Syer Line Industrial

Township of Cavan Monaghan
County of Peterborough

Traffic Impact Study Update for

SLIP DEVCO INC.

Type of Document:
Final Report

Project Number:
JDE – 21179

Date Submitted:
March 21st, 2022
Revised: October 30th, 2023
Revised: February 1st, 2024

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

This report was prepared by **JD Northcote Engineering Inc.** for the account of **SLIP DEVCO INC.**

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **JD Northcote Engineering Inc.** accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

Executive Summary

This traffic impact study update was prepared in support of the proposed industrial development [Subject Site], located on the north side of Syer Line midblock between County Road 10 and Hutchinson Drive in the Township of Cavan Monaghan [Township], County of Peterborough [County]. This 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 Subject Site includes one full-movement access roadway onto Syer Line [Street A].

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

- Highway 115 SB Ramp & Syer Line / County Road 10;
- Highway 115 NB Ramp & Syer Line / County Road 10; and
- Syer Line / Street A.

Conclusions

1. The proposed development is expected to generate a total of 123 AM and 112 PM peak hour trips.
2. Detailed turning movement traffic and pedestrian counts were completed at the intersections of Highway 115 SB Ramp & Syer Line / County Road 10 and Highway 115 NB Ramp & Syer Line / County Road 10, on Wednesday, March 1st, 2023.
3. An intersection operation analysis was completed at the study area intersections, using the existing (2023) and background (2028, 2033 and 2038) 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. The following improvements are recommended:

   Background (2028) Traffic Volumes

   - Highway 115 SB Ramp & Syer Line / County Road 10
     - Installation of traffic signals.
   - Highway 115 NB Ramp & Syer Line / County Road 10
     - Installation of traffic signals.

   Background (2033) Traffic Volumes

   - Highway 115 SB Ramp & Syer Line / County Road 10
     - Widen the SB Off-Ramp for the construction of a westbound left turn lane with 150 metre storage length, 40 parallel length and 100 metre taper length and
     - Adjust signal to accommodate a protected + permissive westbound left turn phase.
   - Highway 115 NB Ramp & Syer Line / County Road 10
     - Widen County Road 10, north of the Highway 115 NB Ramp to provide two southbound lanes. The southbound configuration at the intersection should include a through + left lane and a through + right lane.
     - Widen SB Off-Ramp for the construction of an eastbound left turn lane with a 60 metre storage length, 40 parallel length and 100 metre taper length.
     - Extend the northbound left turn lane to provide a 230 metre storage length.

Long-Range Planning (Post 2033)

- Highway 115 NB Ramp & Syer Line / County Road 10
  - Twin the northbound left turn lane on County Road 10
  - Construct a second northbound on-ramp lane.

4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area streets and intersections.
5. An intersection operation analysis was completed under total (2028, 2033 and 2038) traffic volumes with the proposed development operational at the study area intersections. No additional improvements are recommended within the study area.
6. It is recommended MTO and County monitor the queuing on County Road 10 and on the Highway 115 ramps as the future Millbrook developments become fully built-out and occupied (anticipated to start in the existing (2023) year), to determine the specific timing for the recommended infrastructure improvements noted for the 2028 and 2033 horizon years.
7. Street A will operate efficiently with full-movement access, with one-way stop control for southbound movements. A single ingress and egress lane at Street A will provide the necessary capacity to service the proposed development.
8. The available sight distance at Street A is sufficient for the intended use.
9. In summary, the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

1.1 Background

SLIP DEVCO INC. [The Client] is proposing to develop a property [Subject Site], located on the north side of Syer Line, midblock between County Road 10 and Hutchinson Drive, in the Township of Cavan Monaghan [Township], County of Peterborough [County].

The proposed industrial subdivision will consist of 5 lots and is anticipated to include a total of 225 employees.

The proposed development includes one full-movement access roadway onto Syer Line [Street A]. A lot within the industrial subdivision (Block 5) will not have access via Street A. This lot will have frontage on Syer Line; however, the plan for accessing this lots has not been finalized at this time and will be subject to a future traffic review.

JD Northcote Engineering Inc. [JD Engineering] completed a traffic impact study [TIS] for the Subject Site (dated March 2022) [Syer TIS]. This report is an update to the Syer TIS which was based on a preliminary concept plan for the Subject Site.

The Client has retained JD Engineering to prepare this Traffic Impact Study Update in support of the development application for the proposed industrial development.

1.2 Study Area

Figure 1 shows the location of the Subject Site and study area intersections in relation to the surrounding area. The Concept Plan is provided in **Appendix A**.

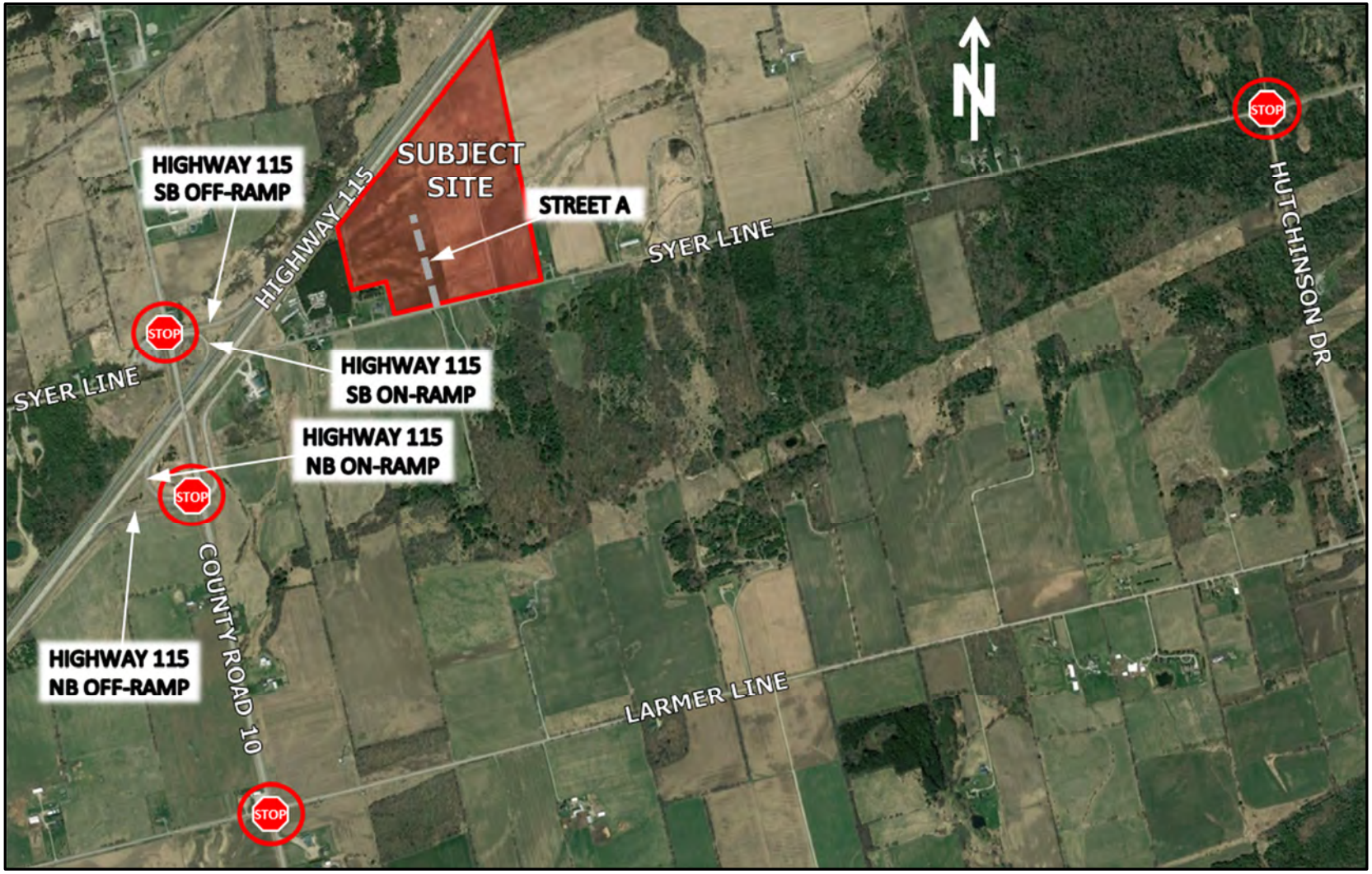
It is noted, the Concept Plan illustrates lots on the southeast and southwest corners of the proposed development that are also owned by the Client. These lots are not a part of this application and were reviewed as part of a consent application submitted prior to the completion of this report.

The subject site is bound by Syer Line to the south, Highway 115 to the north, existing residential and RV dealership to the west and agricultural lands to the east.

The following intersections, which were included in the Syer TIS, are included in this traffic impact study update:

- Highway 115 SB Ramp & Syer Line / County Road 10;
- Highway 115 NB Ramp & Syer Line / County Road 10; and
- Syer Line / Street A.

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:

- 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;
- Complete a review of traffic operations at the proposed Street A access and study area intersections;
- Review the proposed configuration at the proposed Street A access and study area intersections;
- Review the available sight distance at the proposed Street A access; and
- Document findings and recommendations in a final report.

1.4 Horizon Year and Analysis Periods

Traffic scenarios for the existing year (2023) and horizon years (2028, 2033 & 2038) were selected for analysis of traffic operations in the study area. The weekday morning [AM] and weekday afternoon [PM] peak hours have been selected as the analysis periods for this study.

2 Information Gathering

2.1 Street and Intersection Characteristics

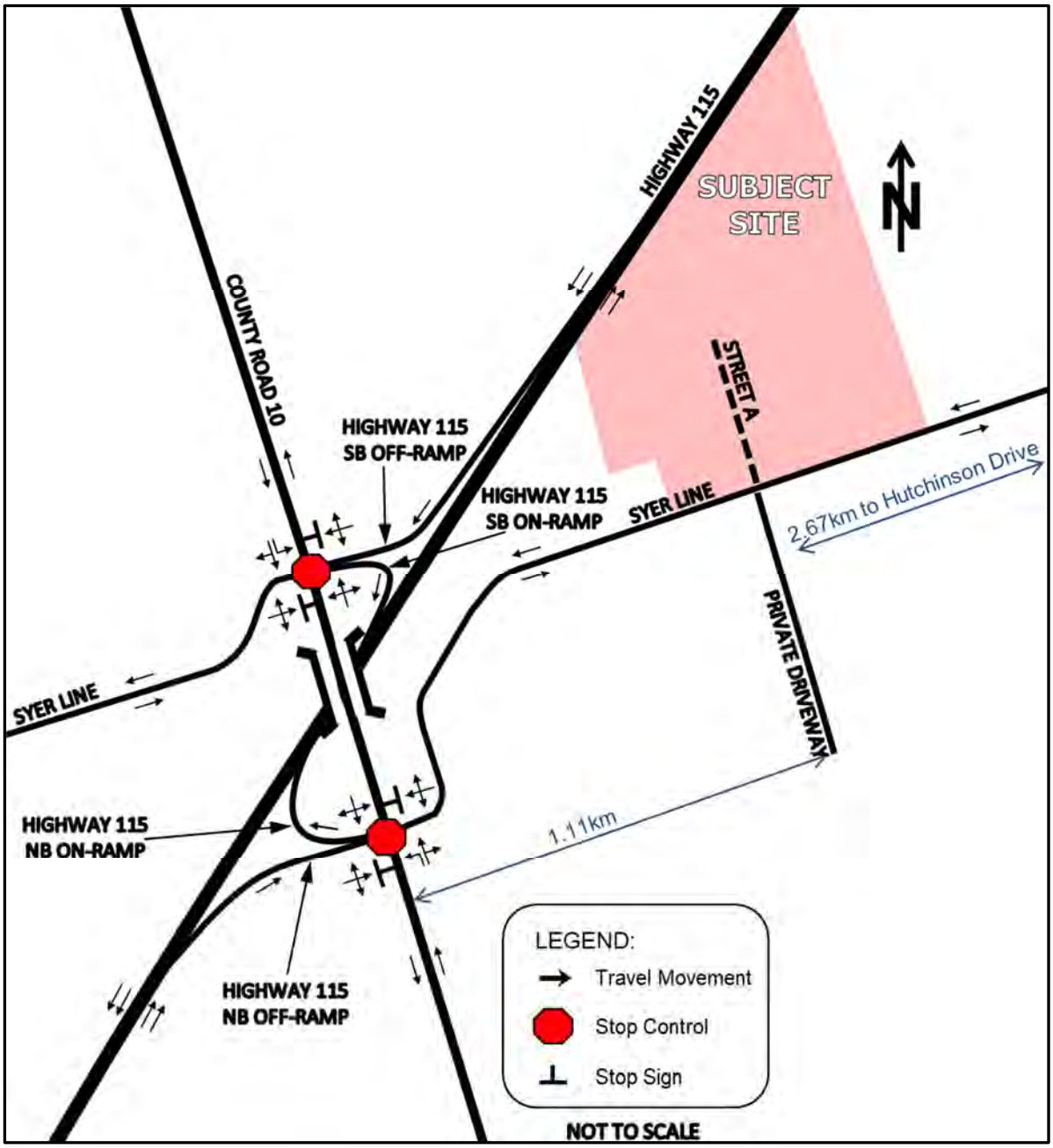
Highway 115 is a four-lane Class 1B freeway provincial highway with a rural cross-section. Highway 115 has a posted speed limit of 100km/h and is under jurisdiction of the Ontario Ministry of Transportation [MTO]. The Highway 115 on and off ramps (for both northbound and southbound directions) have posted advisory speed of 40 km/h and 70 km/h respectively.

County Road 10 is a two-lane arterial road with a rural cross-section and no sidewalks. County Road 10 has a posted speed limit of 80 km/h and is under jurisdiction of the County.

Syer Line is a two-lane local road with a rural cross-section and no sidewalks. Syer Line has a discontinuation east and west of County Road 10 (approximately 506 metres). Syer Line west of County Road 10 has a posted speed limit of 50 km/h and east of County Road 10 has an unposted (assumed) speed limit of 50km/h. Syer Line is under jurisdiction of the Township.

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

Figure 2 – Existing (2023) Intersection Spacing and Lane Configuration within Study Area



2.2 Local Transportation Infrastructure Improvements

Based on a review of the MTO's Highway's Programs interactive map, the County's Capital Works Project interactive map and the Township's Capital Budget (2023), there are no significant local road improvements scheduled in the study area that will impact traffic volumes or traffic patterns within the horizon years included in this analysis.

2.3 Transit Access

GO Transit provides the Route #88 (Peterborough / Oshawa) bus route which provides connections between the City of Oshawa and the City of Peterborough along Highway 115.

The Peterborough / Oshawa bus route operates on weekdays between 04:45 – 21:45 with daytime service every two hour and on weekends between 05:40 – 21:45 with service every two hours.

The closest bus stop for the Peterborough / Oshawa bus route is located in the southeast corner of the Highway 115 SB Ramp & Syer Line / County Road 10 intersection (1.7 km from the Subject Site).

2.4 Other Developments within the Study Area

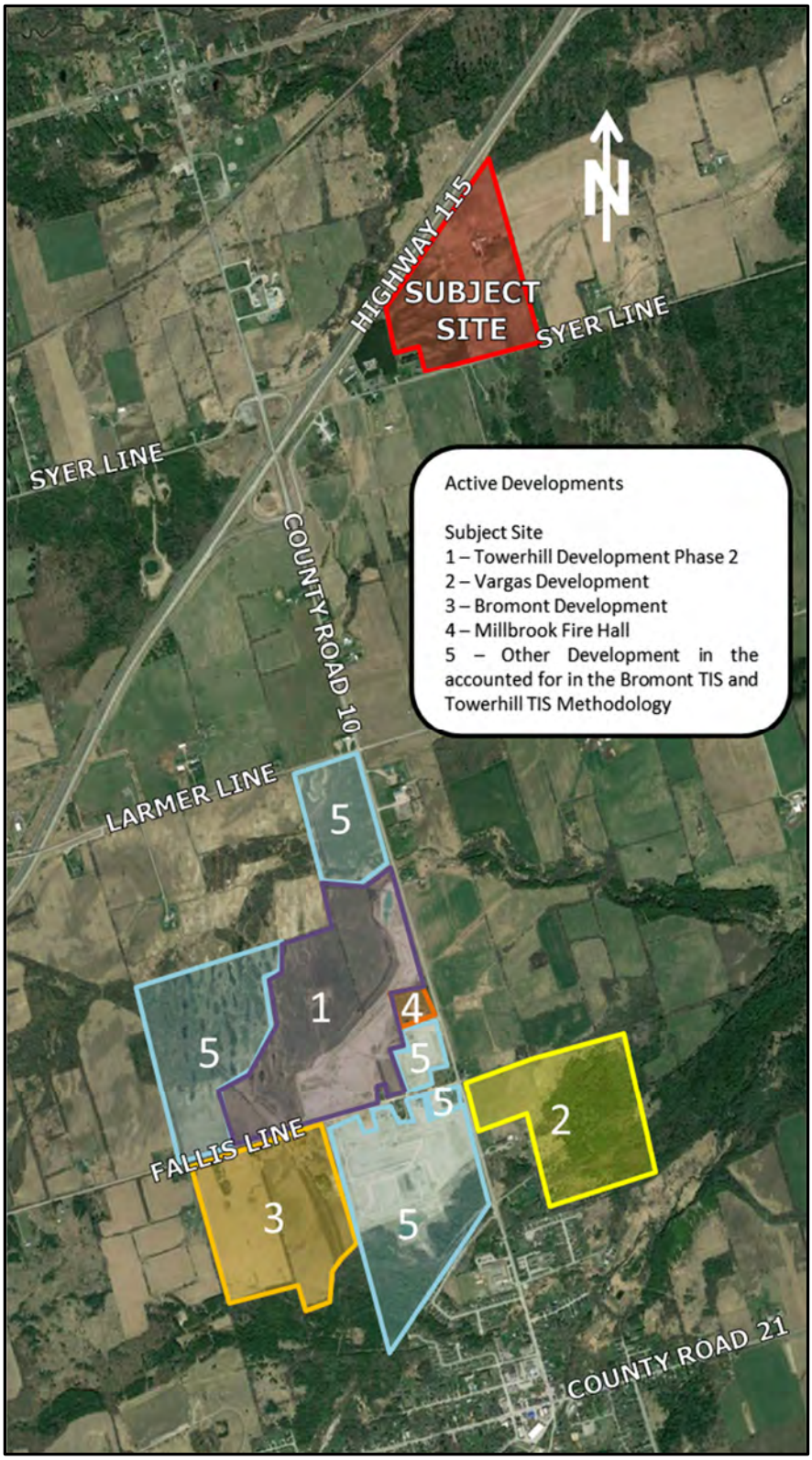
Based on discussions with Township staff, the following developments are planned in the study area:

- Towerhill Development Phase 2;
- Vargas Development;
- Bromont Development;
- Millbrook Fire Hall;

The above noted developments are in various stages of development and are further described in the sections below. To be conservative in our analysis, we have assumed all of the developments will be built-out by the 2033 horizon year.

Figure 3 illustrates the location of these development relative to the study area.

Figure 3 – Adjacent Development Locations



2.4.1 Towerhill Developments Phase 2

Towerhill Developments Limited is proposing to develop a 52.1 hectare parcel of land, located northwest of the Fallis Line / County Road 10 intersection, south of the study area [Towerhill Developments Phase 2]. Towerhill Developments Phase 2 will consist of 328 single detached units, 245 townhouse units, 192 high-density residential units and an institutional block. JD Engineering completed a traffic impact study for Towerhill Developments Phase 2 (dated January 2021) [Towerhill TIS]. Towerhill Developments Phase 2 is approved and currently under construction. It is anticipated Towerhill Developments Phase 2 will be fully built-out by 2028.

For the future (2028, 2033 and 2038) scenarios, the traffic assignment for the Towerhill Developments Phase 2 is based on the traffic projections from the Bromont TIS, which is further discussed in Section 2.4.3. The traffic projections in the Bromont TIS applied the assumptions form the Towerhill TIS to determine the future traffic volumes on County Road 10 and added further context to the traffic projections in the Towerhill TIS.

2.4.2 Vargas Development

Vargas Properties Inc. is proposing a mixed-use development located on the southeast corner of the Fallis Line / County Road 10 intersection, south of the study area [Vargas Development]. Vargas Development will consist of 116 single detached units, 58 townhouse units, 70 medium density units and a commercial block. Asurza Engineers Limited completed a traffic impact study for the Vargas Development (dated April 2021) [Vargas TIS]. Vargas Development is pending site plan approval. It is anticipated the Vargas Development will be 50% occupied by 2025 and fully built-out and occupied by 2030

The traffic assignment for the Vargas Development was determined in the Vargas TIS, however, will be based on the Bromont TIS, which is further discussed in Section 2.4.3. The Bromont TIS used the Vargas TIS to estimate the traffic assignment for the Vargas Development.

2.4.3 Bromont Development

Bromont Group is proposing a residential development located southwest of the Fallis Line / County Road 10 intersection, south of the study area [Bromont Development]. The Bromont Development will consist of 371 single detached units, 148 townhouse units and 150 mid-rise residential units. Asurza Engineers Limited completed a traffic impact study for the Bromont Development (dated January 2022) [Bromont TIS]. Bromont Development is pending site plan approval. It is anticipated the Bromont Development will be 50% occupied by 2025 and fully built-out and occupied by 2030

The traffic assignment for the Bromont Development was obtained from the Bromont TIS (excerpts provided in **Appendix B**). **Figure 4** and **5** illustrates the traffic assignment for the Bromont Development for the 2028 and 2033 / 2038 horizon year, respectively.

The study area of this report extends beyond the study area included in the Bromont Development. The distribution of the Bromont Developent traffic within the study area of this report has been estimated based on the 2016 Transportation Tomorrow Survey [TTS] data. The TTS data for the Township was retrieved using the TTS Internet Data Retrieval System [IDRS] (output attached as **Appendix I**). TTS data provides historical origin and destination work trip percentages for specific areas within the Town and southern Ontario.

Traffic distribution for the trips generated by the adjacent developments 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.

Table 1 illustrates the traffic distribution for the Bromont, Towerhill Phase 2 and Vargas Developments, using the methodology outlined above.

Table 1 – Adjacent Development Traffic Distribution (Residential)

Travel Direction (to/from)	Percent of Total Traffic Generation
West via Highway 115*	17%
East via Highway 115	48%
South via County Road 10**	16%
North via County Road 10	2%
Total	**100%**

*Although traffic will be travelling west onto Highway 115, a large percentage will access the highway from beyond the study area and only a small portion will access Highway 115 via the interchange in the study area.
** Outside of the study area.

The Bromont TIS included traffic assignment for the Towerhill Developments Phase 2 and the Vargas Development. For the purposes of this study, the traffic assignment for the Towerhill Developments Phase 2, Vargas Development and other minor development in the Millbrook community have been estimated based on the Bromont TIS traffic projections (excerpts provided in **Appendix B**).

Figure 6 and **7** illustrates the traffic assignment for the adjacent developments noted in the Bromont TIS[1] for the 2028 and 2033 / 2038 horizon year respectively, in the AM and PM peak hours. The traffic distribution in the study area has been assumed based on Table 12 and the assumptions noted above.

2.4.4 Millbrook Fire Hall

The Township is proposing to construct a fire hall on a site municipally known as 988 County Road 10, located north of the Municipal Office [Millbrook Fire Hall]. The Millbrook Fire Hall will be occupied by two user groups: the Township's Fire and Emergency Service and the County's Paramedic Service. JD Engineering completed a traffic impact study for the Millbrook Fire Hall (dated October 2021) [Millbrook Fire Hall TIS]. The Millbrook Fire Hall is site plan approved and is assumed to be built-out by 2028.

The traffic assignment for the Millbrook Fire Hall was obtained from the Millbrook Fire Hall TIS (excerpts provided in **Appendix B**). **Figure 8** illustrates the traffic assignment for the Millbrook Fire Hall, for the AM and PM peak hour. The traffic distribution in the study area is based on the existing traffic in the study area, as illustrated in **Table 2.**

[1] The traffic assignment was determined by taking the difference between the background (2025 & 2030) traffic volumes and the existing (2021) traffic volumes, with a background traffic growth rate applied, to determine the equivalent 2025 and 2030 traffic volumes. To determine the 2028 traffic volumes, we have assumed linear growth based on the background (2025 & 2030) traffic volumes.

Table 2 – Fire Hall Traffic Distribution

Scenario	Direction	Ingress / Egress Traffic Direction			
		West	East	South*	North
AM	In	6%	16%	51%	27%
	Out	16%	23%	30%	31%
PM	In	18%	24%	30%	28%
	Out	9%	13%	45%	33%

*Outside of the study area.

Figures 9 and **10** illustrates total traffic assignment for the 2028 and 2033 / 2038 horizon years respectively, for the adjacent developments in the study area during the AM and PM peak hour.

Figure 4 – Adjacent Development – Bromont Development Traffic Volumes (2028)

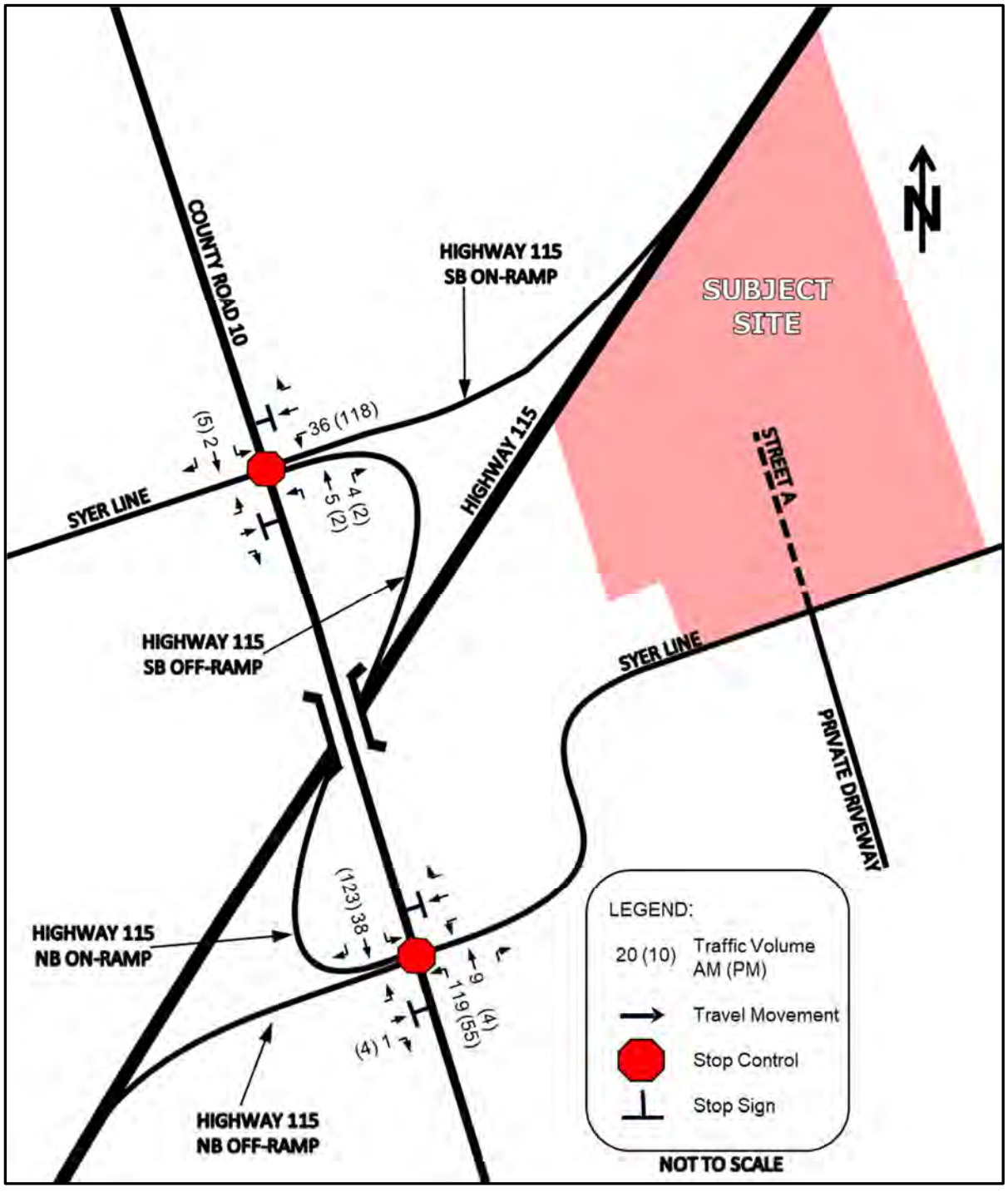


Figure 5 – Adjacent Development – Bromont Development Traffic Volumes (2033 / 2038)

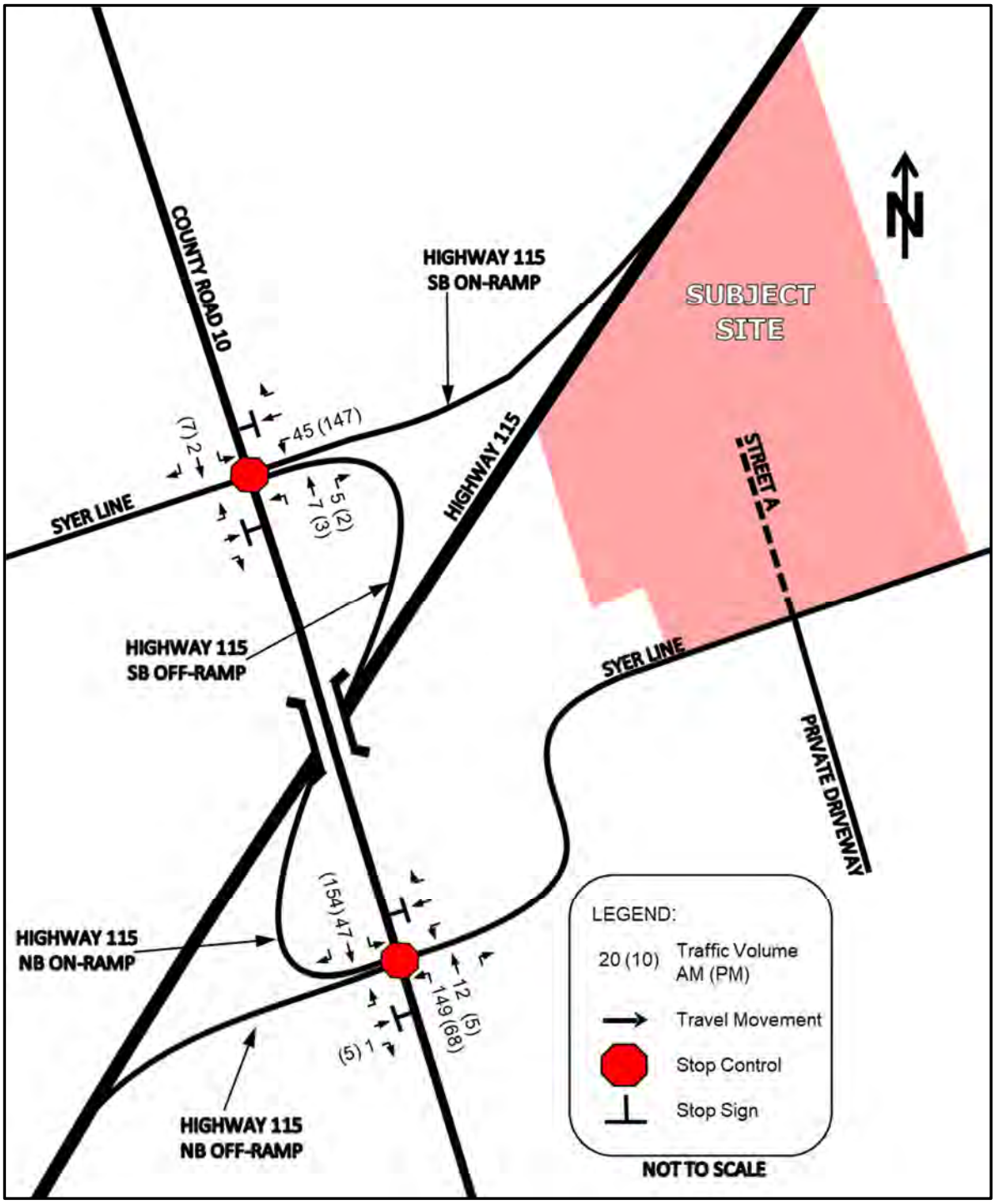
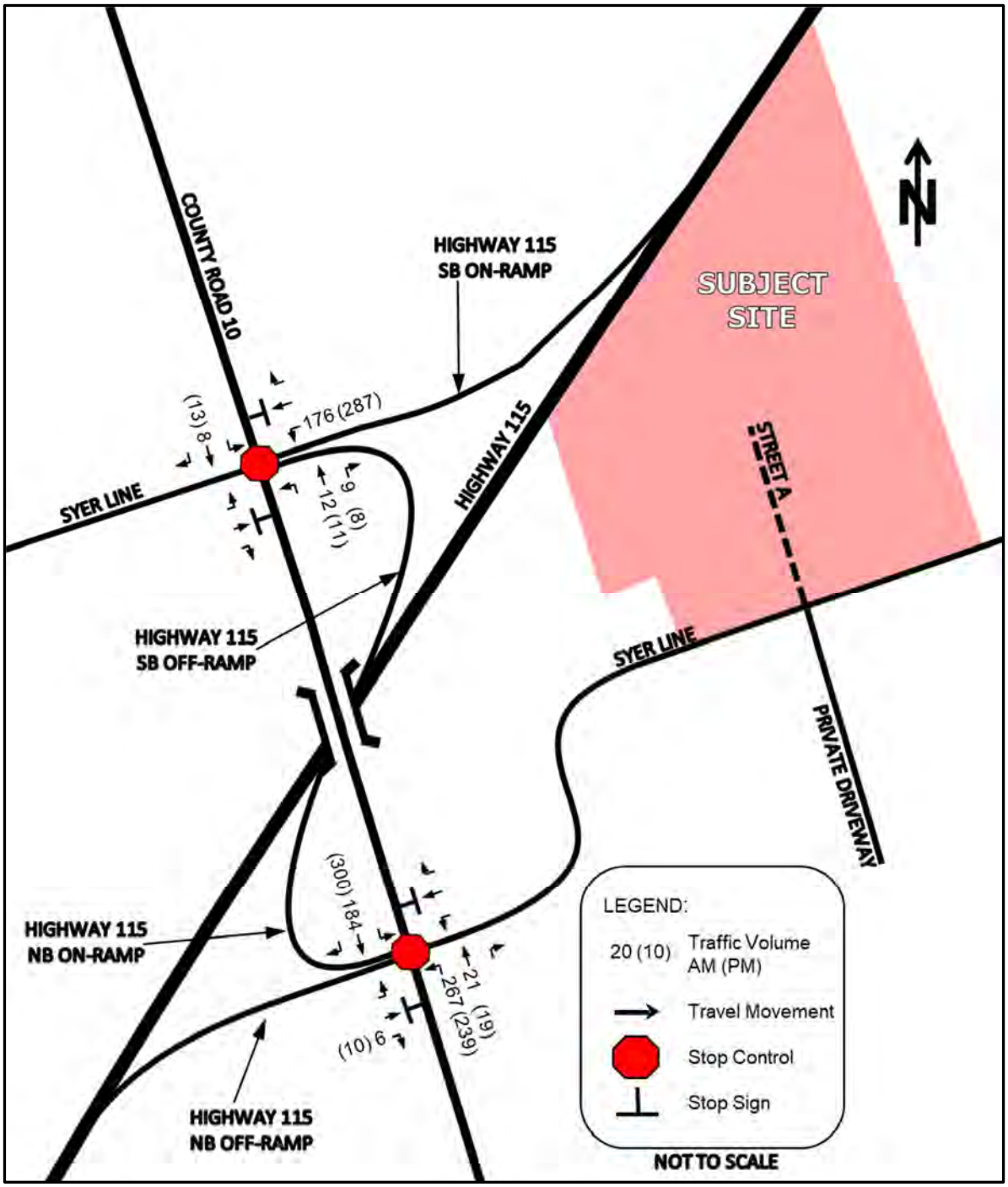


Figure 6 – Adjacent Development (Bromont TIS[2]) Traffic Volumes (2028)



[2] Adjacent development in the Bromont TIS includes the Towerhill Developments Phase 2, the Vargas Development and other minor development in the Millbrook community.

Figure 7 – Adjacent Development (Bromont TIS[2]) Traffic Volumes (2033 / 2038)

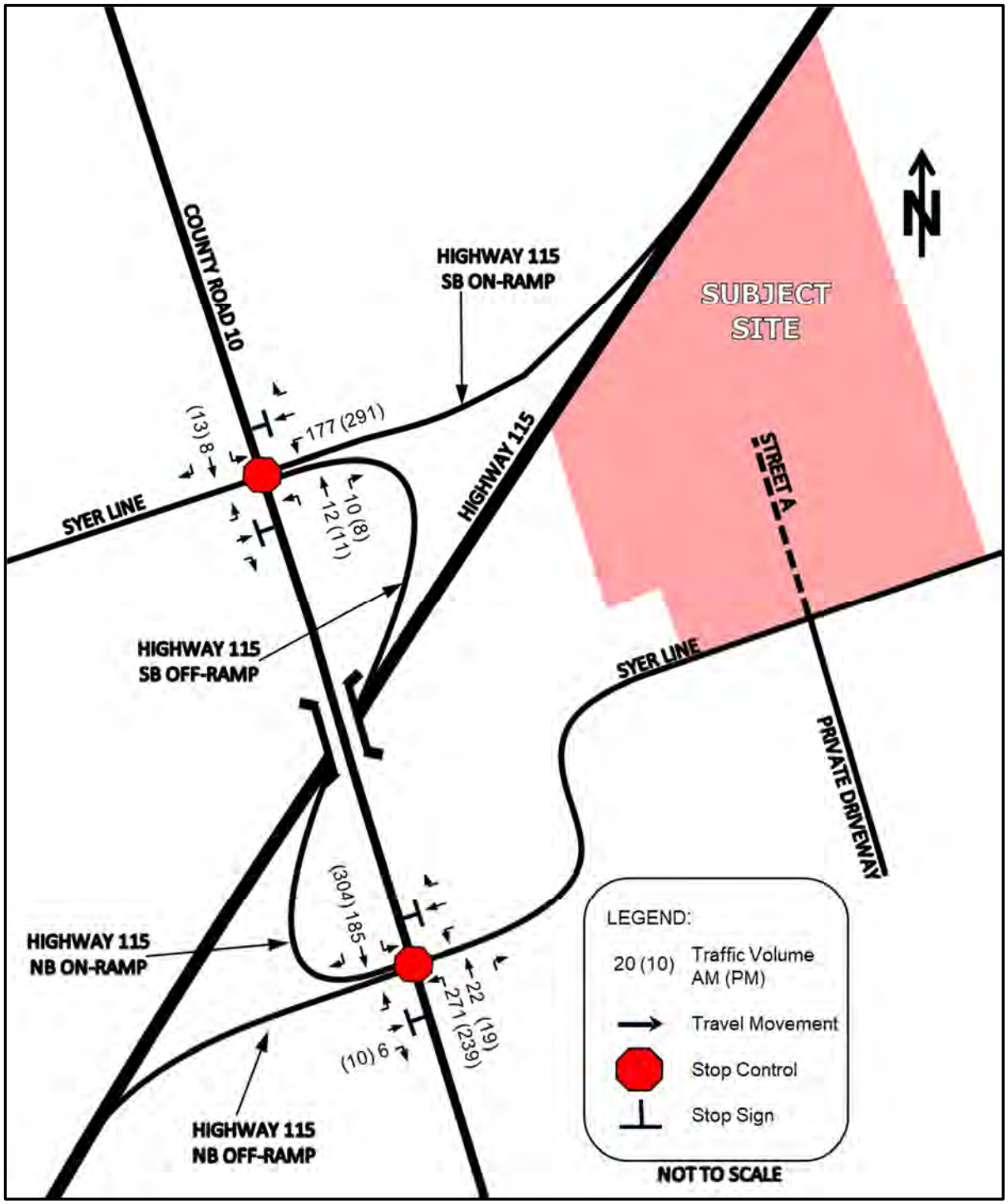


Figure 8 – Adjacent Development – Millbrook Fire Hall Traffic Volumes (2028)

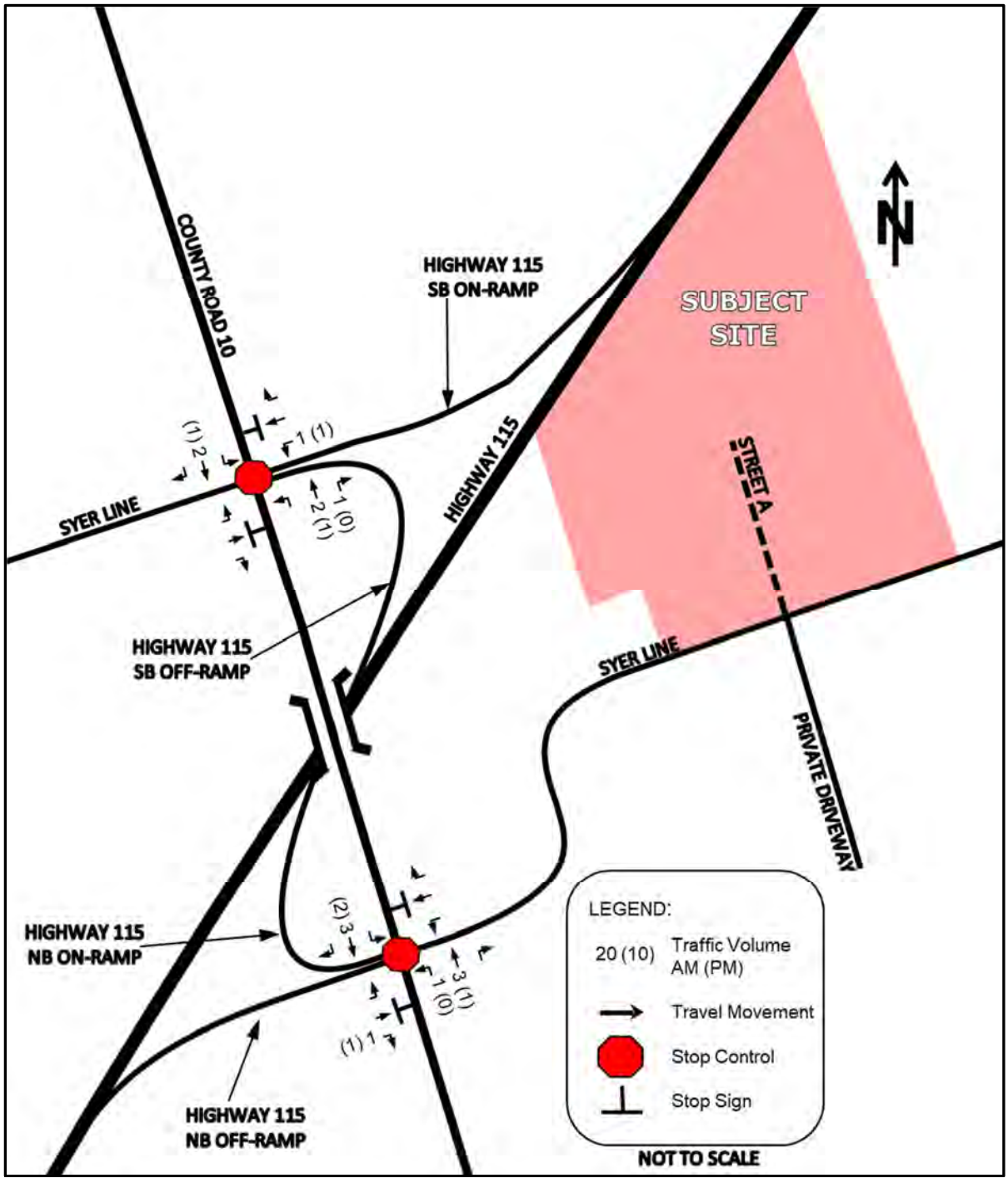


Figure 9 – Total Net Adjacent Development Traffic Volumes (2028)

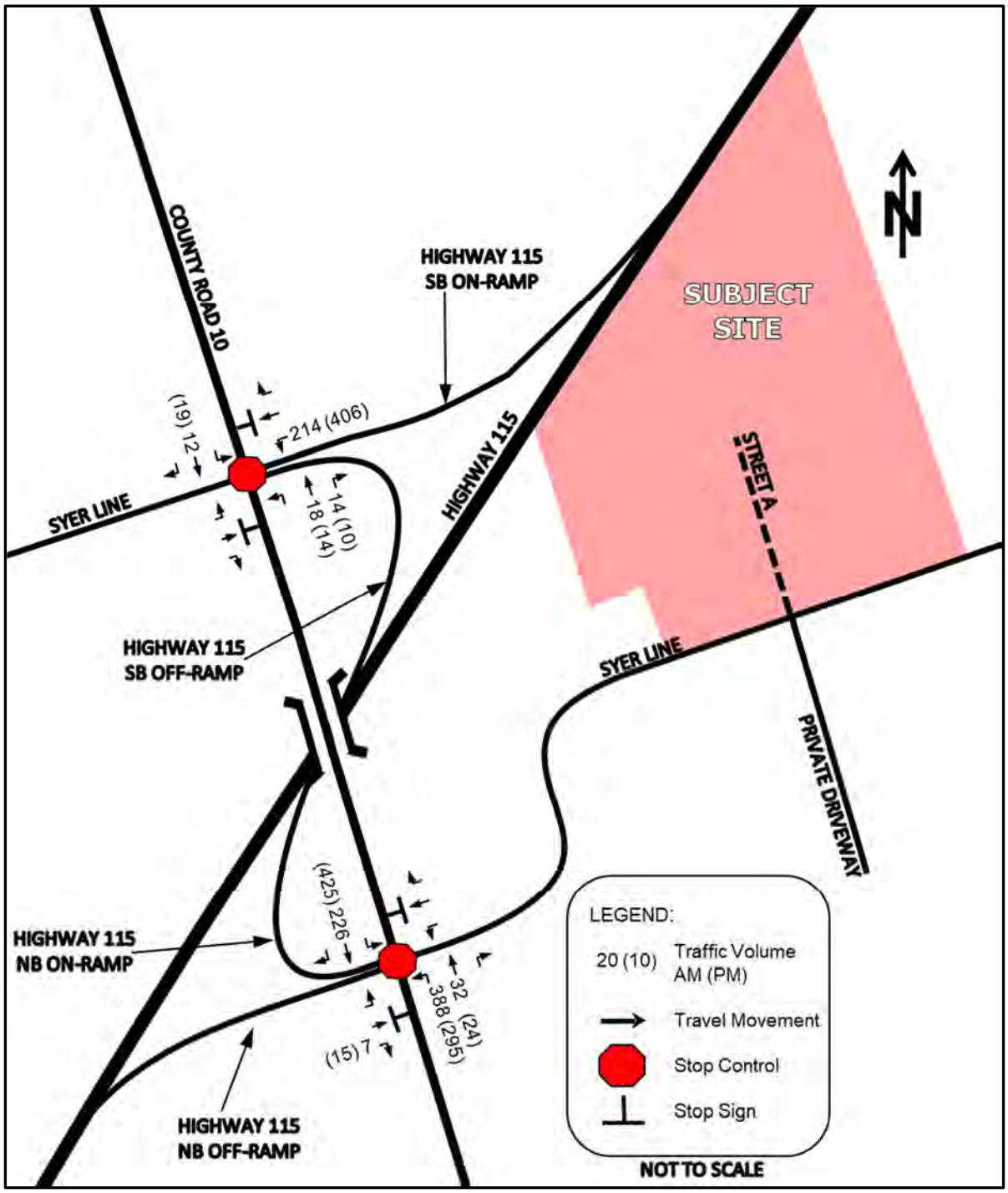
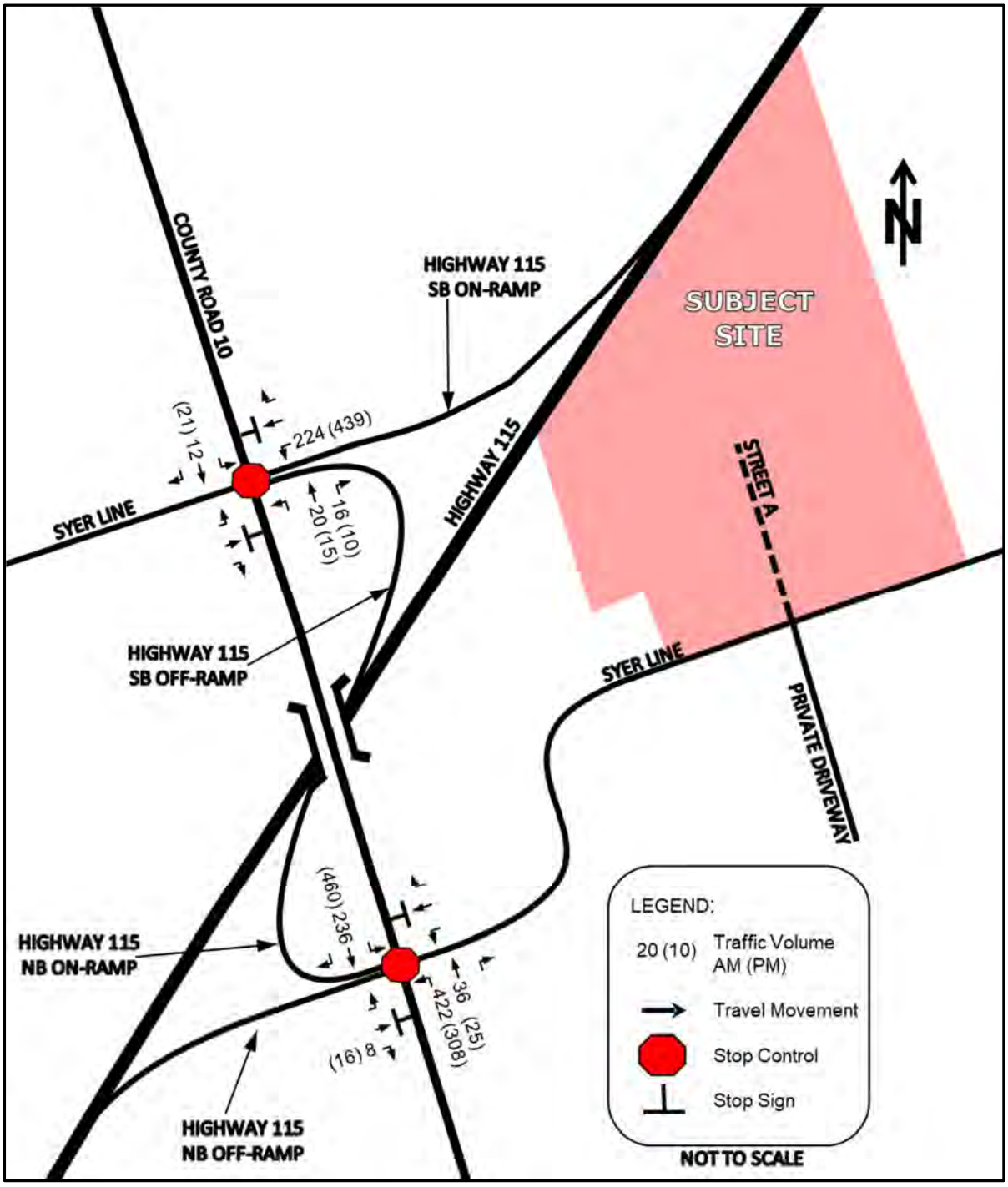


Figure 10 – Total Net Adjacent Development Traffic Volumes (2033 / 2038)



2.5 Background Traffic Growth

The background traffic growth rate on Highway 115 was calculated based on the MTO's Traffic Volumes Program between 2006 – 2016. A background traffic growth rate of 2.3% was applied on Highway 115. Based on correspondence with the County a general background traffic growth rate of 2% was applied on County Road 10. A general background traffic growth rate of 2% was assumed for Syer Line.

2.6 Traffic Counts

Detailed turning movement traffic and pedestrian counts were completed at the study area intersections.

Table 3 summarizes the traffic count data collection information.

Table 3 – Traffic Count Data

Intersection (E-W Street / N-S Street)	**Count Date**	**AM Peak Hour**	**PM Peak Hour**	**Source**
Highway 115 SB Ramp* & Syer Line / County Road 10	Wednesday, March 1st, 2023	07:30 – 08:30	16:30 – 17:30	JD Eng.**
Highway 115 NB Ramp* & Syer Line / County Road 10	Wednesday, March 1st, 2023	07:45 – 08:45	16:30 – 17:30	JD Eng.**

* The traffic count data in Appendix C incorrectly labels the Highway 115 SB / NB Ramp in the diagrams; where the Highway 115 Ramp on the east leg is the Highway 115 SB Ramp and the Highway 115 Ramp on the west leg is the Highway 115 NB Ramp
** The traffic counts were completed by Accu Traffic Inc. on behalf of JD Engineering.

Detailed traffic count data can be found in **Appendix C**. The peak hours of traffic generation for the study area intersections generally aligned with the anticipated peak hour of traffic generation by the proposed development. Although the AM and PM peak periods at all study area intersections did not exactly align, for the purpose of this report, we have assumed that the AM and PM peak hours are concurrent.

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

The south leg traffic at the Highway 115 SB Ramp & Syer Line / County Road 10 intersection has been adjusted to match the north leg traffic at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection as there are slight discrepancies due to the peak hours not exactly aligning in the traffic count data.

Figure 11 illustrates the existing (2023) AM and PM peak hour traffic volumes within the study area.

2.7 Horizon Year Traffic Volumes

The background (2028, 2033 and 2038) traffic volumes were estimated using the existing (2023) AM and PM peak hour traffic volumes and applying the background traffic growth rate discussed in Section 2.5 and the adjacent development traffic identified in Section 2.4.

The proposed Street A access has been assumed to be located directly across from the existing driveway on Syer Line, which provides access to one single detached unit. The traffic generation for the single detached unit has been based on the ITE Trip Generation Manual. The following ITE land use has been applied to estimate the traffic generated by the single detached unit:

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

Figures 12, 13 and **14** for the background (2028, 2033 and 2038) respectively, in the AM and PM peak hour traffic volumes for the study area (excluding the proposed development traffic volumes).

Figure 11 – Existing (2023) Traffic Volumes

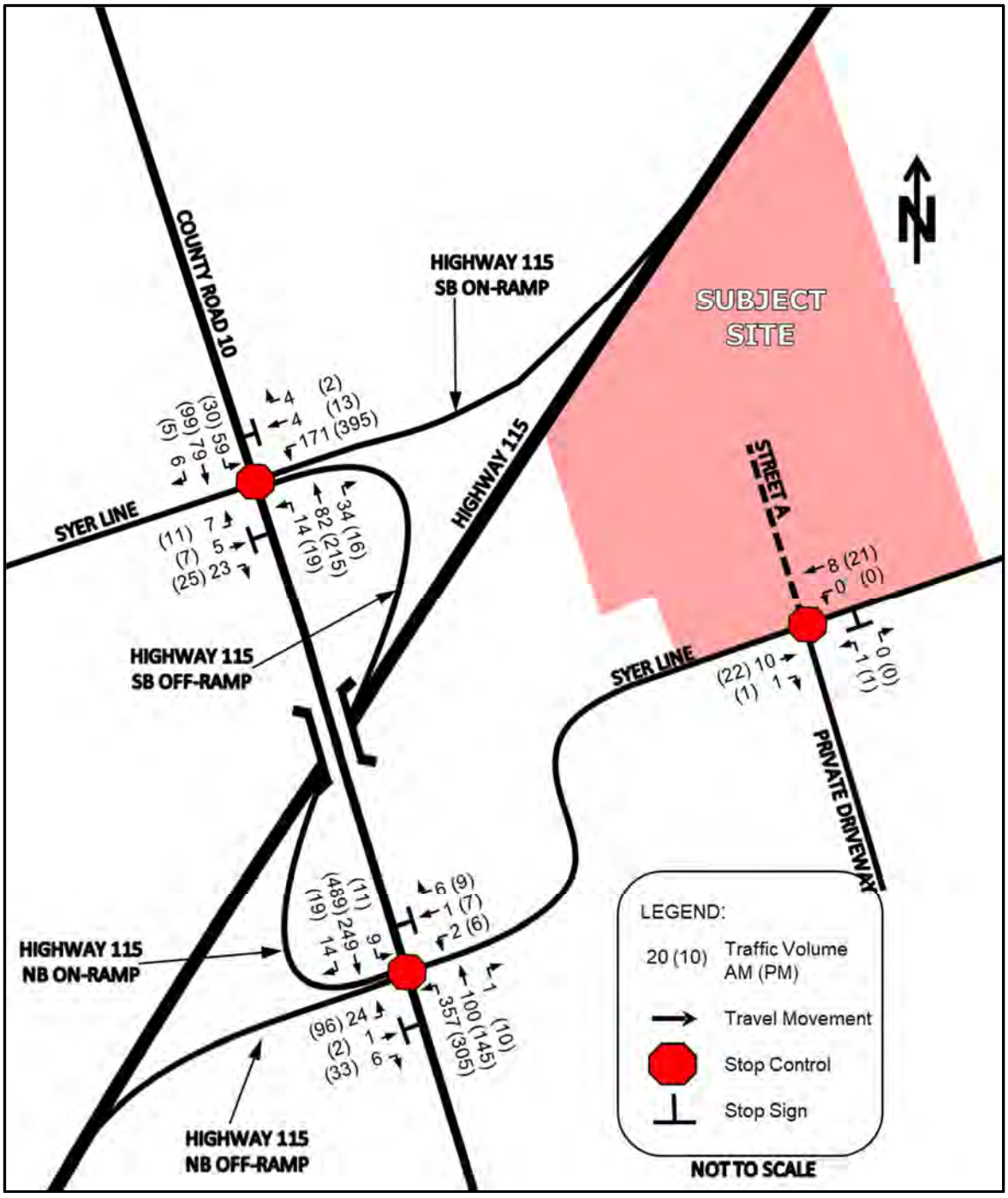


Figure 12 – Background (2028) Traffic Volumes

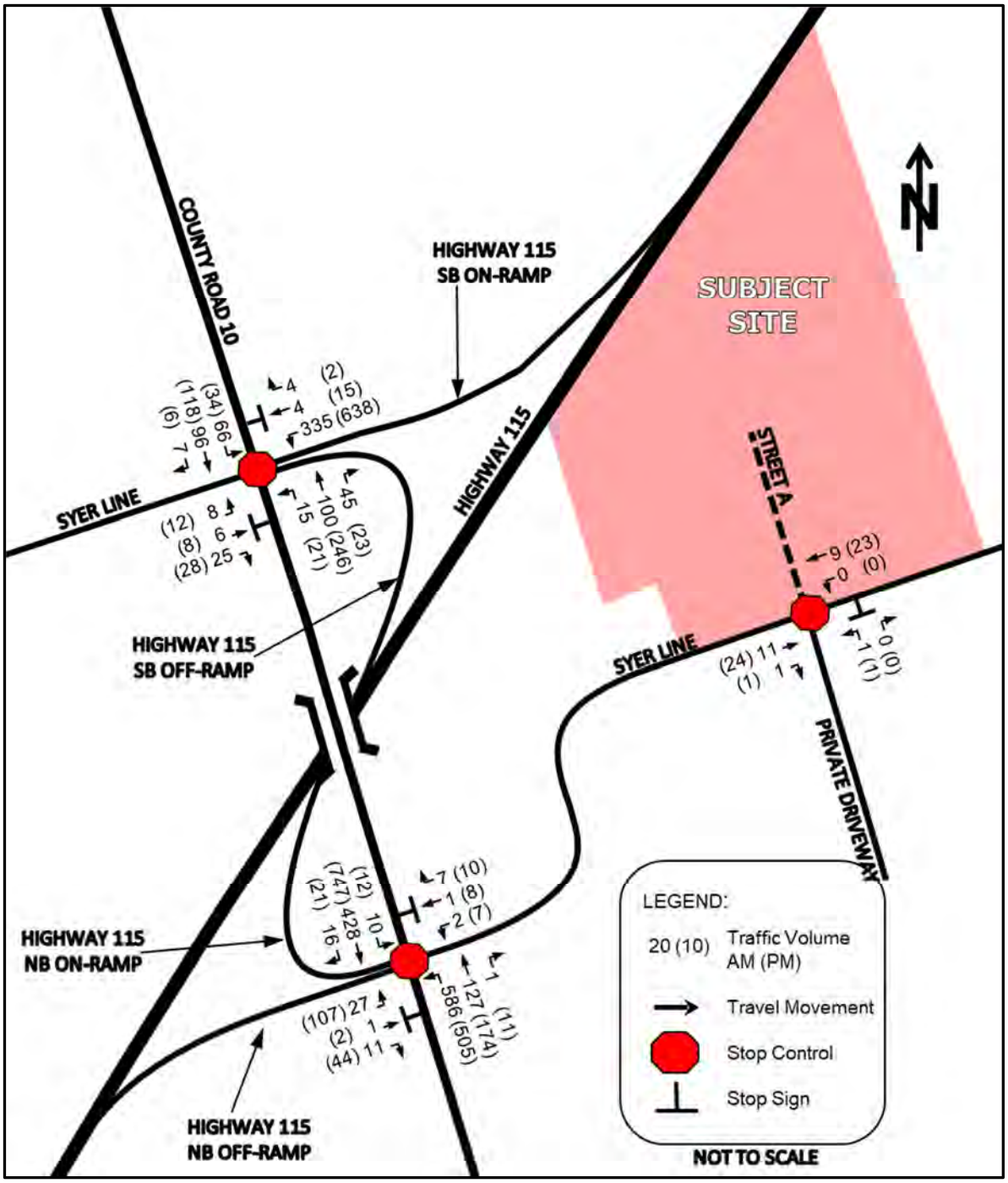


Figure 13 – Background (2033) Traffic Volumes

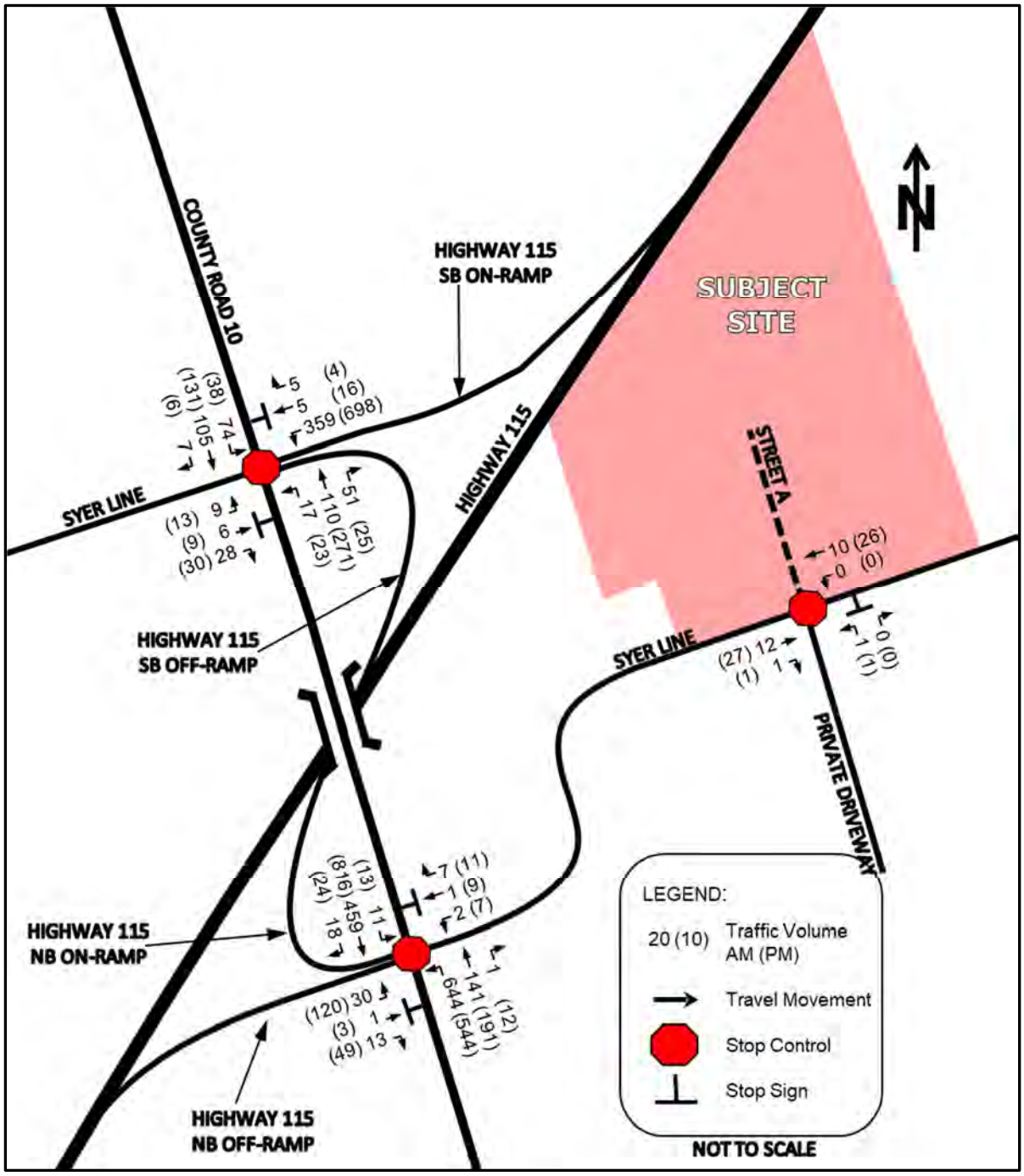
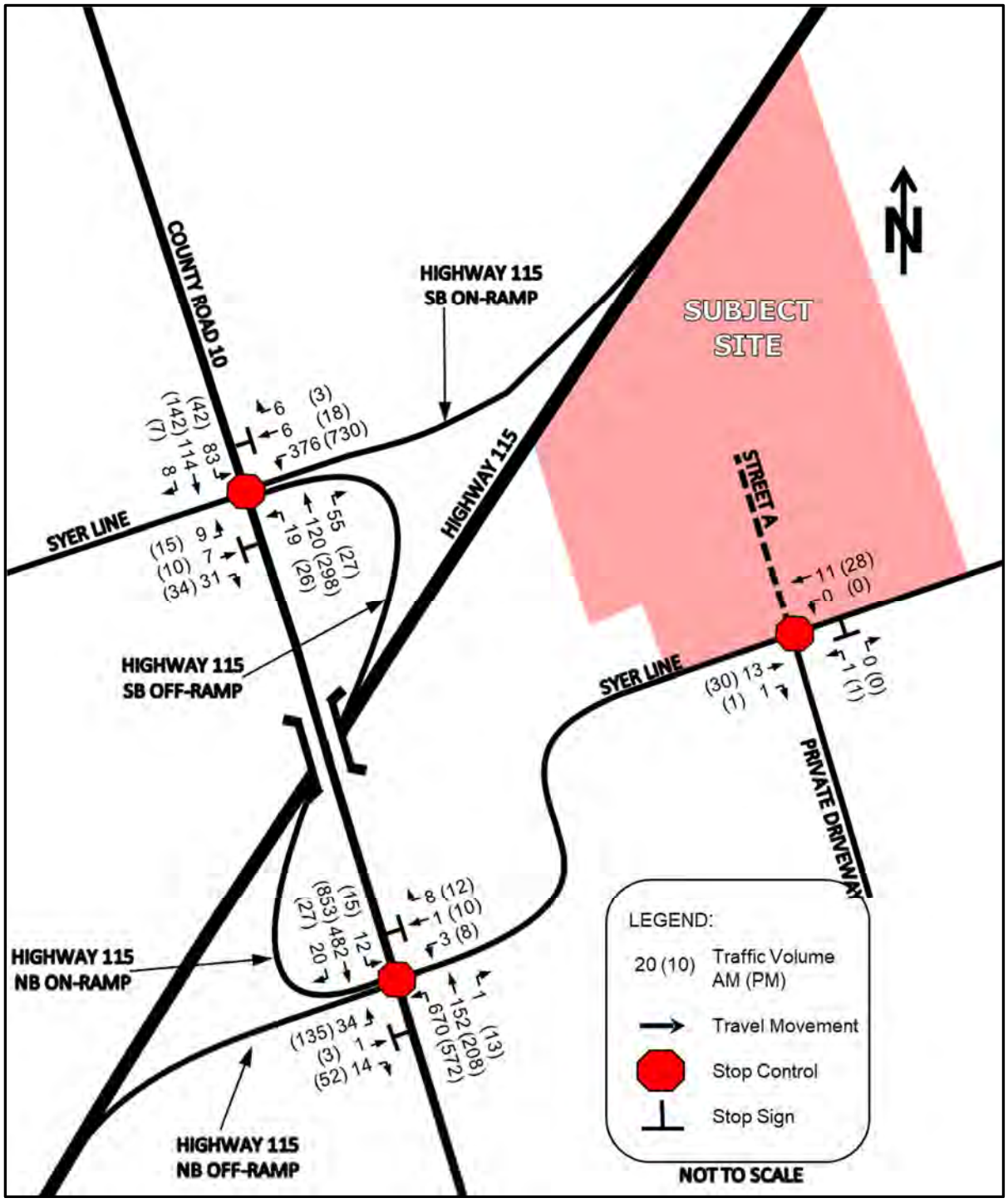


Figure 14 – Background (2038) Traffic Volumes



3 Intersection Operation without Proposed Development

3.1 Introduction

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 analysing 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.

