A
Analysis Period (min)		15				

Intersection: 1: Moulinette Road & Hwy 401 EB Ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	77.7	100.2	53.8	77.8
Average Queue (m)	33.1	45.5	21.8	39.3
95th Queue (m)	62.3	82.3	41.3	66.3
Link Distance (m)	171.9	201.9	228.9	110.8
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Moulinette Road & County Road 29/Hwy 401 WB ramps

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	18.4	60.9	19.0	11.7
Average Queue (m)	5.7	29.7	2.3	0.4
95th Queue (m)	13.4	51.5	10.9	4.8
Link Distance (m)	171.0	171.7	39.3	57.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Moulinette Road & Private Driveway/County Road 29

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	6.5	23.5	5.3
Average Queue (m)	0.4	11.7	0.2
95th Queue (m)	3.0	20.6	2.6
Link Distance (m)	87.5	216.6	140.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Avonmore Road/Avnomore Road & County Road 29/Pieur Road

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	28.3	7.0	11.7
Average Queue (m)	11.5	0.3	1.0
95th Queue (m)	21.6	2.9	5.9
Link Distance (m)	300.4	60.6	1758.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Avonmore Road & County Road 2

Movement	EB	WB	NB	SB	SB
Directions Served	L	R	LTR	LT	R
Maximum Queue (m)	13.2	0.9	6.7	349.3	22.6
Average Queue (m)	2.2	0.0	0.4	230.5	7.5
95th Queue (m)	8.0	0.4	3.3	411.1	24.7
Link Distance (m)			51.8	387.5	
Upstream Blk Time (%)				14	
Queuing Penalty (veh)				0	
Storage Bay Dist (m)	80.0	60.0			15.0
Storage Blk Time (%)				99	1
Queuing Penalty (veh)				12	2

Intersection: 6: CR 15 & CR 36

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	18.3	13.1
Average Queue (m)	8.9	0.9
95th Queue (m)	15.9	6.2
Link Distance (m)	147.0	178.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: CR 15 & CR 36/Jenkins Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	29.6	7.5	26.0	2.2
Average Queue (m)	13.8	0.6	8.2	0.1
95th Queue (m)	23.5	3.9	20.0	1.5
Link Distance (m)	178.3	93.2	206.8	156.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Avonmore Road & Site Access

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (m)	17.0	10.4
Average Queue (m)	9.1	1.6
95th Queue (m)	14.1	7.0
Link Distance (m)	180.8	191.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 14
----------------------------------

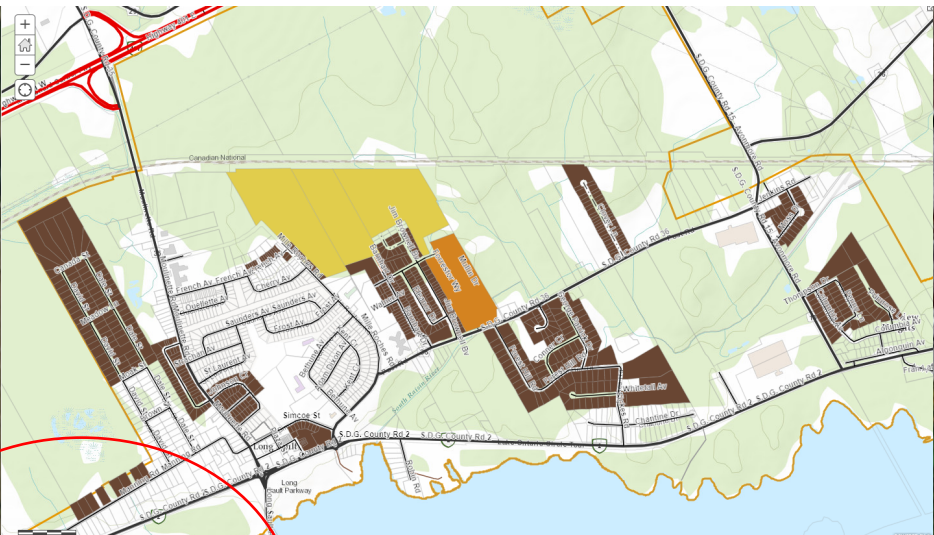
Intersection: 5: Avonmore Road & County Road 2

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	LT	R	LTR	LT	R
Maximum Queue (m)	17.4	56.0	71.8	24.5	3.2	38.1	20.1
Average Queue (m)	3.7	23.1	34.4	10.4	0.2	17.9	3.2
95th Queue (m)	12.0	44.5	61.0	19.7	1.9	31.3	12.8
Link Distance (m)		163.6	189.1		51.8	387.5	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	80.0			60.0			15.0
Storage Blk Time (%)		0	1			12	1
Queuing Penalty (veh)		0	3			1	1



# APPENDIX G

## Background Development Unit Yield Estimates









So average rate is  $((1/2100)+(1/1100))/2=4/5775$



275,000 m<sup>2</sup>  
DU=190-5=185  
dwelling units

-5  
units

3 of the 8 units  
builtout, 5 units unbuilt

Builtout

Builtout

Builtout





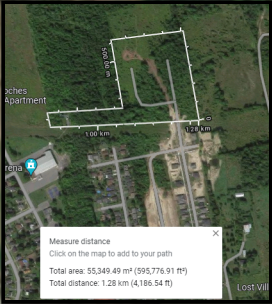
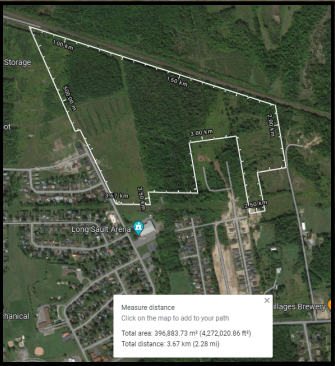


397,000m<sup>2</sup>  
DU=275 dwellings

56,000m<sup>2</sup>  
DU=39 dwelling  
units

Builtout

101,000m<sup>2</sup>  
DU=70 dwelling  
units







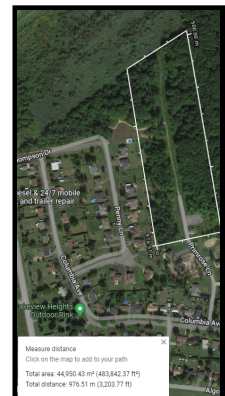
53,000m<sup>2</sup>  
DU=37  
dwelling  
units

Builtout

Builtout

45,000m<sup>2</sup>  
DU=31 dwelling  
units

Partially  
Builtout



# APPENDIX H

## Signal Warrants



## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
[Proposed Collision](#)
[GO TO Justification:](#)

What are the intersecting roadways?

County Road 35 and Highway 401 Ramps / Access

What is the direction of the Main Road street?

North-South

When was the data collected?

2035 Future Total Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach				Minor Eastbound Approach				Main Southbound Approach				Minor Westbound Approach				Pedestrians Crossing Main Road
	LT	TH	RT		LT	TH	RT		LT	TH	RT		LT	TH	RT		
7:00	52	95	18		5	79	39		79	96	24		16	64	80		0
8:00	52	95	18		5	79	39		79	96	24		16	64	80		0
9:00	52	95	18		5	79	39		79	96	24		16	64	80		0
10:00	52	95	18		5	79	39		79	96	24		16	64	80		0
16:00	52	95	18		5	79	39		79	96	24		16	64	80		0
17:00	52	95	18		5	79	39		79	96	24		16	64	80		0
18:00	52	95	18		5	79	39		79	96	24		16	64	80		0
19:00	52	95	18		5	79	39		79	96	24		16	64	80		0
Total	416	760	144		40	632	312		632	768	192		128	512	640		0

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 35 and Highway 401 Ramps / Access

Count Date: 2035 Future Total Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
1A	480	720	600	900	647	647	647	647	647	647	647	647	800	100
	COMPLIANCE %				100	100	100	100	100	100	100	100		
1B	120	170	120	170	283	283	283	283	283	283	283	283		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Free Flow					Both 1A and 1B 100% Fullfilled each of 8 hours								Yes	
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input checked="" type="checkbox"/>	
													No <input type="checkbox"/>	

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
	480	720	600	900	364	364	364	364	364	364	364	364		
	COMPLIANCE %				76	76	76	76	76	76	76	76	607	76
2B	50	75	50	75	100	100	100	100	100	100	100	100		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Free Flow					Both 2A and 2B 100% Fullfilled each of 8 hours								Yes	No
Signal Justification 2:					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes	No

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More		
Justification 1	Minimun Vehicular Volume	YES	NO	<input type="checkbox"/>	YES	<input type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input checked="" type="checkbox"/>	NOT JUSTIFIED	

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	364	160	356	45 %	45 %
	8:00	364	160	356	45 %	
	9:00	364	160	356	45 %	
	10:00	364	160	356	45 %	

# Results Sheet

[Input Sheet](#)
[Analysis Sheet](#)
[Proposed Collision](#)

Intersection: County Road 35 and Highway 401 Ramps / Access Count Date: 2035 Future Total Conditions

## Summary Results

	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	B Crossing Volume	100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	76 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	76 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		45 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
[Proposed Collision](#)
[GO TO Justification:](#)

What are the intersecting roadways?

County Road 35 and Highway 401 WB Ramps

What is the direction of the Main Road street?

North-South

When was the data collected?

2045 Future Total Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	12	56	115	2	0	30	5	54	1	121	15	11	0
8:00	12	56	115	2	0	30	5	54	1	121	15	11	0
9:00	12	56	115	2	0	30	5	54	1	121	15	11	0
10:00	12	56	115	2	0	30	5	54	1	121	15	11	0
16:00	12	56	115	2	0	30	5	54	1	121	15	11	0
17:00	12	56	115	2	0	30	5	54	1	121	15	11	0
18:00	12	56	115	2	0	30	5	54	1	121	15	11	0
19:00	12	56	115	2	0	30	5	54	1	121	15	11	0
Total	96	448	920	16	0	240	40	432	8	968	120	88	0

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 35 and Highway 401 WB Ramps

Count Date: 2045 Future Total Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00				
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>												
1A	480	720	600	900	422	422	422	422	422	422	422	422				
	COMPLIANCE %				88	88	88	88	88	88	88	88	703	88		
1B	120	170	120	170	179	179	179	179	179	179	179	179				
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100		
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes		No	
Signal Justification 1:													Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>	

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW <input checked="" type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	243	243	243	243	243	243	243	243	405	51
	COMPLIANCE %				51	51	51	51	51	51	51	51		
2B	50	75	50	75	138	138	138	138	138	138	138	138		
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100
Free Flow Signal Justification 2:					Both 2A and 2B 100% Fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes Yes <input type="checkbox"/>	No No <input checked="" type="checkbox"/>

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More		
Justification 1	Minimum Vehicular Volume	YES	NO	<input type="checkbox"/>	YES	<input type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input checked="" type="checkbox"/>	NOT JUSTIFIED	

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	243	147	423	35 %	35 %
	8:00	243	147	423	35 %	
	9:00	243	147	423	35 %	
	10:00	243	147	423	35 %	

# Results Sheet

[Input Sheet](#)[Analysis Sheet](#)[Proposed Collision](#)

Intersection: County Road 35 and Highway 401 WB Ramps

Count Date: 2045 Future Total Conditions

## Summary Results

Justification	Compliance		Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	88 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	51 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	88 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	51 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		35 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
-------------------------	-----	--------------------------	-------------------------------------

6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
[Proposed Collision](#)
[GO TO Justification:](#)

What are the intersecting roadways?

County Road 35 and County Road 29

What is the direction of the Main Road street?

North-South

When was the data collected?

2045 Future Total Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	1	14	52	0	0	2	2	13	0	42	1	2	0
8:00	1	14	52	0	0	2	2	13	0	42	1	2	0
9:00	1	14	52	0	0	2	2	13	0	42	1	2	0
10:00	1	14	52	0	0	2	2	13	0	42	1	2	0
16:00	1	14	52	0	0	2	2	13	0	42	1	2	0
17:00	1	14	52	0	0	2	2	13	0	42	1	2	0
18:00	1	14	52	0	0	2	2	13	0	42	1	2	0
19:00	1	14	52	0	0	2	2	13	0	42	1	2	0
<b>Total</b>	<b>8</b>	<b>112</b>	<b>416</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>16</b>	<b>104</b>	<b>0</b>	<b>336</b>	<b>8</b>	<b>16</b>	<b>0</b>

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 35 and County Road 29

Count Date: 2045 Future Total Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	480	720	600	900	129	129	129	129	129	129	129	129	215	27
	COMPLIANCE %				27	27	27	27	27	27	27	27		
1B	120	170	120	170	47	47	47	47	47	47	47	47		
	COMPLIANCE %				39	39	39	39	39	39	39	39	313	39
Free Flow Signal Justification 1:					Both 1A and 1B 100% Fulfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW <input checked="" type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00	137	17		
2A	480	720	600	900	82	82	82	82	82	82	82	82				
	COMPLIANCE %				17	17	17	17	17	17	17	17				
2B	50	75	50	75	43	43	43	43	43	43	43	43				
	COMPLIANCE %				86	86	86	86	86	86	86	86	688	86		
Free Flow Signal Justification 2:					Both 2A and 2B 100% Fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/> Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/> No <input checked="" type="checkbox"/>	

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More		
Justification 1	Minimum Vehicular Volume	YES	NO	<input checked="" type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input checked="" type="checkbox"/>	NOT JUSTIFIED	

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	82	45	522	9 %	9 %
	8:00	82	45	522	9 %	
	9:00	82	45	522	9 %	
	10:00	82	45	522	9 %	



# Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: County Road 35 and County Road 29

Count Date: 2045 Future Total Conditions

## Summary Results

Justification		Compliance		Signal Justified?	
				YES	NO
1. Minimum Vehicular Volume	A Total Volume	27	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	39	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	17	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	86	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	27	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	17	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		9	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
[Proposed Collision](#)
[GO TO Justification:](#)

What are the intersecting roadways?

County Road 15 and County Road 29

What is the direction of the Main Road street?

North-South

When was the data collected?

2045 Future Total Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	7	70	0	41	0	6	0	83	37	1	0	0	0
8:00	7	70	0	41	0	6	0	83	37	1	0	0	0
9:00	7	70	0	41	0	6	0	83	37	1	0	0	0
10:00	7	70	0	41	0	6	0	83	37	1	0	0	0
16:00	7	70	0	41	0	6	0	83	37	1	0	0	0
17:00	7	70	0	41	0	6	0	83	37	1	0	0	0
18:00	7	70	0	41	0	6	0	83	37	1	0	0	0
19:00	7	70	0	41	0	6	0	83	37	1	0	0	0
<b>Total</b>	<b>56</b>	<b>560</b>	<b>0</b>	<b>328</b>	<b>0</b>	<b>48</b>	<b>0</b>	<b>664</b>	<b>296</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 15 and County Road 29

Count Date: 2045 Future Total Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	245	245	245	245	245	245	245	245	408	51
	COMPLIANCE %				51	51	51	51	51	51	51	51		
1B	120	170	120	170	48	48	48	48	48	48	48	48		
	COMPLIANCE %				40	40	40	40	40	40	40	40	320	40
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes	
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>	
													No <input checked="" type="checkbox"/>	

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW <input checked="" type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00				
2A	480	720	600	900	197	197	197	197	197	197	197	197	328	41		
	COMPLIANCE %				41	41	41	41	41	41	41	41				
2B	50	75	50	75	42	42	42	42	42	42	42	42	672	84		
	COMPLIANCE %				84	84	84	84	84	84	84	84				
Free Flow Signal Justification 2:					Both 2A and 2B 100% Fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/> Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/> No <input checked="" type="checkbox"/>	

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More		
Justification 1	Minimum Vehicular Volume	YES	NO	<input checked="" type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input checked="" type="checkbox"/>	NOT JUSTIFIED	

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	197	47	450	10 %	10 %
	8:00	197	47	450	10 %	
	9:00	197	47	450	10 %	
	10:00	197	47	450	10 %	

# Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: County Road 15 and County Road 29

Count Date: 2045 Future Total Conditions

## Summary Results

Justification		Compliance		Signal Justified?	
				YES	NO
1. Minimum Vehicular Volume	A Total Volume	51	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	40	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	41	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	84	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	40	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	41	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		10	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
[Proposed Collision](#)
[GO TO Justification:](#)

What are the intersecting roadways?

