Armstrong Estates
Township of Mulmur

Traffic Impact Study for
1000062217 Ontario Inc.

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John Northcote, P.Eng.
Professional License #: 100124071

ENGINEERING

JD Northcote Engineering Inc.
86 Cumberland Street
Barrie, ON
705.725.4035
www.JDEngineering.ca

Legal Notification

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Executive Summary

This report summarizes the traffic impact study prepared for a proposed development located in the northeast quadrant of the Airport Road (County Road 18) / County Road 17 intersection in the Township of Mulmur [Township], County of Dufferin [County]. The report assesses the impact of traffic related to the proposed development on the adjacent roadway and provides recommendations to accommodate this traffic in a safe and efficient manner.

The proposed residential development is anticipated to consist of 43 single family detached units and 28 semi-detached units.

The proposed development is anticipated to include one full movement access onto County Road 18 [Street 'A'] and one full movement access onto County Road 17 opposite of Thomson Trail [Street 'C'].

The scope of this analysis includes a review of the following intersections:

- County Road 18 / County Road 17;
- County Road 18 / Street 'A'; and
- Street 'C' & Thompson Trail / County Road 17.

Conclusions

1. The proposed development is expected to generate a total of 50 weekday AM, 67 weekday / Friday PM and 59 Sunday PM peak hour trips.
2. Detailed turning movement traffic and pedestrian counts for the County Road 18 / County Road 17 intersection were commissioned by JD Engineering.
3. An intersection operation analysis was completed at the study area intersections, using the existing (2024) and background (2027, 2032 and 2037) traffic volumes, without the proposed development traffic. This enabled a review of existing and future traffic deficiencies that would be present without the influence of the proposed development. No geometric lane improvements or traffic signal improvements are recommended within the study area.
4. An estimate of the amount of traffic that would be generated by the proposed development was prepared and assigned to the study area streets and intersections.
5. An intersection operation analysis was completed under total (2027, 2032 and 2037) traffic volumes with the proposed development operational at the study area intersections. No geometric lane improvements or traffic signal improvements are recommended within the study area.
6. Street 'A' will operate efficiently as full-movement accesses, with one-way stop control for the westbound movements. A single eastbound and westbound lane at Street 'A' will provide the necessary capacity to service the proposed development.
7. Street 'C' will operate efficiently as full-movement access, with two-way stop control for the northbound and southbound movements. A single northbound and southbound lane at Street 'C' will provide the necessary capacity to service the proposed development.
8. County Road 18 will need to be reconstructed to improve the vertical curve and sight distance. Preliminary plan and profile drawings are provided in Appendix H.
9. With the above-noted road reconstruction, the sight distance available for Street 'A' and Street 'C' are suitable for their intended use.

10. In summary, the proposed development will not cause any operational issues and will not add a notable delay or congestion to the local roadway network.

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1 Introduction

1.1 Background

1000062217 Ontario Inc. [The Developer] is proposing to develop a residential subdivision, located in the northeast quadrant of the Airport Road (County Road 18) / County Road 17 intersection in the Township of Mulmur [Township], County of Dufferin [County].

The proposed residential development is anticipated to consist of 43 single family detached units and 28 semi-detached units.

The proposed development is anticipated to include one full movement access onto County Road 18 [Street 'A'] and one full movement access onto County Road 17 opposite of Thomson Trail [Street 'C'].

The Developer has retained **JD Northcote Engineering Inc.** [JD Engineering] to prepare this traffic impact study in support of the proposed development.

1.2 Study Area

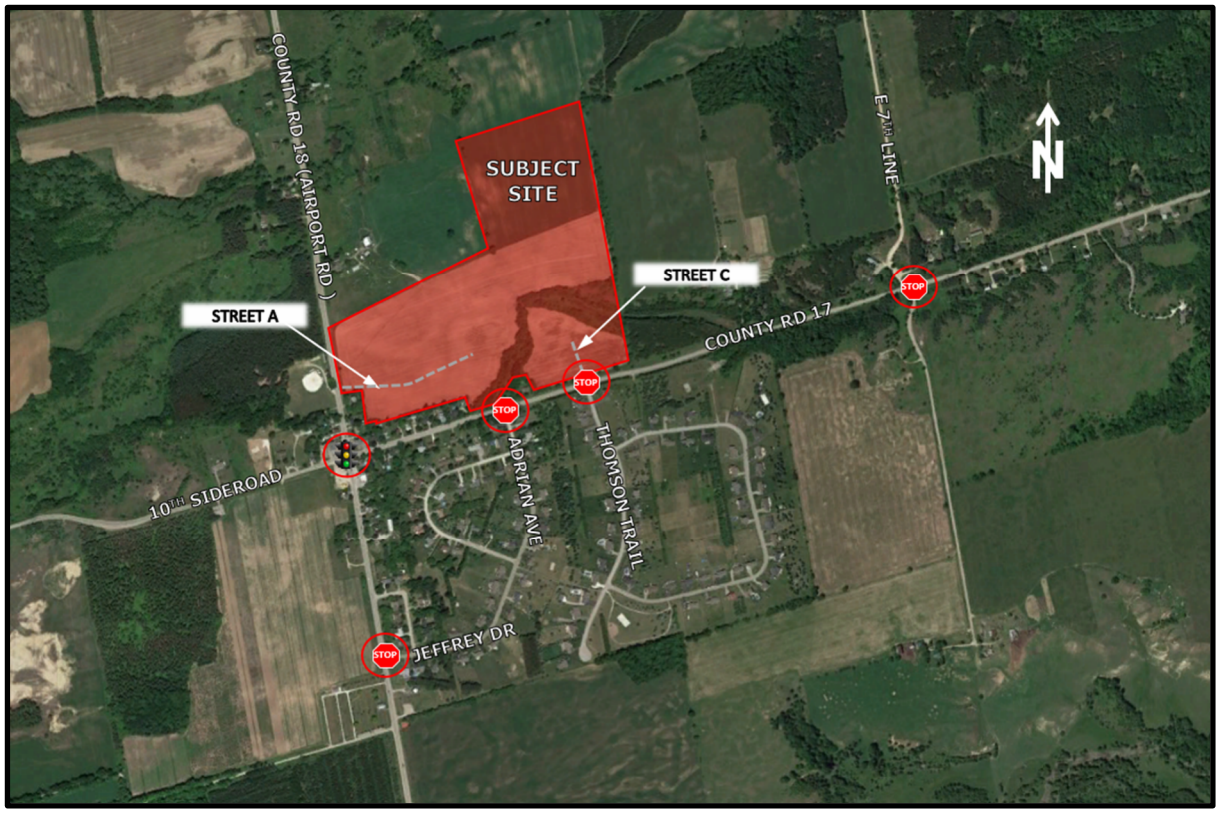
Figure 1 shows the location of the proposed development and study area intersections, in relation to the surrounding area. The Site Plan by IPS Consulting Inc. is provided in **Appendix A**.

The proposed development is bound by County Road 18 to the west, residential lands and County Road 17 to the south and agricultural/rural lands to the north and east.

Based on our correspondence with the Township and County, the following intersections will be analysed as part of this study:

- County Road 18 / County Road 17;
- County Road 18 / Street 'A'; and
- Street 'C' & Thompson Trail / County Road 17.

Figure 1 – Proposed Site Location and Study Area



1.3 Study Scope and Objectives

The purpose of this study is to identify the potential impacts to traffic flow at the site access and on the surrounding roadway network. The study analysis includes the following tasks:

- Consult with the Township and County to address any traffic-related issues or concerns they have with the proposed development;
- Determine existing traffic volumes and circulation patterns;
- Estimate future traffic volumes if the proposed development was not constructed, including the impact of additional proposed developments in the area;
- Complete level-of-service [LOS] analysis of horizon year (without the proposed development) traffic conditions and identify operational deficiencies;
- Estimate the amount of traffic that would be generated by the proposed development and assign to the roadway network;
- Complete LOS analysis of horizon year (with the proposed development) traffic conditions and identify additional operational deficiencies;
- Identify improvement options to address operational deficiencies; and
- Document findings and recommendations in a final report.

1.4 Horizon Year and Analysis Periods

Traffic scenarios for the existing year (2024), build-out year (2027), 5-year post build-out year (2032) , and 10-year post build out year (2037) were selected for analysis of traffic operations in the study area.

The weekday morning [AM] , weekday afternoon [PM], Friday afternoon [Friday PM] and Saturday afternoon [Saturday PM] peak hours have been selected as the analysis periods for this study.

2 Information Gathering

2.1 Street and Intersection Characteristics

County Road 18 (Airport Road) is a two-lane arterial road with no sidewalks. County Road 18 generally has an urban cross-section and an asphalt 'killstrip' within 100 metres of County Road 17 and generally has a rural cross-section with asphalt shoulders elsewhere within the study area. County Road 18 has a posted speed of 50km/h south of the north end of the subject site and a posted speed limit of 70 km/h north of the north end of the subject site within the study area. County Road 18 is under the jurisdiction of the County within the study area.

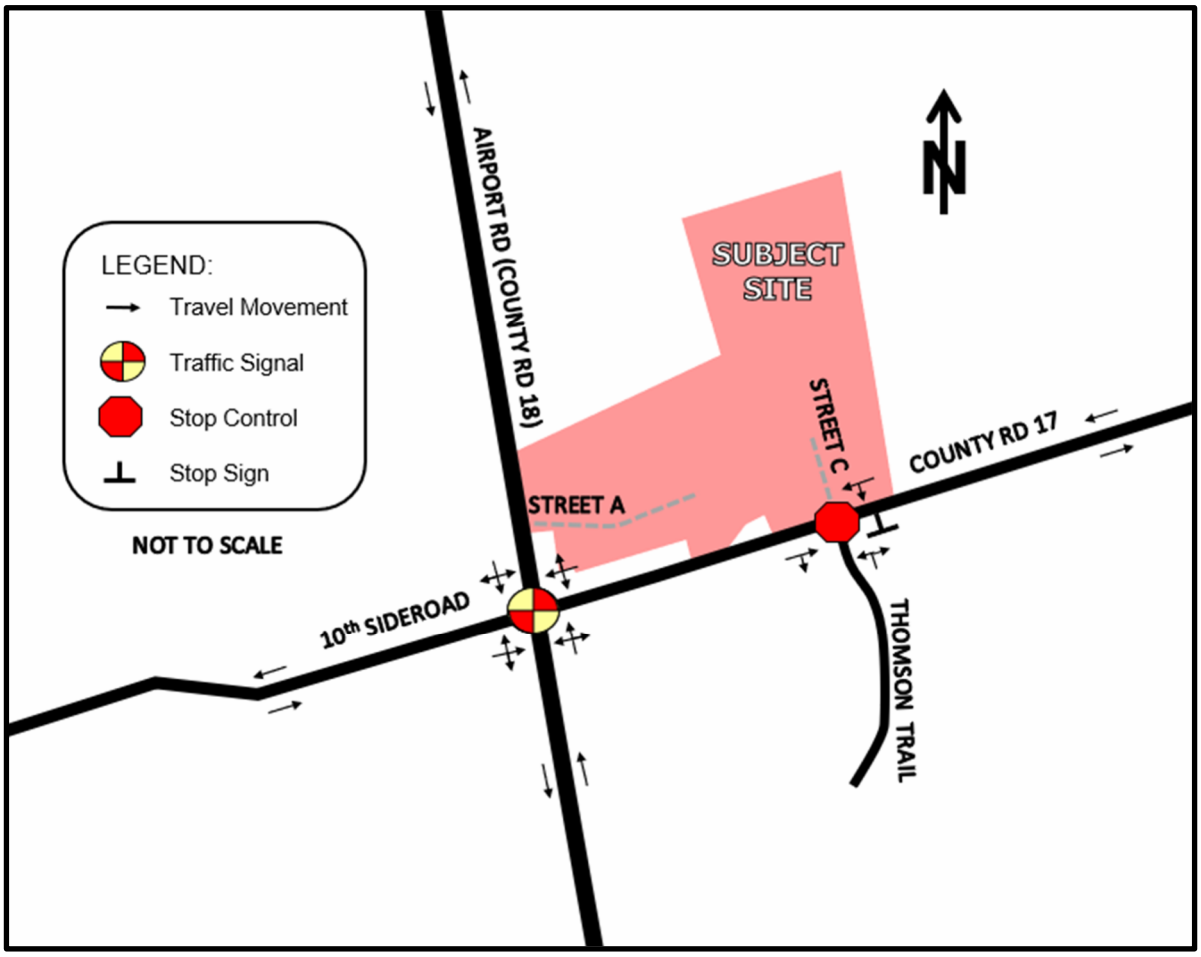
10th Sideroad is a two-lane collector road. 10th Sideroad, west of County Road 18, has a rural cross-section, a gravel shoulder on both sides of the road, a speed limit of 50km/h and is under the jurisdiction of the Township.

County Road 17 is a two-lane collector road, east of County Road 18. County Road 17 has an urban cross section, an asphalt 'killstrip' on both sides of the road from 60 metres west of Adrian Avenue to County Road 18. East of this area, County Road 17 has a rural cross section, gravel shoulders on both sides of the road. County Road 17 has a posted speed limit of 50km/h from 100 metres east of Thompson Trail to County Road 18. East of this area, County Road 17 has a posted speed limit of 70km/h. County Road 17 is under the jurisdiction of the County.

Thomson Trail is a two-lane local road with a rural cross-section. Thomson Trail has gravel shoulders on both sides of the road, an assumed (unposted) speed limit of 50 km/h and is under jurisdiction of the Township.

The existing lane configuration within the study area is illustrated in **Figure 2**.

Figure 2 – Existing Lane Configuration within Study Area



2.2 Local Transportation Infrastructure Improvements

Based on a review of the County's 2024 Capital Budget Package, County Road 17 and County Road 18 are anticipated to be resurfaced in 2029. These improvements are not anticipated to significantly change traffic operations within the study area. There are no other infrastructure improvements anticipated within the study area.

2.3 Transit Access

There is no municipal transit service within the study area.

2.4 Background Growth Rate

2.4.1 Population Growth

According to the 2021 census profile, the Township of Dufferin experienced a population increase from 61,735 in 2016 to 66,257 in 2021. This represents an average annual growth rate of 1.4% over the five-year period.

For the Township of Mulmur, the population grew from 3,478 in 2016 to 3,571 in 2021. This translates to an average annual growth rate of 0.5% during the same period.

2.4.2 Historic Traffic Growth

The historic traffic growth rate on County Road 18 and County Road 17 has been calculated based on the 24-hour data published by the County on their GIS mapping portal. The detailed calculation of selected growth rate is tabulated below in **Table 1**.

Table 1- Growth Rate

	Year	24-Hr	% change
Country Road 18 (North of Country Road 17)	2009	4715	
	2010	4236	-10.2%
	2011	4474	5.6%
	2012	4256	-4.9%
	2013	4956	16.4%
	2015	5840	8.6%
	2017	6537	5.8%
	2018	6537	0.0%
	2020	6269	
	2023	6680	0.4%
Average			**2.7%**
	Year	**24-Hr**	**% change**
Country Road 18 (South of Country Road 17)	2004	5018	
	2006	4937	-0.8%
	2009	4362	-4.0%
	2010	4310	-1.2%
	2011	4466	3.6%
	2012	4653	4.2%
	2014	4774	1.3%
	2015	4519	-5.3%
	2016	5556	22.9%
	2018	5611	0.5%
	2020	5601	
	2022	5427	
	2023	6109	1.7%
Average			**2.3%**
Country Road 18 overall	**Total Average**		**2.5%**

	Year	24-Hr	% change
Country Road 17 (East of Country Road 18)	2005	1167	
	2010	1483	4.9%
	2012	1786	9.7%
	2015	1811	0.5%
	2017	1989	4.8%
	2018	2060	3.6%
	2019	1965	-4.6%
	2022	1654	
	Total Average		**3.1%**

To maintain a conservative approach in our analysis, we have removed the data from 2020 and 2022 due to the distortions caused by the COVID-19 pandemic. The removal of the 2020 and 2022 data points leads to an increased background traffic growth rate.

2.5 Traffic Counts

Detailed turning movement traffic and pedestrian counts for the County Road 18 / County Road 17 intersection intersections were commissioned by JD Engineering.

Table 2 summarizes the traffic count data collection information.

Table 2– Traffic Count Data

Intersection (N-S Street / E-W Street)	Count Date	AM Peak Hour	PM Peak Hour	Friday PM Peak Hour	Sunday PM Peak Hour	Source
County Road 18 / County Road 17	Tuesday, June 19, 2024	07:30 – 8:30	16:15 – 17:15	17:15 – 18:15	16:15 – 17:15	JD Eng.*

*Traffic counts were completed by Accu-Traffic Inc. on behalf of JD Engineering.

Detailed traffic count data can be found in **Appendix B**. The peak hours of traffic generation for the study area intersections are generally aligned with the anticipated peak hour of traffic generation by the proposed development.

Heavy vehicle percentages from the traffic count data have also been included in the Synchro analysis.

2.5.1 Calculation of Existing (2024) Traffic Volumes

2.5.1.1 County Road 17 / Thomson Trail

The eastbound and westbound through traffic volumes on County Road 17 at this intersection were estimated based on the traffic volumes at the east side of the of the County Road 18 / County Road 17 intersection.

The traffic volumes entering and exiting Thomson Trail intersection have been calculated based on the ITE Trip Generation Manual 11th Edition. The following ITE land uses have been applied to estimate the traffic from the existing Thomson Trail residential area:

- ITE land use 210 (Single-Family Detached Housing) – General Urban / Suburban Setting.

The estimated trip generation of the existing Thomson Trail residential area is illustrated below in **Table 3**. The weekday AM, weekday/Friday PM and Sunday PM peak traffic generation for the existing Thomson Trail residential area is not expected to exactly align with the weekday AM, weekday/Friday PM and Sunday PM peak hour in the traffic counts; consequently, we have applied the peak hour of adjacent street traffic values provided in the ITE Trip Generation Manual 11th Edition for weekday AM and PM peak hour. We applied the weekday PM to our Friday PM peak hours, and Sunday peak hour of generator for the Sunday peak hour.
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Table 3 – Estimated Traffic Generation – Thomson Trail Residential Area

Land Use	Size	AM Peak Hour			PM / Friday PM Peak Hour			Sunday PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Single-Family Detached Housing ITE Land Use: 210	60 units*	11	31	42	36	20	56	26	24	50

*There are 60 residential units on Thomson Trail and Sommerville Crescent which only have access to the Township and County road network via Thomson Trail

The distribution of traffic for the existing Thomson Trail residential area has been calculated based on the 2016 Transportation Tomorrow Survey [TTS] data for traffic zone 8411 retrieved using the TTS Internet Data Retrieval System [IDRS] (output attached as **Appendix F**). TTS data provides historical origin and destination work trip percentages for specific areas within the County and the Greater Toronto and Hamilton Area [GTHA].

Traffic distribution for the trips generated by the Thompson Trail residential area during the AM and PM peak hour is expected to generally follow commuter travel patterns. Our analysis is based on egress traffic during the AM peak hour. Logically, the distribution of ingress traffic will follow the inverse of the exiting traffic distribution. For each of the individual areas identified in the TTS data, we have selected the probable route of travel, assuming that people will select their route primarily based on travel time.

The distribution of traffic for the existing Thomson Trail residential area is illustrated in **Table 4** using the methodology outlined above.

Table 4 – Thomson Trail Residential Area Traffic Distribution

Travel Direction (to/from)	Percentage of Total Traffic Generation
West via 10th Sideroad	11%
East via County Road 17	23%
South via County Road 18	59%
North via County Road 18	7%
Total	**100%**

Figure 3 illustrates the existing (2024) AM and PM peak hour traffic volumes within the study area.

Figure 4 illustrates the existing (2024) Friday PM and Sunday PM peak hour traffic volumes within the study area.

2.6 Horizon Year Traffic Volumes

The background traffic growth rate discussed in Section 2.5 has been applied to the existing traffic volumes to estimate the background (2027, 2032 and 2037) horizon year traffic volumes.

Figures 5, 6, and 7 illustrate the background (2027, 2032 and 2037) horizon year AM and PM peak hour traffic volumes in the study area. **Figures 8, 9, and 10** illustrate the background (2027, 2032 and 2037) horizon year Friday PM and Sunday PM peak hour traffic volumes in the study area.