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. For highway ramps, approaches with a V/C ratio greater than 0.75 are considered to be critical movements as per the MTO Traffic Impact Study Guidelines (2021).

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 4**. A description of traffic performance characteristics is included for each LOS.

Table 4 – 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

3.2 Existing (2023) Intersection Operation

The results of the LOS analysis under existing (2023) traffic volumes during the AM and PM peak hour can be found below in **Table 5**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix D**.

Table 5 – Existing (2023) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (unsignalized)	-	6.0	A	-	-	-	7.8	A	-	-
EB	0.05	9.9	A	2	-	0.06	10.5	B	2	-
WB	0.22	13.3	B	7	-	0.46	18.4	C	20	-
NB	0.01	1.0	A	1	-	0.01	0.7	A	1	-
SBL	0.04	7.5	A	2	82	0.02	7.7	A	1	82
SBTR	0.05	0.0	A	0	-	0.06	0.0	A	0	-
Highway 115 NB Ramp & Syer Line / County Road 10 (unsignalized)	-	4.2	A	-	-	-	9.3	A	-	-
EB	0.10	17.8	C	3	-	0.62	43.2	E	29	-
WB	0.02	11.7	B	1	-	0.09	18.7	C	3	-
NBL	0.14	8.1	A	4	85	0.18	8.6	A	6	85
NBTR	0.06	0.0	A	0	-	0.10	0.0	A	0	-
SB	0.01	0.4	A	1	-	0.01	0.3	A	1	-

The results of the LOS analysis indicate that all study area intersections are operating within the typical design limits noted in Section 3.1.

There are no issues regarding the anticipated queue for all movements in the study area.

An analysis was completed for left turn movements at the unsignalized intersections in the study area, 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] (results are provided in **Appendix G**). Based on the above noted criteria additional auxiliary left-turn lanes are not warranted in the study area.

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

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

No improvements are recommended within the study area for the existing horizon year.

3.3 Background (2028) Intersection Operation

The results of the LOS analysis under background (2028) traffic volumes during the AM and 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 E**.

Table 6 – Background (2028) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (unsignalized)	-	16.6	B	-	-	-	170.9	F	-	-
EB	0.06	10.4	B	2	-	0.08	11.1	B	2	-
WB	0.75	31.3	D	51	-	1.59	299.1	F	304	-
NB	0.01	0.8	A	1	-	0.02	0.7	A	1	-
SBL	0.05	7.6	A	2	82	0.03	7.9	A	1	82
SBTR	0.06	0.0	A	0	-	0.08	0.0	A	0	-
Highway 115 NB Ramp & Syer Line / County Road 10 (unsignalized)	-	21.2	D	-	-	-	948.9	F	-	-
EB	1.30	449.9	F	37	-	30.34	Error	F	Error	-
WB	0.15	62.2	F	4	-	1.80	884.8	F	33	-
NBL	0.59	13.0	B	33	85	0.74	21.4	C	54	85
NBTR	0.08	0.0	A	0	-	0.12	0.0	A	0	-
SB	0.01	0.2	A	1	-	0.01	0.3	A	0	-

The LOS analysis indicates that the Highway 115 SB Ramp & Syer Line / County Road 10 is operating outside the typical design limits as noted in Section 3.1. Based on the Ontario Traffic Manual Book 12 *Signal Justification*, signals are not warranted at the Highway 115 SB Ramp & Syer Line / County Road 10 intersection (results are provided in **Appendix H**). However, based on the anticipated control delay for the Syer Line / Highway 115 SB Ramp approaches, it is anticipated that this intersection will need to be signalized. As previously noted in Section 3.2, the warrant for signalization is the result of the future developments in the Millbrook community. It is recommended the MTO continue to monitor the traffic at the Highway 115 SB Ramp & Syer Line / County Road 10 intersection closer to the 2028 horizon year as the development in the Millbrook community progresses, to determine the exact timing of the signalization.

The results of the LOS analysis indicates that the eastbound movement at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection is operating outside the typical design limits noted in Section 3.1. Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection (results are provided in **Appendix H**). Based on the anticipated control delay for the Syer Line / Highway 115 NB Ramp approaches, it is recommended the intersection is signalized. It is noted that signalization will be warranted based on the future developments in the Millbrook community[3]; it is recommended the MTO review the traffic at the intersection closer as the build-out of the Millbrook community progresses, to determine the exact timing of the signalization.

[3] The full build-out of the Towerhill Developments Phase 2 is the only adjacent development assumed in the existing (2023) scenario.

To accommodate the above noted signalization, it is recommended the signal heads accommodate a northbound protected + permissive left turn phase at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection.

The results of the LOS analysis under background (2028) traffic volumes with the above noted improvements during the AM and PM peak hour can be found below in **Table 7**. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 7 – Background (2028) LOS with Improvements

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.53	16.4	B	-	-	0.83	30.5	C	-	-
EB	0.05	9.2	A	5	-	0.05	7.1	A	6	-
WB	0.78	22.3	C	56	-	0.90	29.4	C	206	-
NB	0.27	11.5	B	29	-	0.68	37.3	D	120	-
SBL	0.14	10.8	B	15	82	0.19	28.9	C	20	82
SBTR	0.16	10.8	B	20	-	0.28	29.5	D	51	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.74	20.2	C	-	-	1.01	57.3	E	-	-
EB	0.47	45.2	D	18	-	0.80	74.3	E	70	-
WB	0.04	39.3	D	7	-	0.08	48.0	D	13	-
NBL	0.72	12.3	B	108	85	1.02	70.4	E	183	85
NBTR	0.10	1.8	A	11	-	0.16	4.6	A	26	-
SB	0.80	33.2	C	134	-	0.99	58.3	E	347	-

The results of the LOS analysis indicate that the Highway 115 SB Ramp & Syer Line / County Road 10 intersection is operating marginally outside the typical design limits as noted in Section 3.1. Since the delay is under LOS F and the anticipated queuing is not anticipated to cause any notable issues as noted below, no further improvements are recommended.

The results of the LOS analysis indicate that the Highway 115 NB Ramp & Syer Line / County Road 10 intersection is operating marginally outside the typical design limits as noted in Section 3.1 Since the delay is under LOS F and the V/C ratio marginally exceeds the theoretical capacity of 1.0, no further improvements are recommended. As noted above, it is recommended the MTO monitor the queuing at the intersection closer to the 2028 horizon year as the development in the Millbrook community progresses, to determine if further improvements are recommended.

The anticipated queuing for northbound left turn movements at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection is anticipated to extend past the existing storage length; however, the excess queue will not block any adjacent intersection. As noted above, it is recommended this queuing is monitored as the development in the Millbrook community progresses.

There are no issues regarding the anticipated queue for all other movements in the study area.

No further infrastructure improvements are recommended for the background (2028) scenario within the study area.

3.4 Background (2033) Intersection Operation

The results of the LOS analysis under background (2033) traffic volumes during the AM and PM peak hour can be found below in **Table 8**. The recommended improvements identified in Section 3.3 has been utilized in this scenario. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 8 – Background (2033) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.57	17.0	B	-	-	0.90	38.7	D	-	-
EB	0.05	8.8	A	5	-	0.05	6.9	A	7	-
WB	0.80	22.7	C	63	-	0.93	34.8	C	278	-
NB	0.31	12.8	B	35	-	0.81	53.4	D	142	-
SBL	0.18	11.9	B	18	82	0.28	37.3	D	22	82
SBTR	0.19	11.9	B	24	-	0.34	37.2	D	55	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.81	26.2	C	-	-	1.13	91.3	F	-	-
EB	0.39	45.7	D	19	-	0.85	79.1	E	83	-
WB	0.03	41.6	D	7	-	0.08	47.3	D	14	-
NBL	0.83	20.4	C	160	85	1.17	126.6	F	227	85
NBTR	0.12	2.2	A	12	-	0.18	5.2	A	28	-
SB	0.84	38.7	D	164	-	1.10	93.1	F	398	-

The results of the LOS analysis indicate that the Highway 115 SB Ramp & Syer Line / County Road 10 and Highway 115 NB Ramp & Syer Line / County Road 10 intersections are operating outside the typical design limits as noted in Section 3.1. It is noted the southbound traffic is beyond the typical planning capacity for a single lane arterial roadway (850 vph) in the southbound direction in the PM peak hour.

Due to the long-term estimates (10 years) and the increase in traffic in the study area being dependent on the adjacent development in the Milbrook community as noted in Section 2.4, it is recommended the MTO and County monitor the queuing on County Road 10 and on the Highway 115 ramps as the future Millbrook developments become fully built-out and occupied, to determine if infrastructure improvements are warranted. Based on the traffic projections identified in this report, the following improvements should be considered to improve the capacity issues at both intersections:

- Highway 115 SB Ramp & Syer Line / County Road 10
  - Widen the SB Off-Ramp for the construction of a westbound left turn lane with 150 metre storage length, 40 parallel length and 100 metre taper length and
  - Provide a protected + permissive westbound left turn phase.
- Highway 115 NB Ramp & Syer Line / County Road 10
  - Widen the County Road 10, north of the Highway 115 NB Ramp to provide two southbound lanes. The southbound configuration at the intersection should include a through / left lane and a through / right lane.
  - Widen SB Off-Ramp for the construction of an eastbound left turn lane with a 60 metre storage length, 40 parallel length and 100 metre taper length

- Extend the northbound left turn lane to provide a 230 metre storage length.

The results of the LOS analysis under background (2033) traffic volumes with the above noted improvements during the AM and PM peak hour can be found below in **Table 9**. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 9 – Background (2033) LOS with Improvements

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.50	13.8	B	-	-	0.81	22.8	C	-	-
EB	0.22	24.9	C	10	-	0.23	30.6	C	15	-
WBL	0.65	15.5	B	44	190	0.82	23.7	C	101	190
WBTR	0.01	9.8	A	3	-	0.02	7.8	A	4	-
NB	0.30	11.3	B	32	-	0.64	23.0	C	99	-
SBL	0.16	10.5	B	17	82	0.16	17.4	B	14	82
SBTR	0.17	10.6	B	22	-	0.27	18.0	B	37	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.74	16.6	B	-	-	0.90	40.3	D	-	-
EBL	0.48	42.8	D	17	100	0.69	53.6	D	50	100
EBTR	0.02	36.7	D	7	-	0.05	39.1	D	12	-
WB	0.04	36.8	D	6	-	0.08	39.4	D	12	-
NBL	0.74	10.3	B	114	230	0.92	44.3	D	201	230
NBTR	0.12	1.9	A	12	-	0.18	4.4	A	27	-
SB	0.60	26.6	C	70	-	0.90	44.5	D	160	-

The results of the LOS analysis indicate that the intersections of Highway 115 SB Ramp & Syer Line / County Road 10 and Highway 115 NB Ramp & Syer Line / County Road 10 are operating marginally outside the typical design limits as noted in Section 3.1. Since the delay is under LOS F and the anticipated queuing is not anticipated to cause any notable issues as noted below, no further improvements are recommended.

There are no issues regarding the anticipated queue for all other movements in the study area.

No further infrastructure improvements are recommended for the background (2033) scenario within the study area.

3.5 Background (2038) Intersection Operation

The results of the LOS analysis under background (2038) traffic volumes during the AM and PM peak hour can be found below in **Table 10**. The recommended improvements identified in Section 3.2, 3.3 and 3.4 have been utilized in this scenario. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 10 – Background (2038) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.53	14.2	C	-	-	0.86	25.0	C	-	-
EB	0.23	25.3	C	11	-	0.27	30.7	C	16	-
WBL	0.67	16.0	B	47	190	0.89	25.4	C	109	190
WBTR	0.02	9.8	A	3	-	0.03	7.6	A	4	-
NB	0.34	11.8	B	36	-	0.73	27.3	C	120	-
SBL	0.19	10.9	B	19	82	0.20	18.7	B	17	82
SBTR	0.19	10.9	B	24	-	0.30	19.2	B	41	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.78	18.7	B	-	-	0.97	50.5	D	-	-
EBL	0.53	46.1	D	18	100	0.73	55.7	E	55	100
EBTR	0.03	37.9	D	7	-	0.05	38.8	D	12	-
WB	0.05	38.1	D	7	-	0.09	39.1	D	13	-
NBL	0.77	12.7	B	137	230	1.00	64.8	E	229	230
NBTR	0.13	1.9	A	13	-	0.20	4.8	A	32	-
SB	0.64	28.8	C	75	-	0.95	52.9	D	179	-

The results of the LOS analysis indicate that the Highway 115 SB Ramp & Syer Line / County Road 10 and Highway 115 NB Ramp & Syer Line / County Road 10 intersections are operating outside the typical design limits as noted in Section 3.1. Since the delay is under LOS F and the anticipated queuing is not anticipated to cause any notable issues as noted below, no further improvements are recommended.

There are no issues regarding the anticipated queue for all other movements in the study area.

No additional infrastructure improvements are recommended for the background (2038) scenario within the study area.

Notwithstanding, based on the traffic operations at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection the following additional long-term interchange improvements should also be considered for planning purposes:

- Highway 115 NB Ramp & Syer Line / County Road 10
  - Twin the northbound left turn lane on County Road 10
  - Construct a second northbound on-ramp lane.

4 Proposed Development Traffic Generation and Assignment

4.1 Traffic Generation

The traffic generation for the Subject Site has been based on the Institute of Transportation Engineers [ITE] *Trip Generation Manual* (11th Edition). The following ITE land use has been applied to estimate the traffic from the proposed development:

- ITE land use 110 (General Light Industrial) – General Urban/Suburban Setting

The estimated trip generation of the proposed development is illustrated below in **Table 11**. The AM and PM peak traffic generation for the proposed development does not exactly align with the AM and 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.

Table 11 – Estimated Traffic Generation of Proposed Development

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
General Light Industrial ITE Land Use: 110	225 employees	102	21	123	25	87	112

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

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 within the study area has been calculated based on the 2016 TTS data for the Township, retrieved using the TTS IDRS (output attached as **Appendix I**). TTS data provides historical origin and destination work trip percentages for specific areas within the Town and southern Ontario.

Traffic distribution for the trips generated by the proposed development during the AM and PM peak hour is expected to generally follow commuter travel patterns. Our analysis is based on ingress 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.

Table 12 illustrates the traffic distribution for the automobile trips in the proposed development, using the methodology outlined above.

Table 12 – Proposed Development Traffic Distribution

Travel Direction (to/from)	Percent of Total Traffic Generation
West via Highway 115	10%
East via Highway 115	52%
South via County Road 10	12%
North via County Road 10	26%
Total	**100%**

Using the traffic distribution patterns noted above, the traffic assignment for the proposed development was calculated for the AM and PM peak hour and is illustrated in **Figure 15**.

4.3 Total Horizon Year Traffic Volumes with the Proposed Development

For the total (2028, 2033 and 2038) horizon year traffic volumes, the proposed development traffic was added to the background (2028, 2033 and 2038) traffic volumes. The resulting total (2028, 2033 and 2038) horizon year traffic volumes for the AM and PM peak hour are illustrated in **Figures 16, 17** and **18** respectively.

Figure 15 – Proposed Development Traffic Assignment

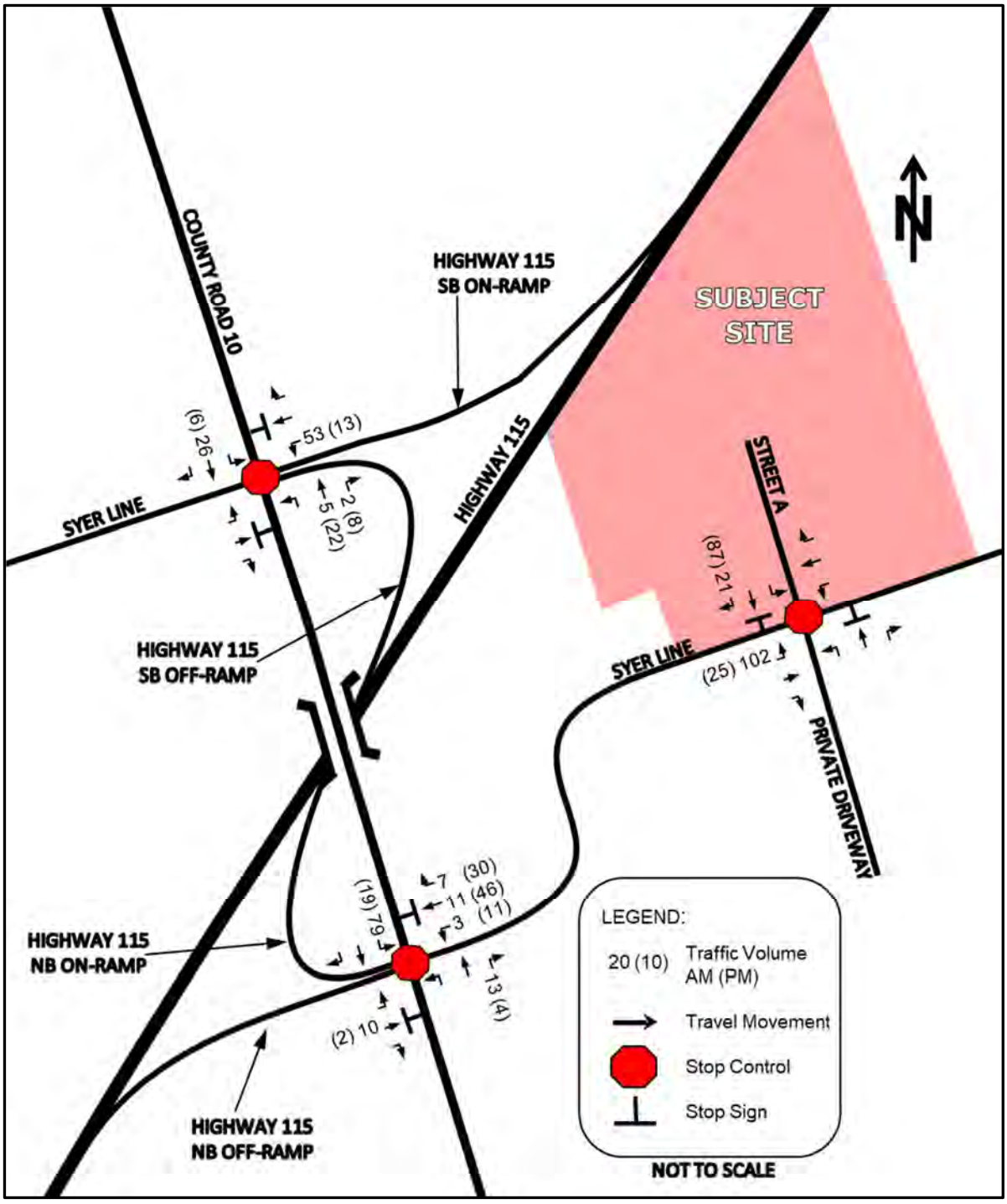


Figure 16 – Total (2028) Traffic Volumes

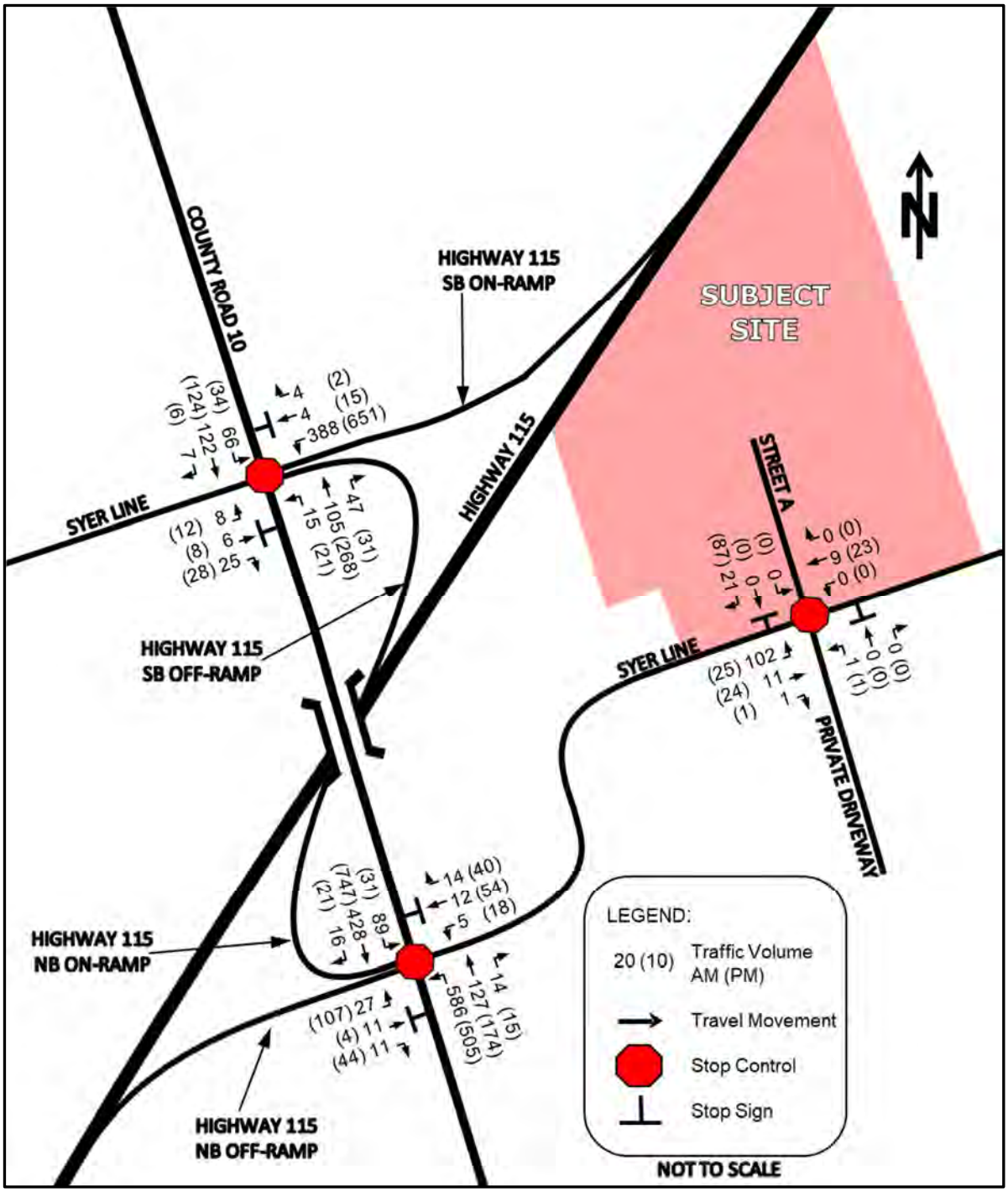


Figure 17 – Total (2033) Traffic Volumes

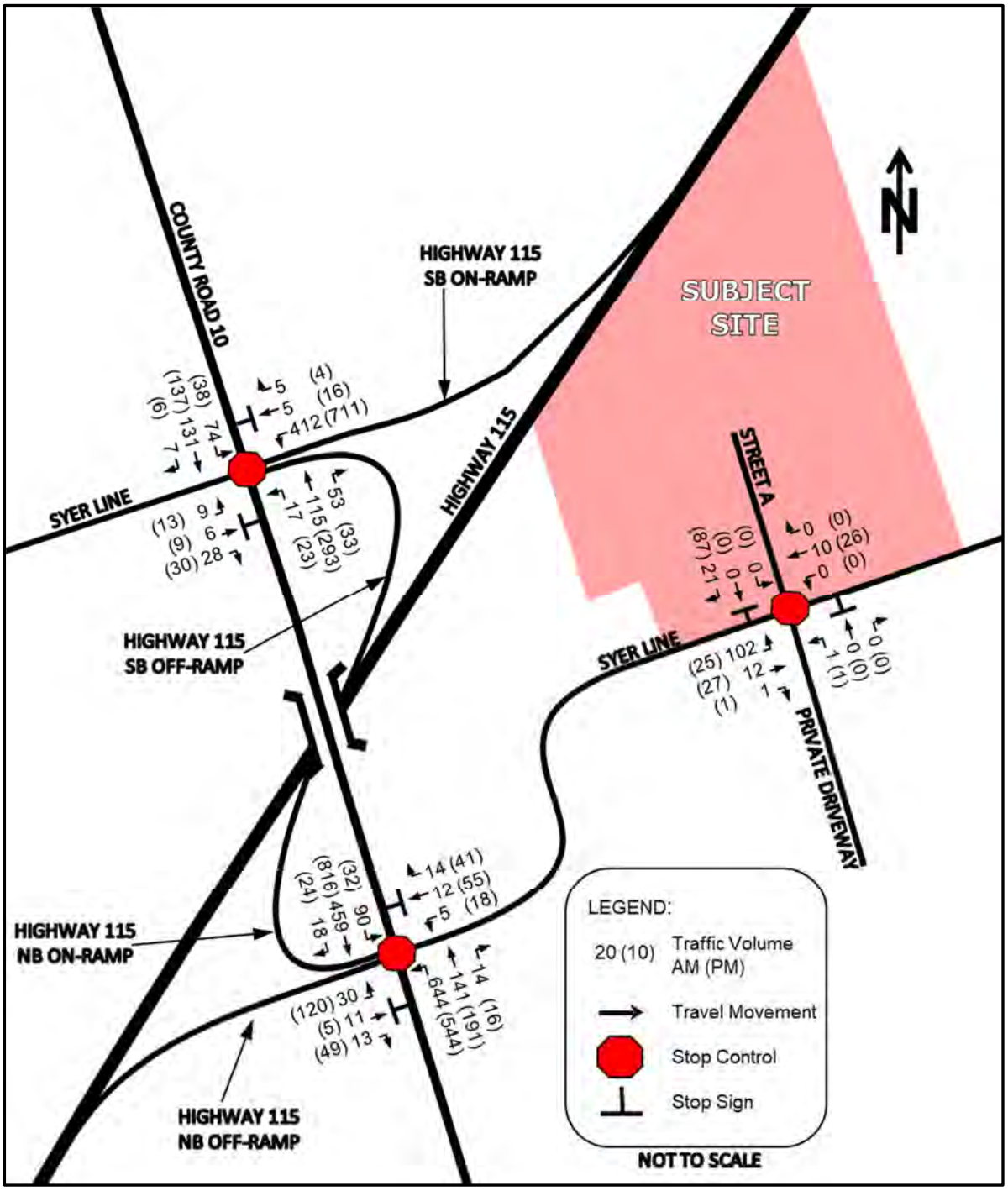
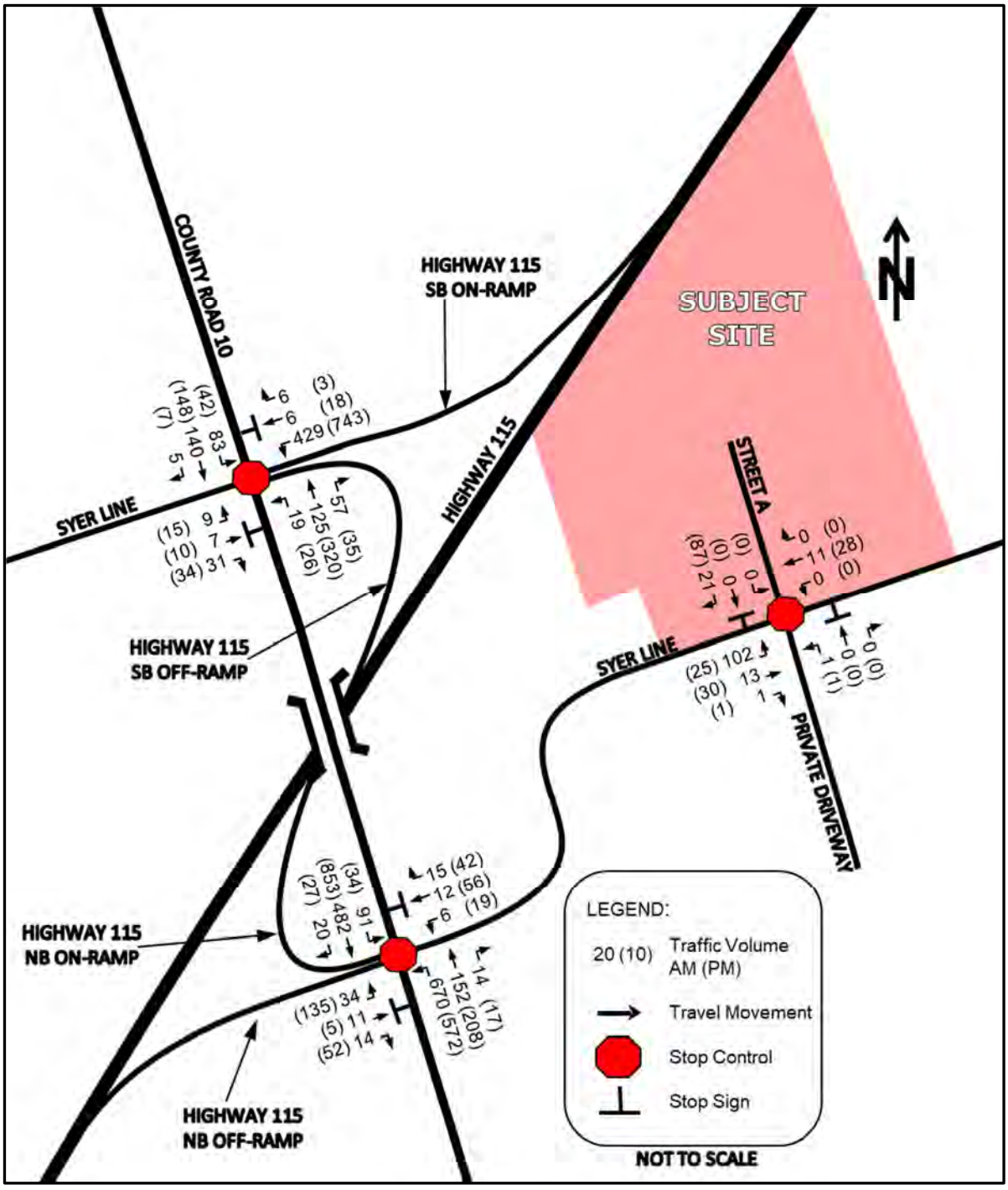


Figure 18 – Total (2038) Traffic Volumes



5 Intersection Operation with Proposed Development

5.1 Total (2028) 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 13**. The recommended improvements identified in Section 3.3 has been utilized in this scenario. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 13 – Total (2028) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.59	18.2	B	-	-	0.86	33.1	C	-	-
EB	0.04	8.6	A	5	-	0.04	7.1	A	6	-
WB	0.82	23.8	C	70	-	0.90	29.6	C	216	-
NB	0.30	13.6	B	34	-	0.77	44.7	D	142	-
SBL	0.16	12.7	B	17	82	0.22	31.9	C	20	82
SBTR	0.22	13.0	B	28	-	0.30	32.3	C	53	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.80	28.3	C	-	-	1.05	71.5	E	-	-
EB	0.44	46.3	D	21	-	0.90	93.5	F	85	-
WB	0.16	42.8	D	13	-	0.40	50.6	D	48	-
NBL	0.75	14.2	B	102	85	1.06	83.6	F	187	85
NBTR	0.12	2.2	A	12	-	0.17	5.4	A	26	-
SB	0.93	48.2	D	200	-	1.05	78.1	E	364	-
Syer Line / Street A (unsignalized)	-	6.5	A	-	-	-	6.0	A	-	-
NB	0.00	10.6	B	0	-	0.00	10.3	B	0	-
SB	0.02	8.4	A	1	-	0.09	8.8	A	3	-

The results of the LOS analysis indicate that the Highway 115 SB Ramp & Syer Line / County Road 10 intersection is operating outside the typical design limits as noted in Section 3.1. Since the delay is under LOS F and the anticipated queuing is not anticipated to cause any notable issues as noted below, no further improvements are recommended.

The results of the LOS analysis indicate that the Highway 115 NB Ramp & Syer Line / County Road 10 intersection is operating marginally outside the typical design limits as noted in Section 3.1 Since the delay is under LOS F and the V/C ratio marginally exceeds the theoretical capacity of 1.0, no further improvements are recommended. As noted above, it is recommended the MTO monitor the queuing at the intersection closer to the 2028 horizon year as the development in the Millbrook community progresses, to determine if further improvements are recommended.

The anticipated queuing for northbound left turn movements at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection is anticipated to extend past the existing storage length; however, the

excess queue will not block any adjacent intersection. As noted above, it is recommended this queuing is monitored as the development in the Millbrook community progresses.

There are no issues regarding the anticipated queue for all other movements in the study area.

An analysis was completed for left turn movements at the Syer Line / Street A intersection, based on the criteria outlined in Appendix 9A of the MTO DS (results are provided in **Appendix G**). Based on the above noted criteria additional auxiliary left-turn lane is not warranted at the Syer Line / Street A intersection.

A review of the need for an auxiliary right turn lane at the Syer Line / Street A intersection was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, auxiliary right turn lanes are not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at Syer Line / Street A intersection (results are provided in **Appendix H**).

No further infrastructure improvements are recommended for the total (2028) scenario within the study area.

5.2 Total (2033) Intersection Operation

The results of the LOS analysis under total (2033) traffic volumes during the AM and PM peak hour can be found below in **Table 14**. The recommended improvements identified in Sections 3.3 and 3.4 have been utilized in this scenario. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 14 – Total (2033) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.55	15.0	B	-	-	0.84	23.7	C	-	-
EB	0.22	25.9	C	11	-	0.23	31.1	C	15	-
WBL	0.71	17.1	B	52	190	0.88	23.9	C	104	190
WBTR	0.01	9.6	A	3	-	0.02	7.7	A	4	-
NB	0.32	12.2	B	36	-	0.71	26.0	C	114	-
SBL	0.17	11.3	B	18	82	0.17	18.0	B	15	82
SBTR	0.22	11.5	B	28	-	0.28	18.5	B	39	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.76	22.9	C	-	-	0.94	47.2	D	-	-
EBL	0.38	43.4	D	17	100	0.80	66.3	E	52	100
EBTR	0.11	40.2	D	11	-	0.06	38.7	D	13	-
WB	0.16	40.6	D	13	-	0.41	42.2	D	40	-
NBL	0.77	15.2	B	133	230	0.95	53.2	D	211	230
NBTR	0.13	2.2	A	12	-	0.19	4.9	A	30	-
SB	0.76	34.4	C	86	-	0.95	52.0	D	173	-
Syer Line / Street A (unsignalized)	-	6.5	A	-	-	-	5.8	A	-	-
NB	0.00	10.7	B	0	-	0.00	10.3	B	0	-
SB	0.02	8.4	A	1	-	0.09	8.8	A	3	-

The results of the LOS analysis indicate that the Highway 115 SB Ramp & Syer Line / County Road 10 and Highway 115 NB Ramp & Syer Line / County Road 10 intersections are operating outside the typical design limits as noted in Section 3.1. Since the delay is under LOS F and the anticipated queuing is not anticipated to cause any notable issues as noted below, no further improvements are recommended.

There are no issues regarding the anticipated queue for all other movements in the study area.

An analysis was completed for left turn movements at the Syer Line / Street A intersection, based on the criteria outlined in Appendix 9A of the MTO DS (results are provided in **Appendix G**). Based on the above noted criteria additional auxiliary left-turn lane is not warranted at the Syer Line / Street A intersection.

A review of the need for an auxiliary right turn lane at the Syer Line / Street A intersection was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, auxiliary right turn lanes are not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at Syer Line / Street A intersection (results are provided in **Appendix H**).

No further infrastructure improvements are recommended for the total (2033) scenario within the study area.

5.3 Total (2038) Intersection Operation

The results of the LOS analysis under total (2038) traffic volumes during the AM and PM peak hour can be found below in **Table 15**. The recommended improvements identified in Sections 3.3 and 3.4 have been utilized in this scenario. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 15 – Total (2038) LOS

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.58	15.4	B	-	-	0.89	26.6	C	-	-
EB	0.06	24.5	C	11	-	0.27	32.6	C	16	-
WBL	0.71	16.7	B	56	190	0.89	25.7	C	112	190
WBTR	0.02	9.2	A	3	-	0.03	7.5	A	4	-
NB	0.37	13.7	B	40	-	0.80	32.0	C	136	-
SBL	0.21	12.7	B	20	82	0.22	19.4	B	17	82
SBTR	0.25	12.9	B	30	-	0.32	19.8	B	44	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.79	25.7	C	-	-	1.00	59.8	E	-	-
EBL	0.42	45.3	D	18	100	0.84	71.3	E	59	100
EBTR	0.11	41.4	D	11	-	0.06	38.2	D	13	-
WB	0.18	42.0	D	14	-	0.40	41.7	D	41	-
NBL	0.80	18.0	B	163	230	1.02	71.1	E	229	230
NBTR	0.14	2.3	A	14	-	0.21	5.5	A	32	-
SB	0.81	38.2	D	93	-	1.01	68.0	E	187	-
Syer Line / Street A (unsignalized)	-	6.4	A	-	-	-	5.6	A	-	-
NB	0.00	10.7	B	0	-	0.00	10.4	B	0	-
SB	0.02	8.4	A	1	-	0.09	8.8	A	3	-

The results of the LOS analysis indicate that the Highway 115 SB Ramp & Syer Line / County Road 10 and Highway 115 NB Ramp & Syer Line / County Road 10 intersections are operating outside the typical design limits as noted in Section 3.1. Since the delay is under LOS F and the anticipated queuing is not anticipated to cause any notable issues as noted below, no further improvements are recommended.

There are no issues regarding the anticipated queue for all other movements in the study area.

An analysis was completed for left turn movements at the Syer Line / Street A intersection, based on the criteria outlined in Appendix 9A of the MTO DS (results are provided in **Appendix G**). Based on the above noted criteria additional auxiliary left-turn lane is not warranted at the Syer Line / Street A intersection.

A review of the need for an auxiliary right turn lane at the Syer Line / Street A intersection was completed as part of our analysis. The results of the Synchro analysis indicate that there is excess capacity for all movements; consequently, auxiliary right turn lanes are not recommended.

Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at Syer Line / Street A intersection (results are provided in **Appendix H**).

No further infrastructure improvements are recommended for the total (2038) scenario within the study area.

As noted in Section 3.5, based on the traffic operations at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection the following additional long-term interchange improvements should also be considered for planning purposes:

- Highway 115 NB Ramp & Syer Line / County Road 10
  - Twin the northbound left turn lane on County Road 10
  - Construct a second northbound on-ramp lane.

5.4 Supplementary Analysis – Analysis Without Adjacent Development Traffic

As requested by MTO, an additional analysis was completed to review the study area intersections without the impact of the adjacent developments in the Millbrook community, south of the study area. This analysis will review the background (2028 & 2038) and total (2028 & 2038) scenarios to assess the improvements required, compared to the recommendations made in the baseline analysis.

The background (2028 and 2038) traffic volumes without the traffic from the Millbrook community south of the study area were estimated using the existing (2023) AM and PM peak hour traffic volumes and applying the background traffic growth rate discussed in Section 2.5.

Figures 19 and **20** for the background (2028 and 2038) respectively, in the AM and PM peak hour traffic volumes for the study area (excluding the proposed development traffic volumes).

For the total (2028 and 2038) horizon year traffic volumes, the proposed development traffic was added to the background (2028 and 2038) traffic volumes without the additional development traffic from the Millbrook community. The resulting total (2028 and 2038) horizon year traffic volumes for the AM and PM peak hour are illustrated in **Figures 21** and **22** respectively.

Figure 19 – Background (2028) Traffic Volumes – Supplementary Analysis

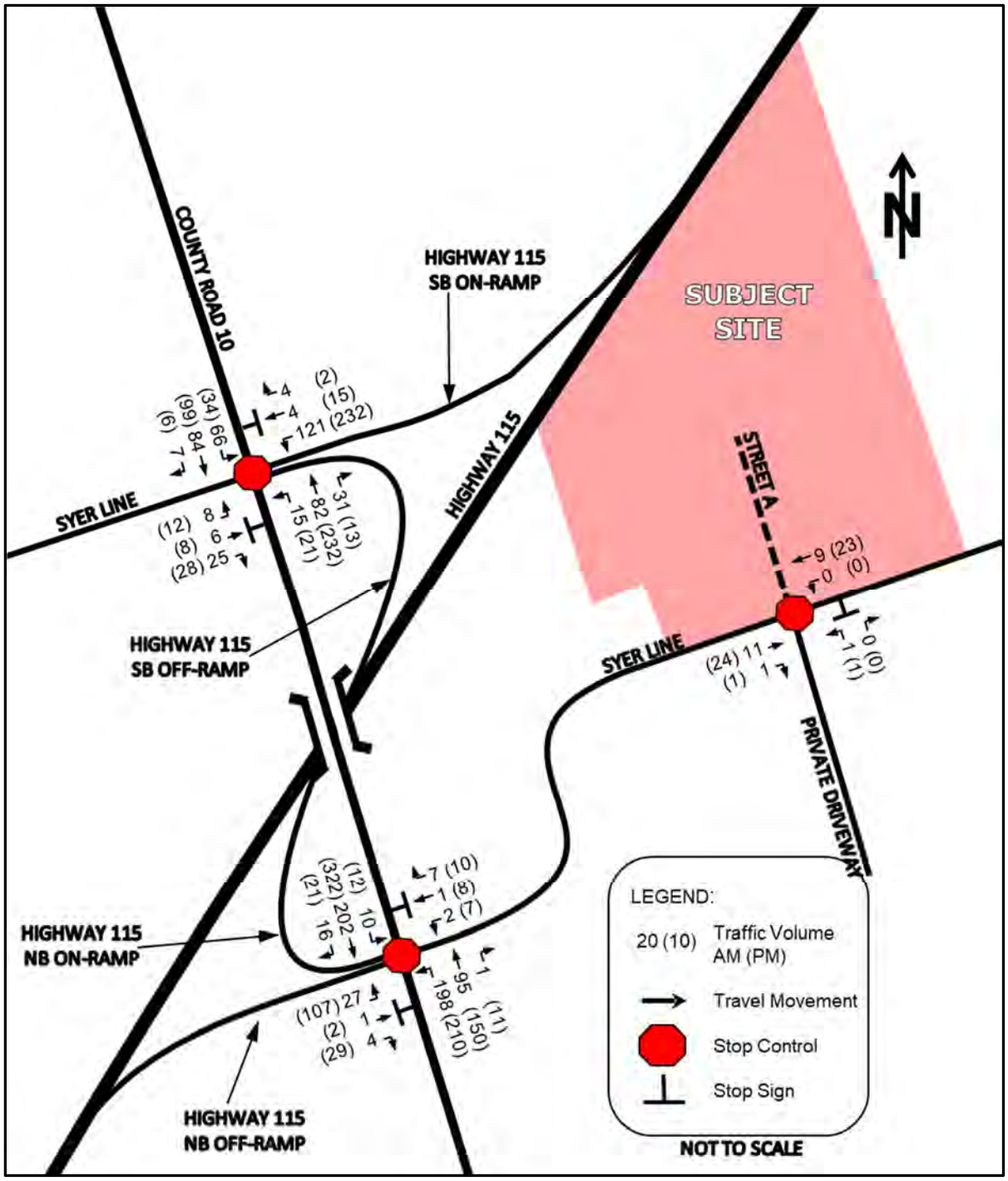


Figure 20 – Background (2038) Traffic Volumes – Supplementary Analysis

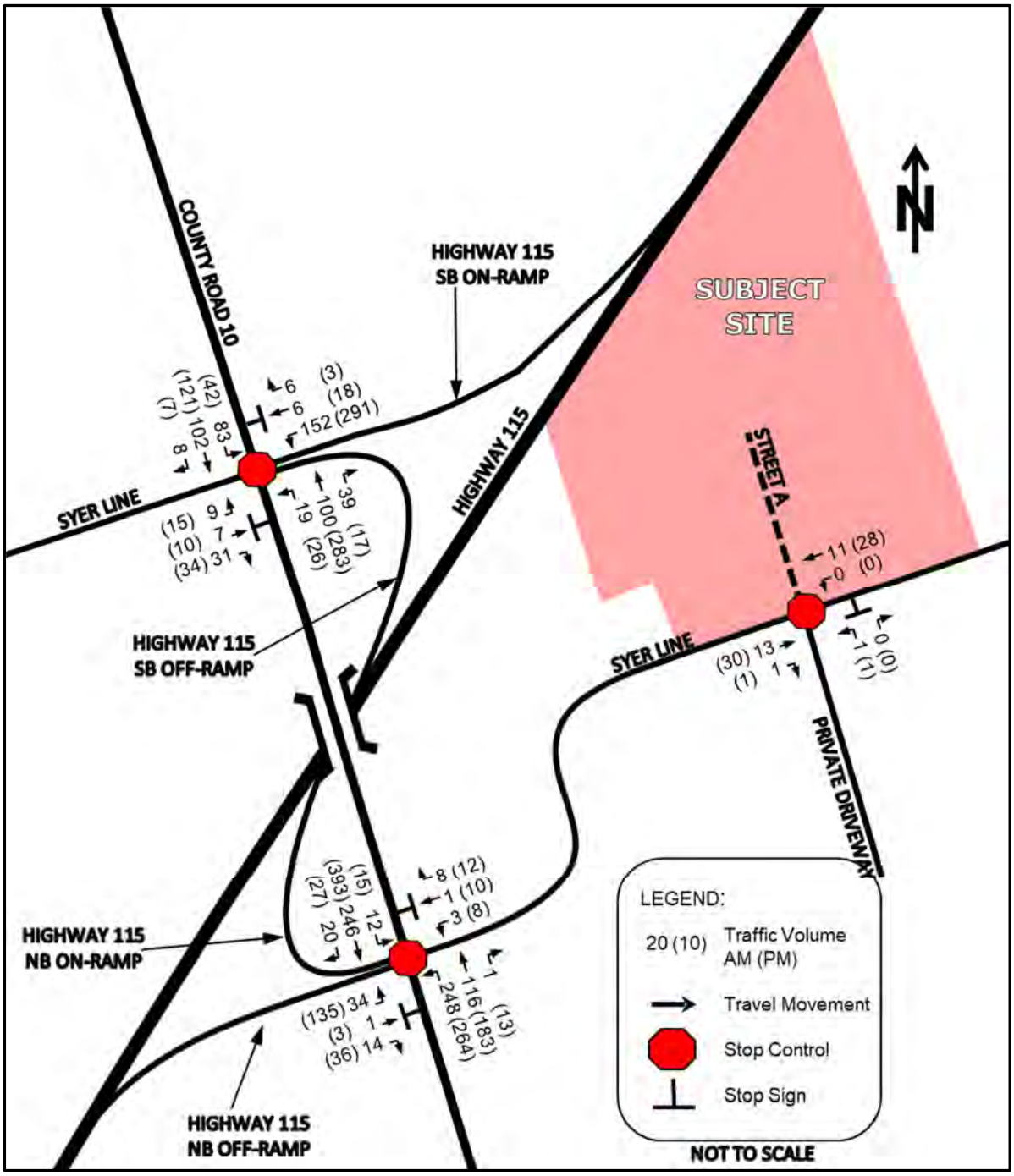


Figure 21 – Total (2028) Traffic Volumes – Supplementary Analysis

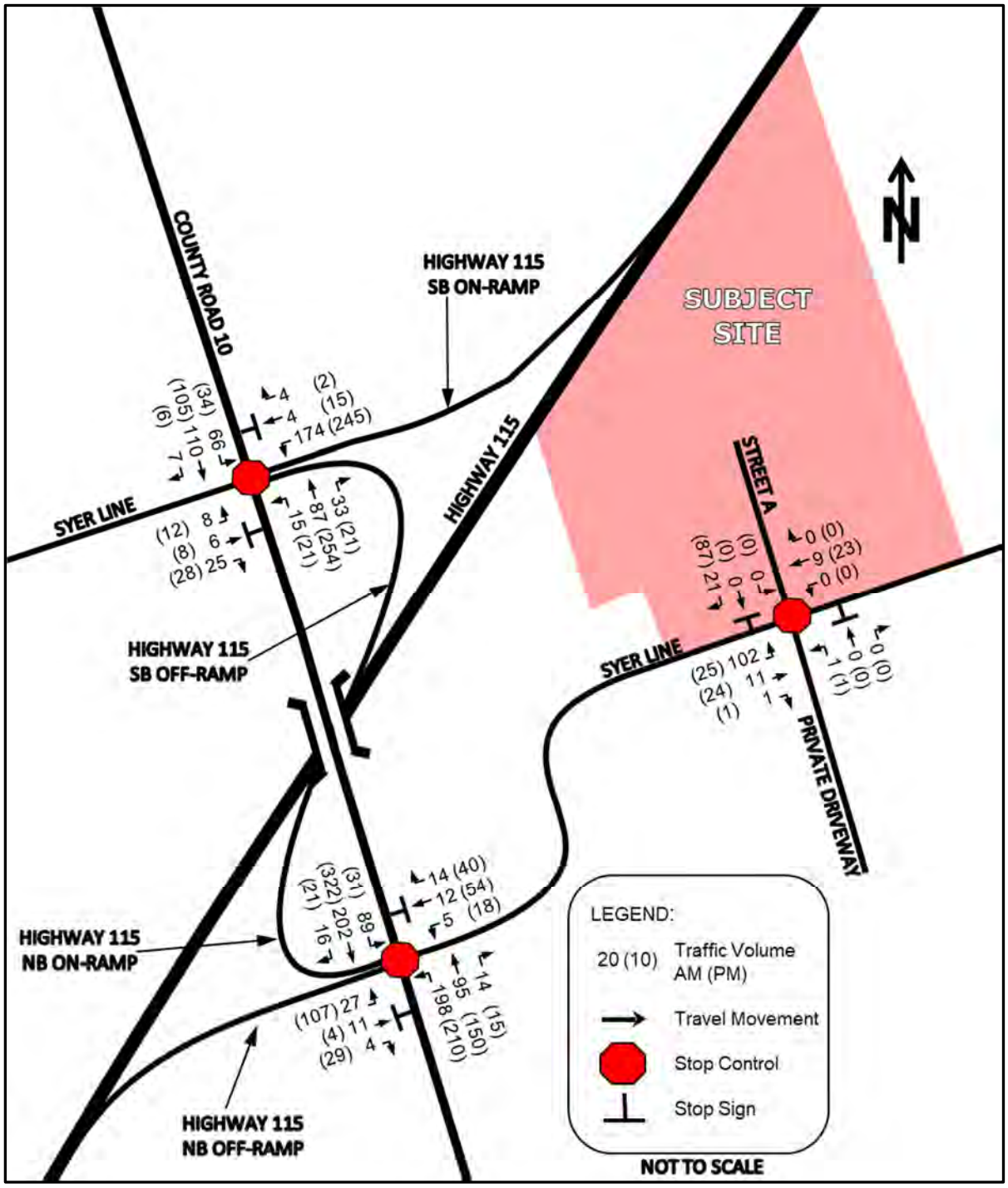
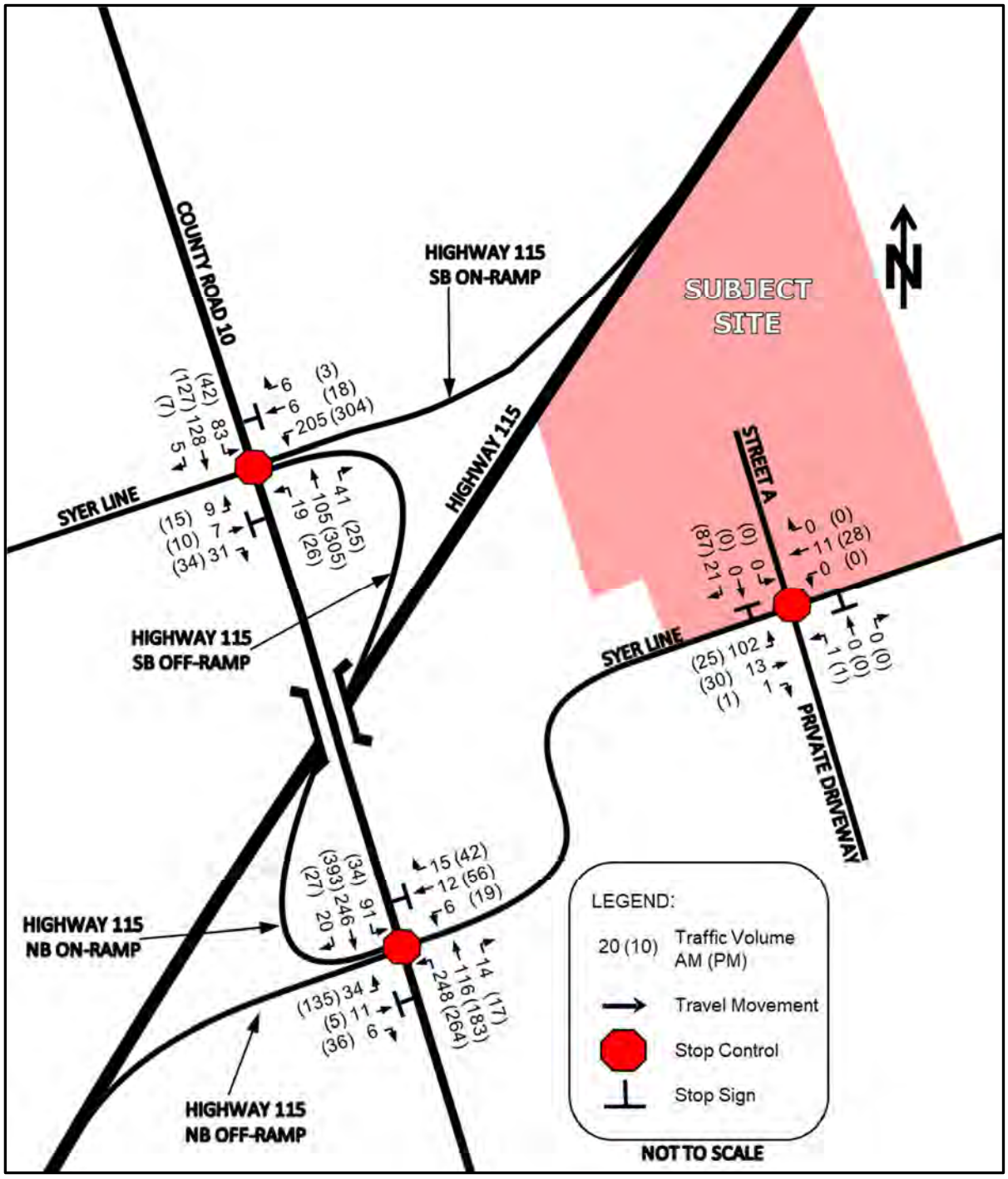


Figure 22 – Total (2038) Traffic Volumes – Supplementary Analysis



5.4.1 Background (2028) Intersection Operation – Supplementary Analysis

The results of the LOS analysis under background (2028) traffic volumes without the future Millbrook community traffic during the AM and PM peak hour can be found below in **Table 16**. Existing intersection geometry and traffic control have been utilized for this scenario. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 16 – Background (2028) LOS – Supplementary Analysis

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (unsignalized)	-	6.4	A	-	-	-	9.4	A	-	-
EB	0.06	10.2	B	11	-	0.07	10.8	B	2	-
WB	0.26	14.4	B	15	-	0.56	22.7	C	28	-
NB	0.01	1.0	A	1	-	0.02	0.7	A	1	-
SBL	0.05	7.6	A	8	82	0.03	7.8	A	1	82
SBTR	0.06	0.0	A	0	-	0.06	0.0	A	0	-
Highway 115 NB Ramp & Syer Line / County Road 10 (unsignalized)	-	4.4	A	-	-	-	15.2	B	-	-
EB	0.13	20.4	C	4	-	0.83	79.5	F	48	-
WB	0.02	12.0	B	1	-	0.12	21.9	C	4	-
NBL	0.16	8.2	A	5	85	0.20	8.8	A	7	85
NBTR	0.06	0.0	A	0	-	0.11	0.0	A	0	-
SB	0.01	0.4	A	1	-	0.01	0.4	A	1	-

The results of the LOS analysis without the future Millbrook community traffic indicates that the eastbound movement at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection is operating outside the typical design limits noted in Section 3.1. Based on the Ontario Traffic Manual Book 12 *Signal Justification*, traffic signals are not warranted at the Highway 115 NB Ramp & Syer Line / County Road 10 intersection (results are provided in **Appendix H**). Based on the anticipated control delay for the Syer Line / Highway 115 NB Ramp approaches, it is recommended that MTO consider installing traffic signals at this intersection.

The results of the LOS analysis under background (2028) traffic volumes without the future Millbrook community traffic with the above noted improvements during the AM and PM peak hour can be found below in **Table 17**. Detailed output of the Synchro analysis can be found in **Appendix E**.

