Final Report

Transportation Impact Study - Northwest Corner of Highway 124 and Second Line Ospringe, Erin, Wellington County

Prepared for Spirit of Pentecost
by IBI Group

June 29, 2021

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1 Introduction

IBI Group was retained by Spirit of Pentecost to complete a transportation impact study (TIS) for a proposed development consisting of 13 single family detached units. The proposed development is to be located at the northwest corner of the County Road 124 & Second Line / County Road 125 intersection (hereinafter referred to as the "subject site"), in Ospringe, Town of Erin, Wellington County, Ontario. The purpose of this report is to analyze potential traffic impacts to the study area caused by trips generated by the subject site.

This report serves as an update to the previously-issued report **Transportation Impact Study – Northwest Corner of Highway 124 and Second Line – Ospringe, Erin, Wellington County**, prepared by IBI Group and dated October 19, 2017, by taking into consideration peer review comments received from Ainley & Associates Limited, dated February 2, 2021. These peer review comments are provided in **Appendix G**.

1.1 Proposed Development

The subject site currently contains a vacant lot. It is proposed that 13 single family detached houses be constructed on the lot.

Access to the site is proposed via a single driveway, intersecting with Second Line or County Road 124. The analysis in this report refers to the Second Line driveway as Scenario 1, and the County Road 124 driveway as Scenario 2. Upon consultation with the County of Wellington, it is understood that an intersection with County Road 124 is not permitted. However, the analysis of a County Road 124 connection is included within this report for completeness, and is identified as Scenario 2.

The driveway will be configured to permit full movement operations. The proposed site plan with the Scenario 1 and Scenario 2 configurations are presented in **Exhibit 1-1** and Exhibit 1-2**,** respectively. The subject site is anticipated to be completed and fully occupied under one phase, by the year 2023.