County Road 2 and County Road 15

What is the direction of the Main Road street?

East-West

When was the data collected?

2035 Future Background Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Eastbound Approach			Minor Northbound Approach			Main Westbound Approach			Minor Southbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	5	211	0	0	0	0	0	170	81	85	0	7	0
8:00	5	211	0	0	0	0	0	170	81	85	0	7	0
9:00	5	211	0	0	0	0	0	170	81	85	0	7	0
10:00	5	211	0	0	0	0	0	170	81	85	0	7	0
16:00	5	211	0	0	0	0	0	170	81	85	0	7	0
17:00	5	211	0	0	0	0	0	170	81	85	0	7	0
18:00	5	211	0	0	0	0	0	170	81	85	0	7	0
19:00	5	211	0	0	0	0	0	170	81	85	0	7	0
<b>Total</b>	<b>40</b>	<b>1,688</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,360</b>	<b>648</b>	<b>680</b>	<b>0</b>	<b>56</b>	<b>0</b>

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 2 and County Road 15

Count Date: 2035 Future Background Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent	
	1 Lanes		2 or More Lanes		Hour Ending										
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00			
1A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	559	559	559	559	559	559	559	559	800	100	
	COMPLIANCE %				100	100	100	100	100	100	100	100			
1B	120	170	120	170	92	92	92	92	92	92	92	92			
	COMPLIANCE %				77	77	77	77	77	77	77	77	613	77	
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes		No
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW <input checked="" type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00				
2A	480	720	600	900	467	467	467	467	467	467	467	467				
	COMPLIANCE %				97	97	97	97	97	97	97	97	778	97		
2B	50	75	50	75	85	85	85	85	85	85	85	85				
	COMPLIANCE %				100	100	100	100	100	100	100	100			800	100
Free Flow					Both 2A and 2B 100% Fulfilled each of 8 hours								Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
Signal Justification 2:					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More			
Justification 1	Minimum Vehicular Volume	YES	NO	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input type="checkbox"/>	NOT JUSTIFIED		

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	467	92	305	30 %	30 %
	8:00	467	92	305	30 %	
	9:00	467	92	305	30 %	
	10:00	467	92	305	30 %	

# Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: County Road 2 and County Road 15

Count Date: 2035 Future Background Conditions

## Summary Results

	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	77 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	97 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	77 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	97 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		30 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
[Proposed Collision](#)
[GO TO Justification:](#)

What are the intersecting roadways?

County Road 2 and County Road 15

What is the direction of the Main Road street?

East-West

When was the data collected?

2040 Future Background Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Eastbound Approach			Minor Northbound Approach			Main Westbound Approach			Minor Southbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	6	219	0	0	0	0	0	177	83	87	0	7	0
8:00	6	219	0	0	0	0	0	177	83	87	0	7	0
9:00	6	219	0	0	0	0	0	177	83	87	0	7	0
10:00	6	219	0	0	0	0	0	177	83	87	0	7	0
16:00	6	219	0	0	0	0	0	177	83	87	0	7	0
17:00	6	219	0	0	0	0	0	177	83	87	0	7	0
18:00	6	219	0	0	0	0	0	177	83	87	0	7	0
19:00	6	219	0	0	0	0	0	177	83	87	0	7	0
<b>Total</b>	<b>48</b>	<b>1,752</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,416</b>	<b>664</b>	<b>696</b>	<b>0</b>	<b>56</b>	<b>0</b>

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0



# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 2 and County Road 15

Count Date: 2040 Future Background Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00	800	100		
1A	480	720	600	900	579	579	579	579	579	579	579	579				
	COMPLIANCE %				100	100	100	100	100	100	100	100				
1B	120	170	120	170	94	94	94	94	94	94	94	94	627	78		
	COMPLIANCE %				78	78	78	78	78	78	78	78				
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes		No	
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>	

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW <input checked="" type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00				
2A	480	720	600	900	485	485	485	485	485	485	485	485				
	COMPLIANCE %				100	100	100	100	100	100	100	100	800	100		
2B	50	75	50	75	87	87	87	87	87	87	87	87				
	COMPLIANCE %				100	100	100	100	100	100	100	100			800	100
Free Flow					Both 2A and 2B 100% Fulfilled each of 8 hours								Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Signal Justification 2:					Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More			
Justification 1	Minimum Vehicular Volume	YES	NO	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input type="checkbox"/>	NOT JUSTIFIED		

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	485	94	296	32 %	32 %
	8:00	485	94	296	32 %	
	9:00	485	94	296	32 %	
	10:00	485	94	296	32 %	

# Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: County Road 2 and County Road 15

Count Date: 2040 Future Background Conditions

## Summary Results

Justification		Compliance		Signal Justified?	
				YES	NO
1. Minimum Vehicular Volume	A Total Volume	100	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	78	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	100	%	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	B Crossing Road	100	%	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Combination	A Justificaton 1	78	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	100	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		32	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0	%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Input Data Sheet

[Analysis Sheet](#)
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[GO TO Justification:](#)

What are the intersecting roadways?

County Road 2 and County Road 15

What is the direction of the Main Road street?

East-West

When was the data collected?

2035 Future Total Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Eastbound Approach			Minor Northbound Approach			Main Westbound Approach			Minor Southbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	5	211	0	0	0	0	0	170	107	109	0	7	0
8:00	5	211	0	0	0	0	0	170	107	109	0	7	0
9:00	5	211	0	0	0	0	0	170	107	109	0	7	0
10:00	5	211	0	0	0	0	0	170	107	109	0	7	0
16:00	5	211	0	0	0	0	0	170	107	109	0	7	0
17:00	5	211	0	0	0	0	0	170	107	109	0	7	0
18:00	5	211	0	0	0	0	0	170	107	109	0	7	0
19:00	5	211	0	0	0	0	0	170	107	109	0	7	0
Total	40	1,688	0	0	0	0	0	1,360	856	872	0	56	0

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 2 and County Road 15

Count Date: 2035 Future Total Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 Lanes		2 or More Lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
1A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	609	609	609	609	609	609	609	609	800	100
	COMPLIANCE %				100	100	100	100	100	100	100	100		
1B	120	170	120	170	116	116	116	116	116	116	116	116	773	97
	COMPLIANCE %				97	97	97	97	97	97	97	97		
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes	
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW <input checked="" type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00				
2A	480	720	600	900	493	493	493	493	493	493	493	493	800	100		
	COMPLIANCE %				100	100	100	100	100	100	100	100				
2B	50	75	50	75	109	109	109	109	109	109	109	109	800	100		
	COMPLIANCE %				100	100	100	100	100	100	100	100				
Free Flow Signal Justification 2:					Both 2A and 2B 100% Fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes Yes	<input checked="" type="checkbox"/> <input type="checkbox"/>	No No	<input type="checkbox"/> <input type="checkbox"/>

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More		
Justification 1	Minimum Vehicular Volume	YES <input type="checkbox"/>	NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>	
Justification 2	Delay Cross Traffic	YES <input type="checkbox"/>	NO <input type="checkbox"/>	JUSTIFIED		

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	493	116	293	40 %	40 %
	8:00	493	116	293	40 %	
	9:00	493	116	293	40 %	
	10:00	493	116	293	40 %	

# Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: County Road 2 and County Road 15

Count Date: 2035 Future Total Conditions

## Summary Results

	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	100 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	97 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	B Crossing Road	100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Combination	A Justificaton 1	97 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	B Justification 2	100 %	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. 4-Hr Volume		40 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
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[GO TO Justification:](#)

What are the intersecting roadways?

County Road 15 and County Road 36 (N)

What is the direction of the Main Road street?

North-South

When was the data collected?

2045 Future Total Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

3

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach			Minor Eastbound Approach			Main Southbound Approach			Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
7:00	0	74	18	0	0	0	8	71	0	16	0	8	0
8:00	0	74	18	0	0	0	8	71	0	16	0	8	0
9:00	0	74	18	0	0	0	8	71	0	16	0	8	0
10:00	0	74	18	0	0	0	8	71	0	16	0	8	0
16:00	0	74	18	0	0	0	8	71	0	16	0	8	0
17:00	0	74	18	0	0	0	8	71	0	16	0	8	0
18:00	0	74	18	0	0	0	8	71	0	16	0	8	0
19:00	0	74	18	0	0	0	8	71	0	16	0	8	0
<b>Total</b>	<b>0</b>	<b>592</b>	<b>144</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>64</b>	<b>568</b>	<b>0</b>	<b>128</b>	<b>0</b>	<b>64</b>	<b>0</b>

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 15 and County Road 36 (N)

Count Date: 2045 Future Total Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent	
	1 Lanes		2 or More Lanes		Hour Ending										
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00			
1A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	195	195	195	195	195	195	195	195	325	41	
	COMPLIANCE %				41	41	41	41	41	41	41	41			
1B	180	255	180	255	24	24	24	24	24	24	24	24			
	COMPLIANCE %				13	13	13	13	13	13	13	13	107	13	
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes		No
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More		
Justification 1	Minimum Vehicular Volume	YES	NO	<input checked="" type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input checked="" type="checkbox"/>	NOT JUSTIFIED	

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	171	24	466	5 %	5 %
	8:00	171	24	466	5 %	
	9:00	171	24	466	5 %	
	10:00	171	24	466	5 %	

# Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: County Road 15 and County Road 36 (N)

Count Date: 2045 Future Total Conditions

## Summary Results

	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	41 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	13 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	36 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	32 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	13 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	32 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		5 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>



## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
[Proposed Collision](#)
[GO TO Justification:](#)

What are the intersecting roadways?

County Road 15 and County Road 36 (S)

What is the direction of the Main Road street?

North-South

When was the data collected?

2045 Future Total Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

4

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach				Minor Eastbound Approach				Main Southbound Approach				Minor Westbound Approach			Pedestrians Crossing Main Road
	LT	TH	RT		LT	TH	RT		LT	TH	RT		LT	TH	RT	
7:00	54	49	1		34	0	62		1	62	32		1	0	0	0
8:00	54	49	1		34	0	62		1	62	32		1	0	0	0
9:00	54	49	1		34	0	62		1	62	32		1	0	0	0
10:00	54	49	1		34	0	62		1	62	32		1	0	0	0
16:00	54	49	1		34	0	62		1	62	32		1	0	0	0
17:00	54	49	1		34	0	62		1	62	32		1	0	0	0
18:00	54	49	1		34	0	62		1	62	32		1	0	0	0
19:00	54	49	1		34	0	62		1	62	32		1	0	0	0
<b>Total</b>	<b>432</b>	<b>392</b>	<b>8</b>		<b>272</b>	<b>0</b>	<b>496</b>		<b>8</b>	<b>496</b>	<b>256</b>		<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 15 and County Road 36 (S)

Count Date: 2045 Future Total Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW	RESTR. FLOW	FREE FLOW	RESTR. FLOW	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00				
1A	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	296	296	296	296	296	296	296	296	493	62		
	COMPLIANCE %				62	62	62	62	62	62	62	62				
1B	120	170	120	170	97	97	97	97	97	97	97	97	647	81		
	COMPLIANCE %				81	81	81	81	81	81	81	81				
Free Flow					Both 1A and 1B 100% Fulfilled each of 8 hours								Yes		No	
Signal Justification 1:					Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>	

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 lanes		2 or More lanes		Hour Ending											
Flow Condition	FREE FLOW <input checked="" type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00				
2A	480	720	600	900	199	199	199	199	199	199	199	199	332	41		
	COMPLIANCE %				41	41	41	41	41	41	41	41				
2B	50	75	50	75	35	35	35	35	35	35	35	35				
	COMPLIANCE %				70	70	70	70	70	70	70	70	560	70		
Free Flow Signal Justification 2:					Both 2A and 2B 100% Fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes Yes	<input type="checkbox"/> <input checked="" type="checkbox"/>	No No	<input type="checkbox"/> <input checked="" type="checkbox"/>

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More		
Justification 1	Minimum Vehicular Volume	YES	NO	<input checked="" type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input checked="" type="checkbox"/>	NOT JUSTIFIED	

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	199	96	449	21 %	21 %
	8:00	199	96	449	21 %	
	9:00	199	96	449	21 %	
	10:00	199	96	449	21 %	

# Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: County Road 15 and County Road 36 (S)

Count Date: 2045 Future Total Conditions

## Summary Results

	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	62 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	81 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	41 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	70 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	62 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	41 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		21 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Input Data Sheet

[Analysis Sheet](#)
[Results Sheet](#)
[Proposed Collision](#)
[GO TO Justification:](#)

What are the intersecting roadways?

County Road 15 and Access

What is the direction of the Main Road street?

North-South

When was the data collected?

2045 Future Total Conditions

### Justification 1 - 4: Volume Warrants

a.- Number of lanes on the Main Road?

1

b.- Number of lanes on the Minor Road?

1

c.- How many approaches?

3

d.- What is the operating environment?

Rural

Population &lt; 10,000

AND

Speed &gt;= 70 km/hr

e.- What is the eight hour vehicle volume at the intersection? (Please fill in table below)

Hour Ending	Main Northbound Approach				Minor Eastbound Approach				Main Southbound Approach				Minor Westbound Approach				Pedestrians Crossing Main Road
	LT	TH	RT		LT	TH	RT		LT	TH	RT		LT	TH	RT		
7:00	26	56	0		8	0	24		0	55	9		0	0	0		0
8:00	26	56	0		8	0	24		0	55	9		0	0	0		0
9:00	26	56	0		8	0	24		0	55	9		0	0	0		0
10:00	26	56	0		8	0	24		0	55	9		0	0	0		0
16:00	26	56	0		8	0	24		0	55	9		0	0	0		0
17:00	26	56	0		8	0	24		0	55	9		0	0	0		0
18:00	26	56	0		8	0	24		0	55	9		0	0	0		0
19:00	26	56	0		8	0	24		0	55	9		0	0	0		0
Total	208	448	0		64	0	192		0	440	72		0	0	0		0

### Justification 5: Collision Experience

Preceding Months	Number of Collisions*
1-12	0
13-24	0
25-36	0

\* Include only collisions that are susceptible to correction through the installation of traffic signal control

### Justification 6: Pedestrian Volume

a.- Please fill in table below summarizing total pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	1		1		1		1		
Factored 8 hour pedestrian volume	0		0		0		0		
% Assigned to crossing rate	23%		34%		30%		100%		
Net 8 Hour Pedestrian Volume at Crossing									0
Net 8 Hour Vehicular Volume on Street Being Crossed									2,000

b.- Please fill in table below summarizing delay to pedestrians crossing major roadway at the intersection or in proximity to the intersection (zones). Please reference Section 4.8 of the Manual for further explanation and graphical representation.