The signal timing plan has been optimized from the baseline analysis.

Table 17 – Background (2028) LOS – Supplementary Analysis with Improvements

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.31	7.0	A	-	-	0.56	15.3	B	-	-
EB	0.34	24.3	C	10	-	0.56	25.5	C	41	-
WB	0.04	21.9	C	5	-	0.06	20.6	C	9	-
NBL	0.26	2.8	A	14	85	0.39	7.4	A	25	85
NBTR	0.09	2.3	A	9	-	0.17	5.6	A	21	-
SB	0.34	9.5	A	41	-	0.65	20.0	B	85	-

The results of the LOS analysis indicate that all study area intersections are operating within the typical design limits noted in Section 3.1.

There are no issues regarding the anticipated queue for all movements in the study area.

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

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

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

No additional improvements are recommended within the study area for this supplementary analysis scenario.

5.4.2 Background (2038) Intersection Operation – Supplementary Analysis

The results of the LOS analysis under background (2038) traffic volumes without the traffic from the Millbrook community south of the study area during the AM and PM peak hour can be found below in **Table 18**. The recommended improvements identified in Section 5.4.1 have been utilized in this scenario. Detailed output of the Synchro analysis can be found in **Appendix E**.

Table 18 – Background (2038) LOS – Supplementary Analysis

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (unsignalized)	-	7.6	A	-	-	-	19.9	B	-	-
EB	0.07	10.7	B	2	-	0.10	11.8	B	3	-
WB	0.39	18.3	C	15	-	0.86	51.2	F	65	-
NB	0.06	1.0	A	1	82	0.02	0.8	A	1	82
SBL	0.06	7.6	A	2	-	0.03	8.0	A	1	-
SBTR	0.07	0.0	A	0	-	0.08	0.0	A	0	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.40	8.0	A	-	-	0.67	20.2	C	-	-
EB	0.45	27.4	C	14	-	0.62	31.2	C	60	-
WB	0.06	23.5	C	5	-	0.06	23.6	C	11	-
NBL	0.33	3.1	A	18	85	0.54	10.5	B	45	85
NBTR	0.11	2.2	A	10	-	0.21	6.9	A	33	-
SB	0.43	11.2	B	59	-	0.77	27.5	C	128	-

The LOS analysis without the future Millbrook community traffic indicates that the Highway 115 SB Ramp & Syer Line / County Road 10 is operating marginally outside the typical design limits as noted in Section 3.1. Based on the Ontario Traffic Manual Book 12 *Signal Justification*, signals are not warranted at the Highway 115 SB Ramp & Syer Line / County Road 10 intersection (results are provided in **Appendix H**). Based on the anticipated control delay for the westbound movements at the Highway 115 SB Ramp & Syer Line / County Road 10 intersection, it is recommended that MTO consider installing traffic signals at this intersection.

The results of the LOS analysis under background (2038) traffic volumes without the future Millbrook community traffic with the above noted improvements during the AM and PM peak hour can be found below in **Table 19**. Detailed output of the Synchro analysis can be found in **Appendix E**.

The signal timing plan has been optimized from the baseline analysis.

Table 19 – Background (2038) LOS – Supplementary Analysis with Improvements

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.34	9.9	A	-	-	0.60	14.1	B	-	-
EB	0.07	11.4	B	7	-	0.07	10.1	B	8	-
WB	0.55	15.9	B	36	-	0.70	19.0	B	58	-
NB	0.22	7.1	A	18	-	0.50	12.3	B	61	-
SBL	0.16	6.9	A	12	82	0.11	9.9	A	11	82
SBTR	0.14	6.7	A	14	-	0.19	10.3	B	24	-

The results of the LOS analysis indicate that all study area intersections are operating within the typical design limits noted in Section 3.1.

There are no issues regarding the anticipated queue for all movements in the study area.

An analysis was completed for left turn movements at the unsignalized intersections in the study area, based on the criteria outlined in Appendix 9A of the MTO DS (results are provided in **Appendix G**). Based on the above noted criteria, in the unsignalized configuration of Highway 115 SB Ramp & Syer Line / County Road 10 intersection a northbound left turn lane is warranted. For this supplementary analysis, the signalized improvements at this intersection are recommended due to limitations in widening the existing infrastructure on County Road 10.

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

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

No additional improvements are recommended within the study area for this supplementary analysis scenario.

5.4.3 Total (2028) Intersection Operation – Supplementary Analysis

The results of the LOS analysis under total (2028) traffic volumes without the traffic from the Millbrook community south of the study area during the AM and PM peak hour can be found below in **Table 20**. The recommended improvements identified in Section 3.3 has been utilized in this scenario. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 20 – Total (2028) LOS – Supplementary Analysis

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (unsignalized)	-	7.6	A	-	-	-	10.5	A	-	-
EB	0.06	10.5	B	2	-	0.08	11.1	B	2	-
WB	0.39	17.0	C	15	-	0.63	26.3	D	34	-
NB	0.01	0.9	A	1	-	0.02	0.7	A	1	-
SBL	0.05	7.6	A	2	82	0.03	7.9	A	1	82
SBTR	0.07	0.0	A	0	-	0.07	0.0	A	0	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.43	9.6	A	-	-	0.58	17.2	B	-	-
EB	0.37	24.8	C	14	-	0.54	26.0	C	44	-
WB	0.14	22.8	C	10	-	0.31	23.0	C	31	-
NBL	0.28	3.7	A	14	85	0.40	8.1	A	29	85
NBTR	0.10	2.8	A	9	-	0.18	6.0	A	24	-
SB	0.53	12.5	B	64	-	0.69	22.1	C	98	-
Syer Line / Street A (unsignalized)	-	6.5	A	-	-	-	6.0	A	-	-
NB	0.00	10.6	B	0	-	0.00	10.3	B	0	-
SB	0.02	8.4	A	1	-	0.09	8.8	A	3	-

The results of the LOS analysis indicate that all study area intersections are operating within the typical design limits noted in Section 3.1.

There are no issues regarding the anticipated queue for all movements in the study area.

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

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

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

Based on a comparison of the background (2028) scenario in this supplementary analysis, no additional improvements are recommended as a result of the proposed development.

5.4.4 Total (2038) Intersection Operation – Supplementary Analysis

The results of the LOS analysis under total (2038) traffic volumes without the traffic from the Millbrook community south of the study area during the AM and PM peak hour can be found below in **Table 21**. The recommended improvements identified in Section 5.4.1 and 5.4.2 have been utilized in this scenario; The unsignalized configuration of the Highway 115 SB Ramp & Syer Line / County Road 10 intersection was included for illustrative purposes. Detailed output of the Synchro analysis can be found in **Appendix F**.

Table 21 – Total (2038) LOS – Supplementary Analysis

Location (E-W Street / N-S Street)	Weekday AM Peak Hour					Weekday PM Peak Hour				
	V/C	Delay (s)	LOS	95th Percentile Queue		V/C	Delay (s)	LOS	95th Percentile Queue	
				Model	Storage				Model	Storage
Highway 115 SB Ramp & Syer Line / County Road 10 (signalized)	0.41	11.4	B	-	-	0.62	14.9	B	-	-
EB	0.06	10.5	B	6	-	0.07	10.3	B	9	-
WB	0.64	17.4	B	34	-	0.71	19.5	B	65	-
NB	0.25	8.3	A	22	-	0.54	13.6	B	72	-
SBL	0.18	7.9	A	14	82	0.12	10.5	B	12	82
SBTR	0.19	7.9	A	19	-	0.20	10.9	B	27	-
Highway 115 SB Ramp & Syer Line / County Road 10 (unsignalized)	-	9.9	A	-	-	-	25.5	C	-	-
EB	0.08	11.0	B	2	-	0.11	12.1	B	3	-
WB	0.55	23.6	C	26	-	0.94	67.9	F	80	-
NB	0.01	1.0	A	1	-	0.02	0.7	A	1	-
SBL	0.06	7.7	A	2	82	0.03	8.0	A	1	82
SBTR	0.09	0.0	A	0	-	0.08	0.0	A	0	-
Highway 115 NB Ramp & Syer Line / County Road 10 (signalized)	0.51	11.3	B	-	-	0.70	22.1	C	-	-
EB	0.50	29.9	C	19	-	0.69	36.4	D	66	-
WB	0.18	26.0	C	12	-	0.31	26.8	C	39	-
NBL	0.34	3.9	A	18	85	0.53	10.5	B	43	85
NBTR	0.12	2.6	A	11	-	0.21	6.9	A	33	-
SB	0.62	15.6	B	85	-	0.79	28.8	C	137	-
Syer Line / Street A (unsignalized)	-	6.4	A	-	-	-	5.6	A	-	-
NB	0.00	10.7	B	0	-	0.00	10.4	B	0	-
SB	0.02	8.4	A	1	-	0.09	8.8	A	3	-

The results of the LOS analysis indicate that all study area intersections are operating within the typical design limits noted in Section 3.1. It is noted, the unsignalized configuration of the Highway 115 SB Ramp & Syer Line / County Road 10 intersection in the westbound direction in the PM peak hour is operating marginally outside the design limits noted in Section 3.1 in both the background (2038) and total (2038) scenarios, illustrating the minor traffic impact at the intersection.

There are no issues regarding the anticipated queue for all movements in the study area.

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

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

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

Based on a comparison of the background (2038) scenario in this supplementary analysis, no additional improvements are recommended as a result of the proposed development.

5.5 Site Access

Street A will operate efficiently as a full-movement access, with one-way stop control for southbound movements. No lane improvements are recommended on Syer Line at Street A. A single ingress and egress lane at Street A will provide the necessary capacity to service the proposed development.

The proposed spacing between Street A and County Road 10 (1.11 km) and Street A and Hutchinson Drive (2.67 km) is greater than the desired spacing between adjacent intersections on a local road (40 metres) identified in Section 9.4.2.1 of the TAC Guidelines.

5.6 Sight Distance Review

A review of the available sight distance for the Street A access was completed as part of this analysis.

The sight distance east and west of Street A (greater than 200 metres) is greater than the minimum stopping and intersection sight distance requirements as per the TAC Guidelines for a design speed of 60 km/h (85 and 130 metres respectively).

The sight distance east and west of the potential driveway for block 5 in the proposed development onto Syer Line (greater than 200 metres) is greater than the minimum stopping and intersection sight distance requirements as per the TAC Guidelines for a design speed of 60 km/h (85 and 130 metres respectively).

Consequently, there are no issues with the sight distance available for the proposed Street A access.

6 Summary

The **SLIP DEVCO INC.** retained **JD Engineering** to prepare this traffic impact study in support of a proposed rezoning of an undeveloped property (Subject Site), for use as light industrial / employment lands. The Subject Site is located on the north side of Syer Line midblock between County Road 10 and Hutchinson Drive in the Township of Cavan Monaghan, County of Peterborough. This chapter summarizes the conclusions and recommendations from the study.

1. The proposed development is expected to generate a total of 123 AM and 112 PM peak hour trips.
2. Detailed turning movement traffic and pedestrian counts were completed at the intersections of Highway 115 SB Ramp & Syer Line / County Road 10 and Highway 115 NB Ramp & Syer Line / County Road 10, completed on Wednesday, March 1st, 2023.
3. An intersection operation analysis was completed at the study area intersections, using the existing (2023) and background (2028, 2033 and 2038) 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. The following improvements are recommended:

   Background (2028) Traffic Volumes

   - Highway 115 SB Ramp & Syer Line / County Road 10

- Installation of traffic signals.

- Highway 115 NB Ramp & Syer Line / County Road 10
  - Installation of traffic signals.

Background (2033) Traffic Volumes

- Highway 115 SB Ramp & Syer Line / County Road 10
  - Widen the SB Off-Ramp for the construction of a westbound left turn lane with 150 metre storage length, 40 parallel length and 100 metre taper length and
  - Adjust signal to accommodate a protected + permissive westbound left turn phase.

- Highway 115 NB Ramp & Syer Line / County Road 10
  - Widen the County Road 10, north of the Highway 115 NB Ramp to provide two southbound lanes. The southbound configuration at the intersection should include a through + left lane and a through + right lane.
  - Widen SB Off-Ramp for the construction of an eastbound left turn lane with a 60 metre storage length, 40 parallel length and 100 metre taper length.
  - Extend the northbound left turn lane to provide a 230 metre storage length.

Long-Range Planning (Post 2033)

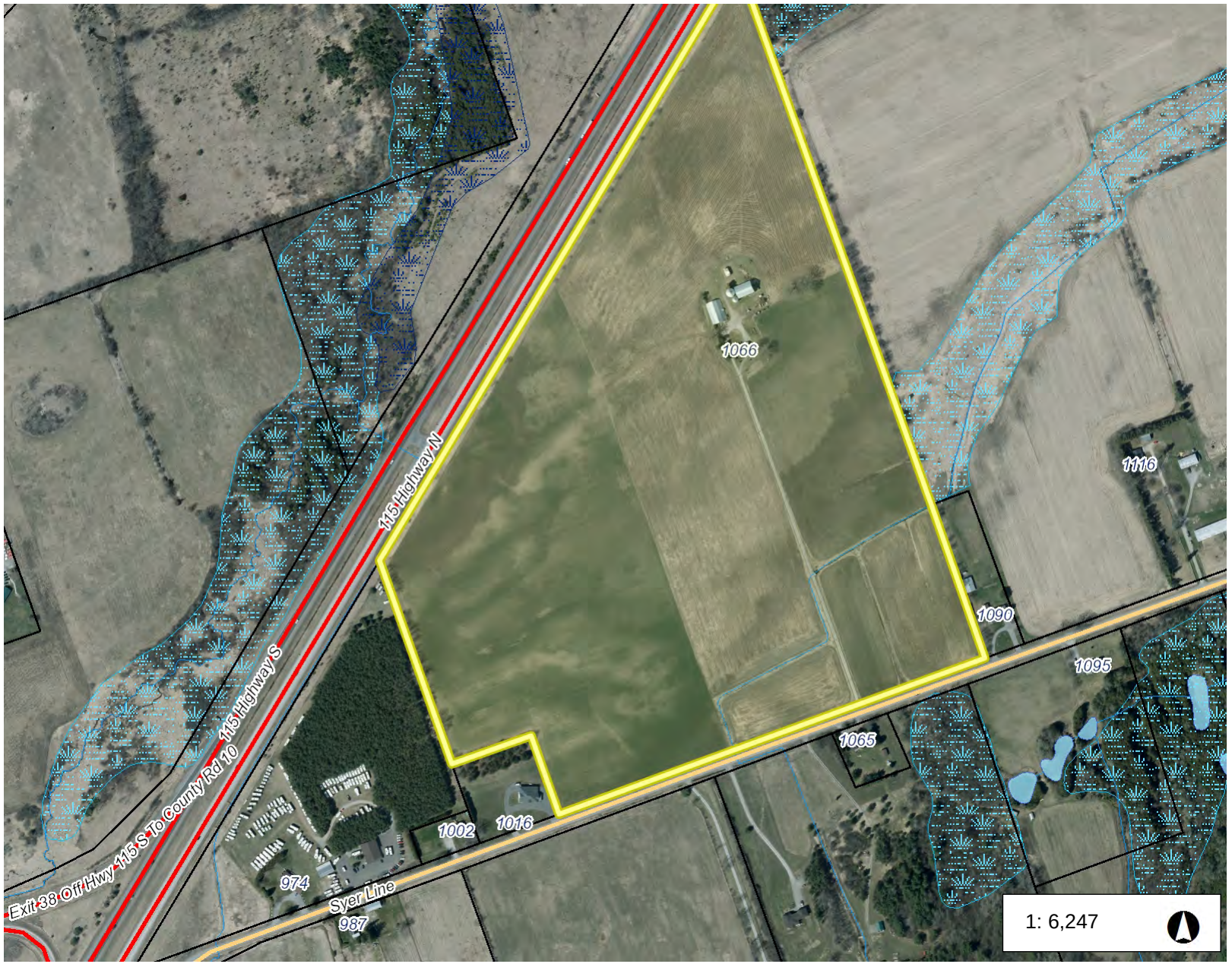
- Highway 115 NB Ramp & Syer Line / County Road 10
  - Twin the northbound left turn lane on County Road 10
  - Construct a second northbound on-ramp lane.

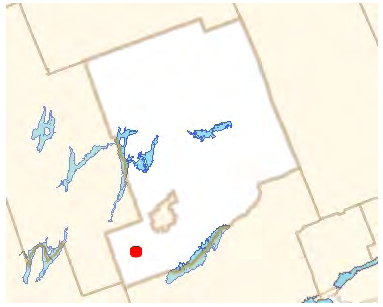
4. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area streets and intersections.
5. An intersection operation analysis was completed under total (2028, 2033 and 2038) traffic volumes with the proposed development operational at the study area intersections. No additional improvements are recommended within the study area.
6. It is recommended the MTO and County monitor the queuing on County Road 10 and on the Highway 115 ramps as the future Millbrook developments become fully built-out and occupied (anticipated to start in the existing (2023) year), to determine if infrastructure improvements are warranted noted for the 2028 and 2033 horizon years.
7. Street A will operate efficiently with full-movement access, with one-way stop control for southbound movements. A single ingress and egress lane at Street A will provide the necessary capacity to service the proposed development.
8. The available sight distance at Street A is sufficient for the intended use.
9. In summary, the proposed development will not cause any operational issues and will not add significant delay or congestion to the local roadway network.

Appendix A – Concept Plan

County of Peterborough

1066 Syer Line - Aerial





Legend

Roads < 50,000
- PRIV ; Private; PRIV
- City Arterial
- City Collector and Local
- City Owned Unclassified
- Provincial
- County
- Township
- Water Access Only

Outside Roads < 50,000
- Major Roads
- Local Roads

- Peterborough Proposed Bypas
- First Nations
- Civic Address
- Parcel Fabric
- Parcel First Nations - Canada

Rivers
- Intermittent
- Permanent

- Clean Water Act Policies Appl
- Provincially Significant Wetlan
- Locally Significant Wetlands
- Non-evaluated Wetlands
- Lakes - Local Scale

Municipal Boundary - Upper Ti
- <all other values>
- COUNTY OF PETERBOROUGH

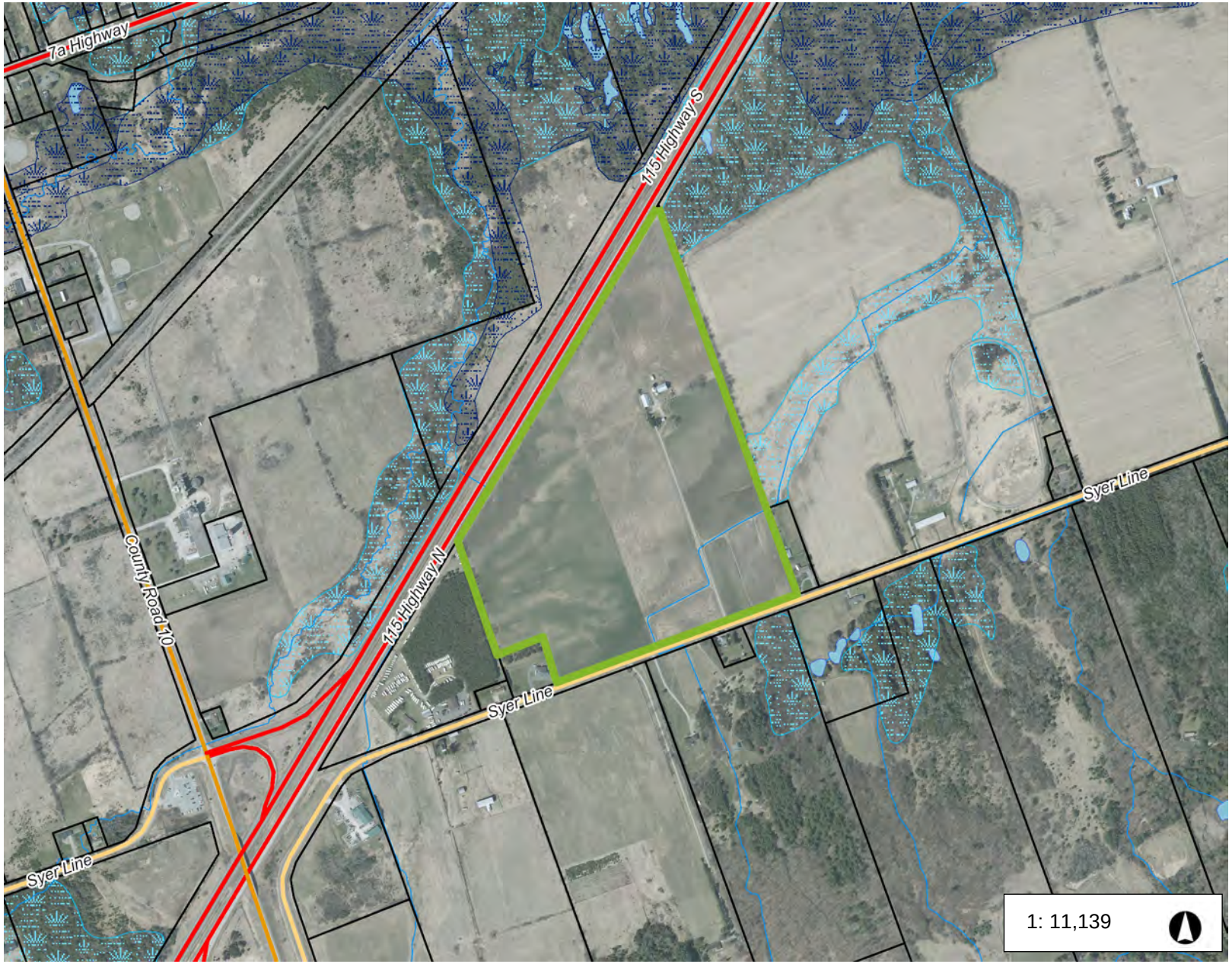
Notes

317.3 0 158.66 317.3 Meters

North_American_1983_CSRS_UTM_Zone_17N

County of Peterborough

1066 Syer Line - Map 2



Legend

Roads < 50,000
- PRIV ; Private; PRIV
- City Arterial
- City Collector and Local
- City Owned Unclassified
- Provincial
- County
- Township
- Water Access Only

Outside Roads < 50,000
- Major Roads
- Local Roads

- Peterborough Proposed Bypas
- First Nations
- Parcel Fabric
- Parcel First Nations - Canada

Rivers
- Intermittent
- Permanent

- Clean Water Act Policies Appl
- Provincially Significant Wetlan
- Non-evaluated Wetlands
- Lakes - Local Scale

Municipal Boundary - Upper Ti
- <all other values>
- COUNTY OF PETERBOROUGH

Notes

565.9 0 282.93 565.9 Meters

North_American_1983_CSRS_UTM_Zone_17N

Appendix B –
Adjacent Development Reports

Bromont TIS

Traffic Impact Study

Residential Development

(West of CR10)

Fallis Line, Millbrook, ON

Township of Cavan Monaghan,

County of Peterborough

ASURZA ENGINEERS

January 31, 2022

Project № 2124-19

AM Peak Hour - Existing Volumes 2021

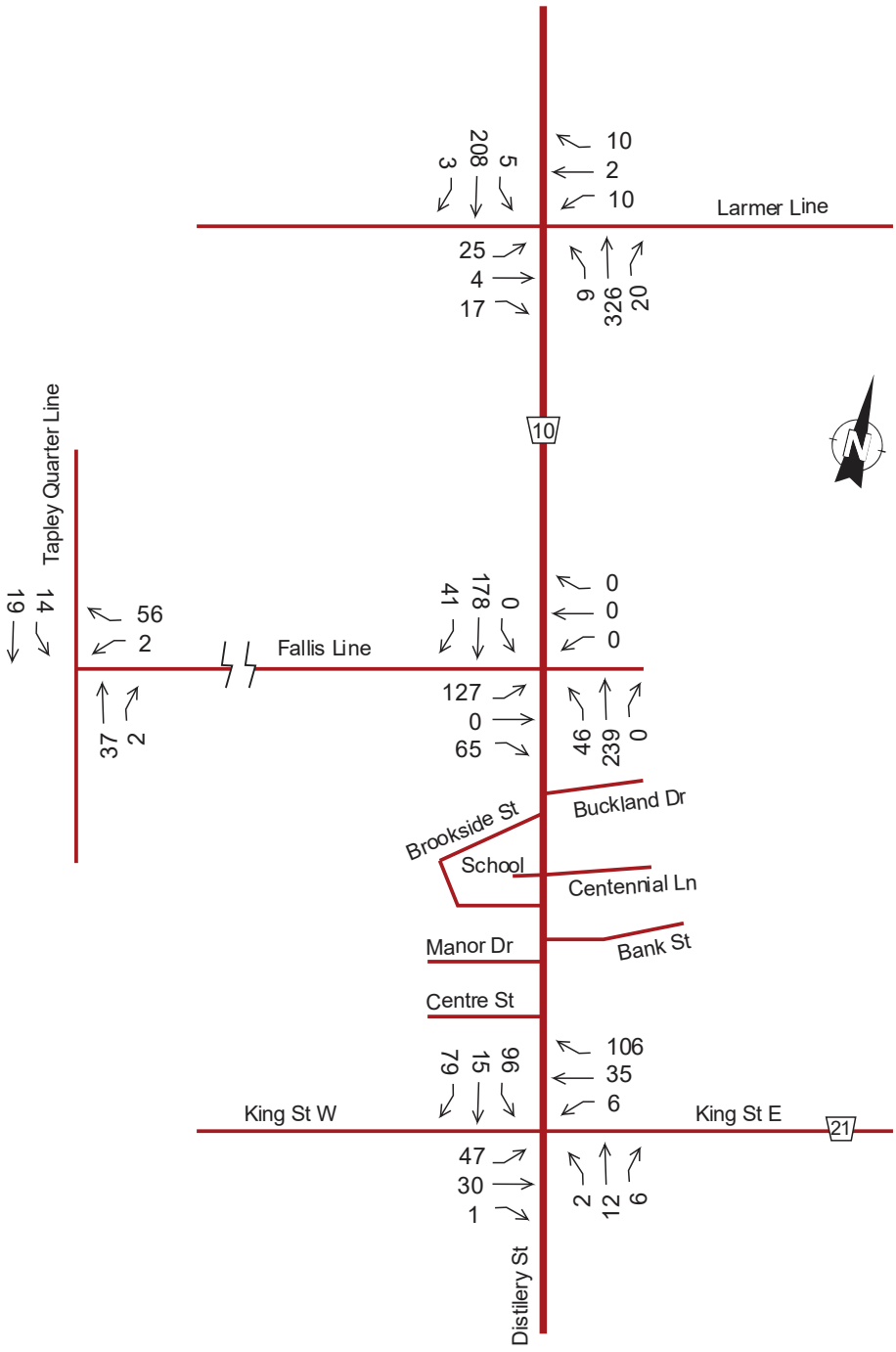


Exhibit 4: *Existing AM Peak Hour Traffic Volumes (2021).*

PM Peak Hour - Existing Volumes 2021

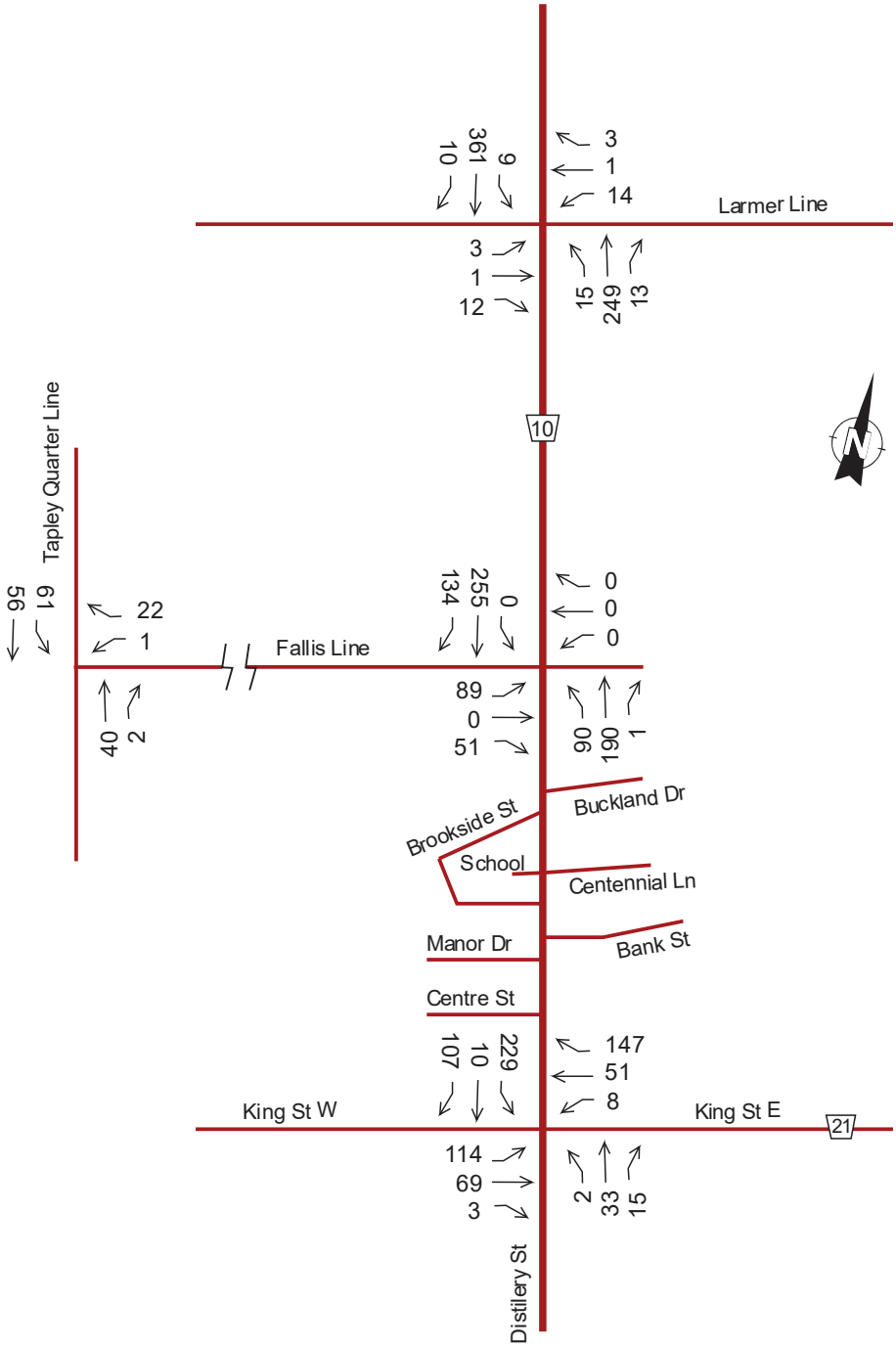


Exhibit 5: *Existing PM Peak Hour Traffic Volumes (2021).*

3 Background Traffic Volumes

3.1 Background Traffic Volumes

In order to establish base conditions for comparison and evaluation of future scenarios, it is necessary to review results of traffic operations over time. The estimated normal growth traffic volumes are based under the premise that existing geometric conditions is maintained and that traffic growth is expected over the next years.

As part of the background volumes; the study includes those major proposed developments that are approved or in construction; the background volumes also include the proposed development "Commercial and Residential" east of CR10 on Fallis Line; the sketch of these developments is shown in Exhibit 7. The traffic volumes of these developments were obtained from the "Millbrook Development Phase 2 – Traffic Impact Study for the Tower Hill Developments Ltd." Prepared by JD Engineering; these trips are included in the appendix.

Annual growth rate was estimated at 2.0% per year; this rate was used to project existing traffic volumes over the next years.

For estimation of the horizons years traffic volumes, the growth rate was applied to the existing volumes. The growth rate is yearly compounded.

The following Exhibits 8, 9 and 10 show the projected traffic volumes for the morning, afternoon and Saturday peak hours for the horizon years 2025 and 2030, respectively.

Sketch of Developments Within the Area

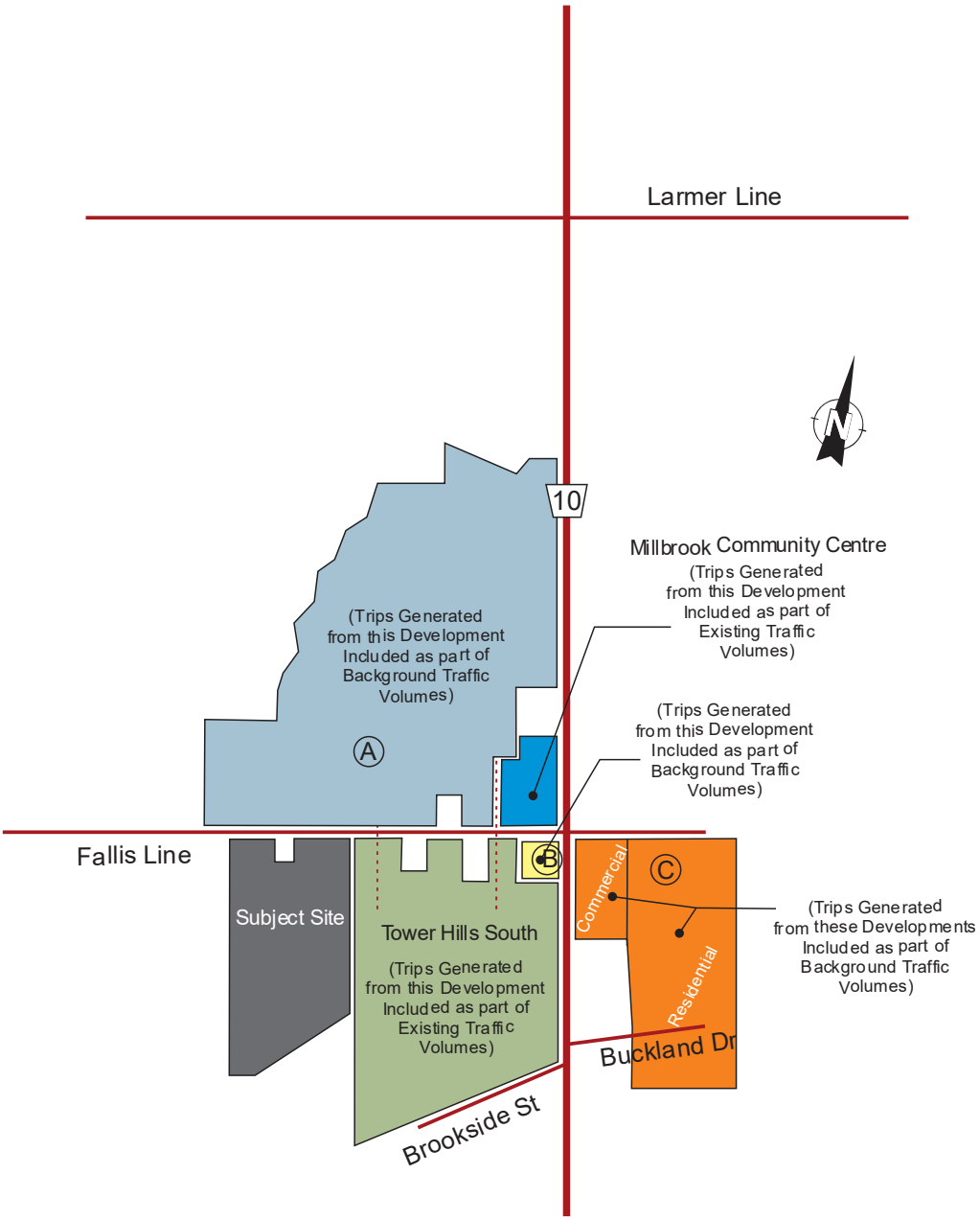


Exhibit 7: *Sketch of Developments Within the Area.*

AM Site Generated Trips With Diverted Trips - 2025 (Residential Site West of CR10)

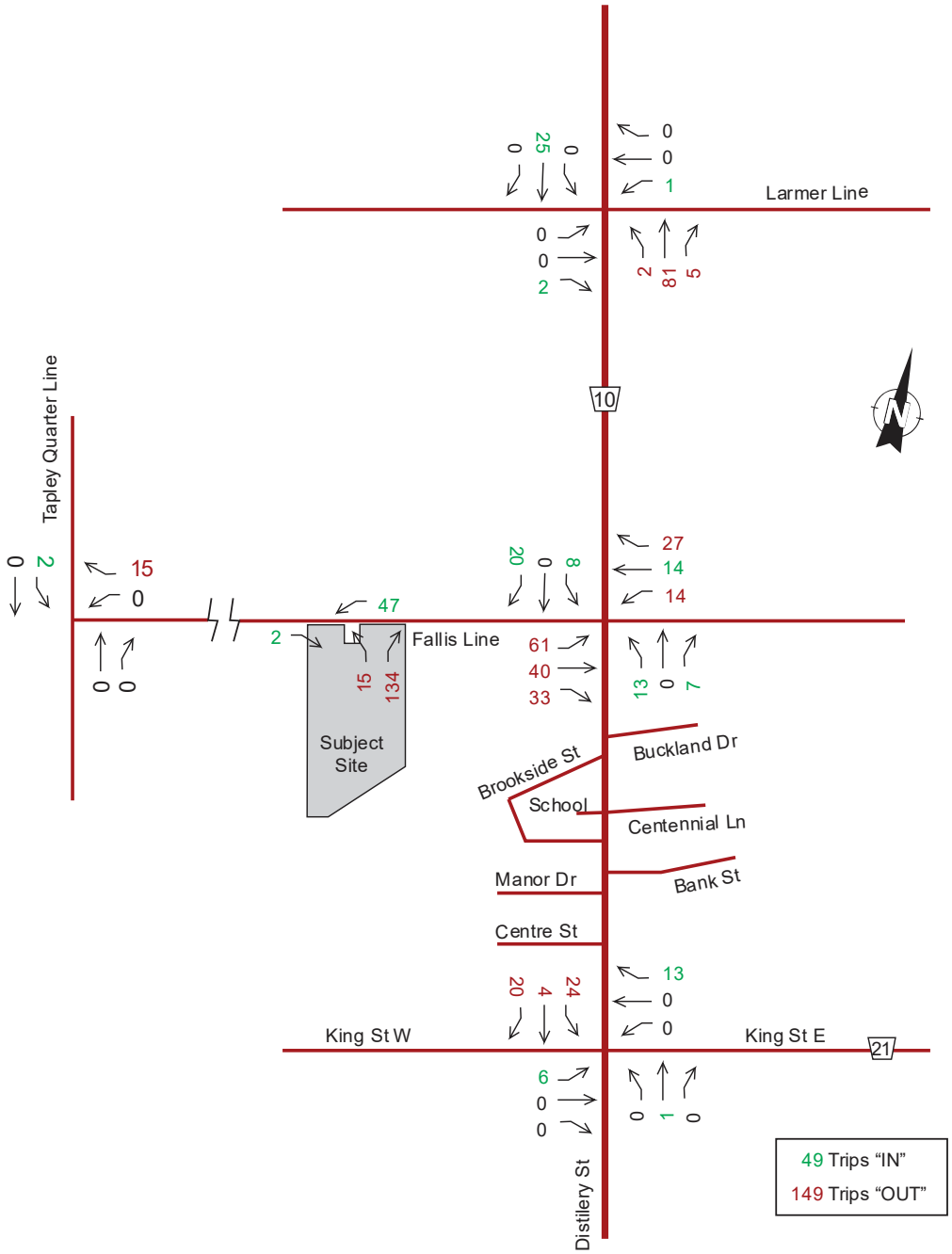


Exhibit 14: *AM Peak Hour Development Trips - 2025.*

PM Site Generated Trips With Diverted Trips - 2025 (Residential Site West of CR10)

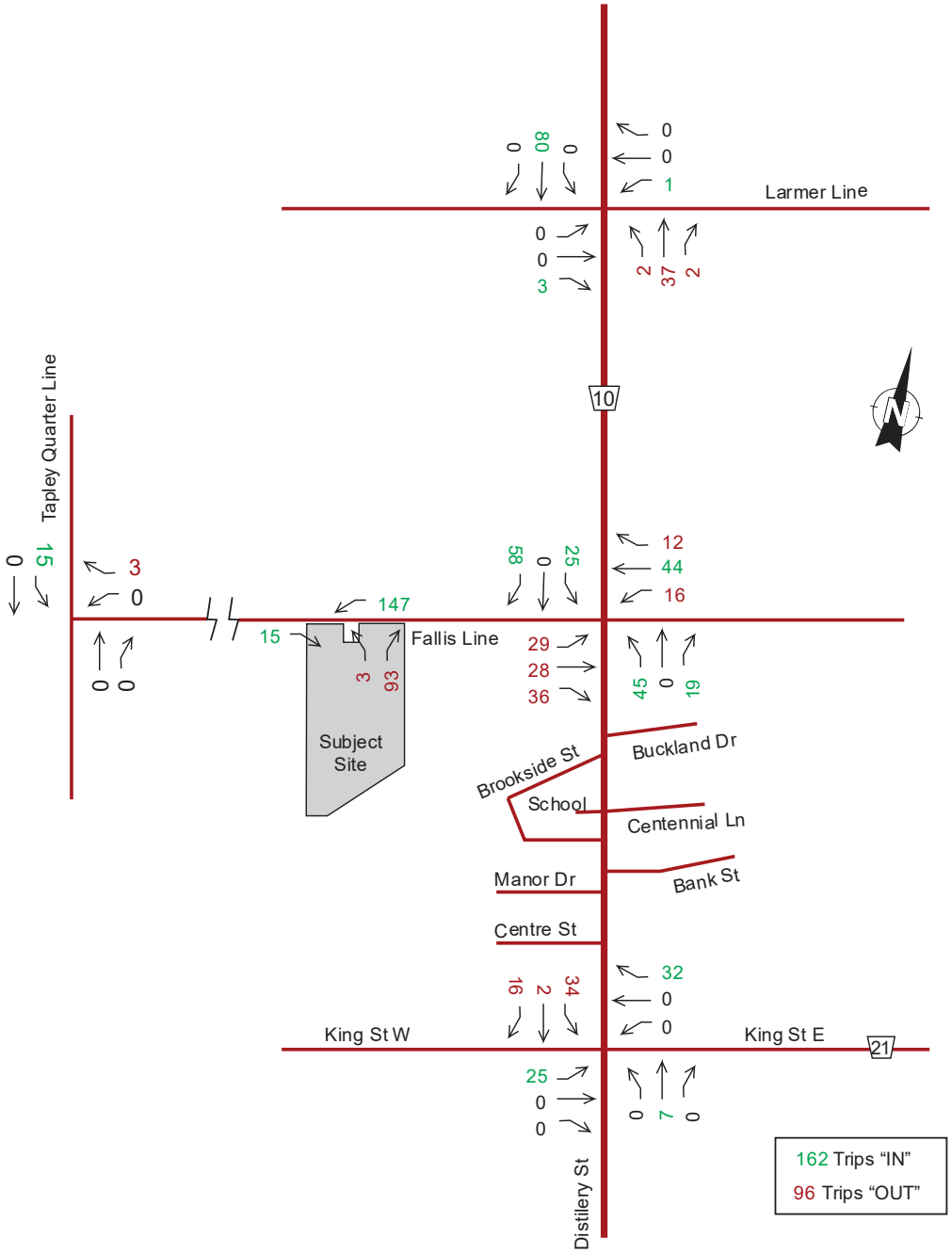


Exhibit 15: *PM Peak Hour Development Trips - 2025.*

AM Site Generated Trips With Diverted Trips - 2030 (Residential Site West of CR10)

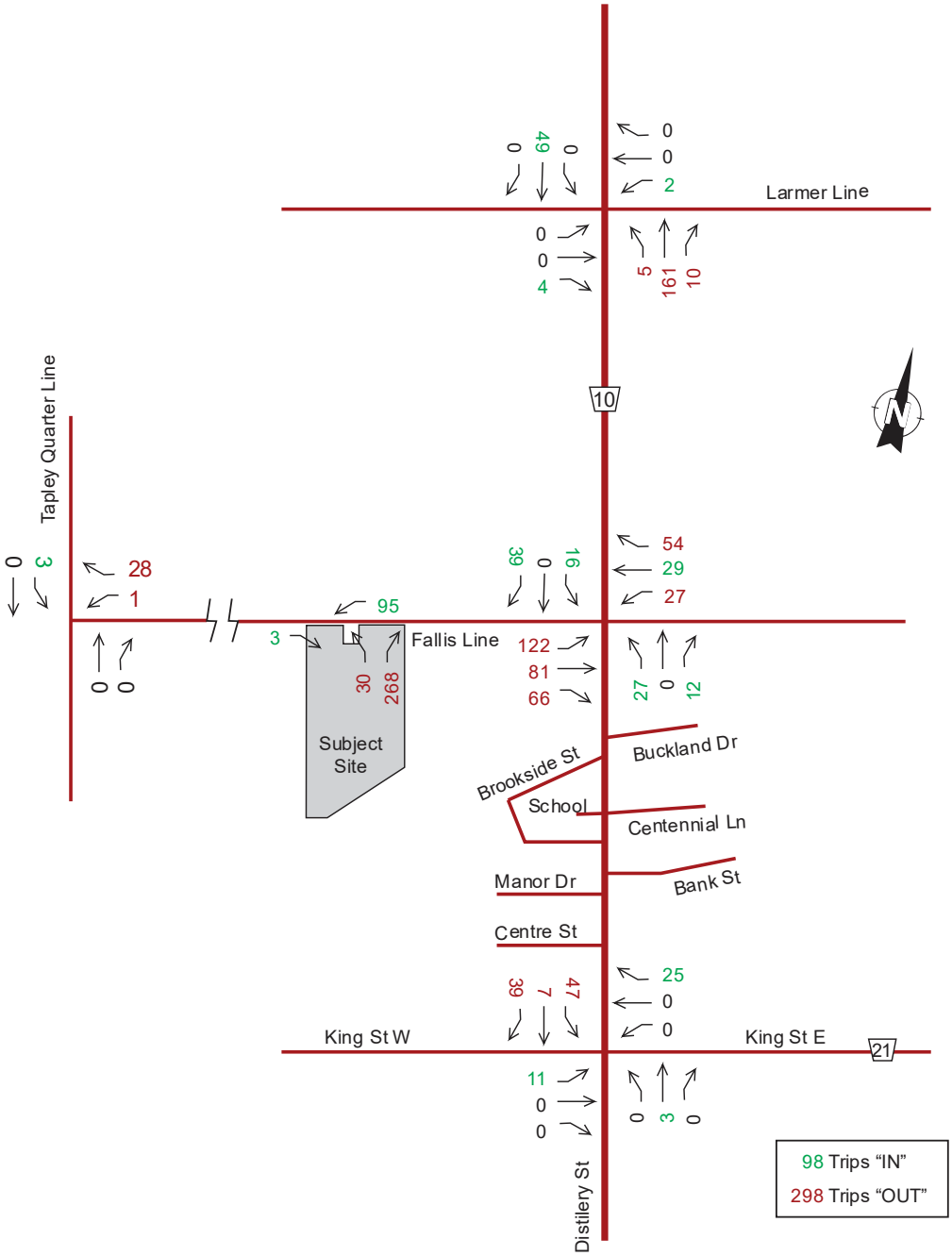


Exhibit 17: *AM Peak Hour Development Trips - 2030.*

PM Site Generated Trips With Diverted Trips - 2030 (Residential Site West of CR10)

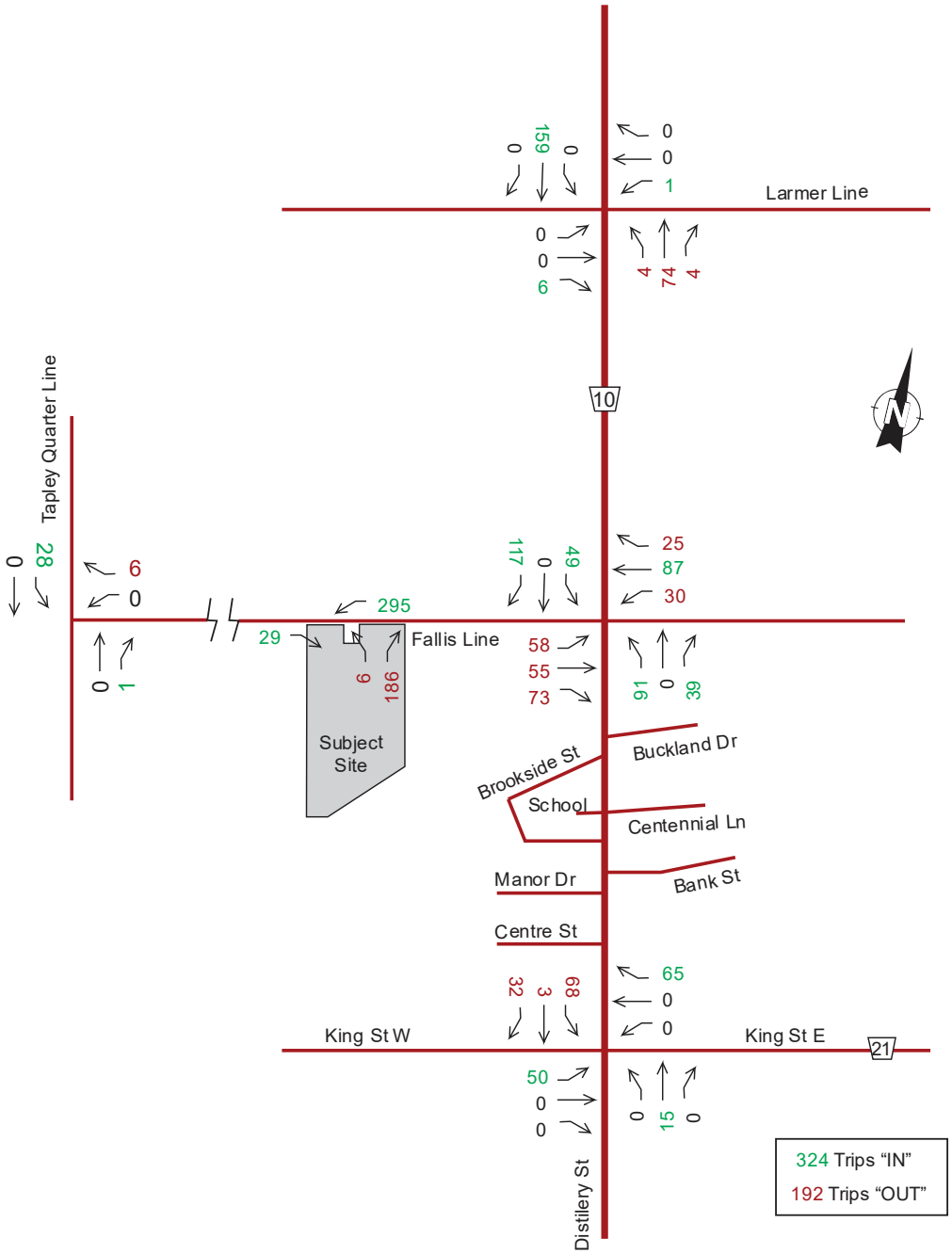


Exhibit 18: *PM Peak Hour Development Trips - 2030.*

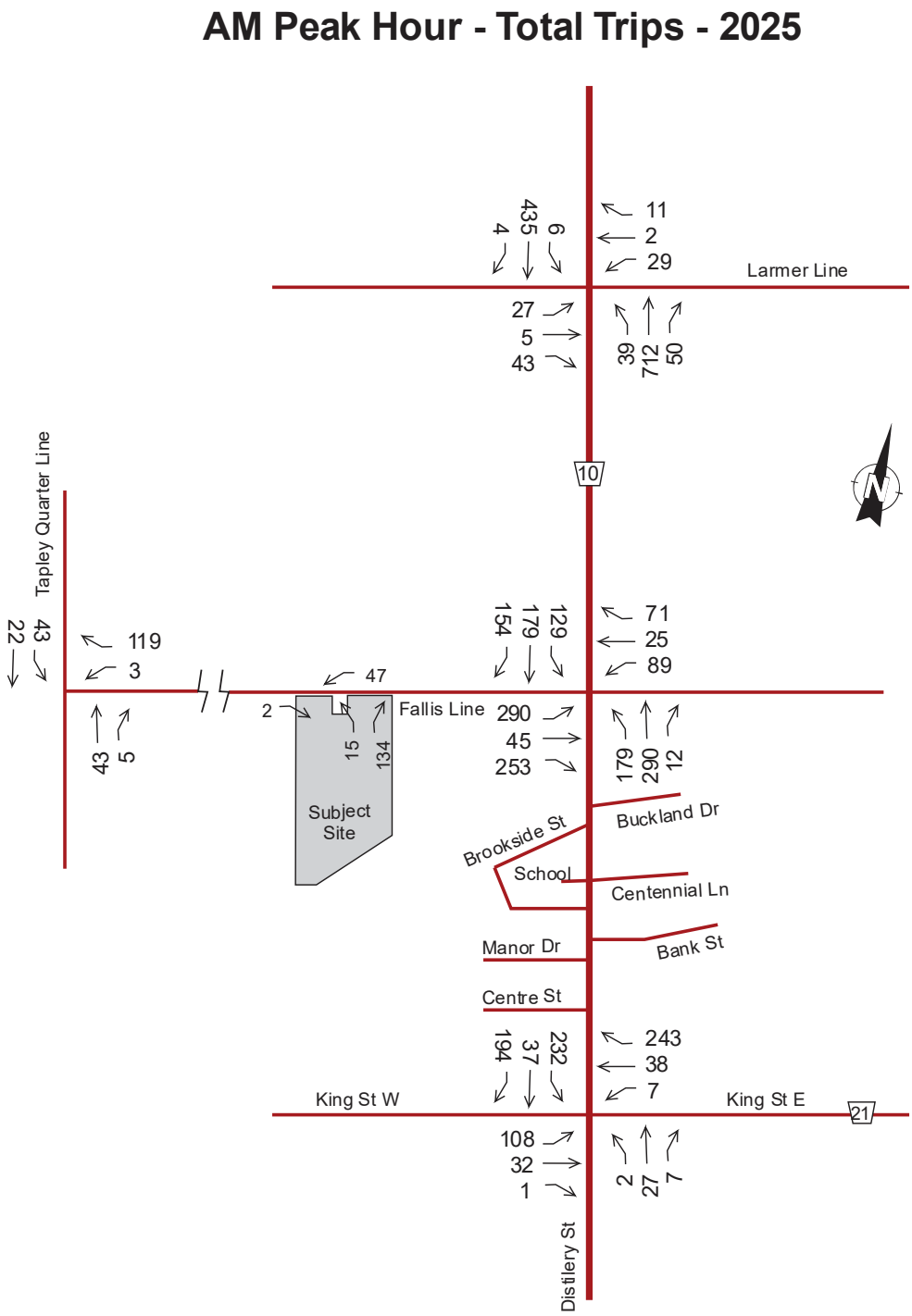


Exhibit 20: *AM Peak Hour Total Trips - 2025.*

PM Peak Hour - Total Trips - 2025

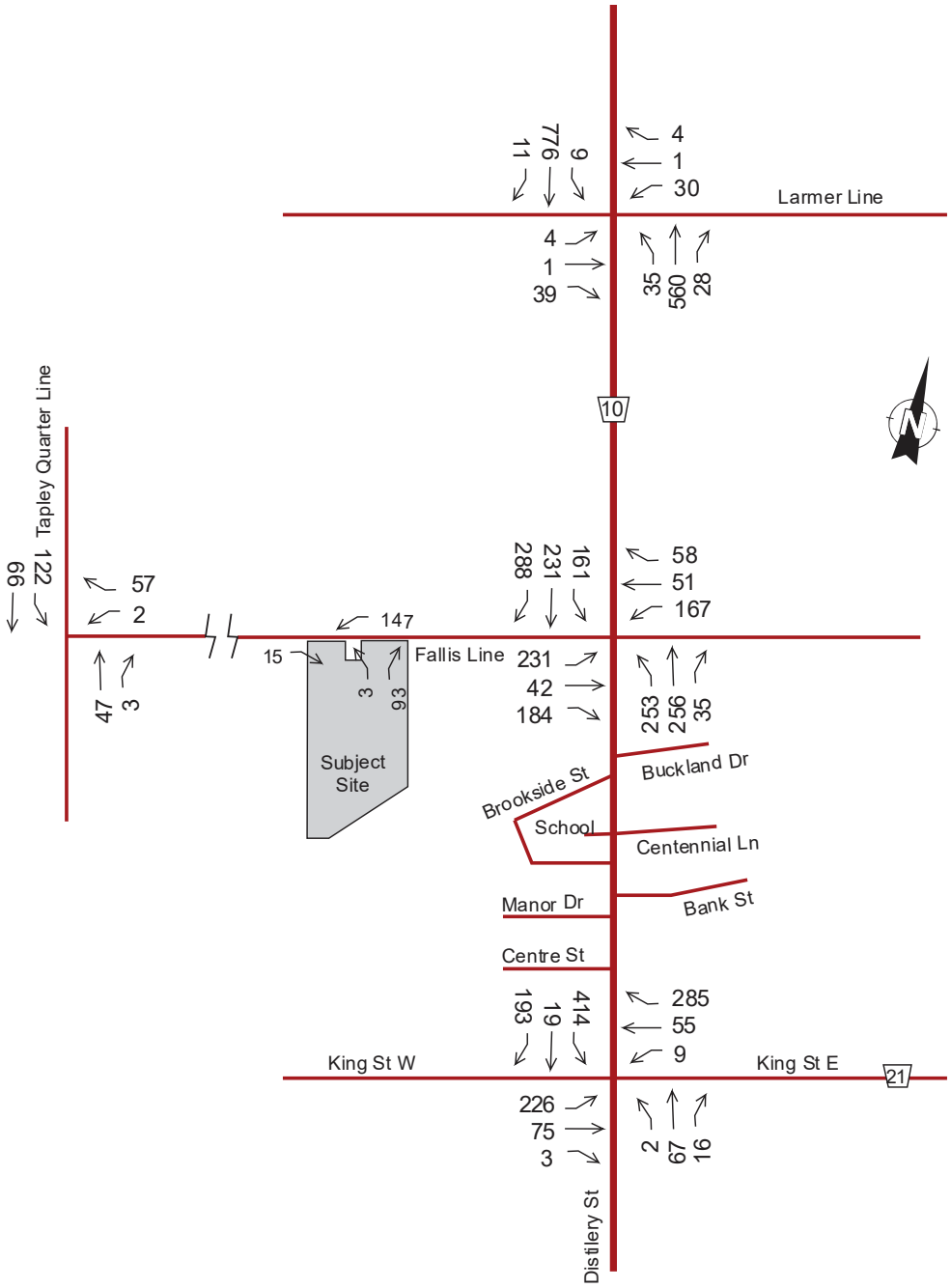


Exhibit 21: *PM Peak Hour Total Trips - 2025.*

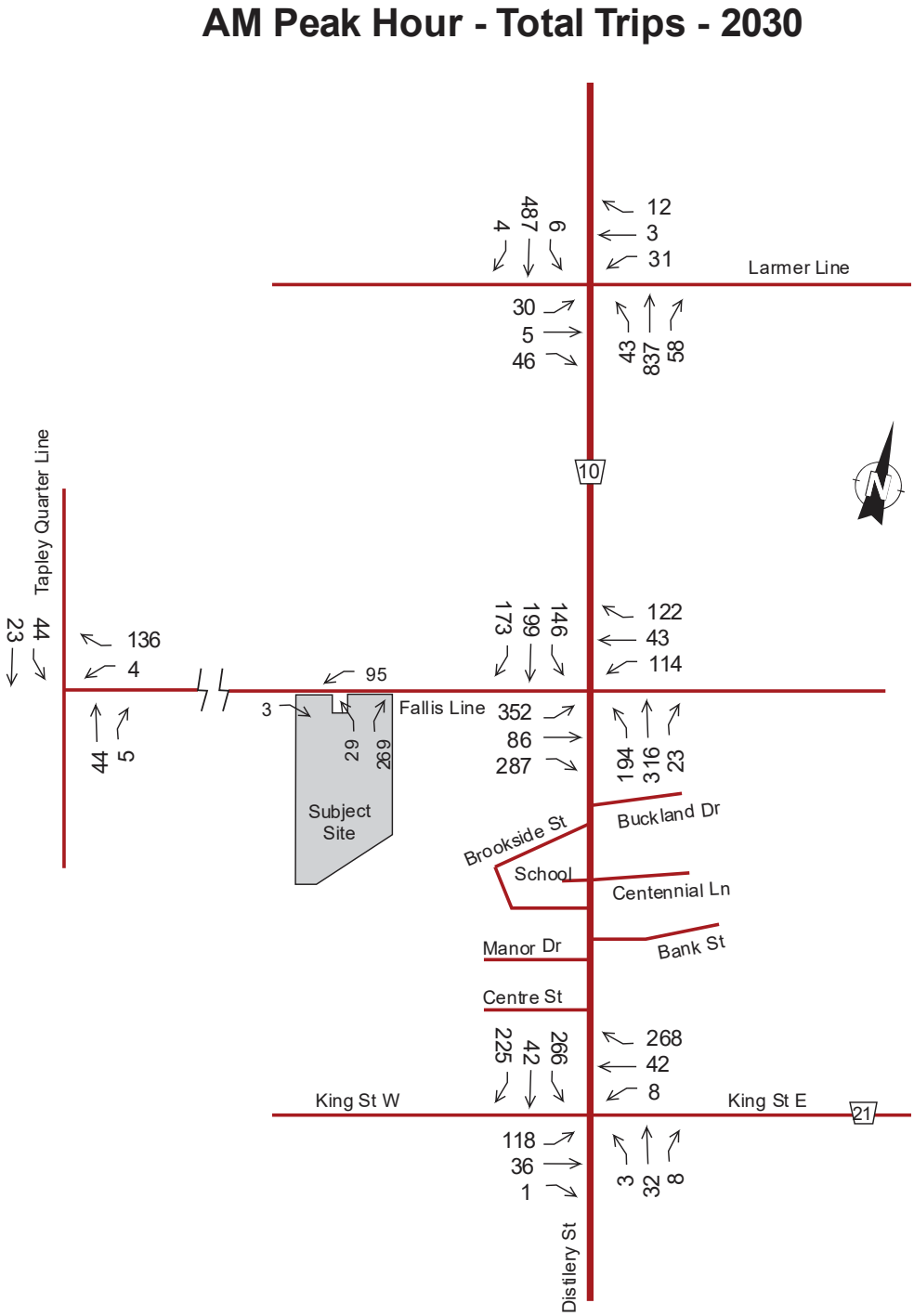


Exhibit 23: *AM Peak Hour Total Trips - 2030.*

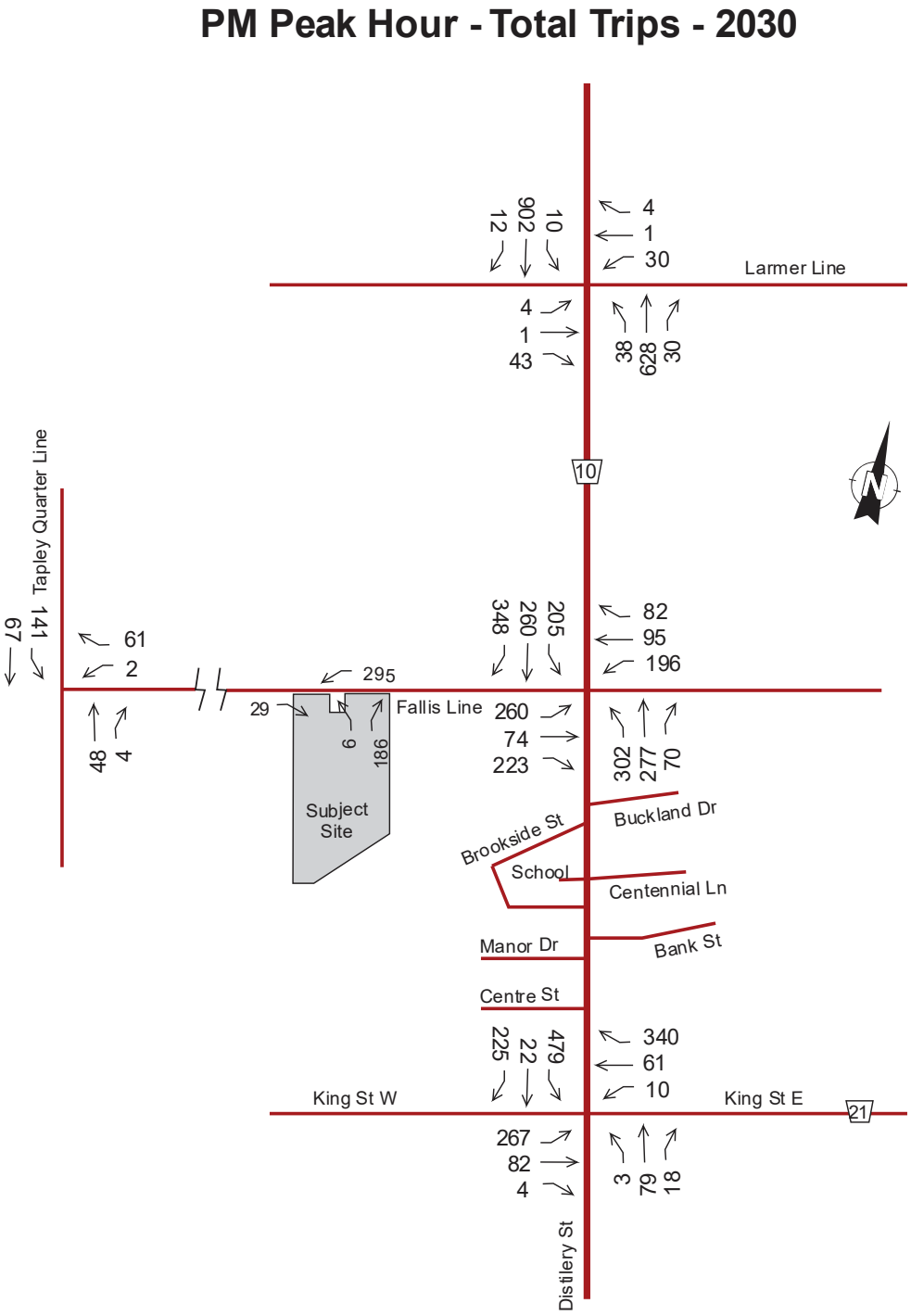


Exhibit 24: *PM Peak Hour Total Trips - 2030.*

Millbrook Fire Hall TIS

Millbrook Fire Hall

Township of Cavan Monaghan, County of Peterborough

Traffic Impact Study for the Township of Cavan Monaghan

Type of Document:
Draft Report

Project Number:
JDE – 21138

Date Submitted:
October 29th, 2021

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

_____
Maitham Dinani, P.Eng.
Professional License #: 100192544

ENGINEERING

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

Table 4 – Background (2026) LOS

Location (N-S Street / E-W Street)	Weekday AM Peak Hour			Weekday PM Peak Hour		
	V/C	Delay (s)	LOS	V/C	Delay (s)	LOS
County Road 10 / Street B (unsignalized)	-	12.8	A	-	7.0	A
EB	0.92	85.1	F	0.82	82.9	F
County Road 10 / Municipal Office & Community Centre Driveway (unsignalized)	-	0.3	A	-	0.3	A
EB	0.03	12.5	B	0.06	21.0	C

The results of the LOS analysis indicate that the eastbound movements at the County Road 10 / Street B intersection are operating outside the typical design limits; however, no improvements are recommended as it is anticipated that eastbound traffic volumes at this intersection will redistribute as the eastbound control delay increases, to the signalized County Road 10 / Fallis Line intersection via the internal road network and various intersections constructed on Fallis Line in Phase 2 of the Millbrook Development.