Figure 3 - Existing Traffic Volume (2024) AM and PM peak hour

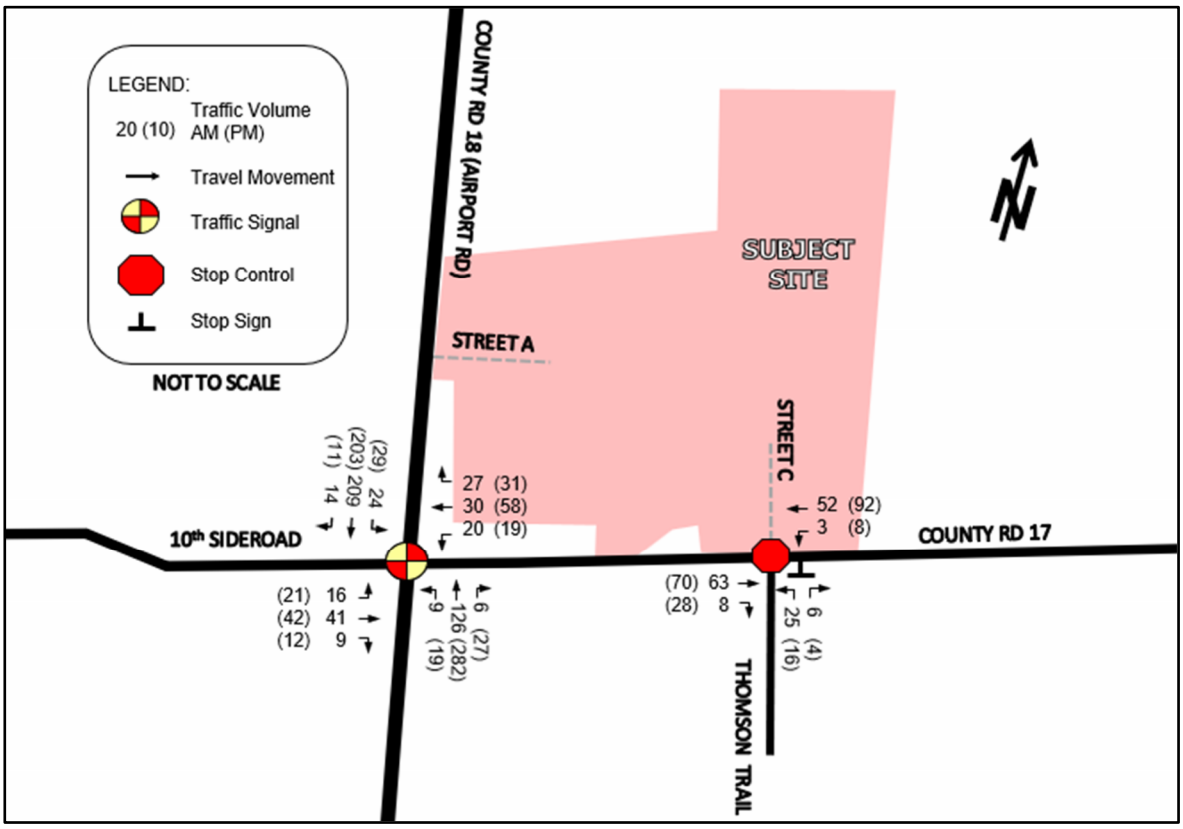


Figure 4- Existing Traffic Volume (2024) Friday PM and Sunday PM peak hour

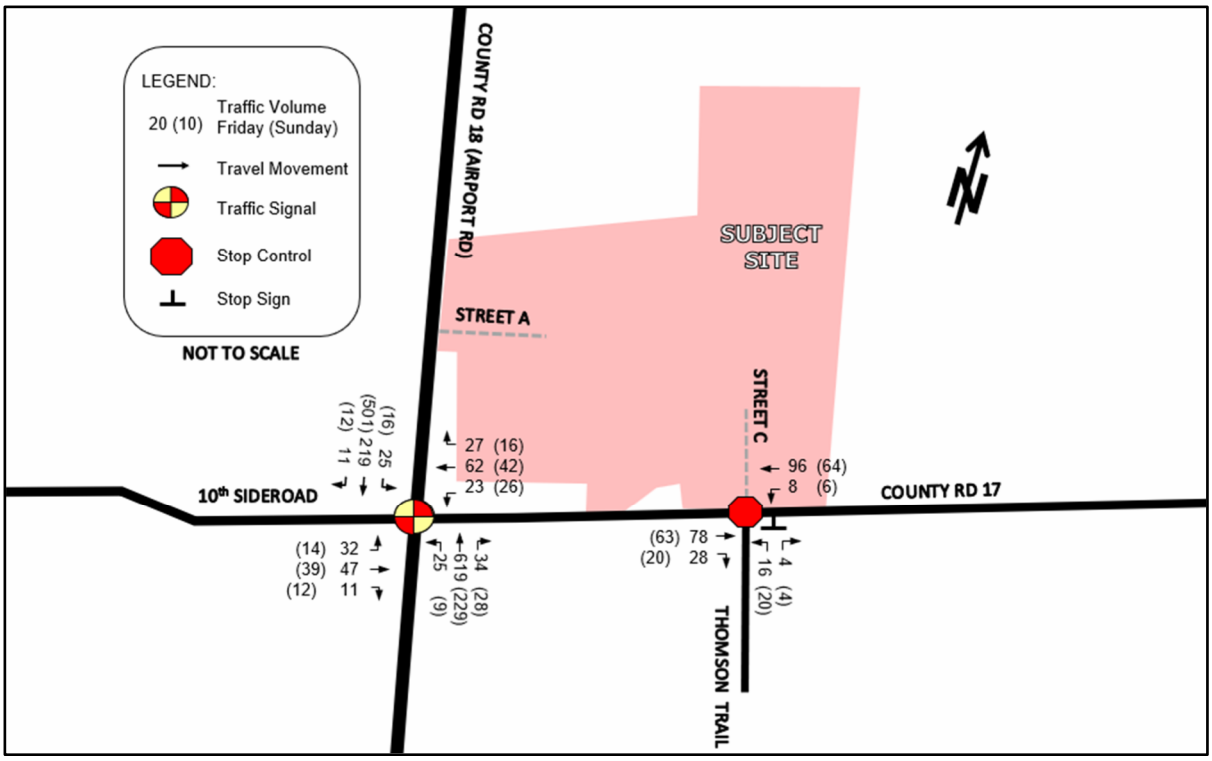


Figure 5 – Background Traffic Volume (2027) AM and PM peak hour

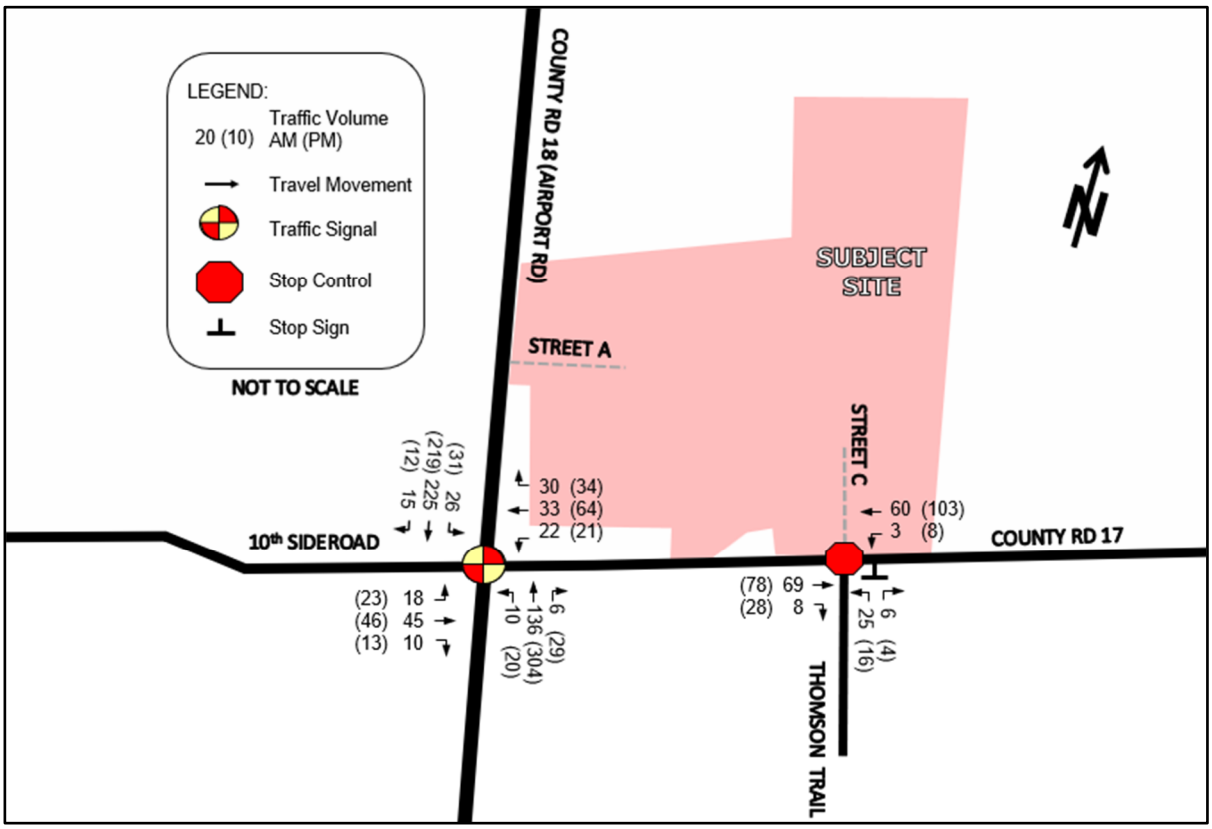


Figure 6 – Background Traffic Volume (2032) AM and PM peak hour

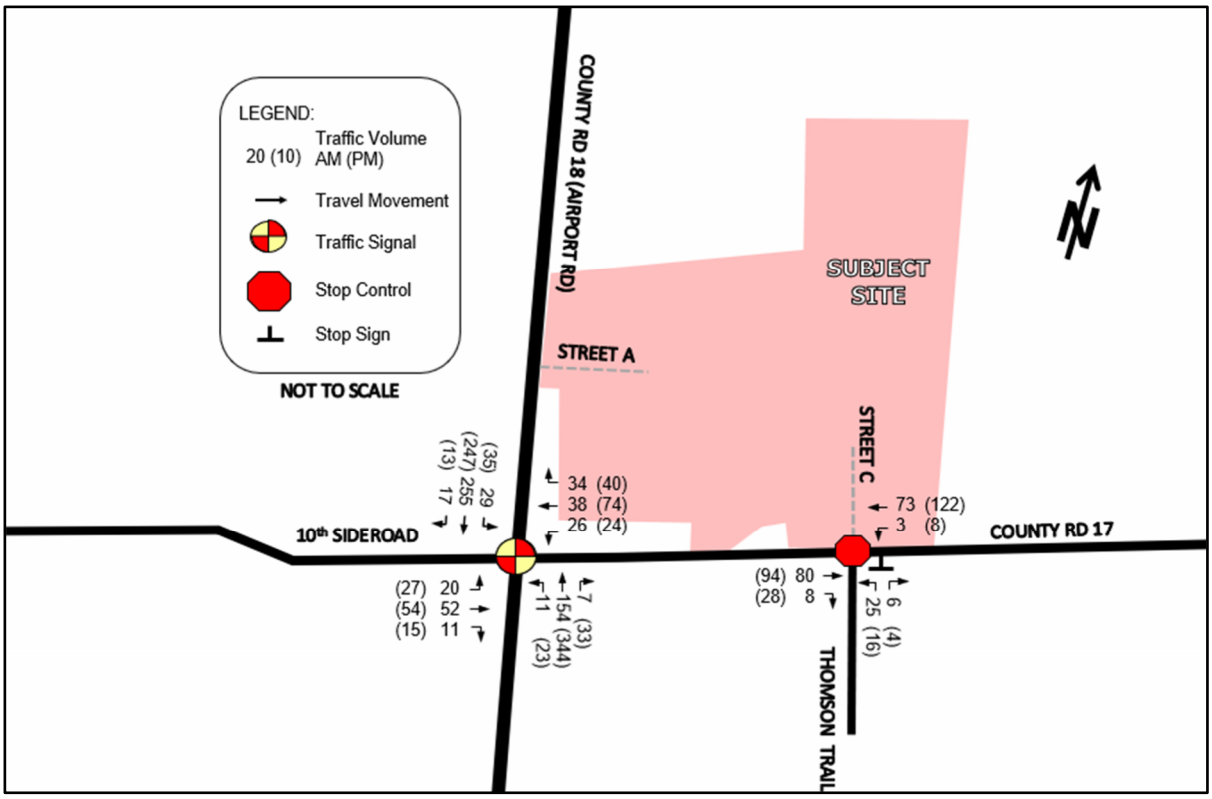


Figure 7– Background Traffic Volume (2037) AM and PM peak hour

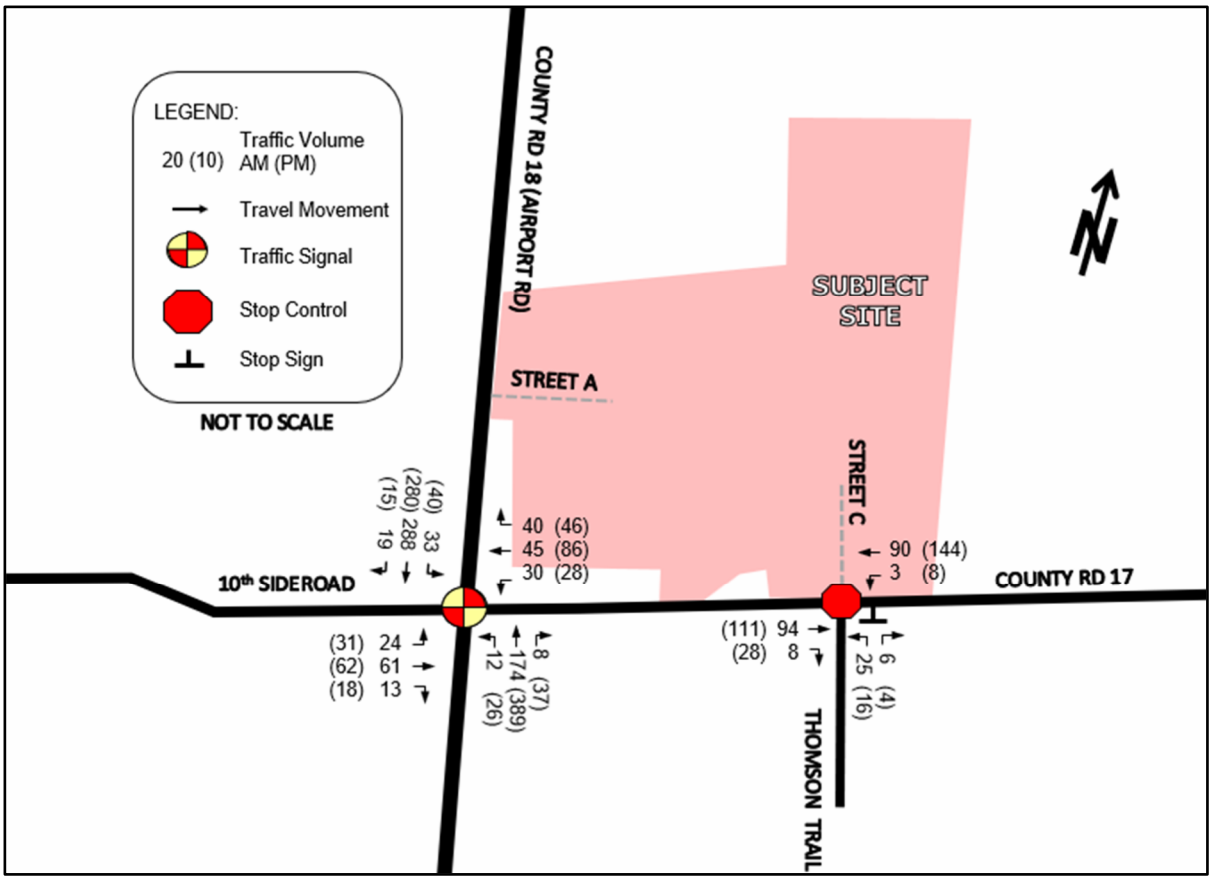


Figure 8- Background Traffic Volume (2027) Friday PM and Sunday PM peak hour

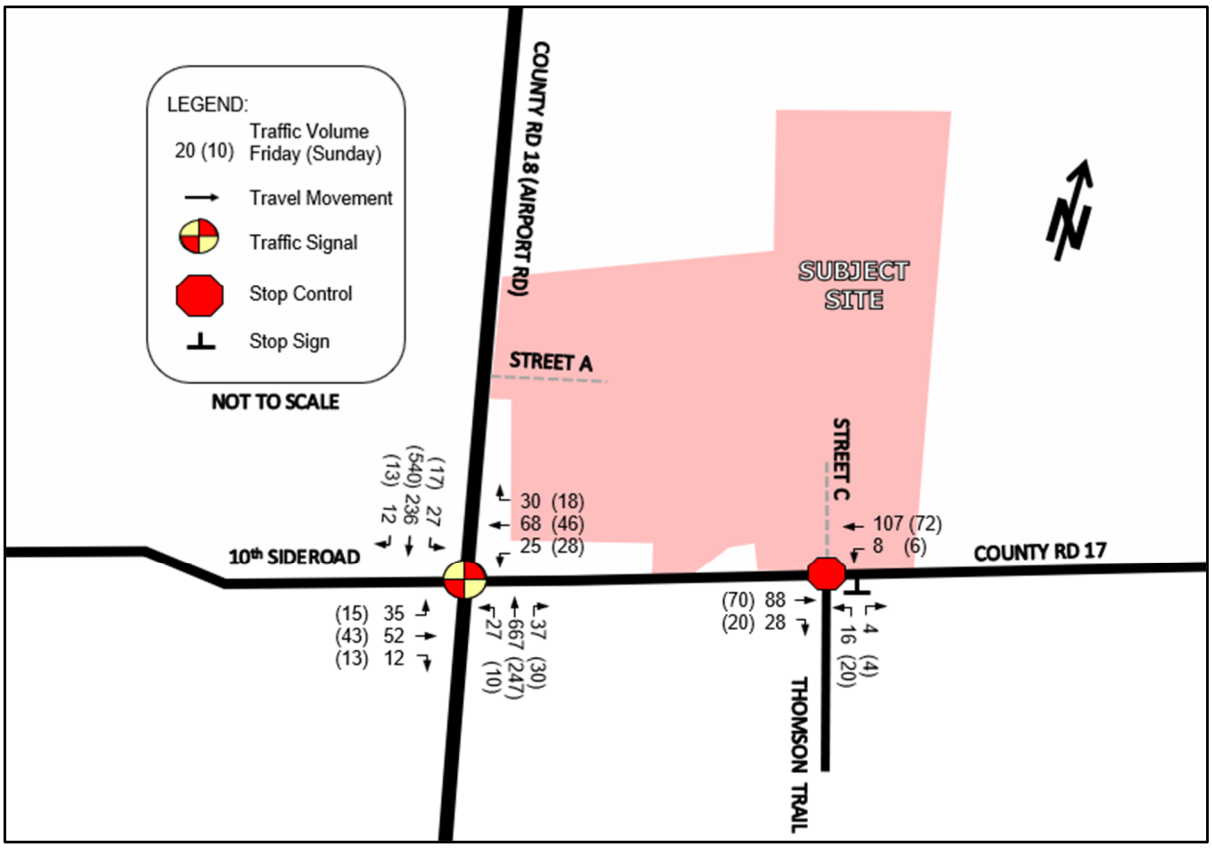


Figure 9- Background Traffic Volume (2032) Friday PM and Sunday PM peak hour

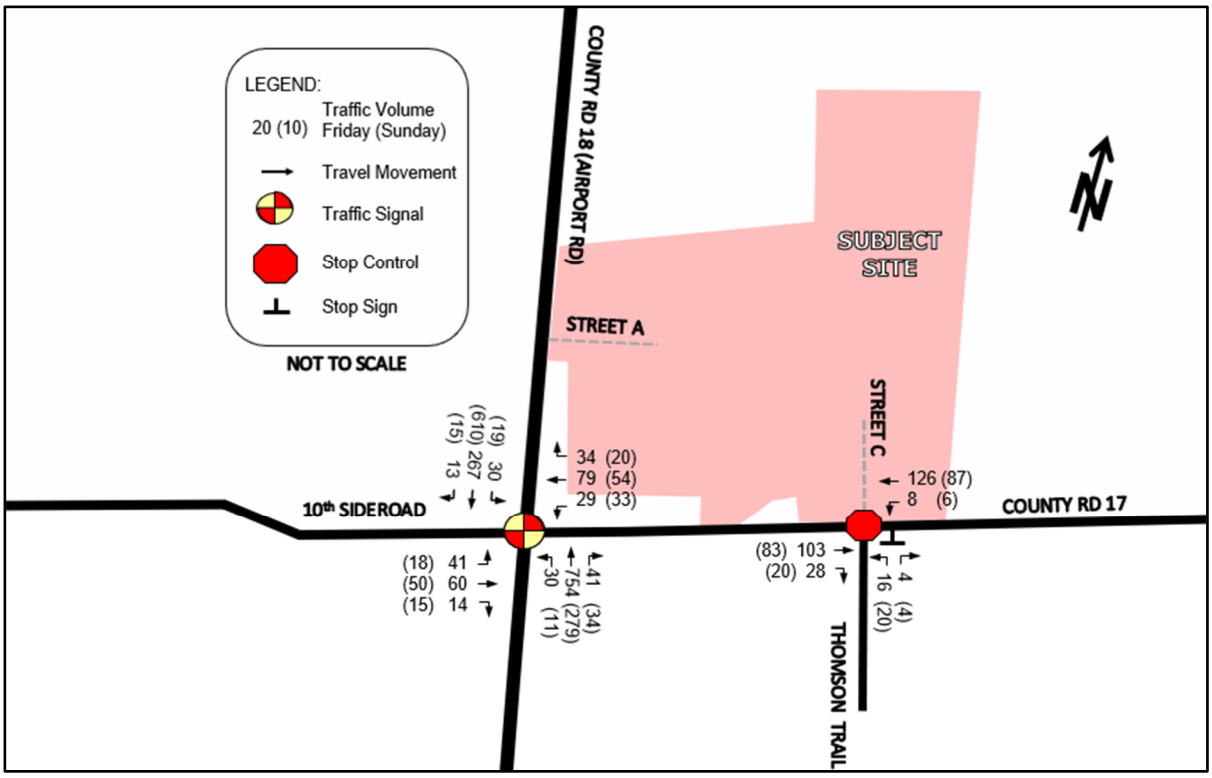
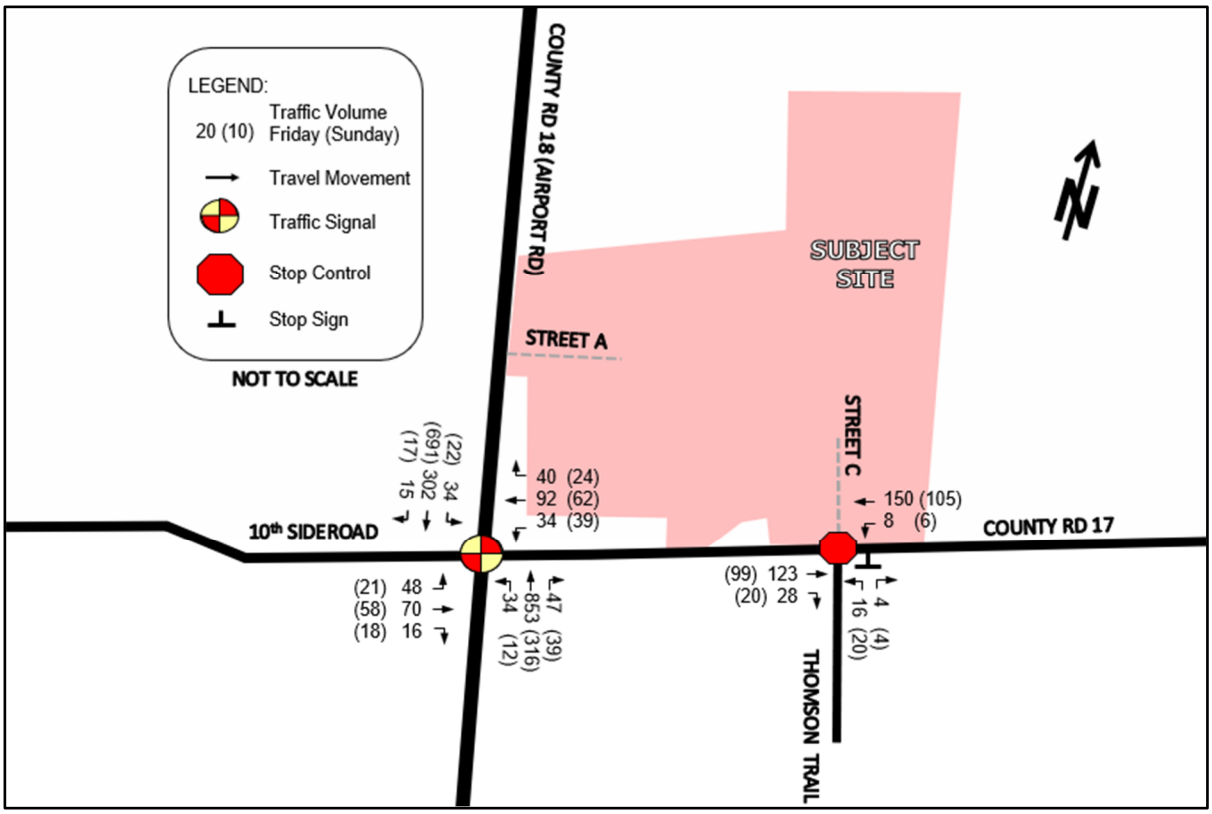


Figure 10- Background Traffic Volume (2037) Friday PM and Sunday PM peak hour



3 Intersection Operation without Proposed Development

3.1 Introduction

The existing year operational conditions were established to determine how the street network within the study area is currently functioning without the proposed development. This provides a base case scenario to compare with future development scenarios. Traffic operations within the study area were evaluated using the 2021 traffic volumes with the existing road configuration and traffic control. The intersection performance was measured using the traffic analysis software, Synchro 11, a deterministic model that employs Highway Capacity Manual and Intersection Capacity Utilization methodologies for analyzing intersection operations. These procedures are accepted by provincial and municipal agencies throughout North America.

Synchro 11 enables the study area to be graphically defined in terms of streets and intersections, along with their geometric and traffic control characteristics. The user is able to evaluate both signalized and unsignalized intersections in relation to each other, thus not only providing level of service for the individual intersections, but also enabling an assessment of the impact the various intersections in a network have on each other in terms of spacing, traffic congestion, delay, and queuing.

3.2 Intersection Capacity Analysis Criteria

Individual turning movements with a volume-to-capacity [V/C] ratio of 0.85 or greater are considered to be critical movements and have been highlighted in the LOS tables.

The intersection operations were also evaluated in terms of the LOS. LOS is a common measure of the quality of performance at an intersection and is defined in terms of vehicular delay. This delay includes deceleration delay, queue move-up time, stopped delay, and acceleration delay. LOS is expressed on a scale of A through F, where LOS A represents very little delay (i.e. less than 10 seconds per vehicle) and LOS F represents very high delay (i.e. greater than 50 seconds per vehicle for a stop sign controlled intersection and greater than 80 seconds per vehicle for a signalized intersection).

The LOS criteria for signalized and stop sign controlled intersections are shown in **Table 5**. A description of traffic performance characteristics is included for each LOS.

Table 5 – Level of Service Criteria for Intersections

LOS	LOS Description	Control Delay (seconds per vehicle)	
		Signalized Intersections	**Stop Controlled Intersections**
A	Very low delay; most vehicles do not stop (**Excellent**)	less than 10.0	less than 10.0
B	Higher delay; more vehicles stop (**Very Good**)	between 10.0 and 20.0	between 10.0 and 15.0
C	Higher level of congestion; number of vehicles stopping is significant, although many still pass through intersection without stopping **(Good**)	between 20.0 and 35.0	between 15.0 and 25.0
D	Congestion becomes noticeable; vehicles must sometimes wait through more than one red light; many vehicles stop (**Satisfactory**)	between 35.0 and 55.0	between 25.0 and 35.0
E	Vehicles must often wait through more than one red light; considered by many agencies to be the limit of **acceptable** delay	between 55.0 and 80.0	between 35.0 and 50.0
F	This level is considered to be unacceptable to most drivers; occurs when arrival flow rates exceed the capacity of the intersection (**Unacceptable**)	greater than 80.0	greater than 50.0

3.3 Existing (2024) Intersection Operation

The results of the LOS analysis under existing (2024) traffic volumes during the Weekday AM, Weekday PM, Friday PM and Sunday PM peak hour can be found below in **Table 6**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix C**.

Table 6 – Existing (2024) LOS

Location (N-S Street / E-W Street)	AM Peak Hour			PM Peak Hour			Friday PM Peak Hour			Sunday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
County Road 18 / County Road 17 (signalized)	0.31	8.2	A	0.40	9.5	A	0.73	14.4	B	0.45	8.5	A
EB	0.27	18.6	B	0.29	18.1	B	0.35	19.6	B	0.26	17.3	B
WB	0.31	16.0	B	0.40	17.7	B	0.41	19.0	B	0.34	18.5	B
NB	0.13	4.8	A	0.35	7.1	A	0.73	15.9	B	0.25	5.5	A
SB	0.22	5.0	A	0.25	6.3	A	0.27	6.7	A	0.45	7.3	A
County Road 17 / Thomson Trail (unsignalized)	0.05	1.9	A	0.07	1.1	A	0.07	1.1	A	0.06	1.5	A
EB	0.05	0.0	A	0.07	0.0	A	0.07	0.0	A	0.06	0.0	A
WB	0.00	0.4	A	0.01	0.6	A	0.01	0.6	A	0.00	0.7	A
NB	0.04	9.3	A	0.03	9.7	A	0.03	9.7	A	0.03	9.4	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits noted in Section 3.2.

An analysis was completed for left turn movements at the unsignalized study area intersections, based on the criteria outlined in Appendix 9A of the Ontario Ministry of Transportation Design Supplement for TAC Geometric Design Guide for Canadian Roads June 2017 [MTO DS]. Based on the MTO criteria, auxiliary left turn lanes are not warranted (results are provided in **Appendix D**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the unsignalized study area intersections (results are provided in **Appendix E**).

No infrastructure improvements are recommended within the study area.

3.4 Background (2027) Intersection Operation

The results of the LOS analysis under background (2027) traffic volumes during Weekday AM, Weekday PM, Friday PM and Sunday PM peak hour can be found below in **Table 7**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 7 – Background (2027) LOS

Location (N-S Street / E-W Street)	AM Peak Hour			PM Peak Hour			Friday PM Peak Hour			Sunday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
County Road 18 / County Road 17 (signalized)	0.33	8.5	A	0.43	10.0	A	0.80	16.8	B	0.56	10.1	B
EB	0.29	18.7	B	0.31	18.2	B	0.38	20.0	C	0.28	17.6	B
WB	0.33	16.1	B	0.43	18.4	B	0.44	19.5	B	0.37	19.0	B
NB	0.14	5.0	A	0.38	7.6	A	0.80	19.6	B	0.31	6.6	A
SB	0.23	5.2	A	0.27	6.7	A	0.30	7.1	A	0.56	9.5	B
County Road 17 / Thomson Trail (unsignalized)	0.05	1.8	A	0.07	1.0	A	0.08	1.0	A	0.06	1.3	A
EB	0.05	0.0	A	0.07	0.0	A	0.08	0.0	A	0.06	0.0	A
WB	0.00	0.3	A	0.01	0.6	A	0.01	0.6	A	0.00	0.6	A
NB	0.04	9.4	A	0.03	9.8	A	0.03	9.9	A	0.03	9.6	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits noted in Section 3.2.

An analysis was completed for left turn movements at the unsignalized study area intersections, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the MTO criteria, auxiliary left turn lanes are not warranted (results are provided in **Appendix D**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the unsignalized study area intersections (results are provided in **Appendix E**).

No infrastructure improvements are recommended within the study area.

3.5 Background (2032) Intersection Operation

The results of the LOS analysis under background (2032) traffic volumes during the Weekday AM, Weekday PM, Friday PM and Sunday PM peak hour can be found below in **Table 8**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 8 – Background (2032) LOS

Location (N-S Street / E-W Street)	AM Peak Hour			PM Peak Hour			Friday PM Peak Hour			Sunday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
County Road 18 / County Road 17 (signalized)	0.38	9.5	A	0.48	10.8	B	0.91	23.2	C	0.63	11.8	B
EB	0.33	19.3	B	0.34	18.6	B	0.42	20.5	C	0.31	17.8	B
WB	0.38	16.9	B	0.48	19.2	B	0.48	20.0	B	0.42	20.1	C
NB	0.19	5.9	A	0.44	8.6	A	0.91	29.8	C	0.35	7.3	A
SB	0.30	6.5	A	0.31	7.4	A	0.35	7.9	A	0.63	12.0	B
County Road 17 / Thomson Trail (unsignalized)	0.07	1.4	A	0.08	0.9	A	0.09	0.8	A	0.07	1.2	A
EB	0.07	0.0	A	0.08	0.0	A	0.09	0.0	A	0.07	0.0	A
WB	0.00	0.2	A	0.01	0.5	A	0.01	0.5	A	0.00	0.5	A
NB	0.04	9.7	A	0.03	10.0	B	0.03	10.1	B	0.03	9.7	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits specified in Section 3.2 for weekday AM, weekday PM and Sunday PM peak hour. However, during the Friday PM peak hour, the Country Road 18 / Country Road 17 intersection will experience a critical v/c ratio of 0.91, which represents a condition where traffic demand exceeds typical design limits but is within the theoretical capacity. The control delay for northbound movement at this intersection are within the typical design limits for this scenario. Since this condition only occurs for a short period during one day of the week, during the summer months, no additional infrastructure improvements are recommended.

An analysis was completed for left turn movements at the unsignalized study area intersections, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the MTO criteria, auxiliary left turn lanes are not warranted (results are provided in **Appendix D**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the unsignalized study area intersections (results are provided in **Appendix E**).

No infrastructure improvements are recommended within the study area.

3.6 Background (2037) Intersection Operation

The results of the LOS analysis under background (2037) traffic volumes during the Weekday AM, Weekday PM, Friday PM and Sunday PM peak hour can be found below in **Table 9**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 9 – Background (2037) LOS

Location (N-S Street / E-W Street)	AM Peak Hour			PM Peak Hour			Friday PM Peak Hour			Sunday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
County Road 18 / County Road 17 (signalized)	0.43	10.1	B	0.52	11.9	B	1.05	42.1	D	0.73	14.3	B
EB	0.37	19.9	B	0.39	19.1	B	0.48	21.6	C	0.34	17.8	B
WB	0.43	17.2	B	0.52	19.9	B	0.53	21.1	C	0.47	20.8	C
NB	0.21	6.3	A	0.51	10.1	B	1.05	61.1	E	0.41	8.3	A
SB	0.34	7.1	A	0.37	8.3	A	0.41	9.1	A	0.73	15.7	B
County Road 17 / Thomson Trail (unsignalized)	0.07	1.4	A	0.09	0.8	A	0.10	0.8	A	0.08	1.1	A
EB	0.07	0.0	A	0.09	0.0	A	0.10	0.0	A	0.08	0.0	A
WB	0.00	0.2	A	0.01	0.4	A	0.01	0.4	A	0.00	0.4	A
NB	0.04	9.7	A	0.03	10.3	B	0.03	10.5	B	0.03	10.0	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits specified in Section 3.2 for weekday AM and weekday PM peak hour. However, during the Friday PM peak hour, the Country Road 18 / Country Road 17 intersection will experience a critical v/c ratio of 1.05, which represents a condition where traffic demand marginally exceeds theoretical capacity. To improve traffic operations during the critical period, the following signal timing improvements are recommended:

- Increase cycle lengths (85 seconds for the Friday PM peak hours); and
- Optimized phasing timings.

Table 10 illustrates the results of the LOS analysis with the above noted improvements for County Road 18 / County Road 17 Friday PM Peak Hour. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 10- Background (2037) LOS+ Improvements

Location (N-S Street / E-W Street)	Friday PM Peak Hour (Optimized Signal Timing)		
	V/C	Delay (s)	LOS
County Road 18 / County Road 17 (signalized)	0.96	30.2	C
EB	0.73	51.9	D
WB	0.73	47.8	D
NB	0.96	32.7	C
SB	0.37	6.9	A

The results of the LOS analysis indicate that the Country Road 18 / Country Road 17 intersection is operating beyond the typical design threshold noted in Section 3.1, but within the theoretical capacity. Since this condition only occurs for a short period during one day of the week, during the summer months, no additional infrastructure improvements are recommended.

An analysis was completed for left turn movements at the unsignalized study area intersections, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the MTO criteria, auxiliary left turn lanes are not warranted (results are provided in **Appendix D**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the unsignalized study area intersections (results are provided in **Appendix E**).

No infrastructure improvements are recommended within the study area.

4 Proposed Development Traffic Generation and Assignment

4.1 Traffic Generation

The traffic generation for the proposed development has been based on the ITE Trip Generation Manual 11th Edition. The following ITE land uses have been applied to estimate the traffic from the proposed development:

- ITE land use 210 (Single-Family Detached Housing) – General Urban / Suburban Setting

The estimated trip generation of the proposed development is illustrated below in **Table 11**. The weekday AM, weekday/Friday PM and Sunday PM peak traffic generation for the proposed site is not expected to exactly align with the weekday AM, weekday/Friday PM and Sunday PM peak hour in the traffic counts; consequently, we have applied the peak hour of adjacent street traffic values provided in the ITE Trip Generation Manual 11th Edition for weekday AM and PM peak hour. We applied the weekday PM to our Friday PM peak hours, and Sunday peak hour of generator for the Sunday peak hour.

Table 11 – Estimated Traffic Generation of Proposed Development

Land Use	Size	AM Peak Hour			Weekday/ Friday PM Peak Hour			Sunday PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Single-Family Detached Housing ITE Land Use: 210	71 units*	12	38	50	42	25	67	31	28	59

*Includes the proposed 43 single family detached units and 28 semi-detached units.

No transportation modal split has been applied to the above-noted traffic generation calculation.

4.2 Traffic Assignment

For the purposes of this study, it has been assumed that all traffic generated by the proposed development will be new traffic and would not be in the study area if the development was not constructed.

The ITE data provides the anticipated percentage of new traffic entering and exiting during the peak hour.

The distribution of traffic for the proposed development has been calculated based on the 2016 TTS data for traffic zone 8411 retrieved using the TTS IDRS (output attached as **Appendix F**). TTS data provides historical origin and destination work trip percentages for specific areas within the County and the GTHA.

Traffic distribution for the trips generated by the subject site during the AM and PM peak hour is expected to generally follow commuter travel patterns. Our analysis is based on egress traffic during the AM peak hour. Logically, the distribution of ingress traffic will follow the inverse of the exiting traffic distribution. For each of the individual areas identified in the TTS data, we have selected the probable route of travel, assuming that people will select their route primarily based on travel time.

The distribution of traffic for the proposed development is illustrated in **Table 12** using the methodology outlined above.

Table 12 – Proposed Development Traffic Distribution

Travel Direction (to/from)	Percentage of Total Traffic Generation
West via 10th Sideroad	14%
East via County Road 17	16%
South via County Road 18	61%
North via County Road 18	9%
Total	**100%**

Using the traffic distributions pattern noted above, the traffic assignment for the proposed development was calculated for the weekday AM, weekday PM, Friday PM and Sunday PM peak hour and is illustrated in **Figure 12** and **Figure 13** respectively.

4.3 Total Horizon Year Traffic Volumes with the Proposed Development

For the total (2027, 2032 and 2037) horizon year traffic volumes, the proposed development traffic was added to the background (2027,2032 and 2037) traffic volumes. The resulting total (2027, 2032 and 2037) horizon year traffic volumes for the weekday AM, weekday PM, Friday PM and Sunday PM peak hour are illustrated in **Figures 13** to **Figure 18**.

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Figure 11– Proposed Development Traffic Assignment (AM and PM Peak Hour)

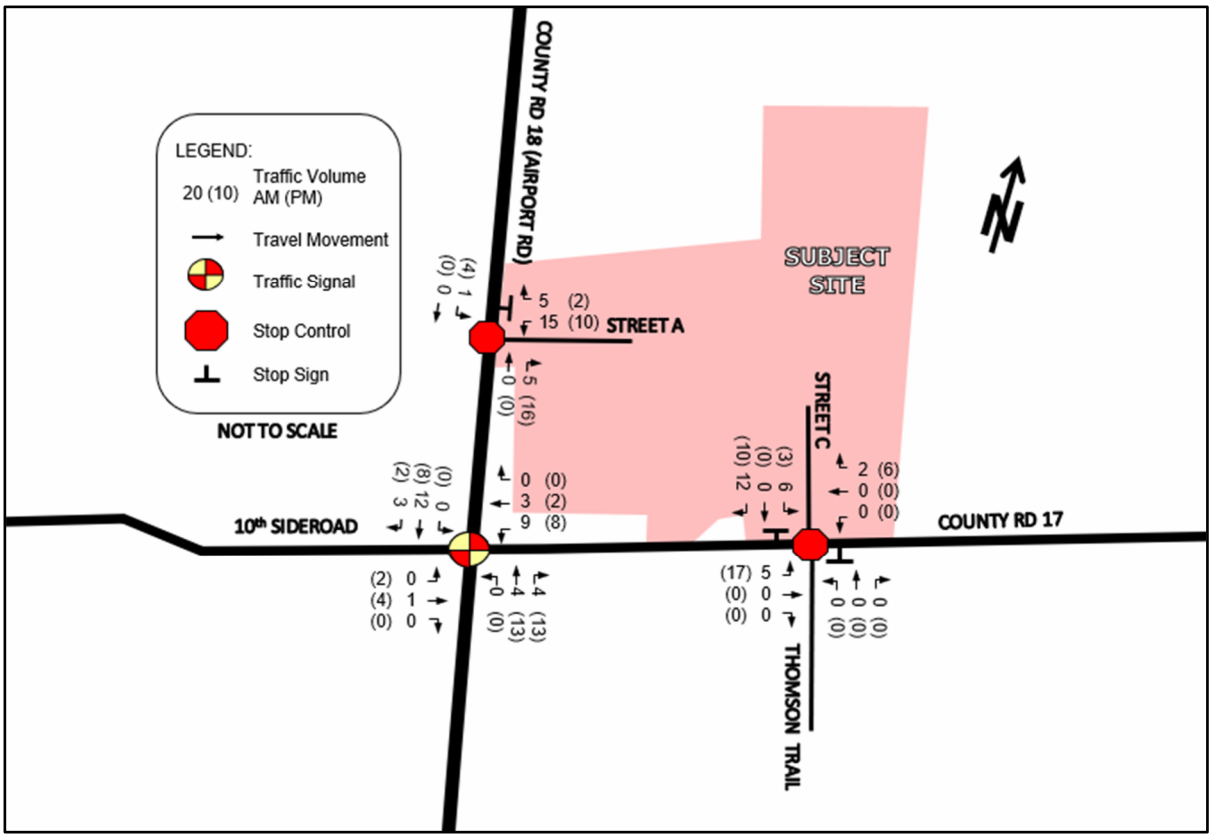


Figure 12– Proposed Development Traffic Assignment (Friday and Sunday PM Peak Hour)