	Zone 1		Zone 2		Zone 3 (if needed)		Zone 4 (if needed)		Total
	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	Assisted	Unassisted	
Total 8 hour pedestrian volume	0	0	0	0	0	0	0	0	
Total 8 hour pedestrians delayed greater than 10 seconds	0	0	0	0	0	0	0	0	
Factored volume of total pedestrians	0		0		0		0		
Factored volume of delayed pedestrians	0		0		0		0		
% Assigned to Crossing Rate	23%		34%		30%		100%		
Net 8 Hour Volume of Total Pedestrians									0
Net 8 Hour Volume of Delayed Pedestrians									0

# Analysis Sheet

Input Sheet

Results Sheet

Proposed Collision

GO TO Justification:

Intersection: County Road 15 and Access

Count Date: 2045 Future Total Conditions

## Justification 1: Minimum Vehicle Volumes

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent		
	1 Lanes		2 or More Lanes		Hour Ending											
Flow Condition	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00				
1A	480	720	600	900	178	178	178	178	178	178	178	178	297	37		
	COMPLIANCE %				37	37	37	37	37	37	37	37				
1B	180	255	180	255	32	32	32	32	32	32	32	32				
	COMPLIANCE %				18	18	18	18	18	18	18	18	142	18		
Free Flow Signal Justification 1:					Both 1A and 1B 100% Fulfilled each of 8 hours Lesser of 1A or 1B at least 80% fulfilled each of 8 hours								Yes Yes <input type="checkbox"/>		No No <input checked="" type="checkbox"/>	

## Justification 2: Delay to Cross Traffic

### Free Flow Rural Conditions

Justification	Guidance Approach Lanes				Percentage Warrant								Total Across	Section Percent
	1 lanes		2 or More lanes		Hour Ending									
Flow Condition	FREE FLOW <input checked="" type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	FREE FLOW <input type="checkbox"/>	RESTR. FLOW <input type="checkbox"/>	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00		
2A	480	720	600	900	146	146	146	146	146	146	146	146	243	30
	COMPLIANCE %				30	30	30	30	30	30	30	30		
2B	50	75	50	75	8	8	8	8	8	8	8	8		
	COMPLIANCE %				16	16	16	16	16	16	16	16	128	16
Free Flow Signal Justification 2:					Both 2A and 2B 100% Fulfilled each of 8 hours Lesser of 2A or 2B at least 80% fulfilled each of 8 hours								Yes <input type="checkbox"/> Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> No <input checked="" type="checkbox"/>

## Justification 3: Combination

### Combination Justification 1 and 2

Justification Satisfied 80% or More				Two Justifications Satisfied 80% or More		
Justification 1	Minimum Vehicular Volume	YES	NO	<input checked="" type="checkbox"/>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
Justification 2	Delay Cross Traffic	YES	NO	<input checked="" type="checkbox"/>	NOT JUSTIFIED	

## Justification 4: Four Hour Volume

Justification	Time Period	Total Volume of Both Approaches (Main) X	Heaviest Minor Approach Y (actual)	Required Value Y (warrant threshold)	Average % Compliance	Overall % Compliance
Justification 4	7:00	146	32	481	7 %	7 %
	8:00	146	32	481	7 %	
	9:00	146	32	481	7 %	
	10:00	146	32	481	7 %	

# Results Sheet

Input Sheet

Analysis Sheet

Proposed Collision

Intersection: County Road 15 and Access

Count Date: 2045 Future Total Conditions

## Summary Results

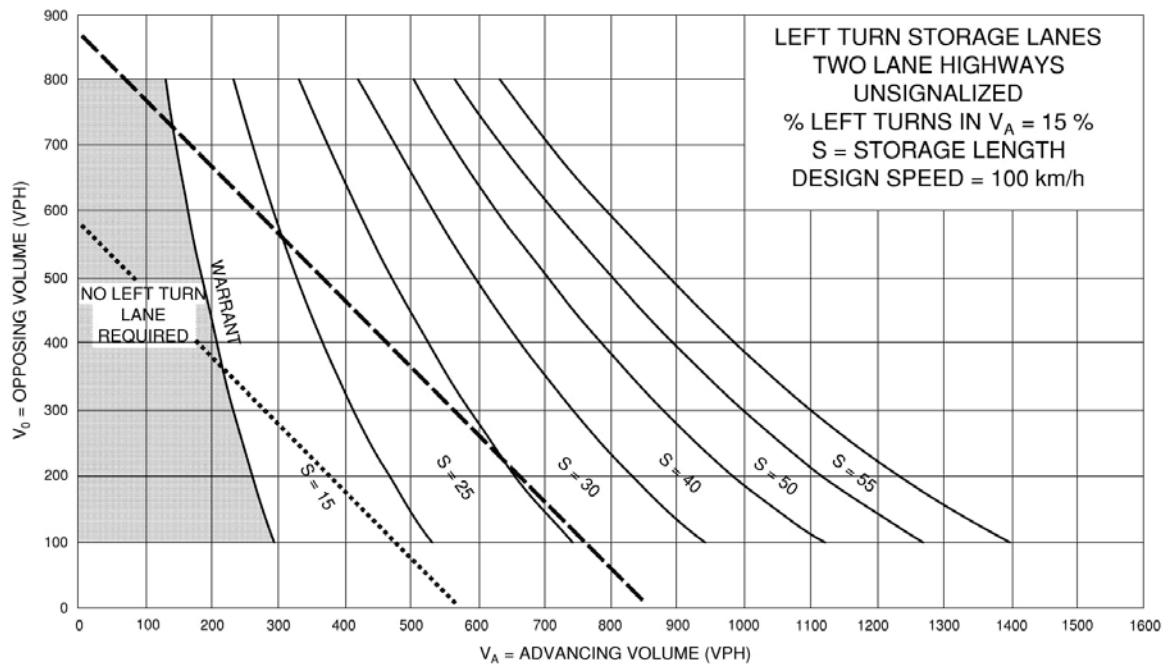
	Justification	Compliance	Signal Justified?	
			YES	NO
1. Minimum Vehicular Volume	A Total Volume	37 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Volume	18 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Delay to Cross Traffic	A Main Road	30 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Crossing Road	16 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Combination	A Justificaton 1	18 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Justification 2	16 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. 4-Hr Volume		7 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>

5. Collision Experience	0 %	<input type="checkbox"/>	<input checked="" type="checkbox"/>
-------------------------	-----	--------------------------	-------------------------------------

6. Pedestrians	A Volume	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	B Delay	Justification not met	<input type="checkbox"/>	<input checked="" type="checkbox"/>

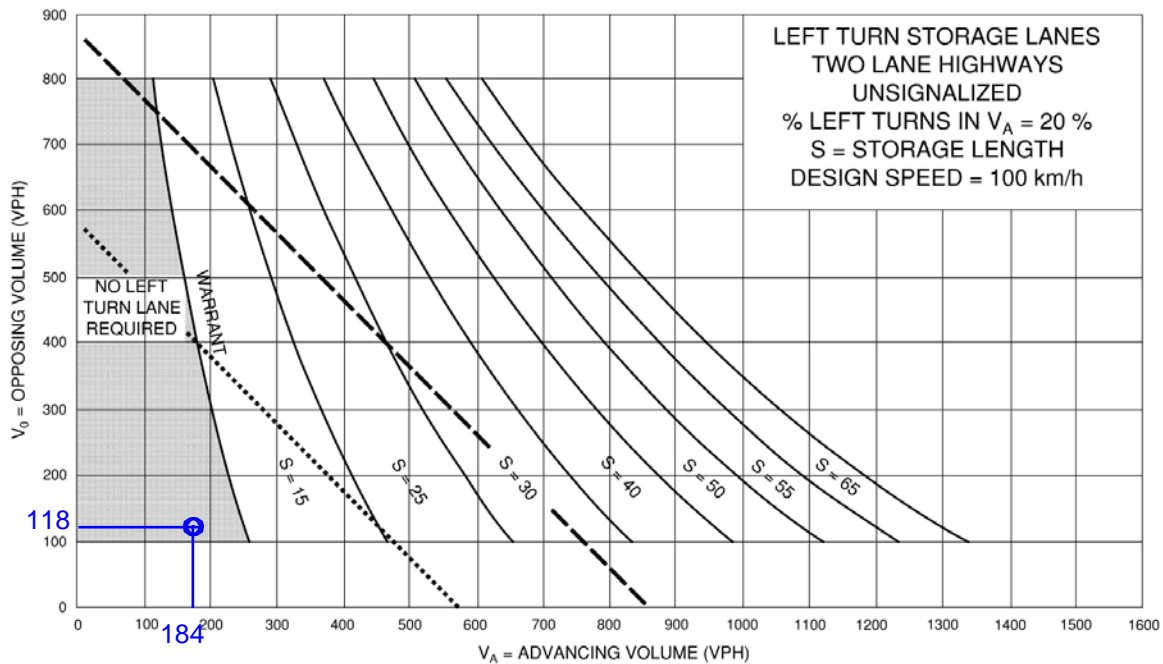
# APPENDIX I

## Left Turn Warrants

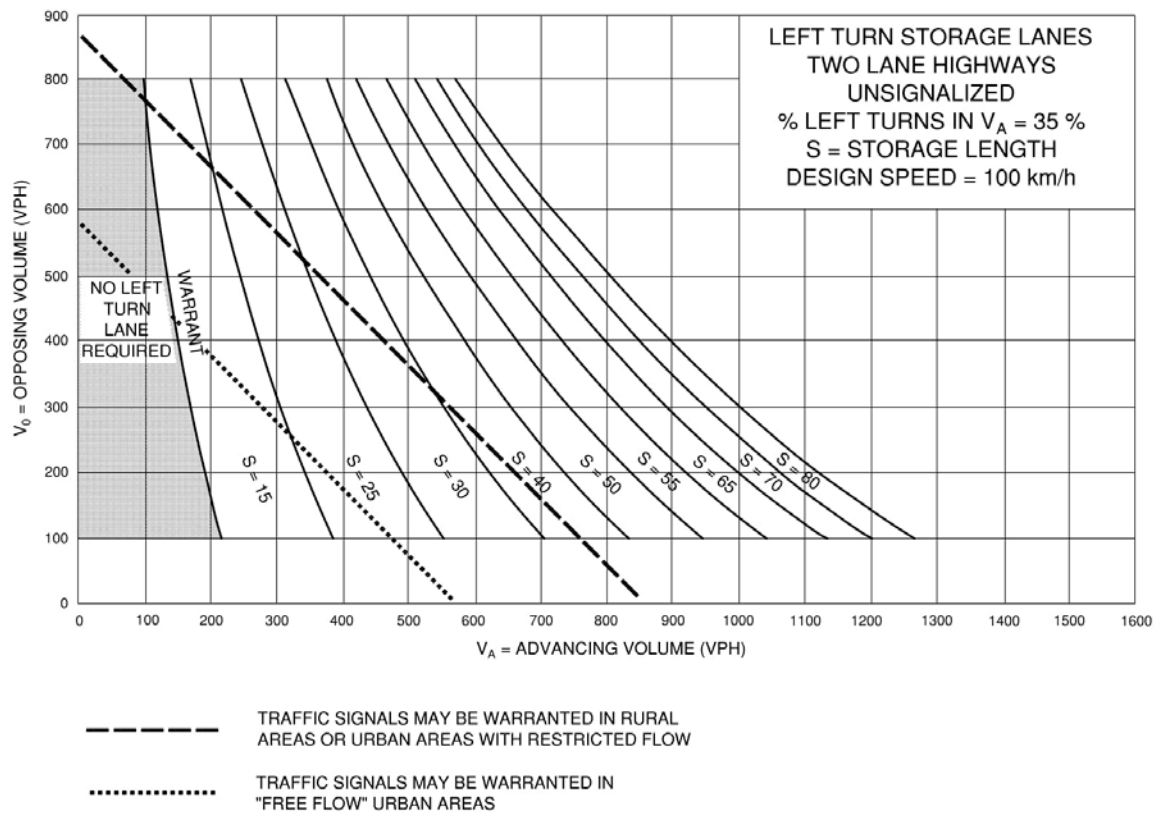
**Exhibit 9A-23**

- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- ..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

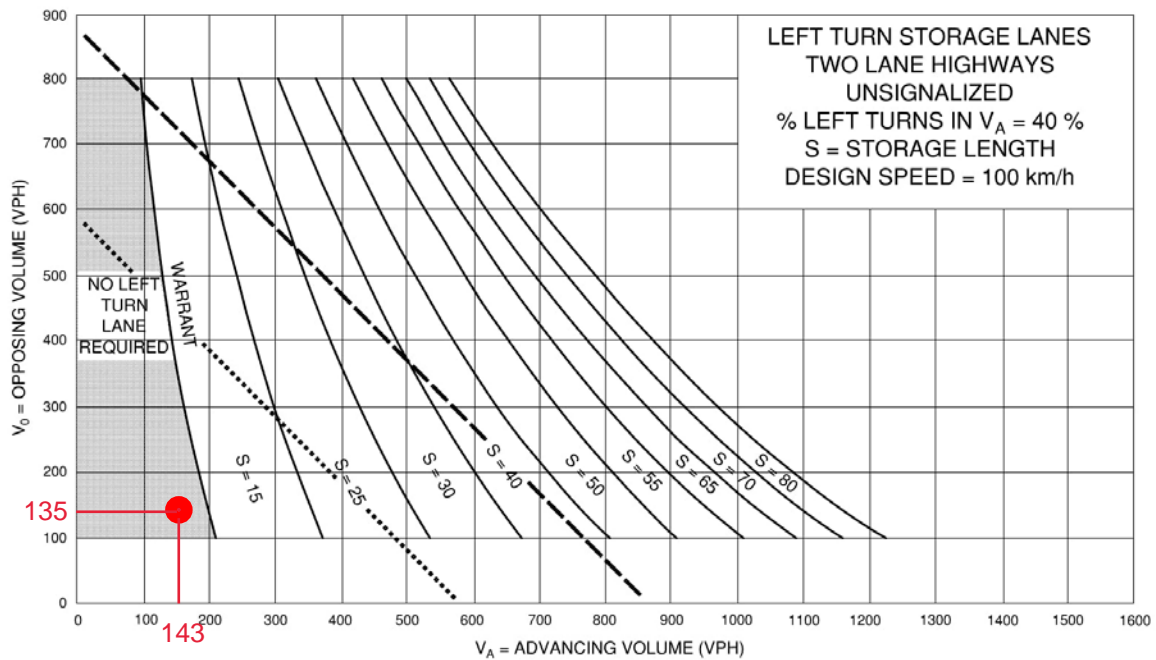
NB LTL (2045 FT PM )@ Site Access on CR 15





**Exhibit 9A-25**

NB LTL (2045 FT AM ) @ Site Access on CR 15



# APPENDIX J

Conceptual Intersection Sketch –  
CR. 35 and Hwy. 401 EB ramps / Street A







# APPENDIX K

## March 2024 Access Safety Letter – County Road 15 Access

**MARCH 18, 2024**

**PROJECT NO: 1909-5629**

**SENT VIA EMAIL:  
BDEHAAN@SDGCOUNTIES.CA**

United Counties of Stormont, Dundas, and Gelngarry  
26 Pitt Street  
Cornwall, ON K6J 3P2

**Attention: Benjamin de Haan, P.Eng.  
Director of Transportation Services  
SDG Counties**

**RE: ACCESS SAFETY REVIEW LETTER  
LONG SAULT LOGISTICS VILLAGE  
TOWNSHIP OF SOUTH STORMONT, SDG COUNTIES**

Dear Benjamin,

C.F. Crozier & Associates Inc. (Crozier) was retained by Avenue 31 Capital Inc. to provide transportation engineering related services in support of the proposed industrial park located at 850 Moulinette Road & 5410 Avonmore Road, in the Township of South Stormont.

The subject Long Sault Industrial Park lands are legally known as Lots 1-3 of Registered Plan 276 and Part of Lots 31, 32, 34, 36, 37 & 38 Concession 5, within the Township of South Stormont, UCSDG. The subject lands cover an area of approximately 285 ha and currently consists exclusively of vacant, vegetated land. The site is bounded by Highway 401 to the north, vegetated lands and Avonmore Road to the east, the CN rail corridor to the south, and Moulinette Road to the west.

This Access Safety Review Letter reviews the proposed internal road's access connection to Avonmore Road, with a focus on assessing sightline adequacy given the vertical curvature on segments of Avonmore Road.

## 1.0 Development Proposal

Per the Draft Plan of Subdivision, prepared by Ware Malcomb, the proposed development consists of multiple industrial buildings with a combined Gross Floor Area of approximately 500,000 m<sup>2</sup>, and an intermodal rail yard. The land uses of the buildings are expected to be warehousing. Furthermore, an internal local roadway (designated on the Draft Plan as "Street A") is proposed to service the development via connections to Avonmore Road and Moulinette Road. **Attachment 1** includes the Block Plan.

A functional design for the internal road's connection to Moulinette Road at the Highway 401 off-ramp was previously prepared and coordinated with the MTO, Township and Counties. This Letter review's the proposed location of the connection to Avonmore Road pertaining sightline adequacy for safe intersection operations.