The results of the LOS analysis indicate that all other intersections in the study area are operating within the typical design limits noted in Section 3.1.

For right turn movements at the unsignalized intersections in the study area, the criteria outlined in Appendix G of the VDOT RDM were applied. Based on the above noted criteria, a right turn lane is not warranted at any of the unsignalized intersections in the study area (results provided in **Appendix I**).

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

The anticipated 95th percentile queue can be accommodated for all proposed storage lanes in the study area.

No additional improvements are recommended within the study area for the background (2026) scenario.

4 Proposed Development Traffic Generation and Assignment

4.1 Traffic Generation

The proposed development will be occupied by two user groups; the Township's Fire and Emergency Service and the County's Paramedic Service. Each service will generate varying levels of traffic based on the following factors: staffing / shift changes, number of emergency calls, number of visitors, number of deliveries. The AM and PM traffic generation for each service has been confirmed through discussions with Township and County staff.

The proposed development's breakdown of use by each service is summarized in **Table 5**.

Table 5 – Proposed Development Operational Data

Service	Number of Employees	Number of Emergency Calls	Number of Visitors	Number of Deliveries
County Paramedic Service	2 staff from 8:00 – 20:00 2 staff from 20:00 – 8:00	2 in a 24 hour period	None	1 per week
Township Fire Service	3 staff from 8:30 – 16:30*	2 in a 24 hour period	1-2 per week	2 per week

* Calls are responded to from home, outside staff hours

Based on our review of the information provided by the two user groups, the estimated trip generation during the AM and PM peak hour for each user group of the subject site is illustrated below in **Tables 6** and **7.** The total estimated trip generation for the proposed development is illustrated below in **Table 8**.

Table 6 – Estimated Traffic Generation for the County's Paramedic Services

	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Employees*	2	2	4	-	-	-
Emergency Calls**	1	1	2	1	1	2
Visitors	-	-	-	-	-	-
Deliveries***	1	1	2	1	1	2
TOTAL TRIPS	**4**	**4**	**8**	**2**	**2**	**4**

*The morning shift change occurs in the AM peak hour and the evening shift change occurs outside the peak hours
** It is assumed one emergency call will occur during each peak hour
*** It is assumed one delivery will occur during each peak hour

Table 7 – Estimated Traffic Generation for the Township's Fire Services

	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Employees*	3	0	3	0	3	3
Emergency Calls**	1	1	2	1	1	2
Visitors***	1	1	2	1	1	2
Deliveries****	1	1	2	1	1	2
TOTAL TRIPS	**6**	**3**	**9**	**3**	**6**	**9**

*It is assumed all staff will arrive in the AM peak hour and exit in the PM peak hour
** It is assumed one emergency call will occur during each peak hour
*** It is assumed one visitor will visit during each peak hour
**** It is assumed one delivery will occur during each peak hour

Table 8 – Estimated Traffic Generation Summary for Proposed Development

Service	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOTAL	IN	OUT	TOTAL
County's Paramedic Services	4	4	8	2	2	4
Township's Fire and Emergency Services	6	3	9	3	6	9
TOTAL TRIPS	**10**	**7**	**17**	**5**	**8**	**13**

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

4.2 Traffic Assignment

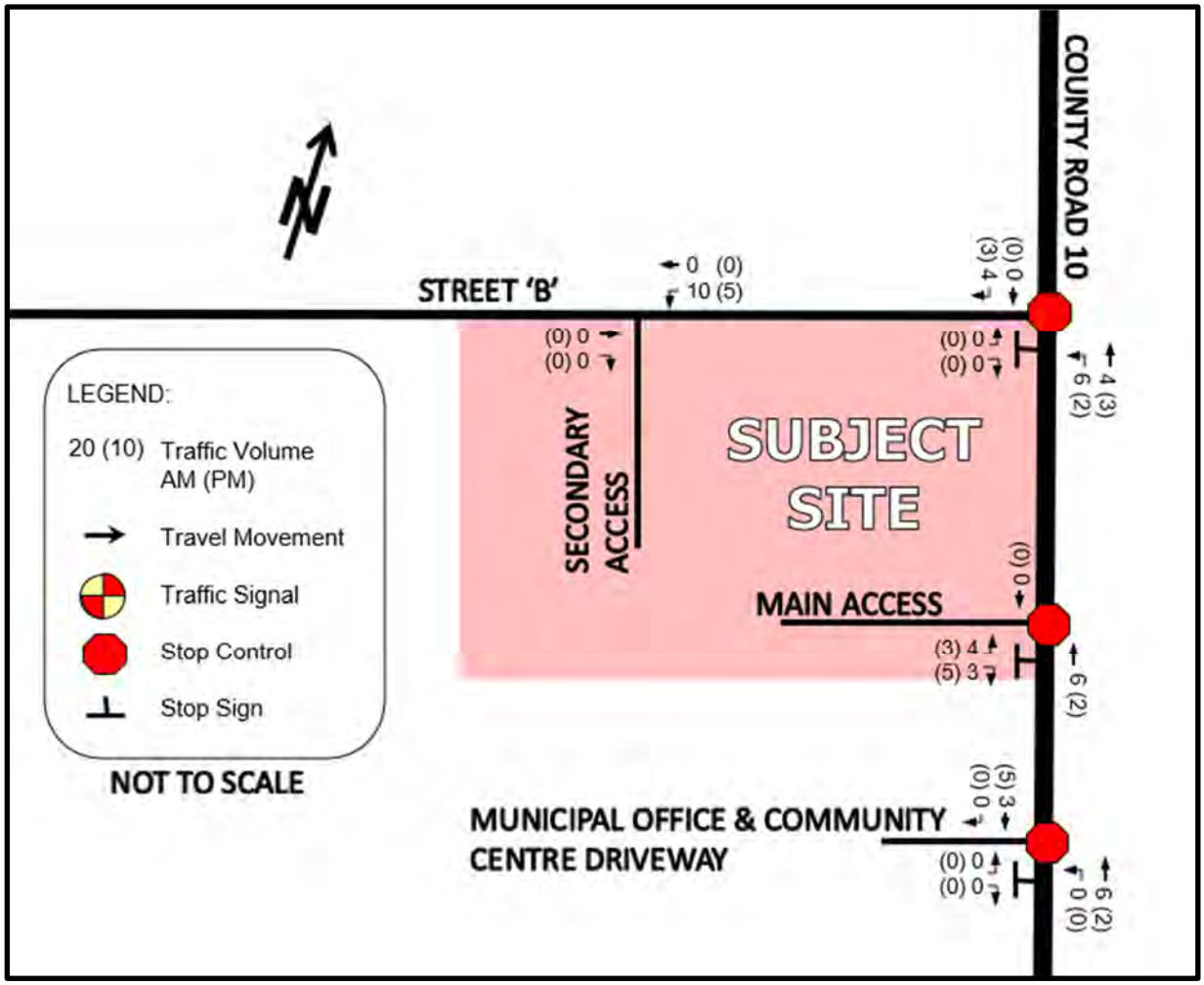
The distribution of traffic for the proposed development is based on the distribution of the existing traffic volumes within the study area. **Table 9** illustrates the calculation of the distribution of ingress and egress traffic for the proposed development.

Table 9 – Proposed Development Traffic Distribution

Travel Direction (to / from)	AM Peak Hour		PM Peak Hour	
	Ingress	Egress	Ingress	Egress
North via County Road 10	43%	57%	57%	43%
South via County Road 10	57%	43%	43%	57%
TOTAL	**100%**	**100%**	**100%**	**100%**

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

Figure 12 – Proposed Development Traffic Assignment



Appendix C –
Traffic Count Data

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Turning Movement Total Count and Peak Summary Report

Description: Hwy 115 @ Peterborough City Rd 10 (SRT)

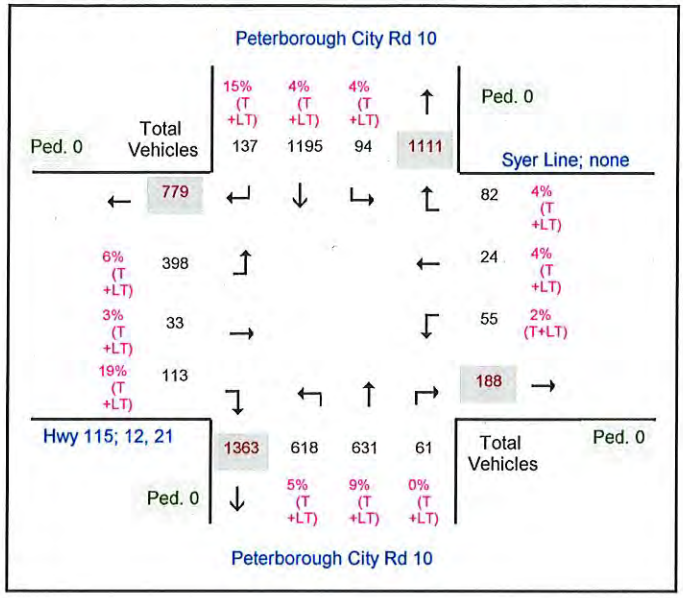
Region: EASTERN | **Survey Type:** TM – Interchange | **Hwy:** 115

Start Date: 30-Oct-2018 (Tue) | **I/C Side:** S | **LHRS:** 42245

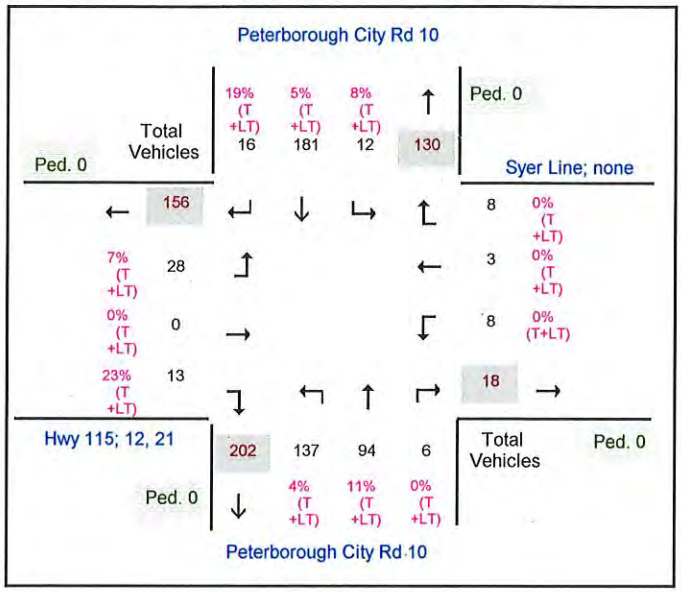
End Date: 30-Oct-2018 (Tue) | **Int. Type:** Four Leg | **Offset:** 0

Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

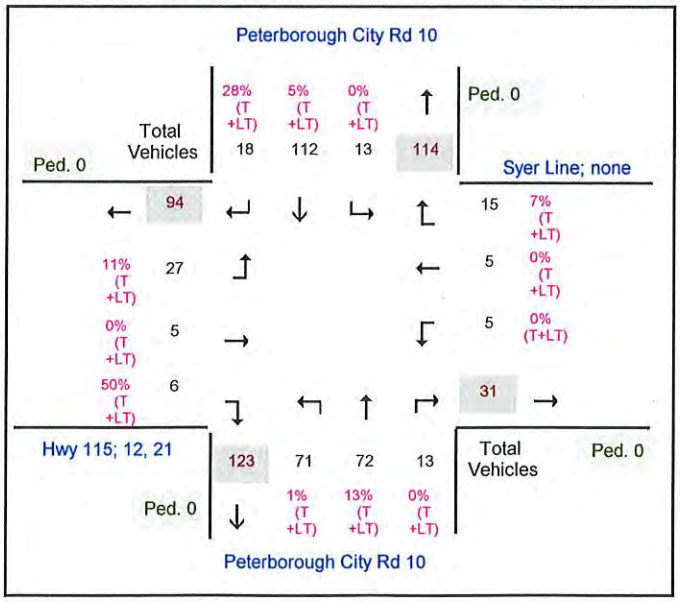
Total Count — Number of hours: 8



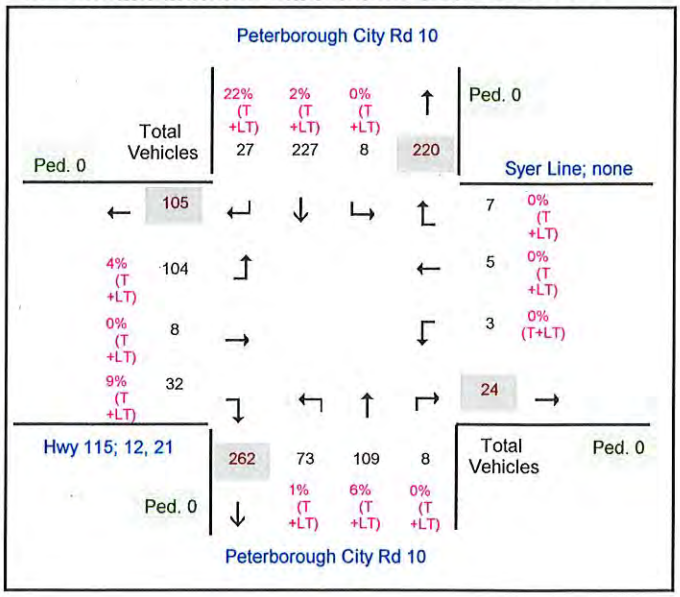
AM Peak Hour Report — Start Time: 07:30



Midday Peak Hour Report — Start Time: 13:00



PM Peak Hour Report — Start Time: 16:15



Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Turning Movement 15 Minute Report

Description: Hwy 115 @ Peterborough City Rd 10 (SRT)
Region: EASTERN **Survey Type:** TM – Interchange **Hwy:** 115
Start Date: 30-Oct-2018 (Tue) **I/C Side:** S **LHRS:** 42245
End Date: 30-Oct-2018 (Tue) **Int. Type:** Four Leg **Offset:** 0
Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

	Major Road Approaches																					Minor Road Approaches																					
	North Peterborough City Rd 10										South Peterborough City Rd 10										East Syer Line: Ramp(s): none										West Hwy 115														
Start Time	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Heavy Trucks			Ped	Total Veh.			
	←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→				
Period 1																																												
07:00	0	26	1	0	0	0	0	0	0	0	17	13	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	1	0	0	0	1	0	2	0	65			
07:15	1	28	2	0	0	0	1	3	0	0	24	9	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	7	0	1	0	0	0	1	0	0	0	80			
07:30	1	40	3	0	3	0	1	0	0	0	34	20	1	0	0	0	1	2	0	0	2	2	3	0	0	0	0	0	0	8	0	3	0	0	0	0	0	1	0	125			
07:45	3	61	5	0	3	0	0	1	2	0	29	22	2	2	1	0	1	0	0	0	0	1	4	0	0	0	0	0	0	7	0	2	0	0	0	1	0	1	0	148			
08:00	3	32	4	0	1	0	0	0	1	0	30	24	0	0	2	0	0	3	0	0	2	0	1	0	0	0	0	0	0	9	0	1	0	0	0	1	0	1	0	115			
08:15	4	39	1	0	1	0	0	0	0	0	38	18	3	1	2	0	1	0	0	0	4	0	0	0	0	0	0	0	0	2	0	4	0	0	0	0	0	0	0	118			
08:30	1	31	1	0	1	0	0	1	0	0	27	18	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4	1	1	0	0	0	1	0	1	0	90			
08:45	2	29	5	0	0	0	0	1	1	0	19	13	1	1	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	5	2	4	1	0	0	1	0	0	0	90			
Period 2																																												
11:00	5	29	4	0	2	1	0	0	1	0	19	12	1	1	0	0	1	1	0	0	4	1	5	0	0	0	0	0	0	6	0	1	0	0	0	1	0	0	0	95			
11:15	2	23	2	0	2	0	0	1	0	0	21	15	1	1	0	0	1	4	0	0	2	1	2	0	0	0	0	0	0	9	2	3	0	0	0	0	0	0	0	92			
11:30	5	29	4	0	2	0	0	1	0	0	13	15	2	0	1	0	0	0	0	0	3	1	3	0	0	0	0	0	0	2	0	6	2	0	0	0	0	2	0	91			
11:45	3	19	2	0	1	0	0	0	0	0	7	17	0	0	0	0	0	2	0	0	3	0	2	0	0	0	0	0	0	3	2	0	0	0	1	1	0	0	0	63			
12:00	2	26	4	0	0	0	0	1	0	0	16	17	1	1	1	0	0	1	0	0	5	0	2	0	0	0	0	0	0	7	0	1	0	0	0	0	0	1	0	86			
12:15	4	28	5	0	3	0	0	2	0	0	9	18	4	3	2	0	0	2	0	0	1	0	2	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	87			
12:30	2	27	4	0	0	0	0	0	0	0	18	18	6	1	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	5	1	0	0	1	0	0	0	2	0	91			
12:45	3	30	2	0	0	1	0	0	0	0	9	13	3	0	2	0	0	3	0	0	2	1	1	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	76			
13:00	4	21	3	0	2	1	0	1	1	0	19	17	6	0	0	0	0	1	0	0	1	2	3	0	0	1	0	0	0	8	1	0	0	0	0	1	0	0	0	93			
13:15	7	24	3	0	2	1	0	0	0	0	21	10	0	0	1	0	0	1	0	0	2	0	3	0	0	0	0	0	0	8	0	2	0	0	0	0	0	0	0	85			
13:30	0	30	3	0	0	0	0	0	1	0	15	15	4	1	4	0	0	0	0	0	2	1	4	0	0	0	0	0	0	6	2	1	0	0	0	0	0	3	0	92			
13:45	2	31	4	0	1	0	0	0	1	0	15	21	3	0	0	0	0	2	0	0	0	2	4	0	0	0	0	0	0	2	2	0	0	0	0	2	0	0	0	92			
Period 3																																												
15:00	3	28	1	0	0	1	1	1	1	0	26	26	2	2	2	0	3	1	0	0	0	1	6	0	0	0	0	1	2	0	12	0	3	0	0	0	1	0	0	0	124			
15:15	7	40	6	0	0	1	1	1	0	0	8	20	3	1	0	0	1	0	0	0	2	1	2	0	0	0	0	0	0	13	0	3	0	0	0	0	0	2	0	112			

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Turning Movement 15 Minute Report

Description: Hwy 115 @ Peterborough City Rd 10 (SRT)
Region: EASTERN | Survey Type: TM – Interchange | Hwy: 115
Start Date: 30-Oct-2018 (Tue) | I/C Side: S | LHRS: 42245
End Date: 30-Oct-2018 (Tue) | Int. Type: Four Leg | Offset: 0
Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

	Major Road Approaches																																					
	North Peterborough City Rd 10										South Peterborough City Rd 10										Minor Road Approaches																		
																					East Syer Line: Ramp(s): none										West Hwy 115									
Start Time	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Heavy Trucks			Ped	Total Veh.
	←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		
15:30	6	45	6	0	0	0	0	1	0	0	17	17	3	1	0	0	0	1	0	0	3	1	3	0	0	0	0	0	0	0	25	0	0	1	0	0	0	0	1	0	131
15:45	3	27	1	0	3	0	0	2	0	0	12	16	3	0	1	0	0	2	0	0	3	1	4	0	0	0	0	0	0	0	22	2	2	0	0	0	0	0	1	0	105
16:00	4	29	6	0	1	0	0	0	0	0	12	16	0	0	0	0	0	3	0	0	3	0	3	0	0	0	0	0	0	0	18	3	6	1	0	0	0	0	0	0	105
16:15	1	44	4	0	0	0	0	3	0	0	16	26	2	0	0	0	0	2	0	0	1	0	4	0	0	0	0	0	0	0	28	2	7	1	0	0	1	0	0	0	142
16:30	3	57	10	0	1	3	0	1	1	0	22	31	1	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	19	0	4	0	0	0	0	0	2	0	158
16:45	4	63	4	0	0	0	0	0	0	0	17	25	3	0	2	0	0	3	0	0	2	2	2	0	0	0	0	0	0	0	20	3	11	0	0	0	0	0	0	0	161
17:00	0	58	3	0	0	1	0	0	1	0	17	20	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	33	3	7	0	0	1	2	0	0	0	150
17:15	0	62	4	0	0	0	0	1	0	0	14	17	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	24	2	4	0	0	0	0	0	0	0	131
17:30	4	48	3	0	0	0	0	0	0	0	17	18	0	0	0	0	1	0	0	0	2	0	5	0	0	0	0	0	0	0	26	1	5	1	0	0	0	0	0	0	131
17:45	1	40	6	0	0	0	0	0	0	0	12	16	2	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	31	2	4	0	0	0	0	0	0	0	117

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Turning Movement Total Count and Peak Summary Report

Description: HWY 115 @ PETERBOROUGH RD 10 / SYER LINE (NRT)

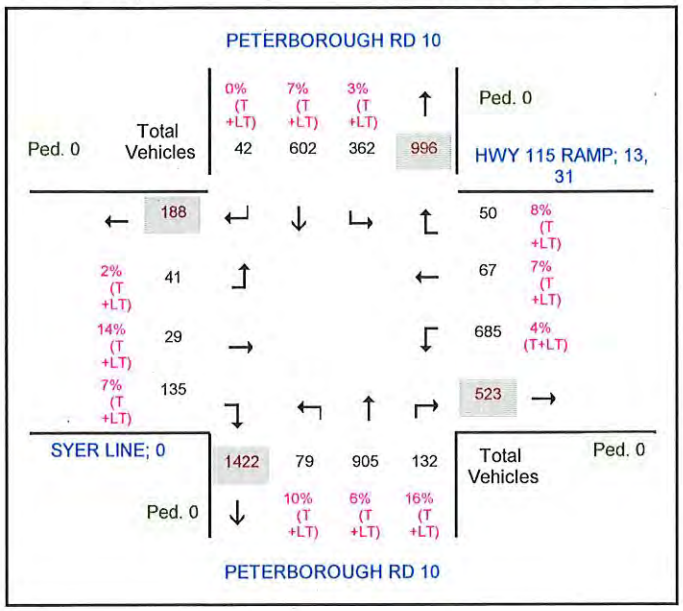
Region: EASTERN | **Survey Type:** TM – Interchange | **Hwy:** 115

Start Date: 30-Oct-2018 (Tue) | **I/C Side:** N | **LHRS:** 42245

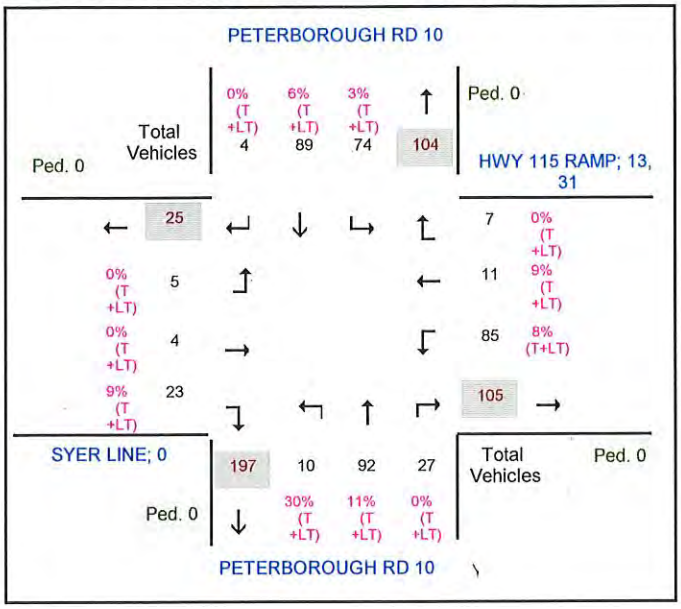
End Date: 30-Oct-2018 (Tue) | **Int. Type:** Four Leg | **Offset:** 0

Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

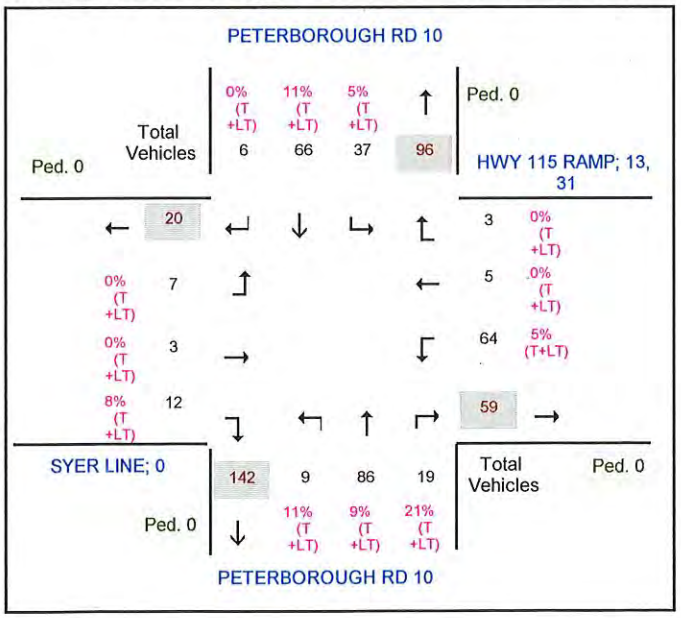
Total Count — Number of hours: 8



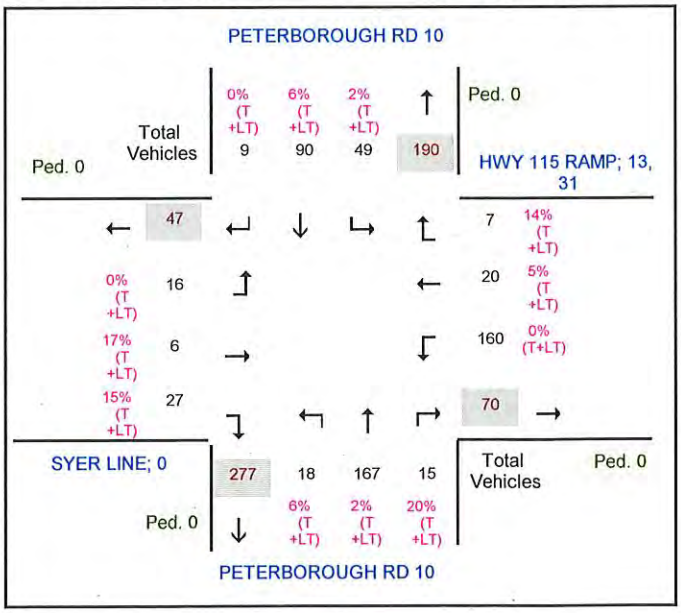
AM Peak Hour Report — Start Time: 07:15



Midday Peak Hour Report — Start Time: 13:00



PM Peak Hour Report — Start Time: 16:30



Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Turning Movement 15 Minute Report

Description: HWY 115 @ PETERBOROUGH RD 10 / SYER LINE (NRT)
Region: EASTERN | Survey Type: TM – Interchange | Hwy: 115
Start Date: 30-Oct-2018 (Tue) | I/C Side: N | LHRS: 42245
End Date: 30-Oct-2018 (Tue) | Int. Type: Four Leg | Offset: 0
Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

	Major Road Approaches																						Minor Road Approaches																						
	North PETERBOROUGH RD 10										South PETERBOROUGH RD 10										East HWY 115 RAMP: Ramp(s): 13, 31										West SYER LINE											
Start Time	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Heavy Trucks			Ped	Total Veh.
	←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		
Period 1																																											
07:00	27	8	3	0	0	0	0	0	0	0	1	12	3	0	0	0	0	1	0	0	15	1	2	0	0	0	1	1	0	0	1	3	3	0	0	0	0	1	0	0	83
07:15	25	17	1	0	0	0	0	1	0	0	2	12	5	0	1	0	1	1	0	0	11	6	3	0	0	0	2	0	0	0	1	1	6	0	0	0	0	0	0	0	96
07:30	25	23	1	0	1	0	0	0	0	0	0	24	5	0	0	0	1	1	0	0	19	2	2	3	0	0	0	0	0	0	0	2	2	0	0	0	0	0	1	0	112
07:45	13	24	1	0	1	0	1	1	0	0	3	23	9	0	1	0	0	1	0	0	37	2	2	1	1	0	1	0	0	0	1	1	5	0	0	0	0	0	0	0	129
08:00	9	20	1	1	1	0	0	0	0	0	2	23	8	0	2	0	1	3	0	0	11	0	0	0	0	0	0	0	0	0	3	0	8	0	0	0	0	0	1	0	94
08:15	15	23	3	1	1	0	0	0	0	0	1	17	4	0	2	0	0	0	0	0	20	1	2	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	95
08:30	16	15	0	0	1	0	0	1	0	0	2	18	3	0	0	0	0	1	0	0	13	2	1	0	0	0	0	1	0	0	1	1	3	0	0	0	0	1	0	0	80
08:45	17	13	1	0	0	0	0	1	0	0	0	16	6	0	2	0	0	1	0	0	18	3	1	0	0	1	1	0	0	0	0	1	5	0	0	0	0	0	0	0	87
Period 2																																										
11:00	8	15	2	0	3	0	0	0	0	0	1	22	2	0	0	0	1	0	1	0	15	1	2	1	0	0	0	0	0	0	1	0	7	0	0	0	0	0	1	0	83
11:15	15	16	1	0	0	0	0	1	0	0	2	21	2	0	0	0	0	2	2	0	11	2	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	79
11:30	11	19	0	1	0	0	0	0	0	0	0	18	3	0	2	0	0	0	0	0	15	0	3	2	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	78
11:45	8	15	0	1	0	0	0	0	0	0	2	20	0	0	0	0	0	1	2	0	9	0	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	62
12:00	6	17	0	0	0	0	0	1	0	0	1	23	1	0	1	0	0	1	0	0	13	2	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	69
12:15	9	15	1	1	3	0	0	1	0	0	3	15	4	0	2	0	0	1	1	0	17	0	1	0	0	1	1	0	0	0	1	0	5	0	0	0	0	0	0	0	82
12:30	8	16	3	0	0	0	1	0	0	0	0	21	2	0	0	0	0	0	0	0	16	0	0	0	0	0	0	1	0	0	1	0	2	0	0	0	0	1	0	0	72
12:45	9	15	0	0	1	0	0	0	0	0	0	16	3	0	1	1	0	0	3	0	21	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	73
13:00	7	11	0	0	1	0	0	1	0	0	2	23	1	0	0	1	1	0	1	0	9	1	0	2	0	0	0	0	0	0	1	0	6	0	0	0	0	0	1	0	69
13:15	10	17	1	0	2	0	0	0	0	0	1	15	6	0	1	0	0	1	0	0	16	1	0	1	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0	77
13:30	13	13	3	1	0	0	0	1	0	0	3	18	4	0	4	0	0	0	0	0	19	0	1	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	83
13:45	5	18	2	1	1	0	0	1	0	0	2	22	4	0	0	0	0	2	2	0	17	3	2	0	0	0	0	0	0	0	1	3	2	0	0	0	0	0	0	0	88
Period 3																																										
15:00	6	14	1	0	1	0	0	2	0	0	3	38	5	0	2	0	2	1	1	0	15	1	1	0	0	0	0	0	0	0	1	0	3	0	0	0	1	0	1	0	99
15:15	2	21	1	0	0	0	0	2	0	0	3	29	1	0	0	0	0	0	0	0	26	3	3	1	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	99

Ontario

Ministry of Transportation

TVIS II - Traffic Volume Information System

Turning Movement 15 Minute Report

Description: HWY 115 @ PETERBOROUGH RD 10 / SYER LINE (NRT)

Region: EASTERN | Survey Type: TM – Interchange | Hwy: 115

Start Date: 30-Oct-2018 (Tue) | I/C Side: N | LHRS: 42245

End Date: 30-Oct-2018 (Tue) | Int. Type: Four Leg | Offset: 0

Schedule Summary: TUES-THURS, 07:00-09:00, 11:00-14:00, 15:00-18:00

	Major Road Approaches																		Minor Road Approaches																	
	North PETERBOROUGH RD 10									South PETERBOROUGH RD 10									East HWY 115 RAMP: Ramp(s): 13, 31									West SYER LINE									
Start Time	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Long Trucks			Ped	Cars			Trucks			Heavy Trucks			Ped	Total Veh.
	←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		←	↑	→	←	↑	→	←	↑	→		
15:30	7	24	2	0	0	0	0	0	0	0	4	34	6	0	1	0	0	0	0	0	24	4	1	0	0	0	1	0	0	0	1	1	9	0	0	0	0	0	0	0	119
15:45	4	11	0	0	1	0	0	1	0	0	1	37	3	0	1	0	0	2	1	0	17	2	2	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	88
16:00	5	13	2	0	0	0	1	0	0	0	2	34	3	0	1	0	0	1	2	0	23	0	2	1	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	0	95
16:15	6	20	2	0	0	0	0	3	0	0	5	50	3	0	1	0	0	3	0	0	22	3	1	0	0	0	0	0	0	0	2	0	7	0	0	0	0	0	0	0	128
16:30	10	22	3	0	1	0	0	2	0	0	6	38	6	0	0	0	0	0	0	0	37	4	1	0	0	0	0	1	0	0	6	1	11	0	0	3	0	1	0	0	153
16:45	14	21	2	0	0	0	1	0	0	0	5	40	3	0	1	1	0	1	2	0	47	5	1	0	0	0	0	0	0	0	3	1	2	0	0	0	0	0	0	0	150
17:00	9	16	4	0	1	0	0	0	0	0	6	45	1	0	0	0	1	1	0	0	39	5	0	0	0	0	0	0	0	0	5	2	6	0	0	0	0	0	1	0	142
17:15	15	26	0	0	0	0	0	1	0	0	0	41	2	0	0	0	0	0	0	0	37	5	4	0	0	1	0	0	0	0	2	1	4	0	0	0	0	0	0	0	139
17:30	10	27	0	0	0	0	0	0	0	0	4	41	3	0	1	0	0	0	0	0	26	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	116
17:45	7	16	1	0	0	0	0	0	0	0	4	46	0	0	0	0	0	0	0	0	26	2	3	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	110

Ontario Traffic Inc

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 10:00:00

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

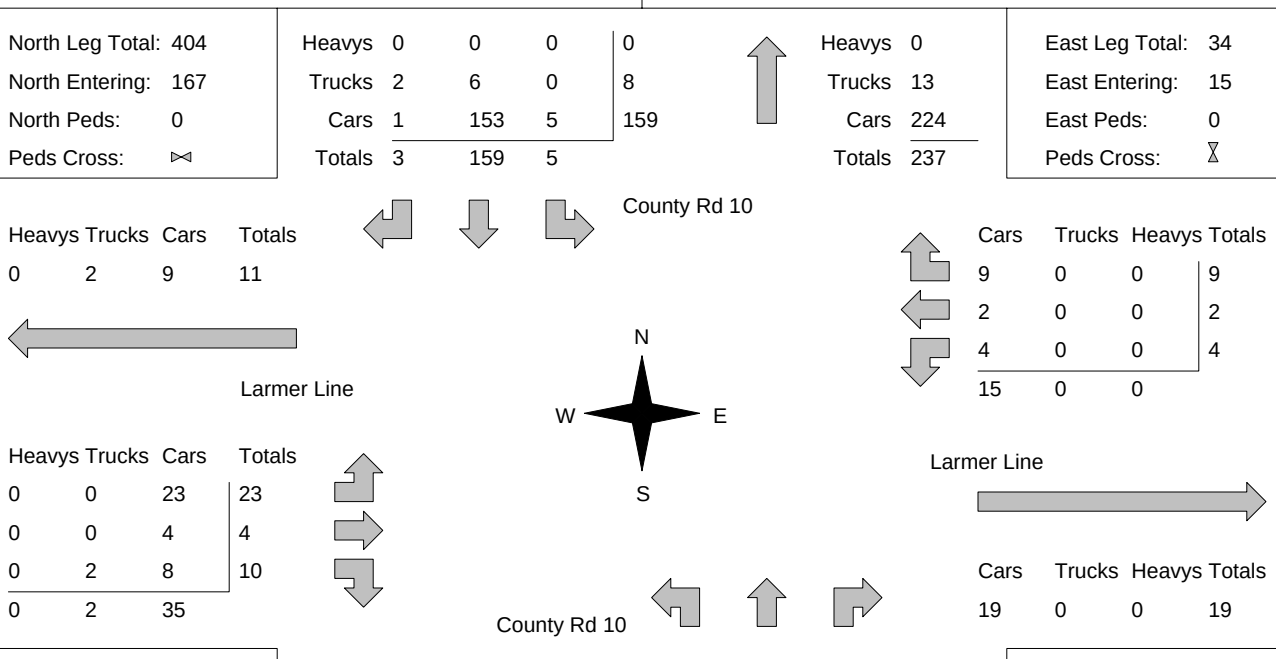
Municipality: Millbrook
Site #: 1710800002
Intersection: County Rd 10 & Larmer Line
TFR File #: 1
Count date: 25-Apr-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: County Rd 10 runs N/S



Comments

Ontario Traffic Inc

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 19:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Millbrook
Site #: 1710800002
Intersection: County Rd 10 & Larmer Line
TFR File #: 1
Count date: 25-Apr-17

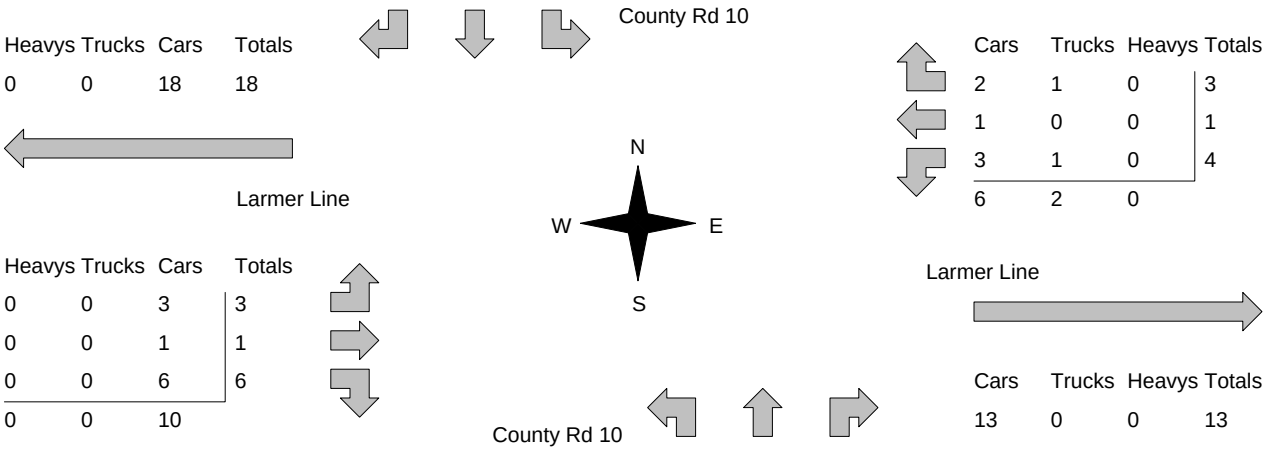
Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: County Rd 10 runs N/S

North Leg Total:	413			
North Entering:	242			
North Peds:	0			
Peds Cross:	⋈			
Heavys	0	0	0	0
Trucks	0	3	0	3
Cars	9	222	8	239
Totals	9	225	8	
Heavys	0			
Trucks	2			
Cars	169			
Totals	171			
East Leg Total:	21			
East Entering:	8			
East Peds:	0			
Peds Cross:	⧖			



Peds Cross:	⧖			
West Peds:	0			
West Entering:	10			
West Leg Total:	28			
Cars	231			
Trucks	4			
Heavys	0			
Totals	235			
Cars	8	164	4	176
Trucks	0	1	0	1
Heavys	0	0	0	0
Totals	8	165	4	
Peds Cross:	⋈			
South Peds:	0			
South Entering:	177			
South Leg Total:	412			

Comments

Ontario Traffic Inc

Total Count Diagram

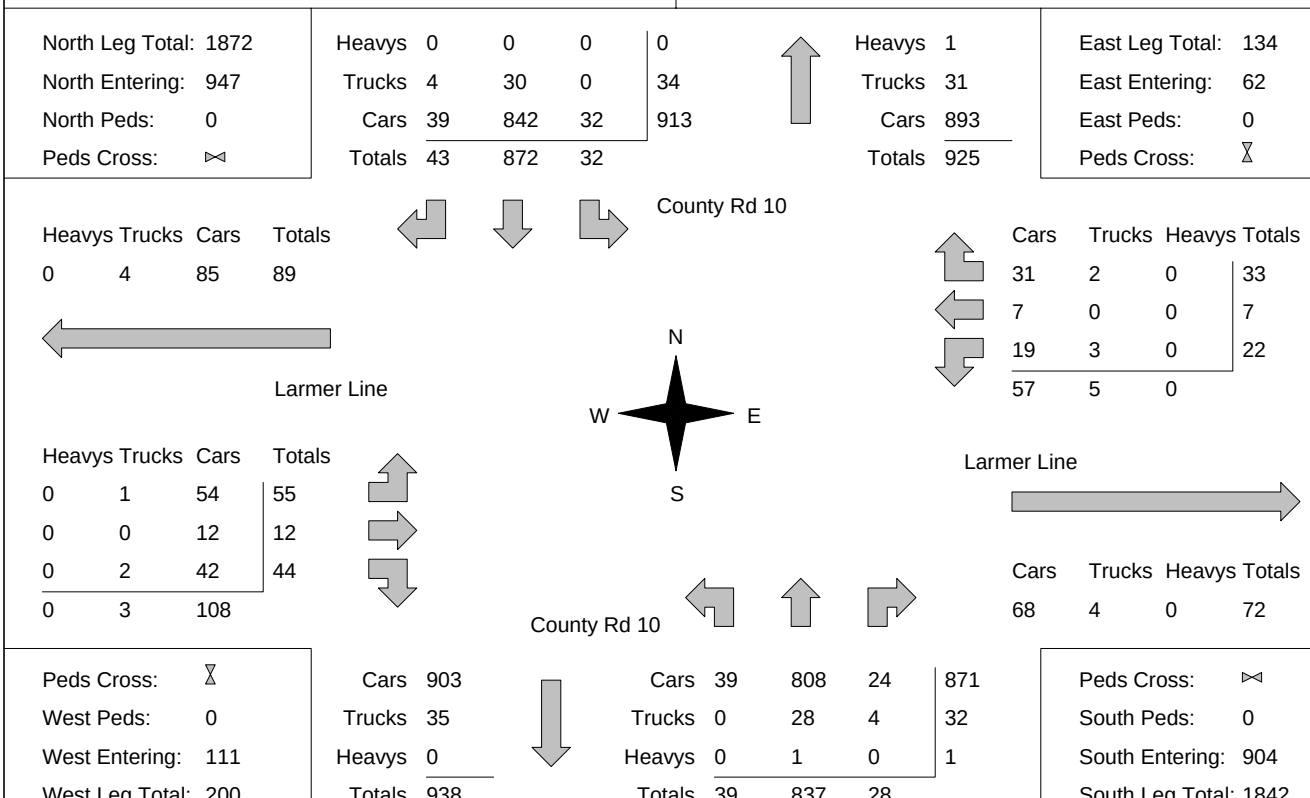
Municipality: Millbrook
Site #: 1710800002
Intersection: County Rd 10 & Larmer Line
TFR File #: 1
Count date: 25-Apr-17

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: County Rd 10 runs N/S



Comments

Ontario Traffic Inc
Traffic Count Summary

Intersection: County Rd 10 & Larmer Line | **Count Date:** 25-Apr-17 | **Municipality:** Millbrook

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	1	125	5	131	0	300
9:00:00	6	129	3	138	0	325
10:00:00	2	113	3	118	0	254
16:00:00	0	0	0	0	0	0
17:00:00	7	180	6	193	0	358
18:00:00	8	209	11	228	0	377
19:00:00	8	116	15	139	0	237
Totals:	32	872	43	947	0	1851

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	3	162	4	169	0
9:00:00	6	171	10	187	0
10:00:00	8	124	4	136	0
16:00:00	0	0	0	0	0
17:00:00	7	152	6	165	0
18:00:00	7	140	2	149	0
19:00:00	8	88	2	98	0
	39	837	28	904	0

East Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds	East/West Total Approaches
7:00:00	0	0	0	0	0	0
8:00:00	4	1	16	21	0	53
9:00:00	2	1	3	6	0	36
10:00:00	1	1	6	8	0	20
16:00:00	0	0	0	0	0	0
17:00:00	7	0	5	12	0	26
18:00:00	2	1	1	4	0	13
19:00:00	6	3	2	11	0	25
Totals:	22	7	33	62	0	173

West Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys: Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	0	0	0	0
8:00:00	22	2	8	32	0
9:00:00	16	4	10	30	0
10:00:00	4	1	7	12	0
16:00:00	0	0	0	0	0
17:00:00	2	2	10	14	0
18:00:00	2	3	4	9	0
19:00:00	9	0	5	14	0
	55	12	44	111	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	7:00	8:00	9:00	10:00	16:00	17:00	18:00	19:00
Crossing Values:	0	28	22	6	0	11	7	18

Ontario Traffic Inc

Count Date: 25-Apr-17 Site #: 1710800002

Interval Time	Passenger Cars - North Approach						Trucks - North Approach						Heavys - 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	0	0	11	11	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0
7:30:00	0	0	34	23	2	2	0	0	2	1	1	0	0	0	0	0	0	0	0	0
7:45:00	1	1	66	32	3	1	0	0	4	2	1	0	0	0	0	0	0	0	0	0
8:00:00	1	0	119	53	3	0	0	0	6	2	2	1	0	0	0	0	0	0	0	0
8:15:00	4	3	151	32	3	0	0	0	8	2	3	1	0	0	0	0	0	0	0	0
8:30:00	5	1	187	36	3	0	0	0	8	0	3	0	0	0	0	0	0	0	0	0
8:45:00	6	1	210	23	3	0	0	0	9	1	3	0	0	0	0	0	0	0	0	0
9:00:00	7	1	242	32	5	2	0	0	12	3	3	0	0	0	0	0	0	0	0	0
9:15:00	7	0	268	26	6	1	0	0	15	3	4	1	0	0	0	0	0	0	0	0
9:30:00	7	0	280	12	6	0	0	0	15	0	4	0	0	0	0	0	0	0	0	0
9:45:00	7	0	305	25	6	0	0	0	19	4	4	0	0	0	0	0	0	0	0	0
10:00:00	9	2	345	40	7	1	0	0	22	3	4	0	0	0	0	0	0	0	0	0
10:05:45	9	0	345	0	7	0	0	0	22	0	4	0	0	0	0	0	0	0	0	0
16:00:00	9	0	345	0	7	0	0	0	22	0	4	0	0	0	0	0	0	0	0	0
16:15:00	10	1	382	37	7	0	0	0	24	2	4	0	0	0	0	0	0	0	0	0
16:30:00	12	2	411	29	9	2	0	0	25	1	4	0	0	0	0	0	0	0	0	0
16:45:00	14	2	458	47	12	3	0	0	25	0	4	0	0	0	0	0	0	0	0	0
17:00:00	16	2	521	63	13	1	0	0	26	1	4	0	0	0	0	0	0	0	0	0
17:15:00	18	2	572	51	16	3	0	0	27	1	4	0	0	0	0	0	0	0	0	0
17:30:00	20	2	633	61	18	2	0	0	28	1	4	0	0	0	0	0	0	0	0	0
17:45:00	21	1	681	48	21	3	0	0	28	0	4	0	0	0	0	0	0	0	0	0
18:00:00	24	3	728	47	24	3	0	0	28	0	4	0	0	0	0	0	0	0	0	0
18:15:00	27	3	758	30	32	8	0	0	29	1	4	0	0	0	0	0	0	0	0	0
18:30:00	28	1	795	37	33	1	0	0	29	0	4	0	0	0	0	0	0	0	0	0
18:45:00	31	3	820	25	37	4	0	0	30	1	4	0	0	0	0	0	0	0	0	0
19:00:00	32	1	842	22	39	2	0	0	30	0	4	0	0	0	0	0	0	0	0	0
19:05:10	32	0	842	0	39	0	0	0	30	0	4	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc

Count Date: 25-Apr-17 Site #: 1710800002

Interval Time	Passenger Cars - East Approach						Trucks - East Approach						Heavys - 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	2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	2	0	0	0	7	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	3	1	1	1	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00:00	4	1	1	0	16	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15:00	4	0	1	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30:00	6	2	2	1	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45:00	6	0	2	0	17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00:00	6	0	2	0	19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15:00	6	0	2	0	21	2	1	1	0	0	1	1	0	0	0	0	0	0	0	0
9:30:00	6	0	3	1	22	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
9:45:00	6	0	3	0	23	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
10:00:00	6	0	3	0	24	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
10:05:45	6	0	3	0	24	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
16:00:00	6	0	3	0	24	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
16:15:00	8	2	3	0	26	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0
16:30:00	9	1	3	0	27	1	2	1	0	0	1	0	0	0	0	0	0	0	0	0
16:45:00	10	1	3	0	27	0	3	1	0	0	2	1	0	0	0	0	0	0	0	0
17:00:00	11	1	3	0	28	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0
17:15:00	12	1	3	0	29	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0
17:30:00	12	0	4	1	29	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
17:45:00	12	0	4	0	29	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
18:00:00	13	1	4	0	29	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
18:15:00	17	4	6	2	30	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0
18:30:00	17	0	6	0	30	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
18:45:00	19	2	6	0	30	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
19:00:00	19	0	7	1	31	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0
19:05:10	19	0	7	0	31	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc

Count Date: 25-Apr-17 Site #: 1710800002

Interval Time	Passenger Cars - South Approach						Trucks - South Approach						Heavys - 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	0	0	24	24	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
7:30:00	1	1	54	30	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0
7:45:00	1	0	102	48	1	1	0	0	4	4	2	0	0	0	0	0	0	0	0	0
8:00:00	3	2	155	53	2	1	0	0	7	3	2	0	0	0	0	0	0	0	0	0
8:15:00	5	2	199	44	5	3	0	0	11	4	2	0	0	0	0	0	0	0	0	0
8:30:00	7	2	246	47	10	5	0	0	13	2	2	0	0	0	0	0	0	0	0	0
8:45:00	9	2	286	40	11	1	0	0	15	2	2	0	0	0	0	0	0	0	0	0
9:00:00	9	0	315	29	11	0	0	0	18	3	3	1	0	0	0	0	0	0	0	0
9:15:00	10	1	340	25	12	1	0	0	18	0	3	0	0	0	0	0	0	0	0	0
9:30:00	12	2	364	24	12	0	0	0	21	3	3	0	0	0	0	0	0	0	0	0
9:45:00	14	2	398	34	13	1	0	0	23	2	4	1	0	0	0	0	0	0	0	0
10:00:00	17	3	431	33	14	1	0	0	26	3	4	0	0	0	0	0	0	0	0	0
10:05:45	17	0	431	0	14	0	0	0	26	0	4	0	0	0	0	0	0	0	0	0
16:00:00	17	0	431	0	14	0	0	0	26	0	4	0	0	0	0	0	0	0	0	0
16:15:00	19	2	465	34	14	0	0	0	27	1	4	0	0	0	0	0	0	0	0	0
16:30:00	20	1	504	39	16	2	0	0	27	0	4	0	0	0	0	0	0	0	0	0
16:45:00	23	3	550	46	17	1	0	0	27	0	4	0	0	0	0	0	0	0	0	0
17:00:00	24	1	581	31	20	3	0	0	28	1	4	0	0	0	0	0	0	0	0	0
17:15:00	27	3	640	59	20	0	0	0	28	0	4	0	0	0	0	0	0	0	0	0
17:30:00	28	1	668	28	20	0	0	0	28	0	4	0	0	0	0	0	0	0	0	0
17:45:00	30	2	691	23	22	2	0	0	28	0	4	0	0	0	0	0	0	0	0	0
18:00:00	31	1	721	30	22	0	0	0	28	0	4	0	0	0	0	0	0	0	0	0
18:15:00	32	1	755	34	22	0	0	0	28	0	4	0	0	0	0	0	0	0	0	0
18:30:00	36	4	776	21	23	1	0	0	28	0	4	0	0	0	0	0	0	0	0	0
18:45:00	38	2	793	17	24	1	0	0	28	0	4	0	0	0	1	1	0	0	0	0
19:00:00	39	1	808	15	24	0	0	0	28	0	4	0	0	0	1	0	0	0	0	0
19:05:10	39	0	808	0	24	0	0	0	28	0	4	0	0	0	1	0	0	0	0	0

Ontario Traffic Inc

Count Date: 25-Apr-17 Site #: 1710800002

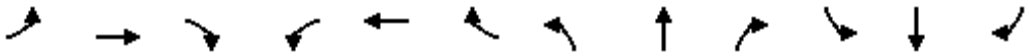
Interval Time	Passenger Cars - West Approach						Trucks - West Approach						Heavys - West Approach						Pedestrians	
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		West Cross	
	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr	Cum	Incr
7:00:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	6	6	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30:00	8	2	0	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45:00	16	8	0	0	5	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0
8:00:00	22	6	2	2	7	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:15:00	28	6	2	0	11	4	0	0	0	0	2	1	0	0	0	0	0	0	0	0
8:30:00	31	3	4	2	12	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
8:45:00	35	4	5	1	13	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
9:00:00	38	3	6	1	16	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0
9:15:00	38	0	7	1	18	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
9:30:00	39	1	7	0	18	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
9:45:00	41	2	7	0	20	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
10:00:00	42	1	7	0	23	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0
10:05:45	42	0	7	0	23	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
16:00:00	42	0	7	0	23	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
16:15:00	42	0	8	1	28	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0
16:30:00	42	0	9	1	30	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
16:45:00	44	2	9	0	33	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0
17:00:00	44	0	9	0	33	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
17:15:00	44	0	9	0	36	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0
17:30:00	45	1	10	1	36	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
17:45:00	46	1	11	1	37	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
18:00:00	46	0	12	1	37	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
18:15:00	52	6	12	0	39	2	1	1	0	0	2	0	0	0	0	0	0	0	0	0
18:30:00	54	2	12	0	41	2	1	0	0	0	2	0	0	0	0	0	0	0	0	0
18:45:00	54	0	12	0	42	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0
19:00:00	54	0	12	0	42	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
19:05:10	54	0	12	0	42	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0

Appendix D –
Synchro Analysis Output –
Existing Traffic Volumes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	5	23	108	4	4	14	74	28	59	76	6
Future Volume (Veh/h)	7	5	23	108	4	4	14	74	28	59	76	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	7	5	24	115	4	4	15	79	30	63	81	6
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	340	349	84	358	337	94	87			109		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	340	349	84	358	337	94	87			109		
tC, single (s)	7.2	6.7	6.2	7.1	6.8	6.5	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.2	3.3	3.5	4.2	3.5	2.3			2.2		
p0 queue free %	99	99	98	79	99	100	99			96		
cM capacity (veh/h)	562	519	970	551	520	903	1472			1494		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	36	123	124	63	87
Volume Left	7	115	15	63	0
Volume Right	24	4	30	0	6
cSH	769	557	1472	1494	1700
Volume to Capacity	0.05	0.22	0.01	0.04	0.05
Queue Length 95th (m)	1.2	6.7	0.2	1.1	0.0
Control Delay (s)	9.9	13.3	1.0	7.5	0.0
Lane LOS	A	B	A	A	
Approach Delay (s)	9.9	13.3	1.0	3.2	
Approach LOS	A	B			

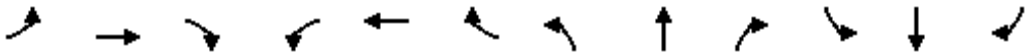
Intersection Summary				
Average Delay	6.0			
Intersection Capacity Utilization	33.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1	4	2	1	6	177	86	1	9	183	14
Future Volume (Veh/h)	24	1	4	2	1	6	177	86	1	9	183	14
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	1	4	2	1	7	192	93	1	10	199	15
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	711	704	206	708	712	94	214			94		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	711	704	206	708	712	94	214			94		
tC, single (s)	7.3	6.5	6.5	7.6	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.5	4.0	4.0	3.3	2.2			2.2		
p0 queue free %	91	100	99	99	100	99	86			99		
cM capacity (veh/h)	285	310	779	259	307	969	1356			1513		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	31	10	192	94	224
Volume Left	26	2	192	0	10
Volume Right	4	7	0	1	15
cSH	311	549	1356	1700	1513
Volume to Capacity	0.10	0.02	0.14	0.06	0.01
Queue Length 95th (m)	2.6	0.4	3.9	0.0	0.2
Control Delay (s)	17.8	11.7	8.1	0.0	0.4
Lane LOS	C	B	A		A
Approach Delay (s)	17.8	11.7	5.4		0.4
Approach LOS	C	B			

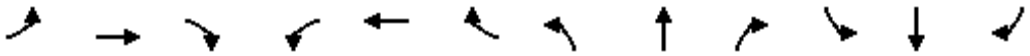
Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	7	25	207	13	2	19	210	12	30	90	5
Future Volume (Veh/h)	11	7	25	207	13	2	19	210	12	30	90	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	11	7	26	213	13	2	20	216	12	31	93	5
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	428	426	96	446	422	222	98			228		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	428	426	96	446	422	222	98			228		
tC, single (s)	7.1	6.6	6.2	7.1	6.7	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	98	99	97	57	97	100	99			98		
cM capacity (veh/h)	514	485	956	492	486	823	1476			1352		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	44	228	248	31	98
Volume Left	11	213	20	31	0
Volume Right	26	2	12	0	5
cSH	698	493	1476	1352	1700
Volume to Capacity	0.06	0.46	0.01	0.02	0.06
Queue Length 95th (m)	1.6	19.2	0.3	0.6	0.0
Control Delay (s)	10.5	18.4	0.7	7.7	0.0
Lane LOS	B	C	A	A	
Approach Delay (s)	10.5	18.4	0.7	1.9	
Approach LOS	B	C			

Intersection Summary				
Average Delay	7.8			
Intersection Capacity Utilization	47.3%	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 (veh/h)	96	2	26	6	7	9	188	136	10	11	292	19
Future Volume (Veh/h)	96	2	26	6	7	9	188	136	10	11	292	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	109	2	30	7	8	10	214	155	11	12	332	22
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	964	961	343	986	966	160	354			166		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	964	961	343	986	966	160	354			166		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	43	99	96	96	96	99	82			99		
cM capacity (veh/h)	193	211	704	187	209	890	1210			1424		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	141	25	214	166	366
Volume Left	109	7	214	0	12
Volume Right	30	10	0	11	22
cSH	228	287	1210	1700	1424
Volume to Capacity	0.62	0.09	0.18	0.10	0.01
Queue Length 95th (m)	29.0	2.3	5.1	0.0	0.2
Control Delay (s)	43.2	18.7	8.6	0.0	0.3
Lane LOS	E	C	A		A
Approach Delay (s)	43.2	18.7	4.9		0.3
Approach LOS	E	C			