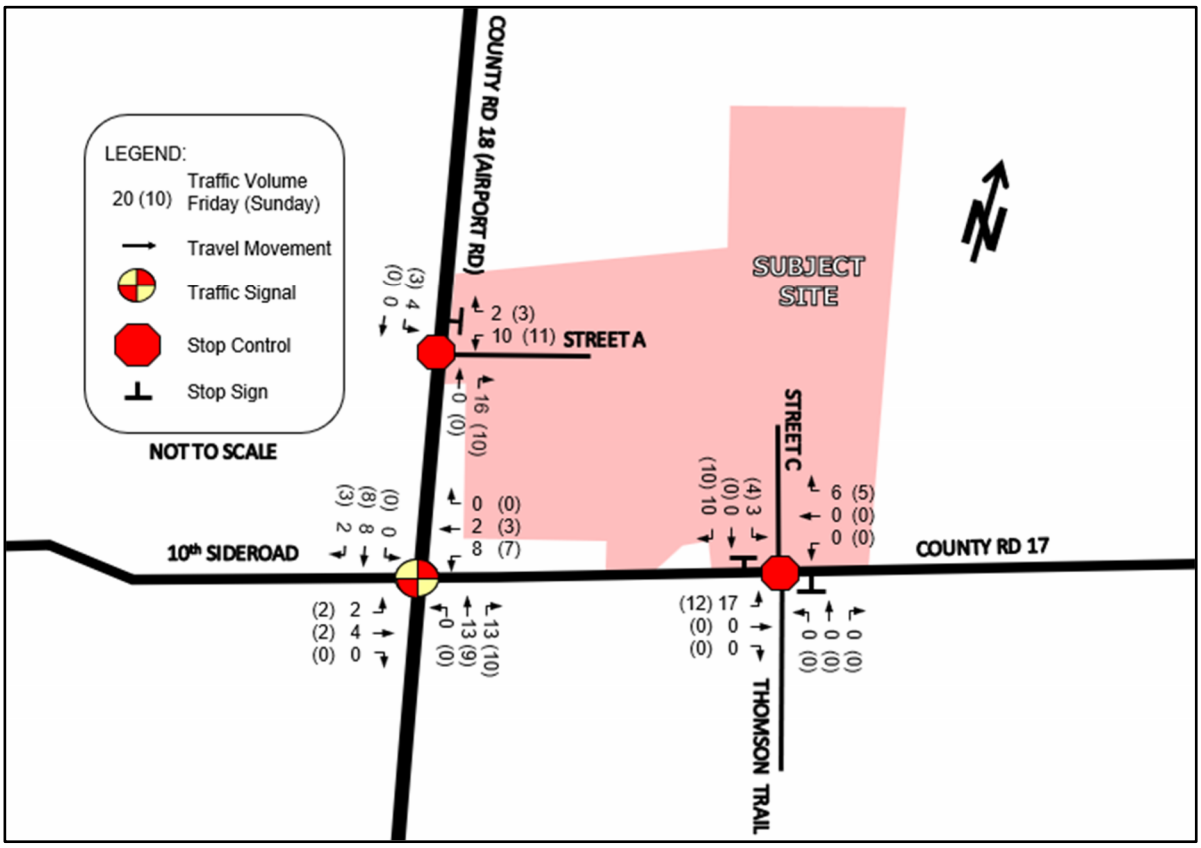


Figure 13 – Total Traffic Volume (2027) AM and PM peak hour

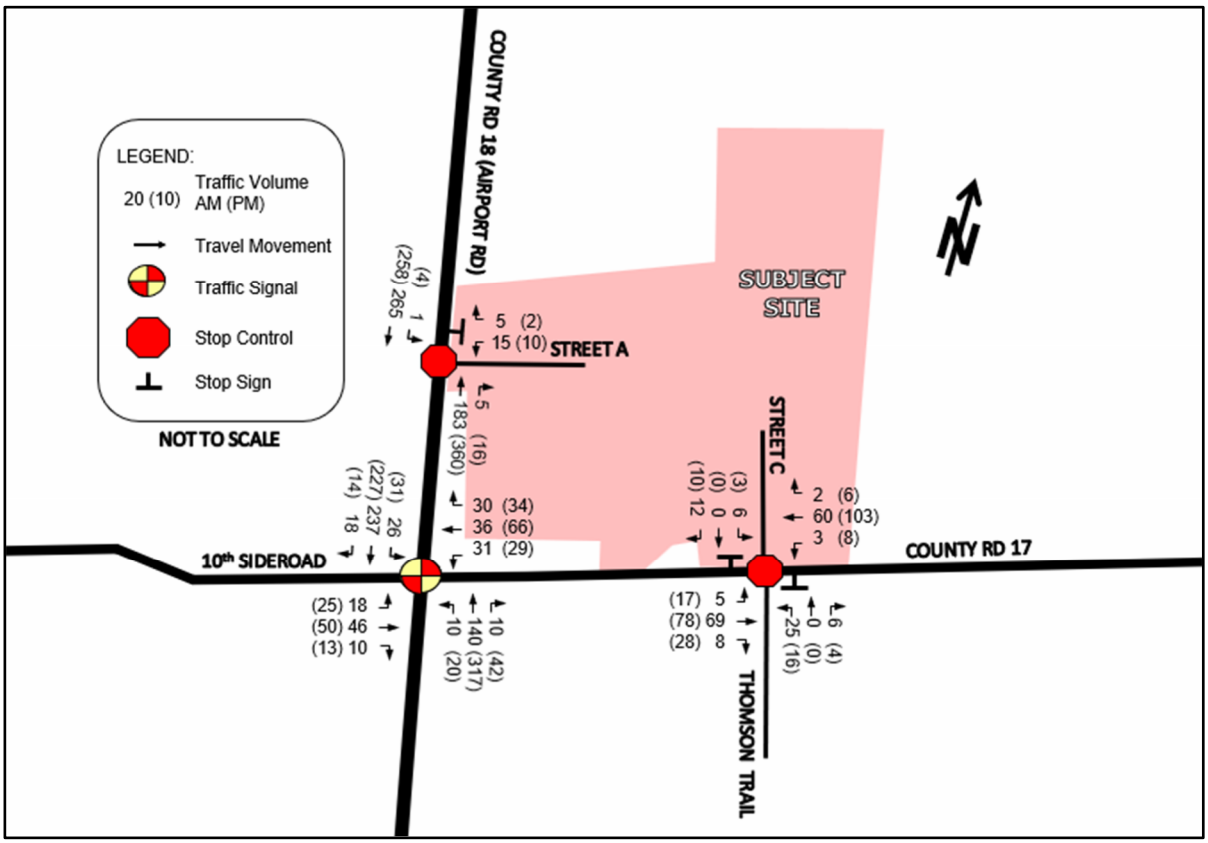


Figure 14 – Total Traffic Volume (2032) AM and PM peak hour

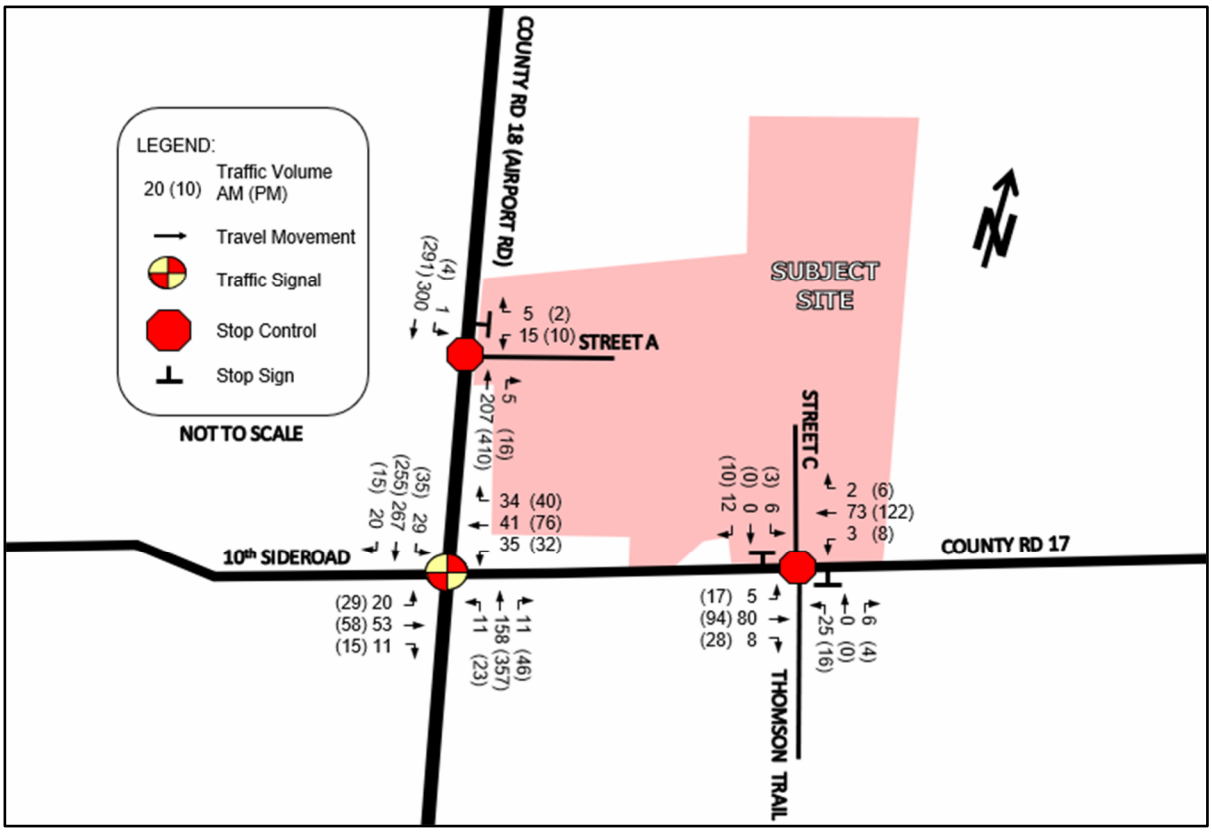


Figure 15– Total Traffic Volume (2037) AM and PM peak hour

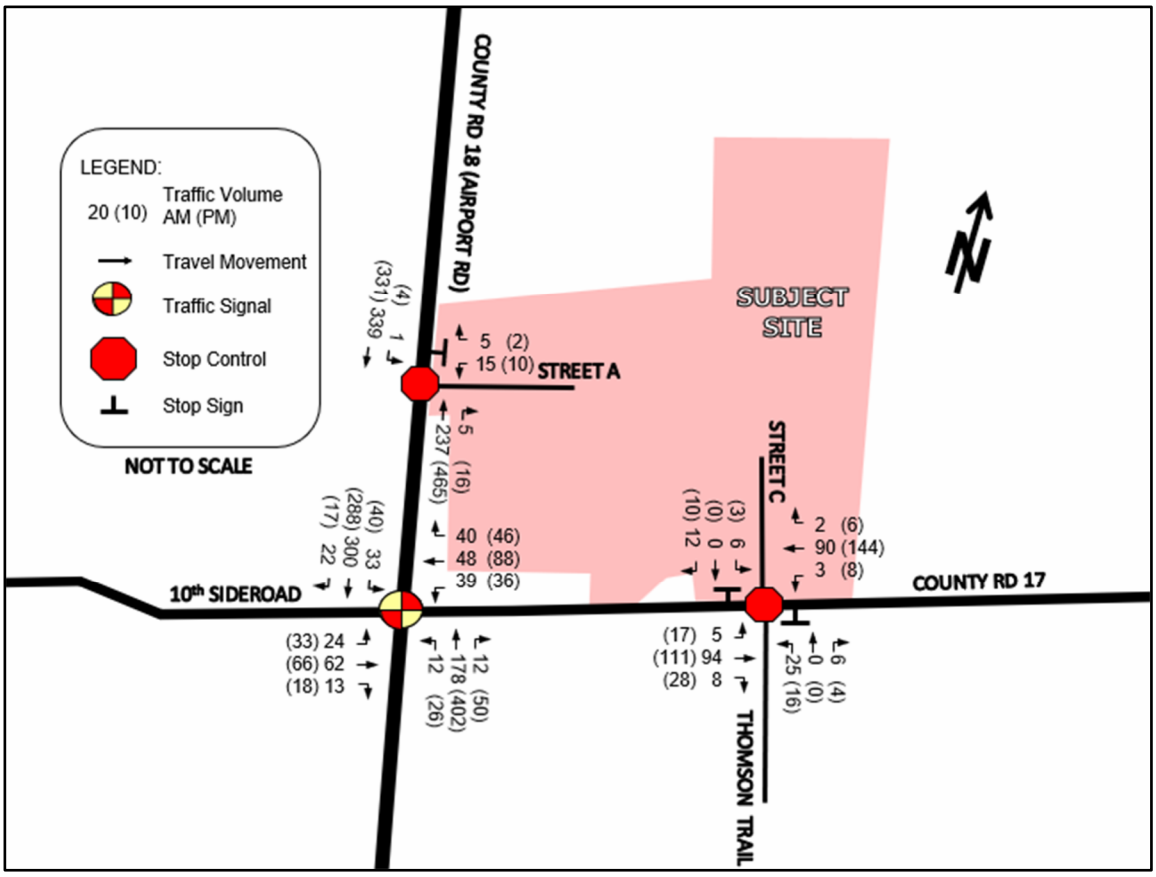


Figure 16- Total Traffic Volume (2027) Friday and Sunday PM peak hour

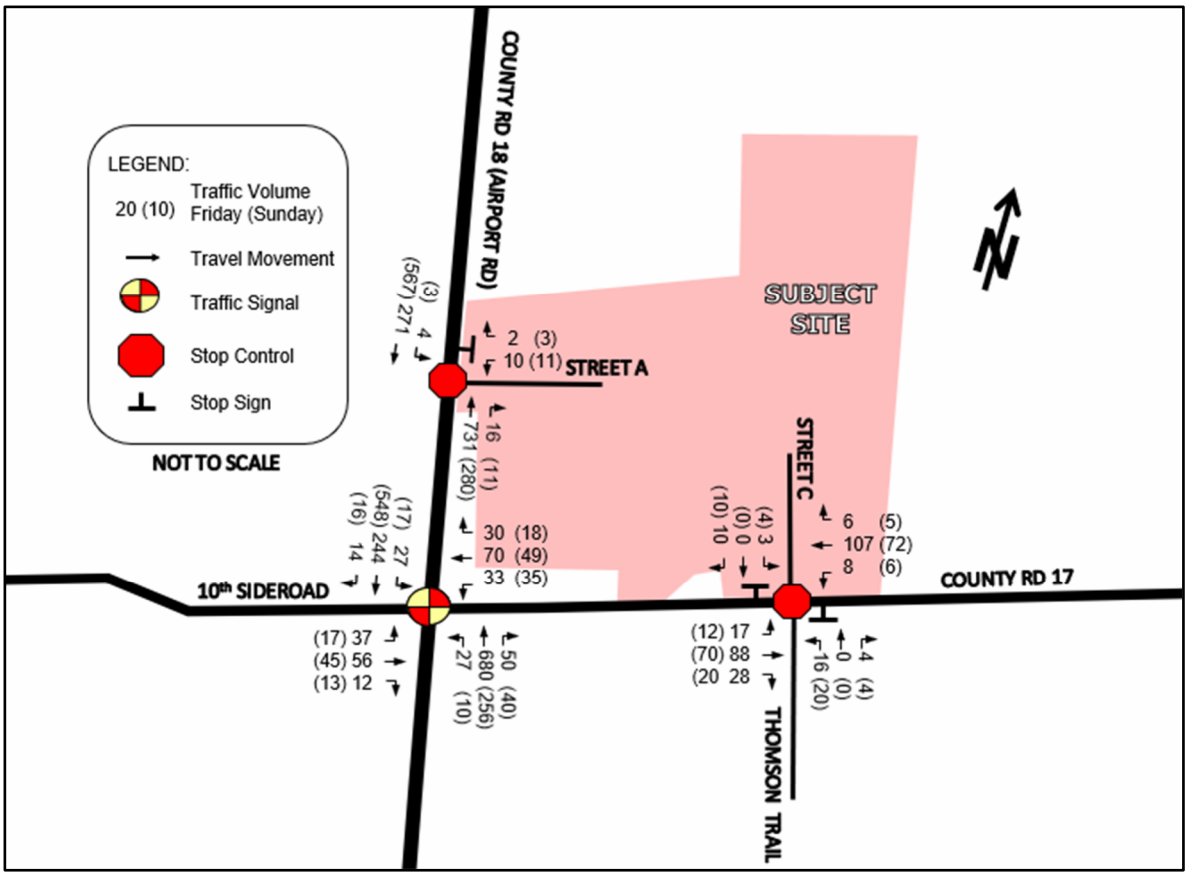


Figure 17- Total Traffic Volume (2032) Friday and Sunday PM peak hour

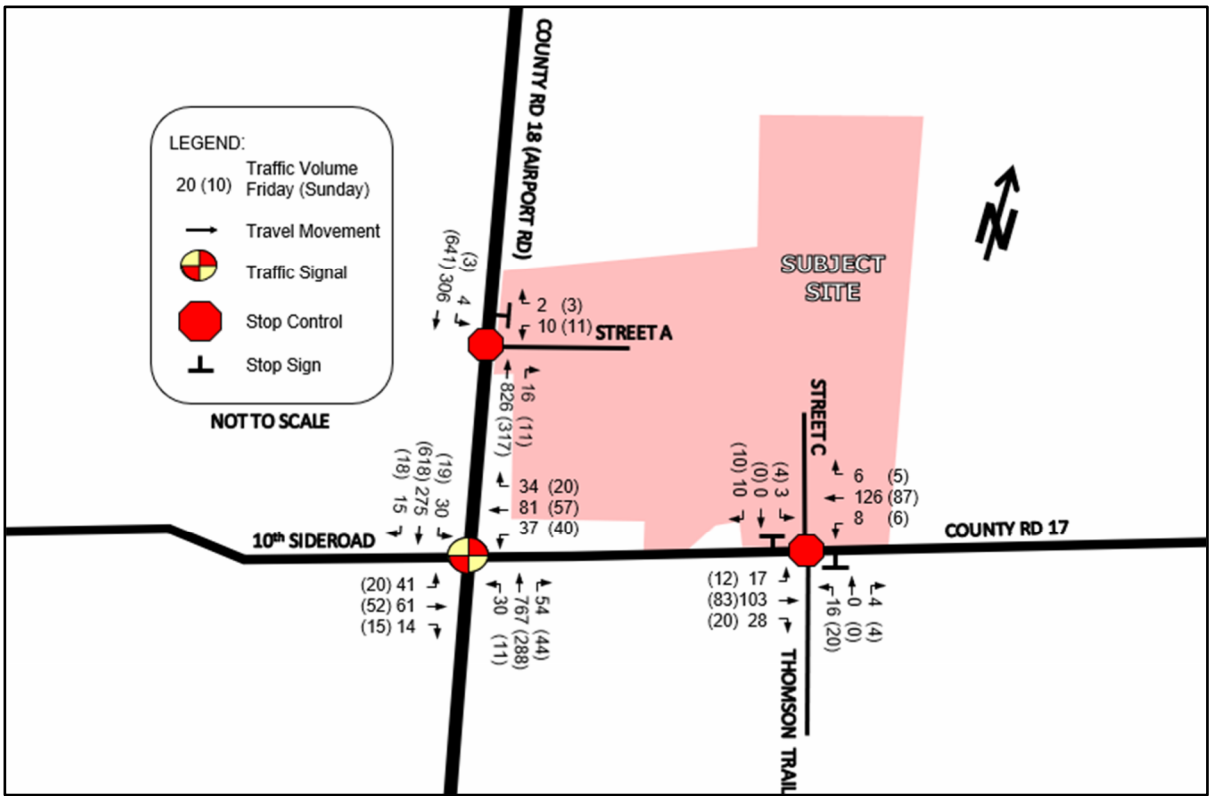
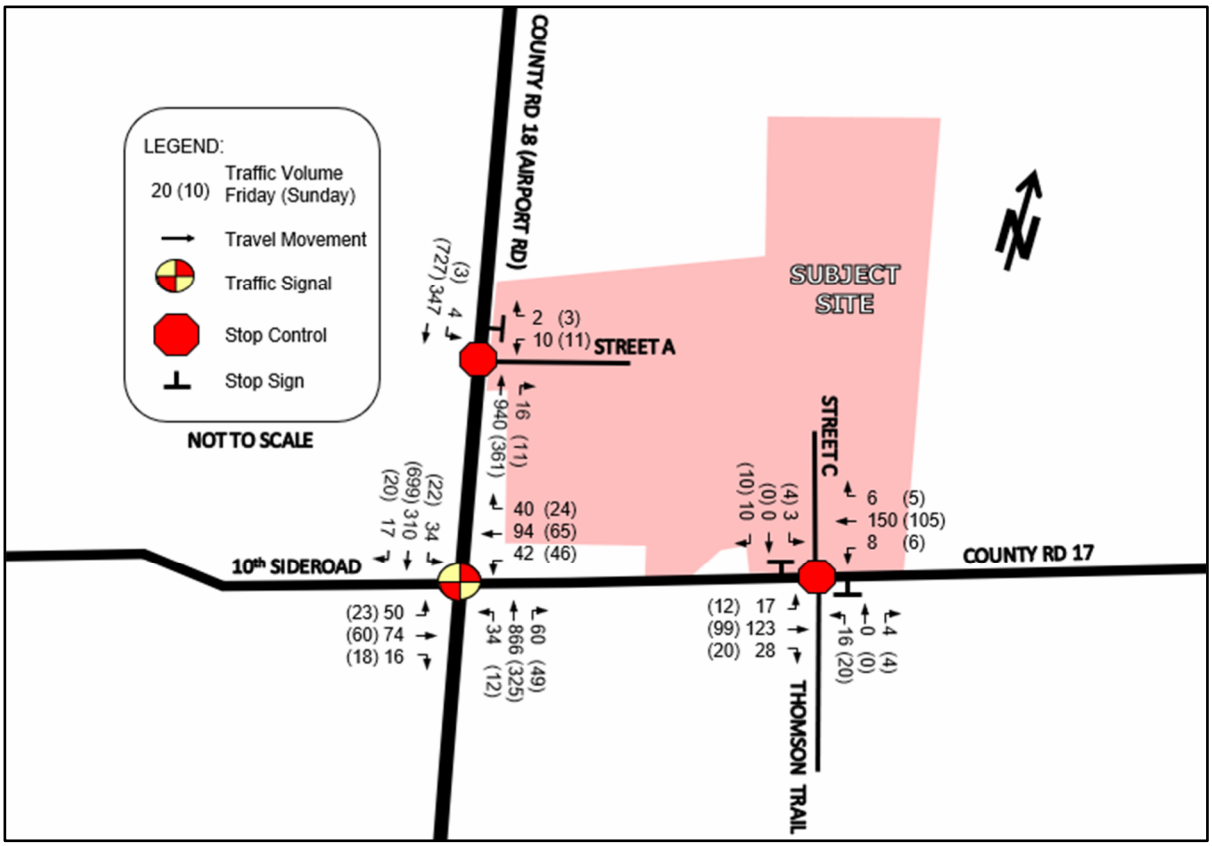


Figure 18- Total Traffic Volume (2037) Friday and Sunday PM peak hour



5 Intersection Operation with Proposed Development

5.1 Total (2027) Intersection Operation

The results of the LOS analysis under total (2023) traffic volumes during the AM and PM peak hour can be found below in **Table 13**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix G**.

Table 13 – Total (2027) LOS

Location (N-S Street / E-W Street)	AM Peak Hour			PM Peak Hour			Friday PM Peak Hour			Sunday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
County Road 18 / County Road 17 (signalized)	0.39	9.5	A	0.46	10.5	B	0.83	18.5	B	0.57	10.6	B
EB	0.30	18.8	B	0.32	18.2	B	0.39	20.1	C	0.29	17.7	B
WB	0.39	17.6	B	0.46	19.5	B	0.47	20.1	C	0.40	20.0	B
NB	0.17	5.8	A	0.41	8.2	A	0.83	22.2	C	0.33	6.9	A
SB	0.28	6.4	A	0.29	7.0	A	0.31	7.5	A	0.57	10.0	B
County Road 17 / Thomson Trail & Street 'C' (unsignalized)	0.05	2.7	A	0.03	1.9	A	0.03	1.9	A	0.04	2.3	A
EB	0.00	0.5	A	0.01	1.2	A	0.01	1.1	A	0.01	1.0	A
WB	0.00	0.3	A	0.01	0.5	A	0.01	0.5	A	0.00	0.6	A
NB	0.05	9.7	A	0.03	10.4	B	0.03	10.6	B	0.04	10.0	B
SB	0.02	9.1	A	0.02	9.3	A	0.02	9.4	A	0.01	9.2	A
County Road 18 / Street 'A' (unsignalized)	0.12	0.5	A	0.24	0.3	A	0.48	0.3	A	0.19	0.3	A
WB	0.04	11.4	B	0.03	13.4	B	0.06	22.7	C	0.04	16.3	C
NB	0.12	0.0	A	0.24	0.0	A	0.48	0.0	A	0.19	0.0	A
SB	0.00	0.0	A	0.00	0.1	A	0.00	0.2	A	0.00	0.1	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits noted in Section 3.2.

An analysis was completed for left turn movements at the unsignalized study area intersections, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the MTO criteria, auxiliary left turn lanes are not warranted (results are provided in **Appendix D**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the unsignalized study area intersections (results are provided in **Appendix E**).

No infrastructure improvements are recommended within the study area

5.2 Total (2032) Intersection Operation

The results of the LOS analysis under total (2028) traffic volumes during the AM and PM peak hour can be found below in **Table 14**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix G**.

Table 14 – Total (2032) LOS

Location (N-S Street / E-W Street)	AM Peak Hour			PM Peak Hour			Friday PM Peak Hour			Sunday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
County Road 18 / County Road 17 (signalized)	0.42	9.9	A	0.50	11.4	B	0.95	26.1	C	0.65	12.5	B
EB	0.32	18.8	B	0.36	18.8	B	0.41	20.1	C	0.31	17.7	B
WB	0.42	17.9	B	0.50	20.0	B	0.50	20.7	C	0.45	20.8	C
NB	0.20	6.1	A	0.47	9.3	A	0.95	35.9	D	0.38	7.7	A
SB	0.32	6.8	A	0.33	7.8	A	0.36	8.4	A	0.65	12.9	B
County Road 17 / Thomson Trail & Street 'C' (unsignalized)	0.05	2.5	A	0.04	1.8	A	0.04	1.7	A	0.04	2.1	A
EB	0.00	0.4	A	0.01	1.0	A	0.01	1.0	A	0.01	0.9	A
WB	0.00	0.3	A	0.01	0.5	A	0.01	0.5	A	0.00	0.5	A
NB	0.05	9.9	A	0.04	10.7	B	0.04	10.9	B	0.04	10.3	B
SB	0.02	9.2	A	0.02	9.5	A	0.02	9.5	A	0.02	9.3	A
County Road 18 / Street 'A' (unsignalized)	0.14	0.4	A	0.27	0.3	A	0.54	0.4	A	0.21	0.3	A
WB	0.04	11.9	B	0.03	14.6	B	0.09	31.8	D	0.05	18.4	C
NB	0.14	0.0	A	0.27	0.0	A	0.54	0.0	A	0.21	0.0	A
SB	0.00	0.0	A	0.00	0.1	A	0.01	0.2	A	0.00	0.1	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits specified in Section 3.2 for weekday AM, weekday PM and Sunday PM peak hour. However, during the Friday PM peak hour, the Country Road 18 / Country Road 17 intersection will experience a critical v/c ratio of 0.95, which represents a condition where traffic demand exceeds typical design limits but is within the theoretical capacity. The control delay for northbound movement at this intersection are within the typical design limits for this scenario. Since this condition only occurs for a short period during one day of the week, during the summer months, no additional infrastructure improvements are recommended.

An analysis was completed for left turn movements at the unsignalized study area intersections, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the MTO criteria, auxiliary left turn lanes are not warranted (results are provided in **Appendix D**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the unsignalized study area intersections (results are provided in **Appendix E**).

No infrastructure improvements are recommended within the study area.

5.3 Total (2037) Intersection Operation

The results of the LOS analysis under total (2037) traffic volumes during the AM and PM peak hour can be found below in **Table 15**. Signal timing improvements recommended in Section 3.6 have been included for this scenario. Detailed output of the Synchro analysis can be found in **Appendix G**.

Table 15 – Total (2037) LOS

Location (N-S Street / E-W Street)	AM Peak Hour			PM Peak Hour			Friday PM Peak Hour			Sunday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
County Road 18 / County Road 17 (signalized)	0.47	10.6	B	0.54	12.6	B	0.99	34.9	C	0.75	15.1	B
EB	0.36	19.4	B	0.40	19.4	B	0.73	52.4	D	0.34	17.8	B
WB	0.47	18.7	B	0.54	20.9	C	0.77	51.5	D	0.49	21.3	C
NB	0.22	6.6	A	0.54	10.8	B	0.99	39.7	D	0.43	8.8	A
SB	0.36	7.6	A	0.38	8.7	A	0.39	7.2	A	0.75	16.9	B
County Road 17 / Thomson Trail & Street 'C' (unsignalized)	0.05	2.2	A	0.04	1.6	A	0.04	1.5	A	0.04	1.9	A
EB	0.00	0.4	A	0.01	1.0	A	0.01	0.9	A	0.01	0.8	A
WB	0.00	0.2	A	0.01	0.4	A	0.01	0.4	A	0.00	0.4	A
NB	0.05	10.2	B	0.04	11.1	B	0.04	11.3	B	0.04	10.6	B
SB	0.02	9.3	A	0.02	9.7	A	0.02	9.7	A	0.02	9.5	A
County Road 18 / Street 'A' (unsignalized)	0.15	0.4	A	0.31	0.3	A	0.61	0.6	A	0.24	0.3	A
WB	0.04	12.6	B	0.04	16.1	C	0.17	61.1	F	0.07	21.7	C
NB	0.15	0.0	A	0.31	0.0	A	0.61	0.0	A	0.24	0.0	A
SB	0.00	0.0	A	0.00	0.1	A	0.01	0.3	A	0.00	0.1	A

The results of the LOS analysis indicate that all intersections are operating within the typical design limits specified in Section 3.2 for weekday AM and weekday PM peak hour. However, during the Friday PM peak hour, the Country Road 18 / Country Road 17 intersection will experience a critical v/c ratio of 0.99, which represents a condition where traffic demand exceeds typical design limits but is within the theoretical capacity. The control delay for northbound movement at this intersection are within the typical design limits for this scenario. Since this condition only occurs for a short period during one day of the week, during the summer months, no additional infrastructure improvements are recommended.

The westbound movement at the County Road 18 / Street A intersection will operate at a Level of Service (LOS) F. It is important to note that this condition only marginally exceeds the LOS F threshold of 50 seconds and this condition only occurs for a short period during one day of the week, during the summer months, no additional infrastructure improvements are recommended.

An analysis was completed for left turn movements at the unsignalized study area intersections, based on the criteria outlined in Appendix 9A of the MTO DS. Based on the MTO criteria, auxiliary left turn lanes are not warranted (results are provided in **Appendix D**).

A review of the need for an auxiliary right turn lane at the unsignalized study area intersections was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, an auxiliary right turn lane is not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the unsignalized study area intersections (results are provided in **Appendix E**).

No infrastructure improvements are recommended within the study area.

5.4 Sight Distance Review

A review of the available sight distance for the proposed municipal roads within the study area was completed as part of this analysis.

The sight distance south of Street 'A' at County Road 18 (160 metres) meets the minimum visibility requirements identified in the County's Entrance Policy 5-3-17 [County Entrance Policy] (160 metres for commercial entrance on a road with a posted speed limit of 50 km/h).

The sight stance north of Street 'A' at County Road 18 does not meet the minimum visibility requirements identified in the County Entrance Policy. Consequently, County Road 18 will need to be reconstructed to improve the vertical curve and sight distance. Preliminary plan and profile drawings are provided in **Appendix H**. The drawing illustrates that the minimum visibility requirements identified in the County Entrance Policy can be met from Street 'A' with the proposed road reconstruction. The drawings in Appendix H also illustrate that the sight distance for the adjacent driveways east and west of Street 'A' also meets the County's minimum visibility requirements. The decision point elevation on Street "A" and at the adjacent driveway was assumed to be 0.25 metres below the centreline of County Road 18, which is a conservative approach. The object height for all scenarios is 0.6 metres.

A detailed design for the road reconstruction will be completed as part of the detailed engineering design, however, the vertical curve values used in the preliminary design meet the minimum TAC requirements for a posted speed of 50km/h. Depending on the final design configuration, the existing 50km/h zone on County Road 18 may need to be extended slightly to the north.

The sight distance east (greater than 200 metres) and west (greater than 200 metres) of the Street 'C' at County Road 17 is greater than the minimum visibility requirements identified in the County Entrance Policy (160 metres for commercial entrance on a road with a posted speed limit of 50 km/h).

With the proposed road reconstruction of County Road 18, the sight distance for the proposed municipal roads within the study area are suitable for their intended use.

5.5 Site Access

Street 'C' at County Road 17 will operate efficiently as full-movement accesses, with two-way stop control for the northbound and southbound movements. No lane improvements are recommended on County Road 17 at Street 'C'. A single northbound and southbound lane on Street 'C' will provide the necessary capacity to service the proposed development.

Street 'A' at County Road 18 will operate efficiently as full-movement access, with one-way stop control for westbound movements. No lane improvements are recommended on County Road 18 at Street 'A'. A single westbound lane on Street 'A' will provide the necessary capacity to service the proposed development.

The proposed spacing (measured edge of driveway to edge of road) between the Street 'C' & Thomson Trail / County Road 17 intersection and the existing driveways to the east and west are in excess of

the suggested minimum corner clearance requirements for a intersections as identified in the TAC Guidelines – Figure 8.8.2 (Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections) – 25 metres for unsignalized condition.

The proposed spacing (approximately 150 meters, measured edge to edge of road) between the Street 'A' / County Road 18 intersection and the County Road 17 / County Road 18 intersection is in excess of the suggested minimum corner clearance requirements for an intersection as identified in the TAC Guidelines – Figure 8.8.2 (Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections) – 70 metres for signalized condition.

The proposed spacing (measured edge of driveway to edge of road) between the Street 'A' / County Road 18 intersection and the existing driveway to the south and between the Street 'A' / County Road 18 intersection and the existing driveway to the north are in excess of the suggested minimum corner clearance requirements for an intersection as identified in the TAC Guidelines – Figure 8.8.2 (Suggested Minimum Corner Clearances to Accesses or Public Lanes at Major Intersections) – 25 metres and 35 metres for unsignalized condition.

Furthermore, the anticipated 95th percentile queue length for the southbound movements at the County Road 17 / County Road 18 intersection (56 and 112 meters during the AM and PM peak hours for the critical total (2031) scenario) is less than the proposed spacing (measured edge to edge of road) between the Street 'A' / County Road 18 intersection and the County Road 17 / County Road 18 intersection.

The existing Mansfield Park Driveway and Street 'A' are offset by approximately 12 metres. This offset is the result of the shift of the road to allow for the required daylight triangle on the south side of the road. The proposed configuration provides a "left-offset" configuration, which is the preferred offset alignment. This configuration does not result in overlapping left turn movements and traffic travelling between the two driveway will be making a left turn followed by a right turn, which is not a traffic safety issue, as vehicles will be able to make an unincumbered right turn movement to exit Airport Road. The volume of traffic travelling between Street 'A' and the Mansfield Park Driveway will be relatively low. Based on our review, the proposed alignment of Street 'A' and Mansfield Park Driveway is acceptable for the intended use.