Exhibit 1-1: Site Plan – Scenario 1 Configuration

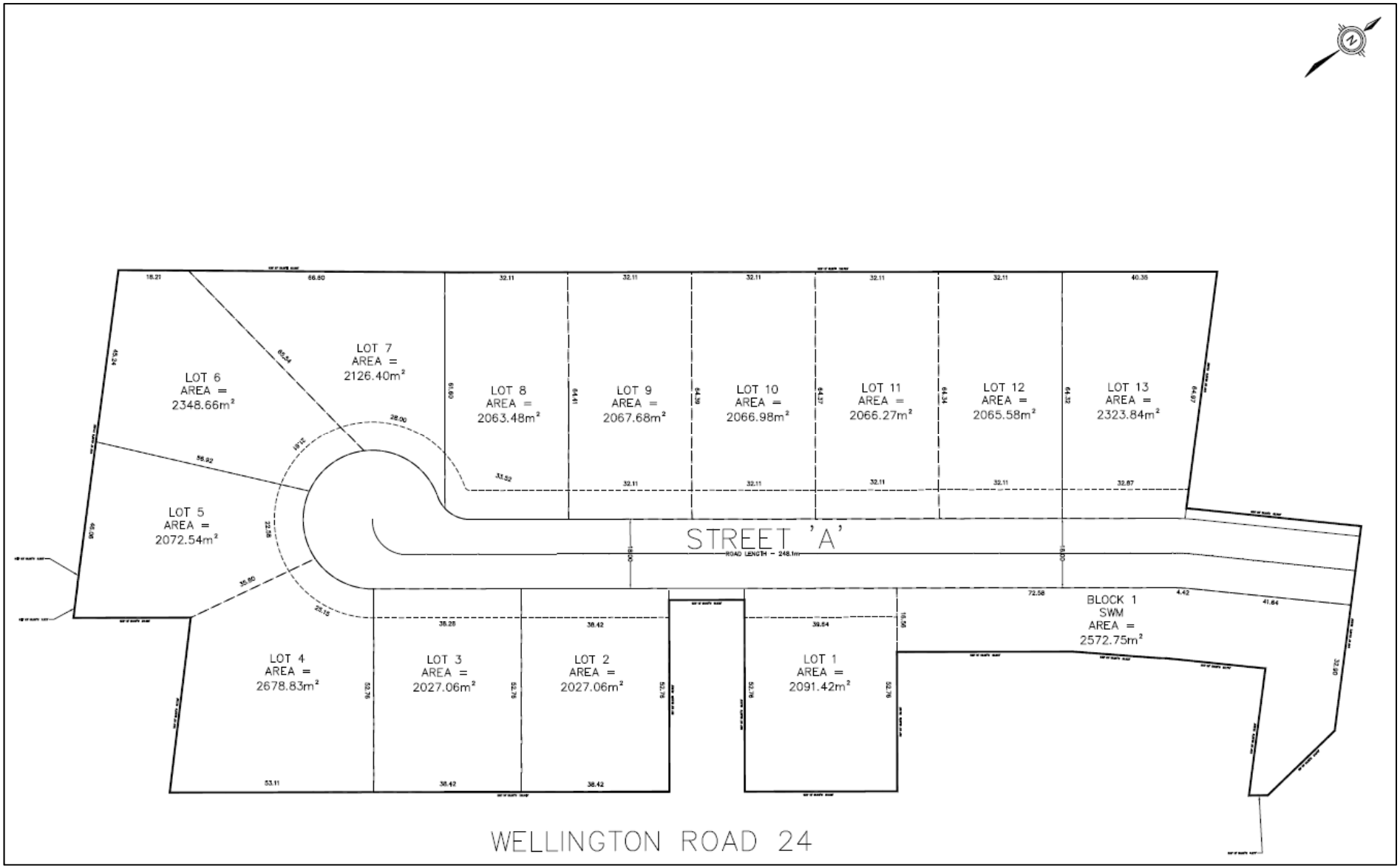
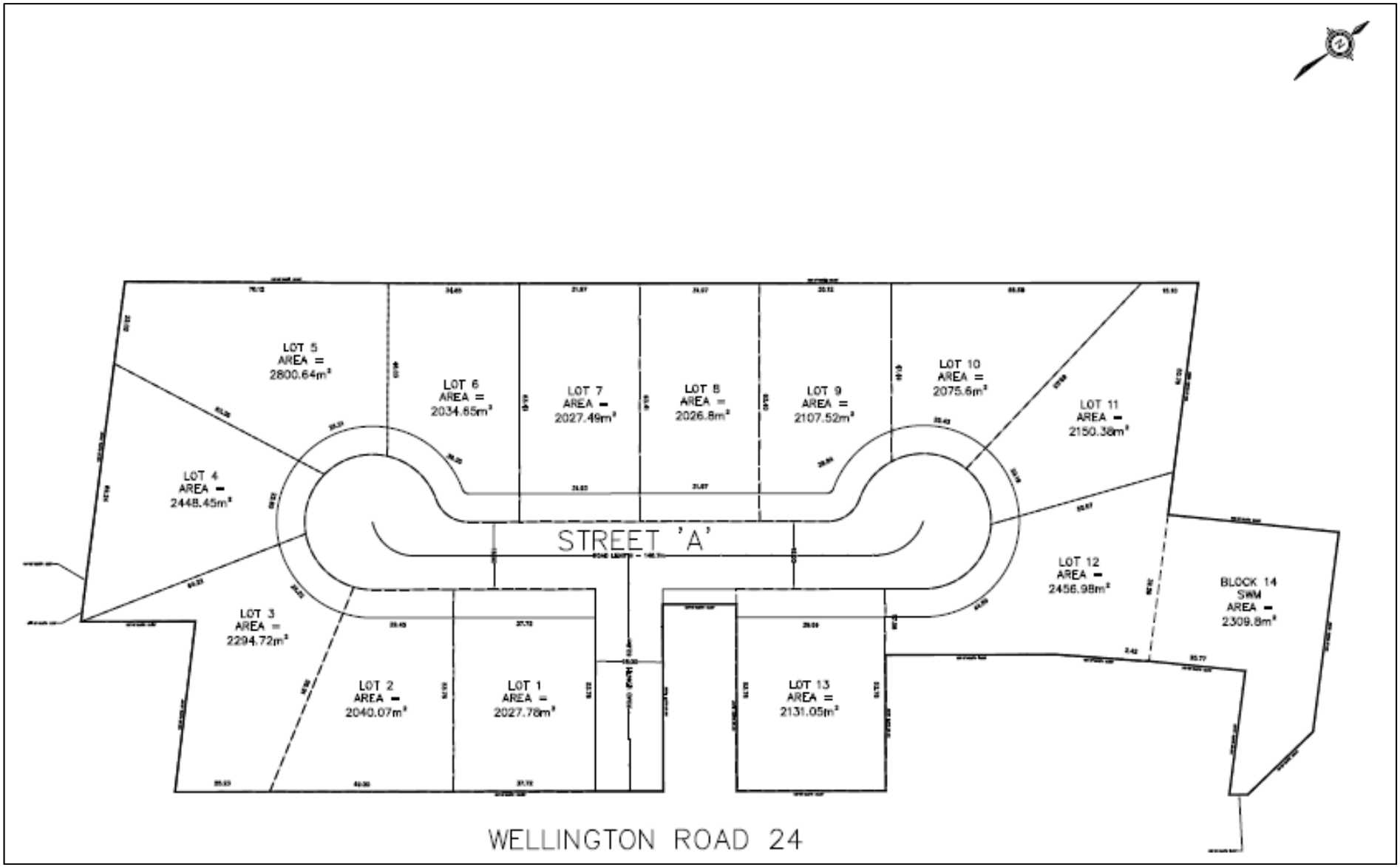