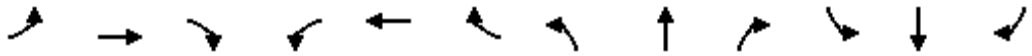
Intersection Summary				
Average Delay	9.3			
Intersection Capacity Utilization	54.2%	ICU Level of Service		A
Analysis Period (min)	15			

Appendix E –
Synchro Analysis Output –
Background Traffic Volumes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	6	25	335	4	4	15	100	45	66	96	7
Future Volume (Veh/h)	8	6	25	335	4	4	15	100	45	66	96	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	9	6	27	356	4	4	16	106	48	70	102	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	414	432	106	434	411	130	109			154		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	414	432	106	434	411	130	109			154		
tC, single (s)	7.2	6.7	6.2	7.1	6.8	6.5	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.2	3.3	3.5	4.2	3.5	2.3			2.2		
p0 queue free %	98	99	97	26	99	100	99			95		
cM capacity (veh/h)	499	461	943	484	468	862	1445			1439		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	42	364	170	70	109
Volume Left	9	356	16	70	0
Volume Right	27	4	48	0	7
cSH	704	486	1445	1439	1700
Volume to Capacity	0.06	0.75	0.01	0.05	0.06
Queue Length 95th (m)	1.5	50.6	0.3	1.2	0.0
Control Delay (s)	10.4	31.3	0.8	7.6	0.0
Lane LOS	B	D	A	A	
Approach Delay (s)	10.4	31.3	0.8	3.0	
Approach LOS	B	D			

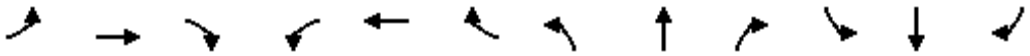
Intersection Summary				
Average Delay	16.6			
Intersection Capacity Utilization	52.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	1	11	2	1	7	586	127	1	10	428	16
Future Volume (Veh/h)	27	1	11	2	1	7	586	127	1	10	428	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	1	12	2	1	8	637	138	1	11	465	17
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	1916	1908	474	1920	1916	138	482			139		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1916	1908	474	1920	1916	138	482			139		
tC, single (s)	7.3	6.5	6.5	7.6	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.5	4.0	4.0	3.3	2.2			2.2		
p0 queue free %	0	96	98	90	96	99	41			99		
cM capacity (veh/h)	23	28	546	19	28	915	1081			1457		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	42	11	637	139	493
Volume Left	29	2	637	0	11
Volume Right	12	8	0	1	17
cSH	32	74	1081	1700	1457
Volume to Capacity	1.30	0.15	0.59	0.08	0.01
Queue Length 95th (m)	37.0	4.0	32.1	0.0	0.2
Control Delay (s)	449.9	62.2	13.0	0.0	0.2
Lane LOS	F	F	B		A
Approach Delay (s)	449.9	62.2	10.7		0.2
Approach LOS	F	F			

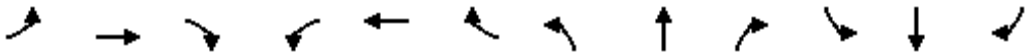
Intersection Summary				
Average Delay	21.2			
Intersection Capacity Utilization	78.0%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	8	28	638	15	2	21	246	23	34	118	6
Future Volume (Veh/h)	12	8	28	638	15	2	21	246	23	34	118	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	12	8	29	658	15	2	22	254	24	35	122	6
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	514	517	125	535	508	266	128			278		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	514	517	125	535	508	266	128			278		
tC, single (s)	7.1	6.6	6.2	7.1	6.7	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	97	98	97	0	97	100	98			97		
cM capacity (veh/h)	445	427	920	424	431	778	1440			1296		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	49	675	300	35	128
Volume Left	12	658	22	35	0
Volume Right	29	2	24	0	6
cSH	635	425	1440	1296	1700
Volume to Capacity	0.08	1.59	0.02	0.03	0.08
Queue Length 95th (m)	2.0	303.3	0.4	0.7	0.0
Control Delay (s)	11.1	299.1	0.7	7.9	0.0
Lane LOS	B	F	A	A	
Approach Delay (s)	11.1	299.1	0.7	1.7	
Approach LOS	B	F			

Intersection Summary				
Average Delay	170.9			
Intersection Capacity Utilization	80.0%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	2	44	7	8	10	505	174	11	12	747	21
Future Volume (Veh/h)	107	2	44	7	8	10	505	174	11	12	747	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	122	2	50	8	9	11	574	198	12	14	849	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	2250	2247	861	2292	2253	204	873			210		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2250	2247	861	2292	2253	204	873			210		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	82	86	4	17	99	26			99		
cM capacity (veh/h)	4	11	358	8	11	842	777			1373		

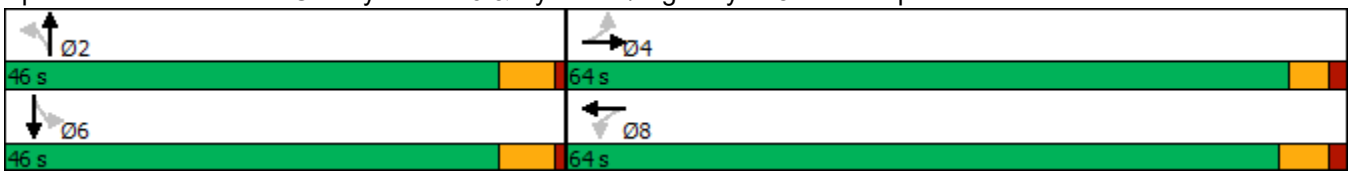
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	174	28	574	210	887
Volume Left	122	8	574	0	14
Volume Right	50	11	0	12	24
cSH	6	16	777	1700	1373
Volume to Capacity	30.34	1.80	0.74	0.12	0.01
Queue Length 95th (m)	Err	32.9	53.7	0.0	0.2
Control Delay (s)	Err	884.8	21.5	0.0	0.3
Lane LOS	F	F	C		A
Approach Delay (s)	Err	884.8	15.8		0.3
Approach LOS	F	F			

Intersection Summary				
Average Delay	948.9			
Intersection Capacity Utilization	101.3%	ICU Level of Service	G	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	6	335	4	15	100	66	96
Future Volume (vph)	8	6	335	4	15	100	66	96
Lane Group Flow (vph)	0	42	0	364	0	170	70	109
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	64.0	64.0	64.0	64.0	46.0	46.0	46.0	46.0
Total Split (%)	58.2%	58.2%	58.2%	58.2%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.07		0.78		0.29	0.14	0.17
Control Delay		5.1		26.4		13.6	14.1	13.5
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		5.1		26.4		13.6	14.1	13.5
Queue Length 50th (m)		0.8		29.9		9.7	4.3	6.6
Queue Length 95th (m)		4.9		57.3		28.1	14.7	19.7
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1344		1144		1178	990	1325
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.03		0.32		0.14	0.07	0.08

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 53
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



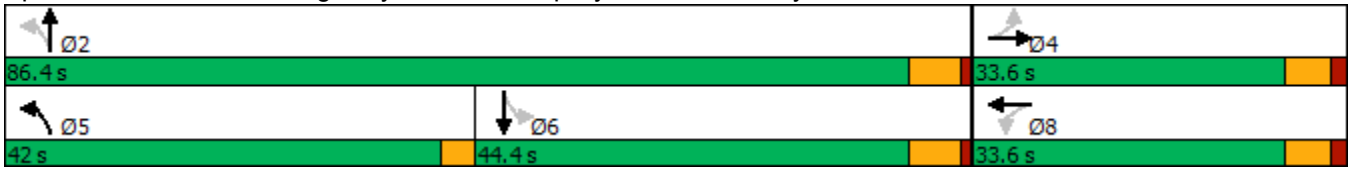
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	6	25	335	4	4	15	100	45	66	96	7
Future Volume (vph)	8	6	25	335	4	4	15	100	45	66	96	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.91			1.00			0.96		1.00	0.99	
Flt Protected		0.99			0.95			1.00		0.95	1.00	
Satd. Flow (prot)		1458			1580			1557		1662	1717	
Flt Permitted		0.92			0.70			0.97		0.73	1.00	
Satd. Flow (perm)		1360			1160			1521		1283	1717	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	9	6	27	356	4	4	16	106	48	70	102	7
RTOR Reduction (vph)	0	16	0	0	1	0	0	12	0	0	2	0
Lane Group Flow (vph)	0	26	0	0	363	0	0	158	0	70	107	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	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)		22.1			21.2			20.3		20.3	20.3	
Effective Green, g (s)		22.1			21.2			20.3		20.3	20.3	
Actuated g/C Ratio		0.42			0.40			0.38		0.38	0.38	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		568			464			583		492	658	
v/s Ratio Prot											0.06	
v/s Ratio Perm		0.02			c0.31			c0.10		0.05		
v/c Ratio		0.05			0.78			0.27		0.14	0.16	
Uniform Delay, d1		9.1			13.8			11.2		10.6	10.7	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0			8.4			0.3		0.1	0.1	
Delay (s)		9.2			22.3			11.5		10.8	10.8	
Level of Service		A			C			B		B	B	
Approach Delay (s)		9.2			22.3			11.5			10.8	
Approach LOS		A			C			B			B	

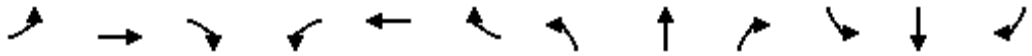
Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	52.9	Sum of lost time (s)	11.4
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	27	1	2	1	586	127	10	428
Future Volume (vph)	27	1	2	1	586	127	10	428
Lane Group Flow (vph)	0	42	0	11	637	139	0	493
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.0	86.4	44.4	44.4
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.0%	72.0%	37.0%	37.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.28		0.06	0.69	0.10		0.79
Control Delay		37.7		27.6	12.9	2.4		36.4
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		37.7		27.6	12.9	2.4		36.4
Queue Length 50th (m)		5.7		0.6	49.7	5.2		88.0
Queue Length 95th (m)		17.3		6.1	107.2	10.3		133.6
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		383		468	981	1446		825
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.11		0.02	0.65	0.10		0.60

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 85.9
Natural Cycle: 100
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





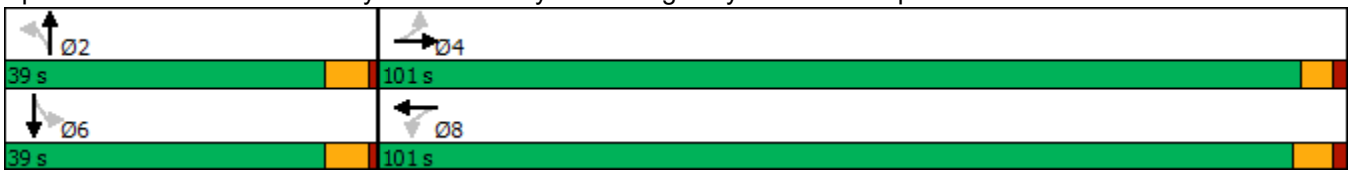
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1	11	2	1	7	586	127	1	10	428	16
Future Volume (vph)	27	1	11	2	1	7	586	127	1	10	428	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.96			0.90		1.00	1.00			1.00	
Flt Protected		0.97			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1337			1434		1630	1650			1720	
Flt Permitted		0.79			0.93		0.29	1.00			0.99	
Satd. Flow (perm)		1089			1340		504	1650			1710	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	1	12	2	1	8	637	138	1	11	465	17
RTOR Reduction (vph)	0	11	0	0	8	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	31	0	0	3	0	637	139	0	0	492	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.4			5.4		71.6	71.6			31.6	
Effective Green, g (s)		5.4			5.4		71.6	71.6			31.6	
Actuated g/C Ratio		0.06			0.06		0.81	0.81			0.36	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		66			81		879	1336			611	
v/s Ratio Prot							c0.30	0.08				
v/s Ratio Perm		c0.03			0.00		0.28				c0.29	
v/c Ratio		0.47			0.04		0.72	0.10			0.80	
Uniform Delay, d1		40.1			39.1		9.3	1.7			25.6	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		5.1			0.2		3.0	0.0			7.6	
Delay (s)		45.2			39.3		12.3	1.8			33.2	
Level of Service		D			D		B	A			C	
Approach Delay (s)		45.2			39.3			10.4			33.2	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	88.4	Sum of lost time (s)	14.4
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	8	638	15	21	246	34	118
Future Volume (vph)	12	8	638	15	21	246	34	118
Lane Group Flow (vph)	0	49	0	675	0	300	35	128
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	101.0	101.0	101.0	101.0	39.0	39.0	39.0	39.0
Total Split (%)	72.1%	72.1%	72.1%	72.1%	27.9%	27.9%	27.9%	27.9%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.06		0.91		0.69	0.19	0.29
Control Delay		3.9		33.9		47.5	40.5	37.5
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		3.9		33.9		47.5	40.5	37.5
Queue Length 50th (m)		1.3		98.9		55.1	5.6	20.7
Queue Length 95th (m)		5.9		205.5		#119.1	19.1	50.2
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1193		1068		599	253	613
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.04		0.63		0.50	0.14	0.21

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 100.7
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	8	28	638	15	2	21	246	23	34	118	6
Future Volume (vph)	12	8	28	638	15	2	21	246	23	34	118	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.92			1.00			0.99		1.00	0.99	
Flt Protected		0.99			0.95			1.00		0.95	1.00	
Satd. Flow (prot)		1520			1662			1690		1662	1689	
Flt Permitted		0.87			0.70			0.97		0.40	1.00	
Satd. Flow (perm)		1343			1213			1649		699	1689	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	12	8	29	658	15	2	22	254	24	35	122	6
RTOR Reduction (vph)	0	11	0	0	0	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	38	0	0	675	0	0	298	0	35	127	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	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)		62.8			61.9			26.4		26.4	26.4	
Effective Green, g (s)		62.8			61.9			26.4		26.4	26.4	
Actuated g/C Ratio		0.63			0.62			0.26		0.26	0.26	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		845			753			436		185	447	
v/s Ratio Prot											0.07	
v/s Ratio Perm		0.03			c0.56			c0.18		0.05		
v/c Ratio		0.05			0.90			0.68		0.19	0.28	
Uniform Delay, d1		7.0			16.2			32.9		28.4	29.1	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0			13.3			4.4		0.5	0.3	
Delay (s)		7.1			29.4			37.3		28.9	29.5	
Level of Service		A			C			D		C	C	
Approach Delay (s)		7.1			29.4			37.3			29.3	
Approach LOS		A			C			D			C	

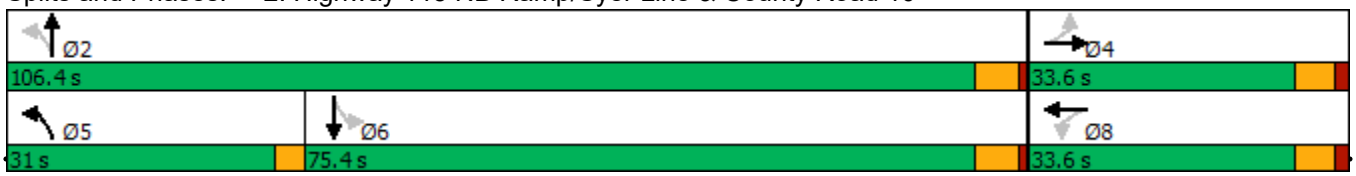
Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	99.7	Sum of lost time (s)	11.4
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

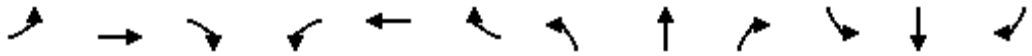
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	107	2	7	8	505	174	12	747
Future Volume (vph)	107	2	7	8	505	174	12	747
Lane Group Flow (vph)	0	174	0	28	574	211	0	887
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	31.0	106.4	75.4	75.4
Total Split (%)	24.0%	24.0%	24.0%	24.0%	22.1%	76.0%	53.9%	53.9%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.81		0.11	1.01	0.16		0.99
Control Delay		78.0		33.4	60.8	5.3		59.9
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		78.0		33.4	60.8	5.3		59.9
Queue Length 50th (m)		43.8		4.1	~98.4	14.3		239.3
Queue Length 95th (m)		69.4		12.7	#182.3	25.4		#346.7
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		275		326	569	1299		897
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.63		0.09	1.01	0.16		0.99

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 133.7
Natural Cycle: 150
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





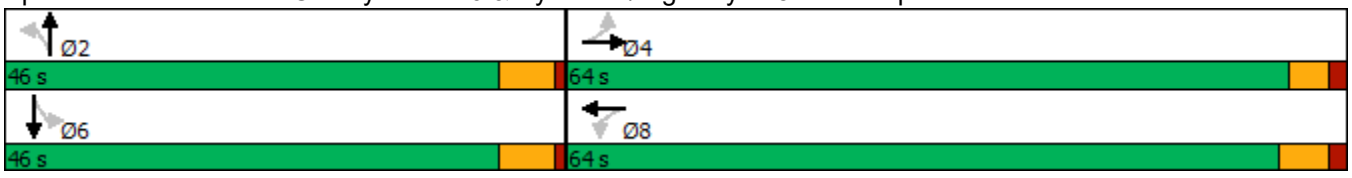
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	2	44	7	8	10	505	174	11	12	747	21
Future Volume (vph)	107	2	44	7	8	10	505	174	11	12	747	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.96			0.95		1.00	0.99			1.00	
Flt Protected		0.97			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1592			1634		1646	1718			1723	
Flt Permitted		0.77			0.92		0.23	1.00			0.99	
Satd. Flow (perm)		1275			1525		397	1718			1715	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	122	2	50	8	9	11	574	198	12	14	849	24
RTOR Reduction (vph)	0	11	0	0	9	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	163	0	0	19	0	574	210	0	0	887	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		21.3			21.3		101.0	101.0			70.0	
Effective Green, g (s)		21.3			21.3		101.0	101.0			70.0	
Actuated g/C Ratio		0.16			0.16		0.76	0.76			0.52	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		203			242		561	1297			897	
v/s Ratio Prot							c0.21	0.12				
v/s Ratio Perm		c0.13			0.01		c0.56				0.52	
v/c Ratio		0.80			0.08		1.02	0.16			0.99	
Uniform Delay, d1		54.2			47.8		26.4	4.6			31.4	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		20.1			0.1		44.0	0.1			26.9	
Delay (s)		74.3			48.0		70.4	4.6			58.3	
Level of Service		E			D		E	A			E	
Approach Delay (s)		74.3			48.0			52.7			58.3	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	57.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	133.7	Sum of lost time (s)	14.4
Intersection Capacity Utilization	105.5%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	6	359	5	17	110	74	105
Future Volume (vph)	9	6	359	5	17	110	74	105
Lane Group Flow (vph)	0	46	0	392	0	189	79	119
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	64.0	64.0	64.0	64.0	46.0	46.0	46.0	46.0
Total Split (%)	58.2%	58.2%	58.2%	58.2%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.08		0.80		0.33	0.18	0.19
Control Delay		4.7		27.0		15.5	16.0	15.3
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		4.7		27.0		15.5	16.0	15.3
Queue Length 50th (m)		0.9		33.4		11.9	5.3	7.8
Queue Length 95th (m)		5.0		62.7		34.4	17.8	23.5
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1320		1122		1168	936	1318
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.03		0.35		0.16	0.08	0.09

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 55.3
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	6	28	359	5	5	17	110	51	74	105	7
Future Volume (vph)	9	6	28	359	5	5	17	110	51	74	105	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.91			1.00			0.96		1.00	0.99	
Flt Protected		0.99			0.95			1.00		0.95	1.00	
Satd. Flow (prot)		1458			1579			1557		1662	1718	
Flt Permitted		0.92			0.70			0.97		0.70	1.00	
Satd. Flow (perm)		1354			1155			1517		1219	1718	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	6	30	382	5	5	18	117	54	79	112	7
RTOR Reduction (vph)	0	17	0	0	1	0	0	13	0	0	2	0
Lane Group Flow (vph)	0	29	0	0	391	0	0	176	0	79	117	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	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)		24.3			23.4			20.3		20.3	20.3	
Effective Green, g (s)		24.3			23.4			20.3		20.3	20.3	
Actuated g/C Ratio		0.44			0.42			0.37		0.37	0.37	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		597			490			558		449	632	
v/s Ratio Prot											0.07	
v/s Ratio Perm		0.02			c0.34			c0.12		0.06		
v/c Ratio		0.05			0.80			0.31		0.18	0.19	
Uniform Delay, d1		8.8			13.8			12.4		11.8	11.8	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0			8.8			0.3		0.2	0.1	
Delay (s)		8.8			22.7			12.8		11.9	11.9	
Level of Service		A			C			B		B	B	
Approach Delay (s)		8.8			22.7			12.8			11.9	
Approach LOS		A			C			B			B	

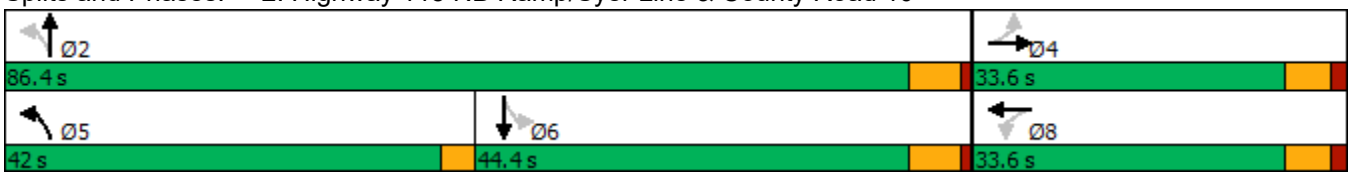
Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	11.4
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	1	2	1	644	141	11	459
Future Volume (vph)	30	1	2	1	644	141	11	459
Lane Group Flow (vph)	0	48	0	11	700	154	0	531
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.0	86.4	44.4	44.4
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.0%	72.0%	37.0%	37.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.36		0.07	0.80	0.11		0.83
Control Delay		41.0		27.3	20.6	2.8		41.7
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		41.0		27.3	20.6	2.8		41.7
Queue Length 50th (m)		6.7		0.6	74.2	5.8		97.8
Queue Length 95th (m)		18.9		6.1	#159.8	11.8		#163.1
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		327		400	870	1368		696
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.15		0.03	0.80	0.11		0.76

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 97
Natural Cycle: 120
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



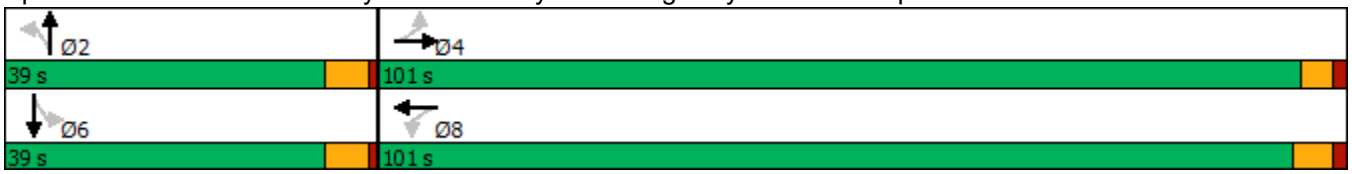
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1	13	2	1	7	644	141	1	11	459	18
Future Volume (vph)	30	1	13	2	1	7	644	141	1	11	459	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.96			0.90		1.00	1.00			0.99	
Flt Protected		0.97			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1335			1434		1630	1650			1718	
Flt Permitted		0.79			0.94		0.28	1.00			0.99	
Satd. Flow (perm)		1088			1355		473	1650			1708	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	1	14	2	1	8	700	153	1	12	499	20
RTOR Reduction (vph)	0	13	0	0	7	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	35	0	0	4	0	700	154	0	0	530	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.1			8.1		78.8	78.8			36.1	
Effective Green, g (s)		8.1			8.1		78.8	78.8			36.1	
Actuated g/C Ratio		0.08			0.08		0.80	0.80			0.37	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		89			111		846	1322			627	
v/s Ratio Prot							c0.33	0.09				
v/s Ratio Perm		c0.03			0.00		c0.33				0.31	
v/c Ratio		0.39			0.03		0.83	0.12			0.84	
Uniform Delay, d1		42.8			41.5		13.7	2.1			28.5	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.9			0.1		6.7	0.0			10.2	
Delay (s)		45.7			41.6		20.4	2.2			38.7	
Level of Service		D			D		C	A			D	
Approach Delay (s)		45.7			41.6			17.1			38.7	
Approach LOS		D			D			B			D	

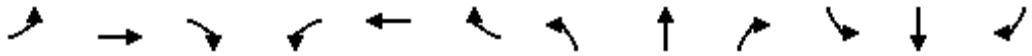
Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	98.3	Sum of lost time (s)	14.4
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	9	698	16	23	271	38	131
Future Volume (vph)	13	9	698	16	23	271	38	131
Lane Group Flow (vph)	0	53	0	739	0	329	39	141
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	101.0	101.0	101.0	101.0	39.0	39.0	39.0	39.0
Total Split (%)	72.1%	72.1%	72.1%	72.1%	27.9%	27.9%	27.9%	27.9%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.06		0.94		0.81	0.28	0.34
Control Delay		3.8		39.1		62.4	49.2	43.6
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		3.8		39.1		62.4	49.2	43.6
Queue Length 50th (m)		1.9		164.3		91.1	9.4	33.9
Queue Length 95th (m)		6.4		#277.1		#141.5	21.4	54.8
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1059		961		493	169	506
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.05		0.77		0.67	0.23	0.28

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 119.2
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	9	30	698	16	3	23	271	25	38	131	6
Future Volume (vph)	13	9	30	698	16	3	23	271	25	38	131	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.92			1.00			0.99		1.00	0.99	
Flt Protected		0.99			0.95			1.00		0.95	1.00	
Satd. Flow (prot)		1521			1662			1690		1662	1690	
Flt Permitted		0.85			0.69			0.97		0.32	1.00	
Satd. Flow (perm)		1315			1208			1646		569	1690	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	9	31	720	16	3	24	279	26	39	135	6
RTOR Reduction (vph)	0	10	0	0	0	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	43	0	0	739	0	0	327	0	39	139	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	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)		78.9			78.0			29.1		29.1	29.1	
Effective Green, g (s)		78.9			78.0			29.1		29.1	29.1	
Actuated g/C Ratio		0.67			0.66			0.25		0.25	0.25	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		875			795			404		139	415	
v/s Ratio Prot											0.08	
v/s Ratio Perm		0.03			c0.61			c0.20		0.07		
v/c Ratio		0.05			0.93			0.81		0.28	0.34	
Uniform Delay, d1		6.8			17.8			42.1		36.2	36.8	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0			17.0			11.3		1.1	0.5	
Delay (s)		6.9			34.8			53.4		37.3	37.2	
Level of Service		A			C			D		D	D	
Approach Delay (s)		6.9			34.8			53.4			37.3	
Approach LOS		A			C			D			D	

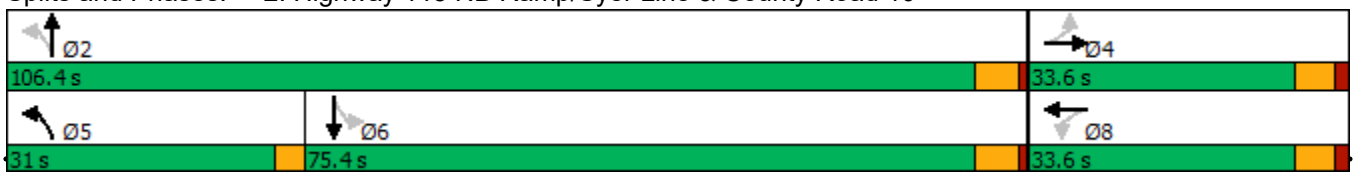
Intersection Summary			
HCM 2000 Control Delay	38.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	11.4
Intersection Capacity Utilization	97.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	3	7	9	544	191	13	816
Future Volume (vph)	120	3	7	9	544	191	13	816
Lane Group Flow (vph)	0	195	0	31	618	231	0	969
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	31.0	106.4	75.4	75.4
Total Split (%)	24.0%	24.0%	24.0%	24.0%	22.1%	76.0%	53.9%	53.9%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.85		0.11	1.16	0.18		1.10
Control Delay		81.4		32.1	115.4	5.9		92.8
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		81.4		32.1	115.4	5.9		92.8
Queue Length 50th (m)		50.5		4.3	~154.0	17.8		~318.8
Queue Length 95th (m)		#83.0		13.5	#226.3	27.9		#397.6
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		271		323	533	1279		883
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.72		0.10	1.16	0.18		1.10

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 135.7
Natural Cycle: 150
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



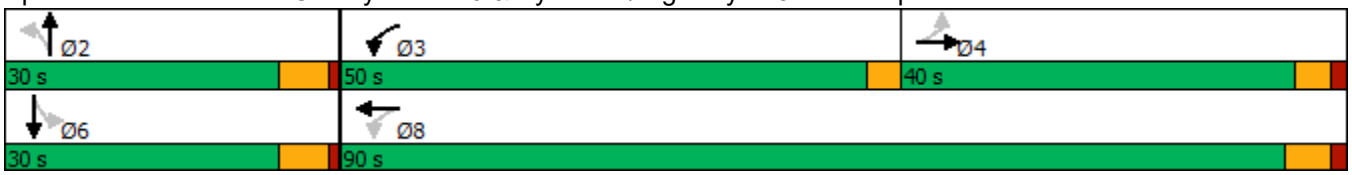
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	3	49	7	9	11	544	191	12	13	816	24
Future Volume (vph)	120	3	49	7	9	11	544	191	12	13	816	24
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.96			0.94		1.00	0.99			1.00	
Flt Protected		0.97			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1592			1630		1646	1718			1723	
Flt Permitted		0.77			0.93		0.20	1.00			0.99	
Satd. Flow (perm)		1273			1528		348	1718			1714	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	136	3	56	8	10	12	618	217	14	15	927	27
RTOR Reduction (vph)	0	11	0	0	11	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	184	0	0	20	0	618	229	0	0	969	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		23.3			23.3		100.9	100.9			69.9	
Effective Green, g (s)		23.3			23.3		100.9	100.9			69.9	
Actuated g/C Ratio		0.17			0.17		0.74	0.74			0.52	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		218			262		526	1278			883	
v/s Ratio Prot							c0.24	0.13				
v/s Ratio Perm		c0.14			0.01		c0.63				0.57	
v/c Ratio		0.85			0.08		1.17	0.18			1.10	
Uniform Delay, d1		54.4			47.1		29.3	5.1			32.8	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		24.7			0.1		97.3	0.1			60.3	
Delay (s)		79.1			47.3		126.6	5.2			93.1	
Level of Service		E			D		F	A			F	
Approach Delay (s)		79.1			47.3			93.6			93.1	
Approach LOS		E			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	91.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	135.6	Sum of lost time (s)	14.4
Intersection Capacity Utilization	113.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	6	359	5	17	110	74	105
Future Volume (vph)	9	6	359	5	17	110	74	105
Lane Group Flow (vph)	0	46	382	10	0	189	79	119
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	8.0	39.2	25.6	25.6	25.6	25.6
Total Split (s)	40.0	40.0	50.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	33.3%	33.3%	41.7%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.3	3.3	3.0	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	0.0	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9	3.0	5.8		5.6	5.6	5.6
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.15	0.63	0.02		0.30	0.15	0.17
Control Delay		13.7	15.7	6.8		13.5	13.8	13.2
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		13.7	15.7	6.8		13.5	13.8	13.2
Queue Length 50th (m)		1.0	25.3	0.3		7.5	3.2	4.8
Queue Length 95th (m)		9.7	43.9	2.3		32.0	16.3	21.6
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)			100.0				82.0	
Base Capacity (vph)		1000	1435	1295		778	630	873
Starvation Cap Reductn		0	0	0		0	0	0
Spillback Cap Reductn		0	0	0		0	0	0
Storage Cap Reductn		0	0	0		0	0	0
Reduced v/c Ratio		0.05	0.27	0.01		0.24	0.13	0.14

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 49.8
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



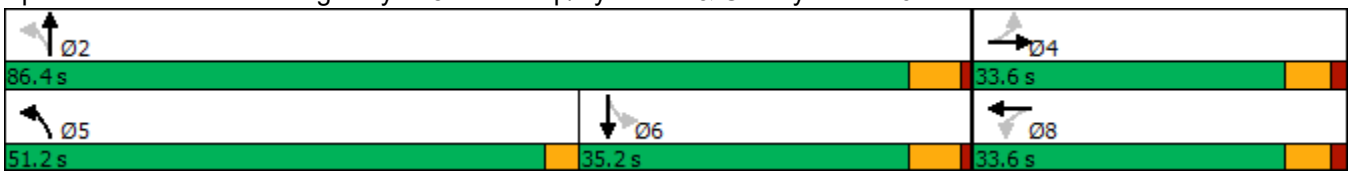
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	6	28	359	5	5	17	110	51	74	105	7
Future Volume (vph)	9	6	28	359	5	5	17	110	51	74	105	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.91		1.00	0.93			0.96		1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1458		1583	1295			1557		1662	1718	
Flt Permitted		0.92		0.75	1.00			0.97		0.71	1.00	
Satd. Flow (perm)		1359		1258	1295			1518		1242	1718	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	6	30	382	5	5	18	117	54	79	112	7
RTOR Reduction (vph)	0	28	0	0	3	0	0	9	0	0	1	0
Lane Group Flow (vph)	0	18	0	382	7	0	0	180	0	79	118	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.2		20.6	20.6			20.7		20.7	20.7	
Effective Green, g (s)		3.2		20.6	20.6			20.7		20.7	20.7	
Actuated g/C Ratio		0.06		0.39	0.39			0.39		0.39	0.39	
Clearance Time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		82		586	506			596		487	674	
v/s Ratio Prot				c0.19	0.01						0.07	
v/s Ratio Perm		0.01		c0.07				c0.12		0.06		
v/c Ratio		0.22		0.65	0.01			0.30		0.16	0.17	
Uniform Delay, d1		23.6		12.9	9.8			11.0		10.4	10.4	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		1.3		2.6	0.0			0.3		0.2	0.1	
Delay (s)		24.9		15.5	9.8			11.3		10.5	10.6	
Level of Service		C		B	A			B		B	B	
Approach Delay (s)		24.9			15.4			11.3			10.5	
Approach LOS		C			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	52.7	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	1	2	1	644	141	11	459
Future Volume (vph)	30	1	2	1	644	141	11	459
Lane Group Flow (vph)	33	15	0	11	700	154	0	531
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	51.2	86.4	35.2	35.2
Total Split (%)	28.0%	28.0%	28.0%	28.0%	42.7%	72.0%	29.3%	29.3%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio	0.22	0.08		0.06	0.70	0.11		0.58
Control Delay	43.6	21.6		26.7	11.5	2.5		31.1
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	43.6	21.6		26.7	11.5	2.5		31.1
Queue Length 50th (m)	5.9	0.2		0.5	51.7	5.8		49.6
Queue Length 95th (m)	16.4	6.6		6.0	113.4	11.4		69.7
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)	100.0				230.0			
Base Capacity (vph)	405	461		506	1164	1481		1225
Starvation Cap Reductn	0	0		0	0	0		0
Spillback Cap Reductn	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0
Reduced v/c Ratio	0.08	0.03		0.02	0.60	0.10		0.43

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 80.9
Natural Cycle: 90
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



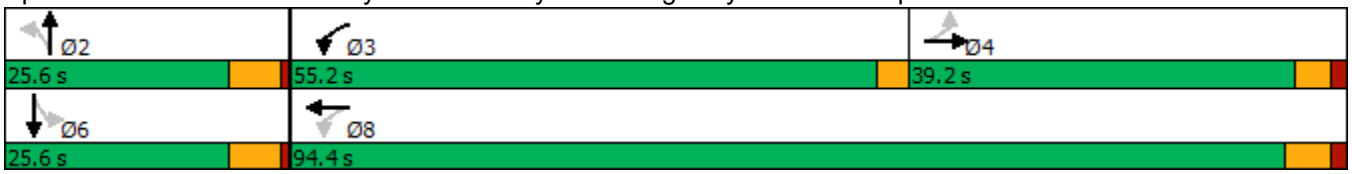
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1	13	2	1	7	644	141	1	11	459	18
Future Volume (vph)	30	1	13	2	1	7	644	141	1	11	459	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			0.95	
Frt	1.00	0.86			0.90		1.00	1.00			0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)	1374	1220			1434		1630	1650			3263	
Flt Permitted	0.75	1.00			0.93		0.31	1.00			0.95	
Satd. Flow (perm)	1092	1220			1349		539	1650			3096	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	1	14	2	1	8	700	153	1	12	499	20
RTOR Reduction (vph)	0	13	0	0	7	0	0	0	0	0	2	0
Lane Group Flow (vph)	33	2	0	0	4	0	700	154	0	0	529	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.3	5.3			5.3		66.6	66.6			23.9	
Effective Green, g (s)	5.3	5.3			5.3		66.6	66.6			23.9	
Actuated g/C Ratio	0.06	0.06			0.06		0.80	0.80			0.29	
Clearance Time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	69	77			85		950	1319			888	
v/s Ratio Prot		0.00					c0.35	0.09				
v/s Ratio Perm	c0.03				0.00		c0.24				0.17	
v/c Ratio	0.48	0.02			0.04		0.74	0.12			0.60	
Uniform Delay, d1	37.7	36.6			36.6		7.3	1.8			25.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	5.1	0.1			0.2		3.0	0.0			1.1	
Delay (s)	42.8	36.7			36.8		10.3	1.9			26.6	
Level of Service	D	D			D		B	A			C	
Approach Delay (s)		40.9			36.8			8.8			26.6	
Approach LOS		D			D			A			C	

Intersection Summary			
HCM 2000 Control Delay	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	83.3	Sum of lost time (s)	14.4
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	9	698	16	23	271	38	131
Future Volume (vph)	13	9	698	16	23	271	38	131
Lane Group Flow (vph)	0	53	720	19	0	329	39	141
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	9.5	39.2	25.6	25.6	25.6	25.6
Total Split (s)	39.2	39.2	55.2	94.4	25.6	25.6	25.6	25.6
Total Split (%)	32.7%	32.7%	46.0%	78.7%	21.3%	21.3%	21.3%	21.3%
Yellow Time (s)	3.3	3.3	3.0	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	0.0	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9	3.0	5.8		5.6	5.6	5.6
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.21	0.84	0.03		0.63	0.15	0.26
Control Delay		20.3	20.7	5.9		30.6	24.6	23.3
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		20.3	20.7	5.9		30.6	24.6	23.3
Queue Length 50th (m)		2.7	63.9	0.9		40.5	4.1	15.1
Queue Length 95th (m)		14.1	100.5	3.3		#98.8	14.0	36.3
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)			100.0				82.0	
Base Capacity (vph)		778	1356	1516		525	255	539
Starvation Cap Reductn		0	0	0		0	0	0
Spillback Cap Reductn		0	0	0		0	0	0
Storage Cap Reductn		0	0	0		0	0	0
Reduced v/c Ratio		0.07	0.53	0.01		0.63	0.15	0.26

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 66
Natural Cycle: 80
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



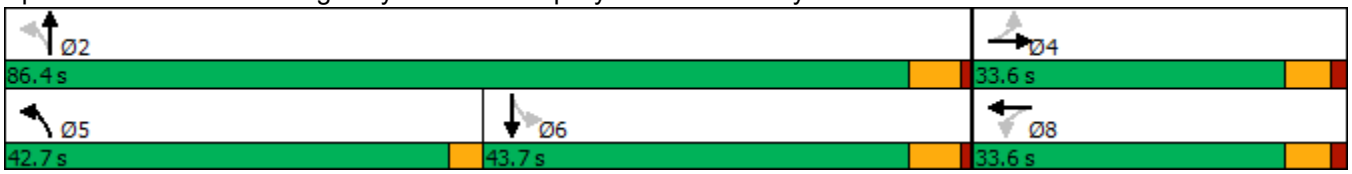
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	9	30	698	16	3	23	271	25	38	131	6
Future Volume (vph)	13	9	30	698	16	3	23	271	25	38	131	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.92		1.00	0.98			0.99		1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1521		1662	1517			1690		1662	1690	
Flt Permitted		0.91		0.72	1.00			0.97		0.46	1.00	
Satd. Flow (perm)		1401		1257	1517			1649		802	1690	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	9	31	720	16	3	24	279	26	39	135	6
RTOR Reduction (vph)	0	29	0	0	1	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	24	0	720	18	0	0	327	0	39	140	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	0%	0%	3%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.2		35.6	35.6			21.0		21.0	21.0	
Effective Green, g (s)		5.2		35.6	35.6			21.0		21.0	21.0	
Actuated g/C Ratio		0.08		0.52	0.52			0.31		0.31	0.31	
Clearance Time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		107		826	794			509		247	521	
v/s Ratio Prot				c0.36	0.01						0.08	
v/s Ratio Perm		0.02		c0.09				c0.20		0.05		
v/c Ratio		0.23		0.87	0.02			0.64		0.16	0.27	
Uniform Delay, d1		29.5		13.7	7.8			20.3		17.1	17.7	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		1.1		10.0	0.0			2.8		0.3	0.3	
Delay (s)		30.6		23.7	7.8			23.0		17.4	18.0	
Level of Service		C		C	A			C		B	B	
Approach Delay (s)		30.6			23.3			23.0			17.9	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	68.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	3	7	9	544	191	13	816
Future Volume (vph)	120	3	7	9	544	191	13	816
Lane Group Flow (vph)	136	59	0	31	618	231	0	969
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.7	86.4	43.7	43.7
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.6%	72.0%	36.4%	36.4%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio	0.69	0.21		0.12	0.91	0.18		0.90
Control Delay	61.8	12.9		27.0	45.8	5.3		47.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	61.8	12.9		27.0	45.8	5.3		47.4
Queue Length 50th (m)	29.2	0.6		3.5	110.3	12.9		107.0
Queue Length 95th (m)	49.2	11.6		11.8	#200.2	26.9		#159.5
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)	100.0				230.0			
Base Capacity (vph)	320	426		403	676	1279		1090
Starvation Cap Reductn	0	0		0	0	0		0
Spillback Cap Reductn	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0
Reduced v/c Ratio	0.42	0.14		0.08	0.91	0.18		0.89

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 109
Natural Cycle: 120
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



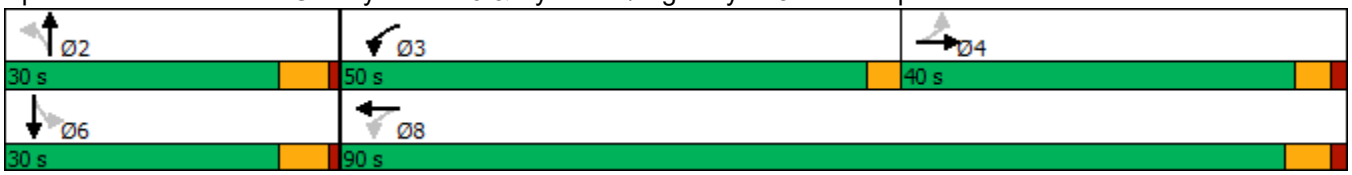
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	3	49	7	9	11	544	191	12	13	816	24
Future Volume (vph)	120	3	49	7	9	11	544	191	12	13	816	24
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			0.95	
Frt	1.00	0.86			0.94		1.00	0.99			1.00	
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)	1614	1501			1630		1646	1718			3273	
Flt Permitted	0.74	1.00			0.93		0.11	1.00			0.95	
Satd. Flow (perm)	1252	1501			1538		189	1718			3106	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	136	3	56	8	10	12	618	217	14	15	927	27
RTOR Reduction (vph)	0	47	0	0	11	0	0	2	0	0	1	0
Lane Group Flow (vph)	136	12	0	0	20	0	618	229	0	0	968	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.1	17.1			17.1		80.4	80.4			37.6	
Effective Green, g (s)	17.1	17.1			17.1		80.4	80.4			37.6	
Actuated g/C Ratio	0.16	0.16			0.16		0.74	0.74			0.35	
Clearance Time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	196	235			241		672	1268			1072	
v/s Ratio Prot		0.01					c0.34	0.13				
v/s Ratio Perm	c0.11				0.01		c0.34				0.31	
v/c Ratio	0.69	0.05			0.08		0.92	0.18			0.90	
Uniform Delay, d1	43.4	39.0			39.2		26.7	4.3			33.9	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	10.2	0.1			0.1		17.6	0.1			10.5	
Delay (s)	53.6	39.1			39.4		44.3	4.4			44.5	
Level of Service	D	D			D		D	A			D	
Approach Delay (s)		49.2			39.4			33.4			44.5	
Approach LOS		D			D			C			D	

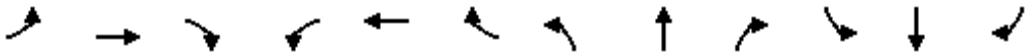
Intersection Summary			
HCM 2000 Control Delay	40.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	108.9	Sum of lost time (s)	14.4
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	7	376	6	19	120	83	114
Future Volume (vph)	9	7	376	6	19	120	83	114
Lane Group Flow (vph)	0	50	400	12	0	207	88	130
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	8.0	39.2	25.6	25.6	25.6	25.6
Total Split (s)	40.0	40.0	50.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	33.3%	33.3%	41.7%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.3	3.3	3.0	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	0.0	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9	3.0	5.8		5.6	5.6	5.6
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.16	0.65	0.03		0.33	0.18	0.18
Control Delay		13.6	16.1	6.6		14.3	14.4	13.5
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		13.6	16.1	6.6		14.3	14.4	13.5
Queue Length 50th (m)		1.1	26.9	0.4		8.7	3.8	5.4
Queue Length 95th (m)		10.2	46.4	2.6		35.9	18.3	23.5
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)			100.0				82.0	
Base Capacity (vph)		996	1428	1295		769	603	865
Starvation Cap Reductn		0	0	0		0	0	0
Spillback Cap Reductn		0	0	0		0	0	0
Storage Cap Reductn		0	0	0		0	0	0
Reduced v/c Ratio		0.05	0.28	0.01		0.27	0.15	0.15

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 50.3
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





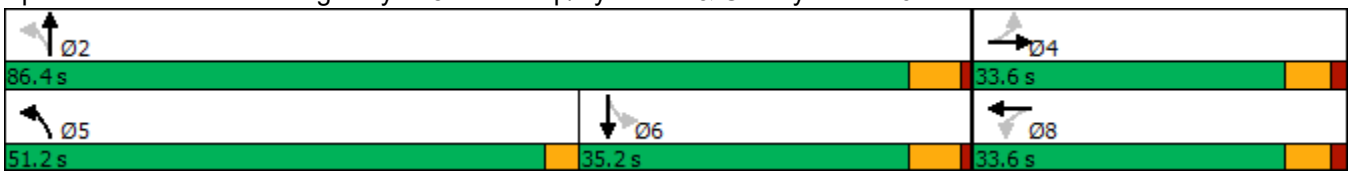
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	7	31	376	6	6	19	120	55	83	114	8
Future Volume (vph)	9	7	31	376	6	6	19	120	55	83	114	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.91		1.00	0.93			0.96		1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1458		1583	1295			1557		1662	1716	
Flt Permitted		0.93		0.75	1.00			0.97		0.68	1.00	
Satd. Flow (perm)		1365		1258	1295			1514		1198	1716	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	7	33	400	6	6	20	128	59	88	121	9
RTOR Reduction (vph)	0	31	0	0	4	0	0	9	0	0	2	0
Lane Group Flow (vph)	0	19	0	400	8	0	0	198	0	88	128	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.2		21.1	21.1			20.7		20.7	20.7	
Effective Green, g (s)		3.2		21.1	21.1			20.7		20.7	20.7	
Actuated g/C Ratio		0.06		0.40	0.40			0.39		0.39	0.39	
Clearance Time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		82		595	513			589		466	667	
v/s Ratio Prot				c0.20	0.01						0.07	
v/s Ratio Perm		0.01		c0.07				c0.13		0.07		
v/c Ratio		0.23		0.67	0.02			0.34		0.19	0.19	
Uniform Delay, d1		23.8		13.0	9.7			11.4		10.7	10.7	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		1.4		3.0	0.0			0.3		0.2	0.1	
Delay (s)		25.3		16.0	9.8			11.8		10.9	10.9	
Level of Service		C		B	A			B		B	B	
Approach Delay (s)		25.3			15.8			11.8			10.9	
Approach LOS		C			B			B			B	

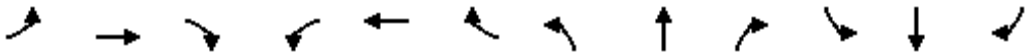
Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	34	1	3	1	670	152	12	482
Future Volume (vph)	34	1	3	1	670	152	12	482
Lane Group Flow (vph)	37	16	0	13	728	166	0	559
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	51.2	86.4	35.2	35.2
Total Split (%)	28.0%	28.0%	28.0%	28.0%	42.7%	72.0%	29.3%	29.3%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio	0.26	0.09		0.07	0.73	0.12		0.63
Control Delay	44.9	21.7		27.1	13.9	2.6		32.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	44.9	21.7		27.1	13.9	2.6		32.6
Queue Length 50th (m)	6.7	0.2		0.7	63.5	6.3		52.8
Queue Length 95th (m)	17.9	6.7		6.7	136.9	12.6		74.3
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)	100.0				230.0			
Base Capacity (vph)	382	439		466	1120	1468		1164
Starvation Cap Reductn	0	0		0	0	0		0
Spillback Cap Reductn	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0
Reduced v/c Ratio	0.10	0.04		0.03	0.65	0.11		0.48

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 83.7
Natural Cycle: 100
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	1	14	3	1	8	670	152	1	12	482	20
Future Volume (vph)	34	1	14	3	1	8	670	152	1	12	482	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			0.95	
Frt	1.00	0.86			0.91		1.00	1.00			0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)	1374	1218			1406		1630	1650			3262	
Flt Permitted	0.75	1.00			0.92		0.29	1.00			0.95	
Satd. Flow (perm)	1083	1218			1302		494	1650			3092	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	1	15	3	1	9	728	165	1	13	524	22
RTOR Reduction (vph)	0	14	0	0	8	0	0	0	0	0	2	0
Lane Group Flow (vph)	37	2	0	0	5	0	728	166	0	0	557	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.6	5.6			5.6		69.2	69.2			24.2	
Effective Green, g (s)	5.6	5.6			5.6		69.2	69.2			24.2	
Actuated g/C Ratio	0.06	0.06			0.06		0.80	0.80			0.28	
Clearance Time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	70	79			84		950	1324			868	
v/s Ratio Prot		0.00					c0.37	0.10				
v/s Ratio Perm	c0.03				0.00		c0.24				0.18	
v/c Ratio	0.53	0.02			0.05		0.77	0.13			0.64	
Uniform Delay, d1	39.0	37.7			37.8		8.9	1.9			27.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	7.0	0.1			0.3		3.7	0.0			1.6	
Delay (s)	46.1	37.9			38.1		12.7	1.9			28.8	
Level of Service	D	D			D		B	A			C	
Approach Delay (s)		43.6			38.1			10.7			28.8	
Approach LOS		D			D			B			C	

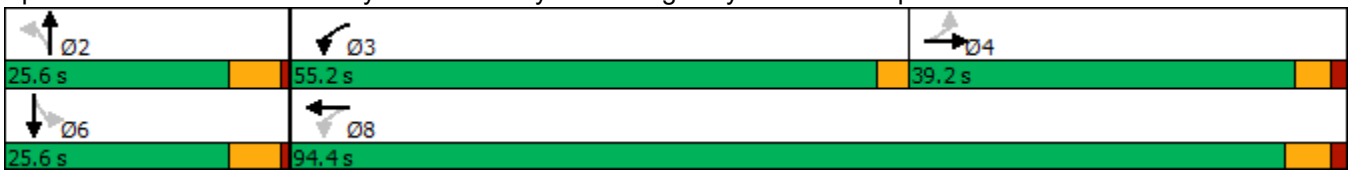
Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	86.2	Sum of lost time (s)	14.4
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

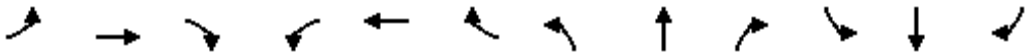
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	10	730	18	26	298	42	142
Future Volume (vph)	15	10	730	18	26	298	42	142
Lane Group Flow (vph)	0	60	753	22	0	362	43	153
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	9.5	39.2	25.6	25.6	25.6	25.6
Total Split (s)	39.2	39.2	55.2	94.4	25.6	25.6	25.6	25.6
Total Split (%)	32.7%	32.7%	46.0%	78.7%	21.3%	21.3%	21.3%	21.3%
Yellow Time (s)	3.3	3.3	3.0	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	0.0	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9	3.0	5.8		5.6	5.6	5.6
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.24	0.86	0.03		0.71	0.19	0.29
Control Delay		21.1	21.7	5.7		35.5	27.1	24.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		21.1	21.7	5.7		35.5	27.1	24.9
Queue Length 50th (m)		3.2	69.2	1.1		47.7	4.7	17.2
Queue Length 95th (m)		15.9	108.3	3.6		#119.2	16.2	41.0
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)			100.0				82.0	
Base Capacity (vph)		755	1332	1518		509	221	522
Starvation Cap Reductn		0	0	0		0	0	0
Spillback Cap Reductn		0	0	0		0	0	0
Storage Cap Reductn		0	0	0		0	0	0
Reduced v/c Ratio		0.08	0.57	0.01		0.71	0.19	0.29

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 68.3
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	34	730	18	3	26	298	27	42	142	7
Future Volume (vph)	15	10	34	730	18	3	26	298	27	42	142	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.92		1.00	0.98			0.99		1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1521		1662	1518			1690		1662	1690	
Flt Permitted		0.91		0.70	1.00			0.97		0.41	1.00	
Satd. Flow (perm)		1398		1221	1518			1644		720	1690	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	15	10	35	753	19	3	27	307	28	43	146	7
RTOR Reduction (vph)	0	32	0	0	1	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	28	0	753	21	0	0	360	0	43	152	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	0%	0%	3%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.2		37.7	37.7			21.1		21.1	21.1	
Effective Green, g (s)		5.2		37.7	37.7			21.1		21.1	21.1	
Actuated g/C Ratio		0.07		0.54	0.54			0.30		0.30	0.30	
Clearance Time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		103		846	815			494		216	507	
v/s Ratio Prot				c0.39	0.01						0.09	
v/s Ratio Perm		0.02		c0.09				c0.22		0.06		
v/c Ratio		0.27		0.89	0.03			0.73		0.20	0.30	
Uniform Delay, d1		30.7		13.9	7.6			22.0		18.3	18.9	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		1.4		11.5	0.0			5.3		0.5	0.3	
Delay (s)		32.1		25.4	7.6			27.3		18.7	19.2	
Level of Service		C		C	A			C		B	B	
Approach Delay (s)		32.1			24.9			27.3			19.1	
Approach LOS		C			C			C			B	

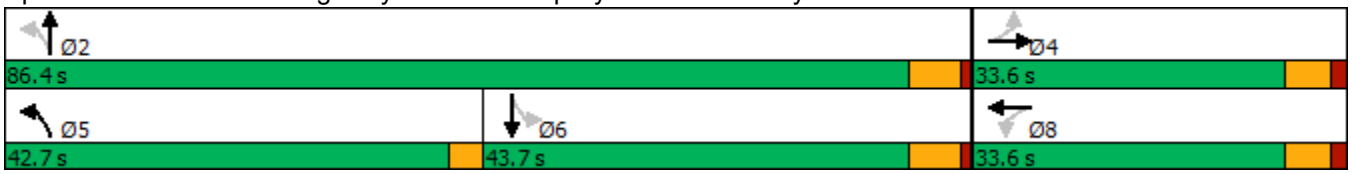
Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	70.2	Sum of lost time (s)	13.5
Intersection Capacity Utilization	101.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	135	3	8	10	572	208	15	853
Future Volume (vph)	135	3	8	10	572	208	15	853
Lane Group Flow (vph)	153	62	0	34	650	251	0	1017
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.7	86.4	43.7	43.7
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.6%	72.0%	36.4%	36.4%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio	0.73	0.21		0.13	0.99	0.20		0.95
Control Delay	63.7	12.2		26.6	63.3	5.9		55.0
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	63.7	12.2		26.6	63.3	5.9		55.0
Queue Length 50th (m)	33.4	0.6		3.9	128.6	15.3		117.8
Queue Length 95th (m)	54.6	11.6		12.6	#228.2	31.4		#178.2
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)	100.0				230.0			
Base Capacity (vph)	313	420		395	655	1254		1067
Starvation Cap Reductn	0	0		0	0	0		0
Spillback Cap Reductn	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0
Reduced v/c Ratio	0.49	0.15		0.09	0.99	0.20		0.95

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 111.1
Natural Cycle: 140
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	3	52	8	10	12	572	208	13	15	853	27
Future Volume (vph)	135	3	52	8	10	12	572	208	13	15	853	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			0.95	
Frt	1.00	0.86			0.94		1.00	0.99			1.00	
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)	1614	1500			1631		1646	1718			3271	
Flt Permitted	0.73	1.00			0.93		0.10	1.00			0.95	
Satd. Flow (perm)	1249	1500			1538		168	1718			3100	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	153	3	59	9	11	14	650	236	15	17	969	31
RTOR Reduction (vph)	0	49	0	0	12	0	0	2	0	0	2	0
Lane Group Flow (vph)	153	13	0	0	22	0	650	249	0	0	1015	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	18.7	18.7			18.7		81.0	81.0			38.2	
Effective Green, g (s)	18.7	18.7			18.7		81.0	81.0			38.2	
Actuated g/C Ratio	0.17	0.17			0.17		0.73	0.73			0.34	
Clearance Time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	210	252			258		651	1252			1065	
v/s Ratio Prot		0.01					c0.36	0.15				
v/s Ratio Perm	c0.12				0.01		c0.37				0.33	
v/c Ratio	0.73	0.05			0.09		1.00	0.20			0.95	
Uniform Delay, d1	43.8	38.8			39.0		30.2	4.8			35.6	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	11.9	0.1			0.1		34.6	0.1			17.3	
Delay (s)	55.7	38.8			39.1		64.8	4.8			52.9	
Level of Service	E	D			D		E	A			D	
Approach Delay (s)		50.8			39.1			48.1			52.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	111.1	Sum of lost time (s)	14.4
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	6	25	121	4	4	15	82	31	66	84	7
Future Volume (Veh/h)	8	6	25	121	4	4	15	82	31	66	84	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	9	6	27	129	4	4	16	87	33	70	89	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	374	384	92	394	372	104	96			120		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	374	384	92	394	372	104	96			120		
tC, single (s)	7.2	6.7	6.2	7.1	6.8	6.5	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.2	3.3	3.5	4.2	3.5	2.3			2.2		
p0 queue free %	98	99	97	75	99	100	99			95		
cM capacity (veh/h)	531	492	959	515	494	892	1461			1480		

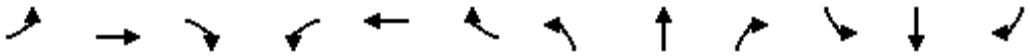
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	42	137	136	70	96
Volume Left	9	129	16	70	0
Volume Right	27	4	33	0	7
cSH	733	521	1461	1480	1700
Volume to Capacity	0.06	0.26	0.01	0.05	0.06
Queue Length 95th (m)	1.5	8.4	0.3	1.2	0.0
Control Delay (s)	10.2	14.4	1.0	7.6	0.0
Lane LOS	B	B	A	A	
Approach Delay (s)	10.2	14.4	1.0	3.2	
Approach LOS	B	B			

Intersection Summary				
Average Delay	6.4			
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)	27	1	4	2	1	7	198	95	1	10	202	16
Future Volume (Veh/h)	27	1	4	2	1	7	198	95	1	10	202	16
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	1	4	2	1	8	215	103	1	11	220	17
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	792	784	228	788	792	104	237			104		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	792	784	228	788	792	104	237			104		
tC, single (s)	7.3	6.5	6.5	7.6	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.7	4.0	3.5	4.0	4.0	3.3	2.2			2.2		
p0 queue free %	88	100	99	99	100	99	84			99		
cM capacity (veh/h)	246	272	757	223	269	957	1330			1500		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	34	11	215	104	248
Volume Left	29	2	215	0	11
Volume Right	4	8	0	1	17
cSH	268	522	1330	1700	1500
Volume to Capacity	0.13	0.02	0.16	0.06	0.01
Queue Length 95th (m)	3.4	0.5	4.6	0.0	0.2
Control Delay (s)	20.4	12.0	8.2	0.0	0.4
Lane LOS	C	B	A		A
Approach Delay (s)	20.4	12.0	5.5		0.4
Approach LOS	C	B			

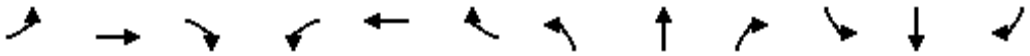
Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	41.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	8	28	232	15	2	21	232	13	34	99	6
Future Volume (Veh/h)	12	8	28	232	15	2	21	232	13	34	99	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	12	8	29	239	15	2	22	239	13	35	102	6
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	474	471	105	494	468	246	108			252		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	474	471	105	494	468	246	108			252		
tC, single (s)	7.1	6.6	6.2	7.1	6.7	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	97	98	97	47	97	100	98			97		
cM capacity (veh/h)	475	454	944	453	455	798	1464			1325		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	49	256	274	35	108
Volume Left	12	239	22	35	0
Volume Right	29	2	13	0	6
cSH	666	454	1464	1325	1700
Volume to Capacity	0.07	0.56	0.02	0.03	0.06
Queue Length 95th (m)	1.9	27.2	0.4	0.7	0.0
Control Delay (s)	10.8	22.7	0.7	7.8	0.0
Lane LOS	B	C	A	A	
Approach Delay (s)	10.8	22.7	0.7	1.9	
Approach LOS	B	C			

Intersection Summary				
Average Delay	9.4			
Intersection Capacity Utilization	50.3%	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 (veh/h)	107	2	29	7	8	10	210	150	11	12	322	21
Future Volume (Veh/h)	107	2	29	7	8	10	210	150	11	12	322	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	122	2	33	8	9	11	239	170	12	14	366	24
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	1070	1066	378	1094	1072	176	390			182		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1070	1066	378	1094	1072	176	390			182		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	23	99	95	95	95	99	80			99		
cM capacity (veh/h)	158	177	673	152	175	872	1174			1405		