6 Summary

1000062217 Ontario Inc. retained **JD Engineering** to prepare this traffic impact study in support of the proposed development, located in the northeast quadrant of the County Road 18 / County Road 17 intersection in the Township of Mulmur [Township], County of Dufferin [County]. The proposed Site Plan is shown in **Appendix A**. This chapter summarizes the conclusions and recommendations from the study.

The proposed residential development is anticipated to consist of 43 single family detached units, and 28 semi-detached units.

11. The proposed development is expected to generate a total of 50 weekday AM, 67 weekday / Friday PM and 59 Sunday PM peak hour trips.
1. Detailed turning movement traffic and pedestrian counts for the County Road 18 / County Road 17 intersection were commissioned by JD Engineering.
2. An intersection operation analysis was completed at the study area intersections, using the existing (2024) and background (2027, 2032 and 2037) traffic volumes, without the proposed development traffic. This enabled a review of existing and future traffic deficiencies that would

be present without the influence of the proposed development. No geometric lane improvements or traffic signal improvements are recommended within the study area.

3. An estimate of the amount of traffic that would be generated by the proposed development was prepared and assigned to the study area streets and intersections.

4. An intersection operation analysis was completed under total (2027, 2032 and 2037) traffic volumes with the proposed development operational at the study area intersections. No geometric lane improvements or traffic signal improvements are recommended within the study area.

5. Street ‘A’ will operate efficiently as full-movement accesses, with one-way stop control for the westbound movements. A single eastbound and westbound lane at Street ‘A’ will provide the necessary capacity to service the proposed development.
6. Street ‘C’ will operate efficiently as full-movement accesses, with two-way stop control for the northbound and southbound movements. A single northbound and southbound lane at Street ‘C’ will provide the necessary capacity to service the proposed development.
7. County Road 18 will need to be reconstructed to improve the vertical curve and sight distance. Preliminary plan and profile drawings are provided in Appendix H.
8. With the above-noted road reconstruction, the sight distance available for Street ‘A’ and Street ‘C’ are suitable for their intended use.
9. In summary, the proposed development will not cause any operational issues and will not add a notable delay or congestion to the local roadway network.

Appendix A –
Site Plan

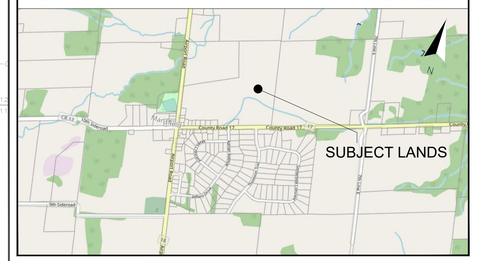
DRAFT PLAN OF SUBDIVISION
ARMSTRONG ESTATES OF MANSFIELD

Part of Lot 11, Concession 7
East of Hurontario Street
Township of Mulmur
County of Dufferin

Scale 1:1250

0 25 50 75 100 125m

KEY MAP — Scale: 1:20,000



SUBJECT LANDS - 217,568.95m² / 21.757 ha.

7.0m SETBACK FROM TOP-OF-BANK

LAND USE SCHEDULE

Land Use	Lot / Block No.	Units	Area (ha.)
RESIDENTIAL SINGLE LOT (30.0m / 2,000m²)	1 - 44	44	10.380
RESIDENTIAL SEM-DETACHED BLOCKS (9.0m / 30')	45-48	28	2.149
STORMWATER MANAGEMENT FACILITIES	Blocks 49, 50		0.841
OPEN SPACE	Block 51, 52		0.064
ENVIRONMENTAL PROTECTION	Blocks 53, 54		3.195
3.0m WALKWAYS	Blocks 55, 56		0.053
PARKLAND	Block 57		1.434
FUTURE R.O.W.	Block 58		0.445
DAYLIGHT TRIANGLES	Blocks 59 -62		0.007
ROAD WIDENINGS	Blocks 63 - 65		0.224
STREETS	Streets A - D		2.965
TOTAL		72	21.757

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE COUNTY OF DUFFERIN FOR APPROVAL.

DATE

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON PLAN — b) SHOWN ON PLAN — c) SHOWN ON PLAN — d) RESIDENTIAL, OPEN SPACE
e) SHOWN ON PLAN — f) SHOWN ON PLAN — f1) NONE
g) SHOWN ON PLAN — h) MUNICIPAL WATER — i) SAND
j) SHOWN ON PLAN — k) PRIVATE SEPTIC — l) NONE

SCHEDULE OF REVISIONS

No.	Date	Description	By
7	Sept. 29, 2023	Road & lot revisions along Street C	B.H.
8	Dec. 22, 2023	Road & lot revisions along Street C	A.S.
9	June 25, 2024	Increase daylight triangle size; Adjust lots	A.S.
10	Nov. 11, 2024	Reduce daylight triangle size; Adjust lots	A.S.
11	Nov. 14, 2024	Add additional lot;	A.S.
12	Nov. 20, 2024	Revise location of future access block;	A.S.
13	Nov. 22, 2024	Revise future access block;	A.S.
14	Dec. 3, 2024	Increase setback from top of bank;	A.S.

INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
647 WELHAM RD., UNIT 9, BARRIE, ONTARIO, L4N 0B7
tel: 705 • 812 • 3281 fax: 705 • 812 • 3438 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	August 12, 2021	Drawn By:	BH
File:	20-1019	Checked:	GB

METRIC NOTE:
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Appendix B –
Traffic Count Data

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Mid-day Peak Diagram

Specified Period
From: 13:00:00
To: 16:00:00

One Hour Peak
From: 15:00:00
To: 16:00:00

Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 21-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Dufferin Couty Rd 18 runs N/S

North Leg Total: 829
North Entering: 278
North Peds: 4
Peds Cross: ⋈

Buses	0	0	1	1
Trucks	0	13	0	13
Cars	11	234	19	264
Totals	11	247	20	

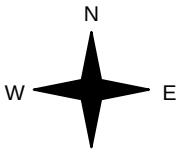
Buses	1
Trucks	9
Cars	541
Totals	551

East Leg Total: 194
East Entering: 110
East Peds: 0
Peds Cross: ⧖

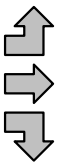
Buses	Trucks	Cars	Totals
3	1	84	88

Dufferin Couty Rd 17

Cars	Trucks	Buses	Totals
32	1	1	34
52	0	2	54
22	0	0	22
106	1	3	



Buses	Trucks	Cars	Totals
0	0	36	36
3	1	28	32
0	2	11	13
3	3	75	



Dufferin Couty Rd 17

Cars	Trucks	Buses	Totals
78	2	4	84

Dufferin Couty Rd 18

Peds Cross: ⧖
West Peds: 0
West Entering: 81
West Leg Total: 169

Cars	267			
Trucks	15			
Buses	0			
Totals	282			

Cars	21	473	31	525
Trucks	1	8	1	10
Buses	1	0	0	1
Totals	23	481	32	

Peds Cross: ⋈
South Peds: 0
South Entering: 536
South Leg Total: 818

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 20:00:00

One Hour Peak
From: 17:15:00
To: 18:15:00

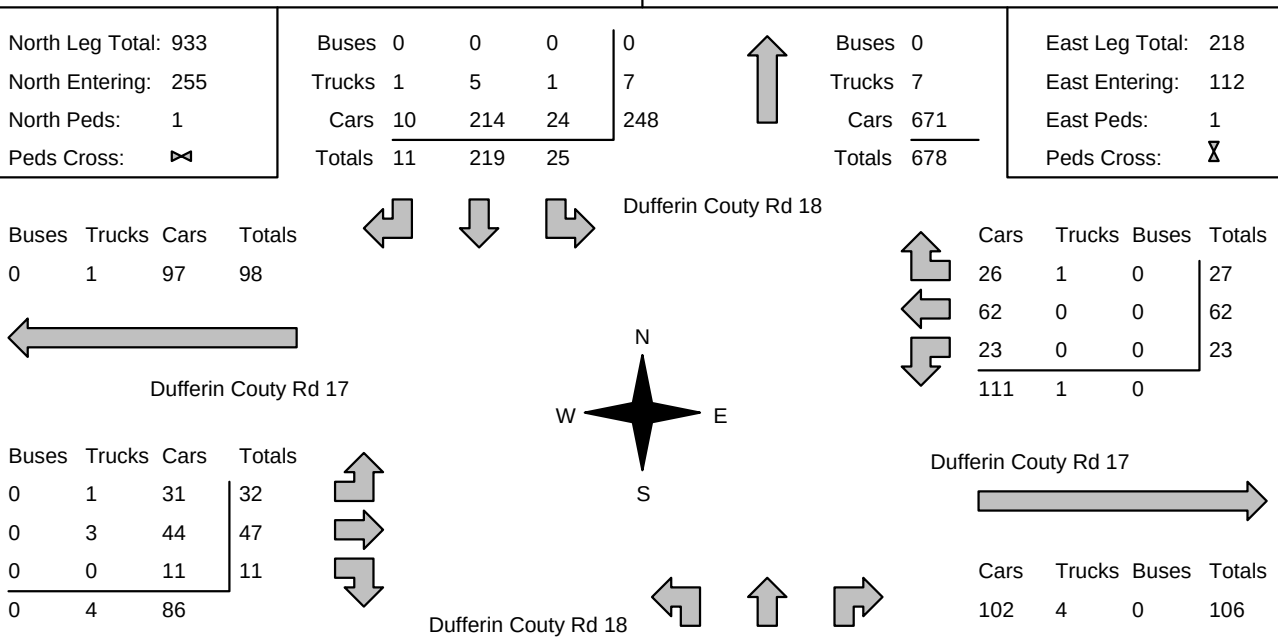
Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 21-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Dufferin Couty Rd 18 runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Total Count Diagram

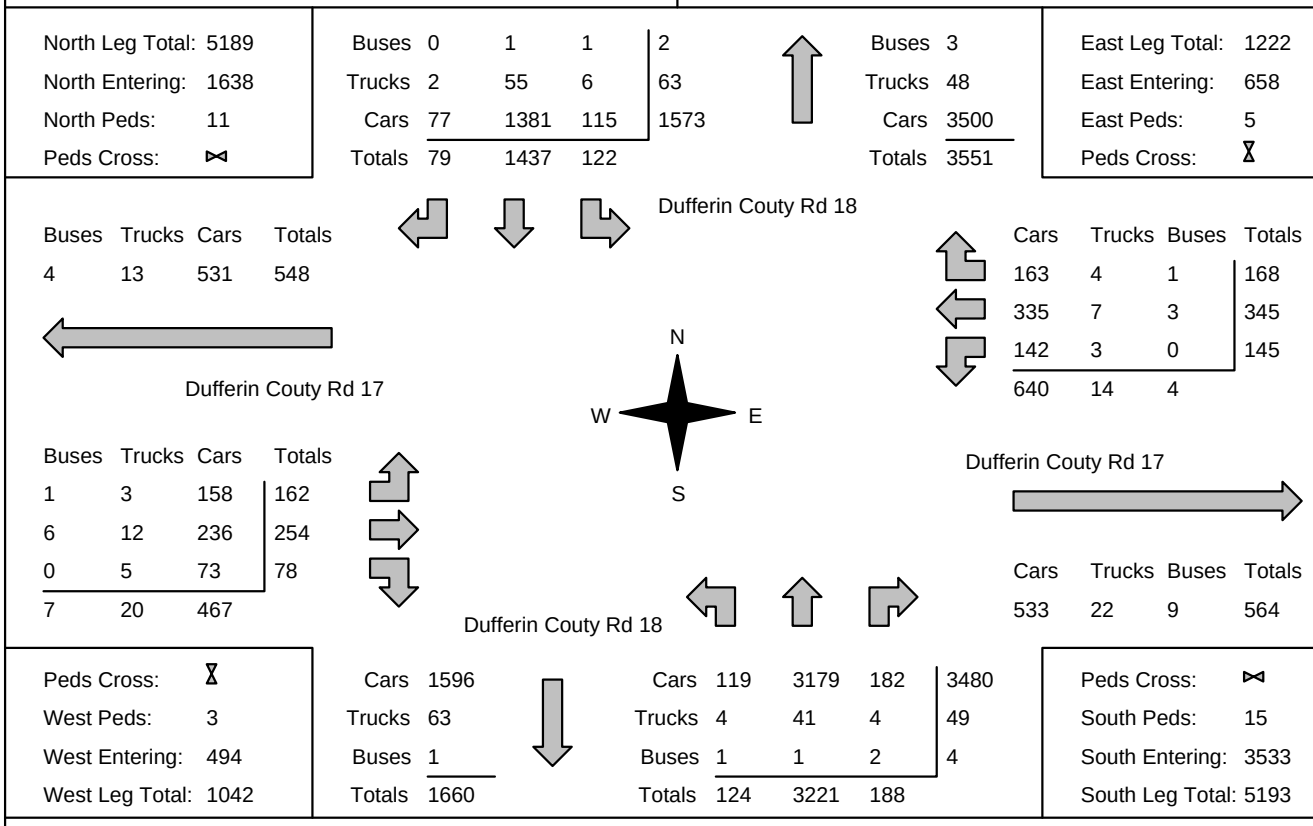
Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 21-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Dufferin Couty Rd 18 runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Traffic Count Summary

Intersection: Dufferin Couty Rd 18 & Dufferin C | **Count Date:** 21-Jun-24 | **Municipality:** Mansfield

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*17*	*197*	*10*	*224*	*0*
15:00:00	*15*	*204*	*12*	*231*	*3*
16:00:00	*20*	*247*	*11*	*278*	*4*
17:00:00	*21*	*232*	*12*	*265*	*0*
18:00:00	*26*	*225*	*12*	*263*	*2*
19:00:00	*15*	*180*	*8*	*203*	*0*
20:00:00	*8*	*152*	*14*	*174*	*2*
Totals:	122	1437	79	1638	11

North/South Total Approaches: *5171*

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*16*	*320*	*28*	*364*	*1*
15:00:00	*16*	*432*	*15*	*463*	*6*
16:00:00	*23*	*481*	*32*	*536*	*0*
17:00:00	*20*	*596*	*39*	*655*	*2*
18:00:00	*23*	*590*	*29*	*642*	*0*
19:00:00	*18*	*471*	*29*	*518*	*0*
20:00:00	*8*	*331*	*16*	*355*	*6*
S Totals:	124	3221	188	3533	15

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*20*	*53*	*20*	*93*	*0*
15:00:00	*19*	*55*	*22*	*96*	*3*
16:00:00	*22*	*54*	*34*	*110*	*0*
17:00:00	*30*	*55*	*27*	*112*	*0*
18:00:00	*27*	*63*	*33*	*123*	*2*
19:00:00	*16*	*41*	*18*	*75*	*0*
20:00:00	*11*	*24*	*14*	*49*	*0*
Totals:	145	345	168	658	5

East/West Total Approaches: *1152*

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*14*	*34*	*8*	*56*	*0*
15:00:00	*18*	*31*	*15*	*64*	*1*
16:00:00	*36*	*32*	*13*	*81*	*0*
17:00:00	*33*	*49*	*16*	*98*	*0*
18:00:00	*28*	*48*	*15*	*91*	*0*
19:00:00	*19*	*37*	*8*	*64*	*0*
20:00:00	*14*	*23*	*3*	*40*	*2*
W Totals:	162	254	78	494	3

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*13:00*	*14:00*	*15:00*	*16:00*	*17:00*	*18:00*	*19:00*	*20:00*
Crossing Values:	*0*	*88*	*101*	*116*	*120*	*120*	*76*	*57*

Count Date: 21-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	6	6	41	41	3	3	2	2	1	1	0	0	0	0	0	0	0	0	0	0
13:30:00	9	3	89	48	6	3	4	2	5	4	1	1	0	0	0	0	0	0	0	0
13:45:00	12	3	142	53	7	1	4	0	7	2	1	0	0	0	0	0	0	0	0	0
14:00:00	13	1	187	45	9	2	4	0	10	3	1	0	0	0	0	0	0	0	0	0
14:15:00	15	2	241	54	12	3	5	1	14	4	1	0	0	0	0	0	0	0	0	0
14:30:00	22	7	284	43	13	1	5	0	17	3	1	0	0	0	1	1	0	0	2	2
14:45:00	24	2	323	39	17	4	5	0	21	4	1	0	0	0	1	0	0	0	2	0
15:00:00	27	3	377	54	21	4	5	0	23	2	1	0	0	0	1	0	0	0	3	1
15:15:00	32	5	427	50	24	3	5	0	25	2	1	0	0	0	1	0	0	0	3	0
15:30:00	41	9	497	70	26	2	5	0	30	5	1	0	0	0	1	0	0	0	3	0
15:45:00	44	3	560	63	29	3	5	0	32	2	1	0	0	0	1	0	0	0	7	4
16:00:00	46	2	611	51	32	3	5	0	36	4	1	0	1	1	1	0	0	0	7	0
16:15:00	50	4	666	55	33	1	5	0	40	4	1	0	1	0	1	0	0	0	7	0
16:30:00	52	2	724	58	37	4	5	0	42	2	1	0	1	0	1	0	0	0	7	0
16:45:00	62	10	783	59	40	3	5	0	42	0	1	0	1	0	1	0	0	0	7	0
17:00:00	67	5	836	53	44	4	5	0	43	1	1	0	1	0	1	0	0	0	7	0
17:15:00	74	7	894	58	47	3	5	0	46	3	1	0	1	0	1	0	0	0	8	1
17:30:00	81	7	944	50	48	1	6	1	47	1	2	1	1	0	1	0	0	0	9	1
17:45:00	88	7	998	54	53	5	6	0	50	3	2	0	1	0	1	0	0	0	9	0
18:00:00	92	4	1053	55	55	2	6	0	51	1	2	0	1	0	1	0	0	0	9	0
18:15:00	98	6	1108	55	57	2	6	0	51	0	2	0	1	0	1	0	0	0	9	0
18:30:00	102	4	1156	48	58	1	6	0	51	0	2	0	1	0	1	0	0	0	9	0
18:45:00	105	3	1192	36	60	2	6	0	52	1	2	0	1	0	1	0	0	0	9	0
19:00:00	107	2	1231	39	63	3	6	0	53	1	2	0	1	0	1	0	0	0	9	0
19:15:00	110	3	1276	45	65	2	6	0	53	0	2	0	1	0	1	0	0	0	9	0
19:30:00	113	3	1308	32	67	2	6	0	54	1	2	0	1	0	1	0	0	0	11	2
19:45:00	114	1	1345	37	72	5	6	0	55	1	2	0	1	0	1	0	0	0	11	0
20:00:00	115	1	1381	36	77	5	6	0	55	0	2	0	1	0	1	0	0	0	11	0
20:15:00	115	0	1381	0	77	0	6	0	55	0	2	0	1	0	1	0	0	0	11	0
20:15:15	115	0	1381	0	77	0	6	0	55	0	2	0	1	0	1	0	0	0	11	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 21-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	6	6	17	17	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	12	6	25	8	11	7	0	0	1	1	1	1	0	0	0	0	0	0	0	0
13:45:00	17	5	40	15	13	2	0	0	3	2	1	0	0	0	0	0	0	0	0	0
14:00:00	19	2	50	10	19	6	1	1	3	0	1	0	0	0	0	0	0	0	0	0
14:15:00	26	7	61	11	27	8	1	0	3	0	2	1	0	0	0	0	0	0	0	0
14:30:00	32	6	72	11	30	3	1	0	3	0	2	0	0	0	1	1	0	0	2	2
14:45:00	38	6	84	12	34	4	1	0	5	2	2	0	0	0	1	0	0	0	2	0
15:00:00	38	0	102	18	40	6	1	0	5	0	2	0	0	0	1	0	0	0	3	1
15:15:00	44	6	110	8	47	7	1	0	5	0	3	1	0	0	2	1	1	1	3	0
15:30:00	52	8	121	11	58	11	1	0	5	0	3	0	0	0	2	0	1	0	3	0
15:45:00	54	2	140	19	67	9	1	0	5	0	3	0	0	0	2	0	1	0	3	0
16:00:00	60	6	154	14	72	5	1	0	5	0	3	0	0	0	3	1	1	0	3	0
16:15:00	69	9	176	22	77	5	1	0	5	0	3	0	0	0	3	0	1	0	3	0
16:30:00	75	6	179	3	84	7	1	0	6	1	3	0	0	0	3	0	1	0	3	0
16:45:00	81	6	194	15	93	9	1	0	7	1	3	0	0	0	3	0	1	0	3	0
17:00:00	89	8	207	13	99	6	2	1	7	0	3	0	0	0	3	0	1	0	3	0
17:15:00	98	9	222	15	107	8	2	0	7	0	3	0	0	0	3	0	1	0	4	1
17:30:00	102	4	243	21	117	10	2	0	7	0	4	1	0	0	3	0	1	0	5	1
17:45:00	108	6	257	14	121	4	2	0	7	0	4	0	0	0	3	0	1	0	5	0
18:00:00	116	8	270	13	131	10	2	0	7	0	4	0	0	0	3	0	1	0	5	0
18:15:00	121	5	284	14	133	2	2	0	7	0	4	0	0	0	3	0	1	0	5	0
18:30:00	126	5	296	12	138	5	3	1	7	0	4	0	0	0	3	0	1	0	5	0
18:45:00	130	4	304	8	144	6	3	0	7	0	4	0	0	0	3	0	1	0	5	0
19:00:00	131	1	311	7	149	5	3	0	7	0	4	0	0	0	3	0	1	0	5	0
19:15:00	132	1	316	5	153	4	3	0	7	0	4	0	0	0	3	0	1	0	5	0
19:30:00	133	1	321	5	158	5	3	0	7	0	4	0	0	0	3	0	1	0	5	0
19:45:00	138	5	330	9	160	2	3	0	7	0	4	0	0	0	3	0	1	0	5	0
20:00:00	142	4	335	5	163	3	3	0	7	0	4	0	0	0	3	0	1	0	5	0
20:15:00	142	0	335	0	163	0	3	0	7	0	4	0	0	0	3	0	1	0	5	0
20:15:15	142	0	335	0	163	0	3	0	7	0	4	0	0	0	3	0	1	0	5	0

Count Date: 21-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	1	1	86	86	4	4	0	0	4	4	0	0	0	0	0	0	0	0	0	0
13:30:00	4	3	173	87	8	4	1	1	4	0	1	1	0	0	0	0	1	1	0	0
13:45:00	9	5	245	72	16	8	1	0	8	4	2	1	0	0	0	0	1	0	0	0
14:00:00	15	6	311	66	25	9	1	0	9	1	2	0	0	0	0	0	1	0	1	1
14:15:00	17	2	403	92	26	1	1	0	10	1	3	1	0	0	0	0	1	0	5	4
14:30:00	22	5	503	100	28	2	1	0	13	3	3	0	0	0	0	0	1	0	5	0
14:45:00	28	6	605	102	34	6	1	0	14	1	3	0	0	0	0	0	2	1	6	1
15:00:00	30	2	735	130	38	4	2	1	17	3	3	0	0	0	0	0	2	0	7	1
15:15:00	34	4	849	114	40	2	2	0	21	4	4	1	0	0	0	0	2	0	7	0
15:30:00	38	4	954	105	48	8	2	0	21	0	4	0	0	0	0	0	2	0	7	0
15:45:00	44	6	1077	123	58	10	3	1	23	2	4	0	0	0	0	0	2	0	7	0
16:00:00	51	7	1208	131	69	11	3	0	25	2	4	0	1	1	0	0	2	0	7	0
16:15:00	54	3	1363	155	81	12	3	0	25	0	4	0	1	0	1	1	2	0	8	1
16:30:00	59	5	1516	153	95	14	4	1	26	1	4	0	1	0	1	0	2	0	9	1
16:45:00	66	7	1672	156	98	3	4	0	29	3	4	0	1	0	1	0	2	0	9	0
17:00:00	70	4	1798	126	108	10	4	0	30	1	4	0	1	0	1	0	2	0	9	0
17:15:00	76	6	1908	110	117	9	4	0	30	0	4	0	1	0	1	0	2	0	9	0
17:30:00	80	4	2060	152	125	8	4	0	34	4	4	0	1	0	1	0	2	0	9	0
17:45:00	87	7	2247	187	131	6	4	0	34	0	4	0	1	0	1	0	2	0	9	0
18:00:00	93	6	2384	137	137	6	4	0	34	0	4	0	1	0	1	0	2	0	9	0
18:15:00	101	8	2522	138	151	14	4	0	35	1	4	0	1	0	1	0	2	0	9	0
18:30:00	105	4	2635	113	156	5	4	0	36	1	4	0	1	0	1	0	2	0	9	0
18:45:00	110	5	2754	119	160	4	4	0	37	1	4	0	1	0	1	0	2	0	9	0
19:00:00	111	1	2850	96	166	6	4	0	39	2	4	0	1	0	1	0	2	0	9	0
19:15:00	113	2	2950	100	170	4	4	0	39	0	4	0	1	0	1	0	2	0	15	6
19:30:00	115	2	3038	88	175	5	4	0	40	1	4	0	1	0	1	0	2	0	15	0
19:45:00	116	1	3123	85	179	4	4	0	41	1	4	0	1	0	1	0	2	0	15	0
20:00:00	119	3	3179	56	182	3	4	0	41	0	4	0	1	0	1	0	2	0	15	0
20:15:00	119	0	3179	0	182	0	4	0	41	0	4	0	1	0	1	0	2	0	15	0
20:15:15	119	0	3179	0	182	0	4	0	41	0	4	0	1	0	1	0	2	0	15	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 21-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	5	5	10	10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	7	2	20	10	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45:00	10	3	32	12	3	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
14:00:00	14	4	34	2	7	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0
14:15:00	19	5	39	5	10	3	1	1	1	1	1	0	0	0	0	0	0	0	0	0
14:30:00	23	4	46	7	13	3	1	0	1	0	1	0	0	0	0	0	0	0	0	0
14:45:00	26	3	56	10	17	4	1	0	1	0	1	0	0	0	0	0	0	0	0	0
15:00:00	31	5	63	7	22	5	1	0	2	1	1	0	0	0	0	0	0	0	1	1
15:15:00	37	6	71	8	25	3	1	0	2	0	2	1	0	0	0	0	0	0	1	0
15:30:00	48	11	77	6	29	4	1	0	2	0	2	0	0	0	1	1	0	0	1	0
15:45:00	57	9	85	8	30	1	1	0	2	0	2	0	0	0	2	1	0	0	1	0
16:00:00	67	10	91	6	33	3	1	0	3	1	3	1	0	0	3	1	0	0	1	0
16:15:00	74	7	104	13	36	3	1	0	4	1	3	0	0	0	6	3	0	0	1	0
16:30:00	79	5	115	11	41	5	2	1	5	1	3	0	0	0	6	0	0	0	1	0
16:45:00	91	12	123	8	43	2	2	0	5	0	4	1	1	1	6	0	0	0	1	0
17:00:00	98	7	135	12	48	5	2	0	5	0	4	0	1	0	6	0	0	0	1	0
17:15:00	101	3	142	7	53	5	2	0	8	3	4	0	1	0	6	0	0	0	1	0
17:30:00	103	2	155	13	55	2	2	0	11	3	4	0	1	0	6	0	0	0	1	0
17:45:00	112	9	165	10	59	4	3	1	11	0	4	0	1	0	6	0	0	0	1	0
18:00:00	125	13	177	12	63	4	3	0	11	0	4	0	1	0	6	0	0	0	1	0
18:15:00	132	7	186	9	64	1	3	0	11	0	4	0	1	0	6	0	0	0	1	0
18:30:00	137	5	197	11	67	3	3	0	11	0	5	1	1	0	6	0	0	0	1	0
18:45:00	140	3	205	8	68	1	3	0	11	0	5	0	1	0	6	0	0	0	1	0
19:00:00	144	4	213	8	70	2	3	0	12	1	5	0	1	0	6	0	0	0	1	0
19:15:00	146	2	219	6	70	0	3	0	12	0	5	0	1	0	6	0	0	0	3	2
19:30:00	149	3	222	3	71	1	3	0	12	0	5	0	1	0	6	0	0	0	3	0
19:45:00	153	4	229	7	71	0	3	0	12	0	5	0	1	0	6	0	0	0	3	0
20:00:00	158	5	236	7	73	2	3	0	12	0	5	0	1	0	6	0	0	0	3	0
20:15:00	158	0	236	0	73	0	3	0	12	0	5	0	1	0	6	0	0	0	3	0
20:15:15	158	0	236	0	73	0	3	0	12	0	5	0	1	0	6	0	0	0	3	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Mid-day Peak Diagram

Specified Period
From: 13:00:00
To: 16:00:00

One Hour Peak
From: 13:15:00
To: 14:15:00

Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 23-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Dufferin Couty Rd 18 runs N/S

North Leg Total: 887
North Entering: 534
North Peds: 3
Peds Cross: ⋈

Buses	0	0	0	0
Trucks	0	0	0	0
Cars	17	500	17	534
Totals	17	500	17	

Buses	1
Trucks	4
Cars	348
Totals	353

East Leg Total: 204
East Entering: 100
East Peds: 0
Peds Cross: ⧖

Dufferin Couty Rd 18

Buses	Trucks	Cars	Totals
0	0	80	80

Dufferin Couty Rd 17

Cars	Trucks	Buses	Totals
34	0	0	34
50	0	0	50
16	0	0	16
100	0	0	

N
W E
S

Buses	Trucks	Cars	Totals
0	0	25	25
0	1	60	61
0	0	10	10
0	1	95	

Dufferin Couty Rd 17

Cars	Trucks	Buses	Totals
103	1	0	104

Dufferin Couty Rd 18

Peds Cross: ⧖
West Peds: 0
West Entering: 96
West Leg Total: 176

Cars	526			
Trucks	0			
Buses	0			
Totals	526			

Cars	13	289	26	328
Trucks	0	4	0	4
Buses	0	1	0	1
Totals	13	294	26	

Peds Cross: ⋈
South Peds: 0
South Entering: 333
South Leg Total: 859

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 20:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 23-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

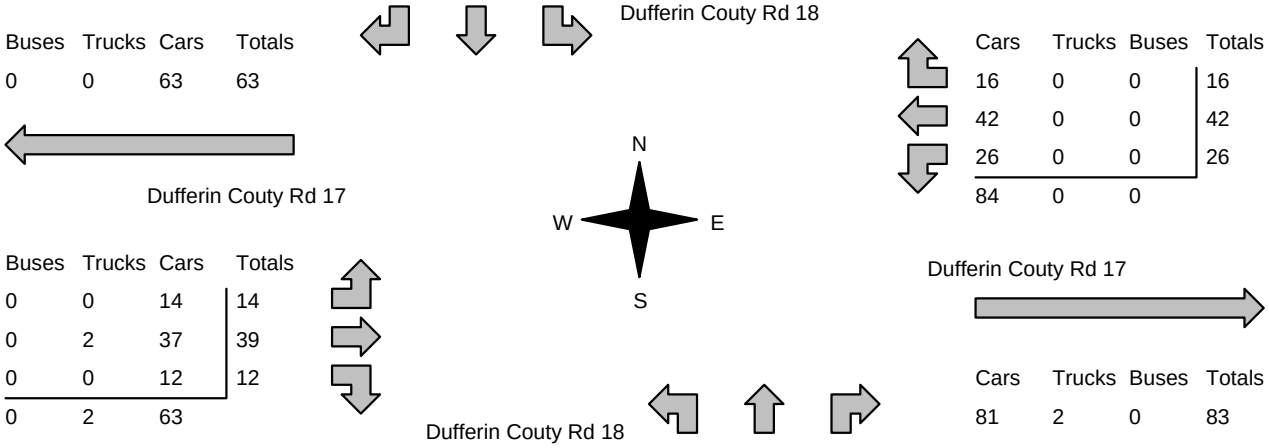
Major Road: Dufferin Couty Rd 18 runs N/S

North Leg Total: 788
North Entering: 529
North Peds: 4
Peds Cross: ⋈

Buses	0	1	0	1
Trucks	0	6	0	6
Cars	12	494	16	522
Totals	12	501	16	

Buses	0
Trucks	0
Cars	259
Totals	259

East Leg Total: 167
East Entering: 84
East Peds: 0
Peds Cross: ⧗



Buses	Trucks	Cars	Totals
0	0	63	63

Cars	Trucks	Buses	Totals
16	0	0	16
42	0	0	42
26	0	0	26
84	0	0	

Buses	Trucks	Cars	Totals
0	0	14	14
0	2	37	39
0	0	12	12
0	2	63	

Cars	Trucks	Buses	Totals
81	2	0	83

Peds Cross: ⧗
West Peds: 0
West Entering: 65
West Leg Total: 128

Cars	532	Cars	9	229	28	266
Trucks	6	Trucks	0	0	0	0
Buses	1	Buses	0	0	0	0
Totals	539	Totals	9	229	28	