## 2.0 Sight Distance Assessment

The available sightlines at the proposed site access to Avonmore Road were measured and compared to the standard set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR). Sight distance was measured from the proposed site access using the following assumptions:

- A standard driver eye height of 1.08 metres for a passenger car.
- A standard driver eye height of 1.80 metres for trucks.
- An object height of 0.60 metres.
- A 4.40 to 5.40 metres setback from the approximate extension of the outer curb (or edge of pavement) to represent a vehicle waiting to exit the site.
- Given centreline elevations were not provided fronting the subject site along Avonmore Road, it is assumed that the centreline elevations have a slope of approximately +1% from the edge of pavement consistent with the existing conditions.

Intersection sight distance is calculated using equation 9.9.1 from the TAC-GDGCR as outlined below:

$$ISD = 0.278 * V_{major} * t_g$$

Where:

ISD = Intersection Sight Distance

$V_{major}$  = design speed of roadway (km/h)

$t_g$  = assumed time gap for vehicles to turn from stop onto roadway (s)

The design speed of a high-speed roadway in a rural environment is typically 20 km/h greater than the posted speed limit. Given Avonmore Road is classified as a County Arterial roadway and has a posted speed limit of 80 km/h, a design speed of 100 km/h is assumed for the sight distance assessment.

**Table 1** below outlines the sight distance assessment for the proposed site access. **Attachment 2** contains relevant sight distance assessment excerpts from the TAC-GDGCR. Sight distance assessment figures for the proposed access are included in **Attachment 3**.

**Table 1: Sight Distance Assessment**

Feature	Site Access – Vehicle Assessment	Site Access – Truck Assessment
Access Type	Full-Moves	
Speed Limit	80 km/h	
Assumed Design Speed	100 km/h	
Base Time Gap (right turn)	6.5 s	10.5 s
Base Time Gap (left turn)	7.5 s	11.5 s
Grade of Roadway	Assumed as 3%	Assumed as 3%
Horizontal Alignment of Roadway	Fairly straight	Fairly straight
Required Sight Distance (right)	185 m	295 m
Required Sight Distance (left)	210 m	320 m
Available Sight Distance (right)	>185 m	230 m
Available Sight Distance (left)	>210 m	>320 m

Based on the Avonmore Road Topographical Survey, it is observed that north of the proposed access, the roadway is sloped up with its crest located approximately 260 m north of the site access. The road is however fairly flat south of the access. **Attachment 4** includes the Topographical Survey along Avonmore Road, provided by Annis, O'Sullivan, Vollebakk Ltd.

As outlined above, despite the vertical curvature of the roadway north of the access point, minimum sight distance requirements are satisfied at the proposed site access connection to Avonmore Road, except for the south bound right-turn sight distance requirements for heavy trailer trucks.

Although the vertical curvature limits the intersection sight distance for egressing trailer trucks turning right out of the site access, conflicting vehicles travelling southbound along Avonmore Road will have a sufficient stopping sight distance. Given the downgrade of the roadway is approximately 3.5%, vehicles approaching the access from the north will require a stopping sight distance of 194 metres, per Table 2.5.3 of the TAC-GDGCR. The available intersection sight distance for visibility of the trailer trucks exceeds the stopping sight distance for southbound vehicles by 36 metres. Therefore, available sight distance is adequate for southbound vehicles to stop in order to avoid a conflict at the proposed intersection.

**Attachment 2** contains relevant sight distance assessment excerpts from the TAC-GDGCR. Further, though the sight distance requirements for the right-turn trailer truck maneuver is not met, no operational issues are expected as the southbound traffic along Avonmore Road is not expected to reach a design speed of 100 Km/h as traffic will slow down near the crest of the vertical curve until they have a sufficient sightlines beyond the crest. Additionally, given the proposed use of the site and the subject land being zoned MH-h (Heavy Industrial, holding provision) under Township of South Stormont Zoning By-law No. 2011-100, it is expected that transport trucks will frequently travel along Avonmore Road, thus a reduced operating speed limit closer to the posted 80 Km/h can be expected rather than 100 Km/h. Therefore, the site access is supportable from a traffic safety perspective.

### 3.0 Conclusions

Based on the findings of the Sight Distance Assessment herein for the proposed access at Avonmore Road, no safety concerns related to sight distance are expected. Therefore, the site access is supportable from a traffic safety perspective.

We trust that this letter addresses all concerns related to sightlines at the proposed access connection to Avonmore Road. Should you have any questions or require any further information, please do not hesitate to contact the undersigned.

Sincerely,

**C.F. CROZIER & ASSOCIATES INC.**



Ryan Lafuente  
Engineering Intern, Transportation

rl/

**C.F. CROZIER & ASSOCIATES INC.**



Peter Apasnore, MAsc., P. Eng., PTOE  
Project Manager

**Enclosed**

Attachment 1: Block Plan  
Attachment 2: TAC Excerpts  
Attachment 3: Sight Distance Assessment Figures  
Attachment 4: Avonmore Road Topographical Survey

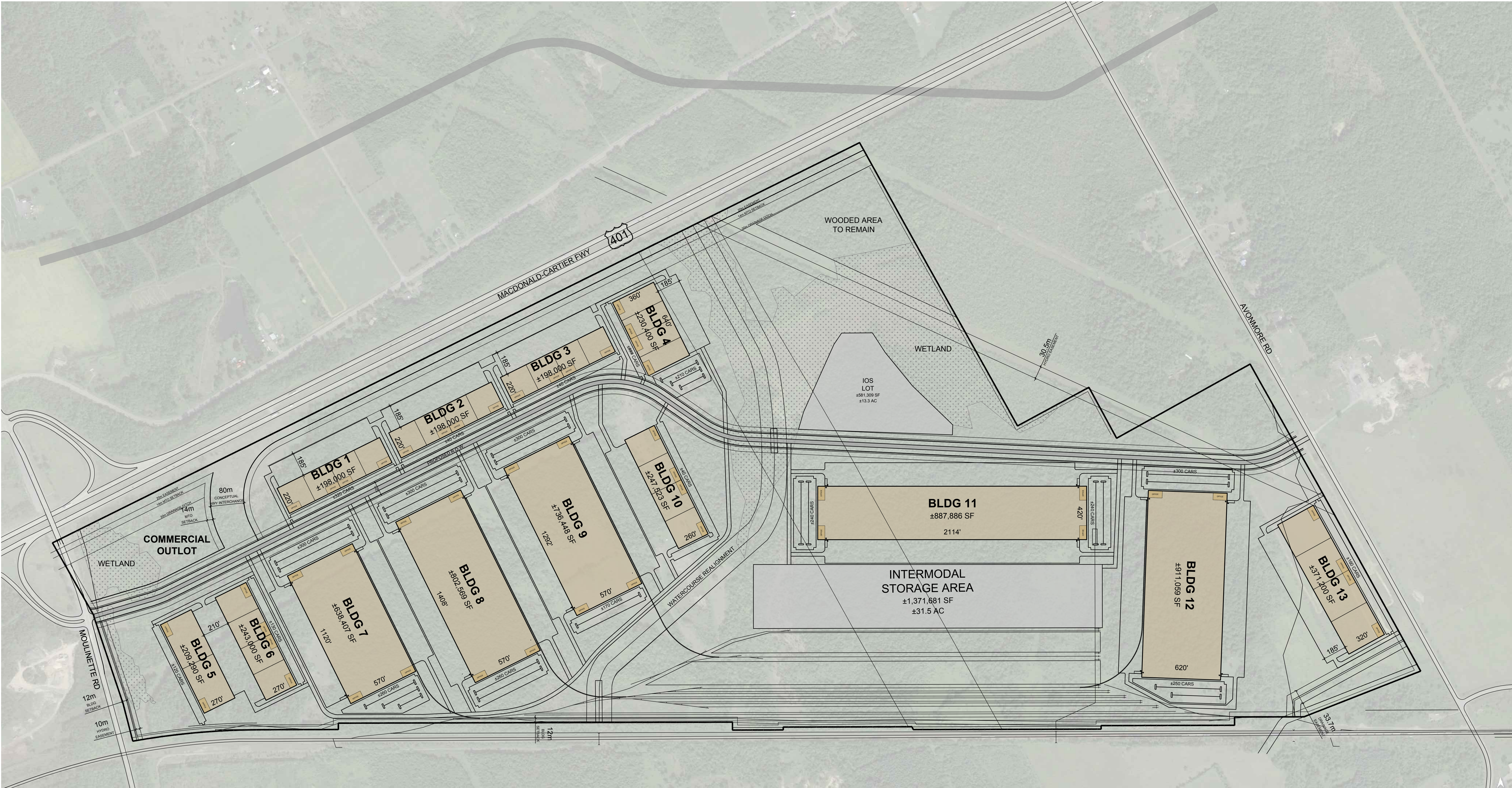
\\\\Crozier-Files\\Milton-Projects\\1900\\1909 - Avenue 31\\5629\_Long Sault Bus Pk\\Reports\\Traffic\\2024 (Access Safety Review Letter)\\2024.03.15\_Long Sault Industrial Park - Access Safety Review Letter (DRAFT).docx



# Attachment 1

## Block Plan





Total BLDG GFA:  
±5,871,782 SF

DEVELOPMENT STANDARDS:	
ZONING:	MH-h
MAX. COVERAGE:	20%
MAX. HEIGHT:	30m
BUILDING SETBACKS:	
FRONT:	12m
SIDE:	7.5m
REAR:	12m
LANDSCAPE SETBACKS:	
FRONT:	3m
EXT. SIDE:	3m
INT. SIDE:	n/a
REAR:	n/a
LANDSCAPE REQ.:	
OFF-STREET PARKING:	
STANDARD:	2.75x5.5 m
DRIVE AISLE:	6.7 m
REQ. PARKING RATIO BY USE:	
WAREHOUSE:	1/95m2
MANUF	1/80m2
OFFICE:	1/80m2

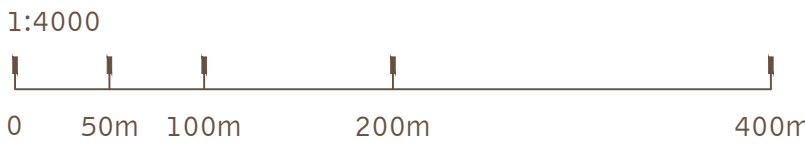
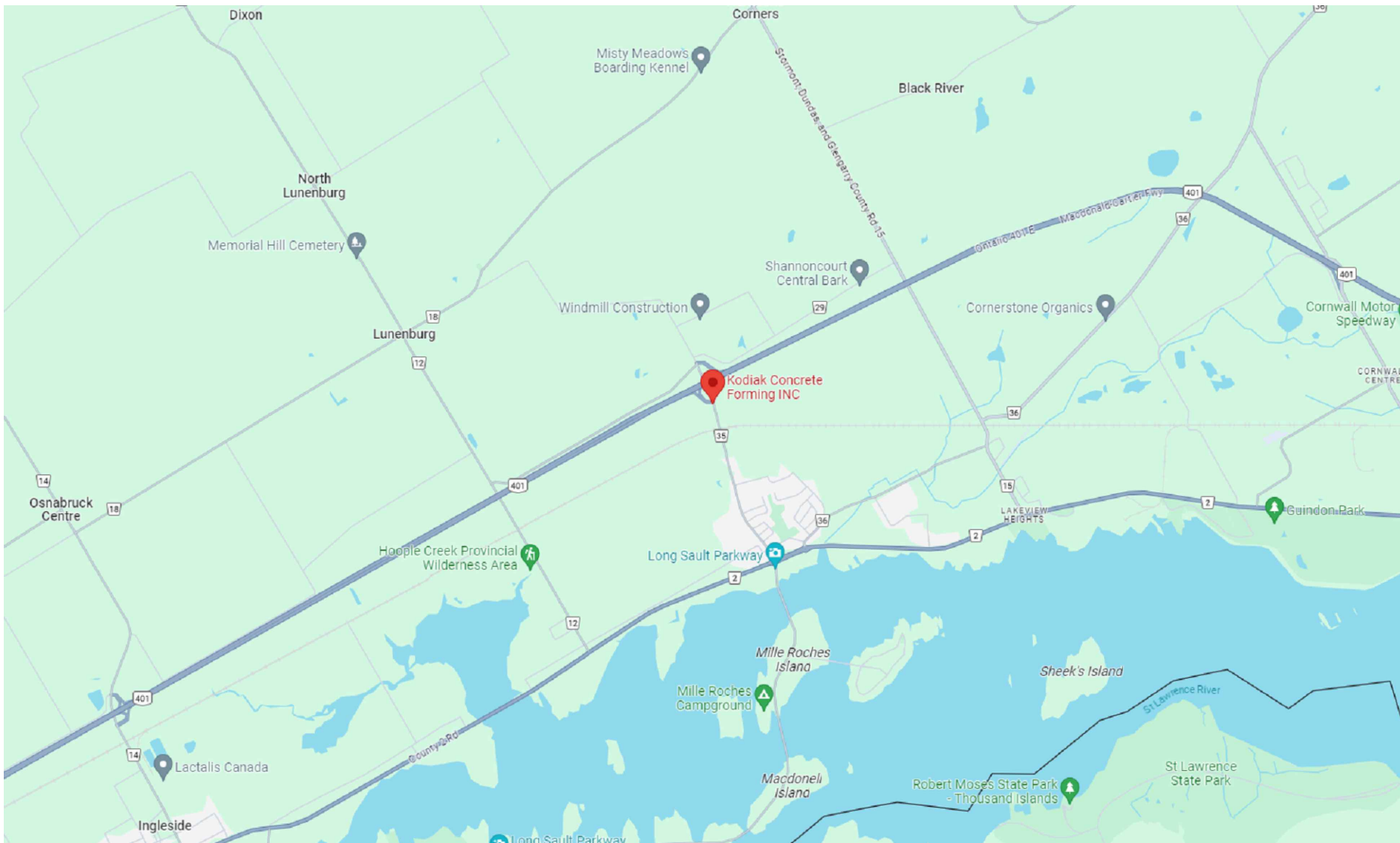
- NOTES:
- 12m for exterior side yard.
  - Development on full services (municipal water and sanitary sewers):  
Front - 7.5m  
Rear - 7.5m  
Exterior Side - 7.5m  
Interior Side - 3m  
Lot Coverage - 40%
  - 3m landscape required from Residential Zone and adjacent a street.
  - From Provincial Highway:  
Building Setback - 14m  
Parking Setback - 3m
  - One (1) space per 95 square metres of floor area plus one (1) space for every three (3) employees per shift
  - Where any road or street crosses a railway at the same grade, no building or structure shall be erected closer to the point of intersection of the centreline of railway and the roadway than 30 metres at signalized crossings and 45 metres at uncontrolled crossings

A PORTION OF THE ZONING INFORMATION IS UNKNOWN AT THIS TIME AND REQUIREMENTS MAY DIFFER THAN WHAT IS SHOWN IN THE SITE PLAN.

This conceptual design is based upon a preliminary review of entitlement requirements and on unverified and possibly incomplete site and/or building information, and is intended merely to assist in exploring how the project might be developed.

Stormwater Management Design: AVERAGE REGIONAL REQUIRED PROVIDED

Boundary Source: CIVIL CAD FILE



scheme: 05

Conceptual Site Plan

Avenue 31 Camino  
Moulinette Rd, Long Sault, ON, Canada

WARE MALCOMB

OTW23-0022-00  
2023.11.16

SHEET  
1



# Attachment 2

## TAC Excerpts

It has been noted that many drivers, particularly those in automobiles, do not compensate completely (i.e., by acceleration or deceleration) for the changes in speed caused by grade. It should also be noted that in many cases the sight distance available on downgrades is greater than on upgrades, which can help to provide the necessary corrections for grade. The following **Table 2.5.3** summarizes the stopping sight distances on grades for a variety of design speeds.