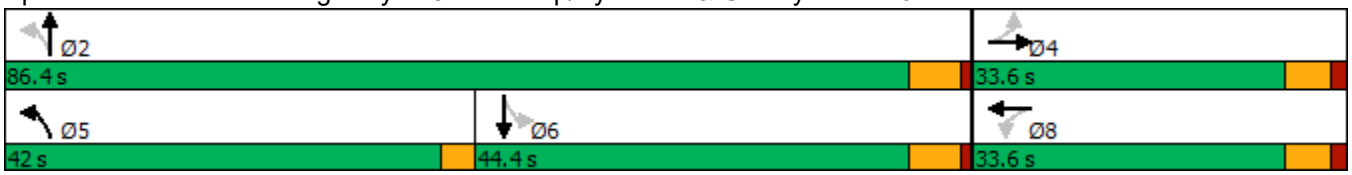
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	157	28	239	182	404
Volume Left	122	8	239	0	14
Volume Right	33	11	0	12	24
cSH	188	241	1174	1700	1405
Volume to Capacity	0.83	0.12	0.20	0.11	0.01
Queue Length 95th (m)	47.8	3.1	6.1	0.0	0.2
Control Delay (s)	79.5	21.9	8.8	0.0	0.4
Lane LOS	F	C	A		A
Approach Delay (s)	79.5	21.9	5.0		0.4
Approach LOS	F	C			

Intersection Summary				
Average Delay	15.2			
Intersection Capacity Utilization	58.3%	ICU Level of Service		B
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	27	1	2	1	198	95	10	202
Future Volume (vph)	27	1	2	1	198	95	10	202
Lane Group Flow (vph)	0	34	0	11	215	104	0	248
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.0	86.4	44.4	44.4
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.0%	72.0%	37.0%	37.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.10		0.03	0.22	0.07		0.32
Control Delay		18.6		14.6	2.9	3.1		12.7
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		18.6		14.6	2.9	3.1		12.7
Queue Length 50th (m)		1.6		0.2	0.0	0.0		8.3
Queue Length 95th (m)		9.9		4.1	13.2	8.2		40.5
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		920		869	1421	1650		1460
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.04		0.01	0.15	0.06		0.17

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 45.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



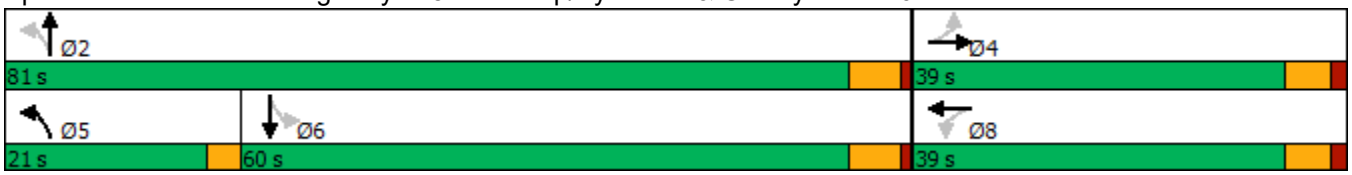
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1	4	2	1	7	198	95	1	10	202	16
Future Volume (vph)	27	1	4	2	1	7	198	95	1	10	202	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.98			0.90		1.00	1.00			0.99	
Flt Protected		0.96			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1367			1434		1630	1649			1707	
Flt Permitted		1.00			0.93		0.58	1.00			0.99	
Satd. Flow (perm)		1425			1343		1001	1649			1691	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	1	4	2	1	8	215	103	1	11	220	17
RTOR Reduction (vph)	0	4	0	0	7	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	30	0	0	4	0	215	104	0	0	246	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.1			3.1		34.7	34.7			21.3	
Effective Green, g (s)		3.1			3.1		34.7	34.7			21.3	
Actuated g/C Ratio		0.06			0.06		0.71	0.71			0.43	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		89			84		838	1163			732	
v/s Ratio Prot							c0.05	0.06				
v/s Ratio Perm		c0.02			0.00		0.13				c0.15	
v/c Ratio		0.34			0.04		0.26	0.09			0.34	
Uniform Delay, d1		22.1			21.7		2.7	2.3			9.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.3			0.2		0.2	0.0			0.3	
Delay (s)		24.3			21.9		2.8	2.3			9.5	
Level of Service		C			C		A	A			A	
Approach Delay (s)		24.3			21.9			2.7			9.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	49.2	Sum of lost time (s)	14.4
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	107	2	7	8	210	150	12	322
Future Volume (vph)	107	2	7	8	210	150	12	322
Lane Group Flow (vph)	0	157	0	28	239	183	0	404
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	39.0	39.0	39.0	39.0	21.0	81.0	60.0	60.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	17.5%	67.5%	50.0%	50.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.57		0.09	0.38	0.17		0.66
Control Delay		32.4		18.2	7.0	6.3		25.2
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		32.4		18.2	7.0	6.3		25.2
Queue Length 50th (m)		15.5		1.6	9.9	8.1		41.0
Queue Length 95th (m)		40.5		8.8	24.9	20.4		84.9
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		659		785	707	1666		1436
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.24		0.04	0.34	0.11		0.28

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 66
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	2	29	7	8	10	210	150	11	12	322	21
Future Volume (vph)	107	2	29	7	8	10	210	150	11	12	322	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.97			0.95		1.00	0.99			0.99	
Flt Protected		0.96			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1599			1634		1646	1715			1712	
Flt Permitted		0.76			0.90		0.38	1.00			0.99	
Satd. Flow (perm)		1255			1497		662	1715			1694	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	122	2	33	8	9	11	239	170	12	14	366	24
RTOR Reduction (vph)	0	9	0	0	9	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	148	0	0	19	0	239	181	0	0	402	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		14.0			14.0		40.2	40.2			23.8	
Effective Green, g (s)		14.0			14.0		40.2	40.2			23.8	
Actuated g/C Ratio		0.21			0.21		0.61	0.61			0.36	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		267			319		606	1050			614	
v/s Ratio Prot							c0.08	0.11				
v/s Ratio Perm		c0.12			0.01		0.16				c0.24	
v/c Ratio		0.56			0.06		0.39	0.17			0.65	
Uniform Delay, d1		23.0			20.6		7.0	5.5			17.5	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.5			0.1		0.4	0.1			2.5	
Delay (s)		25.5			20.6		7.4	5.6			20.0	
Level of Service		C			C		A	A			B	
Approach Delay (s)		25.5			20.6			6.6			20.0	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	65.6	Sum of lost time (s)	14.4
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	7	31	152	6	6	19	100	39	83	102	8
Future Volume (Veh/h)	9	7	31	152	6	6	19	100	39	83	102	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	10	7	33	162	6	6	20	106	41	88	109	9
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	465	476	114	488	460	126	118			147		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	465	476	114	488	460	126	118			147		
tC, single (s)	7.2	6.7	6.2	7.1	6.8	6.5	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.2	3.3	3.5	4.2	3.5	2.3			2.2		
p0 queue free %	98	98	96	63	99	99	99			94		
cM capacity (veh/h)	452	428	934	436	431	866	1434			1447		

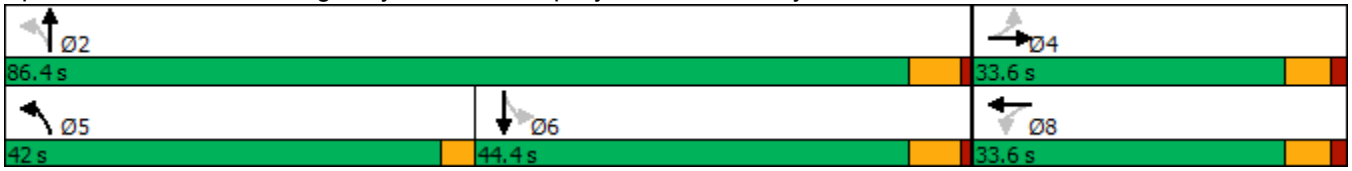
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	50	174	167	88	118
Volume Left	10	162	20	88	0
Volume Right	33	6	41	0	9
cSH	678	444	1434	1447	1700
Volume to Capacity	0.07	0.39	0.01	0.06	0.07
Queue Length 95th (m)	1.9	14.7	0.3	1.6	0.0
Control Delay (s)	10.7	18.3	1.0	7.6	0.0
Lane LOS	B	C	A	A	
Approach Delay (s)	10.7	18.3	1.0	3.3	
Approach LOS	B	C			

Intersection Summary				
Average Delay	7.6			
Intersection Capacity Utilization	42.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	34	1	3	1	248	116	12	246
Future Volume (vph)	34	1	3	1	248	116	12	246
Lane Group Flow (vph)	0	45	0	13	270	127	0	302
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.0	86.4	44.4	44.4
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.0%	72.0%	37.0%	37.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.14		0.04	0.29	0.09		0.40
Control Delay		20.3		16.2	3.0	2.9		15.6
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		20.3		16.2	3.0	2.9		15.6
Queue Length 50th (m)		2.2		0.3	0.0	0.0		12.6
Queue Length 95th (m)		13.3		4.9	17.5	10.0		58.2
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		868		794	1386	1650		1396
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.05		0.02	0.19	0.08		0.22

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 48.8
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	1	6	3	1	8	248	116	1	12	246	20
Future Volume (vph)	34	1	6	3	1	8	248	116	1	12	246	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.98			0.91		1.00	1.00			0.99	
Flt Protected		0.96			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1358			1406		1630	1650			1705	
Flt Permitted		1.00			0.91		0.52	1.00			0.99	
Satd. Flow (perm)		1414			1290		894	1650			1688	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	1	7	3	1	9	270	126	1	13	267	22
RTOR Reduction (vph)	0	7	0	0	8	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	38	0	0	5	0	270	127	0	0	300	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.2			3.2		37.8	37.8			21.9	
Effective Green, g (s)		3.2			3.2		37.8	37.8			21.9	
Actuated g/C Ratio		0.06			0.06		0.72	0.72			0.42	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		86			78		826	1190			705	
v/s Ratio Prot							c0.08	0.08				
v/s Ratio Perm		c0.03			0.00		0.16				c0.18	
v/c Ratio		0.45			0.06		0.33	0.11			0.43	
Uniform Delay, d1		23.7			23.2		2.9	2.2			10.8	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		3.7			0.3		0.2	0.0			0.4	
Delay (s)		27.4			23.5		3.1	2.2			11.2	
Level of Service		C			C		A	A			B	
Approach Delay (s)		27.4			23.5			2.8			11.2	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	52.4	Sum of lost time (s)	14.4
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	10	34	291	18	3	26	283	17	42	121	7
Future Volume (Veh/h)	15	10	34	291	18	3	26	283	17	42	121	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	15	10	35	300	19	3	27	292	18	43	125	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	582	578	128	606	573	301	132			310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	582	578	128	606	573	301	132			310		
tC, single (s)	7.1	6.6	6.2	7.1	6.7	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	96	97	96	20	95	100	98			97		
cM capacity (veh/h)	394	389	916	373	391	743	1435			1262		

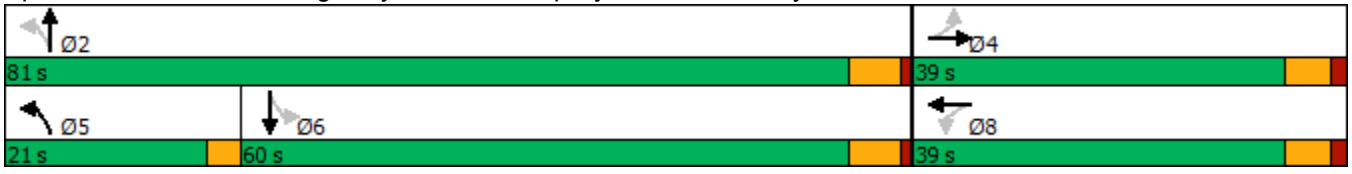
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	60	322	337	43	132
Volume Left	15	300	27	43	0
Volume Right	35	3	18	0	7
cSH	588	376	1435	1262	1700
Volume to Capacity	0.10	0.86	0.02	0.03	0.08
Queue Length 95th (m)	2.7	65.0	0.5	0.8	0.0
Control Delay (s)	11.8	51.2	0.8	8.0	0.0
Lane LOS	B	F	A	A	
Approach Delay (s)	11.8	51.2	0.8	2.0	
Approach LOS	B	F			

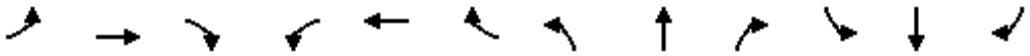
Intersection Summary				
Average Delay	19.9			
Intersection Capacity Utilization	61.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	135	3	8	10	264	183	15	393
Future Volume (vph)	135	3	8	10	264	183	15	393
Lane Group Flow (vph)	0	197	0	34	300	223	0	495
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	39.0	39.0	39.0	39.0	21.0	81.0	60.0	60.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	17.5%	67.5%	50.0%	50.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.68		0.10	0.51	0.21		0.78
Control Delay		40.7		19.9	9.8	7.6		31.9
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		40.7		19.9	9.8	7.6		31.9
Queue Length 50th (m)		26.2		2.4	16.2	12.4		66.9
Queue Length 95th (m)		59.3		10.9	39.8	30.4		122.4
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		566		681	630	1553		1243
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.35		0.05	0.48	0.14		0.40

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 78.6
Natural Cycle: 80
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





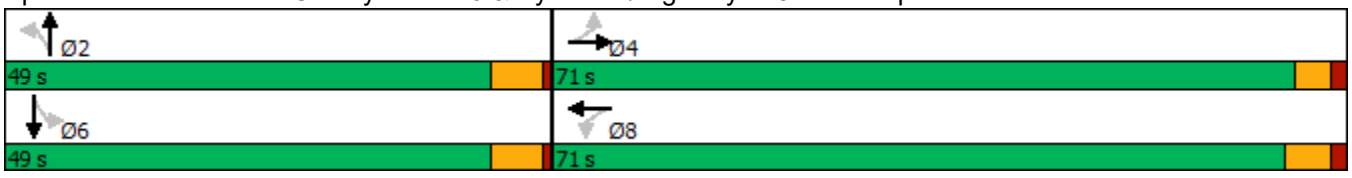
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	3	36	8	10	12	264	183	13	15	393	27
Future Volume (vph)	135	3	36	8	10	12	264	183	13	15	393	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.97			0.94		1.00	0.99			0.99	
Flt Protected		0.96			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1600			1631		1646	1716			1711	
Flt Permitted		0.75			0.91		0.32	1.00			0.99	
Satd. Flow (perm)		1249			1502		559	1716			1691	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	153	3	41	9	11	14	300	208	15	17	447	31
RTOR Reduction (vph)	0	8	0	0	11	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	189	0	0	23	0	300	221	0	0	493	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.8			17.8		48.6	48.6			29.7	
Effective Green, g (s)		17.8			17.8		48.6	48.6			29.7	
Actuated g/C Ratio		0.23			0.23		0.62	0.62			0.38	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		285			343		571	1071			645	
v/s Ratio Prot							c0.11	0.13				
v/s Ratio Perm		c0.15			0.02		0.22				c0.29	
v/c Ratio		0.66			0.07		0.53	0.21			0.76	
Uniform Delay, d1		27.3			23.5		8.8	6.3			21.0	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		5.7			0.1		0.9	0.1			5.4	
Delay (s)		32.9			23.6		9.7	6.4			26.3	
Level of Service		C			C		A	A			C	
Approach Delay (s)		32.9			23.6			8.3			26.3	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	14.4
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	7	152	6	19	100	83	102
Future Volume (vph)	9	7	152	6	19	100	83	102
Lane Group Flow (vph)	0	50	0	174	0	167	88	118
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	71.0	71.0	71.0	71.0	49.0	49.0	49.0	49.0
Total Split (%)	59.2%	59.2%	59.2%	59.2%	40.8%	40.8%	40.8%	40.8%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.12		0.56		0.23	0.16	0.15
Control Delay		6.9		20.8		8.1	8.7	7.9
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		6.9		20.8		8.1	8.7	7.9
Queue Length 50th (m)		0.9		11.5		6.3	3.6	4.6
Queue Length 95th (m)		6.1		25.8		17.9	11.5	13.4
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1373		1152		1466	1105	1664
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.04		0.15		0.11	0.08	0.07

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 44.3
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



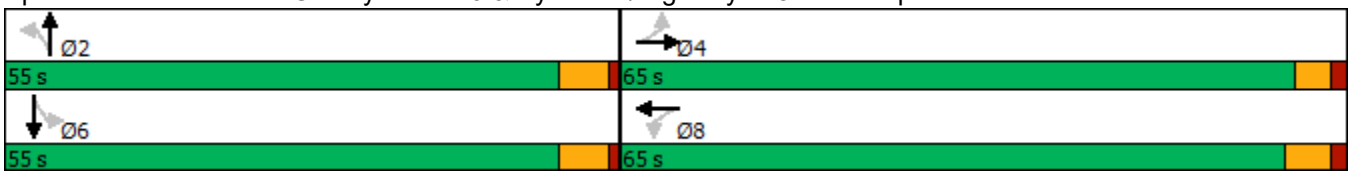
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	7	31	152	6	6	19	100	39	83	102	8
Future Volume (vph)	9	7	31	152	6	6	19	100	39	83	102	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.91			1.00			0.97		1.00	0.99	
Flt Protected		0.99			0.96			0.99		0.95	1.00	
Satd. Flow (prot)		1458			1565			1558		1662	1714	
Flt Permitted		0.93			0.70			0.96		0.65	1.00	
Satd. Flow (perm)		1373			1153			1512		1140	1714	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	7	33	162	6	6	20	106	41	88	109	9
RTOR Reduction (vph)	0	23	0	0	1	0	0	8	0	0	2	0
Lane Group Flow (vph)	0	27	0	0	173	0	0	159	0	88	116	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	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			12.0			20.8		20.8	20.8	
Effective Green, g (s)		12.9			12.0			20.8		20.8	20.8	
Actuated g/C Ratio		0.29			0.27			0.47		0.47	0.47	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		400			313			711		536	806	
v/s Ratio Prot											0.07	
v/s Ratio Perm		0.02			c0.15			c0.11		0.08		
v/c Ratio		0.07			0.55			0.22		0.16	0.14	
Uniform Delay, d1		11.3			13.8			6.9		6.7	6.6	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.1			2.1			0.2		0.1	0.1	
Delay (s)		11.4			15.9			7.1		6.9	6.7	
Level of Service		B			B			A		A	A	
Approach Delay (s)		11.4			15.9			7.1			6.8	
Approach LOS		B			B			A			A	

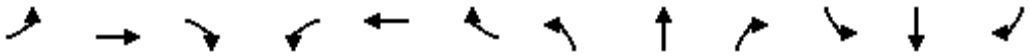
Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	44.2	Sum of lost time (s)	11.4
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	10	291	18	26	283	42	121
Future Volume (vph)	15	10	291	18	26	283	42	121
Lane Group Flow (vph)	0	60	0	322	0	337	43	132
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	65.0	65.0	65.0	65.0	55.0	55.0	55.0	55.0
Total Split (%)	54.2%	54.2%	54.2%	54.2%	45.8%	45.8%	45.8%	45.8%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.11		0.71		0.50	0.11	0.19
Control Delay		6.1		23.5		16.9	13.6	13.2
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		6.1		23.5		16.9	13.6	13.2
Queue Length 50th (m)		1.4		24.7		22.9	2.5	7.7
Queue Length 95th (m)		7.7		57.7		60.9	10.5	23.8
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1344		1163		1502	874	1535
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.04		0.28		0.22	0.05	0.09

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 53.8
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	34	291	18	3	26	283	17	42	121	7
Future Volume (vph)	15	10	34	291	18	3	26	283	17	42	121	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.92			1.00			0.99		1.00	0.99	
Flt Protected		0.99			0.96			1.00		0.95	1.00	
Satd. Flow (prot)		1521			1655			1694		1662	1688	
Flt Permitted		0.90			0.70			0.97		0.55	1.00	
Satd. Flow (perm)		1391			1208			1653		962	1688	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	15	10	35	300	19	3	27	292	18	43	125	7
RTOR Reduction (vph)	0	21	0	0	1	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	39	0	0	321	0	0	335	0	43	130	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	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)		21.1			20.2			21.8		21.8	21.8	
Effective Green, g (s)		21.1			20.2			21.8		21.8	21.8	
Actuated g/C Ratio		0.40			0.38			0.41		0.41	0.41	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		549			456			674		392	689	
v/s Ratio Prot											0.08	
v/s Ratio Perm		0.03			c0.27			c0.20		0.04		
v/c Ratio		0.07			0.70			0.50		0.11	0.19	
Uniform Delay, d1		10.0			14.1			11.7		9.8	10.1	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.1			4.9			0.6		0.1	0.1	
Delay (s)		10.1			19.0			12.3		9.9	10.3	
Level of Service		B			B			B		A	B	
Approach Delay (s)		10.1			19.0			12.3			10.2	
Approach LOS		B			B			B			B	

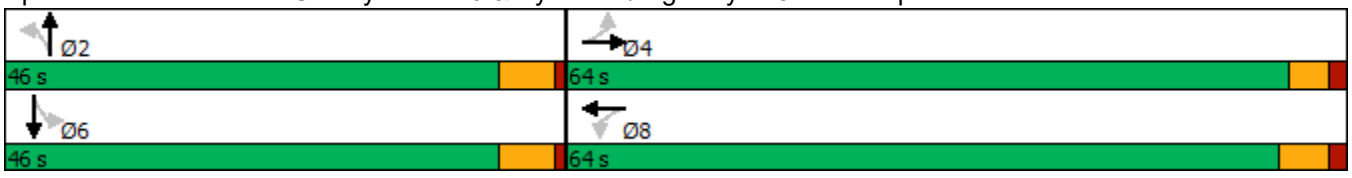
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	11.4
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

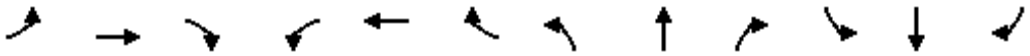
Appendix F –
Synchro Analysis Output –
Total Traffic Volumes

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	8	6	388	4	15	105	66	122
Future Volume (vph)	8	6	388	4	15	105	66	122
Lane Group Flow (vph)	0	42	0	421	0	178	70	137
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	64.0	64.0	64.0	64.0	46.0	46.0	46.0	46.0
Total Split (%)	58.2%	58.2%	58.2%	58.2%	41.8%	41.8%	41.8%	41.8%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.07		0.82		0.32	0.16	0.22
Control Delay		4.5		27.9		16.3	16.9	16.6
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		4.5		27.9		16.3	16.9	16.6
Queue Length 50th (m)		0.8		37.2		11.8	5.0	9.7
Queue Length 95th (m)		4.6		69.9		34.0	17.0	27.9
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1306		1110		1097	883	1236
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.03		0.38		0.16	0.08	0.11

Intersection Summary
Cycle Length: 110
Actuated Cycle Length: 57.3
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	6	25	388	4	4	15	105	47	66	122	7
Future Volume (vph)	8	6	25	388	4	4	15	105	47	66	122	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.91			1.00			0.96		1.00	0.99	
Flt Protected		0.99			0.95			1.00		0.95	1.00	
Satd. Flow (prot)		1458			1581			1557		1662	1720	
Flt Permitted		0.92			0.70			0.97		0.70	1.00	
Satd. Flow (perm)		1356			1160			1518		1230	1720	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	9	6	27	413	4	4	16	112	50	70	130	7
RTOR Reduction (vph)	0	15	0	0	1	0	0	13	0	0	2	0
Lane Group Flow (vph)	0	27	0	0	420	0	0	165	0	70	135	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	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)		26.2			25.3			20.4		20.4	20.4	
Effective Green, g (s)		26.2			25.3			20.4		20.4	20.4	
Actuated g/C Ratio		0.46			0.44			0.36		0.36	0.36	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		622			513			542		439	614	
v/s Ratio Prot											0.08	
v/s Ratio Perm		0.02			c0.36			c0.11		0.06		
v/c Ratio		0.04			0.82			0.30		0.16	0.22	
Uniform Delay, d1		8.5			13.9			13.2		12.5	12.8	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0			9.9			0.3		0.2	0.2	
Delay (s)		8.6			23.8			13.6		12.7	13.0	
Level of Service		A			C			B		B	B	
Approach Delay (s)		8.6			23.8			13.6			12.9	
Approach LOS		A			C			B			B	

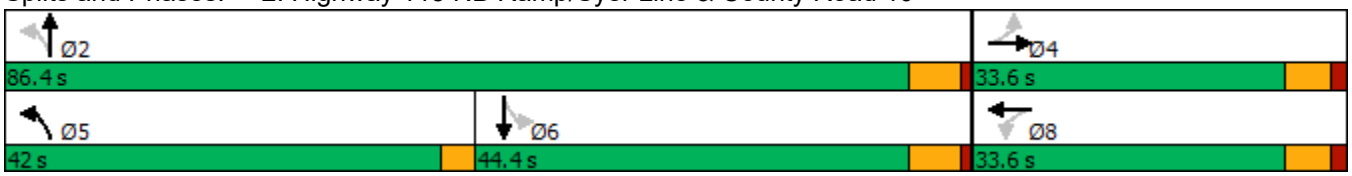
Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	11.4
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

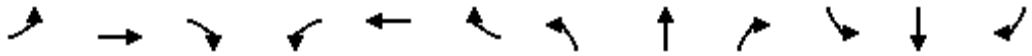
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	27	11	5	12	586	127	89	428
Future Volume (vph)	27	11	5	12	586	127	89	428
Lane Group Flow (vph)	0	53	0	33	637	153	0	579
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.0	86.4	44.4	44.4
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.0%	72.0%	37.0%	37.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.38		0.19	0.73	0.11		0.91
Control Delay		44.1		30.2	13.2	2.7		51.2
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		44.1		30.2	13.2	2.7		51.2
Queue Length 50th (m)		8.4		3.5	43.8	5.4		116.6
Queue Length 95th (m)		21.0		12.8	101.1	11.4		#199.1
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		346		424	898	1353		633
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.15		0.08	0.71	0.11		0.91

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 97.8
Natural Cycle: 110
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

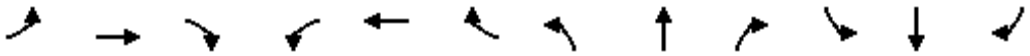
Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	11	11	5	12	14	586	127	14	89	428	16
Future Volume (vph)	27	11	11	5	12	14	586	127	14	89	428	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.97			0.94		1.00	0.99			1.00	
Flt Protected		0.97			0.99		0.95	1.00			0.99	
Satd. Flow (prot)		1410			1515		1630	1636			1711	
Flt Permitted		0.81			0.94		0.32	1.00			0.91	
Satd. Flow (perm)		1175			1436		550	1636			1574	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	12	12	5	13	15	637	138	15	97	465	17
RTOR Reduction (vph)	0	10	0	0	14	0	0	2	0	0	1	0
Lane Group Flow (vph)	0	43	0	0	19	0	637	151	0	0	578	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.3			8.3		79.5	79.5			39.4	
Effective Green, g (s)		8.3			8.3		79.5	79.5			39.4	
Actuated g/C Ratio		0.08			0.08		0.80	0.80			0.40	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		98			120		844	1311			625	
v/s Ratio Prot							c0.28	0.09				
v/s Ratio Perm		c0.04			0.01		0.32				c0.37	
v/c Ratio		0.44			0.16		0.75	0.12			0.93	
Uniform Delay, d1		43.2			42.2		10.4	2.2			28.5	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		3.1			0.6		3.9	0.0			19.7	
Delay (s)		46.3			42.8		14.2	2.2			48.2	
Level of Service		D			D		B	A			D	
Approach Delay (s)		46.3			42.8			11.9			48.2	
Approach LOS		D			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	99.2	Sum of lost time (s)	14.4
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	11	1	0	9	0	1	0	0	0	0	21
Future Volume (Veh/h)	102	11	1	0	9	0	1	0	0	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	12	1	0	10	0	1	0	0	0	0	23
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	10			13			268	244	12	244	245	10
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	10			13			268	244	12	244	245	10
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 %	93			100			100	100	100	100	100	98
cM capacity (veh/h)	1610			1619			639	615	1074	672	615	1071

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	124	10	1	23
Volume Left	111	0	1	0
Volume Right	1	0	0	23
cSH	1610	1619	639	1071
Volume to Capacity	0.07	0.00	0.00	0.02
Queue Length 95th (m)	1.8	0.0	0.0	0.5
Control Delay (s)	6.7	0.0	10.6	8.4
Lane LOS	A		B	A
Approach Delay (s)	6.7	0.0	10.6	8.4
Approach LOS			B	A

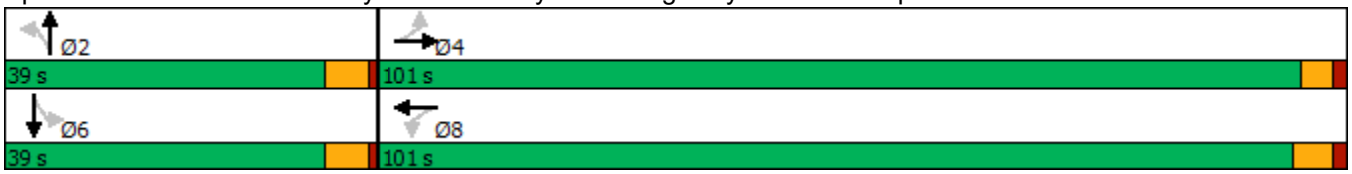
Intersection Summary				
Average Delay	6.5			
Intersection Capacity Utilization	23.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	12	8	651	15	21	268	34	124
Future Volume (vph)	12	8	651	15	21	268	34	124
Lane Group Flow (vph)	0	49	0	688	0	330	35	134
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	101.0	101.0	101.0	101.0	39.0	39.0	39.0	39.0
Total Split (%)	72.1%	72.1%	72.1%	72.1%	27.9%	27.9%	27.9%	27.9%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.06		0.90		0.77	0.22	0.31
Control Delay		3.9		33.8		54.8	44.3	40.1
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		3.9		33.8		54.8	44.3	40.1
Queue Length 50th (m)		1.5		117.5		69.1	6.3	24.3
Queue Length 95th (m)		5.9		215.5		#142.0	19.4	52.5
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1139		1024		557	205	569
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.04		0.67		0.59	0.17	0.24

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 108.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	8	28	651	15	2	21	268	31	34	124	6
Future Volume (vph)	12	8	28	651	15	2	21	268	31	34	124	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.92			1.00			0.99		1.00	0.99	
Flt Protected		0.99			0.95			1.00		0.95	1.00	
Satd. Flow (prot)		1520			1663			1688		1662	1690	
Flt Permitted		0.87			0.70			0.97		0.35	1.00	
Satd. Flow (perm)		1337			1212			1650		611	1690	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	12	8	29	671	15	2	22	276	32	35	128	6
RTOR Reduction (vph)	0	10	0	0	0	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	39	0	0	688	0	0	327	0	35	133	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	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)		68.9			68.0			27.8		27.8	27.8	
Effective Green, g (s)		68.9			68.0			27.8		27.8	27.8	
Actuated g/C Ratio		0.64			0.63			0.26		0.26	0.26	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		859			768			427		158	438	
v/s Ratio Prot											0.08	
v/s Ratio Perm		0.03			c0.57			c0.20		0.06		
v/c Ratio		0.04			0.90			0.77		0.22	0.30	
Uniform Delay, d1		7.0			16.6			36.7		31.2	31.9	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.0			13.0			8.0		0.7	0.4	
Delay (s)		7.1			29.6			44.7		31.9	32.3	
Level of Service		A			C			D		C	C	
Approach Delay (s)		7.1			29.6			44.7			32.2	
Approach LOS		A			C			D			C	

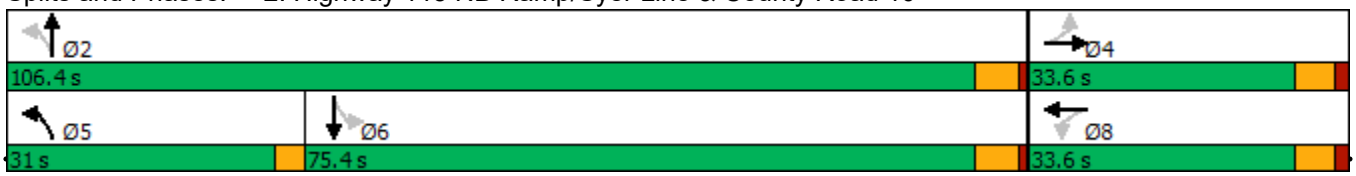
Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	107.2	Sum of lost time (s)	11.4
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

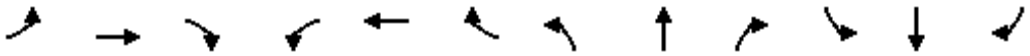
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	107	4	18	54	505	174	31	747
Future Volume (vph)	107	4	18	54	505	174	31	747
Lane Group Flow (vph)	0	177	0	126	574	215	0	908
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	31.0	106.4	75.4	75.4
Total Split (%)	24.0%	24.0%	24.0%	24.0%	22.1%	76.0%	53.9%	53.9%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.90		0.43	1.05	0.17		1.05
Control Delay		93.9		47.0	73.9	5.9		78.5
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		93.9		47.0	73.9	5.9		78.5
Queue Length 50th (m)		46.5		27.5	~121.4	17.4		~294.6
Queue Length 95th (m)		#84.7		47.2	#187.0	25.7		#363.3
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		221		331	548	1265		863
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.80		0.38	1.05	0.17		1.05

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 136.8
Natural Cycle: 150
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

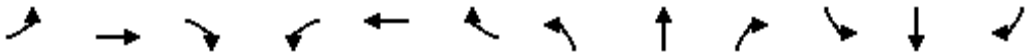
Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	4	44	18	54	40	505	174	15	31	747	21
Future Volume (vph)	107	4	44	18	54	40	505	174	15	31	747	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.96			0.95		1.00	0.99			1.00	
Flt Protected		0.97			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1594			1653		1646	1713			1722	
Flt Permitted		0.63			0.94		0.22	1.00			0.98	
Satd. Flow (perm)		1035			1560		384	1713			1691	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	122	5	50	20	61	45	574	198	17	35	849	24
RTOR Reduction (vph)	0	11	0	0	15	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	166	0	0	111	0	574	213	0	0	908	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.5			24.5		100.9	100.9			69.9	
Effective Green, g (s)		24.5			24.5		100.9	100.9			69.9	
Actuated g/C Ratio		0.18			0.18		0.74	0.74			0.51	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		185			279		541	1263			864	
v/s Ratio Prot							c0.22	0.12				
v/s Ratio Perm		c0.16			0.07		c0.57				0.54	
v/c Ratio		0.90			0.40		1.06	0.17			1.05	
Uniform Delay, d1		54.9			49.6		27.8	5.4			33.5	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		38.6			0.9		55.9	0.1			44.7	
Delay (s)		93.5			50.6		83.6	5.4			78.1	
Level of Service		F			D		F	A			E	
Approach Delay (s)		93.5			50.6			62.3			78.1	
Approach LOS		F			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	71.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	136.8	Sum of lost time (s)	14.4
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	24	1	0	23	0	1	0	0	0	0	87
Future Volume (Veh/h)	25	24	1	0	23	0	1	0	0	0	0	87
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	26	1	0	25	0	1	0	0	0	0	95
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	25			27			200	106	26	106	106	25
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	25			27			200	106	26	106	106	25
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 %	98			100			100	100	100	100	100	91
cM capacity (veh/h)	1589			1600			684	775	1055	863	774	1051

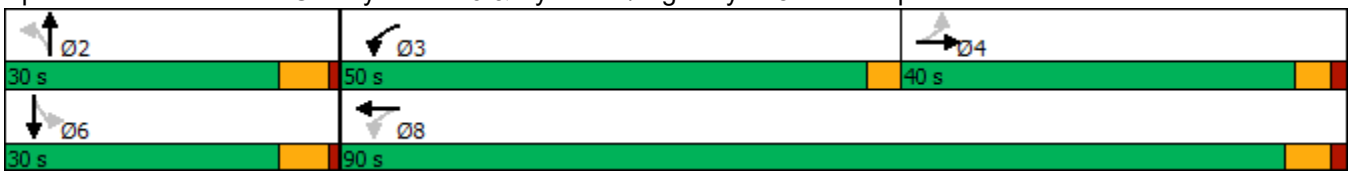
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	54	25	1	95
Volume Left	27	0	1	0
Volume Right	1	0	0	95
cSH	1589	1600	684	1051
Volume to Capacity	0.02	0.00	0.00	0.09
Queue Length 95th (m)	0.4	0.0	0.0	2.4
Control Delay (s)	3.7	0.0	10.3	8.8
Lane LOS	A		B	A
Approach Delay (s)	3.7	0.0	10.3	8.8
Approach LOS			B	A

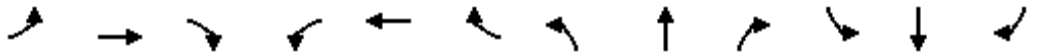
Intersection Summary				
Average Delay	6.0			
Intersection Capacity Utilization	22.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	6	412	5	17	115	74	131
Future Volume (vph)	9	6	412	5	17	115	74	131
Lane Group Flow (vph)	0	46	438	10	0	196	79	146
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	8.0	39.2	25.6	25.6	25.6	25.6
Total Split (s)	40.0	40.0	50.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	33.3%	33.3%	41.7%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.3	3.3	3.0	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	0.0	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9	3.0	5.8		5.6	5.6	5.6
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.15	0.69	0.02		0.32	0.16	0.21
Control Delay		14.3	17.0	6.6		14.8	15.0	14.5
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		14.3	17.0	6.6		14.8	15.0	14.5
Queue Length 50th (m)		1.1	30.4	0.3		8.7	3.6	6.6
Queue Length 95th (m)		10.2	51.8	2.3		35.1	17.2	27.3
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)			100.0				82.0	
Base Capacity (vph)		971	1416	1295		754	597	849
Starvation Cap Reductn		0	0	0		0	0	0
Spillback Cap Reductn		0	0	0		0	0	0
Storage Cap Reductn		0	0	0		0	0	0
Reduced v/c Ratio		0.05	0.31	0.01		0.26	0.13	0.17

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 51.4
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





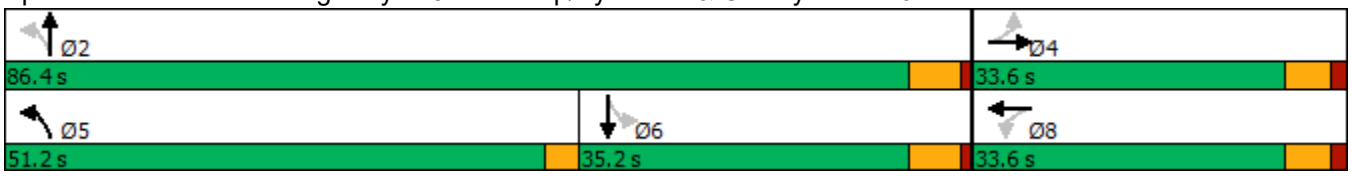
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	6	28	412	5	5	17	115	53	74	131	7
Future Volume (vph)	9	6	28	412	5	5	17	115	53	74	131	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.91		1.00	0.93			0.96		1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1458		1583	1295			1557		1662	1721	
Flt Permitted		0.92		0.75	1.00			0.97		0.69	1.00	
Satd. Flow (perm)		1359		1258	1295			1516		1212	1721	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	6	30	438	5	5	18	122	56	79	139	7
RTOR Reduction (vph)	0	28	0	0	3	0	0	9	0	0	1	0
Lane Group Flow (vph)	0	18	0	438	7	0	0	187	0	79	145	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		3.2		22.2	22.2			20.8		20.8	20.8	
Effective Green, g (s)		3.2		22.2	22.2			20.8		20.8	20.8	
Actuated g/C Ratio		0.06		0.41	0.41			0.38		0.38	0.38	
Clearance Time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		79		614	528			579		463	658	
v/s Ratio Prot				c0.22	0.01						0.08	
v/s Ratio Perm		0.01		c0.07				c0.12		0.07		
v/c Ratio		0.22		0.71	0.01			0.32		0.17	0.22	
Uniform Delay, d1		24.4		13.2	9.6			11.8		11.1	11.3	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		1.4		3.9	0.0			0.3		0.2	0.2	
Delay (s)		25.9		17.1	9.6			12.2		11.3	11.5	
Level of Service		C		B	A			B		B	B	
Approach Delay (s)		25.9			16.9			12.2			11.4	
Approach LOS		C			B			B			B	

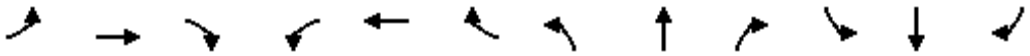
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	54.4	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	11	5	12	644	141	90	459
Future Volume (vph)	30	11	5	12	644	141	90	459
Lane Group Flow (vph)	33	26	0	33	700	168	0	617
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	51.2	86.4	35.2	35.2
Total Split (%)	28.0%	28.0%	28.0%	28.0%	42.7%	72.0%	29.3%	29.3%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio	0.26	0.14		0.18	0.75	0.12		0.75
Control Delay	48.0	28.3		29.9	16.6	2.7		38.5
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	48.0	28.3		29.9	16.6	2.7		38.5
Queue Length 50th (m)	6.4	2.3		3.4	70.6	6.1		61.2
Queue Length 95th (m)	16.4	10.8		12.8	133.0	12.0		85.3
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)	100.0				230.0			
Base Capacity (vph)	336	458		466	1017	1375		950
Starvation Cap Reductn	0	0		0	0	0		0
Spillback Cap Reductn	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0
Reduced v/c Ratio	0.10	0.06		0.07	0.69	0.12		0.65

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 92.5
Natural Cycle: 100
Control Type: Semi Act-Uncoord

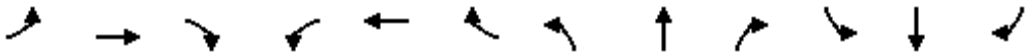
Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	11	13	5	12	14	644	141	14	90	459	18
Future Volume (vph)	30	11	13	5	12	14	644	141	14	90	459	18
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			0.95	
Frt	1.00	0.92			0.94		1.00	0.99			1.00	
Flt Protected	0.95	1.00			0.99		0.95	1.00			0.99	
Satd. Flow (prot)	1374	1418			1515		1630	1637			3249	
Flt Permitted	0.74	1.00			0.94		0.25	1.00			0.86	
Satd. Flow (perm)	1064	1418			1441		429	1637			2815	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	12	14	5	13	15	700	153	15	98	499	20
RTOR Reduction (vph)	0	13	0	0	14	0	0	2	0	0	2	0
Lane Group Flow (vph)	33	13	0	0	19	0	700	166	0	0	615	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.8	7.8			7.8		74.6	74.6			27.1	
Effective Green, g (s)	7.8	7.8			7.8		74.6	74.6			27.1	
Actuated g/C Ratio	0.08	0.08			0.08		0.80	0.80			0.29	
Clearance Time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	88	117			119		910	1301			813	
v/s Ratio Prot		0.01					c0.36	0.10				
v/s Ratio Perm	c0.03				0.01		c0.25				0.22	
v/c Ratio	0.38	0.11			0.16		0.77	0.13			0.76	
Uniform Delay, d1	40.7	39.8			40.0		11.2	2.2			30.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.7	0.4			0.6		4.0	0.0			4.0	
Delay (s)	43.4	40.2			40.6		15.2	2.2			34.4	
Level of Service	D	D			D		B	A			C	
Approach Delay (s)		42.0			40.6			12.7			34.4	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	14.4
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	12	1	0	10	0	1	0	0	0	0	21
Future Volume (Veh/h)	102	12	1	0	10	0	1	0	0	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	13	1	0	11	0	1	0	0	0	0	23
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	11			14			270	246	14	246	247	11
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	11			14			270	246	14	246	247	11
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 %	93			100			100	100	100	100	100	98
cM capacity (veh/h)	1608			1617			637	614	1072	670	613	1070

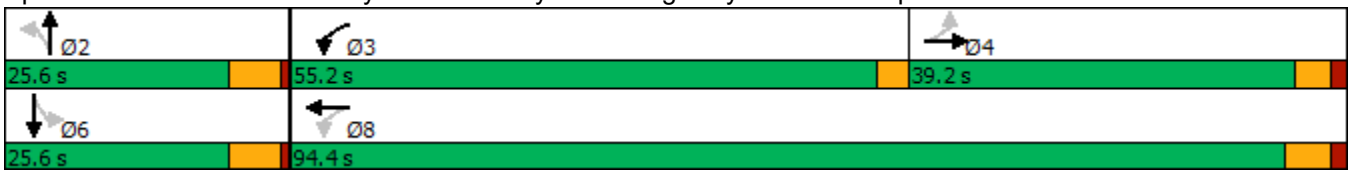
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	125	11	1	23
Volume Left	111	0	1	0
Volume Right	1	0	0	23
cSH	1608	1617	637	1070
Volume to Capacity	0.07	0.00	0.00	0.02
Queue Length 95th (m)	1.8	0.0	0.0	0.5
Control Delay (s)	6.6	0.0	10.7	8.4
Lane LOS	A		B	A
Approach Delay (s)	6.6	0.0	10.7	8.4
Approach LOS			B	A

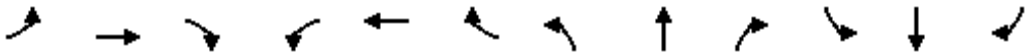
Intersection Summary				
Average Delay	6.5			
Intersection Capacity Utilization	23.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	13	9	711	16	23	293	38	137
Future Volume (vph)	13	9	711	16	23	293	38	137
Lane Group Flow (vph)	0	53	733	19	0	360	39	147
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	9.5	39.2	25.6	25.6	25.6	25.6
Total Split (s)	39.2	39.2	55.2	94.4	25.6	25.6	25.6	25.6
Total Split (%)	32.7%	32.7%	46.0%	78.7%	21.3%	21.3%	21.3%	21.3%
Yellow Time (s)	3.3	3.3	3.0	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	0.0	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9	3.0	5.8		5.6	5.6	5.6
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.22	0.84	0.02		0.69	0.17	0.28
Control Delay		20.6	20.9	5.8		33.7	25.8	24.1
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		20.6	20.9	5.8		33.7	25.8	24.1
Queue Length 50th (m)		2.8	65.9	0.9		46.0	4.2	16.0
Queue Length 95th (m)		14.4	103.8	3.3		#113.8	14.5	38.3
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)			100.0				82.0	
Base Capacity (vph)		768	1346	1516		520	229	532
Starvation Cap Reductn		0	0	0		0	0	0
Spillback Cap Reductn		0	0	0		0	0	0
Storage Cap Reductn		0	0	0		0	0	0
Reduced v/c Ratio		0.07	0.54	0.01		0.69	0.17	0.28

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 67
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





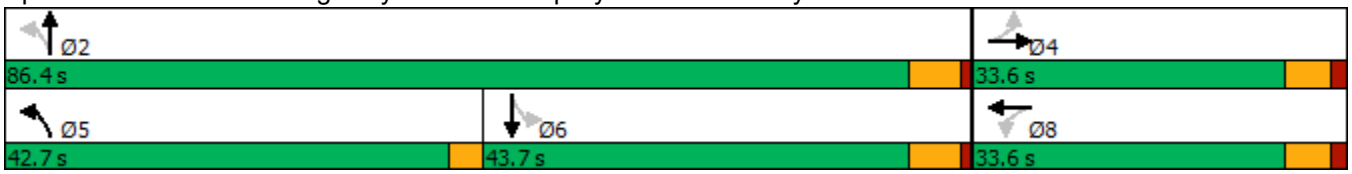
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	9	30	711	16	3	23	293	33	38	137	6
Future Volume (vph)	13	9	30	711	16	3	23	293	33	38	137	6
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.92		1.00	0.98			0.99		1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1521		1662	1517			1688		1662	1691	
Flt Permitted		0.91		0.72	1.00			0.97		0.42	1.00	
Satd. Flow (perm)		1401		1257	1517			1649		732	1691	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	9	31	733	16	3	24	302	34	39	141	6
RTOR Reduction (vph)	0	29	0	0	1	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	24	0	733	18	0	0	357	0	39	146	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	0%	0%	3%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.2		36.5	36.5			21.0		21.0	21.0	
Effective Green, g (s)		5.2		36.5	36.5			21.0		21.0	21.0	
Actuated g/C Ratio		0.08		0.53	0.53			0.30		0.30	0.30	
Clearance Time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		105		837	803			502		223	515	
v/s Ratio Prot				c0.37	0.01						0.09	
v/s Ratio Perm		0.02		c0.09				c0.22		0.05		
v/c Ratio		0.23		0.88	0.02			0.71		0.17	0.28	
Uniform Delay, d1		30.0		13.7	7.7			21.3		17.6	18.2	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		1.1		10.2	0.0			4.7		0.4	0.3	
Delay (s)		31.1		23.9	7.7			26.0		18.0	18.5	
Level of Service		C		C	A			C		B	B	
Approach Delay (s)		31.1			23.5			26.0			18.4	
Approach LOS		C			C			C			B	

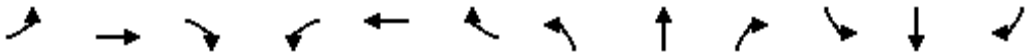
Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	68.9	Sum of lost time (s)	13.5
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	120	5	18	55	544	191	32	816
Future Volume (vph)	120	5	18	55	544	191	32	816
Lane Group Flow (vph)	136	62	0	130	618	235	0	990
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.7	86.4	43.7	43.7
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.6%	72.0%	36.4%	36.4%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio	0.79	0.20		0.45	0.95	0.19		0.95
Control Delay	74.5	13.2		38.6	53.6	5.9		54.6
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	74.5	13.2		38.6	53.6	5.9		54.6
Queue Length 50th (m)	30.2	1.2		22.2	119.0	14.6		115.7
Queue Length 95th (m)	51.6	12.2		39.9	#210.5	29.1		#172.7
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)	100.0				230.0			
Base Capacity (vph)	249	419		410	653	1246		1046
Starvation Cap Reductn	0	0		0	0	0		0
Spillback Cap Reductn	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0
Reduced v/c Ratio	0.55	0.15		0.32	0.95	0.19		0.95

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 111.7
Natural Cycle: 130
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

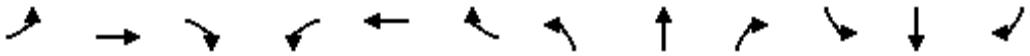
Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	5	49	18	55	41	544	191	16	32	816	24
Future Volume (vph)	120	5	49	18	55	41	544	191	16	32	816	24
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			0.95	
Frt	1.00	0.86			0.95		1.00	0.99			1.00	
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)	1614	1513			1652		1646	1714			3270	
Flt Permitted	0.59	1.00			0.95		0.10	1.00			0.93	
Satd. Flow (perm)	999	1513			1578		169	1714			3055	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	136	6	56	20	62	47	618	217	18	36	927	27
RTOR Reduction (vph)	0	46	0	0	18	0	0	2	0	0	1	0
Lane Group Flow (vph)	136	16	0	0	112	0	618	233	0	0	989	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.2	19.2			19.2		81.0	81.0			38.2	
Effective Green, g (s)	19.2	19.2			19.2		81.0	81.0			38.2	
Actuated g/C Ratio	0.17	0.17			0.17		0.73	0.73			0.34	
Clearance Time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	171	260			271		649	1244			1045	
v/s Ratio Prot		0.01					c0.34	0.14				
v/s Ratio Perm	c0.14				0.07		c0.35				0.32	
v/c Ratio	0.80	0.06			0.41		0.95	0.19			0.95	
Uniform Delay, d1	44.3	38.7			41.2		29.2	4.9			35.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	22.0	0.1			1.0		24.0	0.1			16.3	
Delay (s)	66.3	38.7			42.2		53.2	4.9			52.0	
Level of Service	E	D			D		D	A			D	
Approach Delay (s)		57.7			42.2			39.9			52.0	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	111.6	Sum of lost time (s)	14.4
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	27	1	0	26	0	1	0	0	0	0	87
Future Volume (Veh/h)	25	27	1	0	26	0	1	0	0	0	0	87
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	29	1	0	28	0	1	0	0	0	0	95
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	28			30			206	112	30	112	112	28
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	28			30			206	112	30	112	112	28
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 %	98			100			100	100	100	100	100	91
cM capacity (veh/h)	1585			1596			678	769	1051	855	769	1047

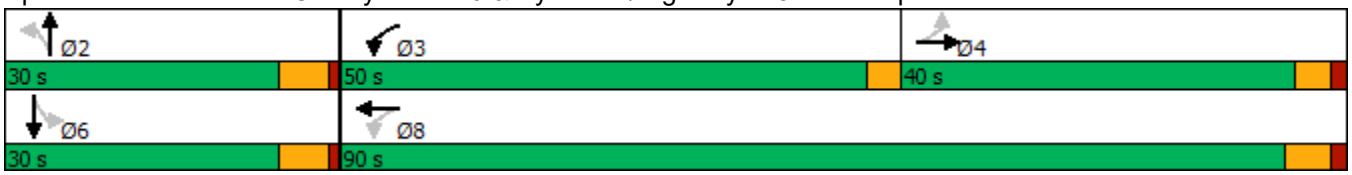
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	57	28	1	95
Volume Left	27	0	1	0
Volume Right	1	0	0	95
cSH	1585	1596	678	1047
Volume to Capacity	0.02	0.00	0.00	0.09
Queue Length 95th (m)	0.4	0.0	0.0	2.4
Control Delay (s)	3.5	0.0	10.3	8.8
Lane LOS	A		B	A
Approach Delay (s)	3.5	0.0	10.3	8.8
Approach LOS			B	A

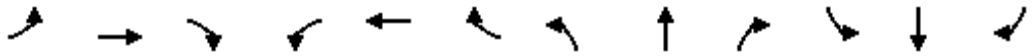
Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	7	429	6	19	125	83	140
Future Volume (vph)	9	7	429	6	19	125	83	140
Lane Group Flow (vph)	0	50	456	12	0	214	88	158
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	8.0	39.2	25.6	25.6	25.6	25.6
Total Split (s)	40.0	40.0	50.0	90.0	30.0	30.0	30.0	30.0
Total Split (%)	33.3%	33.3%	41.7%	75.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.3	3.3	3.0	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	0.0	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9	3.0	5.8		5.6	5.6	5.6
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.18	0.68	0.02		0.37	0.20	0.24
Control Delay		15.0	15.9	6.2		17.2	17.3	16.6
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		15.0	15.9	6.2		17.2	17.3	16.6
Queue Length 50th (m)		1.7	32.2	0.4		17.6	7.3	13.2
Queue Length 95th (m)		10.7	54.5	2.5		39.5	19.5	29.9
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)			100.0				82.0	
Base Capacity (vph)		916	1339	1295		705	529	793
Starvation Cap Reductn		0	0	0		0	0	0
Spillback Cap Reductn		0	0	0		0	0	0
Storage Cap Reductn		0	0	0		0	0	0
Reduced v/c Ratio		0.05	0.34	0.01		0.30	0.17	0.20

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 55
Natural Cycle: 75
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





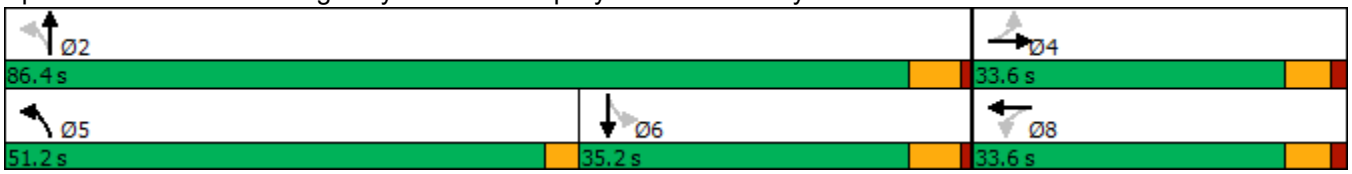
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	7	31	429	6	6	19	125	57	83	140	8
Future Volume (vph)	9	7	31	429	6	6	19	125	57	83	140	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.91		1.00	0.93			0.96		1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1458		1583	1295			1557		1662	1719	
Flt Permitted		0.93		0.72	1.00			0.97		0.66	1.00	
Satd. Flow (perm)		1365		1193	1295			1511		1149	1719	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	7	33	456	6	6	20	133	61	88	149	9
RTOR Reduction (vph)	0	30	0	0	3	0	0	10	0	0	1	0
Lane Group Flow (vph)	0	20	0	456	9	0	0	204	0	88	157	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.2		24.8	24.8			20.8		20.8	20.8	
Effective Green, g (s)		5.2		24.8	24.8			20.8		20.8	20.8	
Actuated g/C Ratio		0.09		0.44	0.44			0.36		0.36	0.36	
Clearance Time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		124		638	563			551		419	627	
v/s Ratio Prot				c0.22	0.01						0.09	
v/s Ratio Perm		0.01		c0.09				c0.14		0.08		
v/c Ratio		0.16		0.71	0.02			0.37		0.21	0.25	
Uniform Delay, d1		23.9		12.9	9.2			13.3		12.4	12.6	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.6		3.8	0.0			0.4		0.3	0.2	
Delay (s)		24.5		16.7	9.2			13.7		12.7	12.9	
Level of Service		C		B	A			B		B	B	
Approach Delay (s)		24.5			16.5			13.7			12.8	
Approach LOS		C			B			B			B	

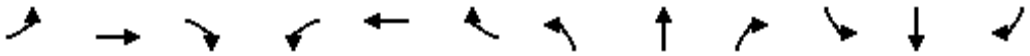
Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	34	11	6	12	670	152	91	482
Future Volume (vph)	34	11	6	12	670	152	91	482
Lane Group Flow (vph)	37	27	0	36	728	180	0	645
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	51.2	86.4	35.2	35.2
Total Split (%)	28.0%	28.0%	28.0%	28.0%	42.7%	72.0%	29.3%	29.3%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio	0.30	0.15		0.21	0.78	0.13		0.80
Control Delay	49.7	27.8		30.7	19.9	2.8		41.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	49.7	27.8		30.7	19.9	2.8		41.4
Queue Length 50th (m)	7.4	2.3		3.9	85.6	6.6		64.8
Queue Length 95th (m)	17.9	10.8		13.9	#162.2	13.4		#92.3
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)	100.0				230.0			
Base Capacity (vph)	318	433		428	971	1361		900
Starvation Cap Reductn	0	0		0	0	0		0
Spillback Cap Reductn	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0
Reduced v/c Ratio	0.12	0.06		0.08	0.75	0.13		0.72

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 95.4
Natural Cycle: 110
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

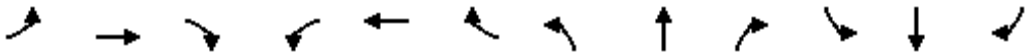
Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	11	14	6	12	15	670	152	14	91	482	20
Future Volume (vph)	34	11	14	6	12	15	670	152	14	91	482	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			0.95	
Frt	1.00	0.92			0.94		1.00	0.99			0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00			0.99	
Satd. Flow (prot)	1374	1409			1485		1630	1638			3249	
Flt Permitted	0.73	1.00			0.93		0.23	1.00			0.86	
Satd. Flow (perm)	1061	1409			1390		388	1638			2813	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	12	15	7	13	16	728	165	15	99	524	22
RTOR Reduction (vph)	0	14	0	0	15	0	0	2	0	0	2	0
Lane Group Flow (vph)	37	13	0	0	21	0	728	178	0	0	643	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.1	8.1			8.1		77.2	77.2			27.4	
Effective Green, g (s)	8.1	8.1			8.1		77.2	77.2			27.4	
Actuated g/C Ratio	0.08	0.08			0.08		0.80	0.80			0.28	
Clearance Time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	88	118			116		910	1307			797	
v/s Ratio Prot		0.01					c0.39	0.11				
v/s Ratio Perm	c0.03				0.02		c0.25				0.23	
v/c Ratio	0.42	0.11			0.18		0.80	0.14			0.81	
Uniform Delay, d1	42.1	41.0			41.2		12.9	2.2			32.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	3.2	0.4			0.8		5.1	0.0			6.0	
Delay (s)	45.3	41.4			42.0		18.0	2.3			38.2	
Level of Service	D	D			D		B	A			D	
Approach Delay (s)		43.7			42.0			14.9			38.2	
Approach LOS		D			D			B			D	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	96.7	Sum of lost time (s)	14.4
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	13	1	0	11	0	1	0	0	0	0	21
Future Volume (Veh/h)	102	13	1	0	11	0	1	0	0	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	14	1	0	12	0	1	0	0	0	0	23
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	12			15			272	248	14	248	249	12
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	12			15			272	248	14	248	249	12
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 %	93			100			100	100	100	100	100	98
cM capacity (veh/h)	1607			1616			635	612	1071	668	612	1069

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	126	12	1	23
Volume Left	111	0	1	0
Volume Right	1	0	0	23
cSH	1607	1616	635	1069
Volume to Capacity	0.07	0.00	0.00	0.02
Queue Length 95th (m)	1.8	0.0	0.0	0.5
Control Delay (s)	6.6	0.0	10.7	8.4
Lane LOS	A		B	A
Approach Delay (s)	6.6	0.0	10.7	8.4
Approach LOS			B	A

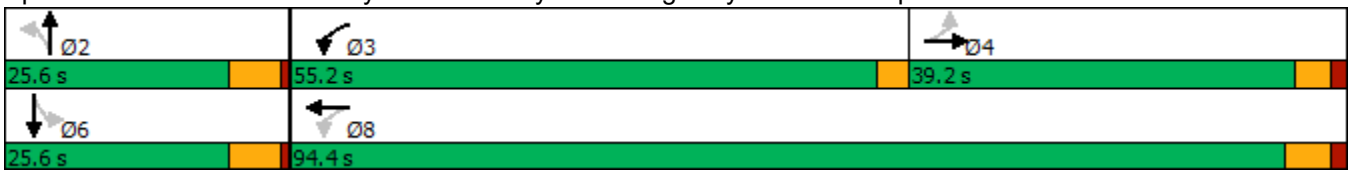
Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	23.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	10	743	18	26	320	42	148
Future Volume (vph)	15	10	743	18	26	320	42	148
Lane Group Flow (vph)	0	60	766	22	0	393	43	160
Turn Type	Perm	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases		4	3	8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	5.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	9.5	39.2	25.6	25.6	25.6	25.6
Total Split (s)	39.2	39.2	55.2	94.4	25.6	25.6	25.6	25.6
Total Split (%)	32.7%	32.7%	46.0%	78.7%	21.3%	21.3%	21.3%	21.3%
Yellow Time (s)	3.3	3.3	3.0	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	0.0	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9	3.0	5.8		5.6	5.6	5.6
Lead/Lag	Lag	Lag	Lead					
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.25	0.86	0.03		0.78	0.22	0.31
Control Delay		21.4	22.1	5.6		40.1	28.5	25.6
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0
Total Delay		21.4	22.1	5.6		40.1	28.5	25.6
Queue Length 50th (m)		3.3	71.6	1.1		53.8	4.9	18.4
Queue Length 95th (m)		16.0	111.6	3.6		#135.2	16.6	43.4
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)			100.0				82.0	
Base Capacity (vph)		746	1324	1516		504	198	516
Starvation Cap Reductn		0	0	0		0	0	0
Spillback Cap Reductn		0	0	0		0	0	0
Storage Cap Reductn		0	0	0		0	0	0
Reduced v/c Ratio		0.08	0.58	0.01		0.78	0.22	0.31