Peds Cross: ⋈
South Peds: 0
South Entering: 266
South Leg Total: 805

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Total Count Diagram

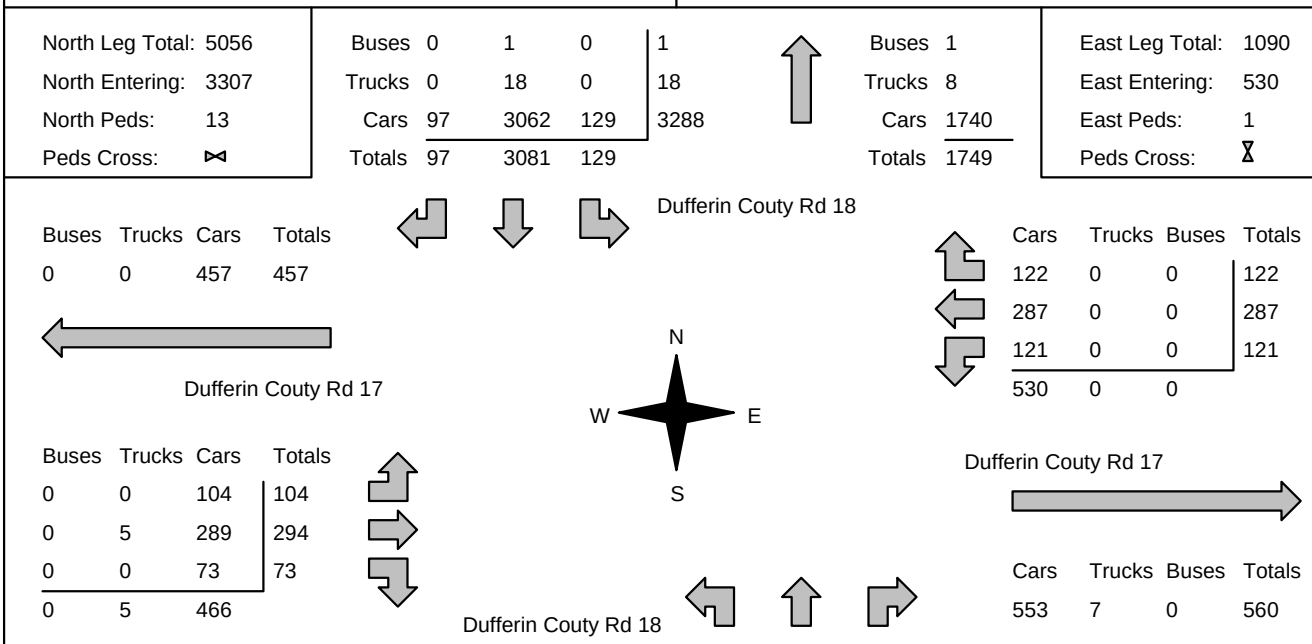
Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 23-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Dufferin Couty Rd 18 runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Traffic Count Summary

Intersection: Dufferin Couty Rd 18 & Dufferin C | **Count Date:** 23-Jun-24 | **Municipality:** Mansfield

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*19*	*478*	*18*	*515*	*3*
15:00:00	*19*	*517*	*19*	*555*	*1*
16:00:00	*24*	*501*	*14*	*539*	*0*
17:00:00	*21*	*503*	*11*	*535*	*4*
18:00:00	*19*	*411*	*18*	*448*	*0*
19:00:00	*14*	*401*	*5*	*420*	*4*
20:00:00	*13*	*270*	*12*	*295*	*1*
Totals:	129	3081	97	3307	13

North/South Total Approaches: 5040

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*12*	*293*	*27*	*332*	*0*
15:00:00	*13*	*248*	*22*	*283*	*0*
16:00:00	*11*	*246*	*22*	*279*	*0*
17:00:00	*8*	*212*	*28*	*248*	*0*
18:00:00	*11*	*222*	*17*	*250*	*0*
19:00:00	*5*	*162*	*12*	*179*	*0*
20:00:00	*13*	*140*	*9*	*162*	*0*
S Totals:	73	1523	137	1733	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*16*	*51*	*30*	*97*	*0*
15:00:00	*23*	*46*	*26*	*95*	*0*
16:00:00	*24*	*55*	*14*	*93*	*0*
17:00:00	*22*	*46*	*12*	*80*	*0*
18:00:00	*18*	*27*	*18*	*63*	*0*
19:00:00	*10*	*33*	*10*	*53*	*1*
20:00:00	*8*	*29*	*12*	*49*	*0*
Totals:	121	287	122	530	1

East/West Total Approaches: 1001

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
13:00:00	*0*	*0*	*0*	*0*	*0*
14:00:00	*20*	*67*	*13*	*100*	*0*
15:00:00	*23*	*46*	*13*	*82*	*0*
16:00:00	*13*	*45*	*18*	*76*	*0*
17:00:00	*16*	*41*	*11*	*68*	*0*
18:00:00	*10*	*51*	*8*	*69*	*0*
19:00:00	*13*	*27*	*6*	*46*	*0*
20:00:00	*9*	*17*	*4*	*30*	*0*
W Totals:	104	294	73	471	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*13:00*	*14:00*	*15:00*	*16:00*	*17:00*	*18:00*	*19:00*	*20:00*
Crossing Values:	*0*	*106*	*93*	*92*	*88*	*79*	*60*	*47*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 23-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	5	5	109	109	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	6	1	227	118	10	6	0	0	0	0	0	0	0	0	0	0	0	0	2	2
13:45:00	10	4	369	142	12	2	0	0	0	0	0	0	0	0	0	0	0	0	3	1
14:00:00	19	9	478	109	18	6	0	0	0	0	0	0	0	0	0	0	0	0	3	0
14:15:00	22	3	609	131	21	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0
14:30:00	30	8	736	127	23	2	0	0	0	0	0	0	0	0	0	0	0	0	4	1
14:45:00	32	2	858	122	31	8	0	0	0	0	0	0	0	0	0	0	0	0	4	0
15:00:00	38	6	995	137	37	6	0	0	0	0	0	0	0	0	0	0	0	0	4	0
15:15:00	44	6	1100	105	38	1	0	0	1	1	0	0	0	0	0	0	0	0	4	0
15:30:00	53	9	1249	149	43	5	0	0	1	0	0	0	0	0	0	0	0	0	4	0
15:45:00	56	3	1369	120	48	5	0	0	1	0	0	0	0	0	0	0	0	0	4	0
16:00:00	62	6	1494	125	51	3	0	0	2	1	0	0	0	0	0	0	0	0	4	0
16:15:00	72	10	1620	126	55	4	0	0	4	2	0	0	0	0	0	0	0	0	4	0
16:30:00	75	3	1739	119	58	3	0	0	5	1	0	0	0	0	0	0	0	0	4	0
16:45:00	79	4	1864	125	60	2	0	0	7	2	0	0	0	0	0	0	0	0	4	0
17:00:00	83	4	1989	125	62	2	0	0	9	2	0	0	0	0	1	1	0	0	8	4
17:15:00	88	5	2114	125	67	5	0	0	10	1	0	0	0	0	1	0	0	0	8	0
17:30:00	95	7	2226	112	75	8	0	0	10	0	0	0	0	0	1	0	0	0	8	0
17:45:00	96	1	2318	92	77	2	0	0	13	3	0	0	0	0	1	0	0	0	8	0
18:00:00	102	6	2395	77	80	3	0	0	14	1	0	0	0	0	1	0	0	0	8	0
18:15:00	105	3	2492	97	81	1	0	0	14	0	0	0	0	0	1	0	0	0	8	0
18:30:00	109	4	2594	102	84	3	0	0	15	1	0	0	0	0	1	0	0	0	8	0
18:45:00	111	2	2706	112	84	0	0	0	17	2	0	0	0	0	1	0	0	0	10	2
19:00:00	116	5	2793	87	85	1	0	0	17	0	0	0	0	0	1	0	0	0	12	2
19:15:00	118	2	2855	62	88	3	0	0	17	0	0	0	0	0	1	0	0	0	12	0
19:30:00	121	3	2932	77	92	4	0	0	18	1	0	0	0	0	1	0	0	0	12	0
19:45:00	123	2	3006	74	96	4	0	0	18	0	0	0	0	0	1	0	0	0	13	1
20:00:00	129	6	3062	56	97	1	0	0	18	0	0	0	0	0	1	0	0	0	13	0
20:15:00	129	0	3062	0	97	0	0	0	18	0	0	0	0	0	1	0	0	0	13	0
20:15:15	129	0	3062	0	97	0	0	0	18	0	0	0	0	0	1	0	0	0	13	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 23-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	6	6	16	16	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	10	4	27	11	14	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45:00	14	4	42	15	26	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00:00	16	2	51	9	30	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15:00	22	6	66	15	39	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30:00	29	7	77	11	41	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45:00	38	9	87	10	49	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00:00	39	1	97	10	56	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15:00	46	7	112	15	62	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30:00	53	7	122	10	64	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45:00	57	4	135	13	67	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00:00	63	6	152	17	70	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15:00	65	2	163	11	74	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30:00	71	6	177	14	77	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45:00	79	8	183	6	80	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00:00	85	6	198	15	82	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15:00	91	6	205	7	90	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30:00	91	0	213	8	91	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45:00	98	7	220	7	95	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00:00	103	5	225	5	100	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15:00	107	4	233	8	105	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:30:00	109	2	244	11	107	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:45:00	111	2	249	5	108	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
19:00:00	113	2	258	9	110	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0
19:15:00	115	2	265	7	115	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0
19:30:00	119	4	276	11	118	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0
19:45:00	120	1	280	4	120	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0
20:00:00	121	1	287	7	122	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0
20:15:00	121	0	287	0	122	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
20:15:15	121	0	287	0	122	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 23-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	2	2	79	79	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30:00	5	3	149	70	15	9	0	0	0	0	0	0	0	0	1	1	0	0	0	0
13:45:00	10	5	219	70	20	5	0	0	1	1	0	0	0	0	1	0	0	0	0	0
14:00:00	12	2	288	69	27	7	0	0	4	3	0	0	0	0	1	0	0	0	0	0
14:15:00	15	3	368	80	32	5	0	0	4	0	0	0	0	0	1	0	0	0	0	0
14:30:00	18	3	432	64	40	8	0	0	5	1	0	0	0	0	1	0	0	0	0	0
14:45:00	23	5	487	55	45	5	0	0	5	0	0	0	0	0	1	0	0	0	0	0
15:00:00	25	2	535	48	49	4	0	0	5	0	0	0	0	0	1	0	0	0	0	0
15:15:00	27	2	587	52	57	8	0	0	6	1	1	1	0	0	1	0	0	0	0	0
15:30:00	30	3	653	66	62	5	0	0	6	0	1	0	0	0	1	0	0	0	0	0
15:45:00	30	0	717	64	67	5	0	0	6	0	1	0	0	0	1	0	0	0	0	0
16:00:00	36	6	780	63	70	3	0	0	6	0	1	0	0	0	1	0	0	0	0	0
16:15:00	38	2	829	49	75	5	0	0	6	0	1	0	0	0	1	0	0	0	0	0
16:30:00	38	0	886	57	82	7	0	0	6	0	1	0	0	0	1	0	0	0	0	0
16:45:00	43	5	943	57	92	10	0	0	6	0	1	0	0	0	1	0	0	0	0	0
17:00:00	44	1	992	49	98	6	0	0	6	0	1	0	0	0	1	0	0	0	0	0
17:15:00	47	3	1058	66	103	5	0	0	6	0	1	0	0	0	1	0	0	0	0	0
17:30:00	50	3	1106	48	106	3	0	0	6	0	2	1	0	0	1	0	0	0	0	0
17:45:00	52	2	1159	53	111	5	0	0	7	1	2	0	0	0	1	0	0	0	0	0
18:00:00	55	3	1213	54	114	3	0	0	7	0	2	0	0	0	1	0	0	0	0	0
18:15:00	55	0	1249	36	117	3	0	0	7	0	2	0	0	0	1	0	0	0	0	0
18:30:00	57	2	1288	39	122	5	0	0	7	0	2	0	0	0	1	0	0	0	0	0
18:45:00	58	1	1335	47	125	3	0	0	7	0	2	0	0	0	1	0	0	0	0	0
19:00:00	60	2	1374	39	126	1	0	0	8	1	2	0	0	0	1	0	0	0	0	0
19:15:00	64	4	1413	39	128	2	0	0	8	0	2	0	0	0	1	0	0	0	0	0
19:30:00	67	3	1451	38	131	3	0	0	8	0	2	0	0	0	1	0	0	0	0	0
19:45:00	71	4	1484	33	132	1	0	0	8	0	2	0	0	0	1	0	0	0	0	0
20:00:00	73	2	1514	30	135	3	0	0	8	0	2	0	0	0	1	0	0	0	0	0
20:15:00	73	0	1514	0	135	0	0	0	8	0	2	0	0	0	1	0	0	0	0	0
20:15:15	73	0	1514	0	135	0	0	0	8	0	2	0	0	0	1	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 23-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
13:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15:00	0	0	16	16	4	4	0	0	1	1	0	0	0	0	0	0	0	0	0	0
13:30:00	10	10	33	17	7	3	0	0	2	1	0	0	0	0	0	0	0	0	0	0
13:45:00	16	6	53	20	10	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0
14:00:00	20	4	65	12	13	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0
14:15:00	25	5	76	11	14	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0
14:30:00	31	6	85	9	19	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0
14:45:00	37	6	95	10	23	4	0	0	2	0	0	0	0	0	0	0	0	0	0	0
15:00:00	43	6	111	16	26	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0
15:15:00	45	2	120	9	32	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0
15:30:00	48	3	137	17	38	6	0	0	3	1	0	0	0	0	0	0	0	0	0	0
15:45:00	53	5	144	7	40	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0
16:00:00	56	3	155	11	44	4	0	0	3	0	0	0	0	0	0	0	0	0	0	0
16:15:00	58	2	165	10	45	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0
16:30:00	61	3	178	13	48	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0
16:45:00	68	7	186	8	52	4	0	0	3	0	0	0	0	0	0	0	0	0	0	0
17:00:00	72	4	195	9	55	3	0	0	4	1	0	0	0	0	0	0	0	0	0	0
17:15:00	72	0	202	7	57	2	0	0	5	1	0	0	0	0	0	0	0	0	0	0
17:30:00	77	5	214	12	61	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0
17:45:00	80	3	227	13	62	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
18:00:00	82	2	245	18	63	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
18:15:00	84	2	253	8	66	3	0	0	5	0	0	0	0	0	0	0	0	0	0	0
18:30:00	89	5	255	2	67	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
18:45:00	94	5	262	7	68	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
19:00:00	95	1	272	10	69	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
19:15:00	100	5	276	4	70	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
19:30:00	102	2	280	4	71	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
19:45:00	103	1	282	2	72	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
20:00:00	104	1	289	7	73	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0
20:15:00	104	0	289	0	73	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
20:15:15	104	0	289	0	73	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

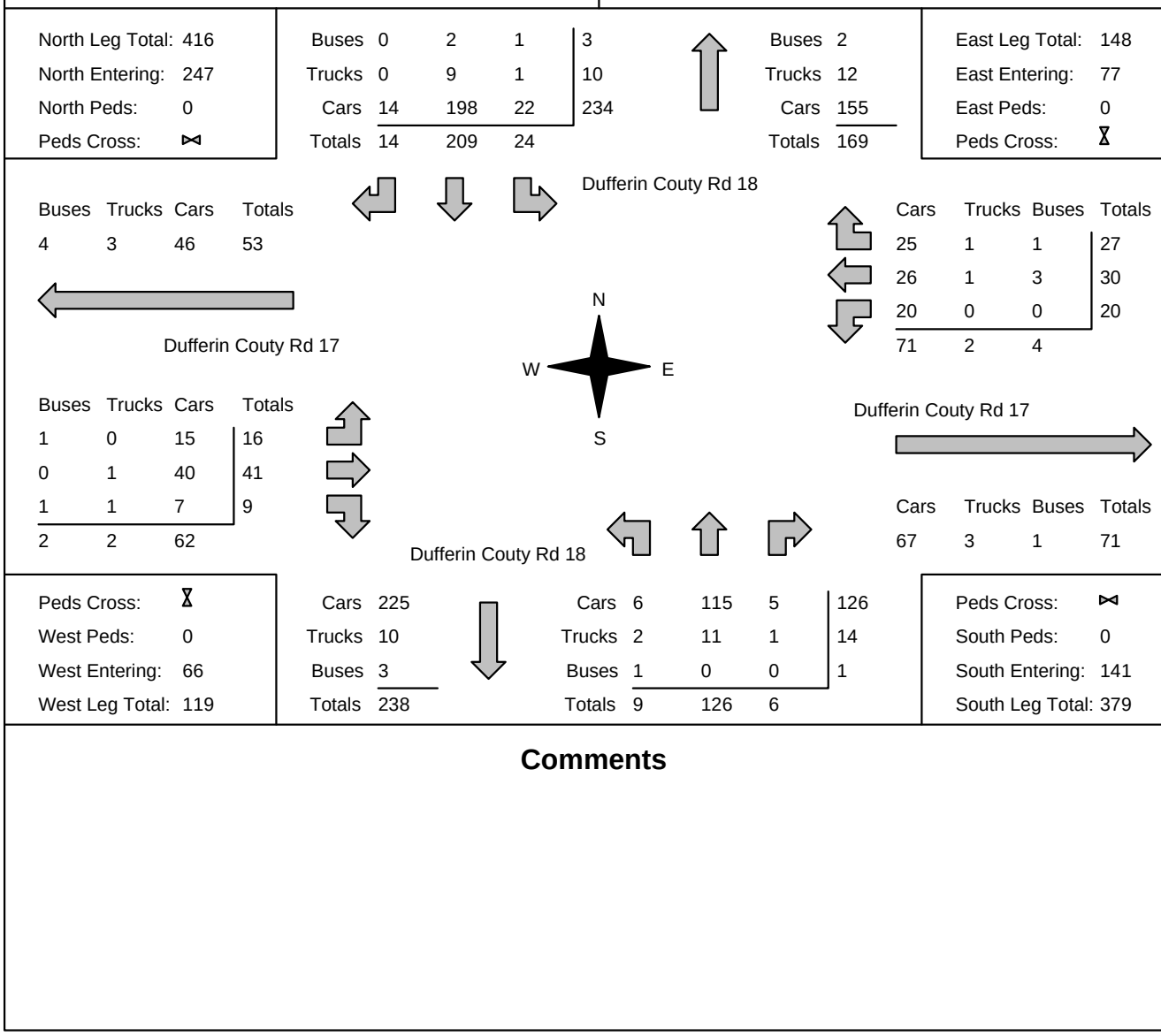
Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 19-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Dufferin Couty Rd 18 runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 19:00:00

One Hour Peak
From: 16:15:00
To: 17:15:00

Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 19-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Dufferin Couty Rd 18 runs N/S

North Leg Total: 577
North Entering: 243
North Peds: 0
Peds Cross: ⋈

Buses	0	2	2	4
Trucks	1	14	1	16
Cars	10	187	26	223
Totals	11	203	29	

Buses	3
Trucks	9
Cars	322
Totals	334

East Leg Total: 206
East Entering: 108
East Peds: 0
Peds Cross: ⧖

Dufferin Couty Rd 18

Buses	Trucks	Cars	Totals
1	4	83	88

Dufferin Couty Rd 17

Cars	Trucks	Buses	Totals
30	1	0	31
56	2	0	58
19	0	0	19
105	3	0	

N
W E
S

Buses	Trucks	Cars	Totals
1	0	20	21
0	1	41	42
1	0	11	12
2	1	72	

Dufferin Couty Rd 17

Cars	Trucks	Buses	Totals
93	3	2	98

Dufferin Couty Rd 18

Peds Cross: ⧖
West Peds: 0
West Entering: 75
West Leg Total: 163

Cars	217			
Trucks	14			
Buses	3			
Totals	234			

Cars	17	272	26	315
Trucks	1	8	1	10
Buses	1	2	0	3
Totals	19	282	27	

Peds Cross: ⋈
South Peds: 0
South Entering: 328
South Leg Total: 562

Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Total Count Diagram

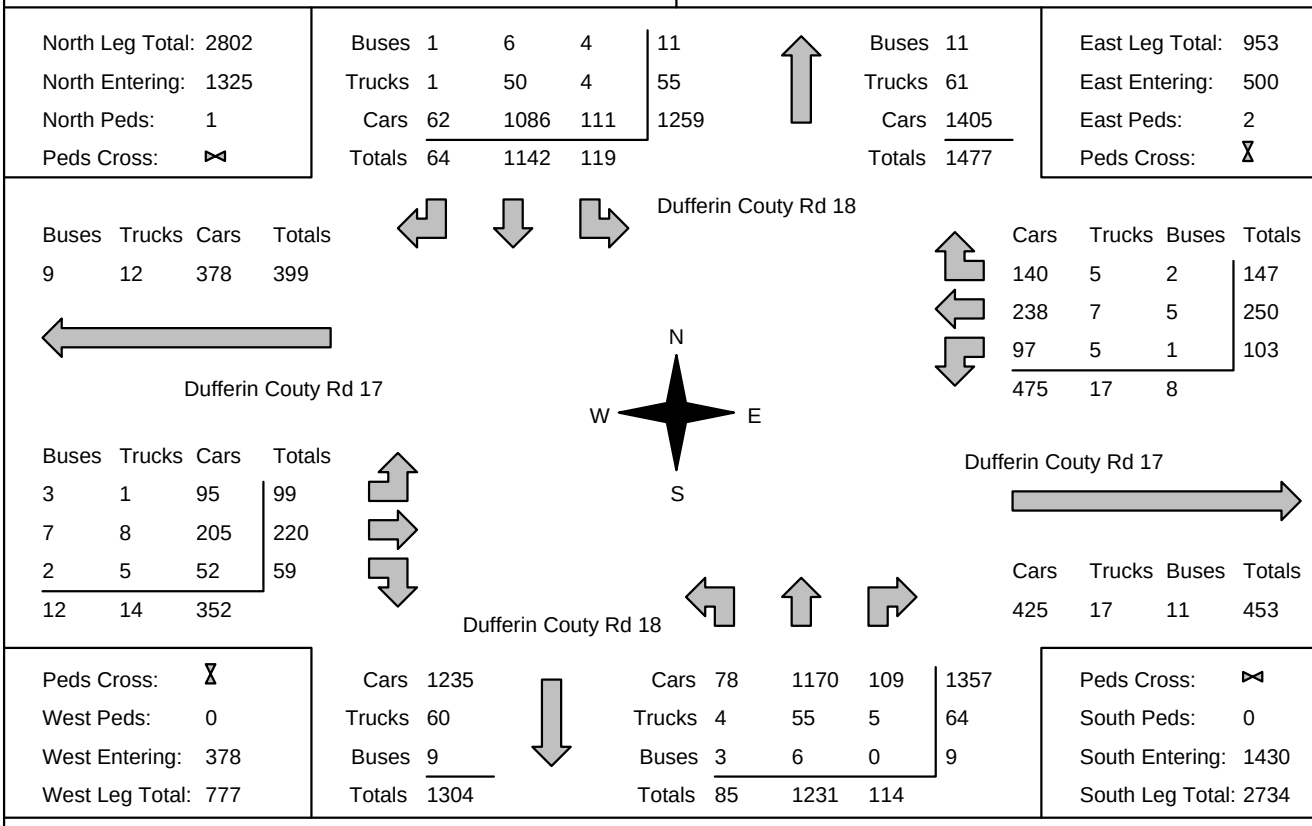
Municipality: Mansfield
Site #: 2411000001
Intersection: Dufferin Couty Rd 18 & Dufferin Co
TFR File #: 1
Count date: 19-Jun-24

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Signalized Intersection ****

Major Road: Dufferin Couty Rd 18 runs N/S



Comments

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Traffic Count Summary

Intersection: Dufferin Couty Rd 18 & Dufferin C | **Count Date:** 19-Jun-24 | **Municipality:** Mansfield

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*21*	*213*	*13*	*247*	*0*
9:00:00	*16*	*205*	*15*	*236*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*22*	*202*	*8*	*232*	*0*
17:00:00	*22*	*199*	*10*	*231*	*0*
18:00:00	*25*	*193*	*9*	*227*	*0*
19:00:00	*13*	*130*	*9*	*152*	*1*
Totals:	119	1142	64	1325	1

North/South Total Approaches: *2755*

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*6*	*106*	*7*	*119*	*0*
9:00:00	*8*	*142*	*9*	*159*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*19*	*235*	*23*	*277*	*0*
17:00:00	*22*	*274*	*24*	*320*	*0*
18:00:00	*15*	*273*	*32*	*320*	*0*
19:00:00	*15*	*201*	*19*	*235*	*0*
S Totals:	85	1231	114	1430	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*16*	*21*	*25*	*62*	*0*
9:00:00	*18*	*28*	*19*	*65*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*21*	*63*	*20*	*104*	*0*
17:00:00	*22*	*50*	*29*	*101*	*0*
18:00:00	*18*	*54*	*34*	*106*	*0*
19:00:00	*8*	*34*	*20*	*62*	*2*
Totals:	103	250	147	500	2

East/West Total Approaches: *878*

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Buses				Total Peds
	Left	Thru	Right	Grand Total	
7:00:00	*0*	*0*	*0*	*0*	*0*
8:00:00	*13*	*45*	*13*	*71*	*0*
9:00:00	*9*	*24*	*7*	*40*	*0*
15:00:00	*0*	*0*	*0*	*0*	*0*
16:00:00	*19*	*39*	*13*	*71*	*0*
17:00:00	*22*	*41*	*12*	*75*	*0*
18:00:00	*27*	*47*	*12*	*86*	*0*
19:00:00	*9*	*24*	*2*	*35*	*0*
W Totals:	99	220	59	378	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	*7:00*	*8:00*	*9:00*	*15:00*	*16:00*	*17:00*	*18:00*	*19:00*
Crossing Values:	*0*	*74*	*55*	*0*	*103*	*94*	*99*	*52*

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 19-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Buses - North Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		North Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	4	4	58	58	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0
7:30:00	7	3	111	53	6	4	0	0	3	1	0	0	0	0	0	0	0	0	0	0
7:45:00	13	6	162	51	9	3	0	0	5	2	0	0	0	0	2	2	0	0	0	0
8:00:00	21	8	206	44	13	4	0	0	5	0	0	0	0	0	2	0	0	0	0	0
8:15:00	24	3	261	55	18	5	1	1	8	3	0	0	1	1	2	0	0	0	0	0
8:30:00	29	5	309	48	20	2	1	0	12	4	0	0	1	0	2	0	0	0	0	0
8:45:00	34	5	352	43	25	5	1	0	12	0	0	0	1	0	2	0	0	0	0	0
9:00:00	35	1	404	52	28	3	1	0	12	0	0	0	1	0	2	0	0	0	0	0
9:15:00	35	0	404	0	28	0	1	0	12	0	0	0	1	0	2	0	0	0	0	0
15:00:00	35	0	404	0	28	0	1	0	12	0	0	0	1	0	2	0	0	0	0	0
15:15:00	37	2	446	42	29	1	1	0	15	3	0	0	1	0	2	0	0	0	0	0
15:30:00	41	4	498	52	33	4	2	1	18	3	0	0	1	0	2	0	0	0	0	0
15:45:00	51	10	535	37	34	1	2	0	27	9	0	0	1	0	4	2	0	0	0	0
16:00:00	55	4	586	51	36	2	2	0	30	3	0	0	2	1	4	0	0	0	0	0
16:15:00	59	4	626	40	37	1	2	0	30	0	0	0	2	0	4	0	1	1	0	0
16:30:00	66	7	663	37	38	1	3	1	35	5	0	0	4	2	5	1	1	0	0	0
16:45:00	68	2	715	52	39	1	3	0	38	3	0	0	4	0	5	0	1	0	0	0
17:00:00	74	6	772	57	44	5	3	0	41	3	1	1	4	0	6	1	1	0	0	0
17:15:00	85	11	813	41	47	3	3	0	44	3	1	0	4	0	6	0	1	0	0	0
17:30:00	90	5	858	45	48	1	3	0	45	1	1	0	4	0	6	0	1	0	0	0
17:45:00	95	5	910	52	50	2	3	0	47	2	1	0	4	0	6	0	1	0	0	0
18:00:00	99	4	959	49	53	3	3	0	47	0	1	0	4	0	6	0	1	0	0	0
18:15:00	103	4	995	36	56	3	3	0	48	1	1	0	4	0	6	0	1	0	0	0
18:30:00	107	4	1025	30	59	3	4	1	48	0	1	0	4	0	6	0	1	0	0	0
18:45:00	107	0	1054	29	62	3	4	0	50	2	1	0	4	0	6	0	1	0	0	0
19:00:00	111	4	1086	32	62	0	4	0	50	0	1	0	4	0	6	0	1	0	1	1
19:15:00	111	0	1086	0	62	0	4	0	50	0	1	0	4	0	6	0	1	0	1	0
19:15:15	111	0	1086	0	62	0	4	0	50	0	1	0	4	0	6	0	1	0	1	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 19-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Buses - East Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		East Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	5	5	3	3	5	5	0	0	0	0	0	0	0	0	1	1	0	0	0	0
7:30:00	9	4	5	2	8	3	0	0	0	0	0	0	0	0	1	0	1	1	0	0
7:45:00	11	2	11	6	16	8	0	0	1	1	1	1	0	0	2	1	1	0	0	0
8:00:00	16	5	16	5	23	7	0	0	1	0	1	0	0	0	4	2	1	0	0	0
8:15:00	23	7	24	8	26	3	0	0	1	0	1	0	0	0	4	0	1	0	0	0
8:30:00	29	6	31	7	33	7	0	0	1	0	1	0	0	0	4	0	2	1	0	0
8:45:00	32	3	36	5	38	5	1	1	1	0	2	1	0	0	4	0	2	0	0	0
9:00:00	33	1	44	8	40	2	1	0	1	0	2	0	0	0	4	0	2	0	0	0
9:15:00	33	0	44	0	40	0	1	0	1	0	2	0	0	0	4	0	2	0	0	0
15:00:00	33	0	44	0	40	0	1	0	1	0	2	0	0	0	4	0	2	0	0	0
15:15:00	39	6	62	18	44	4	2	1	3	2	2	0	1	1	5	1	2	0	0	0
15:30:00	44	5	73	11	49	5	2	0	4	1	2	0	1	0	5	0	2	0	0	0
15:45:00	49	5	87	14	53	4	2	0	5	1	2	0	1	0	5	0	2	0	0	0
16:00:00	52	3	102	15	60	7	2	0	5	0	2	0	1	0	5	0	2	0	0	0
16:15:00	58	6	109	7	64	4	3	1	5	0	3	1	1	0	5	0	2	0	0	0
16:30:00	63	5	128	19	69	5	3	0	6	1	3	0	1	0	5	0	2	0	0	0
16:45:00	69	6	139	11	82	13	3	0	6	0	3	0	1	0	5	0	2	0	0	0
17:00:00	73	4	151	12	87	5	3	0	6	0	4	1	1	0	5	0	2	0	0	0
17:15:00	77	4	165	14	94	7	3	0	7	1	4	0	1	0	5	0	2	0	0	0
17:30:00	83	6	177	12	103	9	3	0	7	0	4	0	1	0	5	0	2	0	0	0
17:45:00	87	4	193	16	113	10	3	0	7	0	4	0	1	0	5	0	2	0	0	0
18:00:00	90	3	204	11	121	8	4	1	7	0	4	0	1	0	5	0	2	0	0	0
18:15:00	91	1	214	10	128	7	5	1	7	0	4	0	1	0	5	0	2	0	0	0
18:30:00	94	3	219	5	132	4	5	0	7	0	4	0	1	0	5	0	2	0	0	0
18:45:00	94	0	223	4	137	5	5	0	7	0	4	0	1	0	5	0	2	0	1	1
19:00:00	97	3	238	15	140	3	5	0	7	0	5	1	1	0	5	0	2	0	2	1
19:15:00	97	0	238	0	140	0	5	0	7	0	5	0	1	0	5	0	2	0	2	0
19:15:15	97	0	238	0	140	0	5	0	7	0	5	0	1	0	5	0	2	0	2	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 19-Jun-24 Site #: 2411000001