**Table 2.5.3: Stopping Sight Distance on Grades<sup>55</sup>**

Design Speed (km/h)	Stopping Sight Distance (m)					
	Downgrades (%)			Upgrades (%)		
	3	6	9	3	6	9
20	20	20	20	19	18	18
30	35	35	35	31	30	29
40	50	50	53	45	44	43
50	66	70	74	61	59	58
60	87	92	97	80	77	75
70	110	116	124	100	97	93
80	136	144	154	123	118	114
90	164	174	187	148	141	136
100	194	207	223	174	167	160
110	227	243	262	203	194	186
120	263	281	304	234	223	214
130	302	323	350	267	254	243

*Revised  
June 2019*

### 2.5.3.1 Stopping Sight Distance: Variations for Trucks

The stopping sight distance outlined in **Tables 2.5.2** and **2.5.3** are based on passenger car operations and do not explicitly consider design for truck operations. In general trucks need longer stopping sight distances for a given speed than passenger vehicles. However, one balancing factor is that a truck driver can generally see further than a passenger car driver due to an eye height advantage. As a result, a separate stopping sight distances for trucks are not generally used in highway design.

In some instances the higher eye height is not an advantage or maybe a disadvantage — for example, trucks have no advantage when a sightline obstruction is located on inside of a horizontal curve. Also, trucks are at a disadvantage on sag vertical curves where visibility is “cut off” by an overpass and at the end of long downgrades. In these situations it is desirable to provide stopping sight distances that exceed the values in **Tables 2.5.2** and **2.5.3**.

Table 9.9.3: Time Gap for Case B1, Left Turn from Stop

Design Vehicle	Time Gap ( $t_g$ )(s) at Design Speed of Major Road
Passenger car	7.5
Single-unit truck	9.5
Combination truck (WB 19 and WB 20 )	11.5
Longer truck	To be established by road authority

Notes: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.2 s for each percent grade for left turns.
- Some road authorities use higher values for certain specialized vehicles (e.g., Alberta uses 22 s for very long log trucks).

The intersection sight distance along the major road (distance  $b$  in **Figure 9.9.2**) is determined by:

$$ISD = 0.278 V_{\text{major}} t_g \quad (9.9.1)$$

Where:

ISD = intersection sight distance (length of the leg of sight triangle along the major road) (m)

$V_{\text{major}}$  = design speed of the major road (km/h)

$t_g$  = time gap for minor road vehicle to enter the major road (s)

For example, a passenger car turning left onto a two-lane major road should be provided sight distance equivalent to a time gap of 7.5 s in major-road traffic. If the design speed of the major road is 100 km/h, this corresponds to a sight distance of  $0.278(100)(7.5) = 208.5$  or 210 m, rounded for design.

A passenger car turning left onto a four-lane undivided roadway will need to cross two near lanes, rather than one. This increases the recommended gap in major-road traffic from 7.5 to 8.0 s. The corresponding value of sight distance for this example would be 223 m. If the minor-road approach to such an intersection is located on a 4% upgrade, then the time gap selected for intersection sight distance design for left turns should be increased from 8.0 to 8.8 s, equivalent to an increase of 0.2 s for each percent grade.

The design values for intersection sight distance for passenger cars are shown in **Table 9.9.4**. **Figure 9.9.4** includes design values, based on the time gaps for the design vehicles included in **Table 9.9.3**.

No adjustment of the recommended sight distance values for the major-road grade is generally needed because both the major- and minor-road vehicle will be on the same grade when departing from the intersection. However, if the minor-road design vehicle is a heavy truck and the intersection is located near a sag vertical curve with grades over 3%, then an adjustment to extend the recommended sight distance based on the major-road grade should be considered.

Table 9.9.4: Design Intersection Sight Distance – Case B1, Left Turn From Stop

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	41.7	45
30	35	62.6	65
40	50	83.4	85
50	65	104.3	105
60	85	125.1	130
70	105	146.0	150
80	130	166.8	170
90	160	187.7	190
100	185	208.5	210
110	220	229.4	230
120	250	250.2	255
130	285	271.1	275

Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

Sight distance design for left turns at divided-highway intersections should consider multiple design vehicles and median width. If the design vehicle used to determine sight distance for a divided-highway intersection is larger than a passenger car, then sight distance for left turns will need to be checked for that selected design vehicle and for smaller design vehicles as well. If the divided-highway median is wide enough to store the design vehicle with a clearance to the through lanes of approximately 1 m at both ends of the vehicle, no separate analysis for the departure sight triangle for left turns is needed on the minor-road approach for the near roadway to the left. In most cases, the departure sight triangle for right turns (case B2) will provide sufficient sight distance for a passenger car to cross the near roadway to reach the median. Possible exceptions are addressed in the discussion of case B3.

The time gaps in **Table 9.9.3** can be decreased by 1.0 s for right-turn maneuvers without undue interference with major-road traffic. These adjusted time gaps for the right turn from the minor road are shown in **Table 9.9.5**. Design values based on these adjusted time gaps are shown in **Table 9.9.6** for passenger cars. **Figure 9.9.5** includes the design values for the design vehicles for each of the time gaps in **Table 9.9.5**.

**Table 9.9.5: Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver**

Design Vehicle	Time Gap ( $t_g$ )(s) at Design Speed of Major Road
Passenger car	6.5
Single-unit truck	8.5
Combination truck (WB 19 and WB 20 )	10.5

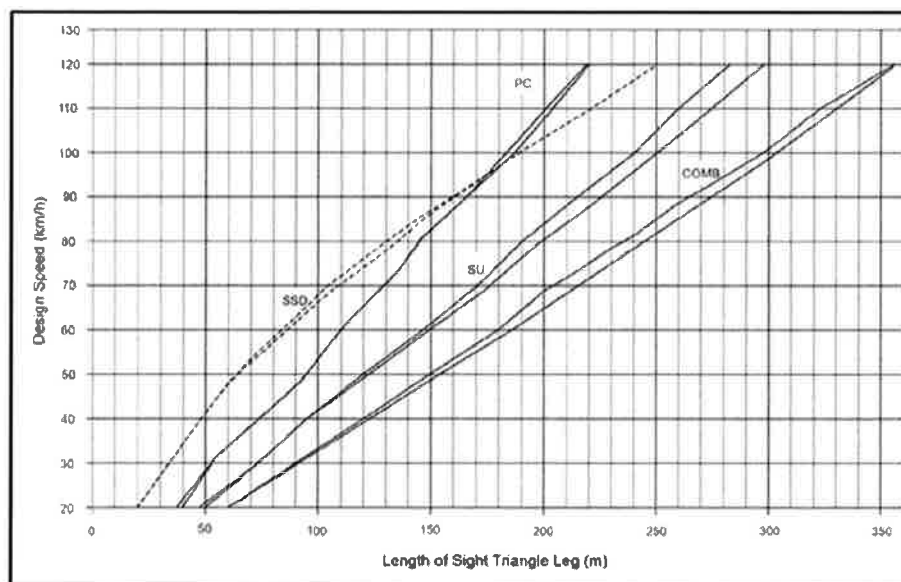
Note: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and with grades of 3% or less. The table values should be adjusted as follows:

- For multi-lane highways: For left turns onto two-lane highways with more than two lanes, add 0.5 s for passenger cars and 0.7 s for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.
- For minor approach grades: If the approach grade is an upgrade that exceeds 3%, add 0.1 s for each percent grade for left turns.

**Table 9.9.6: Design Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver**

Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (m)	Design (m)
20	20	36.1	40
30	35	54.2	55
40	50	72.3	75
50	65	90.4	95
60	85	108.4	110
70	105	126.5	130
80	130	144.6	145
90	160	162.6	165
100	185	180.7	185
110	220	198.8	200
120	250	216.8	220
130	285	234.9	235

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane highway with no median and with grades of 3% or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

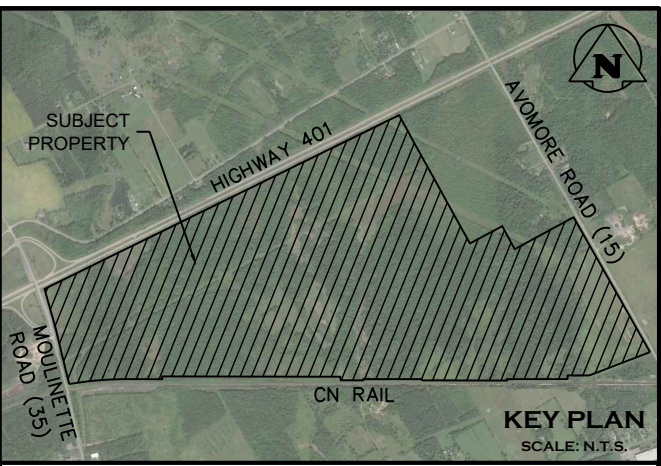
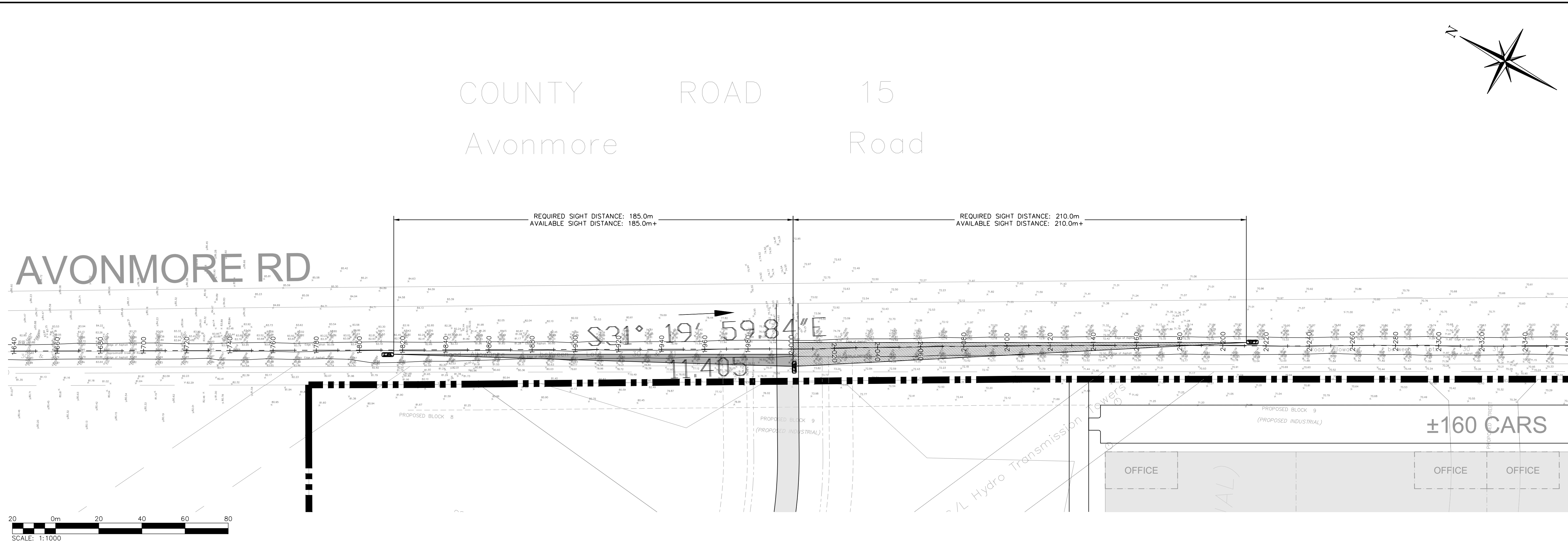


**Figure 9.9.5: Intersection Sight Distance – Case B2, Right Turn from Stop, and Case B3, Crossing Maneuver (Calculated and Design Values Plotted)**



# Attachment 3

## Sight Distance Assessment Figures



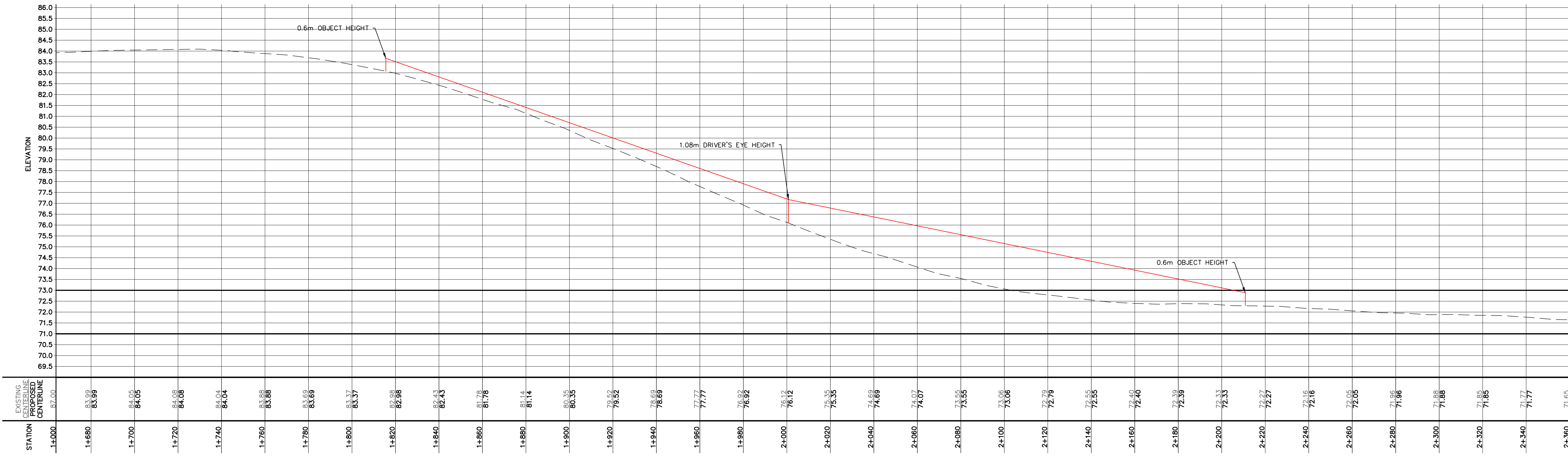
LEGEND	
	WB-20 COMBINATION TRUCK
	PASSENGER CAR
	CASE B2 - ISD
	CASE B1 - ISD

DESIGN INTERSECTION SIGHT DISTANCE

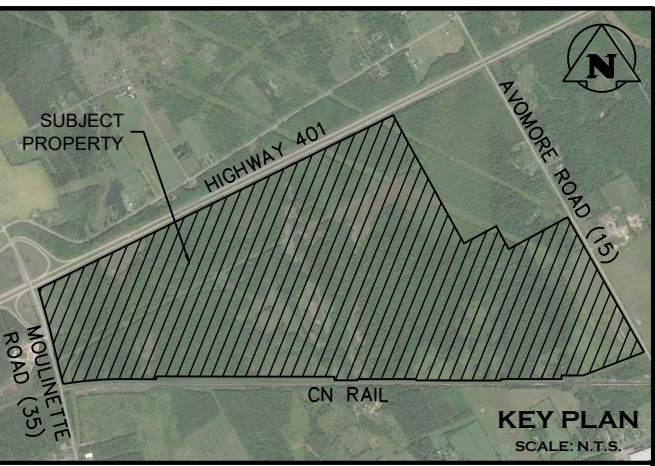
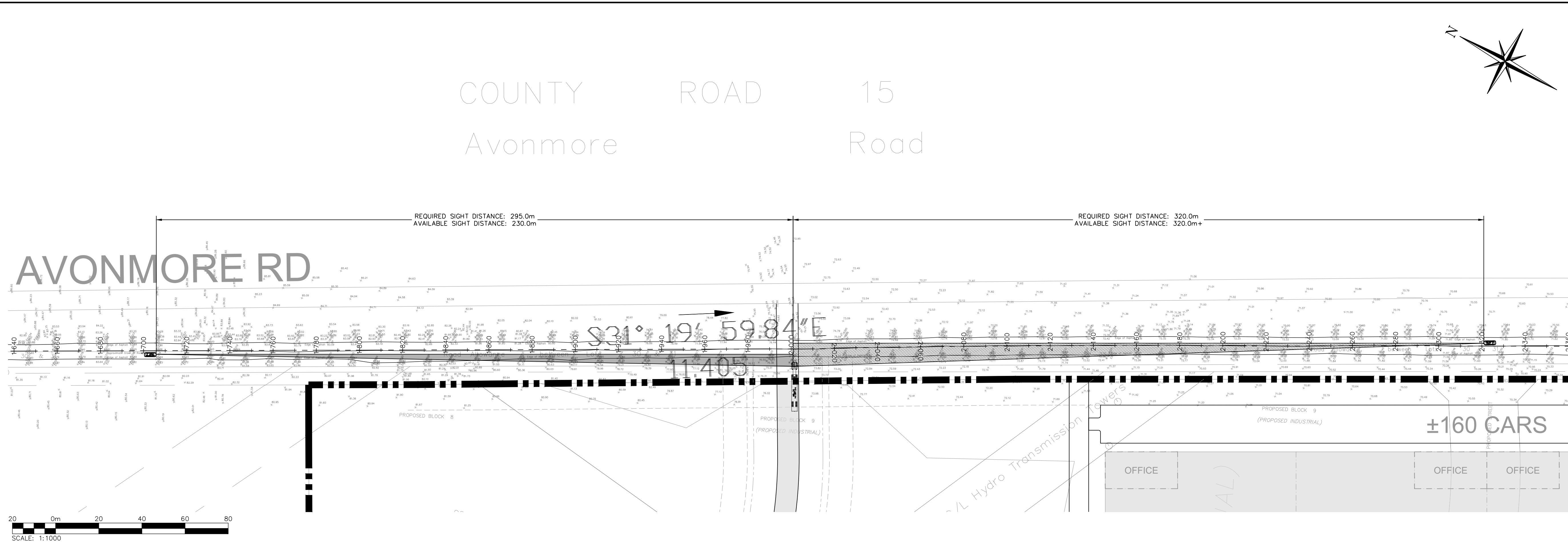
TYPE	INTERSECTION SIGHT DISTANCE (ISD)
CASE	B1, LEFT TURN FROM THE MINOR ROAD
GRADE	-3% TO +3%
APPROACH GRADE FACTOR (T 9.9.2)	1.0
FORMULA (Eq. 9.9.1)	ISD = 0.278Vmajor x TG
VEHICLE TYPE	PASSENGER CAR
V MAJOR ROAD	100 KM/H
TIME GAP (T 9.9.3)	7.5 SECONDS
ISD	210 m