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 69.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	34	743	18	3	26	320	35	42	148	7
Future Volume (vph)	15	10	34	743	18	3	26	320	35	42	148	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Frt		0.92		1.00	0.98			0.99		1.00	0.99	
Flt Protected		0.99		0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1521		1662	1518			1688		1662	1690	
Flt Permitted		0.91		0.69	1.00			0.97		0.37	1.00	
Satd. Flow (perm)		1398		1213	1518			1645		653	1690	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	15	10	35	766	19	3	27	330	36	43	153	7
RTOR Reduction (vph)	0	32	0	0	1	0	0	3	0	0	1	0
Lane Group Flow (vph)	0	28	0	766	21	0	0	390	0	43	159	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	0%	0%	3%	0%
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.2		38.6	38.6			21.1		21.1	21.1	
Effective Green, g (s)		5.2		38.6	38.6			21.1		21.1	21.1	
Actuated g/C Ratio		0.07		0.54	0.54			0.30		0.30	0.30	
Clearance Time (s)		4.9		3.0	5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0		3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		102		856	824			488		193	501	
v/s Ratio Prot				c0.39	0.01						0.09	
v/s Ratio Perm		0.02		c0.09				c0.24		0.07		
v/c Ratio		0.27		0.89	0.03			0.80		0.22	0.32	
Uniform Delay, d1		31.2		13.9	7.5			23.1		18.8	19.4	
Progression Factor		1.00		1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		1.4		11.8	0.0			8.9		0.6	0.4	
Delay (s)		32.6		25.7	7.5			32.0		19.4	19.8	
Level of Service		C		C	A			C		B	B	
Approach Delay (s)		32.6			25.2			32.0			19.7	
Approach LOS		C			C			C			B	

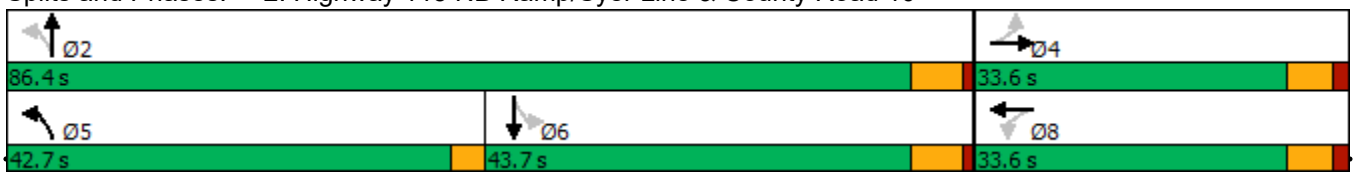
Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	13.5
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

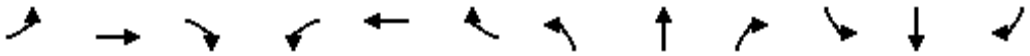
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	135	5	19	56	572	208	34	853
Future Volume (vph)	135	5	19	56	572	208	34	853
Lane Group Flow (vph)	153	65	0	134	650	255	0	1039
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.7	86.4	43.7	43.7
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.6%	72.0%	36.4%	36.4%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)	5.8	5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio	0.84	0.20		0.44	1.01	0.21		1.01
Control Delay	79.2	12.7		38.1	69.0	6.4		68.4
Queue Delay	0.0	0.0		0.0	0.0	0.0		0.0
Total Delay	79.2	12.7		38.1	69.0	6.4		68.4
Queue Length 50th (m)	34.6	1.2		23.1	~145.5	17.5		~131.9
Queue Length 95th (m)	#58.1	12.4		41.0	#228.2	31.8		#186.6
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)	100.0				230.0			
Base Capacity (vph)	246	416		403	643	1229		1030
Starvation Cap Reductn	0	0		0	0	0		0
Spillback Cap Reductn	0	0		0	0	0		0
Storage Cap Reductn	0	0		0	0	0		0
Reduced v/c Ratio	0.62	0.16		0.33	1.01	0.21		1.01

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 113.2
Natural Cycle: 140
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

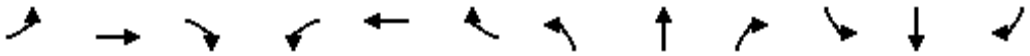
Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	5	52	19	56	42	572	208	17	34	853	27
Future Volume (vph)	135	5	52	19	56	42	572	208	17	34	853	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00			0.95	
Frt	1.00	0.86			0.95		1.00	0.99			1.00	
Flt Protected	0.95	1.00			0.99		0.95	1.00			1.00	
Satd. Flow (prot)	1614	1512			1652		1646	1715			3269	
Flt Permitted	0.59	1.00			0.94		0.10	1.00			0.93	
Satd. Flow (perm)	999	1512			1572		168	1715			3044	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	153	6	59	22	64	48	650	236	19	39	969	31
RTOR Reduction (vph)	0	48	0	0	18	0	0	2	0	0	2	0
Lane Group Flow (vph)	153	17	0	0	116	0	650	253	0	0	1037	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	20.8	20.8			20.8		81.0	81.0			38.2	
Effective Green, g (s)	20.8	20.8			20.8		81.0	81.0			38.2	
Actuated g/C Ratio	0.18	0.18			0.18		0.72	0.72			0.34	
Clearance Time (s)	5.8	5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	183	277			288		639	1227			1027	
v/s Ratio Prot		0.01					c0.36	0.15				
v/s Ratio Perm	c0.15				0.07		c0.37				0.34	
v/c Ratio	0.84	0.06			0.40		1.02	0.21			1.01	
Uniform Delay, d1	44.6	38.1			40.7		31.1	5.4			37.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2	26.8	0.1			0.9		40.0	0.1			30.5	
Delay (s)	71.3	38.2			41.7		71.1	5.5			68.0	
Level of Service	E	D			D		E	A			E	
Approach Delay (s)		61.5			41.7			52.6			68.0	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	59.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	113.2	Sum of lost time (s)	14.4
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	30	1	0	28	0	1	0	0	0	0	87
Future Volume (Veh/h)	25	30	1	0	28	0	1	0	0	0	0	87
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	33	1	0	30	0	1	0	0	0	0	95
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	30			34			212	118	34	118	118	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30			34			212	118	34	118	118	30
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 %	98			100			100	100	100	100	100	91
cM capacity (veh/h)	1583			1591			672	763	1046	847	763	1044

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	61	30	1	95
Volume Left	27	0	1	0
Volume Right	1	0	0	95
cSH	1583	1591	672	1044
Volume to Capacity	0.02	0.00	0.00	0.09
Queue Length 95th (m)	0.4	0.0	0.0	2.4
Control Delay (s)	3.3	0.0	10.4	8.8
Lane LOS	A		B	A
Approach Delay (s)	3.3	0.0	10.4	8.8
Approach LOS			B	A

Intersection Summary				
Average Delay	5.6			
Intersection Capacity Utilization	22.5%	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 (veh/h)	8	6	25	174	4	4	15	87	33	66	110	7
Future Volume (Veh/h)	8	6	25	174	4	4	15	87	33	66	110	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	9	6	27	185	4	4	16	93	35	70	117	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	409	420	120	430	406	110	124			128		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	409	420	120	430	406	110	124			128		
tC, single (s)	7.2	6.7	6.2	7.1	6.8	6.5	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.2	3.3	3.5	4.2	3.5	2.3			2.2		
p0 queue free %	98	99	97	62	99	100	99			95		
cM capacity (veh/h)	503	469	926	487	471	884	1426			1470		

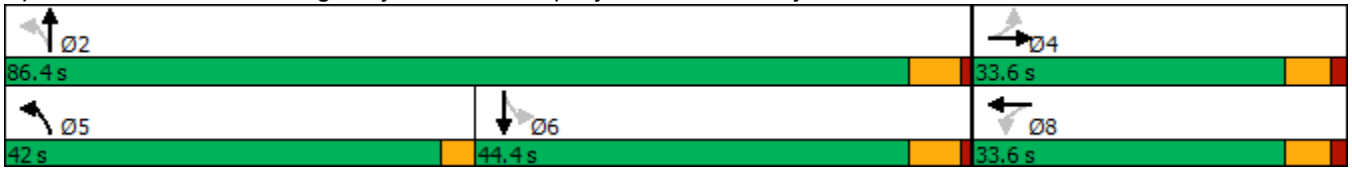
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	42	193	144	70	124
Volume Left	9	185	16	70	0
Volume Right	27	4	35	0	7
cSH	702	492	1426	1470	1700
Volume to Capacity	0.06	0.39	0.01	0.05	0.07
Queue Length 95th (m)	1.5	14.8	0.3	1.2	0.0
Control Delay (s)	10.5	17.0	0.9	7.6	0.0
Lane LOS	B	C	A	A	
Approach Delay (s)	10.5	17.0	0.9	2.7	
Approach LOS	B	C			

Intersection Summary				
Average Delay	7.6			
Intersection Capacity Utilization	39.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	27	11	5	12	198	95	89	202
Future Volume (vph)	27	11	5	12	198	95	89	202
Lane Group Flow (vph)	0	45	0	33	215	118	0	334
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.0	86.4	44.4	44.4
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.0%	72.0%	37.0%	37.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.18		0.10	0.25	0.09		0.51
Control Delay		23.5		17.8	3.6	3.6		18.1
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		23.5		17.8	3.6	3.6		18.1
Queue Length 50th (m)		3.8		1.6	7.1	3.8		28.8
Queue Length 95th (m)		14.0		9.5	13.5	8.6		63.1
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		685		840	1308	1631		1172
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.07		0.04	0.16	0.07		0.28

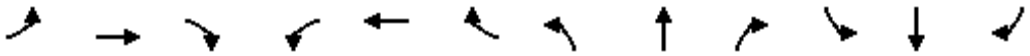
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 51.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	11	4	5	12	14	198	95	14	89	202	16
Future Volume (vph)	27	11	4	5	12	14	198	95	14	89	202	16
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.99			0.94		1.00	0.98			0.99	
Flt Protected		0.97			0.99		0.95	1.00			0.99	
Satd. Flow (prot)		1447			1515		1630	1631			1696	
Flt Permitted		0.79			0.94		0.52	1.00			0.87	
Satd. Flow (perm)		1173			1431		895	1631			1502	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	12	4	5	13	15	215	103	15	97	220	17
RTOR Reduction (vph)	0	4	0	0	14	0	0	4	0	0	1	0
Lane Group Flow (vph)	0	41	0	0	19	0	215	114	0	0	333	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.2			5.2		37.3	37.3			22.6	
Effective Green, g (s)		5.2			5.2		37.3	37.3			22.6	
Actuated g/C Ratio		0.10			0.10		0.69	0.69			0.42	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		113			138		778	1128			629	
v/s Ratio Prot							c0.06	0.07				
v/s Ratio Perm		c0.04			0.01		0.13				c0.22	
v/c Ratio		0.37			0.14		0.28	0.10			0.53	
Uniform Delay, d1		22.8			22.3		3.5	2.7			11.7	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.0			0.5		0.2	0.0			0.8	
Delay (s)		24.8			22.8		3.7	2.8			12.5	
Level of Service		C			C		A	A			B	
Approach Delay (s)		24.8			22.8			3.4			12.5	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	53.9	Sum of lost time (s)	14.4
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	11	1	0	9	0	1	0	0	0	0	21
Future Volume (Veh/h)	102	11	1	0	9	0	1	0	0	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	12	1	0	10	0	1	0	0	0	0	23
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	10			13			268	244	12	244	245	10
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	10			13			268	244	12	244	245	10
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 %	93			100			100	100	100	100	100	98
cM capacity (veh/h)	1610			1619			639	615	1074	672	615	1071

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	124	10	1	23
Volume Left	111	0	1	0
Volume Right	1	0	0	23
cSH	1610	1619	639	1071
Volume to Capacity	0.07	0.00	0.00	0.02
Queue Length 95th (m)	1.8	0.0	0.0	0.5
Control Delay (s)	6.7	0.0	10.6	8.4
Lane LOS	A		B	A
Approach Delay (s)	6.7	0.0	10.6	8.4
Approach LOS			B	A

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	23.5%	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 (veh/h)	12	8	28	245	15	2	21	254	21	34	105	6
Future Volume (Veh/h)	12	8	28	245	15	2	21	254	21	34	105	6
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	12	8	29	253	15	2	22	262	22	35	108	6
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	508	509	111	528	501	273	114			284		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	508	509	111	528	501	273	114			284		
tC, single (s)	7.1	6.6	6.2	7.1	6.7	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	97	98	97	41	97	100	98			97		
cM capacity (veh/h)	450	432	937	429	435	771	1457			1290		

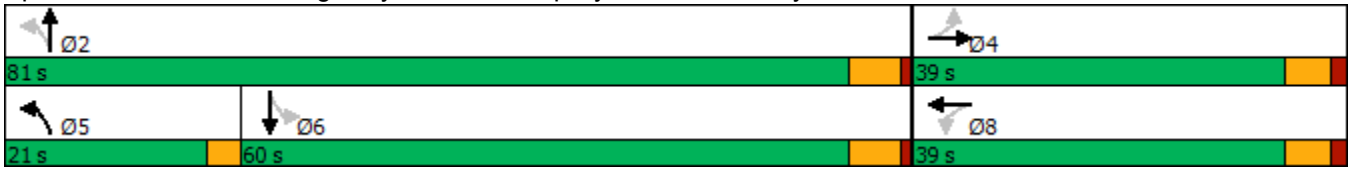
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	49	270	306	35	114
Volume Left	12	253	22	35	0
Volume Right	29	2	22	0	6
cSH	644	431	1457	1290	1700
Volume to Capacity	0.08	0.63	0.02	0.03	0.07
Queue Length 95th (m)	2.0	33.3	0.4	0.7	0.0
Control Delay (s)	11.1	26.3	0.7	7.9	0.0
Lane LOS	B	D	A	A	
Approach Delay (s)	11.1	26.3	0.7	1.8	
Approach LOS	B	D			

Intersection Summary				
Average Delay	10.5			
Intersection Capacity Utilization	52.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	107	4	18	54	210	150	31	322
Future Volume (vph)	107	4	18	54	210	150	31	322
Lane Group Flow (vph)	0	160	0	126	239	187	0	425
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	39.0	39.0	39.0	39.0	21.0	81.0	60.0	60.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	17.5%	67.5%	50.0%	50.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.56		0.35	0.39	0.18		0.70
Control Delay		32.8		23.8	7.7	6.9		27.7
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		32.8		23.8	7.7	6.9		27.7
Queue Length 50th (m)		17.0		11.1	10.9	8.9		47.3
Queue Length 95th (m)		43.8		30.9	28.3	23.3		97.4
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		617		780	687	1617		1330
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.26		0.16	0.35	0.12		0.32

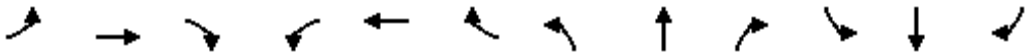
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 70.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	4	29	18	54	40	210	150	15	31	322	21
Future Volume (vph)	107	4	29	18	54	40	210	150	15	31	322	21
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.97			0.95		1.00	0.99			0.99	
Flt Protected		0.96			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1602			1653		1646	1711			1710	
Flt Permitted		0.74			0.93		0.38	1.00			0.96	
Satd. Flow (perm)		1235			1553		652	1711			1653	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	122	5	33	20	61	45	239	170	17	35	366	24
RTOR Reduction (vph)	0	9	0	0	18	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	151	0	0	108	0	239	184	0	0	423	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		15.8			15.8		42.7	42.7			25.8	
Effective Green, g (s)		15.8			15.8		42.7	42.7			25.8	
Actuated g/C Ratio		0.23			0.23		0.61	0.61			0.37	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		279			351		595	1045			610	
v/s Ratio Prot							c0.08	0.11				
v/s Ratio Perm		c0.12			0.07		0.17				c0.26	
v/c Ratio		0.54			0.31		0.40	0.18			0.69	
Uniform Delay, d1		23.9			22.5		7.6	5.9			18.7	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		2.2			0.5		0.4	0.1			3.4	
Delay (s)		26.0			23.0		8.1	6.0			22.1	
Level of Service		C			C		A	A			C	
Approach Delay (s)		26.0			23.0			7.2			22.1	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	69.9	Sum of lost time (s)	14.4
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	24	1	0	23	0	1	0	0	0	0	87
Future Volume (Veh/h)	25	24	1	0	23	0	1	0	0	0	0	87
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	26	1	0	25	0	1	0	0	0	0	95
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	25			27			200	106	26	106	106	25
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	25			27			200	106	26	106	106	25
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 %	98			100			100	100	100	100	100	91
cM capacity (veh/h)	1589			1600			684	775	1055	863	774	1051

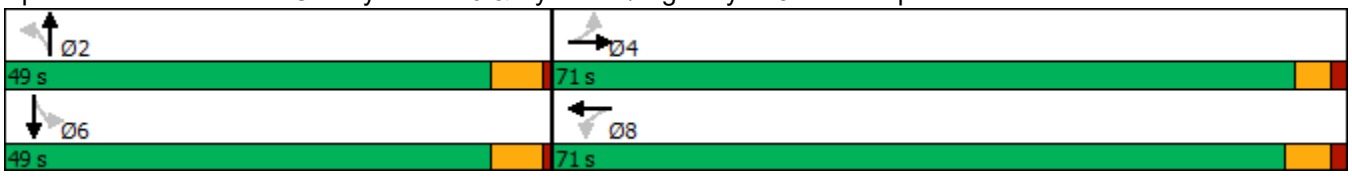
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	54	25	1	95
Volume Left	27	0	1	0
Volume Right	1	0	0	95
cSH	1589	1600	684	1051
Volume to Capacity	0.02	0.00	0.00	0.09
Queue Length 95th (m)	0.4	0.0	0.0	2.4
Control Delay (s)	3.7	0.0	10.3	8.8
Lane LOS	A		B	A
Approach Delay (s)	3.7	0.0	10.3	8.8
Approach LOS			B	A

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	22.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	9	7	205	6	19	105	83	128
Future Volume (vph)	9	7	205	6	19	105	83	128
Lane Group Flow (vph)	0	50	0	230	0	176	88	145
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	71.0	71.0	71.0	71.0	49.0	49.0	49.0	49.0
Total Split (%)	59.2%	59.2%	59.2%	59.2%	40.8%	40.8%	40.8%	40.8%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.11		0.64		0.26	0.18	0.19
Control Delay		6.2		22.4		9.8	10.3	9.7
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		6.2		22.4		9.8	10.3	9.7
Queue Length 50th (m)		0.9		16.0		7.7	4.1	6.6
Queue Length 95th (m)		5.8		33.8		21.8	13.3	18.7
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1370		1152		1425	1067	1622
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.04		0.20		0.12	0.08	0.09

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 45.7
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	7	31	205	6	6	19	105	41	83	128	8
Future Volume (vph)	9	7	31	205	6	6	19	105	41	83	128	8
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.91			1.00			0.97		1.00	0.99	
Flt Protected		0.99			0.95			0.99		0.95	1.00	
Satd. Flow (prot)		1458			1570			1558		1662	1718	
Flt Permitted		0.93			0.70			0.96		0.65	1.00	
Satd. Flow (perm)		1370			1152			1508		1131	1718	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	10	7	33	218	6	6	20	112	44	88	136	9
RTOR Reduction (vph)	0	22	0	0	1	0	0	9	0	0	2	0
Lane Group Flow (vph)	0	28	0	0	229	0	0	167	0	88	143	0
Heavy Vehicles (%)	14%	20%	4%	5%	25%	25%	8%	11%	0%	0%	1%	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)		15.1			14.2			20.1		20.1	20.1	
Effective Green, g (s)		15.1			14.2			20.1		20.1	20.1	
Actuated g/C Ratio		0.33			0.31			0.44		0.44	0.44	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		452			357			663		497	755	
v/s Ratio Prot											0.08	
v/s Ratio Perm		0.02			c0.20			c0.11		0.08		
v/c Ratio		0.06			0.64			0.25		0.18	0.19	
Uniform Delay, d1		10.5			13.6			8.1		7.8	7.8	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.1			3.9			0.2		0.2	0.1	
Delay (s)		10.5			17.4			8.3		7.9	7.9	
Level of Service		B			B			A		A	A	
Approach Delay (s)		10.5			17.4			8.3			7.9	
Approach LOS		B			B			A			A	

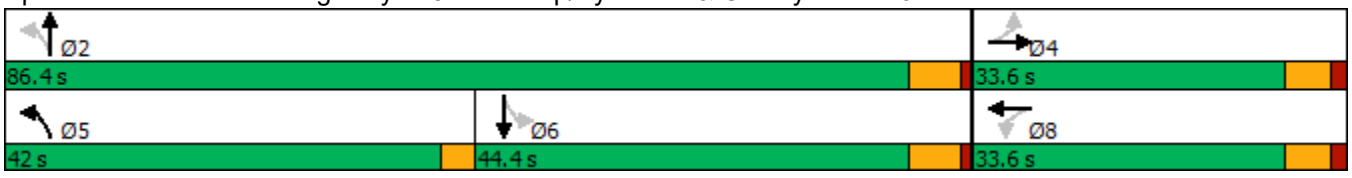
Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	45.7	Sum of lost time (s)	11.4
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	34	11	6	12	248	116	91	246
Future Volume (vph)	34	11	6	12	248	116	91	246
Lane Group Flow (vph)	0	56	0	36	270	141	0	388
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	33.6	33.6	33.6	33.6	42.0	86.4	44.4	44.4
Total Split (%)	28.0%	28.0%	28.0%	28.0%	35.0%	72.0%	37.0%	37.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.24		0.13	0.31	0.11		0.60
Control Delay		27.9		20.9	3.7	3.4		21.6
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		27.9		20.9	3.7	3.4		21.6
Queue Length 50th (m)		5.1		2.0	9.2	4.9		38.9
Queue Length 95th (m)		18.6		11.3	17.9	10.6		84.3
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		612		739	1264	1628		1098
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.09		0.05	0.21	0.09		0.35

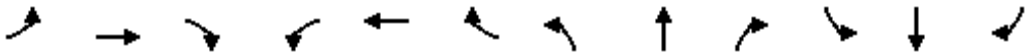
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 57.5
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	11	6	6	12	15	248	116	14	91	246	20
Future Volume (vph)	34	11	6	6	12	15	248	116	14	91	246	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.98			0.94		1.00	0.98			0.99	
Flt Protected		0.97			0.99		0.95	1.00			0.99	
Satd. Flow (prot)		1423			1485		1630	1634			1696	
Flt Permitted		0.78			0.92		0.47	1.00			0.88	
Satd. Flow (perm)		1146			1376		810	1634			1509	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	12	7	7	13	16	270	126	15	99	267	22
RTOR Reduction (vph)	0	5	0	0	15	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	51	0	0	21	0	270	138	0	0	386	0
Heavy Vehicles (%)	21%	0%	25%	50%	0%	0%	2%	6%	0%	0%	1%	7%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		5.3			5.3		43.1	43.1			24.7	
Effective Green, g (s)		5.3			5.3		43.1	43.1			24.7	
Actuated g/C Ratio		0.09			0.09		0.72	0.72			0.41	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		101			121		794	1177			623	
v/s Ratio Prot							c0.09	0.08				
v/s Ratio Perm		c0.04			0.02		0.16				c0.26	
v/c Ratio		0.50			0.18		0.34	0.12			0.62	
Uniform Delay, d1		26.0			25.2		3.7	2.5			13.8	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		3.9			0.7		0.3	0.0			1.8	
Delay (s)		29.8			25.9		3.9	2.6			15.7	
Level of Service		C			C		A	A			B	
Approach Delay (s)		29.8			25.9			3.5			15.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	14.4
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	13	1	0	11	0	1	0	0	0	0	21
Future Volume (Veh/h)	102	13	1	0	11	0	1	0	0	0	0	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	111	14	1	0	12	0	1	0	0	0	0	23
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	12			15			272	248	14	248	249	12
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	12			15			272	248	14	248	249	12
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 %	93			100			100	100	100	100	100	98
cM capacity (veh/h)	1607			1616			635	612	1071	668	612	1069

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	126	12	1	23
Volume Left	111	0	1	0
Volume Right	1	0	0	23
cSH	1607	1616	635	1069
Volume to Capacity	0.07	0.00	0.00	0.02
Queue Length 95th (m)	1.8	0.0	0.0	0.5
Control Delay (s)	6.6	0.0	10.7	8.4
Lane LOS	A		B	A
Approach Delay (s)	6.6	0.0	10.7	8.4
Approach LOS			B	A

Intersection Summary				
Average Delay	6.4			
Intersection Capacity Utilization	23.6%	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)	9	7	31	205	6	6	19	105	41	83	128	8
Future Volume (Veh/h)	9	7	31	205	6	6	19	105	41	83	128	8
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	10	7	33	218	6	6	20	112	44	88	136	9
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	500	512	140	522	495	134	145			156		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	500	512	140	522	495	134	145			156		
tC, single (s)	7.2	6.7	6.2	7.1	6.8	6.5	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.2	3.3	3.5	4.2	3.5	2.3			2.2		
p0 queue free %	98	98	96	47	99	99	99			94		
cM capacity (veh/h)	428	407	902	413	411	857	1401			1436		

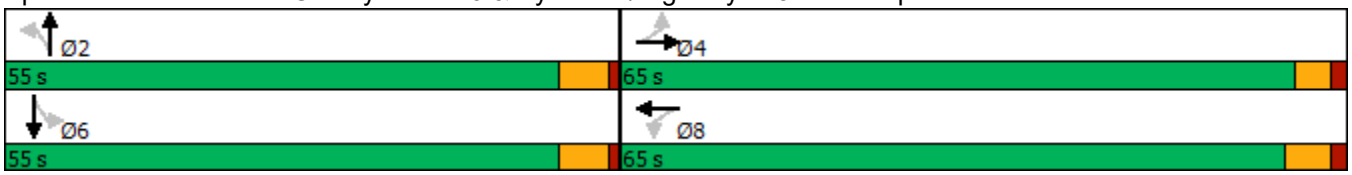
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	50	230	176	88	145
Volume Left	10	218	20	88	0
Volume Right	33	6	44	0	9
cSH	648	418	1401	1436	1700
Volume to Capacity	0.08	0.55	0.01	0.06	0.09
Queue Length 95th (m)	2.0	25.8	0.3	1.6	0.0
Control Delay (s)	11.0	23.6	1.0	7.7	0.0
Lane LOS	B	C	A	A	
Approach Delay (s)	11.0	23.6	1.0	2.9	
Approach LOS	B	C			

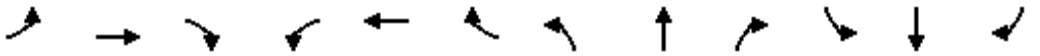
Intersection Summary				
Average Delay	9.9			
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	15	10	304	18	26	305	42	127
Future Volume (vph)	15	10	304	18	26	305	42	127
Lane Group Flow (vph)	0	60	0	335	0	367	43	138
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	39.2	39.2	39.2	39.2	25.6	25.6	25.6	25.6
Total Split (s)	65.0	65.0	65.0	65.0	55.0	55.0	55.0	55.0
Total Split (%)	54.2%	54.2%	54.2%	54.2%	45.8%	45.8%	45.8%	45.8%
Yellow Time (s)	3.3	3.3	4.2	4.2	4.6	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0		0.0	0.0	0.0
Total Lost Time (s)		4.9		5.8		5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
v/c Ratio		0.10		0.72		0.55	0.12	0.20
Control Delay		6.3		24.2		18.5	14.5	14.0
Queue Delay		0.0		0.0		0.0	0.0	0.0
Total Delay		6.3		24.2		18.5	14.5	14.0
Queue Length 50th (m)		1.4		26.1		27.2	2.6	8.6
Queue Length 95th (m)		8.1		64.8		71.7	11.2	26.3
Internal Link Dist (m)		592.7		625.0		491.5		559.6
Turn Bay Length (m)							82.0	
Base Capacity (vph)		1324		1143		1450	790	1483
Starvation Cap Reductn		0		0		0	0	0
Spillback Cap Reductn		0		0		0	0	0
Storage Cap Reductn		0		0		0	0	0
Reduced v/c Ratio		0.05		0.29		0.25	0.05	0.09

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 56.7
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 10 & Syer Line/Highway 115 SB Ramp





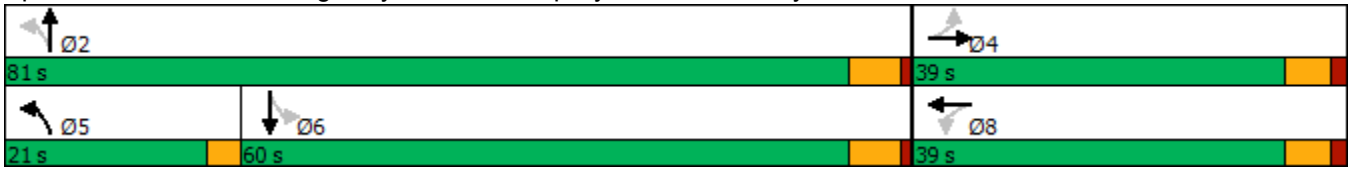
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	10	34	304	18	3	26	305	25	42	127	7
Future Volume (vph)	15	10	34	304	18	3	26	305	25	42	127	7
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		4.9			5.8			5.6		5.6	5.6	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frt		0.92			1.00			0.99		1.00	0.99	
Flt Protected		0.99			0.96			1.00		0.95	1.00	
Satd. Flow (prot)		1521			1656			1692		1662	1689	
Flt Permitted		0.90			0.70			0.97		0.51	1.00	
Satd. Flow (perm)		1391			1207			1653		899	1689	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	15	10	35	313	19	3	27	314	26	43	131	7
RTOR Reduction (vph)	0	21	0	0	1	0	0	2	0	0	2	0
Lane Group Flow (vph)	0	39	0	0	334	0	0	365	0	43	136	0
Heavy Vehicles (%)	0%	14%	4%	0%	15%	0%	5%	2%	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)		22.8			21.9			22.9		22.9	22.9	
Effective Green, g (s)		22.8			21.9			22.9		22.9	22.9	
Actuated g/C Ratio		0.41			0.39			0.41		0.41	0.41	
Clearance Time (s)		4.9			5.8			5.6		5.6	5.6	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		564			470			673		366	688	
v/s Ratio Prot											0.08	
v/s Ratio Perm		0.03			c0.28			c0.22		0.05		
v/c Ratio		0.07			0.71			0.54		0.12	0.20	
Uniform Delay, d1		10.2			14.5			12.7		10.4	10.7	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.1			5.0			0.9		0.1	0.1	
Delay (s)		10.3			19.5			13.6		10.5	10.9	
Level of Service		B			B			B		B	B	
Approach Delay (s)		10.3			19.5			13.6			10.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	56.2	Sum of lost time (s)	11.4
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	135	5	19	56	264	183	34	393
Future Volume (vph)	135	5	19	56	264	183	34	393
Lane Group Flow (vph)	0	200	0	134	300	227	0	517
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	Perm	NA
Protected Phases		4		8	5	2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	20.0	20.0	20.0
Minimum Split (s)	33.6	33.6	33.6	33.6	9.5	25.6	25.6	25.6
Total Split (s)	39.0	39.0	39.0	39.0	21.0	81.0	60.0	60.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	17.5%	67.5%	50.0%	50.0%
Yellow Time (s)	4.2	4.2	4.2	4.2	3.0	4.6	4.6	4.6
All-Red Time (s)	1.6	1.6	1.6	1.6	0.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0
Total Lost Time (s)		5.8		5.8	3.0	5.6		5.6
Lead/Lag					Lead		Lag	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	Min	Min	Min
v/c Ratio		0.71		0.35	0.52	0.21		0.81
Control Delay		44.8		27.3	10.5	8.2		34.7
Queue Delay		0.0		0.0	0.0	0.0		0.0
Total Delay		44.8		27.3	10.5	8.2		34.7
Queue Length 50th (m)		28.9		15.2	18.4	14.1		76.6
Queue Length 95th (m)		65.6		38.1	42.6	32.8		136.2
Internal Link Dist (m)		658.6		1175.6		599.4		491.5
Turn Bay Length (m)					85.0			
Base Capacity (vph)		496		668	616	1477		1140
Starvation Cap Reductn		0		0	0	0		0
Spillback Cap Reductn		0		0	0	0		0
Storage Cap Reductn		0		0	0	0		0
Reduced v/c Ratio		0.40		0.20	0.49	0.15		0.45

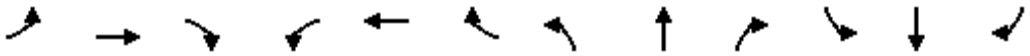
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 84.7
Natural Cycle: 80
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Highway 115 NB Ramp/Syer Line & County Road 10



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	5	36	19	56	42	264	183	17	34	393	27
Future Volume (vph)	135	5	36	19	56	42	264	183	17	34	393	27
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Total Lost time (s)		5.8			5.8		3.0	5.6			5.6	
Lane Util. Factor		1.00			1.00		1.00	1.00			1.00	
Frt		0.97			0.95		1.00	0.99			0.99	
Flt Protected		0.96			0.99		0.95	1.00			1.00	
Satd. Flow (prot)		1602			1652		1646	1712			1709	
Flt Permitted		0.70			0.93		0.33	1.00			0.96	
Satd. Flow (perm)		1163			1552		566	1712			1650	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	153	6	41	22	64	48	300	208	19	39	447	31
RTOR Reduction (vph)	0	8	0	0	18	0	0	3	0	0	2	0
Lane Group Flow (vph)	0	192	0	0	116	0	300	224	0	0	515	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	1%	5%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		20.0			20.0		52.4	52.4			33.1	
Effective Green, g (s)		20.0			20.0		52.4	52.4			33.1	
Actuated g/C Ratio		0.24			0.24		0.63	0.63			0.39	
Clearance Time (s)		5.8			5.8		3.0	5.6			5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		277			370		563	1070			651	
v/s Ratio Prot							c0.10	0.13				
v/s Ratio Perm		c0.16			0.08		0.23				c0.31	
v/c Ratio		0.69			0.31		0.53	0.21			0.79	
Uniform Delay, d1		29.1			26.3		9.5	6.8			22.3	
Progression Factor		1.00			1.00		1.00	1.00			1.00	
Incremental Delay, d2		7.3			0.5		1.0	0.1			6.5	
Delay (s)		36.4			26.8		10.5	6.9			28.8	
Level of Service		D			C		B	A			C	
Approach Delay (s)		36.4			26.8			8.9			28.8	
Approach LOS		D			C			A			C	

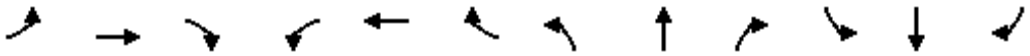
Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	14.4
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	30	1	0	28	0	1	0	0	0	0	87
Future Volume (Veh/h)	25	30	1	0	28	0	1	0	0	0	0	87
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	33	1	0	30	0	1	0	0	0	0	95
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	30			34			212	118	34	118	118	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	30			34			212	118	34	118	118	30
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 %	98			100			100	100	100	100	100	91
cM capacity (veh/h)	1583			1591			672	763	1046	847	763	1044

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	61	30	1	95
Volume Left	27	0	1	0
Volume Right	1	0	0	95
cSH	1583	1591	672	1044
Volume to Capacity	0.02	0.00	0.00	0.09
Queue Length 95th (m)	0.4	0.0	0.0	2.4
Control Delay (s)	3.3	0.0	10.4	8.8
Lane LOS	A		B	A
Approach Delay (s)	3.3	0.0	10.4	8.8
Approach LOS			B	A

Intersection Summary				
Average Delay	5.6			
Intersection Capacity Utilization	22.5%	ICU Level of Service	A	
Analysis Period (min)	15			



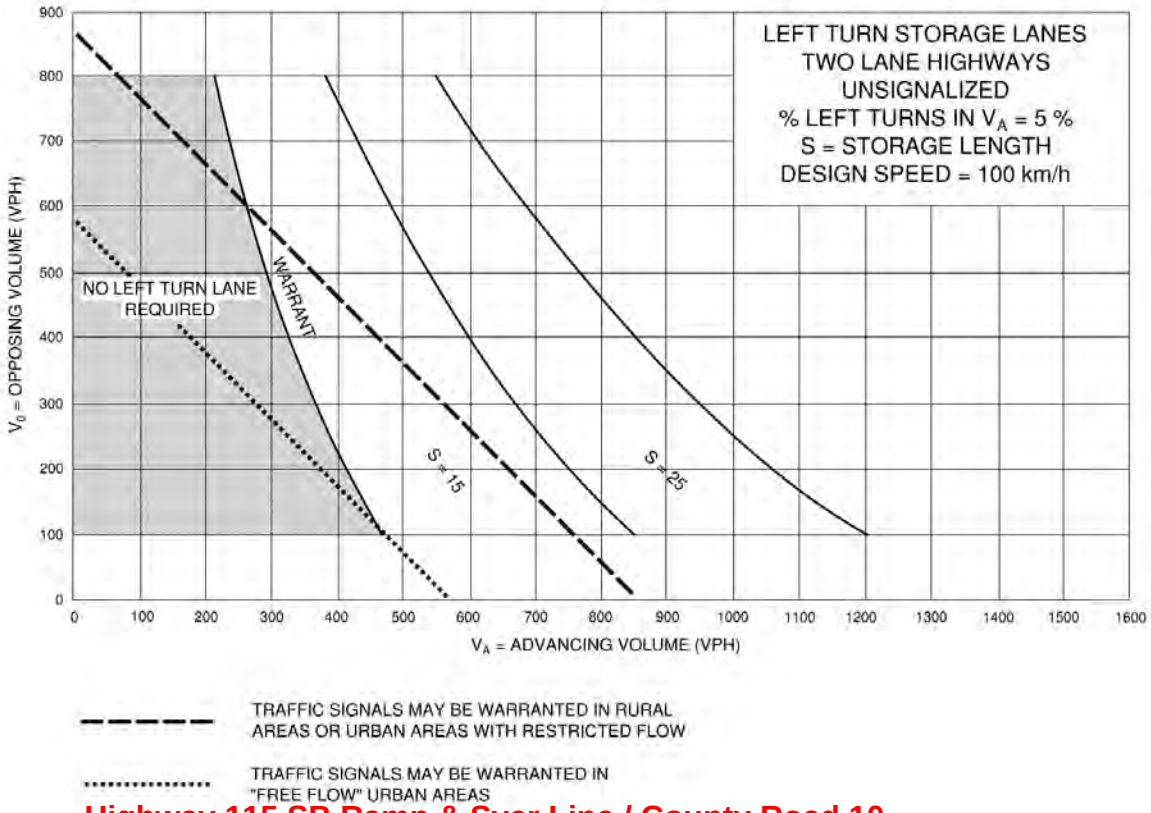
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	10	34	304	18	3	26	305	25	42	127	7
Future Volume (Veh/h)	15	10	34	304	18	3	26	305	25	42	127	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	15	10	35	313	19	3	27	314	26	43	131	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	614	614	134	638	605	327	138			340		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	614	614	134	638	605	327	138			340		
tC, single (s)	7.1	6.6	6.2	7.1	6.7	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.1	3.3	3.5	4.1	3.3	2.2			2.2		
p0 queue free %	96	97	96	12	95	100	98			97		
cM capacity (veh/h)	374	371	909	354	374	719	1427			1230		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total	60	335	367	43	138
Volume Left	15	313	27	43	0
Volume Right	35	3	26	0	7
cSH	568	357	1427	1230	1700
Volume to Capacity	0.11	0.94	0.02	0.03	0.08
Queue Length 95th (m)	2.8	79.3	0.5	0.9	0.0
Control Delay (s)	12.1	67.9	0.7	8.0	0.0
Lane LOS	B	F	A	A	
Approach Delay (s)	12.1	67.9	0.7	1.9	
Approach LOS	B	F			

Intersection Summary				
Average Delay	25.5			
Intersection Capacity Utilization	64.5%	ICU Level of Service	C	
Analysis Period (min)	15			

Appendix G –
MTO Left Turn Analysis

Exhibit 9A-22



Highway 115 SB Ramp & Syer Line / County Road 10
2023 Existing - Northbound
Critical Case - PM Peak Hour

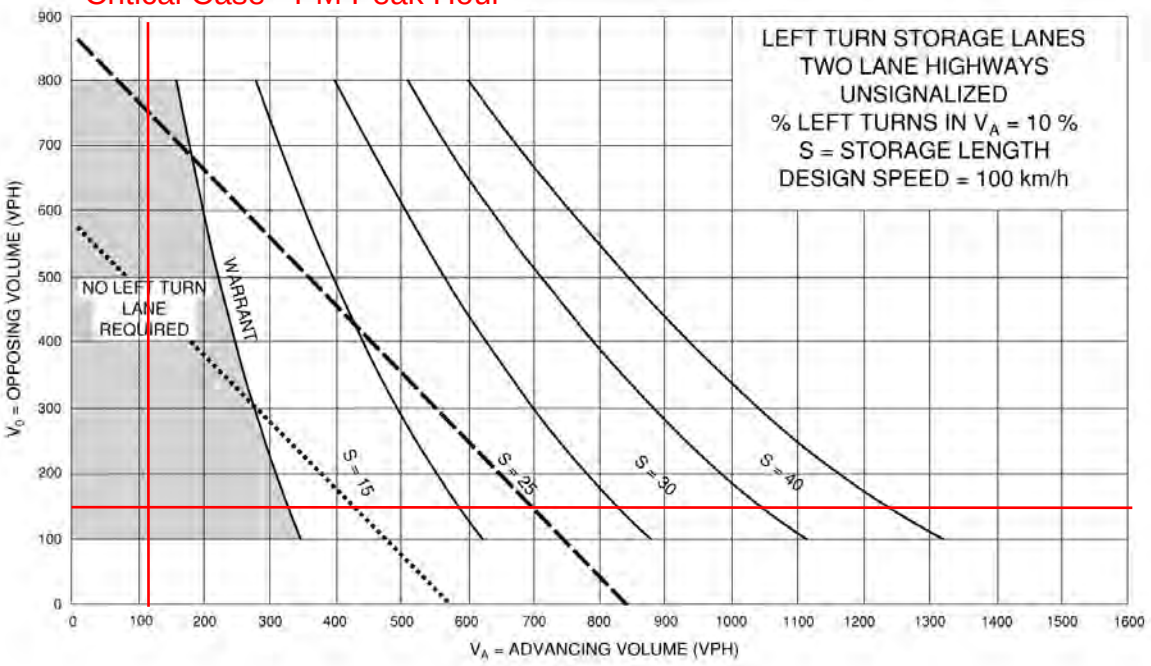
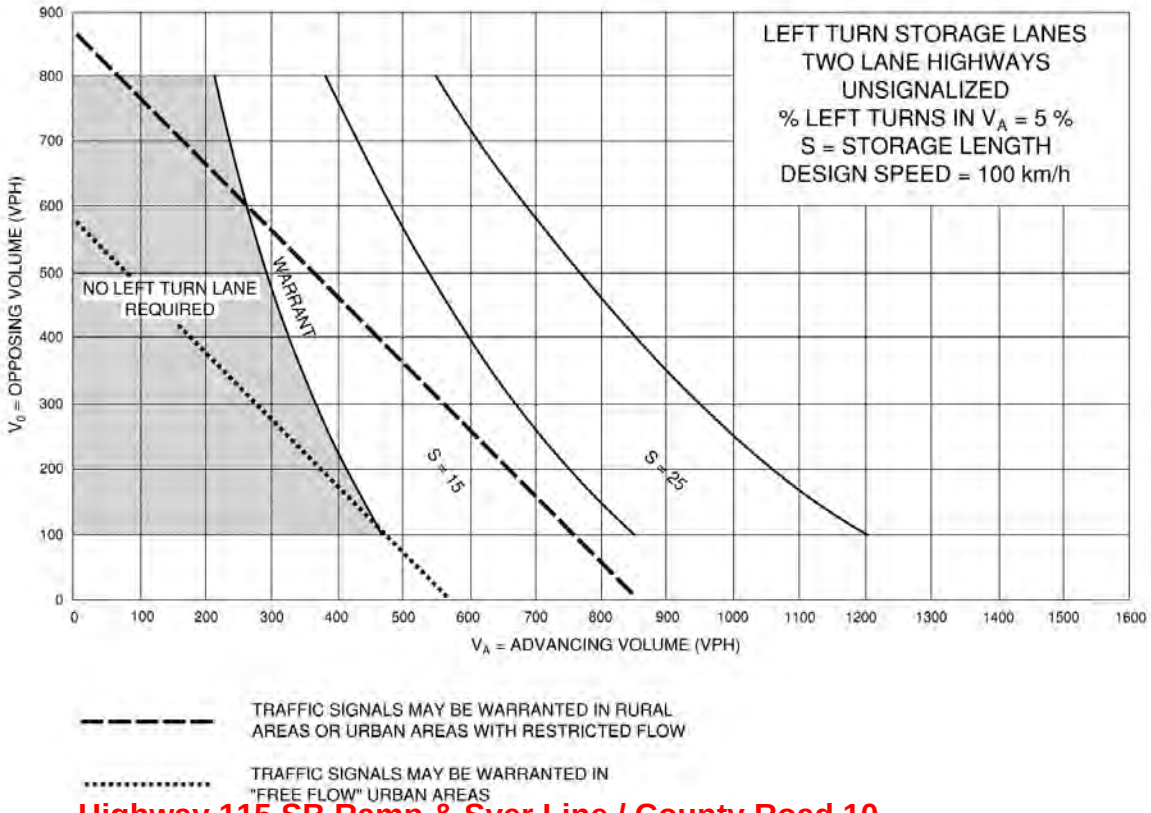


Exhibit 9A-22



Highway 115 SB Ramp & Syer Line / County Road 10
2028 Background - Northbound
Critical Case - PM Peak Hour

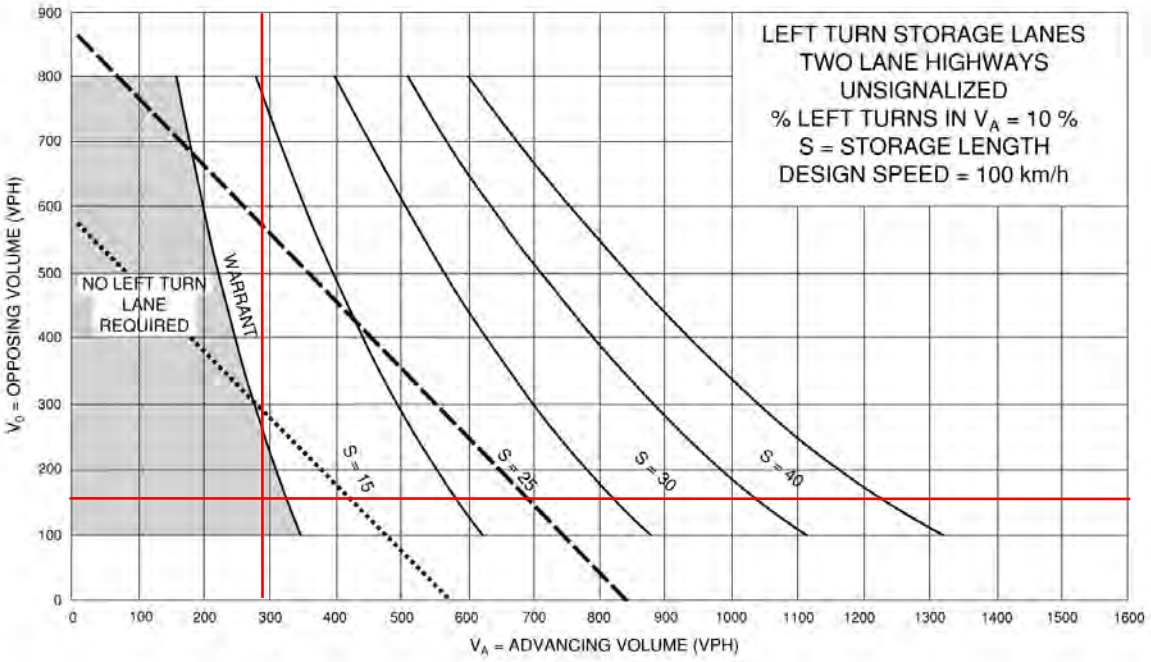
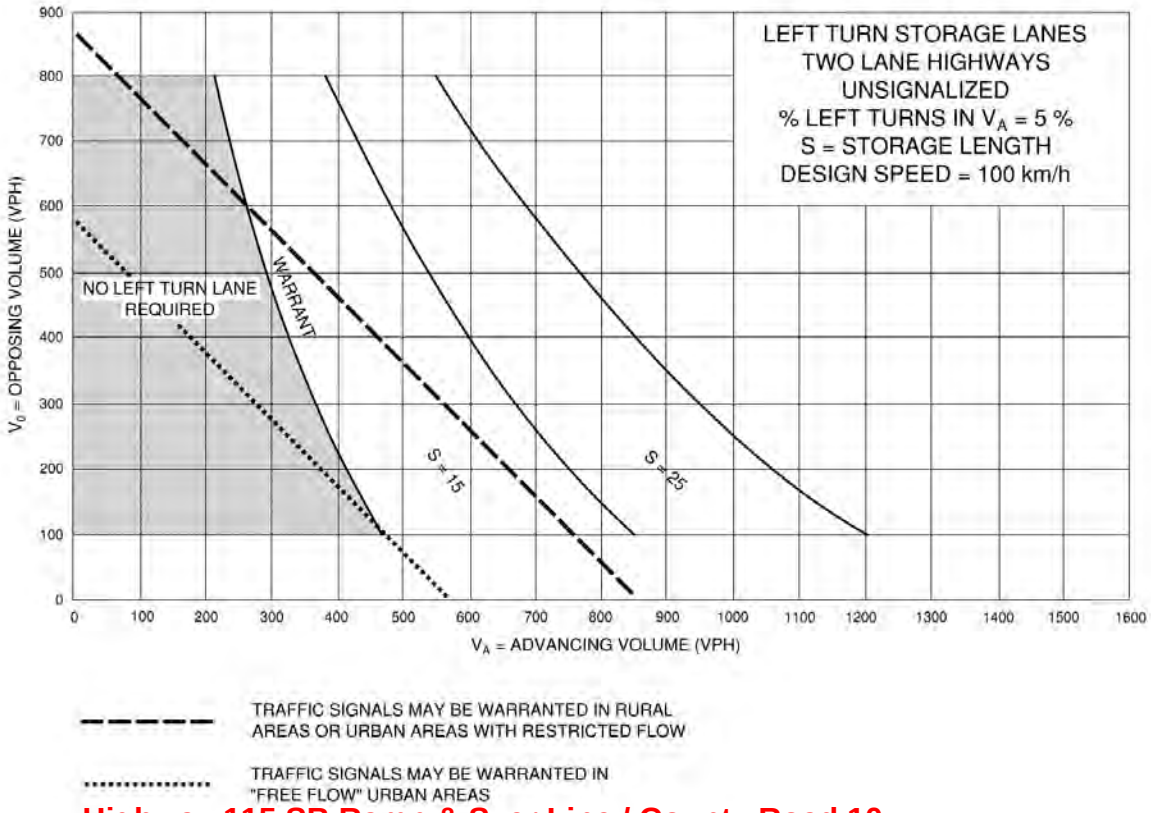


Exhibit 9A-22



Highway 115 SB Ramp & Syer Line / County Road 10
2033 Background - Northbound
Critical Case - PM Peak Hour

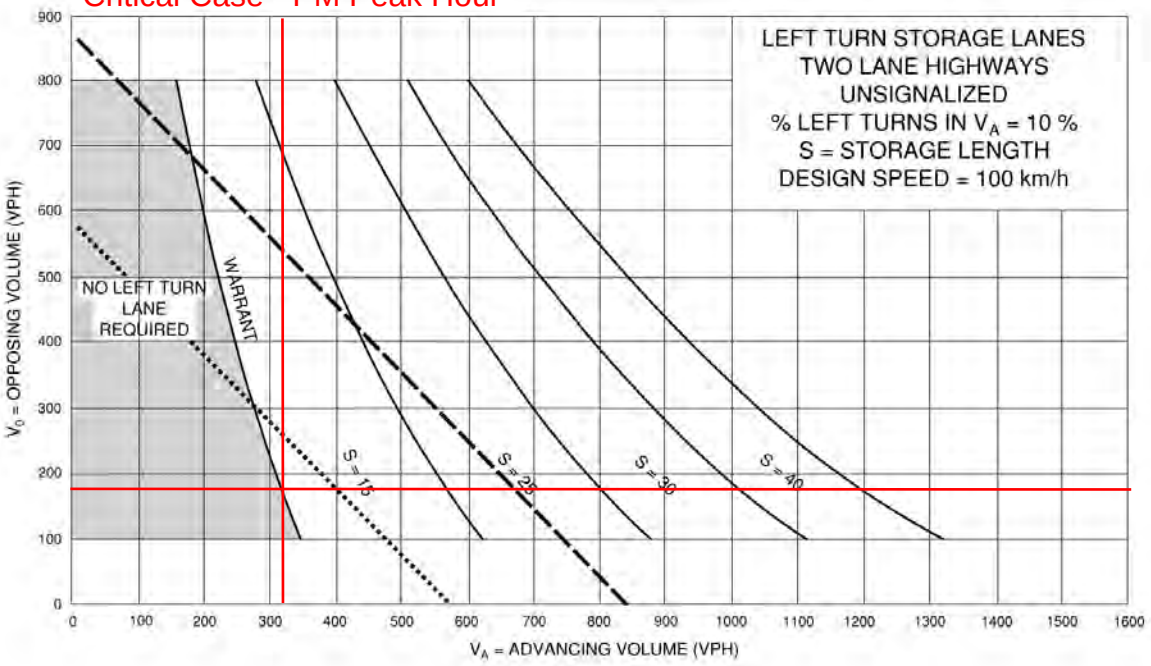
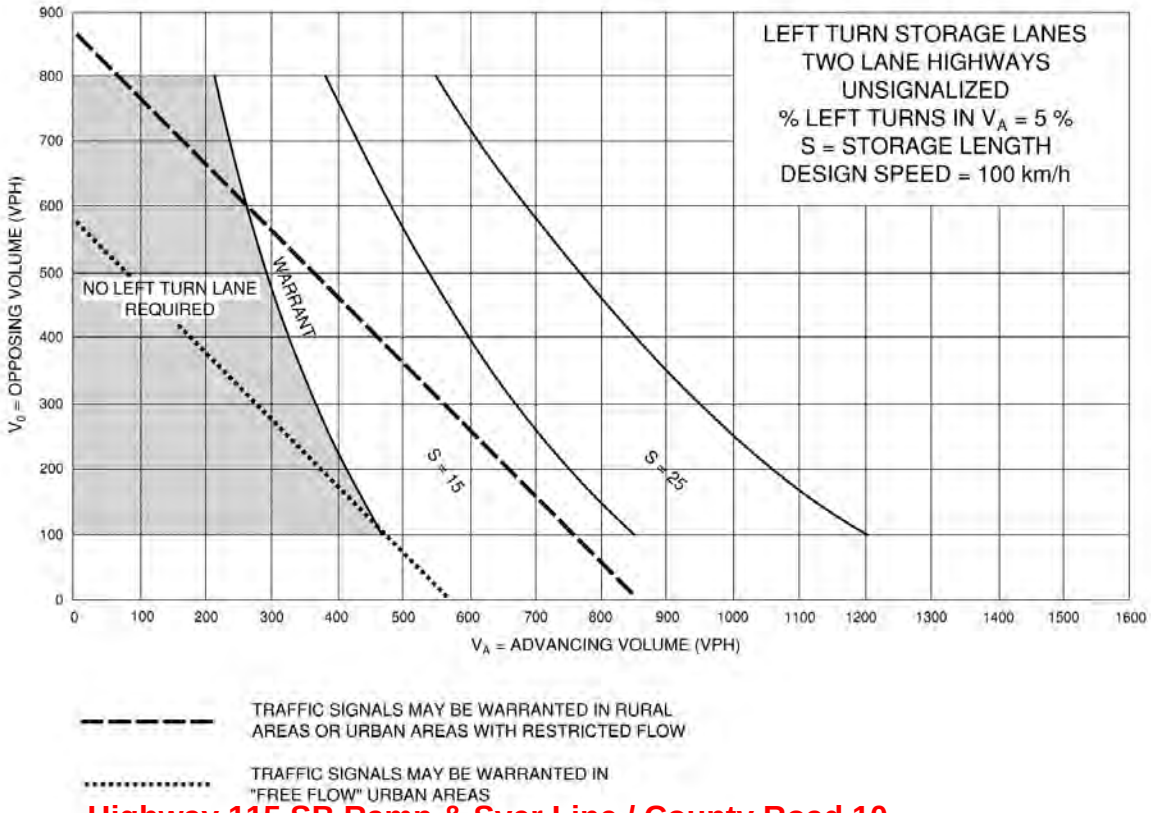


Exhibit 9A-22



Highway 115 SB Ramp & Syer Line / County Road 10
2028 Total - Northbound
Critical Case - PM Peak Hour

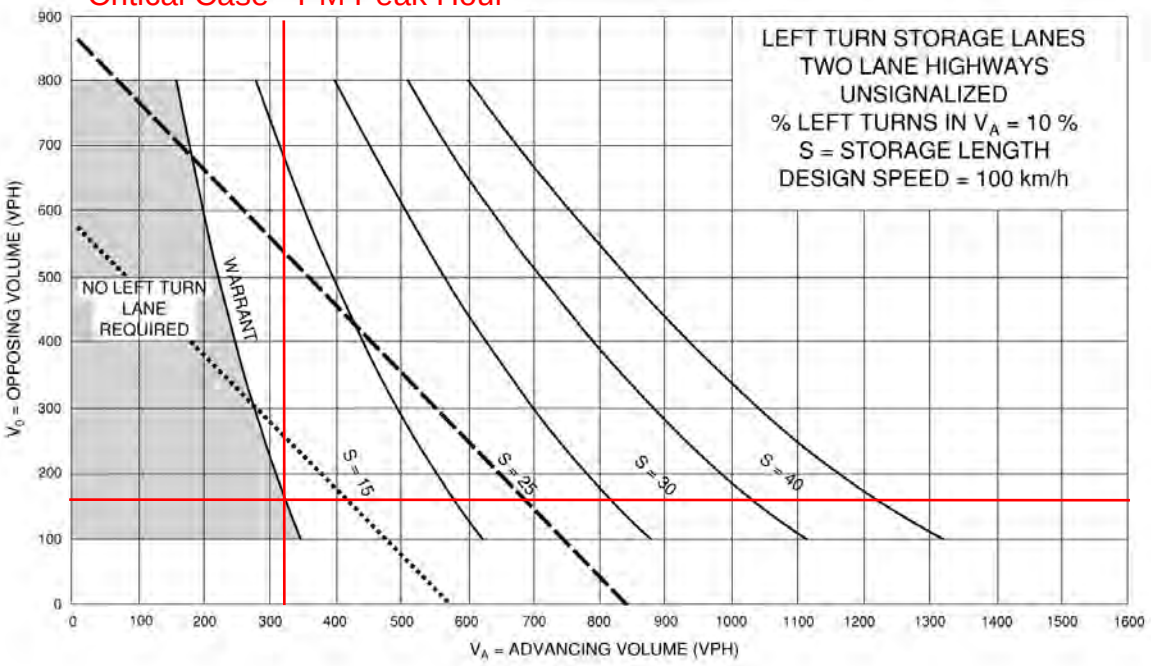
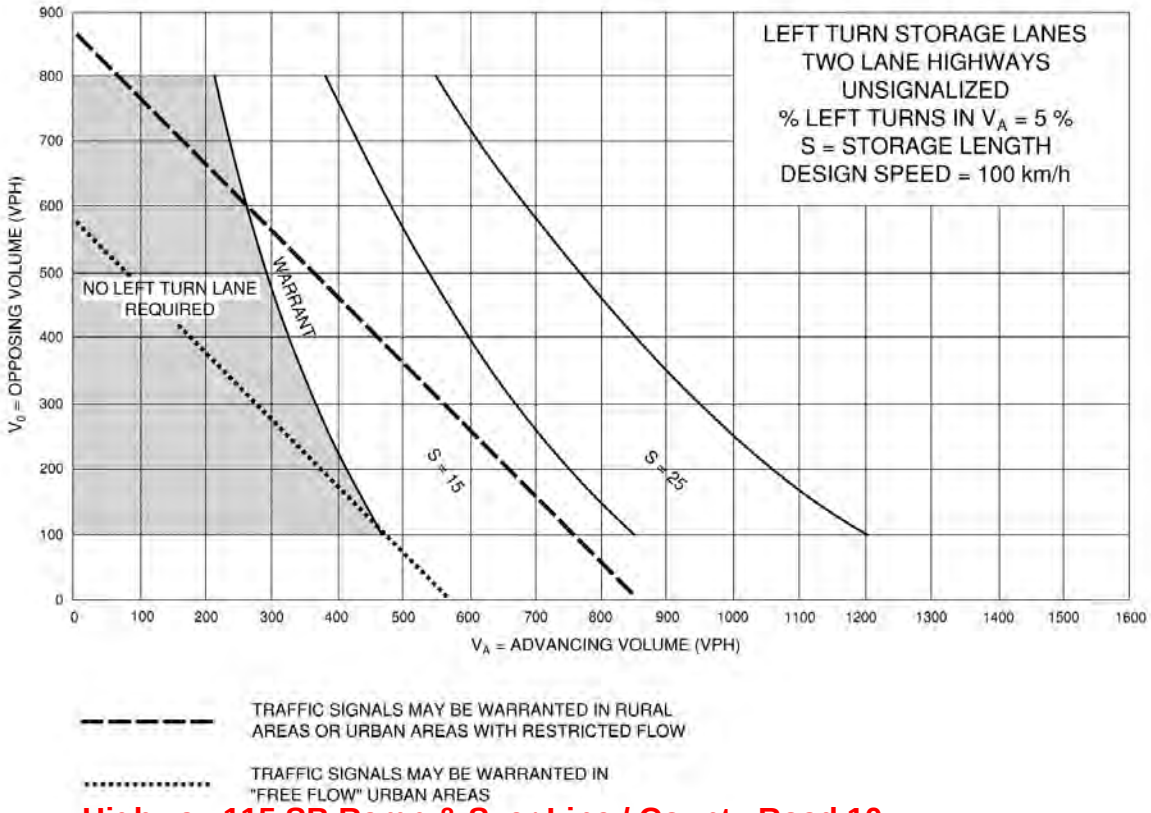