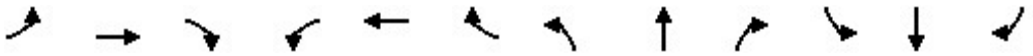
Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Buses - South Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		South Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	1	1	14	14	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0
7:30:00	3	2	42	28	2	1	0	0	4	3	1	0	0	0	1	1	0	0	0	0
7:45:00	3	0	71	29	5	3	0	0	5	1	1	0	1	1	1	0	0	0	0	0
8:00:00	5	2	97	26	6	1	0	0	8	3	1	0	1	0	1	0	0	0	0	0
8:15:00	9	4	123	26	7	1	1	1	12	4	2	1	1	0	1	0	0	0	0	0
8:30:00	9	0	157	34	7	0	2	1	15	3	2	0	1	0	1	0	0	0	0	0
8:45:00	9	0	200	43	10	3	3	1	17	2	2	0	1	0	1	0	0	0	0	0
9:00:00	10	1	225	25	14	4	3	0	22	5	2	0	1	0	1	0	0	0	0	0
9:15:00	10	0	225	0	14	0	3	0	22	0	2	0	1	0	1	0	0	0	0	0
15:00:00	10	0	225	0	14	0	3	0	22	0	2	0	1	0	1	0	0	0	0	0
15:15:00	14	4	271	46	20	6	3	0	22	0	2	0	1	0	2	1	0	0	0	0
15:30:00	23	9	327	56	24	4	3	0	24	2	2	0	1	0	2	0	0	0	0	0
15:45:00	26	3	397	70	28	4	3	0	27	3	3	1	1	0	2	0	0	0	0	0
16:00:00	29	3	448	51	35	7	3	0	32	5	4	1	1	0	3	1	0	0	0	0
16:15:00	35	6	504	56	39	4	3	0	36	4	4	0	2	1	3	0	0	0	0	0
16:30:00	38	3	570	66	45	6	3	0	38	2	4	0	3	1	5	2	0	0	0	0
16:45:00	44	6	638	68	51	6	3	0	38	0	4	0	3	0	5	0	0	0	0	0
17:00:00	49	5	710	72	58	7	3	0	42	4	5	1	3	0	5	0	0	0	0	0
17:15:00	52	3	776	66	65	7	4	1	44	2	5	0	3	0	5	0	0	0	0	0
17:30:00	55	3	838	62	71	6	4	0	48	4	5	0	3	0	6	1	0	0	0	0
17:45:00	59	4	893	55	83	12	4	0	50	2	5	0	3	0	6	0	0	0	0	0
18:00:00	63	4	973	80	90	7	4	0	51	1	5	0	3	0	6	0	0	0	0	0
18:15:00	69	6	1020	47	95	5	4	0	51	0	5	0	3	0	6	0	0	0	0	0
18:30:00	71	2	1070	50	100	5	4	0	52	1	5	0	3	0	6	0	0	0	0	0
18:45:00	74	3	1126	56	103	3	4	0	53	1	5	0	3	0	6	0	0	0	0	0
19:00:00	78	4	1170	44	109	6	4	0	55	2	5	0	3	0	6	0	0	0	0	0
19:15:00	78	0	1170	0	109	0	4	0	55	0	5	0	3	0	6	0	0	0	0	0
19:15:15	78	0	1170	0	109	0	4	0	55	0	5	0	3	0	6	0	0	0	0	0

Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Count Date: 19-Jun-24 Site #: 2411000001

Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Buses - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	6	6	4	4	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	3	1	15	9	7	3	0	0	1	0	1	1	0	0	2	2	0	0	0	0
7:45:00	8	5	32	17	8	1	0	0	2	1	2	1	1	1	2	0	0	0	0	0
8:00:00	12	4	41	9	10	2	0	0	2	0	2	0	1	0	2	0	1	1	0	0
8:15:00	16	4	47	6	13	3	0	0	2	0	2	0	1	0	2	0	1	0	0	0
8:30:00	18	2	55	8	14	1	0	0	2	0	2	0	1	0	2	0	1	0	0	0
8:45:00	18	0	62	7	16	2	0	0	2	0	2	0	1	0	2	0	1	0	0	0
9:00:00	21	3	65	3	17	1	0	0	2	0	2	0	1	0	2	0	1	0	0	0
9:15:00	21	0	65	0	17	0	0	0	2	0	2	0	1	0	2	0	1	0	0	0
15:00:00	21	0	65	0	17	0	0	0	2	0	2	0	1	0	2	0	1	0	0	0
15:15:00	23	2	75	10	21	4	0	0	2	0	3	1	1	0	2	0	1	0	0	0
15:30:00	27	4	84	9	24	3	0	0	2	0	3	0	1	0	2	0	1	0	0	0
15:45:00	33	6	93	9	26	2	0	0	2	0	3	0	1	0	3	1	1	0	0	0
16:00:00	39	6	99	6	29	3	0	0	3	1	3	0	2	1	6	3	1	0	0	0
16:15:00	45	6	105	6	31	2	1	1	5	2	4	1	2	0	7	1	1	0	0	0
16:30:00	50	5	119	14	32	1	1	0	5	0	4	0	3	1	7	0	1	0	0	0
16:45:00	56	6	132	13	36	4	1	0	5	0	4	0	3	0	7	0	1	0	0	0
17:00:00	59	3	136	4	40	4	1	0	6	1	4	0	3	0	7	0	1	0	0	0
17:15:00	65	6	146	10	42	2	1	0	6	0	4	0	3	0	7	0	2	1	0	0
17:30:00	71	6	162	16	44	2	1	0	7	1	4	0	3	0	7	0	2	0	0	0
17:45:00	82	11	170	8	48	4	1	0	7	0	5	1	3	0	7	0	2	0	0	0
18:00:00	86	4	182	12	50	2	1	0	7	0	5	0	3	0	7	0	2	0	0	0
18:15:00	87	1	190	8	51	1	1	0	8	1	5	0	3	0	7	0	2	0	0	0
18:30:00	89	2	194	4	52	1	1	0	8	0	5	0	3	0	7	0	2	0	0	0
18:45:00	92	3	198	4	52	0	1	0	8	0	5	0	3	0	7	0	2	0	0	0
19:00:00	95	3	205	7	52	0	1	0	8	0	5	0	3	0	7	0	2	0	0	0
19:15:00	95	0	205	0	52	0	1	0	8	0	5	0	3	0	7	0	2	0	0	0
19:15:15	95	0	205	0	52	0	1	0	8	0	5	0	3	0	7	0	2	0	0	0

Appendix C –
Synchro Analysis Output –
Existing Traffic Volumes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	41	9	20	30	27	9	126	6	24	209	14
Future Volume (vph)	16	41	9	20	30	27	9	126	6	24	209	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.95			0.99			0.99	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1844			1761			1673			1830	
Flt Permitted		0.89			0.89			0.98			0.97	
Satd. Flow (perm)		1662			1582			1642			1775	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	18	47	10	23	34	31	10	145	7	28	240	16
RTOR Reduction (vph)	0	9	0	0	28	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	66	0	0	60	0	0	160	0	0	281	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.0			5.0			33.1			33.1	
Effective Green, g (s)		5.0			5.0			33.1			33.1	
Actuated g/C Ratio		0.10			0.10			0.65			0.65	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		162			154			1063			1149	
v/s Ratio Prot												
v/s Ratio Perm		c0.04			0.04			0.10			c0.16	
v/c Ratio		0.41			0.39			0.15			0.24	
Uniform Delay, d1		21.7			21.6			3.5			3.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.7			1.6			0.3			0.5	
Delay (s)		23.3			23.3			3.8			4.3	
Level of Service		C			C			A			A	
Approach Delay (s)		23.3			23.3			3.8			4.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	8	3	52	25	6
Future Volume (Veh/h)	63	8	3	52	25	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	72	9	3	60	27	7
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			81		142	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			81		142	76
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	99
cM capacity (veh/h)			1517		849	985

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	81	63	34
Volume Left	0	3	27
Volume Right	9	0	7
cSH	1700	1517	873
Volume to Capacity	0.05	0.00	0.04
Queue Length 95th (m)	0.0	0.0	1.0
Control Delay (s)	0.0	0.4	9.3
Lane LOS		A	A
Approach Delay (s)	0.0	0.4	9.3
Approach LOS			A

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	42	12	19	58	31	19	282	27	29	203	11
Future Volume (vph)	21	42	12	19	58	31	19	282	27	29	203	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1833			1790			1672			1831	
Flt Permitted		0.89			0.92			0.97			0.93	
Satd. Flow (perm)		1657			1657			1633			1714	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	24	48	14	22	67	36	22	324	31	33	233	13
RTOR Reduction (vph)	0	12	0	0	31	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	74	0	0	94	0	0	372	0	0	277	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.1			7.1			31.0			31.0	
Effective Green, g (s)		7.1			7.1			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.61			0.61	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		230			230			990			1039	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.06			c0.23			0.16	
v/c Ratio		0.32			0.41			0.38			0.27	
Uniform Delay, d1		19.8			20.1			5.1			4.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			1.2			1.1			0.6	
Delay (s)		20.6			21.3			6.2			5.3	
Level of Service		C			C			A			A	
Approach Delay (s)		20.6			21.3			6.2			5.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	70	28	8	92	16	4
Future Volume (Veh/h)	70	28	8	92	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	80	32	9	106	17	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			112		220	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			112		220	96
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	100
cM capacity (veh/h)			1478		764	960

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	112	115	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1478	795
Volume to Capacity	0.07	0.01	0.03
Queue Length 95th (m)	0.0	0.1	0.7
Control Delay (s)	0.0	0.6	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	0.6	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	21.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	47	11	23	62	27	25	619	34	25	219	11
Future Volume (vph)	32	47	11	23	62	27	25	619	34	25	219	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1835			1802			1670			1832	
Flt Permitted		0.87			0.90			0.98			0.90	
Satd. Flow (perm)		1628			1641			1641			1653	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	37	54	13	26	71	31	29	711	39	29	252	13
RTOR Reduction (vph)	0	11	0	0	24	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	93	0	0	104	0	0	776	0	0	292	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.3			7.3			31.0			31.0	
Effective Green, g (s)		7.3			7.3			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		231			233			991			998	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.06			c0.47			0.18	
v/c Ratio		0.40			0.45			0.78			0.29	
Uniform Delay, d1		20.0			20.1			7.6			4.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			1.4			6.2			0.7	
Delay (s)		21.2			21.5			13.8			5.6	
Level of Service		C			C			B			A	
Approach Delay (s)		21.2			21.5			13.8			5.6	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	78	28	8	96	16	4
Future Volume (Veh/h)	78	28	8	96	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	90	32	9	110	17	4
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			122		234	106
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			122		234	106
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	100
cM capacity (veh/h)			1465		750	948

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	122	119	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1465	781
Volume to Capacity	0.07	0.01	0.03
Queue Length 95th (m)	0.0	0.1	0.7
Control Delay (s)	0.0	0.6	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	0.6	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	39	12	26	42	16	9	229	28	16	501	12
Future Volume (vph)	14	39	12	26	42	16	9	229	28	16	501	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.97			0.99			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1833			1810			1669			1839	
Flt Permitted		0.90			0.87			0.98			0.99	
Satd. Flow (perm)		1666			1594			1636			1817	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	16	45	14	30	48	18	10	263	32	18	576	14
RTOR Reduction (vph)	0	13	0	0	16	0	0	5	0	0	1	0
Lane Group Flow (vph)	0	62	0	0	80	0	0	300	0	0	607	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.3			5.3			32.8			32.8	
Effective Green, g (s)		5.3			5.3			32.8			32.8	
Actuated g/C Ratio		0.10			0.10			0.64			0.64	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		172			165			1050			1166	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.05			0.18			c0.33	
v/c Ratio		0.36			0.48			0.29			0.52	
Uniform Delay, d1		21.3			21.6			4.0			4.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			2.2			0.7			1.7	
Delay (s)		22.6			23.8			4.7			6.6	
Level of Service		C			C			A			A	
Approach Delay (s)		22.6			23.8			4.7			6.6	
Approach LOS		C			C			A			A	

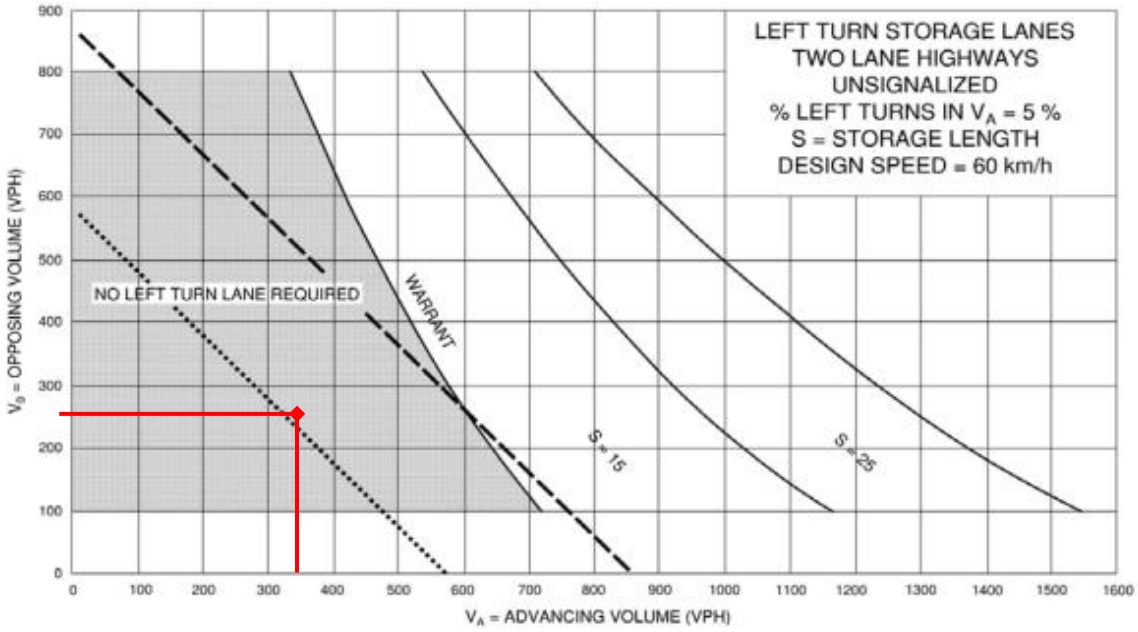
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	63	20	6	64	20	4
Future Volume (Veh/h)	63	20	6	64	20	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	72	23	7	74	22	4
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			95		172	84
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			95		172	84
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1499		815	976

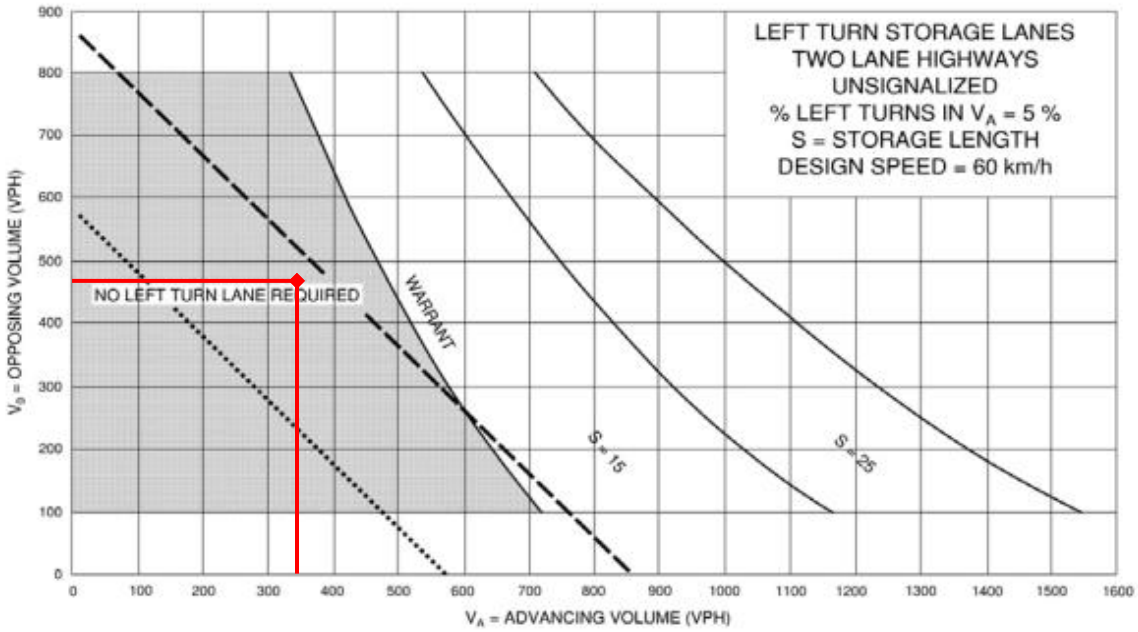
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	95	81	26
Volume Left	0	7	22
Volume Right	23	0	4
cSH	1700	1499	836
Volume to Capacity	0.06	0.00	0.03
Queue Length 95th (m)	0.0	0.1	0.8
Control Delay (s)	0.0	0.7	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	0.7	9.4
Approach LOS			A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		

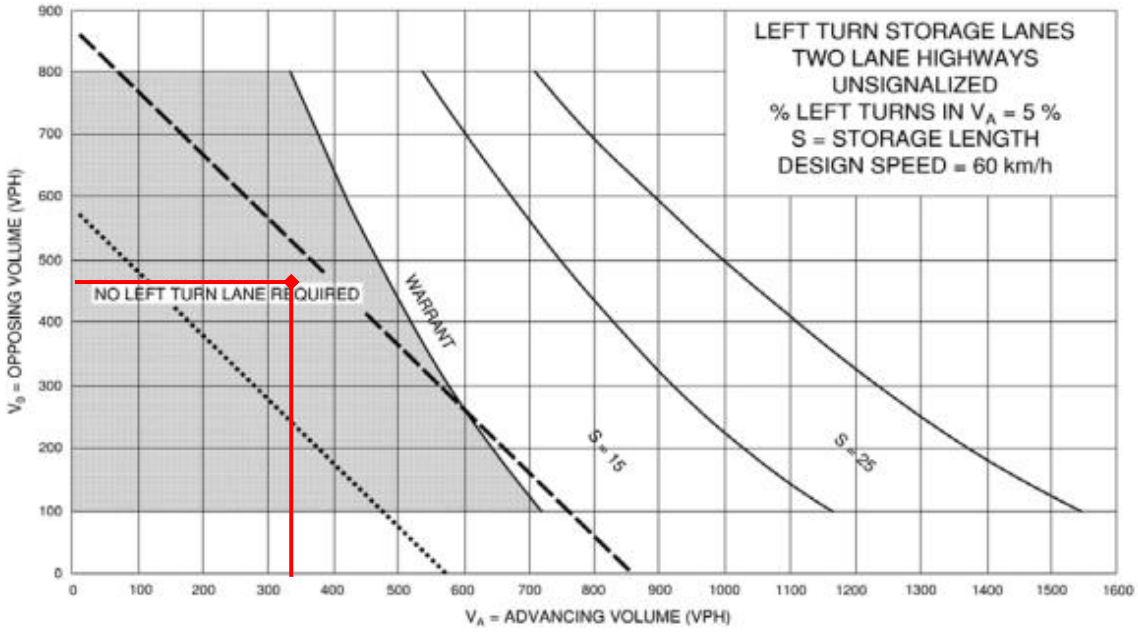
Appendix D –
MTO Left Turn Warrant Analysis



Total (2037) AM Peak – SB on Street A / Site Access

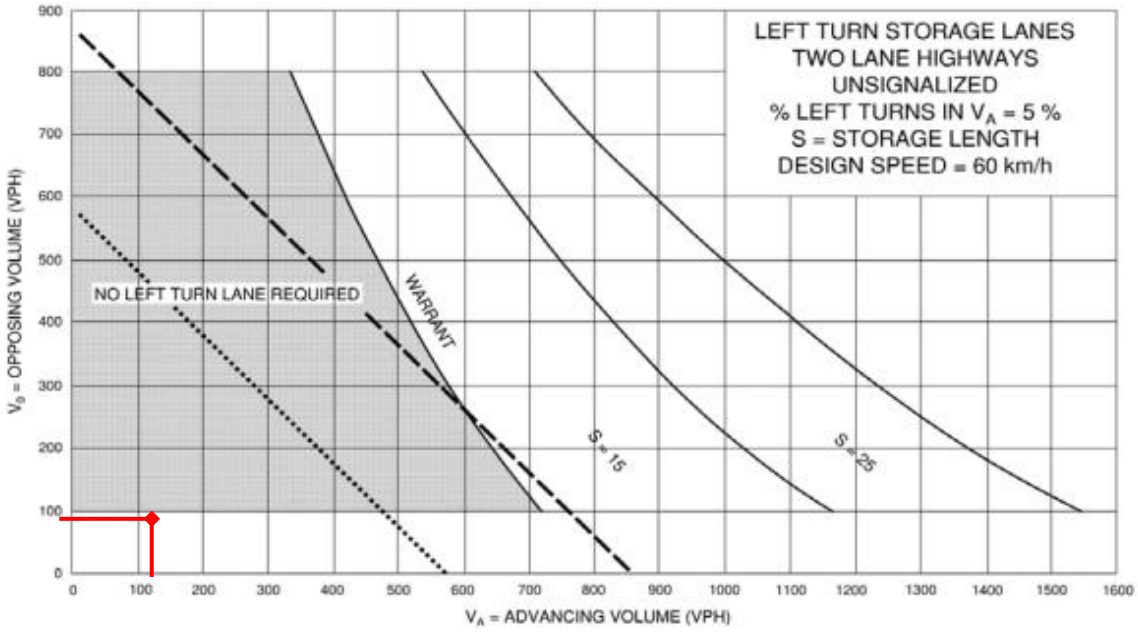


Total (2037) Weekday/Friday PM Peak – SB on Street A / Site Access

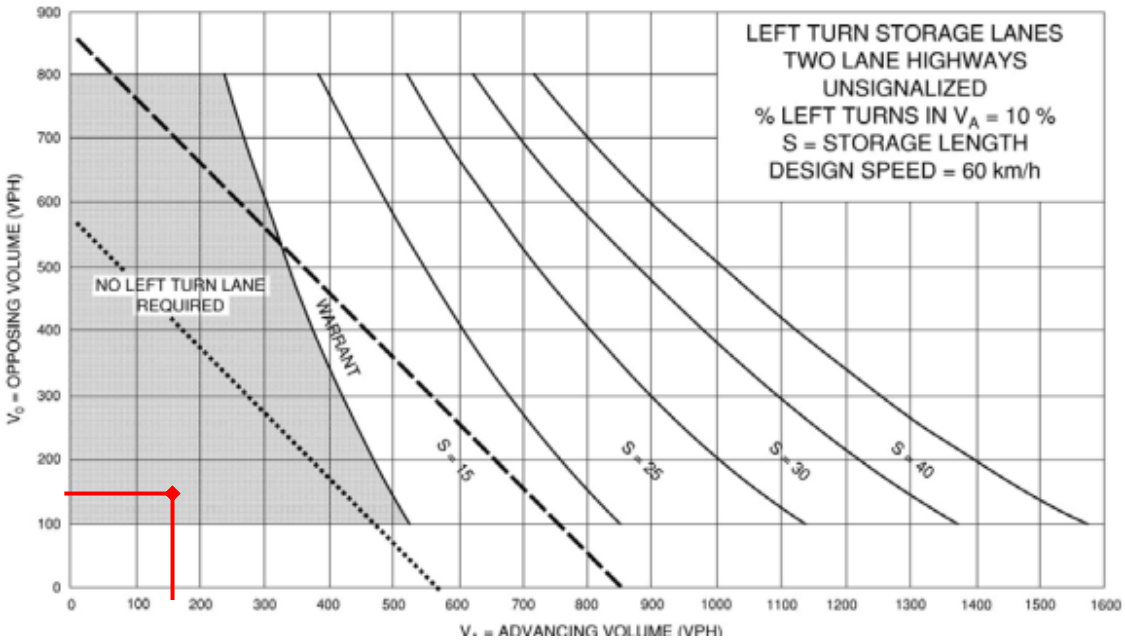


Total (2037) Sunday PM Peak – SB on Street A / Site Access

ENGINEERING

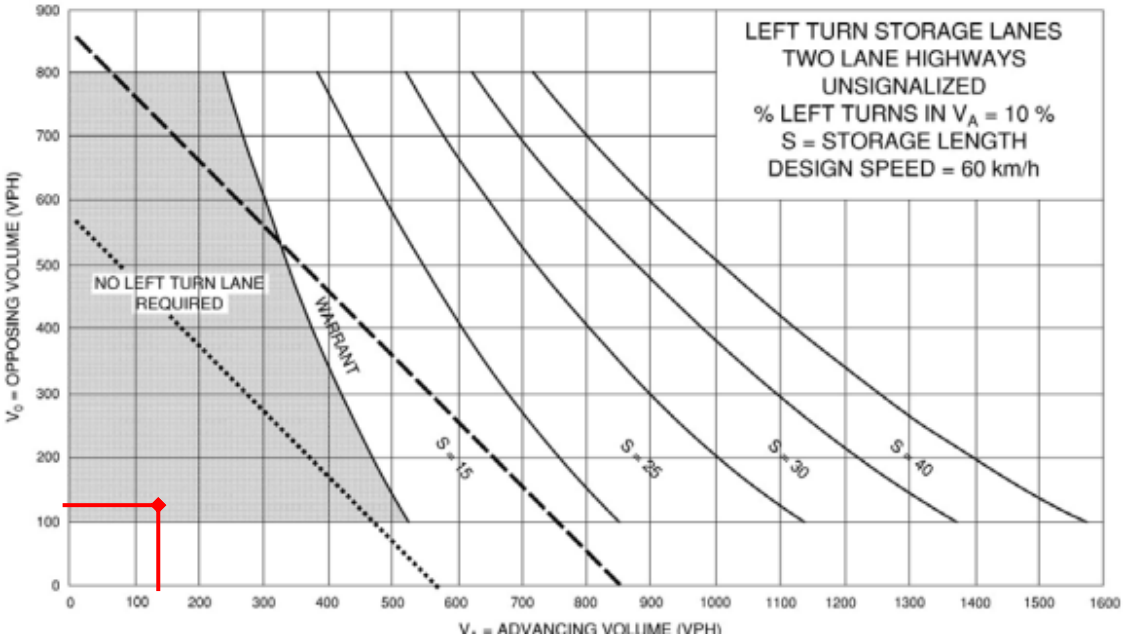


Total (2037) AM Peak – EB on Street C / Site Access



Total (2037) Weekday/Friday PM Peak – EB on Street C / Site Access

ENGINEERING



Total (2037) Sunday PM Peak – EB on Street C / Site Access

ENGINEERING

Appendix E –
OTM Signal Justification Sheets

Justification No. 7 - 2037 Total Traffic (Critical Case)

Street A / Site Access

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	720	358	50%	2%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	255	8	3%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	344	48%	6%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	6	8%		NO	NO

Justification No. 7 - 2037 Total Traffic (Critical Case)

Street A / Site Access

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	720	609	85%	2%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	255	7	3%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	596	83%	5%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	5	7%		NO	NO

Justification No. 7 - 2037 Total Traffic (Critical Case)

Street C / Site Access

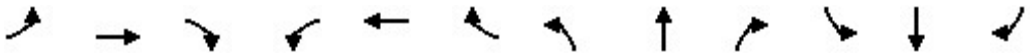
Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	720	150	21%	10%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	170	21	12%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	118	16%	14%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	13	17%		NO	NO

Justification No. 7 - 2037 Total Traffic (Critical Case)

Street C / Site Access

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	720	163	23%	9%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	170	18	10%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	130	18%	12%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	11	14%		NO	NO

Appendix F –
Synchro Analysis Output –
Background Traffic Volumes



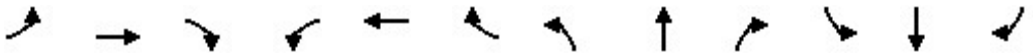
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	45	10	22	33	30	10	136	6	26	225	15
Future Volume (vph)	18	45	10	22	33	30	10	136	6	26	225	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.95			0.99			0.99	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1843			1762			1674			1830	
Flt Permitted		0.88			0.89			0.98			0.96	
Satd. Flow (perm)		1650			1580			1639			1772	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	21	52	11	25	38	34	11	156	7	30	259	17
RTOR Reduction (vph)	0	10	0	0	31	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	74	0	0	66	0	0	172	0	0	303	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.1			5.1			32.4			32.4	
Effective Green, g (s)		5.1			5.1			32.4			32.4	
Actuated g/C Ratio		0.10			0.10			0.64			0.64	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		166			159			1051			1136	
v/s Ratio Prot												
v/s Ratio Perm		c0.04			0.04			0.11			c0.17	
v/c Ratio		0.45			0.42			0.16			0.27	
Uniform Delay, d1		21.4			21.3			3.6			3.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.9			1.8			0.3			0.6	
Delay (s)		23.3			23.1			4.0			4.5	
Level of Service		C			C			A			A	
Approach Delay (s)		23.3			23.1			4.0			4.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	50.5	Sum of lost time (s)	13.0
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	69	8	3	60	25	6
Future Volume (Veh/h)	69	8	3	60	25	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	79	9	3	69	27	7
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			88		158	84
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			88		158	84
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	99
cM capacity (veh/h)			1508		831	976

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	88	72	34
Volume Left	0	3	27
Volume Right	9	0	7
cSH	1700	1508	857
Volume to Capacity	0.05	0.00	0.04
Queue Length 95th (m)	0.0	0.0	1.0
Control Delay (s)	0.0	0.3	9.4
Lane LOS		A	A
Approach Delay (s)	0.0	0.3	9.4
Approach LOS			A

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	15.6%	ICU Level of Service	A
Analysis Period (min)	15		



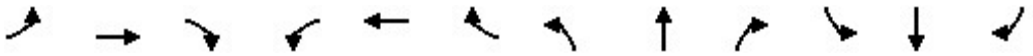
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	46	13	21	64	34	20	304	29	31	219	12
Future Volume (vph)	23	46	13	21	64	34	20	304	29	31	219	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1834			1791			1672			1831	
Flt Permitted		0.90			0.92			0.97			0.92	
Satd. Flow (perm)		1671			1656			1631			1702	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	26	53	15	24	74	39	23	349	33	36	252	14
RTOR Reduction (vph)	0	13	0	0	30	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	81	0	0	107	0	0	401	0	0	300	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.4			7.4			31.0			31.0	
Effective Green, g (s)		7.4			7.4			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		240			238			983			1026	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.06			c0.25			0.18	
v/c Ratio		0.34			0.45			0.41			0.29	
Uniform Delay, d1		19.8			20.1			5.4			4.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			1.4			1.3			0.7	
Delay (s)		20.6			21.5			6.6			5.6	
Level of Service		C			C			A			A	
Approach Delay (s)		20.6			21.5			6.6			5.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	51.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	78	28	8	103	16	4
Future Volume (Veh/h)	78	28	8	103	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	90	32	9	118	17	4
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			122		242	106
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			122		242	106
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	100
cM capacity (veh/h)			1465		742	948

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	122	127	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1465	774
Volume to Capacity	0.07	0.01	0.03
Queue Length 95th (m)	0.0	0.1	0.7
Control Delay (s)	0.0	0.6	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	0.6	9.8
Approach LOS			A

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		



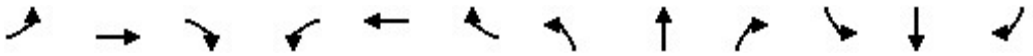
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	52	12	25	68	30	27	667	37	27	236	12
Future Volume (vph)	35	52	12	25	68	30	27	667	37	27	236	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1836			1802			1670			1832	
Flt Permitted		0.88			0.90			0.98			0.89	
Satd. Flow (perm)		1638			1641			1639			1635	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	40	60	14	29	78	34	31	767	43	31	271	14
RTOR Reduction (vph)	0	10	0	0	24	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	104	0	0	117	0	0	838	0	0	314	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.7			7.7			31.1			31.1	
Effective Green, g (s)		7.7			7.7			31.1			31.1	
Actuated g/C Ratio		0.15			0.15			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		243			243			984			981	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.07			c0.51			0.19	
v/c Ratio		0.43			0.48			0.85			0.32	
Uniform Delay, d1		20.0			20.2			8.5			5.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			1.5			9.2			0.9	
Delay (s)		21.3			21.7			17.7			6.0	
Level of Service		C			C			B			A	
Approach Delay (s)		21.3			21.7			17.7			6.0	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	51.8	Sum of lost time (s)	13.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	88	28	8	107	16	4
Future Volume (Veh/h)	88	28	8	107	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	101	32	9	123	17	4
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			133		258	117
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			133		258	117
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	100
cM capacity (veh/h)			1452		726	935

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	133	132	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1452	759
Volume to Capacity	0.08	0.01	0.03
Queue Length 95th (m)	0.0	0.1	0.7
Control Delay (s)	0.0	0.6	9.9
Lane LOS		A	A
Approach Delay (s)	0.0	0.6	9.9
Approach LOS			A

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	22.2%	ICU Level of Service	A
Analysis Period (min)	15		



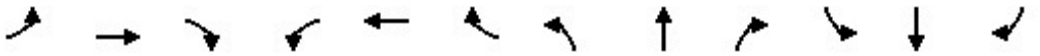
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	43	13	28	46	18	10	247	30	17	540	13
Future Volume (vph)	15	43	13	28	46	18	10	247	30	17	540	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.97			0.99			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1833			1807			1669			1839	
Flt Permitted		0.90			0.87			0.98			0.98	
Satd. Flow (perm)		1664			1594			1631			1814	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	17	49	15	32	53	21	11	284	34	20	621	15
RTOR Reduction (vph)	0	13	0	0	18	0	0	6	0	0	1	0
Lane Group Flow (vph)	0	68	0	0	88	0	0	323	0	0	655	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.1			7.1			31.0			31.0	
Effective Green, g (s)		7.1			7.1			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.61			0.61	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		231			221			989			1100	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.06			0.20			c0.36	
v/c Ratio		0.29			0.40			0.33			0.60	
Uniform Delay, d1		19.8			20.1			4.9			6.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			1.2			0.9			2.4	
Delay (s)		20.5			21.2			5.8			8.6	
Level of Service		C			C			A			A	
Approach Delay (s)		20.5			21.2			5.8			8.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	51.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	74	20	6	76	20	4
Future Volume (Veh/h)	74	20	6	76	20	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	85	23	7	87	22	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			108		198	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			108		198	96
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1483		787	960

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	108	94	26
Volume Left	0	7	22
Volume Right	23	0	4
cSH	1700	1483	810
Volume to Capacity	0.06	0.00	0.03
Queue Length 95th (m)	0.0	0.1	0.8
Control Delay (s)	0.0	0.6	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	0.6	9.6
Approach LOS			A