TYPE	INTERSECTION SIGHT DISTANCE (ISD)
CASE	B2, RIGHT TURN FROM THE MINOR ROAD
GRADE	-3% TO +3%
APPROACH GRADE FACTOR (T 9.9.2)	1.0
FORMULA (Eq. 9.9.1)	ISD = 0.278Vmajor x TG
VEHICLE TYPE	PASSENGER CAR
V MAJOR ROAD	100 KM/H
TIME GAP (T 9.9.3)	6.5 SECONDS
ISD	185 m

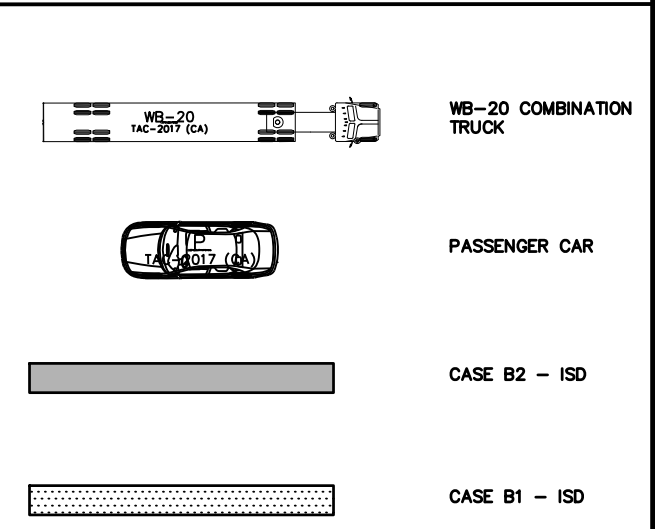
- NOTES:
- ALL INTERSECTION SIGHT DISTANCE REQUIREMENTS ARE DESCRIBED IN TAC GDGR SECTION 9.9.
  - MINIMUM STOPPING SIGHT DISTANCE (SSD) REQUIREMENTS ARE DESCRIBED IN TAC GDGR SECTION 2.5.
  - SIGHT DISTANCE REVIEW HAS BEEN COMPLETED USING DESKTOP METHODOLOGY ONLY, AND MAY BE SUBJECT TO CHANGE PENDING AS-CONSTRUCTED CONDITIONS.
  - VERTEX OF SIGHT TRIANGLE SHALL BE LOCATED BETWEEN 4.40m AND 5.40m FROM THE EDGE OF THE MAJOR-ROAD TRAVELED WAY.
  - TIME GAP (Tg) ASSUMED THE APPROACH GRADE DOES NOT EXCEED A 3% UPGRADE.
  - VERTEX OF TRIANGLE ALONG MAJOR ROADWAY IS MEASURED FROM THE MIDDLE OF THE APPROPRIATE THROUGH LANE.
  - "+" SYMBOL ADDED WHEN AVAILABLE SIGHT DISTANCE IS GREATER THAN REQUIRED.
  - CENTRELINE ELEVATIONS ASSUMED TO HAVE A SLOPE OF APPROXIMATELY +1% FROM THE EDGE OF PAVEMENT.







LEGEND



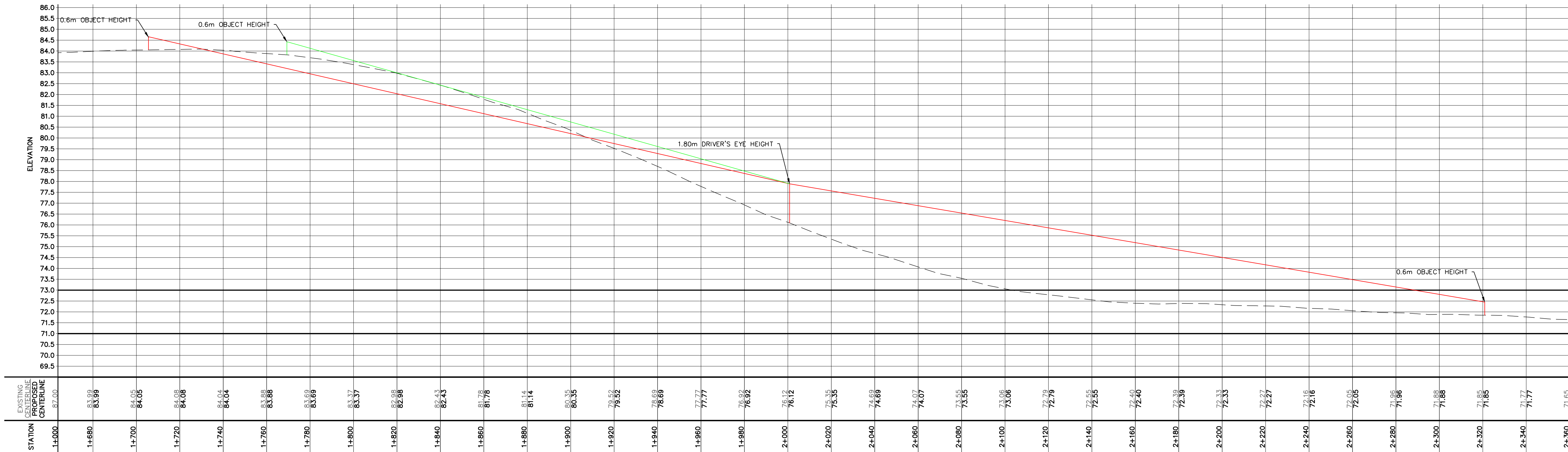
DESIGN INTERSECTION SIGHT DISTANCE

TYPE	INTERSECTION SIGHT DISTANCE (ISD)
CASE	B1, LEFT TURN FROM THE MINOR ROAD
GRADE	-3% TO +3%
APPROACH GRADE FACTOR (T 9.9.2)	1.0
FORMULA (Eq. 9.9.1)	ISD = 0.278V <sub>major</sub> x TG
VEHICLE TYPE	WB-20 COMBINATION TRUCK
V MAJOR ROAD	100 KM/H
TIME GAP (T 9.9.3)	11.5 SECONDS
ISD	320 m

TYPE	INTERSECTION SIGHT DISTANCE (ISD)
CASE	B2, RIGHT TURN FROM THE MINOR ROAD
GRADE	-3% TO +3%
APPROACH GRADE FACTOR (T 9.9.2)	1.0
FORMULA (Eq. 9.9.1)	ISD = 0.278V <sub>major</sub> x TG
VEHICLE TYPE	WB-20 COMBINATION TRUCK
V MAJOR ROAD	100 KM/H
TIME GAP (T 9.9.3)	10.5 SECONDS
ISD	295 m

NOTES:

- ALL INTERSECTION SIGHT DISTANCE REQUIREMENTS ARE DESCRIBED IN TAC CDGCR SECTION 9.9.
- MINIMUM STOPPING SIGHT DISTANCE (SSD) REQUIREMENTS ARE DESCRIBED IN TAC CDGCR SECTION 2.5.
- SIGHT DISTANCE REVIEW HAS BEEN COMPLETED USING DESKTOP METHODOLOGY ONLY, AND MAY BE SUBJECT TO CHANGE PENDING AS-CONSTRUCTED CONDITIONS.
- VERTEX OF SIGHT TRIANGLE SHALL BE LOCATED BETWEEN 4.40m AND 5.40m FROM THE EDGE OF THE MAJOR-ROAD TRAVELED WAY.
- TIME GAP (Tg) ASSUMED THE APPROACH GRADE DOES NOT EXCEED A 3% UPGRADE.
- VERTEX OF TRIANGLE ALONG MAJOR ROADWAY IS MEASURED FROM THE MIDDLE OF THE APPROPRIATE THROUGH LANE.
- "+" SYMBOL ADDED WHEN AVAILABLE SIGHT DISTANCE IS GREATER THAN REQUIRED.
- CENTRELINE ELEVATIONS ASSUMED TO HAVE A SLOPE OF APPROXIMATELY +1% FROM THE EDGE OF PAVEMENT.



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2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.

4. REFER TO SECTION 9.9.2 IN THE TAC DESIGN GUIDE FOR DEPARTURE SIGHT TRIANGLE DIMENSIONS.

5. SIGHT DISTANCE REVIEW COMPLETED USING AVONMORE ROAD, TOPOGRAPHICAL SURVEY PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBERG LTD.

No.	ISSUE	DATE: MM/DD/YYYY	Engineer
1	ISSUED FOR 1st SUBMISSION	03/18/2024	

Engineer	Project
	AVENUE 31 CAPITAL INC. LONG SAULT LOGISTICS VILLAGE TOWNSHIP OF SOUTH STORMONT
	WB-20 COMBINATION TRUCK SIGHT DISTANCE ASSESSMENT

Project	Drawing
AVENUE 31 CAPITAL INC. LONG SAULT LOGISTICS VILLAGE TOWNSHIP OF SOUTH STORMONT	WB-20 COMBINATION TRUCK SIGHT DISTANCE ASSESSMENT



Drawn By	R.L.	Design By	Project	1909-5629
Check By	P.A.	Check By	Scale	1:1000
			VERT	1:10
			Drawing	T101

211 YONGE STREET  
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# Attachment 4

## Avonmore Road Topographical Survey



DETAIL OVERPASS  
Scale 1:500

KING'S HIGHWAY No. 401

MATCHLINE 1-1(A)

JOB BENCHMARK No. 1  
Concrete Pin in Asphalt  
Elev. +84.20

MATCHLINE 1-1(A)

JOB BENCHMARK No. 1  
Concrete Pin in Asphalt  
Elev. +84.20

POINT 13  
PLAN SUR-0070

MATCHLINE 1-1(A)

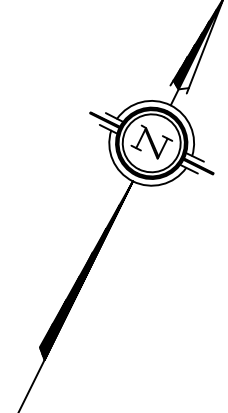
PROPOSED STREET

PROPOSED BLOCK 17  
(PROPOSED INDUSTRIAL)

PIN 60:38 - 0164  
LOT  
CONCESSION 37  
5

LOT  
CONCESSION 38  
5

MATCHLINE 1-1(B)



MATCHLINE 1-1(B)

MATCHLINE 1-1(B)

**SHEET 1 OF 3**  
West Location - Station Lane & Moulinette Road  
SKETCH TO ILLUSTRATE TOPOGRAPHICAL  
FEATURES ON

**Avenue 31 Long Sault  
Logistic Village  
West Location - Station Lane & Moulinette  
Road  
East Location - Avonmore Road  
SOUTH STORMONT**  
Prepared by Annis, O'Sullivan, Vollebek Ltd.  
May 11, 2023  
Sheet 3 added February 16, 2024  
Scale 1 : 500

Metric  
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND  
CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Notes & Legend

- |        |                                  |                         |
|--------|----------------------------------|-------------------------|
| — OHW  | Derivates                        | — Overhead Wires        |
| ○ UP   | Utility Pole                     | — Utility Pole          |
| — AN   | Anchor                           | — Catch Basin           |
| — CB   | Catch Basin                      | — Top of Grate          |
| — T/G  | Top of Grate                     | — Corrugated Steel Pipe |
| — CSP  | Corrugated Steel Pipe            | — Plastic Pipe          |
| — CP   | Plastic Pipe                     | — Top of Pipe           |
| — T/P  | Top of Pipe                      | — Invert                |
| — Inv. | Invert                           | — Deciduous Tree        |
| —      | Deciduous Tree                   | —                       |
| —      | Confession Tree                  | —                       |
| —      | Diameter                         | —                       |
| —      | Location of Elevations           | —                       |
| —      | Elevations on Top of Curb / Wall | —                       |
| —      | Top of Slope                     | —                       |
| —      | Bottom of Slope                  | —                       |
| —      | Centreline                       | —                       |
| —      | Property Line                    | —                       |
| —      | Pool & Wire Fence                | —                       |
| —      | Sign                             | —                       |
| —      | Maintenance Hole (Bell)          | —                       |
| —      | Maintenance Hole (Traffic)       | —                       |
| —      | Maintenance Hole (Uncovered)     | —                       |
| —      | Bell Terminal Box                | —                       |
| —      | Undersized Terminal Box          | —                       |
| —      | Wood Pole                        | —                       |
| —      | Rail Road Signal Light           | —                       |
| —      | Rail Road Switch Box             | —                       |

ELEVATION NOTES

- Elevations shown are geodetic and are referred to the CGVD2013 geoid datum.
- It is the responsibility of the user of the information to verify that the job benchmark has not been altered or disturbed and that its relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

- This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
- Only visible surface utilities were located.
- A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, grading, excavating, etc.