Exhibit 9A-22



Highway 115 SB Ramp & Syer Line / County Road 10

2038 Total - Northbound

Critical Case - PM Peak Hour

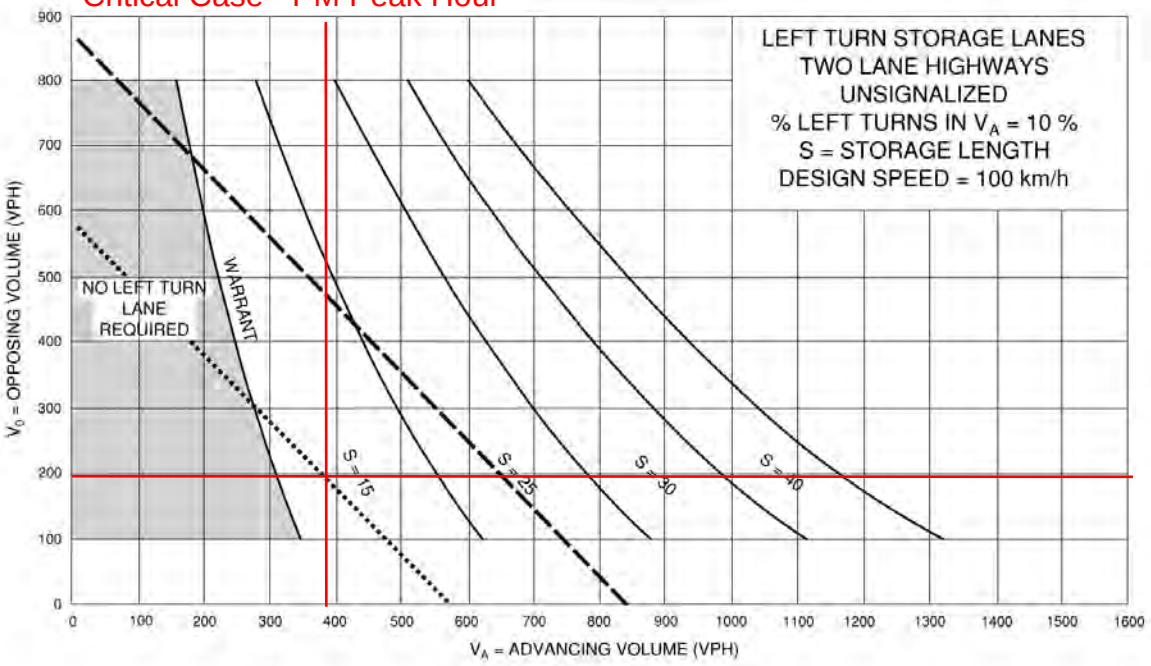
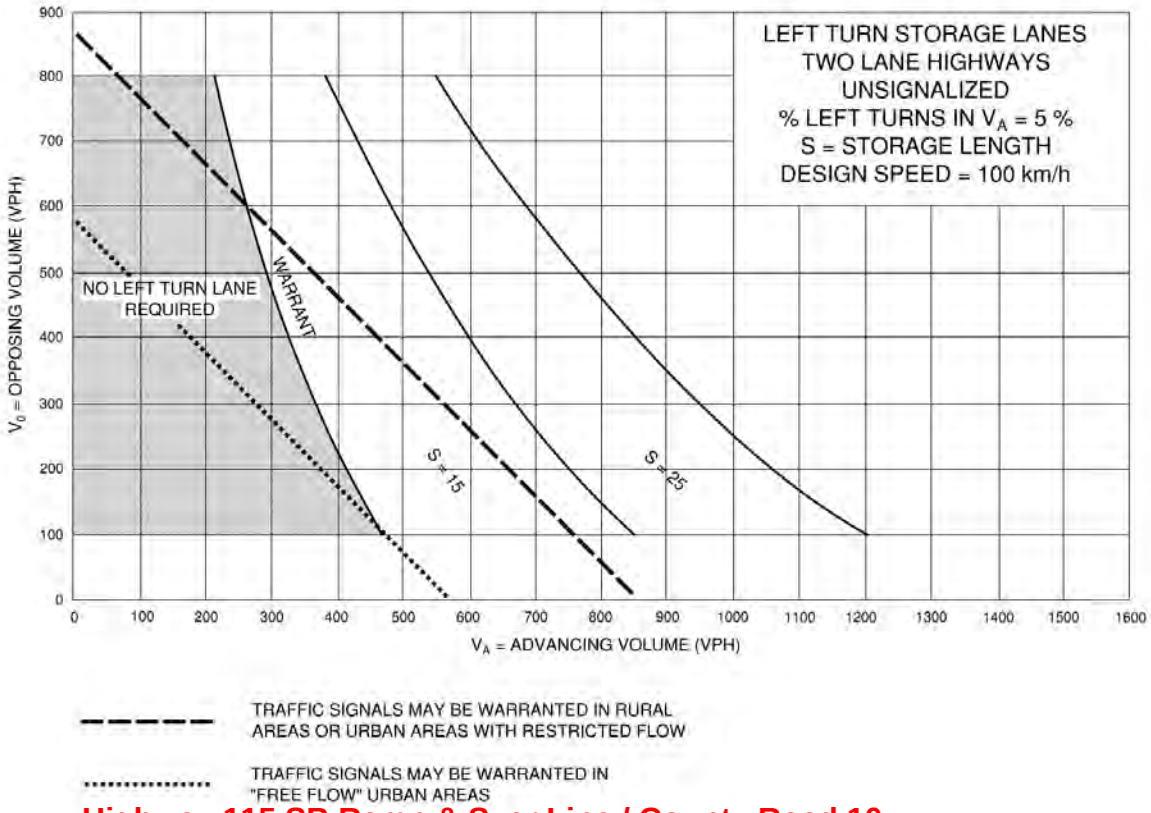


Exhibit 9A-22



Highway 115 SB Ramp & Syer Line / County Road 10
2038 Background - Northbound
Critical Case - PM Peak Hour - Supplementary Analysis

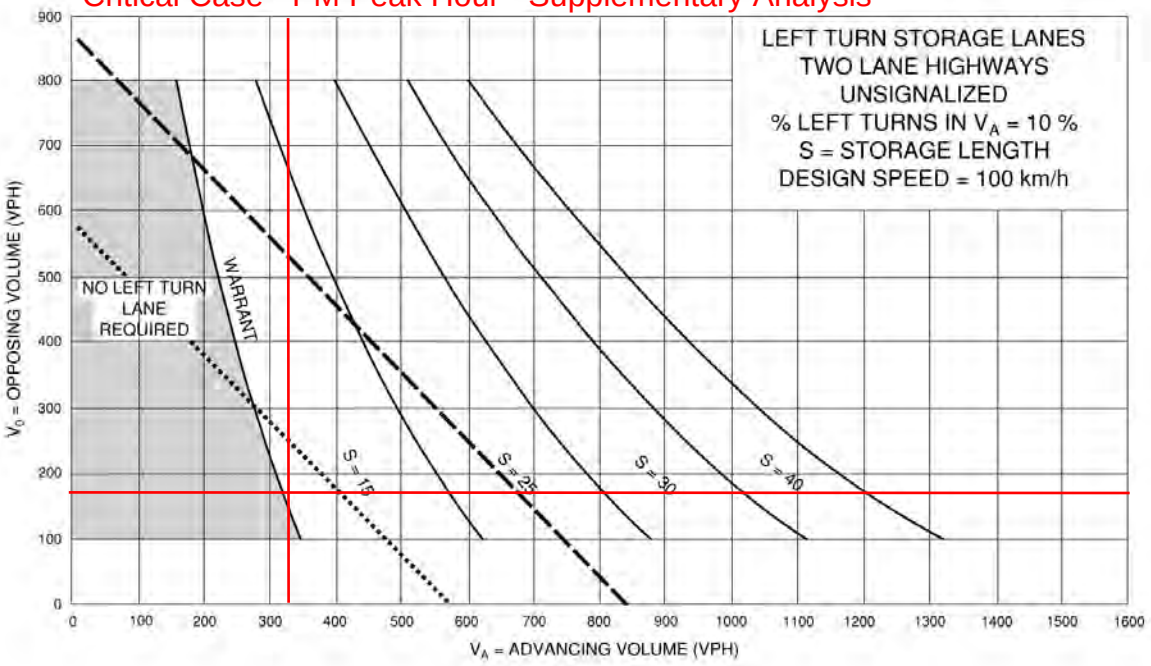
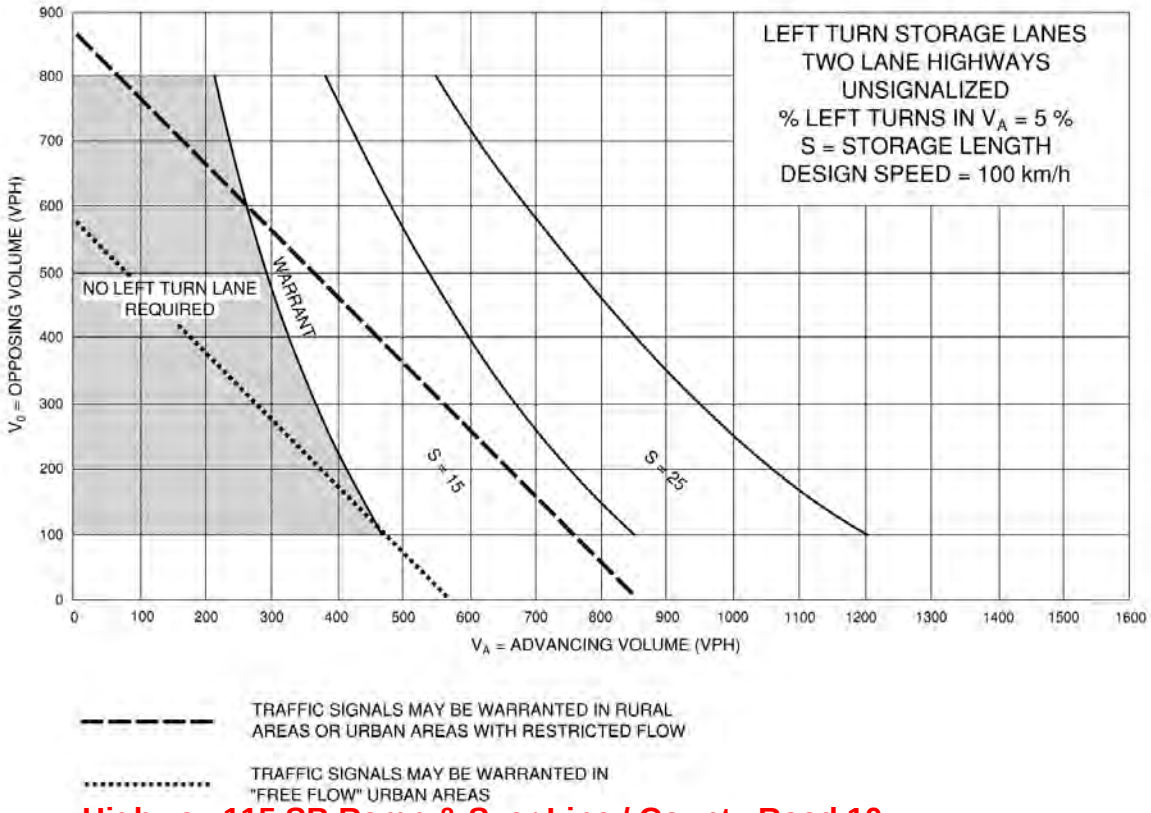


Exhibit 9A-22



Highway 115 SB Ramp & Syer Line / County Road 10

2028 Total - Northbound

Critical Case - PM Peak Hour - Supplementary Analysis

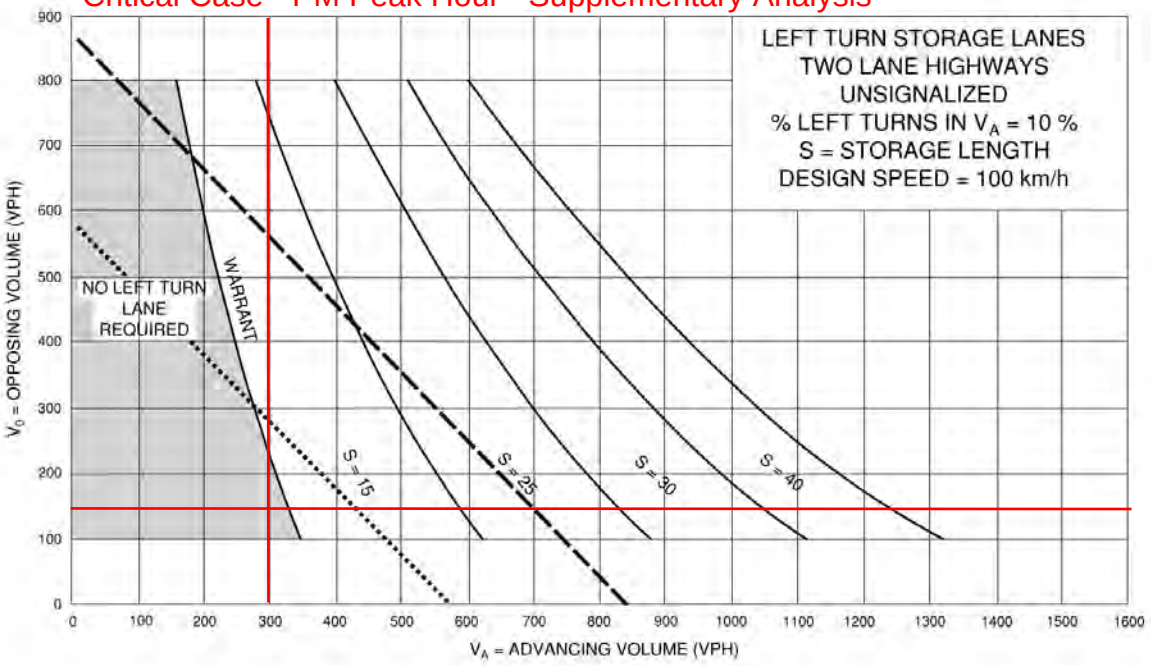
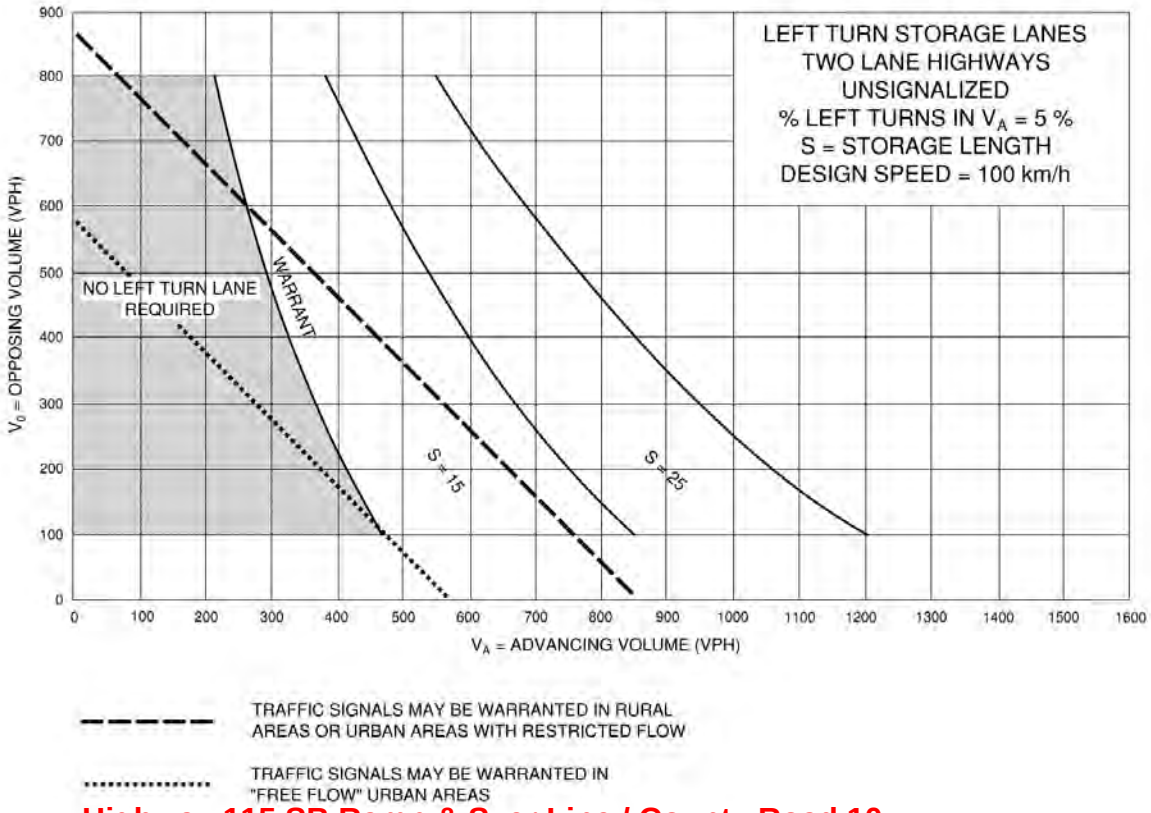


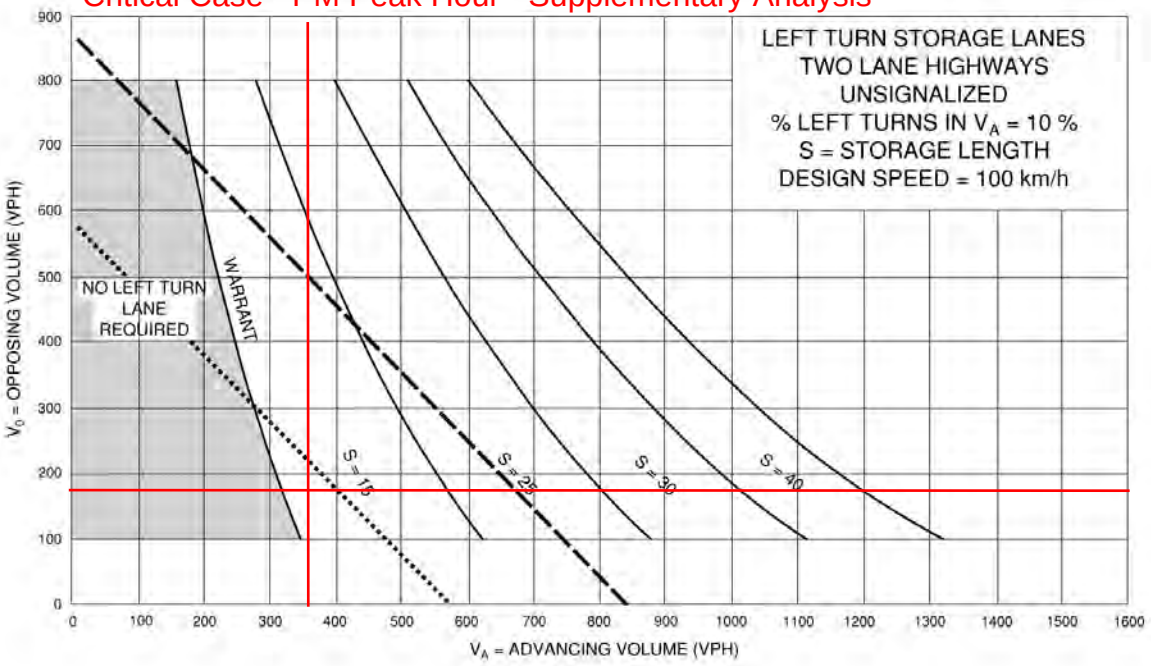
Exhibit 9A-22



Highway 115 SB Ramp & Syer Line / County Road 10

2038 Total - Northbound

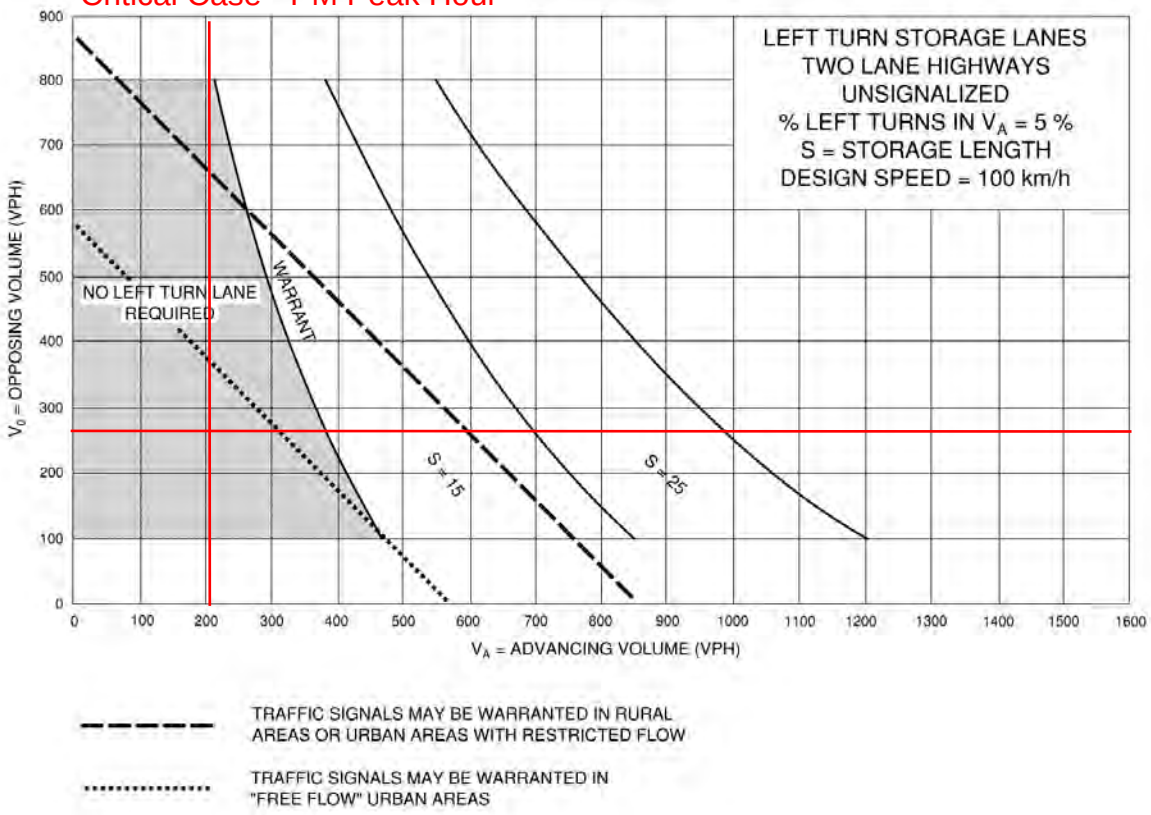
Critical Case - PM Peak Hour - Supplementary Analysis

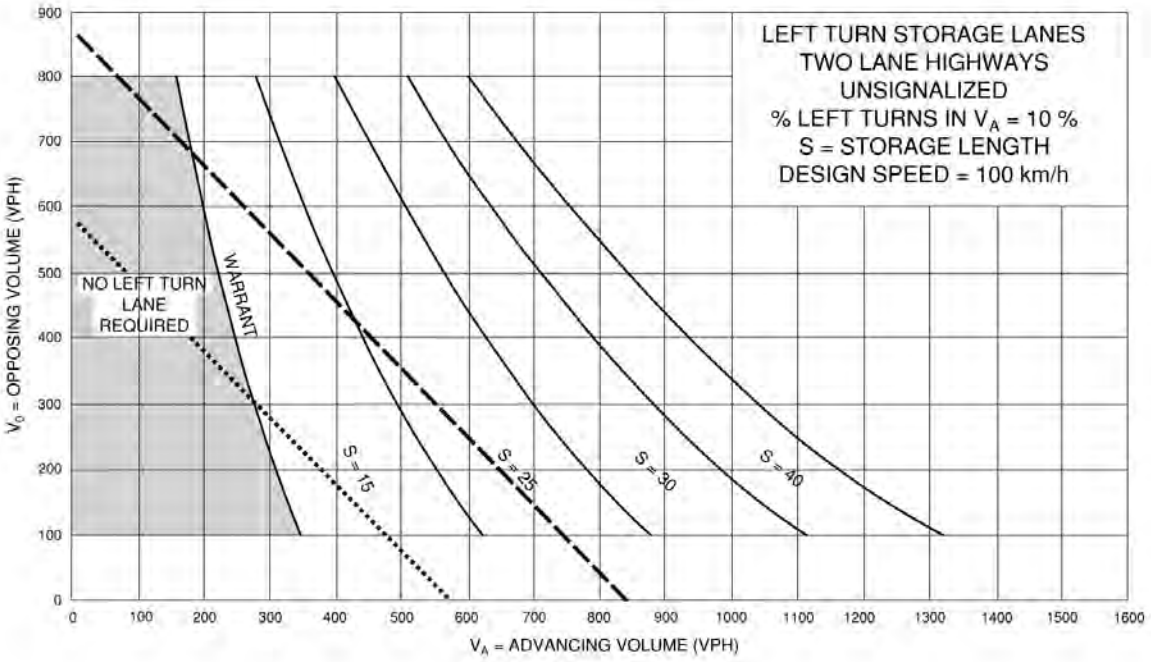


Highway 115 NB Ramp & Syer Line / County Road 10

2023 Existing - Southbound **Exhibit 9A-22**

Critical Case - PM Peak Hour

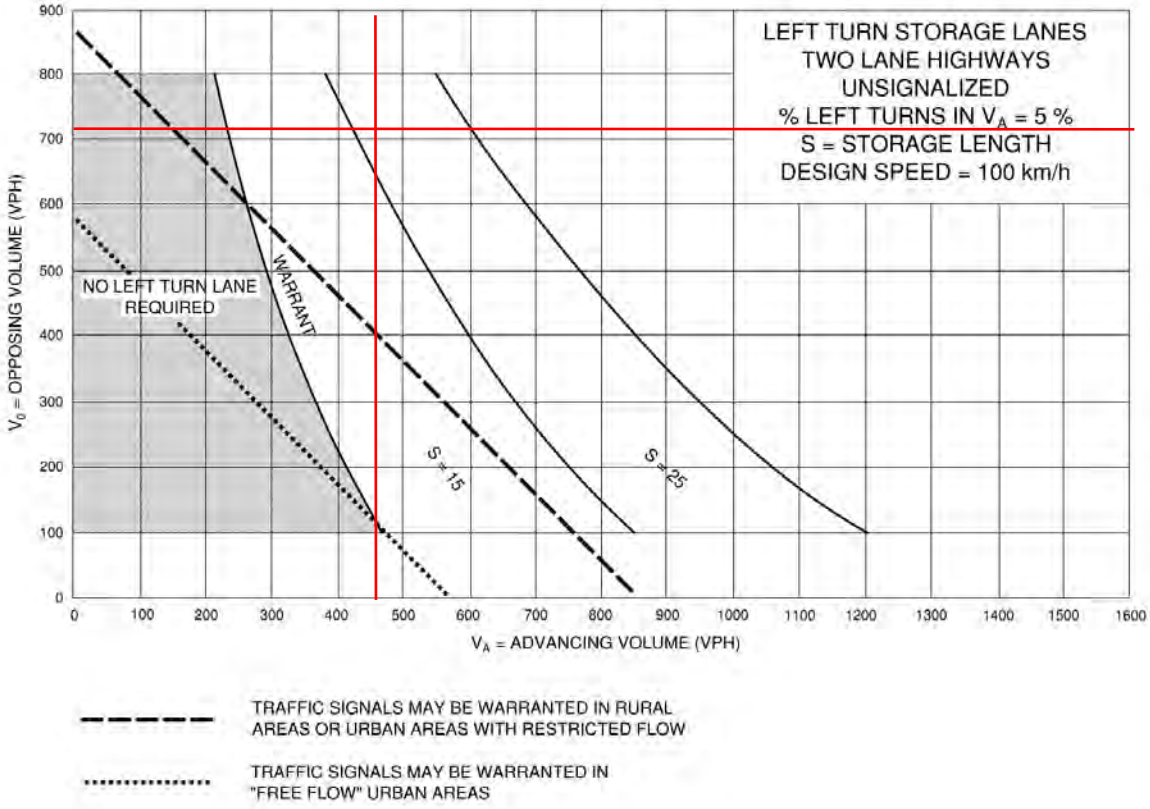


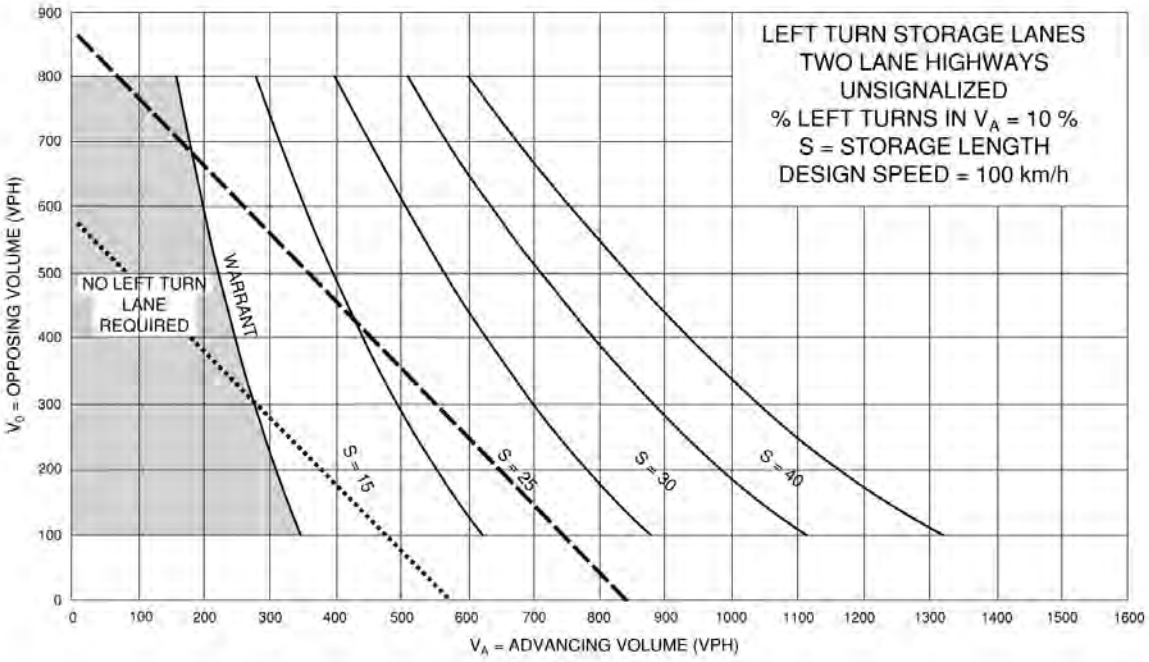


Highway 115 NB Ramp & Syer Line / County Road 10

2028 Background - Southbound **Exhibit 9A-22**

Critical Case - PM Peak Hour

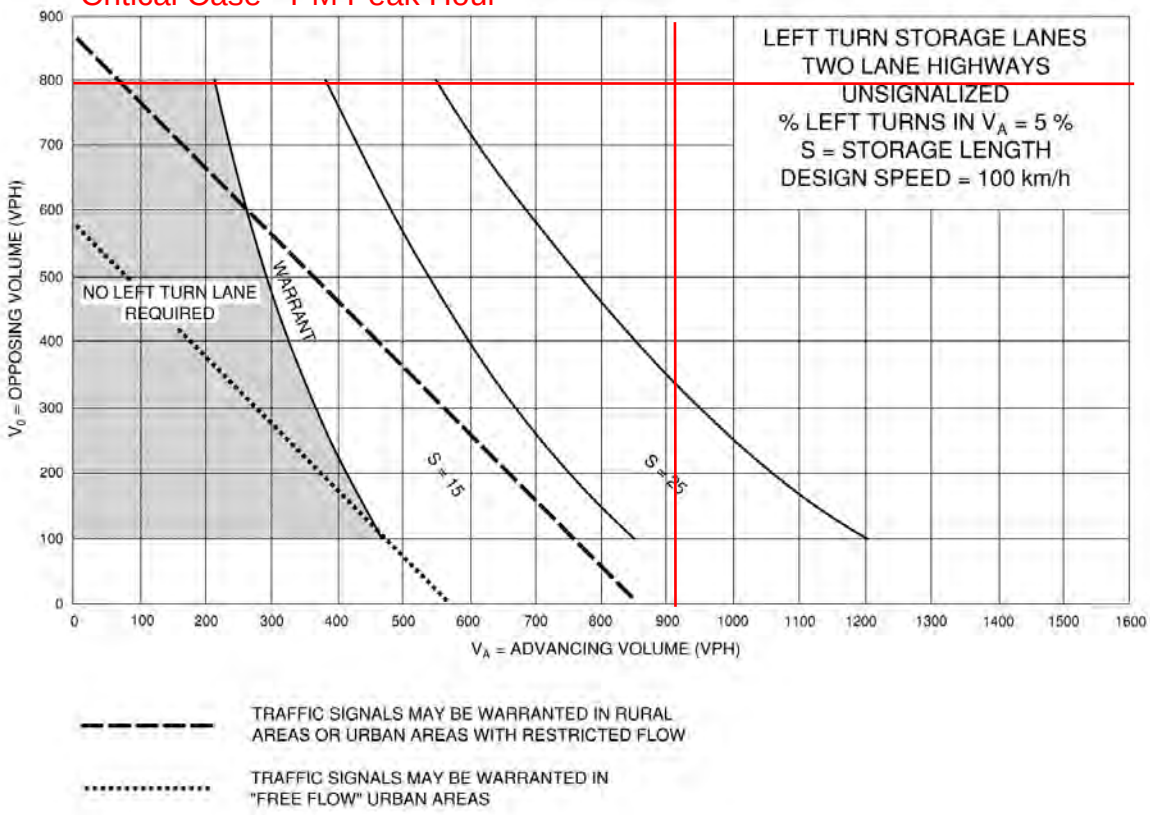


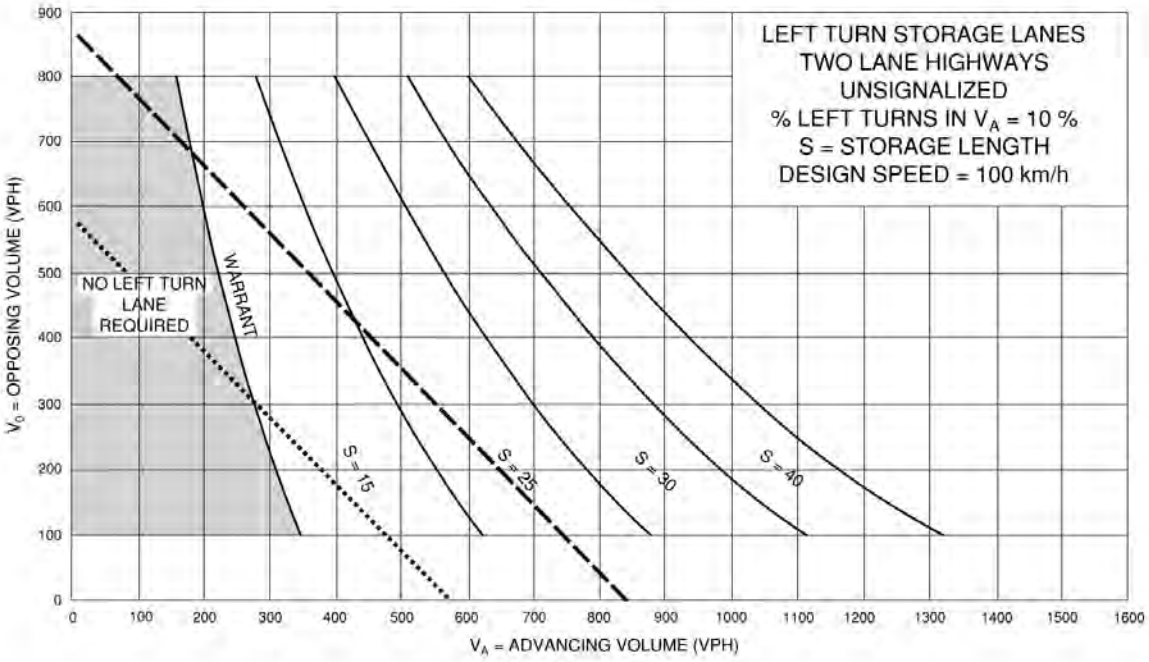


Highway 115 NB Ramp & Syer Line / County Road 10

2038 Total - Southbound **Exhibit 9A-22**

Critical Case - PM Peak Hour

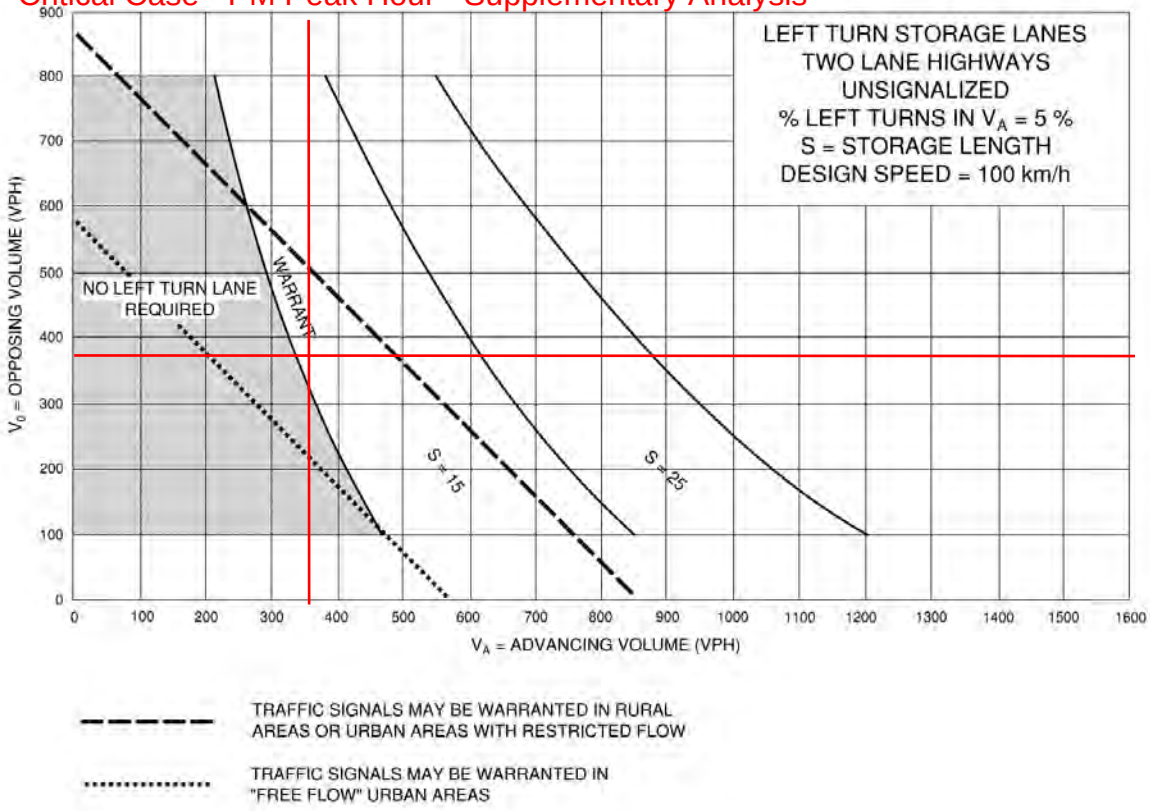




Highway 115 NB Ramp & Syer Line / County Road 10

2028 Background - Southbound **Exhibit 9A-22**

Critical Case - PM Peak Hour - Supplementary Analysis



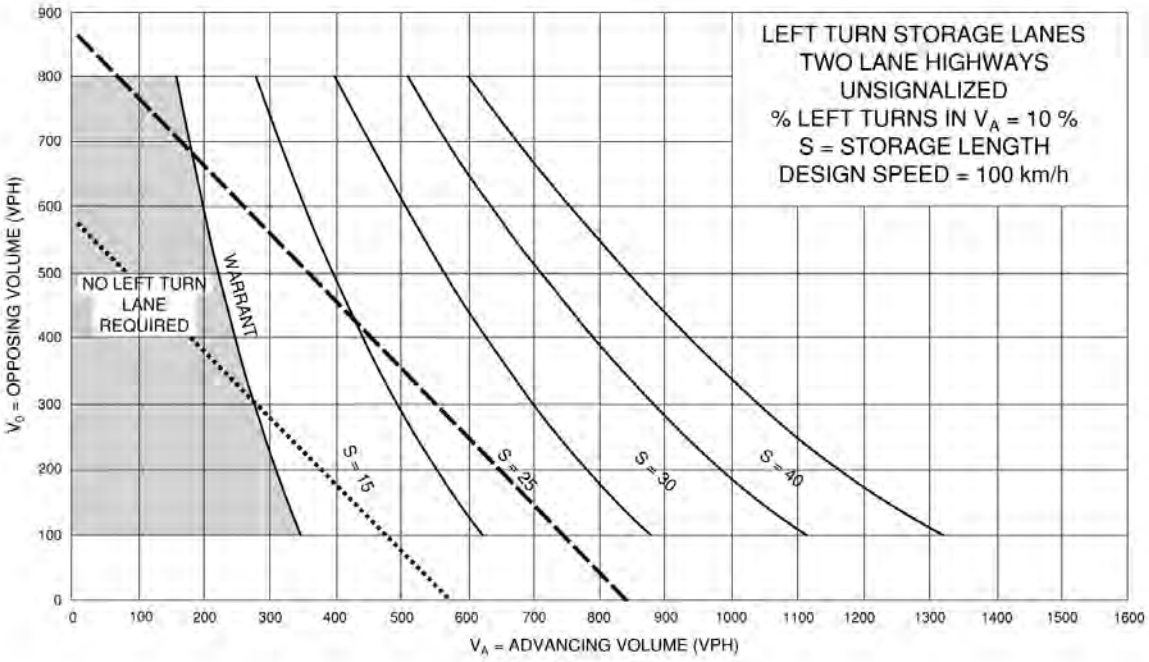
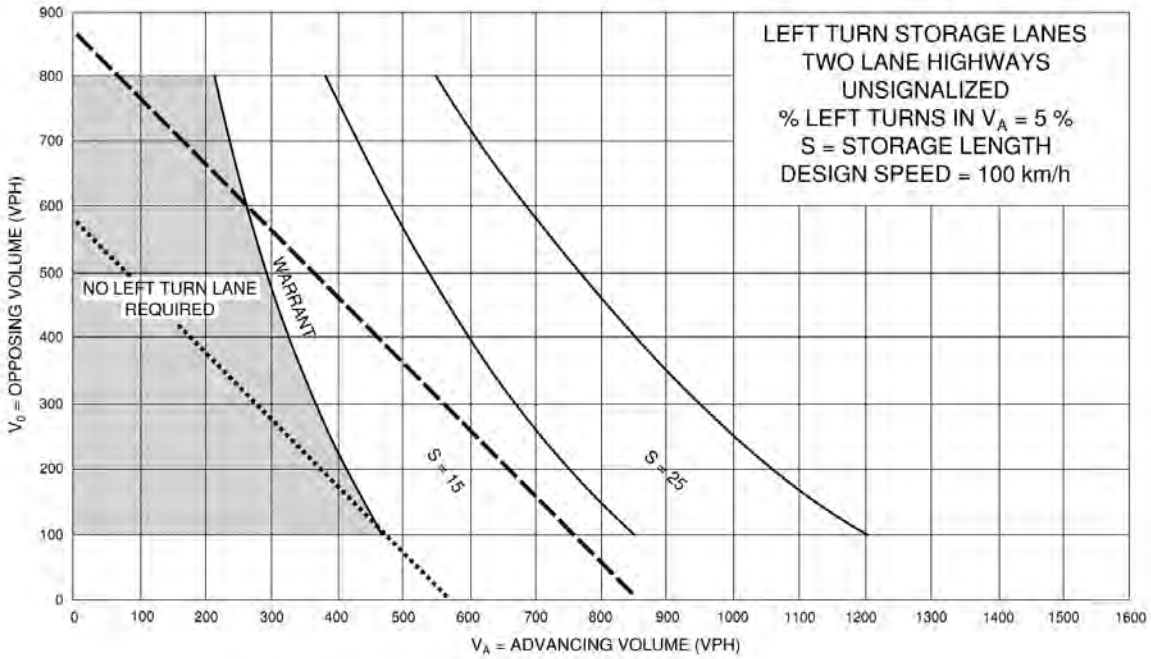


Exhibit 9A-22



Highway 115 NB Ramp & Syer Line / County Road 10

2038 Total - Southbound

Critical Case - PM Peak Hour - Supplementary Analysis

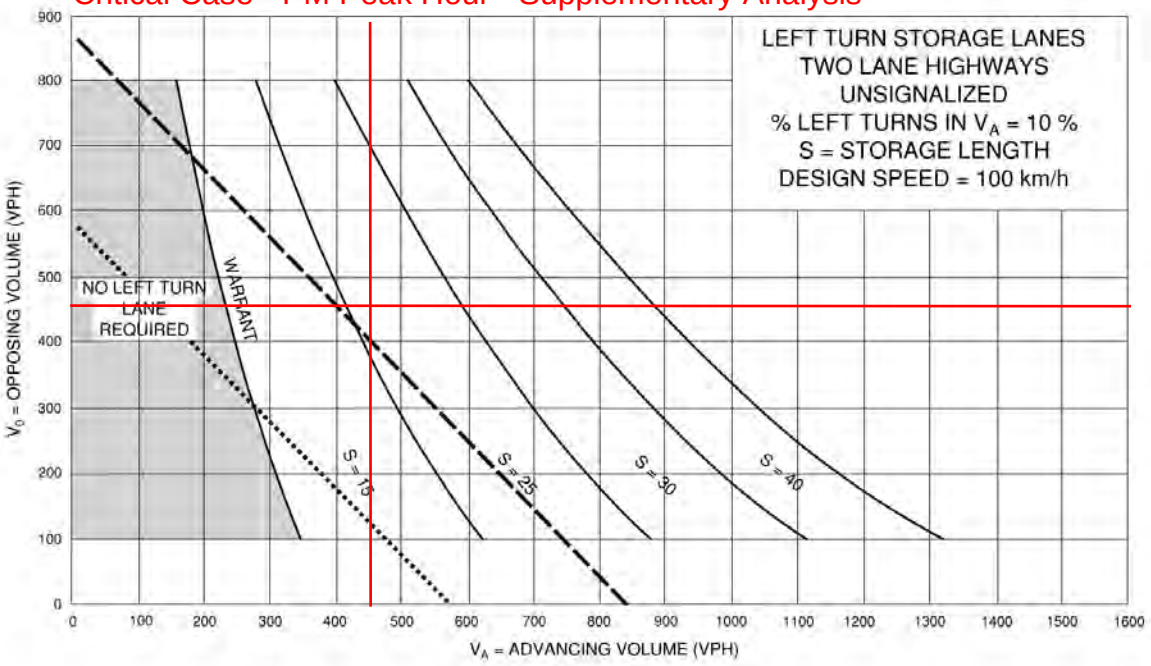
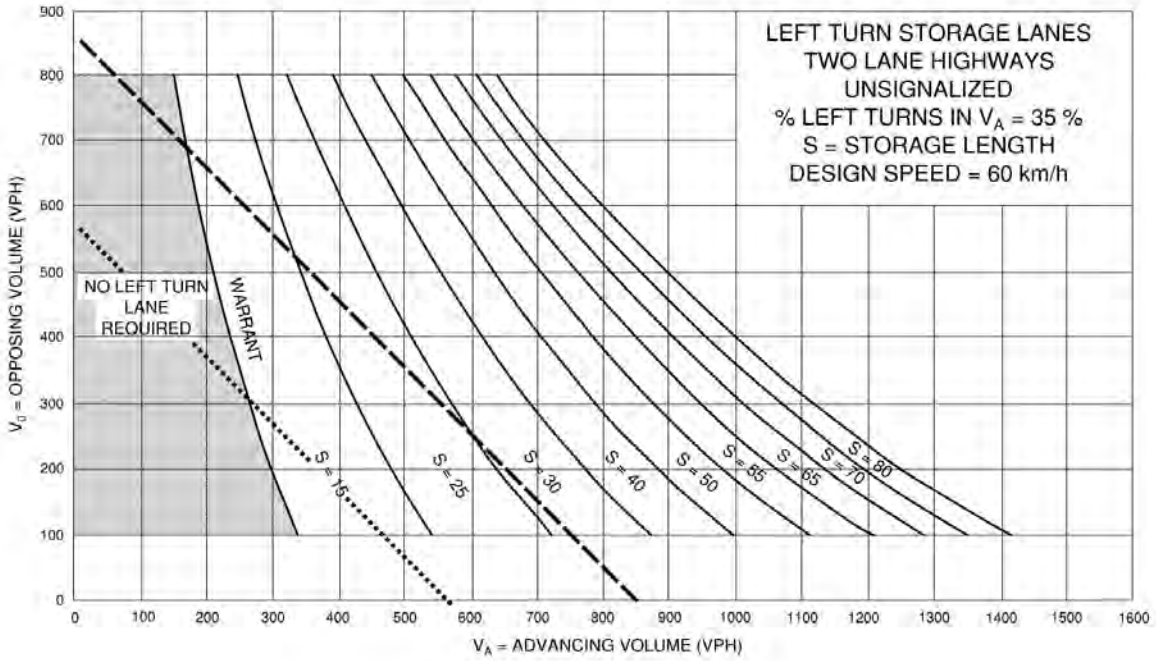


Exhibit 9A-9



Syer Line / Street A
2038 Total - Eastbound
Critical Case - AM Peak Hour

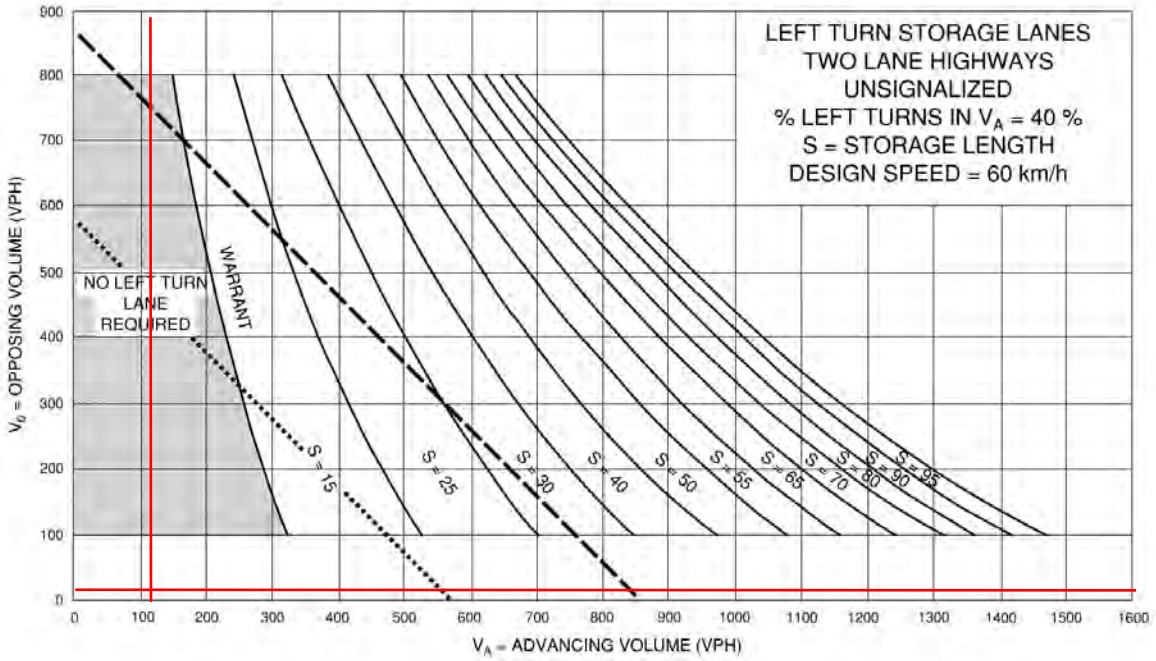
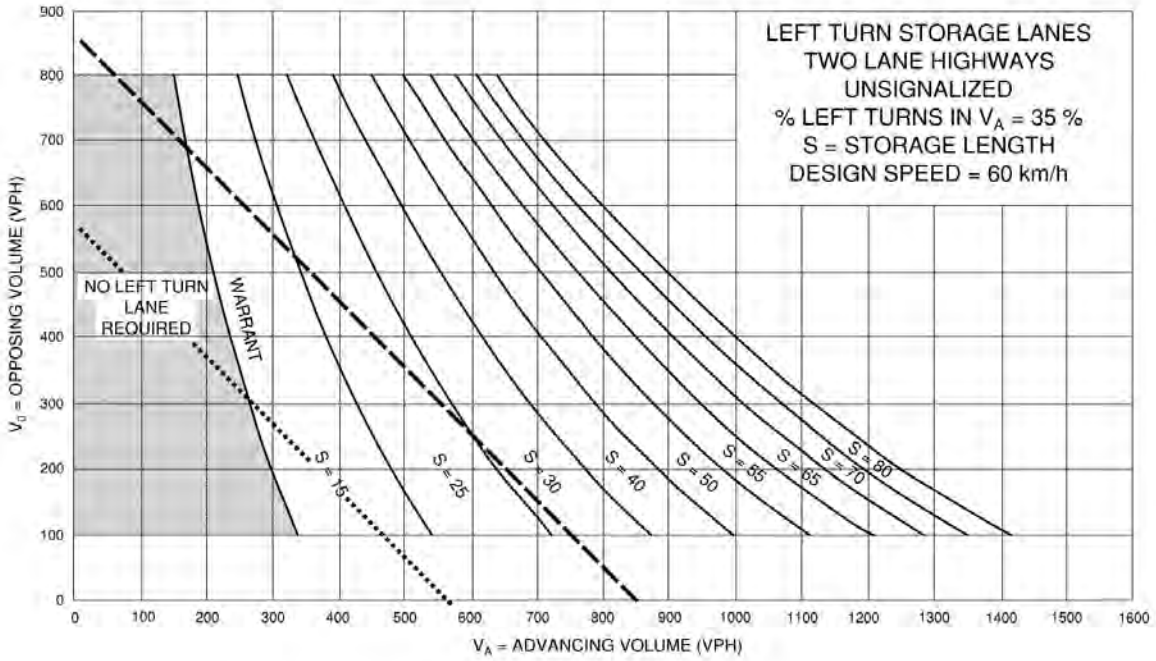
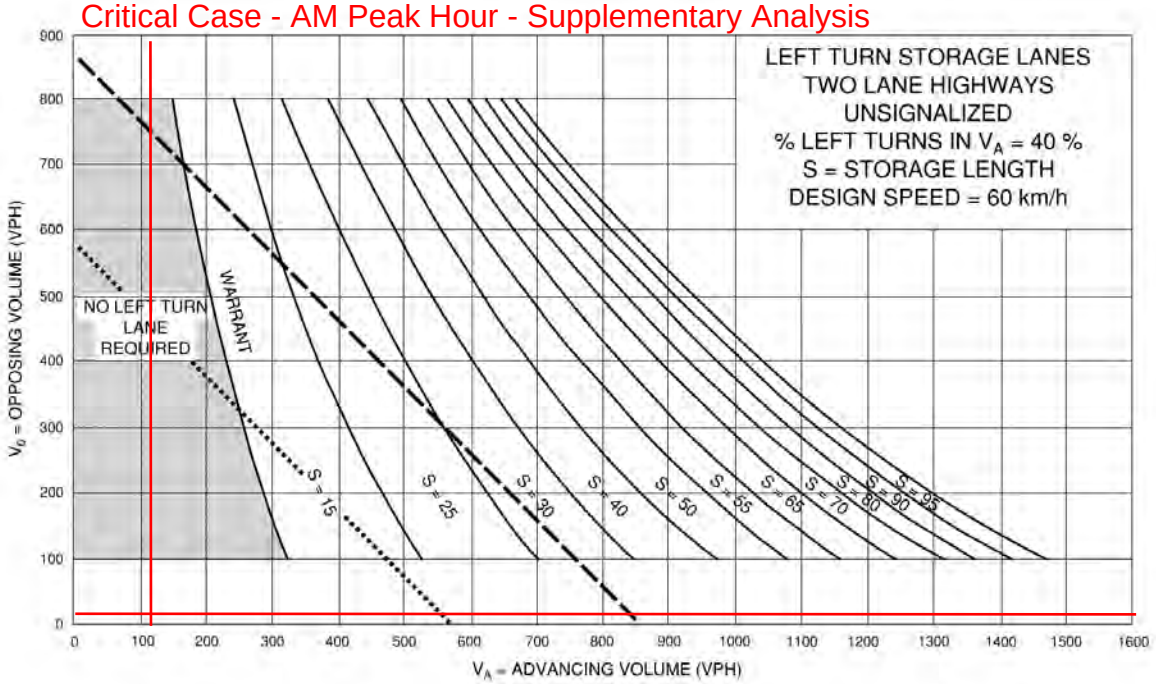


Exhibit 9A-9



Syer Line / Street A
2038 Total - Eastbound
Critical Case - AM Peak Hour - Supplementary Analysis



Appendix H –
OTM Signal Justification Sheets

Justification No. 7 - 2028 Background Traffic

Highway 115 SB Ramp & Syer Line / County Road 10

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Free Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	465	97%	81%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	120	271	226%		YES	YES
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	174	36%	30%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	253	506%		YES	YES

Justification No. 7 - 2038 Background Traffic

Highway 115 SB Ramp & Syer Line / County Road 10

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Free Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	546	114%	95%	NO	YES
	B. Vehicle volume, along minor streets (average hour)	120	311	259%		YES	YES
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	211	44%	37%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	288	577%		YES	YES

Justification No. 7 - 2038 Total Traffic

Highway 115 SB Ramp & Syer Line / County Road 10

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	579	121%	101%	YES	YES
	B. Vehicle volume, along minor streets (average hour)	120	327	273%		YES	YES
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	225	47%	39%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	305	610%		YES	YES

Justification No. 7 - 2038 Total Traffic Supplementary Analysis

Highway 115 SB Ramp & Syer Line / County Road 10

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	390	81%	68%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	120	162	135%		YES	YES
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	208	43%	36%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	139	278%		YES	YES

Justification No. 7 - 2028 Background Traffic

Highway 115 NB Ramp & Syer Line / County Road 1(

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Free Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	717	149%	40%	YES	YES
	B. Vehicle volume, along minor streets (average hour)	120	57	47%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	648	135%	63%	YES	YES
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	38	76%		NO	NO

Justification No. 7 - 2038 Background Traffic

Highway 115 NB Ramp & Syer Line / County Road 1(

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	827	172%	49%	YES	YES
	B. Vehicle volume, along minor streets (average hour)	120	70	59%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	741	154%	79%	YES	YES
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	48	95%		NO	NO

Justification No. 7 - 2038 Total Traffic

Highway 115 NB Ramp & Syer Line / County Road 1(

Justification	Description		Compliance			Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	885	184%	70%	YES	YES
	B. Vehicle volume, along minor streets (average hour)	120	100	84%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	766	159%	109%	YES	YES
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	65	131%		YES	YES

Justification No. 7 - 2038 Total Traffic Supplementary Analysis

Highway 115 NB Ramp & Syer Line / County Road 1(

Justification	Description	Compliance				Signal Warrant	Underground Provisions Warrant
			Sectional		Entire %		
		Rest. Flow	Numerical	%			
1. Minimum Vehicluar Volume	A. Vehicle volume, all aproaches (average hour)	480	508	106%	65%	NO	YES
	B. Vehicle volume, along minor streets (average hour)	120	94	79%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	480	394	82%	68%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	50	65	131%		YES	YES

Justification No. 7 - 2038 Background Traffic

Syer Line / Street A

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	22	3%	0%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	255	1	0%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	21	3%	0%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	1	1%		NO	NO

Justification No. 7 - 2038 Total Traffic

Syer Line / Street A

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	80	11%	7%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	255	28	11%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	52	7%	0%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	1	1%		NO	NO

Justification No. 7 - 2038 Total Traffic Supplementary Analysis

Syer Line / Street A

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	80	11%	7%	NO	NO
	B. Vehicle volume, along minor streets (average hour)	255	28	11%		NO	NO
2. Delay to cross traffic	A. Vehicle volume, major street (average hour)	720	52	7%	0%	NO	NO
	B. Combined vehicle and pedestrian volume crossing artery from minor streets (average hour)	75	1	1%		NO	NO

Appendix I –
Transportation Tomorrow Survey – Excerpt

Residential Distribution
Fri Feb 11 2022 15:42:07 GMT-0500 (Eastern Standard Time) - Run Time: 2702ms Cross Tabulation Query Form - Trip - 2016 v1.1 Row: Planning district of origin - pd_orig Column: Planning district of destination - pd_dest   Filters: (Planning district of destination - pd_dest In 104); and (Start time of trip - start_time In 700 - 900); and (Trip purpose of destination - purp_dest In W, R) Trip 2016 ROW : pd_orig COLUMN : pd_dest

TTS Cross Tabulation

Cross Tabulation Query Form - Trip - 2016 v1.1

Filter Variables

Planning district of origin | Planning district of desti... | (Optional) Table Attribute

Group Attributes

Row Grouping | Column Grouping | Table Grouping

Grouping file: Choose File No file chosen

Filter Selection +

Planning district of destination In

104

And

Start time of trip In

700 - 900

And

Trip purpose of destination In

W, R

Add Delete

Output

Comma-delimited table | Column format | Expansion Factor On | Click to Select Load | Load

Execute Query | Select All | Save As

```
Mon Mar 21 2022 17:47:25 GMT-0400 (Eastern Daylight Time) - Run Time: 2644ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pd_orig
Column: Planning district of destination - pd_dest


Filters:
Planning district of destination - pd_dest In 104
and
Start time of trip - start_time In 700 - 900
and
Trip purpose of destination - purp_dest In W, R

Trip 2016
Table:

,Cavan Monaghan
Ajax,11
Oshawa,26
Clarington,63
Kawartha Lakes,260
Peterborough,669
Cavan Monaghan,204
Otonabee-South Monaghan,128
Asphodel-Norwood,5
Dummer-Douro,40
Selwyn,95
```

Employment Distribution
Tue Feb 15 2022 16:33:06 GMT-0500 (Eastern Standard Time) - Run Time: 2537ms Cross Tabulation Query Form - Trip - 2016 v1.1 Row: Planning district of destination - pd_dest Column: Planning district of origin - pd_orig   Filters: (Planning district of origin - pd_orig In 104,); and (Start time of trip - start_time In 700 - 900); and (Trip purpose of destination - purp_dest In W, R) Trip 2016 ROW : pd_dest COLUMN : pd_orig

TTS Cross Tabulation

Cross Tabulation Query Form - Trip - 2016 v1.1

Filter Variables

Planning district of desti... ✕ | Planning district of origin ✕ | (Optional) Table Attribute

Group Attributes

Row Grouping | Column Grouping | Table Grouping

Grouping file: Choose File No file chosen

Filter Selection +

☐ Planning district of origin In

104

And

☐ Start time of trip In

700 - 900

And

☐ Trip purpose of destination In

W, R

Add Delete

Output

◉ Comma-delimited table ○ Column format Expansion Factor On Click to Select Load Load

Execute Query Select All Save As

```
Mon Mar 21 2022 17:50:10 GMT-0400 (Eastern Daylight Time) - Run Time: 2479ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pd_dest
Column: Planning district of origin - pd_orig


Filters:
Planning district of origin - pd_orig In 104
and
Start time of trip - start_time In 700 - 900
and
Trip purpose of destination - purp_dest In W, R

Trip 2016
Table:

,Cavan Monaghan
PD 1 of Toronto,35
PD 16 of Toronto,37
Ajax,26
Whitby,27
Oshawa,36
Clarington,152
Whitchurch-Stouffville,39
Mississauga,39
Kawartha Lakes,41
Peterborough,1122
Cavan Monaghan,204
Otonabee-South Monaghan,20
Asphodel-Norwood,11
Selwyn,39
Hastings,45
External,5
```