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		



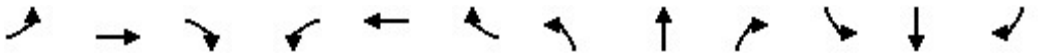
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	52	11	26	38	34	11	154	7	29	255	17
Future Volume (vph)	20	52	11	26	38	34	11	154	7	29	255	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.95			0.99			0.99	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1843			1763			1674			1830	
Flt Permitted		0.89			0.88			0.97			0.96	
Satd. Flow (perm)		1653			1569			1631			1765	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	23	60	13	30	44	39	13	177	8	33	293	20
RTOR Reduction (vph)	0	11	0	0	34	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	85	0	0	79	0	0	196	0	0	343	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.0			7.0			31.0			31.0	
Effective Green, g (s)		7.0			7.0			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.61			0.61	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		226			215			991			1072	
v/s Ratio Prot												
v/s Ratio Perm		c0.05			0.05			0.12			c0.19	
v/c Ratio		0.38			0.37			0.20			0.32	
Uniform Delay, d1		20.0			20.0			4.5			4.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			1.1			0.4			0.8	
Delay (s)		21.1			21.1			4.9			5.7	
Level of Service		C			C			A			A	
Approach Delay (s)		21.1			21.1			4.9			5.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	80	8	3	73	25	6
Future Volume (Veh/h)	80	8	3	73	25	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	92	9	3	84	27	7
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			101		186	96
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			101		186	96
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	99
cM capacity (veh/h)			1491		801	960

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	101	87	34
Volume Left	0	3	27
Volume Right	9	0	7
cSH	1700	1491	829
Volume to Capacity	0.06	0.00	0.04
Queue Length 95th (m)	0.0	0.0	1.0
Control Delay (s)	0.0	0.3	9.5
Lane LOS		A	A
Approach Delay (s)	0.0	0.3	9.5
Approach LOS			A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	16.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	54	15	24	74	40	23	344	33	35	247	13
Future Volume (vph)	27	54	15	24	74	40	23	344	33	35	247	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1835			1789			1672			1832	
Flt Permitted		0.89			0.91			0.97			0.91	
Satd. Flow (perm)		1655			1647			1625			1686	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	31	62	17	28	85	46	26	395	38	40	284	15
RTOR Reduction (vph)	0	14	0	0	30	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	96	0	0	129	0	0	454	0	0	337	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.0			8.0			31.1			31.1	
Effective Green, g (s)		8.0			8.0			31.1			31.1	
Actuated g/C Ratio		0.15			0.15			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		254			252			970			1006	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.08			c0.28			0.20	
v/c Ratio		0.38			0.51			0.47			0.33	
Uniform Delay, d1		19.8			20.3			5.9			5.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			1.7			1.6			0.9	
Delay (s)		20.8			22.0			7.5			6.2	
Level of Service		C			C			A			A	
Approach Delay (s)		20.8			22.0			7.5			6.2	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	52.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	94	28	8	122	16	4
Future Volume (Veh/h)	94	28	8	122	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	108	32	9	140	17	4
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			140		282	124
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			140		282	124
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	100
cM capacity (veh/h)			1443		704	927

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	140	149	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1443	737
Volume to Capacity	0.08	0.01	0.03
Queue Length 95th (m)	0.0	0.2	0.7
Control Delay (s)	0.0	0.5	10.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	10.0
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

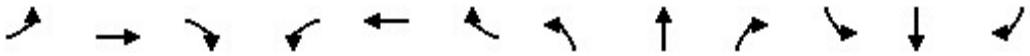
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	60	14	29	79	34	30	754	41	30	267	13
Future Volume (vph)	41	60	14	29	79	34	30	754	41	30	267	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1836			1803			1670			1833	
Flt Permitted		0.86			0.92			0.98			0.87	
Satd. Flow (perm)		1609			1669			1636			1607	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	47	69	16	33	91	39	34	867	47	34	307	15
RTOR Reduction (vph)	0	10	0	0	24	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	122	0	0	139	0	0	945	0	0	354	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.3			8.3			31.1			31.1	
Effective Green, g (s)		8.3			8.3			31.1			31.1	
Actuated g/C Ratio		0.16			0.16			0.59			0.59	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		254			264			970			953	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.08			c0.58			0.22	
v/c Ratio		0.48			0.53			0.97			0.37	
Uniform Delay, d1		20.1			20.3			10.3			5.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.4			1.9			23.3			1.1	
Delay (s)		21.5			22.2			33.6			6.7	
Level of Service		C			C			C			A	
Approach Delay (s)		21.5			22.2			33.6			6.7	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	103	28	8	126	16	4
Future Volume (Veh/h)	103	28	8	126	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	118	32	9	145	17	4
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			150		297	134
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			150		297	134
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		98	100
cM capacity (veh/h)			1431		690	915

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	150	154	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1431	724
Volume to Capacity	0.09	0.01	0.03
Queue Length 95th (m)	0.0	0.2	0.7
Control Delay (s)	0.0	0.5	10.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	10.1
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		



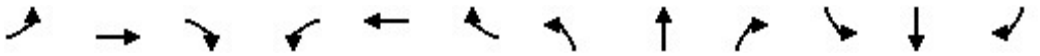
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	50	15	33	54	20	11	279	34	19	610	15
Future Volume (vph)	18	50	15	33	54	20	11	279	34	19	610	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1834			1810			1669			1839	
Flt Permitted		0.91			0.86			0.97			0.98	
Satd. Flow (perm)		1681			1583			1621			1811	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	21	57	17	38	62	23	13	321	39	22	701	17
RTOR Reduction (vph)	0	15	0	0	17	0	0	6	0	0	1	0
Lane Group Flow (vph)	0	80	0	0	106	0	0	367	0	0	739	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.5			7.5			31.1			31.1	
Effective Green, g (s)		7.5			7.5			31.1			31.1	
Actuated g/C Ratio		0.15			0.15			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		244			230			976			1091	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.07			0.23			c0.41	
v/c Ratio		0.33			0.46			0.38			0.68	
Uniform Delay, d1		19.8			20.2			5.3			6.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			1.5			1.1			3.4	
Delay (s)		20.6			21.7			6.4			10.3	
Level of Service		C			C			A			B	
Approach Delay (s)		20.6			21.7			6.4			10.3	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	51.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	83	20	6	87	20	4
Future Volume (Veh/h)	83	20	6	87	20	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	95	23	7	100	22	4
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			118		220	106
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			118		220	106
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1470		764	948

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	118	107	26
Volume Left	0	7	22
Volume Right	23	0	4
cSH	1700	1470	788
Volume to Capacity	0.07	0.00	0.03
Queue Length 95th (m)	0.0	0.1	0.8
Control Delay (s)	0.0	0.5	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	0.5	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		



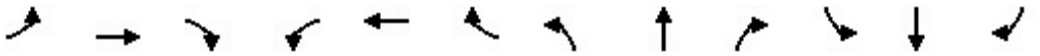
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	61	13	30	45	40	12	174	8	33	288	19
Future Volume (vph)	24	61	13	30	45	40	12	174	8	33	288	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.95			0.99			0.99	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1843			1763			1674			1830	
Flt Permitted		0.91			0.88			0.97			0.96	
Satd. Flow (perm)		1690			1568			1627			1756	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	28	70	15	34	52	46	14	200	9	38	331	22
RTOR Reduction (vph)	0	11	0	0	39	0	0	2	0	0	3	0
Lane Group Flow (vph)	0	102	0	0	93	0	0	221	0	0	388	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.3			7.3			31.0			31.0	
Effective Green, g (s)		7.3			7.3			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		240			223			983			1061	
v/s Ratio Prot												
v/s Ratio Perm		c0.06			0.06			0.14			c0.22	
v/c Ratio		0.42			0.42			0.22			0.37	
Uniform Delay, d1		20.1			20.1			4.6			5.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			1.3			0.5			1.0	
Delay (s)		21.3			21.3			5.2			6.1	
Level of Service		C			C			A			A	
Approach Delay (s)		21.3			21.3			5.2			6.1	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	94	8	3	90	25	6
Future Volume (Veh/h)	94	8	3	90	25	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	108	9	3	103	27	7
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			117		222	112
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			117		222	112
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	99
cM capacity (veh/h)			1471		765	940

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	117	106	34
Volume Left	0	3	27
Volume Right	9	0	7
cSH	1700	1471	796
Volume to Capacity	0.07	0.00	0.04
Queue Length 95th (m)	0.0	0.0	1.1
Control Delay (s)	0.0	0.2	9.7
Lane LOS		A	A
Approach Delay (s)	0.0	0.2	9.7
Approach LOS			A

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		



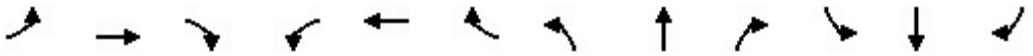
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	62	18	28	86	46	26	389	37	40	280	15
Future Volume (vph)	31	62	18	28	86	46	26	389	37	40	280	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1832			1790			1672			1832	
Flt Permitted		0.87			0.92			0.96			0.90	
Satd. Flow (perm)		1608			1669			1617			1660	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	36	71	21	32	99	53	30	447	43	46	322	17
RTOR Reduction (vph)	0	14	0	0	30	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	114	0	0	154	0	0	515	0	0	383	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.7			8.7			31.2			31.2	
Effective Green, g (s)		8.7			8.7			31.2			31.2	
Actuated g/C Ratio		0.16			0.16			0.59			0.59	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		264			274			953			979	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.09			c0.32			0.23	
v/c Ratio		0.43			0.56			0.54			0.39	
Uniform Delay, d1		19.9			20.3			6.5			5.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			2.6			2.2			1.2	
Delay (s)		21.0			23.0			8.7			7.0	
Level of Service		C			C			A			A	
Approach Delay (s)		21.0			23.0			8.7			7.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	13.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	111	28	8	144	16	4
Future Volume (Veh/h)	111	28	8	144	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	128	32	9	166	17	4
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		328	144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			160		328	144
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	100
cM capacity (veh/h)			1419		662	903

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	160	175	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1419	698
Volume to Capacity	0.09	0.01	0.03
Queue Length 95th (m)	0.0	0.2	0.7
Control Delay (s)	0.0	0.4	10.3
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	10.3
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	24.1%	ICU Level of Service	A
Analysis Period (min)	15		



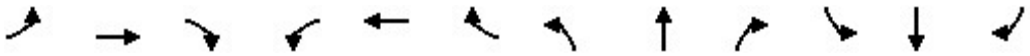
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	70	16	34	92	40	34	853	47	34	302	15
Future Volume (vph)	48	70	16	34	92	40	34	853	47	34	302	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1837			1802			1670			1833	
Flt Permitted		0.83			0.91			0.97			0.85	
Satd. Flow (perm)		1546			1664			1630			1560	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	55	80	18	39	106	46	39	980	54	39	347	17
RTOR Reduction (vph)	0	10	0	0	23	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	143	0	0	168	0	0	1070	0	0	401	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.0			9.0			31.1			31.1	
Effective Green, g (s)		9.0			9.0			31.1			31.1	
Actuated g/C Ratio		0.17			0.17			0.59			0.59	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		262			282			954			913	
v/s Ratio Prot												
v/s Ratio Perm		0.09			c0.10			c0.66			0.26	
v/c Ratio		0.55			0.59			1.12			0.44	
Uniform Delay, d1		20.2			20.4			11.0			6.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.3			3.3			68.6			1.5	
Delay (s)		22.5			23.7			79.6			7.7	
Level of Service		C			C			E			A	
Approach Delay (s)		22.5			23.7			79.6			7.7	
Approach LOS		C			C			E			A	

Intersection Summary			
HCM 2000 Control Delay	53.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	123	28	8	150	16	4
Future Volume (Veh/h)	123	28	8	150	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	141	32	9	172	17	4
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			173		347	157
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			173		347	157
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	100
cM capacity (veh/h)			1404		646	889

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	173	181	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1404	681
Volume to Capacity	0.10	0.01	0.03
Queue Length 95th (m)	0.0	0.2	0.8
Control Delay (s)	0.0	0.4	10.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	10.5
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		



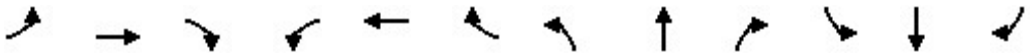
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	70	16	34	92	40	34	853	47	34	302	15
Future Volume (vph)	48	70	16	34	92	40	34	853	47	34	302	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1837			1802			1670			1833	
Flt Permitted		0.71			0.88			0.97			0.85	
Satd. Flow (perm)		1330			1595			1630			1562	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	55	80	18	39	106	46	39	980	54	39	347	17
RTOR Reduction (vph)	0	6	0	0	14	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	147	0	0	177	0	0	1071	0	0	401	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.9			12.9			57.1			57.1	
Effective Green, g (s)		12.9			12.9			57.1			57.1	
Actuated g/C Ratio		0.16			0.16			0.69			0.69	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		206			247			1121			1074	
v/s Ratio Prot												
v/s Ratio Perm		0.11			c0.11			c0.66			0.26	
v/c Ratio		0.71			0.72			0.96			0.37	
Uniform Delay, d1		33.3			33.3			11.8			5.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		11.1			9.6			18.1			1.0	
Delay (s)		44.4			42.9			29.9			6.4	
Level of Service		D			D			C			A	
Approach Delay (s)		44.4			42.9			29.9			6.4	
Approach LOS		D			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	83.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	123	28	8	150	16	4
Future Volume (Veh/h)	123	28	8	150	16	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	141	32	9	172	17	4
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			173		347	157
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			173		347	157
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	100
cM capacity (veh/h)			1404		646	889

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	173	181	21
Volume Left	0	9	17
Volume Right	32	0	4
cSH	1700	1404	681
Volume to Capacity	0.10	0.01	0.03
Queue Length 95th (m)	0.0	0.2	0.8
Control Delay (s)	0.0	0.4	10.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	10.5
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	24.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	58	18	39	62	24	12	316	39	22	691	17
Future Volume (vph)	21	58	18	39	62	24	12	316	39	22	691	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.97			0.99			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1832			1808			1669			1839	
Flt Permitted		0.92			0.85			0.97			0.98	
Satd. Flow (perm)		1695			1567			1615			1806	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	24	67	21	45	71	28	14	363	45	25	794	20
RTOR Reduction (vph)	0	17	0	0	18	0	0	6	0	0	1	0
Lane Group Flow (vph)	0	95	0	0	126	0	0	416	0	0	838	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.1			8.1			31.1			31.1	
Effective Green, g (s)		8.1			8.1			31.1			31.1	
Actuated g/C Ratio		0.16			0.16			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		263			243			962			1075	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.08			0.26			c0.46	
v/c Ratio		0.36			0.52			0.43			0.78	
Uniform Delay, d1		19.7			20.3			5.7			8.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.9			1.9			1.4			5.6	
Delay (s)		20.6			22.1			7.2			13.6	
Level of Service		C			C			A			B	
Approach Delay (s)		20.6			22.1			7.2			13.6	
Approach LOS		C			C			A			B	

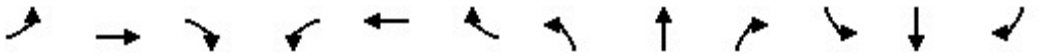
Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	52.2	Sum of lost time (s)	13.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	99	20	6	105	20	4
Future Volume (Veh/h)	99	20	6	105	20	4
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	114	23	7	121	22	4
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			137		260	126
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			137		260	126
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		97	100
cM capacity (veh/h)			1447		725	925

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	137	128	26
Volume Left	0	7	22
Volume Right	23	0	4
cSH	1700	1447	750
Volume to Capacity	0.08	0.00	0.03
Queue Length 95th (m)	0.0	0.1	0.9
Control Delay (s)	0.0	0.4	10.0
Lane LOS		A	A
Approach Delay (s)	0.0	0.4	10.0
Approach LOS			A

Intersection Summary			
Average Delay		1.1	
Intersection Capacity Utilization		20.4%	ICU Level of Service
Analysis Period (min)		15	

Appendix G –
Synchro Analysis Output –
Total Traffic Volumes



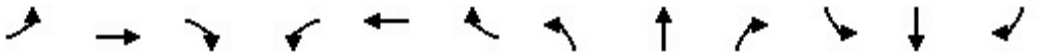
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	46	10	31	36	30	10	140	10	26	237	18
Future Volume (vph)	18	46	10	31	36	30	10	140	10	26	237	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1844			1771			1673			1828	
Flt Permitted		0.88			0.86			0.98			0.96	
Satd. Flow (perm)		1644			1546			1637			1770	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	21	53	11	36	41	34	11	161	11	30	272	21
RTOR Reduction (vph)	0	9	0	0	29	0	0	3	0	0	4	0
Lane Group Flow (vph)	0	76	0	0	82	0	0	180	0	0	319	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.0			7.0			31.0			31.0	
Effective Green, g (s)		7.0			7.0			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.61			0.61	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		225			212			995			1075	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.05			0.11			c0.18	
v/c Ratio		0.34			0.39			0.18			0.30	
Uniform Delay, d1		19.9			20.0			4.4			4.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.9			1.2			0.4			0.7	
Delay (s)		20.8			21.2			4.8			5.5	
Level of Service		C			C			A			A	
Approach Delay (s)		20.8			21.2			4.8			5.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	51.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	5	183	5	1	265
Future Volume (Veh/h)	15	5	183	5	1	265
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)	16	5	199	5	1	288
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked						
vC, conflicting volume	492	202			204	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	492	202			204	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	536	839			1368	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	204	289
Volume Left	16	0	1
Volume Right	5	5	0
cSH	586	1700	1368
Volume to Capacity	0.04	0.12	0.00
Queue Length 95th (m)	0.9	0.0	0.0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	11.4	0.0	0.0
Approach LOS	B		

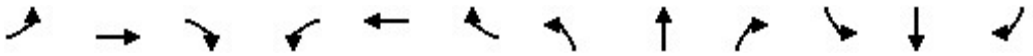
Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		24.7%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	69	8	3	60	2	25	0	6	6	0	12
Future Volume (Veh/h)	5	69	8	3	60	2	25	0	6	6	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	6	79	9	3	69	2	29	0	7	7	0	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	71			88			186	172	84	178	176	70
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	71			88			186	172	84	178	176	70
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	99	99	100	99
cM capacity (veh/h)	1529			1508			761	716	976	774	713	993

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	94	74	36	21
Volume Left	6	3	29	7
Volume Right	9	2	7	14
cSH	1529	1508	795	907
Volume to Capacity	0.00	0.00	0.05	0.02
Queue Length 95th (m)	0.1	0.0	1.1	0.6
Control Delay (s)	0.5	0.3	9.7	9.1
Lane LOS	A	A	A	A
Approach Delay (s)	0.5	0.3	9.7	9.1
Approach LOS			A	A

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	16.3%	ICU Level of Service	A	
Analysis Period (min)	15			



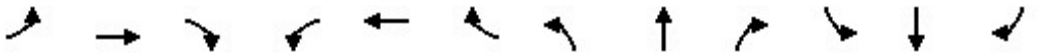
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	50	13	29	66	34	20	317	42	31	227	14
Future Volume (vph)	25	50	13	29	66	34	20	317	42	31	227	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1836			1793			1671			1830	
Flt Permitted		0.89			0.89			0.97			0.92	
Satd. Flow (perm)		1662			1621			1631			1698	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	29	57	15	33	76	39	23	364	48	36	261	16
RTOR Reduction (vph)	0	13	0	0	26	0	0	6	0	0	3	0
Lane Group Flow (vph)	0	88	0	0	122	0	0	429	0	0	310	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.9			7.9			31.1			31.1	
Effective Green, g (s)		7.9			7.9			31.1			31.1	
Actuated g/C Ratio		0.15			0.15			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		252			246			975			1015	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.08			c0.26			0.18	
v/c Ratio		0.35			0.49			0.44			0.31	
Uniform Delay, d1		19.8			20.2			5.7			5.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			1.6			1.4			0.8	
Delay (s)		20.6			21.8			7.1			5.9	
Level of Service		C			C			A			A	
Approach Delay (s)		20.6			21.8			7.1			5.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	2	360	16	4	258
Future Volume (Veh/h)	10	2	360	16	4	258
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)	11	2	391	17	4	280
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	0.95	0.95			0.95	
vC, conflicting volume	688	400			408	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	641	336			345	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	414	667			1148	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	408	284
Volume Left	11	0	4
Volume Right	2	17	0
cSH	440	1700	1148
Volume to Capacity	0.03	0.24	0.00
Queue Length 95th (m)	0.7	0.0	0.1
Control Delay (s)	13.4	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	13.4	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	29.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	78	28	8	103	6	16	0	4	3	0	10
Future Volume (Veh/h)	17	78	28	8	103	6	16	0	4	3	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	90	32	9	118	7	18	0	5	3	0	11
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	125			122			296	289	106	290	302	122
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	125			122			296	289	106	290	302	122
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			97	100	99	100	100	99
cM capacity (veh/h)	1462			1465			638	609	948	648	599	930

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	142	134	23	14
Volume Left	20	9	18	3
Volume Right	32	7	5	11
cSH	1462	1465	687	851
Volume to Capacity	0.01	0.01	0.03	0.02
Queue Length 95th (m)	0.3	0.1	0.8	0.4
Control Delay (s)	1.2	0.5	10.4	9.3
Lane LOS	A	A	B	A
Approach Delay (s)	1.2	0.5	10.4	9.3
Approach LOS			B	A

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	21.1%	ICU Level of Service	A	
Analysis Period (min)	15			

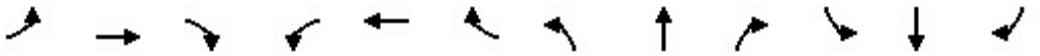
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	56	12	33	70	30	27	680	50	27	244	14
Future Volume (vph)	37	56	12	33	70	30	27	680	50	27	244	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1838			1804			1670			1831	
Flt Permitted		0.87			0.89			0.98			0.89	
Satd. Flow (perm)		1625			1629			1639			1633	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	43	64	14	38	80	34	31	782	57	31	280	16
RTOR Reduction (vph)	0	9	0	0	21	0	0	4	0	0	3	0
Lane Group Flow (vph)	0	112	0	0	131	0	0	866	0	0	324	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.2			8.2			31.1			31.1	
Effective Green, g (s)		8.2			8.2			31.1			31.1	
Actuated g/C Ratio		0.16			0.16			0.59			0.59	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		254			255			974			971	
v/s Ratio Prot												
v/s Ratio Perm		0.07			c0.08			c0.53			0.20	
v/c Ratio		0.44			0.51			0.89			0.33	
Uniform Delay, d1		20.0			20.2			9.1			5.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			1.7			12.0			0.9	
Delay (s)		21.2			22.0			21.1			6.3	
Level of Service		C			C			C			A	
Approach Delay (s)		21.2			22.0			21.1			6.3	
Approach LOS		C			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	52.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	2	731	16	4	271
Future Volume (Veh/h)	10	2	731	16	4	271
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)	11	2	795	17	4	295
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	0.58	0.58			0.58	
vC, conflicting volume	1106	804			812	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	819	294			309	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	100			99	
cM capacity (veh/h)	198	430			723	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	812	299
Volume Left	11	0	4
Volume Right	2	17	0
cSH	216	1700	723
Volume to Capacity	0.06	0.48	0.01
Queue Length 95th (m)	1.5	0.0	0.1
Control Delay (s)	22.7	0.0	0.2
Lane LOS	C		A
Approach Delay (s)	22.7	0.0	0.2
Approach LOS	C		

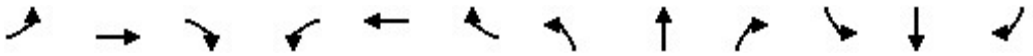
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	88	28	8	107	6	16	0	4	3	0	10
Future Volume (Veh/h)	17	88	28	8	107	6	16	0	4	3	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	101	32	9	123	7	18	0	5	3	0	11
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	130			133			312	305	117	306	318	126
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	130			133			312	305	117	306	318	126
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			97	100	99	100	100	99
cM capacity (veh/h)	1455			1452			623	596	935	633	587	924

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	153	139	23	14
Volume Left	20	9	18	3
Volume Right	32	7	5	11
cSH	1455	1452	672	841
Volume to Capacity	0.01	0.01	0.03	0.02
Queue Length 95th (m)	0.3	0.1	0.8	0.4
Control Delay (s)	1.1	0.5	10.6	9.4
Lane LOS	A	A	B	A
Approach Delay (s)	1.1	0.5	10.6	9.4
Approach LOS			B	A

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	21.7%	ICU Level of Service	A	
Analysis Period (min)	15			



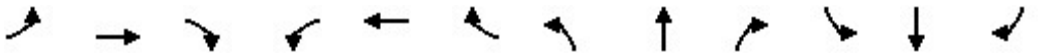
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	45	13	35	49	18	10	256	40	17	548	16
Future Volume (vph)	17	45	13	35	49	18	10	256	40	17	548	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1835			1810			1668			1838	
Flt Permitted		0.90			0.85			0.98			0.98	
Satd. Flow (perm)		1663			1568			1631			1812	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	20	52	15	40	56	21	11	294	46	20	630	18
RTOR Reduction (vph)	0	13	0	0	16	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	74	0	0	101	0	0	343	0	0	666	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.4			7.4			31.0			31.0	
Effective Green, g (s)		7.4			7.4			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		239			225			983			1092	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.06			0.21			c0.37	
v/c Ratio		0.31			0.45			0.35			0.61	
Uniform Delay, d1		19.7			20.1			5.1			6.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			1.4			1.0			2.5	
Delay (s)		20.5			21.5			6.1			9.0	
Level of Service		C			C			A			A	
Approach Delay (s)		20.5			21.5			6.1			9.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	51.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	3	280	11	3	567
Future Volume (Veh/h)	11	3	280	11	3	567
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)	12	3	304	12	3	616
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	1.00	1.00			1.00	
vC, conflicting volume	932	310			316	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	929	305			311	
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	100			100	
cM capacity (veh/h)	295	732			1244	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	15	316	619
Volume Left	12	0	3
Volume Right	3	12	0
cSH	335	1700	1244
Volume to Capacity	0.04	0.19	0.00
Queue Length 95th (m)	1.1	0.0	0.1
Control Delay (s)	16.3	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	16.3	0.0	0.1
Approach LOS	C		

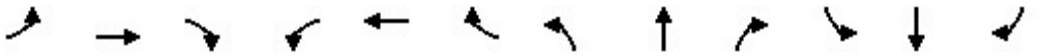
Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	70	20	6	72	5	20	0	4	4	0	10
Future Volume (Veh/h)	12	70	20	6	72	5	20	0	4	4	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	14	80	23	7	83	6	23	0	5	5	0	11
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	89			103			230	222	92	224	231	86
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	89			103			230	222	92	224	231	86
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			97	100	99	99	100	99
cM capacity (veh/h)	1506			1489			709	667	966	720	660	973

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	117	96	28	16
Volume Left	14	7	23	5
Volume Right	23	6	5	11
cSH	1506	1489	744	876
Volume to Capacity	0.01	0.00	0.04	0.02
Queue Length 95th (m)	0.2	0.1	0.9	0.4
Control Delay (s)	1.0	0.6	10.0	9.2
Lane LOS	A	A	B	A
Approach Delay (s)	1.0	0.6	10.0	9.2
Approach LOS			B	A

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	18.4%	ICU Level of Service	A	
Analysis Period (min)	15			



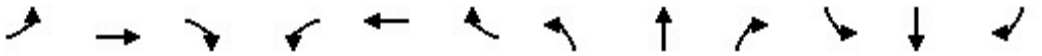
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	53	11	35	41	34	11	158	11	29	267	20
Future Volume (vph)	20	53	11	35	41	34	11	158	11	29	267	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1844			1770			1673			1829	
Flt Permitted		0.90			0.86			0.97			0.96	
Satd. Flow (perm)		1687			1541			1630			1766	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	23	61	13	40	47	39	13	182	13	33	307	23
RTOR Reduction (vph)	0	11	0	0	33	0	0	4	0	0	4	0
Lane Group Flow (vph)	0	86	0	0	93	0	0	204	0	0	359	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.3			7.3			31.0			31.0	
Effective Green, g (s)		7.3			7.3			31.0			31.0	
Actuated g/C Ratio		0.14			0.14			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		240			219			984			1067	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.06			0.13			c0.20	
v/c Ratio		0.36			0.42			0.21			0.34	
Uniform Delay, d1		19.9			20.1			4.6			5.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.9			1.3			0.5			0.9	
Delay (s)		20.8			21.4			5.1			5.9	
Level of Service		C			C			A			A	
Approach Delay (s)		20.8			21.4			5.1			5.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	5	207	5	1	300
Future Volume (Veh/h)	15	5	207	5	1	300
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)	16	5	225	5	1	326
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked						
vC, conflicting volume	556	228			230	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	556	228			230	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	492	812			1338	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	230	327
Volume Left	16	0	1
Volume Right	5	5	0
cSH	543	1700	1338
Volume to Capacity	0.04	0.14	0.00
Queue Length 95th (m)	1.0	0.0	0.0
Control Delay (s)	11.9	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		26.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	80	8	3	73	2	25	0	6	6	0	12
Future Volume (Veh/h)	5	80	8	3	73	2	25	0	6	6	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	6	92	9	3	84	2	29	0	7	7	0	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	86			101			214	200	96	206	204	85
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	86			101			214	200	96	206	204	85
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	99	99	100	99
cM capacity (veh/h)	1510			1491			729	691	960	742	688	974

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	107	89	36	21
Volume Left	6	3	29	7
Volume Right	9	2	7	14
cSH	1510	1491	765	882
Volume to Capacity	0.00	0.00	0.05	0.02
Queue Length 95th (m)	0.1	0.0	1.2	0.6
Control Delay (s)	0.4	0.3	9.9	9.2
Lane LOS	A	A	A	A
Approach Delay (s)	0.4	0.3	9.9	9.2
Approach LOS			A	A

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

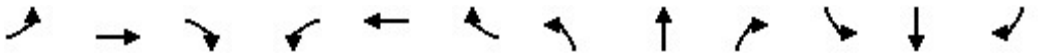
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	58	15	32	76	40	23	357	46	35	255	15
Future Volume (vph)	29	58	15	32	76	40	23	357	46	35	255	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1837			1791			1671			1831	
Flt Permitted		0.88			0.90			0.97			0.91	
Satd. Flow (perm)		1638			1628			1626			1681	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	33	67	17	37	87	46	26	410	53	40	293	17
RTOR Reduction (vph)	0	13	0	0	28	0	0	7	0	0	3	0
Lane Group Flow (vph)	0	104	0	0	142	0	0	482	0	0	347	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.5			8.5			31.1			31.1	
Effective Green, g (s)		8.5			8.5			31.1			31.1	
Actuated g/C Ratio		0.16			0.16			0.59			0.59	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		264			263			961			993	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.09			c0.30			0.21	
v/c Ratio		0.40			0.54			0.50			0.35	
Uniform Delay, d1		19.7			20.3			6.2			5.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			2.3			1.9			1.0	
Delay (s)		20.7			22.5			8.1			6.5	
Level of Service		C			C			A			A	
Approach Delay (s)		20.7			22.5			8.1			6.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	2	410	16	4	291
Future Volume (Veh/h)	10	2	410	16	4	291
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)	11	2	446	17	4	316
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	0.91	0.91			0.91	
vC, conflicting volume	778	454			463	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	706	350			359	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	364	630			1090	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	463	320
Volume Left	11	0	4
Volume Right	2	17	0
cSH	389	1700	1090
Volume to Capacity	0.03	0.27	0.00
Queue Length 95th (m)	0.8	0.0	0.1
Control Delay (s)	14.6	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	14.6	0.0	0.1
Approach LOS	B		

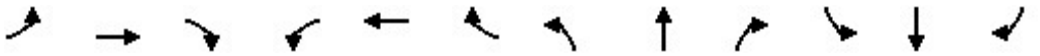
Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		32.5%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	94	28	8	122	6	16	0	4	3	0	10
Future Volume (Veh/h)	17	94	28	8	122	6	16	0	4	3	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	108	32	9	140	7	18	0	5	3	0	11
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	147			140			336	329	124	330	342	144
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	147			140			336	329	124	330	342	144
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			97	100	99	100	100	99
cM capacity (veh/h)	1435			1443			600	578	927	610	569	904

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	160	156	23	14
Volume Left	20	9	18	3
Volume Right	32	7	5	11
cSH	1435	1443	650	819
Volume to Capacity	0.01	0.01	0.04	0.02
Queue Length 95th (m)	0.3	0.2	0.9	0.4
Control Delay (s)	1.0	0.5	10.7	9.5
Lane LOS	A	A	B	A
Approach Delay (s)	1.0	0.5	10.7	9.5
Approach LOS			B	A

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	22.4%	ICU Level of Service	A	
Analysis Period (min)	15			