**SHEET 1 OF 3**  
West Location - Station Lane & Moulinette Road

NOTES:

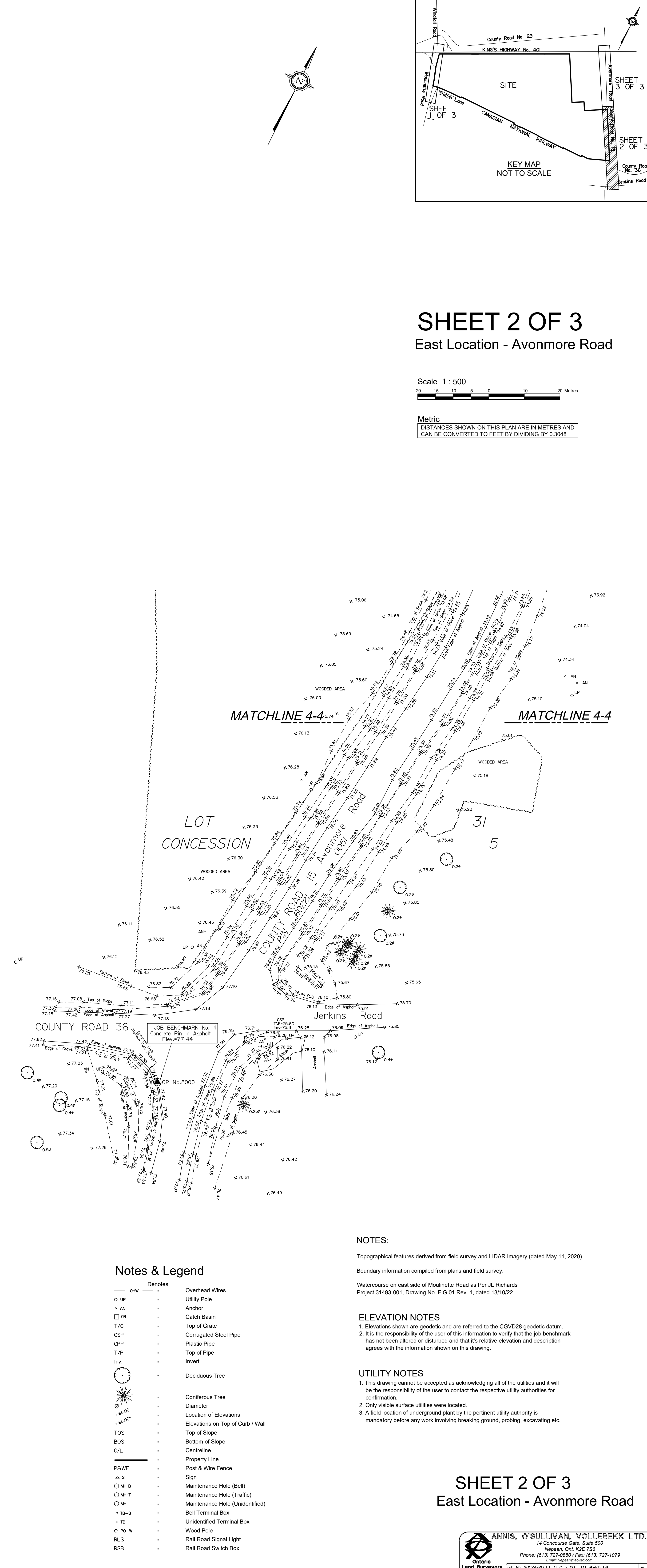
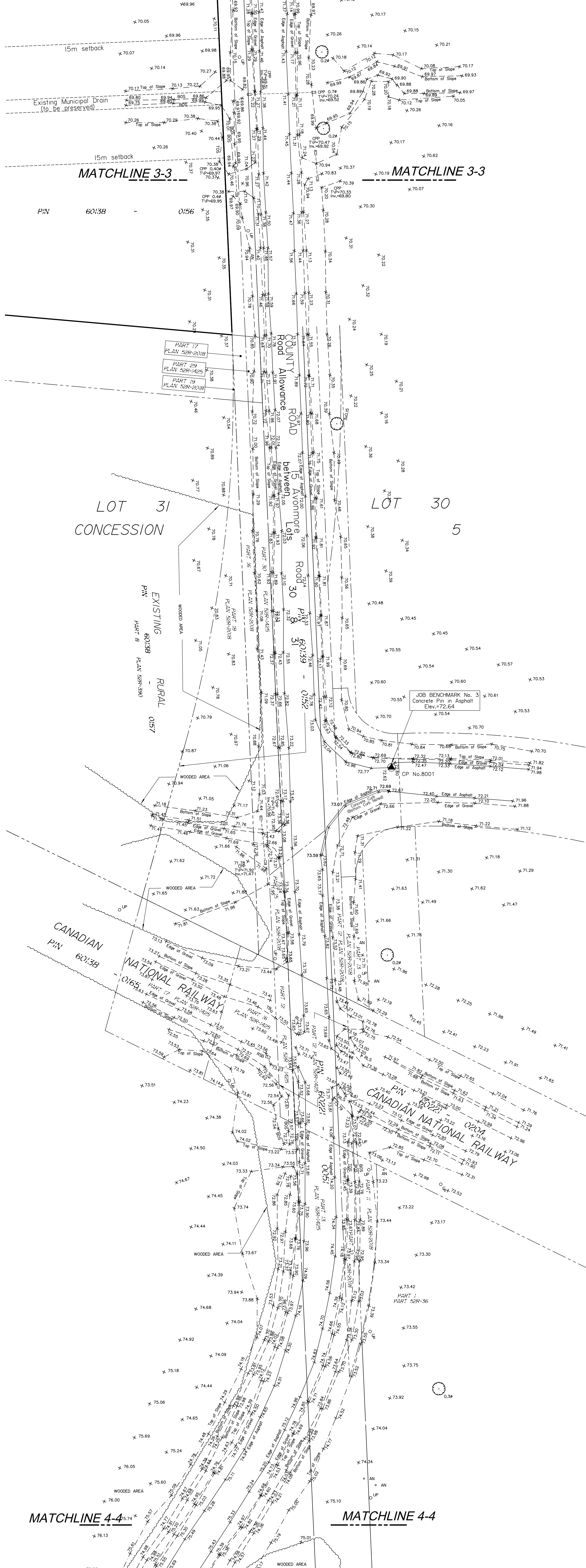
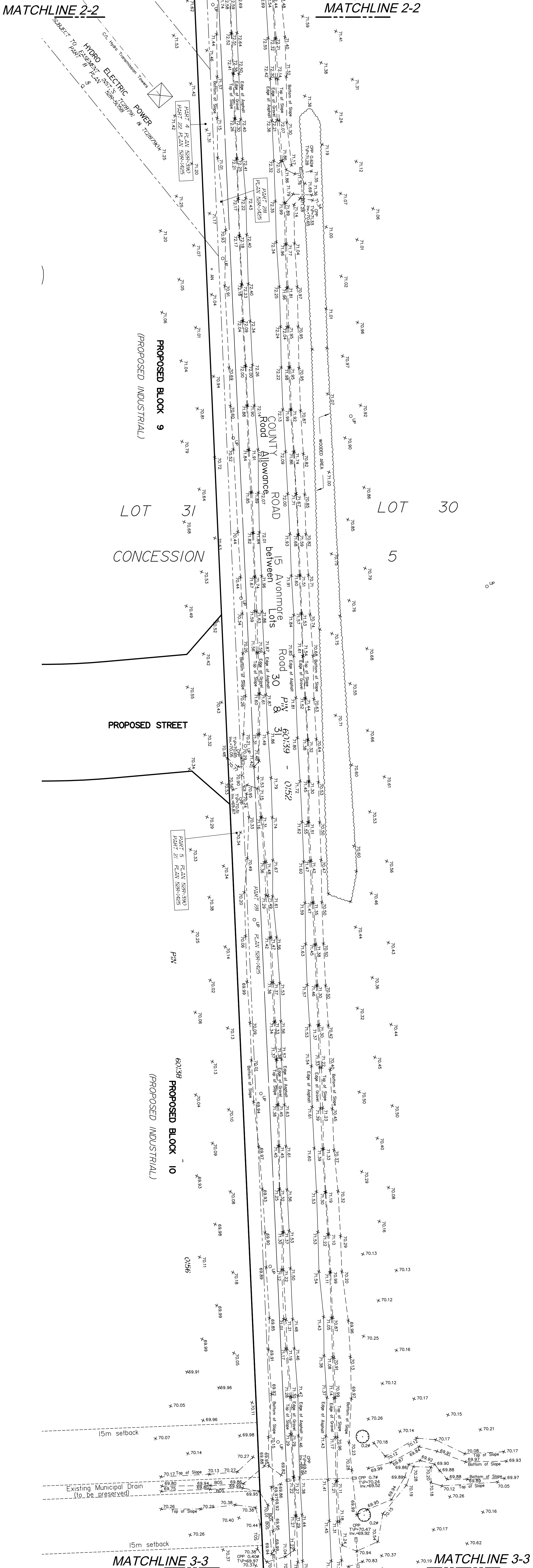
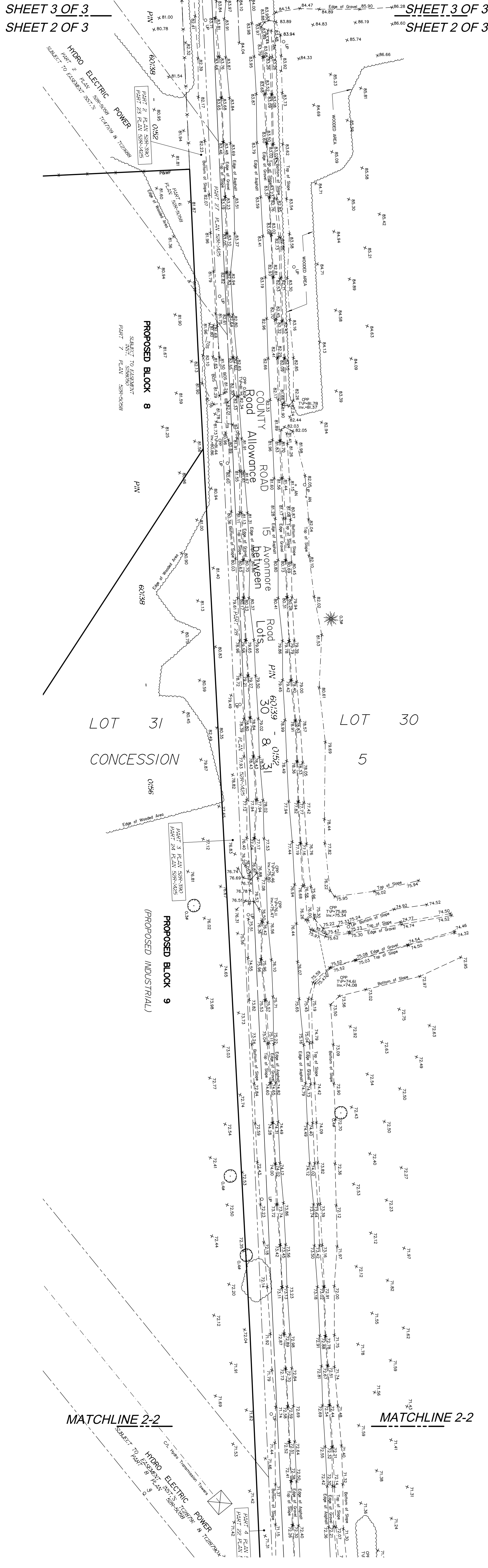
Topographical features derived from field survey and LIDAR imagery (dated May 11, 2020)

Boundary information compiled from plans and field survey

Watercourse on east side of Moulinette Road as Per J. Richards

Project 31493-001, Drawing No. FIG 01 Rev. 1, dated 03/10/22





Notes & Legend

- Denotes
- UP - Overhead Wires
  - AK - Utility Pole
  - CB - Catch Basin
  - T/G - Top of Grate
  - CSP - Corrugated Steel Pipe
  - CP - Plastic Pipe
  - T/P - Top of Pipe
  - Inv - Invert
  - Deciduous Tree
  - Coniferous Tree
  - Diameter
  - Location of Elevations
  - Elevations on Top of Curb / Wall
  - TOS - Top of Slope
  - BOS - Bottom of Slope
  - CA - Contour
  - Property Line
  - P&W - Post & Wire Fence
  - Sign
  - M&B - Maintenance Hole (Bell)
  - M&T - Maintenance Hole (Traffic)
  - M&H - Maintenance Hole (Unidentified)
  - BT - Bell Terminal Box
  - TS - Undersigned Terminal Box
  - W&P - Wood Pole
  - RLS - Rail Road Signal Light
  - RSB - Rail Road Switch Box

NOTES:

Topographical features derived from field survey and LIDAR Imagery (dated May 11, 2020)

Boundary information compiled from plans and field survey.

Watercourse on east side of Moulinette Road as Per J. Richards  
Project 31493-001, Drawing No. FIG 01 Rev. 1, dated 13/10/22

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.

2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that its relative elevation and description agrees with the information shown on this drawing.

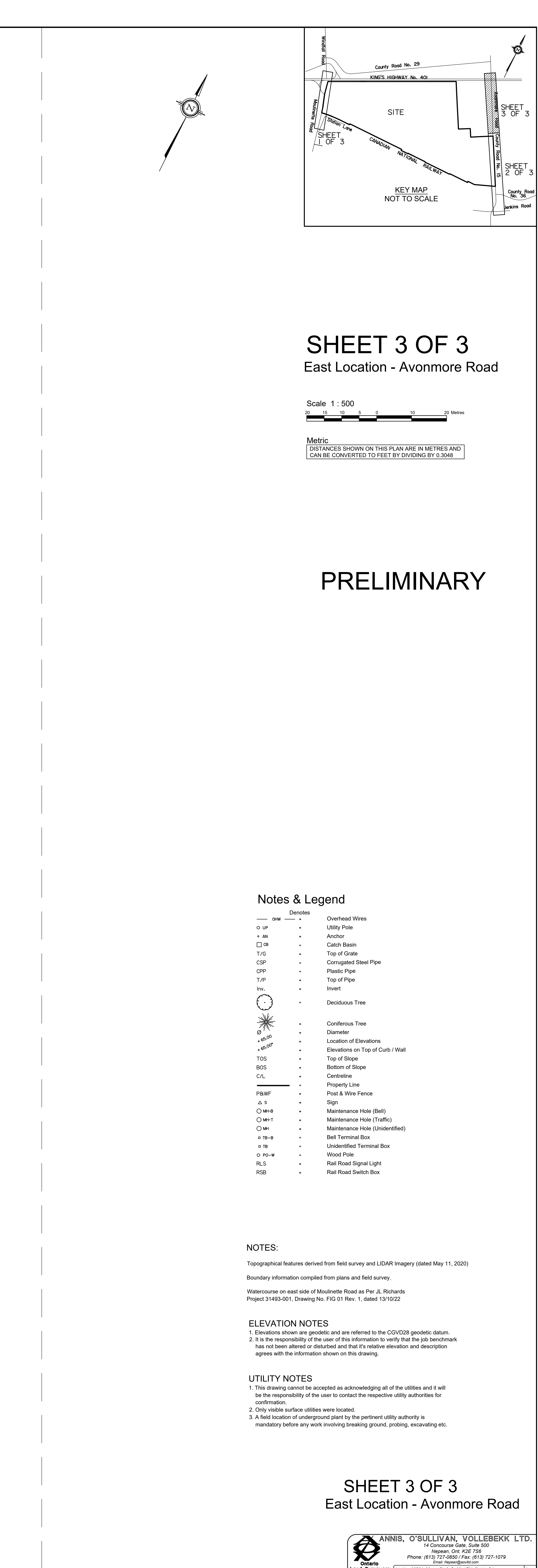
UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.