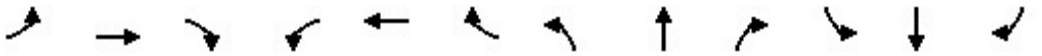
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	41	61	14	37	81	34	30	767	54	30	275	15
Future Volume (vph)	41	61	14	37	81	34	30	767	54	30	275	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1837			1804			1670			1832	
Flt Permitted		0.85			0.90			0.98			0.87	
Satd. Flow (perm)		1586			1644			1635			1604	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	47	70	16	43	93	39	34	882	62	34	316	17
RTOR Reduction (vph)	0	10	0	0	21	0	0	4	0	0	2	0
Lane Group Flow (vph)	0	123	0	0	154	0	0	974	0	0	365	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.8			8.8			31.2			31.2	
Effective Green, g (s)		8.8			8.8			31.2			31.2	
Actuated g/C Ratio		0.17			0.17			0.59			0.59	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		263			272			962			944	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.09			c0.60			0.23	
v/c Ratio		0.47			0.57			1.01			0.39	
Uniform Delay, d1		20.0			20.3			10.9			5.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			2.7			32.2			1.2	
Delay (s)		21.3			23.0			43.1			7.0	
Level of Service		C			C			D			A	
Approach Delay (s)		21.3			23.0			43.1			7.0	
Approach LOS		C			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	53.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	2	826	16	4	306
Future Volume (Veh/h)	10	2	826	16	4	306
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)	11	2	898	17	4	333
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	0.47	0.47			0.47	
vC, conflicting volume	1248	906			915	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	967	248			266	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	99			99	
cM capacity (veh/h)	133	375			615	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	915	337
Volume Left	11	0	4
Volume Right	2	17	0
cSH	147	1700	615
Volume to Capacity	0.09	0.54	0.01
Queue Length 95th (m)	2.3	0.0	0.2
Control Delay (s)	31.8	0.0	0.2
Lane LOS	D		A
Approach Delay (s)	31.8	0.0	0.2
Approach LOS	D		

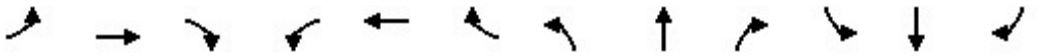
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	103	28	8	126	6	16	0	4	3	0	10
Future Volume (Veh/h)	17	103	28	8	126	6	16	0	4	3	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	118	32	9	145	7	18	0	5	3	0	11
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	152			150			352	344	134	346	356	148
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	152			150			352	344	134	346	356	148
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			97	100	99	99	100	99
cM capacity (veh/h)	1429			1431			587	567	915	596	558	898

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	170	161	23	14
Volume Left	20	9	18	3
Volume Right	32	7	5	11
cSH	1429	1431	636	810
Volume to Capacity	0.01	0.01	0.04	0.02
Queue Length 95th (m)	0.3	0.2	0.9	0.4
Control Delay (s)	1.0	0.5	10.9	9.5
Lane LOS	A	A	B	A
Approach Delay (s)	1.0	0.5	10.9	9.5
Approach LOS			B	A

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	22.9%	ICU Level of Service	A	
Analysis Period (min)	15			



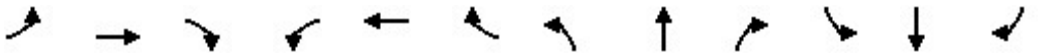
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	52	15	40	57	20	11	288	44	19	618	18
Future Volume (vph)	20	52	15	40	57	20	11	288	44	19	618	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1835			1813			1668			1838	
Flt Permitted		0.91			0.85			0.97			0.98	
Satd. Flow (perm)		1688			1562			1622			1809	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	23	60	17	46	66	23	13	331	51	22	710	21
RTOR Reduction (vph)	0	14	0	0	15	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	86	0	0	120	0	0	387	0	0	751	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.9			7.9			31.1			31.1	
Effective Green, g (s)		7.9			7.9			31.1			31.1	
Actuated g/C Ratio		0.15			0.15			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		256			237			970			1081	
v/s Ratio Prot												
v/s Ratio Perm		0.05			c0.08			0.24			c0.42	
v/c Ratio		0.33			0.51			0.40			0.70	
Uniform Delay, d1		19.7			20.3			5.5			7.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			1.7			1.2			3.7	
Delay (s)		20.5			21.9			6.7			10.9	
Level of Service		C			C			A			B	
Approach Delay (s)		20.5			21.9			6.7			10.9	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	52.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	3	317	11	3	641
Future Volume (Veh/h)	11	3	317	11	3	641
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)	12	3	345	12	3	697
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	0.97	0.97			0.97	
vC, conflicting volume	1054	351			357	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1039	311			317	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	100			100	
cM capacity (veh/h)	246	705			1201	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	15	357	700
Volume Left	12	0	3
Volume Right	3	12	0
cSH	283	1700	1201
Volume to Capacity	0.05	0.21	0.00
Queue Length 95th (m)	1.3	0.0	0.1
Control Delay (s)	18.4	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	18.4	0.0	0.1
Approach LOS	C		

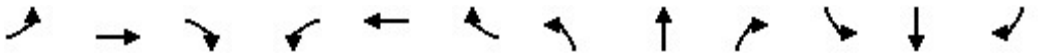
Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		46.1%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	83	20	6	87	5	20	0	4	4	0	10
Future Volume (Veh/h)	12	83	20	6	87	5	20	0	4	4	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	14	95	23	7	100	6	23	0	5	5	0	11
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	106			118			262	254	106	256	263	103
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	106			118			262	254	106	256	263	103
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			97	100	99	99	100	99
cM capacity (veh/h)	1485			1470			675	640	948	685	633	952

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	132	113	28	16
Volume Left	14	7	23	5
Volume Right	23	6	5	11
cSH	1485	1470	712	849
Volume to Capacity	0.01	0.00	0.04	0.02
Queue Length 95th (m)	0.2	0.1	1.0	0.5
Control Delay (s)	0.9	0.5	10.3	9.3
Lane LOS	A	A	B	A
Approach Delay (s)	0.9	0.5	10.3	9.3
Approach LOS			B	A

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	19.5%	ICU Level of Service	A	
Analysis Period (min)	15			



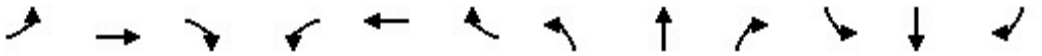
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	62	13	39	48	40	12	178	12	33	300	22
Future Volume (vph)	24	62	13	39	48	40	12	178	12	33	300	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1844			1769			1673			1829	
Flt Permitted		0.91			0.86			0.97			0.96	
Satd. Flow (perm)		1691			1545			1627			1757	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	28	71	15	45	55	46	14	205	14	38	345	25
RTOR Reduction (vph)	0	11	0	0	34	0	0	3	0	0	3	0
Lane Group Flow (vph)	0	103	0	0	112	0	0	230	0	0	405	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.8			7.8			31.1			31.1	
Effective Green, g (s)		7.8			7.8			31.1			31.1	
Actuated g/C Ratio		0.15			0.15			0.60			0.60	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		254			232			974			1052	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.07			0.14			c0.23	
v/c Ratio		0.41			0.48			0.24			0.38	
Uniform Delay, d1		20.0			20.2			4.9			5.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			1.6			0.6			1.1	
Delay (s)		21.0			21.8			5.4			6.5	
Level of Service		C			C			A			A	
Approach Delay (s)		21.0			21.8			5.4			6.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	13.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	5	237	5	1	339
Future Volume (Veh/h)	15	5	237	5	1	339
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)	16	5	258	5	1	368
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked						
vC, conflicting volume	630	260			263	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	630	260			263	
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	99			100	
cM capacity (veh/h)	445	778			1301	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	263	369
Volume Left	16	0	1
Volume Right	5	5	0
cSH	495	1700	1301
Volume to Capacity	0.04	0.15	0.00
Queue Length 95th (m)	1.1	0.0	0.0
Control Delay (s)	12.6	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	12.6	0.0	0.0
Approach LOS	B		

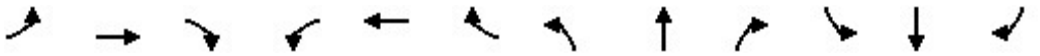
Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		28.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	94	8	3	90	2	25	0	6	6	0	12
Future Volume (Veh/h)	5	94	8	3	90	2	25	0	6	6	0	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	6	108	9	3	103	2	29	0	7	7	0	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	105			117			248	236	112	242	239	104
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	105			117			248	236	112	242	239	104
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			96	100	99	99	100	99
cM capacity (veh/h)	1486			1471			691	661	940	704	658	951

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	123	108	36	21
Volume Left	6	3	29	7
Volume Right	9	2	7	14
cSH	1486	1471	729	851
Volume to Capacity	0.00	0.00	0.05	0.02
Queue Length 95th (m)	0.1	0.0	1.2	0.6
Control Delay (s)	0.4	0.2	10.2	9.3
Lane LOS	A	A	B	A
Approach Delay (s)	0.4	0.2	10.2	9.3
Approach LOS			B	A

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	18.0%	ICU Level of Service	A	
Analysis Period (min)	15			



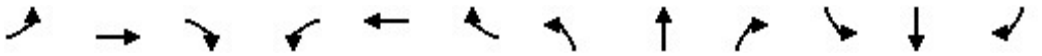
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	66	18	36	88	46	26	402	50	40	288	17
Future Volume (vph)	33	66	18	36	88	46	26	402	50	40	288	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.99	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1834			1792			1671			1830	
Flt Permitted		0.85			0.91			0.97			0.90	
Satd. Flow (perm)		1589			1652			1618			1656	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	38	76	21	41	101	53	30	462	57	46	331	20
RTOR Reduction (vph)	0	13	0	0	27	0	0	6	0	0	3	0
Lane Group Flow (vph)	0	122	0	0	168	0	0	543	0	0	394	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.1			9.1			31.2			31.2	
Effective Green, g (s)		9.1			9.1			31.2			31.2	
Actuated g/C Ratio		0.17			0.17			0.59			0.59	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		271			282			947			969	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.10			c0.34			0.24	
v/c Ratio		0.45			0.59			0.57			0.41	
Uniform Delay, d1		19.8			20.4			6.9			6.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			3.3			2.5			1.3	
Delay (s)		21.0			23.7			9.4			7.3	
Level of Service		C			C			A			A	
Approach Delay (s)		21.0			23.7			9.4			7.3	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	13.0
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	2	465	16	4	331
Future Volume (Veh/h)	10	2	465	16	4	331
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)	11	2	505	17	4	360
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	0.87	0.87			0.87	
vC, conflicting volume	882	514			522	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	788	364			374	
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	100			100	
cM capacity (veh/h)	311	591			1029	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	522	364
Volume Left	11	0	4
Volume Right	2	17	0
cSH	336	1700	1029
Volume to Capacity	0.04	0.31	0.00
Queue Length 95th (m)	1.0	0.0	0.1
Control Delay (s)	16.1	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	16.1	0.0	0.1
Approach LOS	C		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	111	28	8	144	6	16	0	4	3	0	10
Future Volume (Veh/h)	17	111	28	8	144	6	16	0	4	3	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	128	32	9	166	7	18	0	5	3	0	11
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	173			160			382	375	144	376	388	170
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	173			160			382	375	144	376	388	170
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			97	100	99	99	100	99
cM capacity (veh/h)	1404			1419			559	545	903	569	536	874

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	180	182	23	14
Volume Left	20	9	18	3
Volume Right	32	7	5	11
cSH	1404	1419	610	784
Volume to Capacity	0.01	0.01	0.04	0.02
Queue Length 95th (m)	0.3	0.2	0.9	0.4
Control Delay (s)	1.0	0.4	11.1	9.7
Lane LOS	A	A	B	A
Approach Delay (s)	1.0	0.4	11.1	9.7
Approach LOS			B	A

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	23.7%	ICU Level of Service	A	
Analysis Period (min)	15			

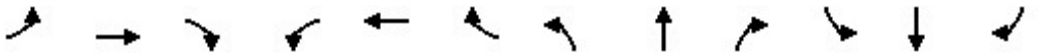
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	74	16	42	94	40	34	866	60	34	310	17
Future Volume (vph)	50	74	16	42	94	40	34	866	60	34	310	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.99	
Flt Protected		0.98			0.99			1.00			1.00	
Satd. Flow (prot)		1838			1804			1670			1832	
Flt Permitted		0.71			0.85			0.97			0.85	
Satd. Flow (perm)		1324			1555			1630			1558	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	57	85	18	48	108	46	39	995	69	39	356	20
RTOR Reduction (vph)	0	6	0	0	13	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	154	0	0	189	0	0	1100	0	0	413	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.4			13.4			57.0			57.0	
Effective Green, g (s)		13.4			13.4			57.0			57.0	
Actuated g/C Ratio		0.16			0.16			0.68			0.68	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		212			249			1114			1064	
v/s Ratio Prot												
v/s Ratio Perm		0.12			c0.12			c0.67			0.26	
v/c Ratio		0.73			0.76			0.99			0.39	
Uniform Delay, d1		33.3			33.5			12.9			5.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		11.7			12.8			24.1			1.1	
Delay (s)		45.0			46.3			37.0			6.8	
Level of Service		D			D			D			A	
Approach Delay (s)		45.0			46.3			37.0			6.8	
Approach LOS		D			D			D			A	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	13.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	2	940	16	4	347
Future Volume (Veh/h)	10	2	940	16	4	347
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)	11	2	1022	17	4	377
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	0.37	0.37			0.37	
vC, conflicting volume	1416	1030			1039	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1271	225			248	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	99			99	
cM capacity (veh/h)	68	300			485	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	1039	381
Volume Left	11	0	4
Volume Right	2	17	0
cSH	77	1700	485
Volume to Capacity	0.17	0.61	0.01
Queue Length 95th (m)	4.6	0.0	0.2
Control Delay (s)	61.1	0.0	0.3
Lane LOS	F		A
Approach Delay (s)	61.1	0.0	0.3
Approach LOS	F		

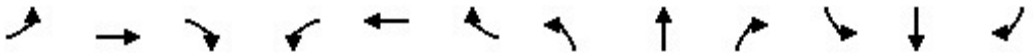
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	123	28	8	150	6	16	0	4	3	0	10
Future Volume (Veh/h)	17	123	28	8	150	6	16	0	4	3	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	20	141	32	9	172	7	18	0	5	3	0	11
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	179			173			402	394	157	396	406	176
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	179			173			402	394	157	396	406	176
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			99			97	100	99	99	100	99
cM capacity (veh/h)	1397			1404			543	531	889	552	523	868

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	193	188	23	14
Volume Left	20	9	18	3
Volume Right	32	7	5	11
cSH	1397	1404	594	773
Volume to Capacity	0.01	0.01	0.04	0.02
Queue Length 95th (m)	0.3	0.2	1.0	0.4
Control Delay (s)	0.9	0.4	11.3	9.7
Lane LOS	A	A	B	A
Approach Delay (s)	0.9	0.4	11.3	9.7
Approach LOS			B	A

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	24.4%	ICU Level of Service	A	
Analysis Period (min)	15			



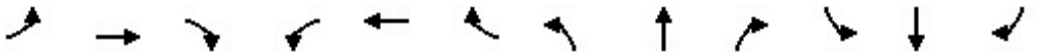
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	60	18	46	65	24	12	325	49	22	699	20
Future Volume (vph)	23	60	18	46	65	24	12	325	49	22	699	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			7.0			7.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.98			0.98			0.98			1.00	
Flt Protected		0.99			0.98			1.00			1.00	
Satd. Flow (prot)		1833			1810			1668			1838	
Flt Permitted		0.91			0.85			0.97			0.98	
Satd. Flow (perm)		1682			1565			1616			1805	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	26	69	21	53	75	28	14	374	56	25	803	23
RTOR Reduction (vph)	0	16	0	0	16	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	100	0	0	140	0	0	436	0	0	849	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	4%	0%	14%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.6			8.6			31.1			31.1	
Effective Green, g (s)		8.6			8.6			31.1			31.1	
Actuated g/C Ratio		0.16			0.16			0.59			0.59	
Clearance Time (s)		6.0			6.0			7.0			7.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		274			255			953			1065	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.09			0.27			c0.47	
v/c Ratio		0.37			0.55			0.46			0.80	
Uniform Delay, d1		19.6			20.3			6.1			8.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.8			2.4			1.6			6.2	
Delay (s)		20.5			22.7			7.6			14.6	
Level of Service		C			C			A			B	
Approach Delay (s)		20.5			22.7			7.6			14.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	13.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	3	361	11	3	727
Future Volume (Veh/h)	11	3	361	11	3	727
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)	12	3	392	12	3	790
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			158			
pX, platoon unblocked	0.93	0.93			0.93	
vC, conflicting volume	1194	398			404	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1172	320			326	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	198	673			1152	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	15	404	793
Volume Left	12	0	3
Volume Right	3	12	0
cSH	230	1700	1152
Volume to Capacity	0.07	0.24	0.00
Queue Length 95th (m)	1.7	0.0	0.1
Control Delay (s)	21.7	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	21.7	0.0	0.1
Approach LOS	C		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

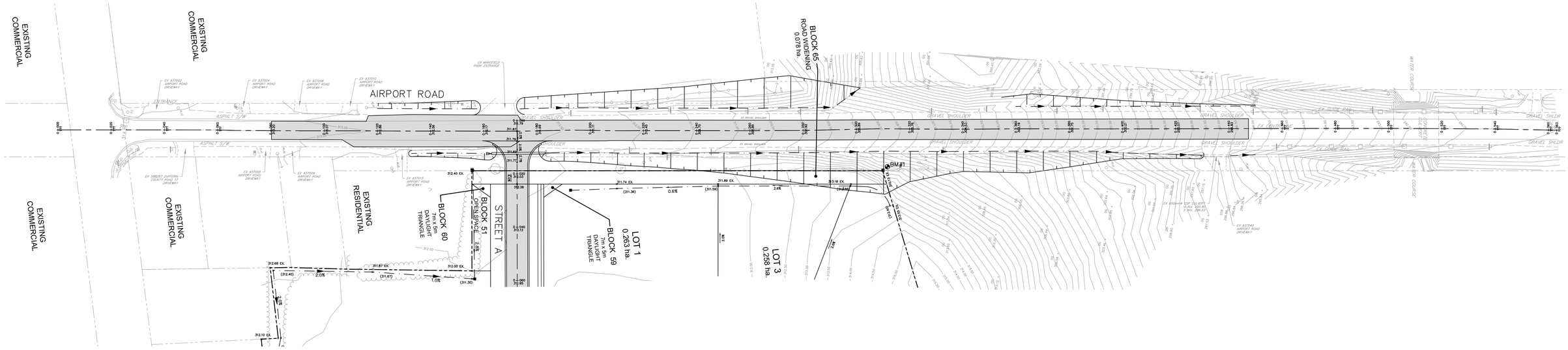


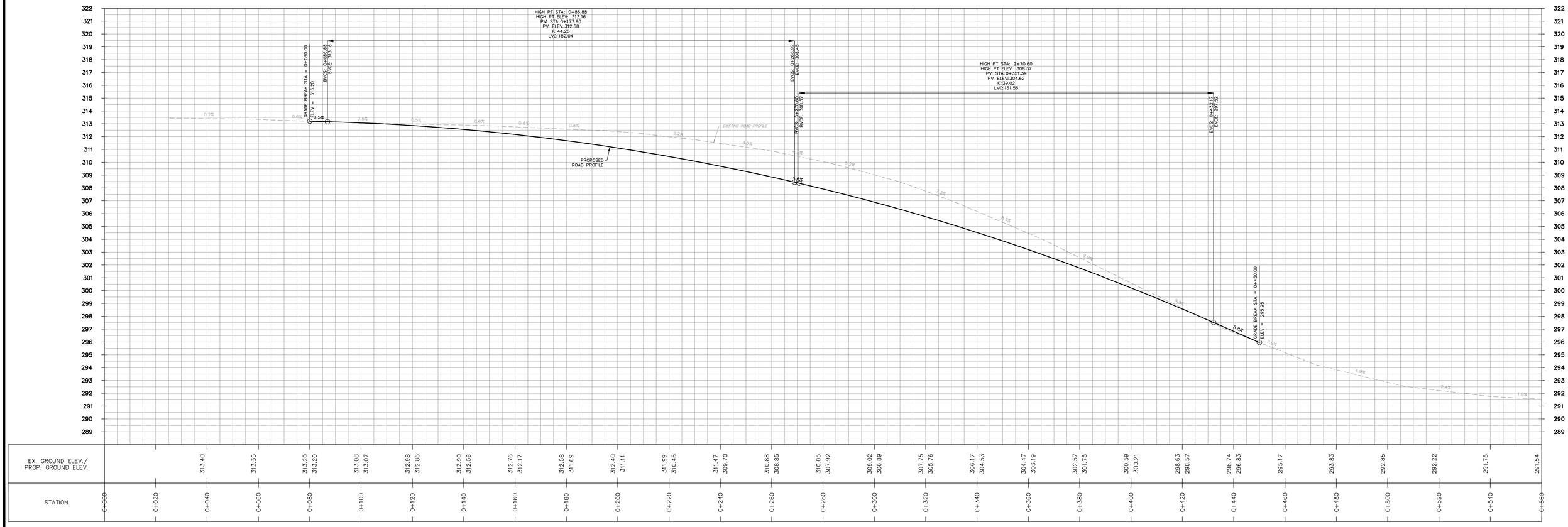
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	99	20	6	105	5	20	0	4	4	0	10
Future Volume (Veh/h)	12	99	20	6	105	5	20	0	4	4	0	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	14	114	23	7	121	6	23	0	5	5	0	11
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	127			137			302	294	126	296	303	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	127			137			302	294	126	296	303	124
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			96	100	99	99	100	99
cM capacity (veh/h)	1459			1447			635	608	925	645	601	927

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	151	134	28	16
Volume Left	14	7	23	5
Volume Right	23	6	5	11
cSH	1459	1447	673	815
Volume to Capacity	0.01	0.00	0.04	0.02
Queue Length 95th (m)	0.2	0.1	1.0	0.5
Control Delay (s)	0.8	0.4	10.6	9.5
Lane LOS	A	A	B	A
Approach Delay (s)	0.8	0.4	10.6	9.5
Approach LOS			B	A

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	20.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Appendix H –
Sight Distance Drawings





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BENCHMARK

BM#1
TOP OF IRON BAR AT NORTH WEST CORNER OF THE SITE
ELEV. 310.14

SEAL

DRAWN BY:	CHECKED BY:
C.A.	J.V.
DESIGNED BY:	
J.V./C.A.	
SCALE:	DATE:
HOR. 1:750 VERT. 1:150	NOV 2024

NO.	YY.MM.DD	REVISION	BY

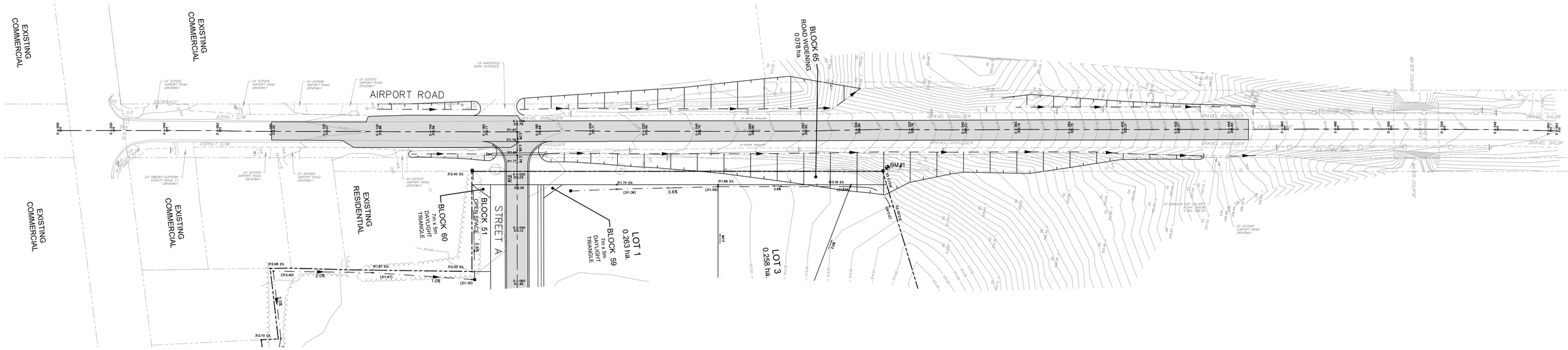
NORTH ARROW

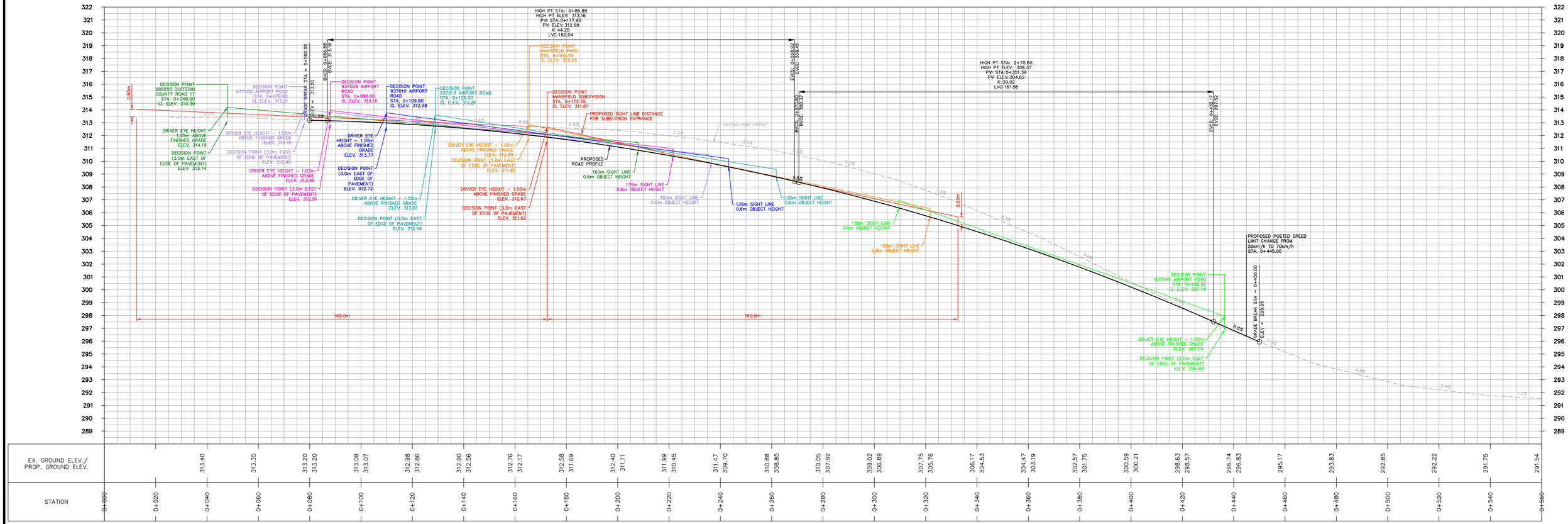
PROJECT: MANSFIELD SUBDIVISION
TOWNSHIP OF MULMUR

DRAWING: AIRPORT ROAD PLAN AND PROFILE
STATION 0+000 TO 0+560

PROJECT No. : 20-11584B

DRAWING No. PP-1





The position of existing above ground and underground utilities and facilities are not necessarily shown on the drawings, and where shown, the accuracy of the position of such utilities and facilities is not guaranteed. Before starting work, the contractor shall confirm the exact location of all existing utilities and facilities, and shall assume all liability for damage to them

Drawings shall not be used for construction unless sealed and signed. All work to be performed in accordance with the Occupational Health & Safety Act 1990.

Any errors and/or omissions shall be reported to Pinestone Engineering Ltd. without delay.

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TOP OF IRON BAR AT NORTH WEST CORNER OF THE SITE
ELEV. 310.14

SEAL

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DESIGNED BY:	
J.V./C.A.	
SCALE:	DATE:
HOR. 1:750 VERT. 1:150	NOV 2024

NO.	YY.MM.DD	REVISION	BY

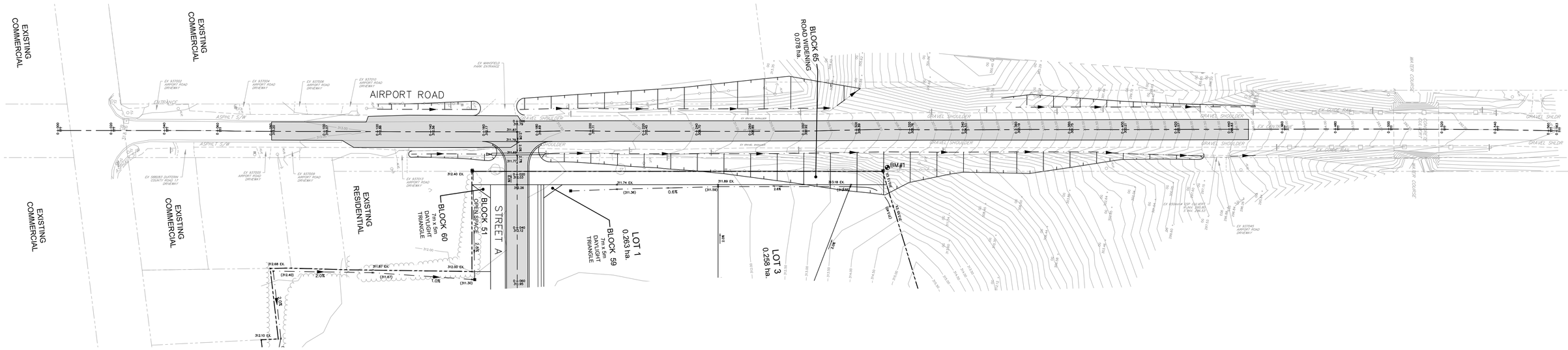
NORTH ARROW

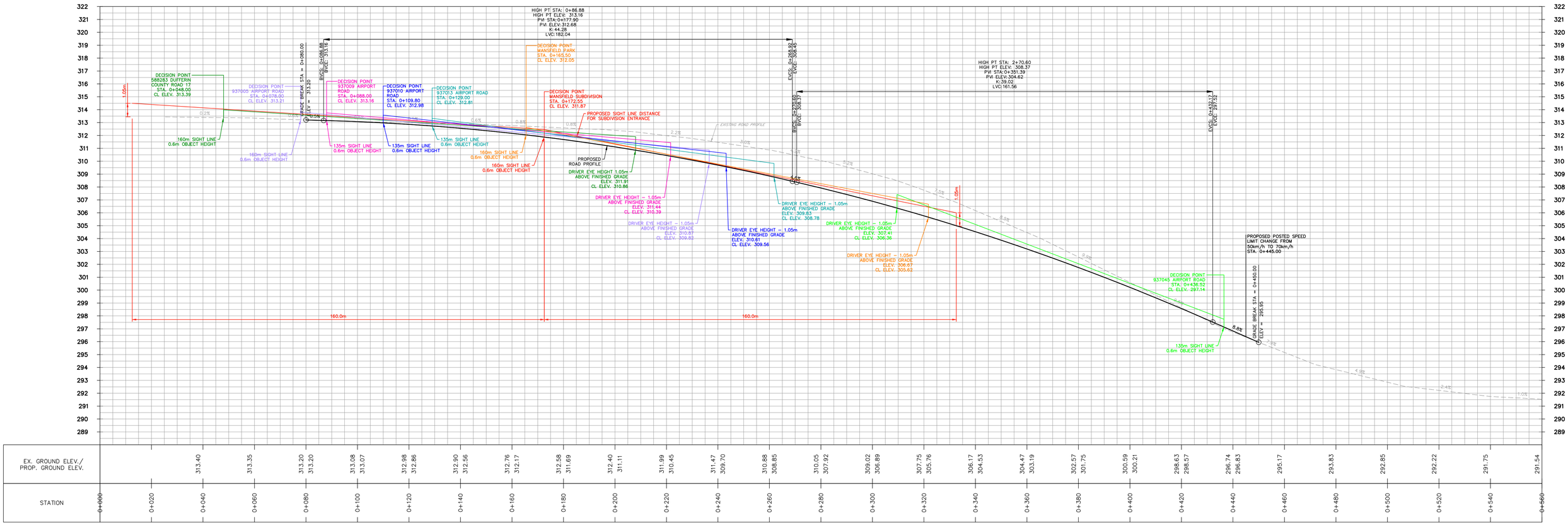
PROJECT: MANSFIELD SUBDIVISION
TOWNSHIP OF MULMUR

PROJECT No. : 20-11584B

DRAWING: AIRPORT ROAD SIGHT LINE PROFILE
1.05m DRIVER EYE HEIGHT AT DRIVEWAY
0.6m OBJECT HEIGHT ON ROAD

DRAWING No. PP-2





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BENCHMARK

BM#1
TOP OF IRON BAR AT NORTH WEST CORNER OF THE SITE
ELEV. 310.14

SEAL

DRAWN BY:	CHECKED BY:
C.A.	J.V.
DESIGNED BY:	
J.V./C.A.	
SCALE:	DATE:
HOR. 1:750 VERT. 1:150	NOV 2024

NO.	YY.MM.DD	REVISION	BY

NORTH ARROW

PROJECT: MANSFIELD SUBDIVISION
TOWNSHIP OF MULMUR

PROJECT No. : 20-11584B

DRAWING No. PP-3

DRAWING: AIRPORT ROAD SIGHT LINE PROFILE
1.05m DRIVER EYE HEIGHT ON ROAD
0.6m OBJECT HEIGHT AT DRIVEWAY