2. Only visible surface utilities were located.

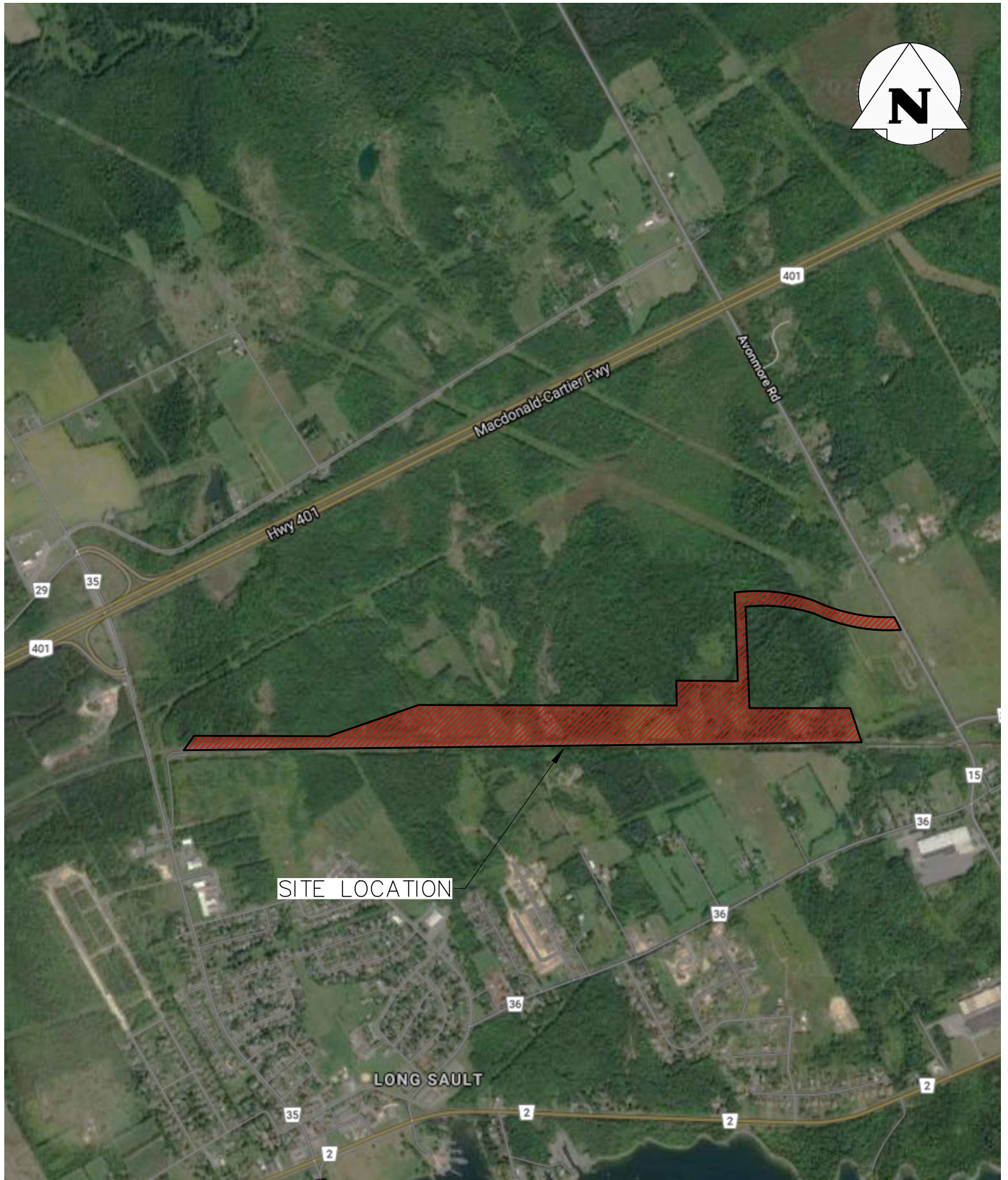
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.





# FIGURES





LONG SAULT LOGISTIC VILLAGE  
TOWNSHIP OF SOUTH STORMONT

SITE LOCATION



**CROZIER**  
CONSULTING ENGINEERS

211 YONGE STREET  
SUITE 600  
TORONTO, ON M5B 1M4  
416-477-3392 T  
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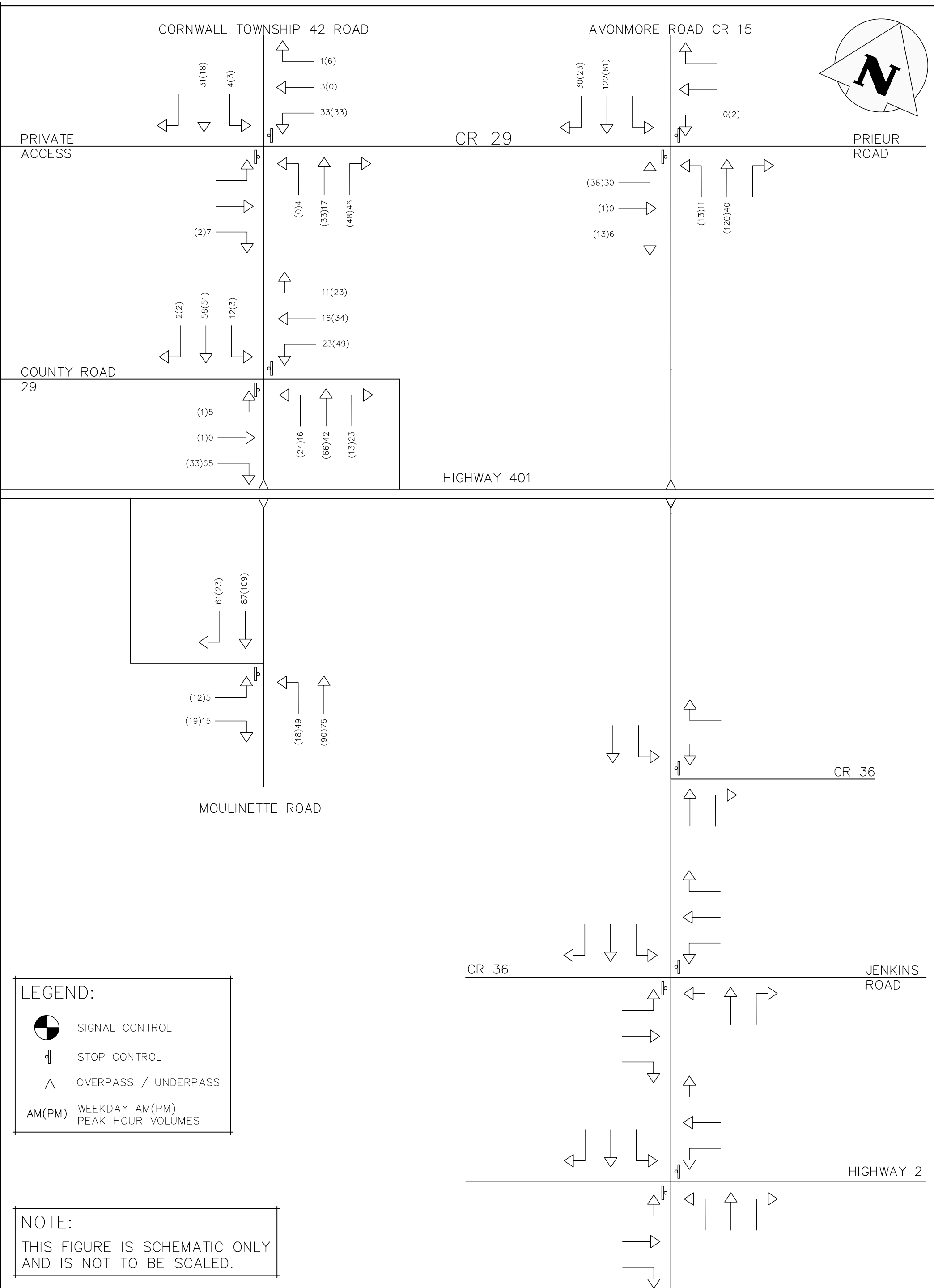
Drawn	R.L.	Design	A.H.	Project No.	1909-5629
Date	2023/02/02	Check	A.H.	Scale	N.T.S.
				Dwg.	FIG. 1







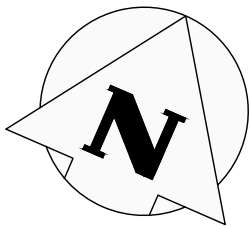






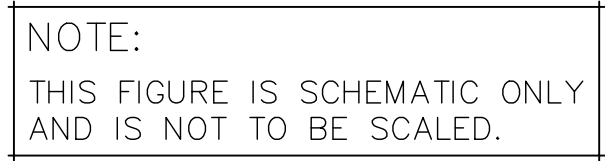






**CROZIER**  
CONSULTING ENGINEERS

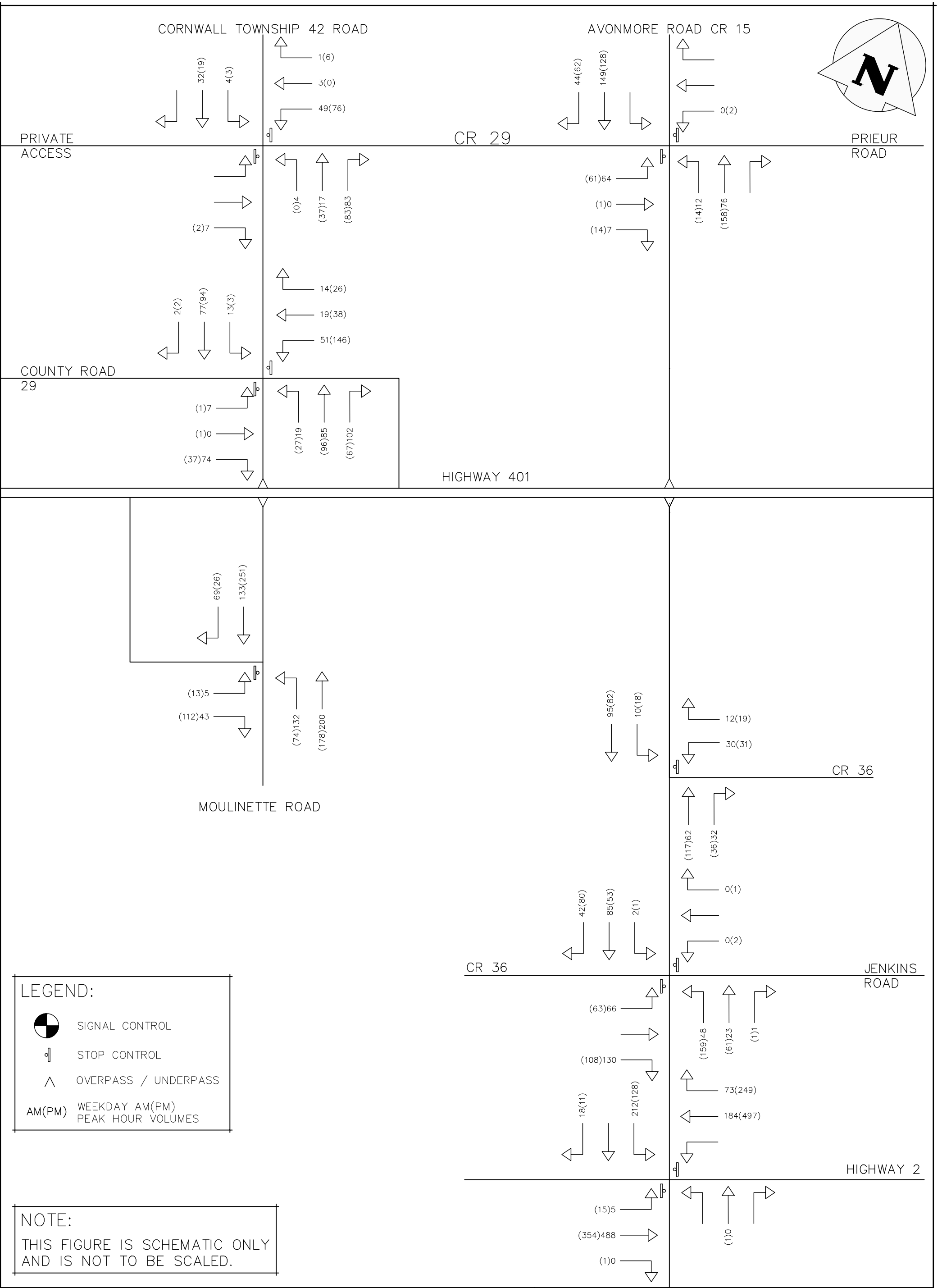
Drawn R.L.	Design A.H.	Project No. 1909-5629	
Date 2023/02/02	Check A.H.	Scale N.T.S.	Dwg. FIG. 9



Drawn R.L.	Design A.H.	Project No. 1909-5629	
Date 2023/02/02	Check A.H.	Scale N.T.S	Dwg. FIG. 10





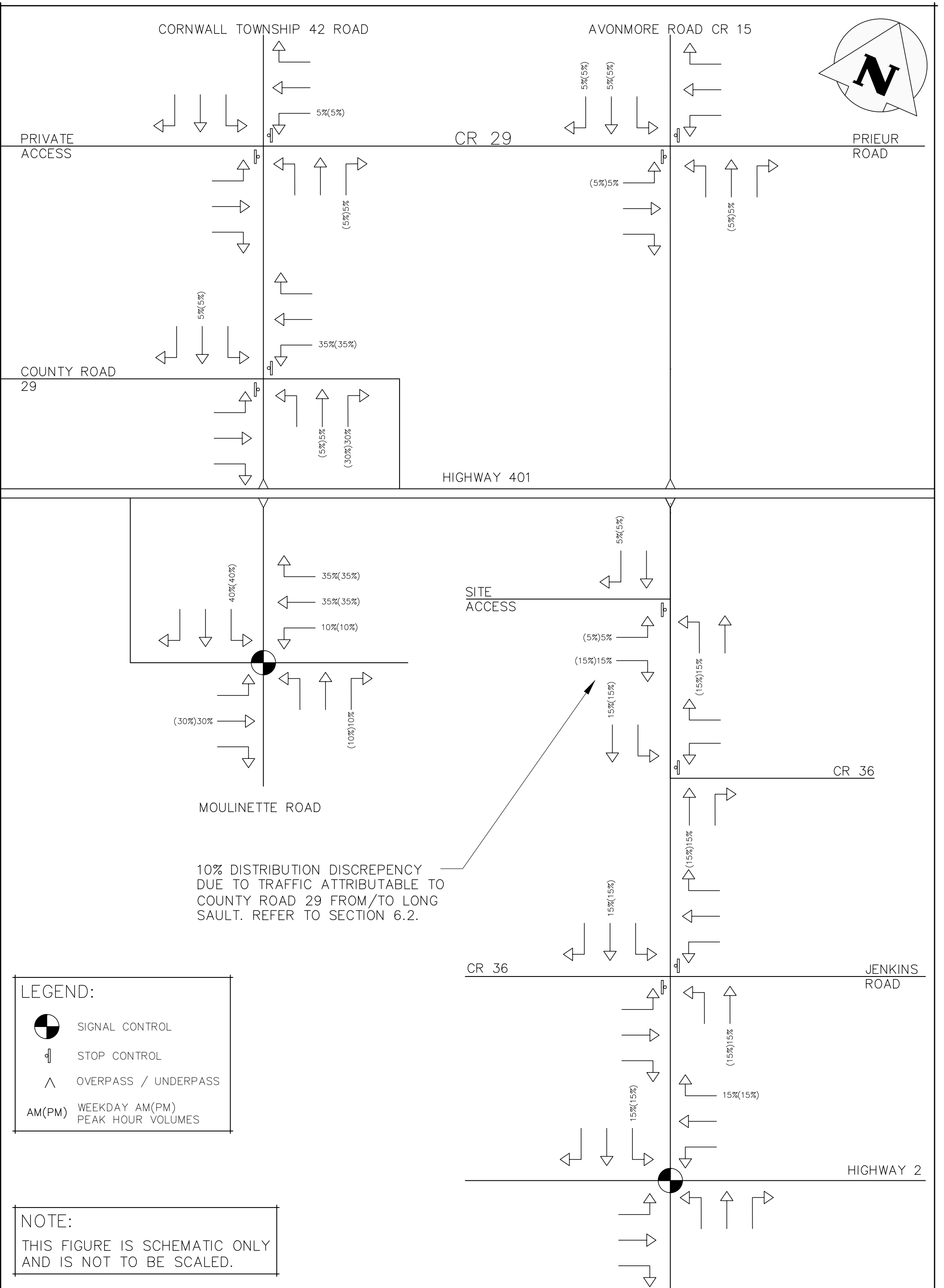













LONG SAULT LOGISTIC VILLAGE  
TOWNSHIP OF SOUTH STORMONT

SITE GENERATED TRIP DISTRIBUTION:  
VEHICLES



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211 YONGE STREET  
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Drawn	R.L.	Design	A.H.	Project No.	1909-5629	
Date	2023/02/02	Check	A.H.	Scale	N.T.S	Dwg. FIG. 17