Exhibit 1-2: Site Plan – Scenario 2 Configuration



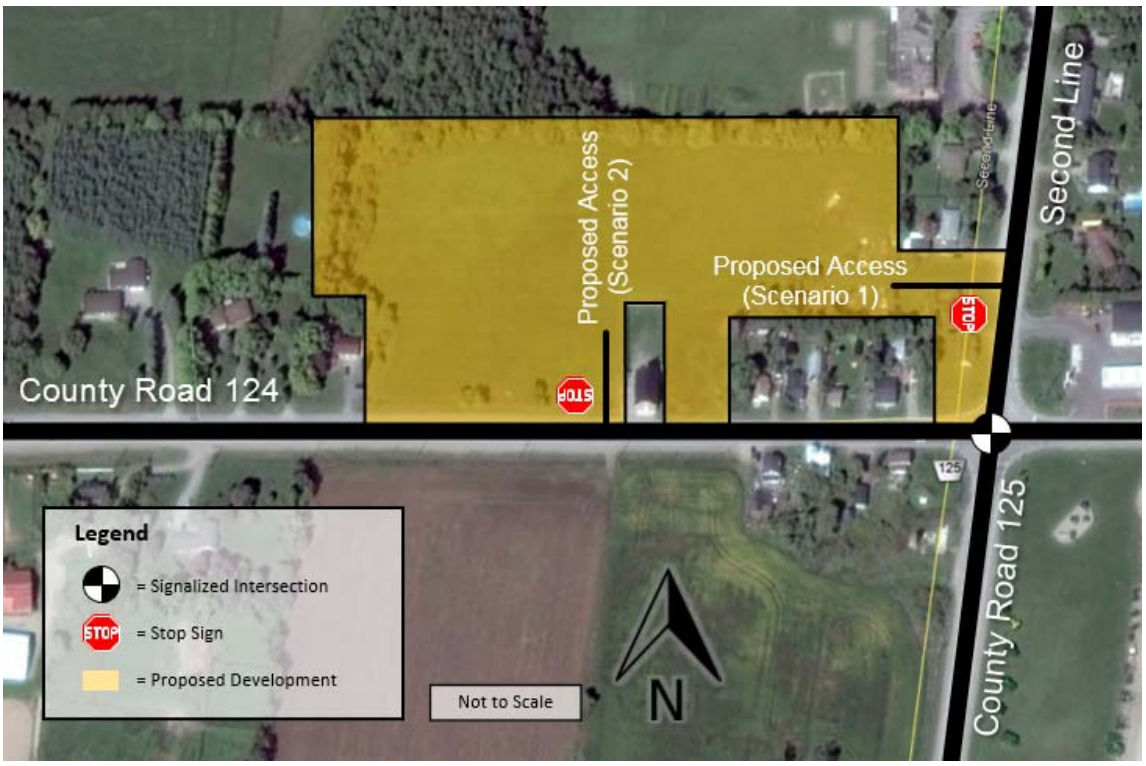
1.2 Study Area

Upon consultation with the County of Wellington and the Town of Erin, the following intersections were selected for analysis in this TIS:

- County Road 124 & County 125 / Second line (signalized, 4-legged intersection);
- County Road 125 / Second Line & Proposed Site Access (unsignalized, 3-legged intersection) – Scenario 1; and
- County Road 124 & Proposed Site Access (unsignalized, 3-legged intersection) – Scenario 2.

The proposed development location and the study area intersections are illustrated in Exhibit 1-3.

Exhibit 1-3: Study Area



1.3 Analysis Periods

Based on the proposed development's residential land use, the following periods were used in the analysis for this study:

- AM Peak Period - 7:00 AM – 9:00 AM on a typical weekday; and
- PM Peak Period - 4:00 PM – 6:00 PM on a typical weekday.

2 Existing Conditions

This section documents the transportation network in the study area in its current form, as of June 2021, including existing roadways, traffic control measures, intersection performance, walking and cycling facilities, and transit operations.

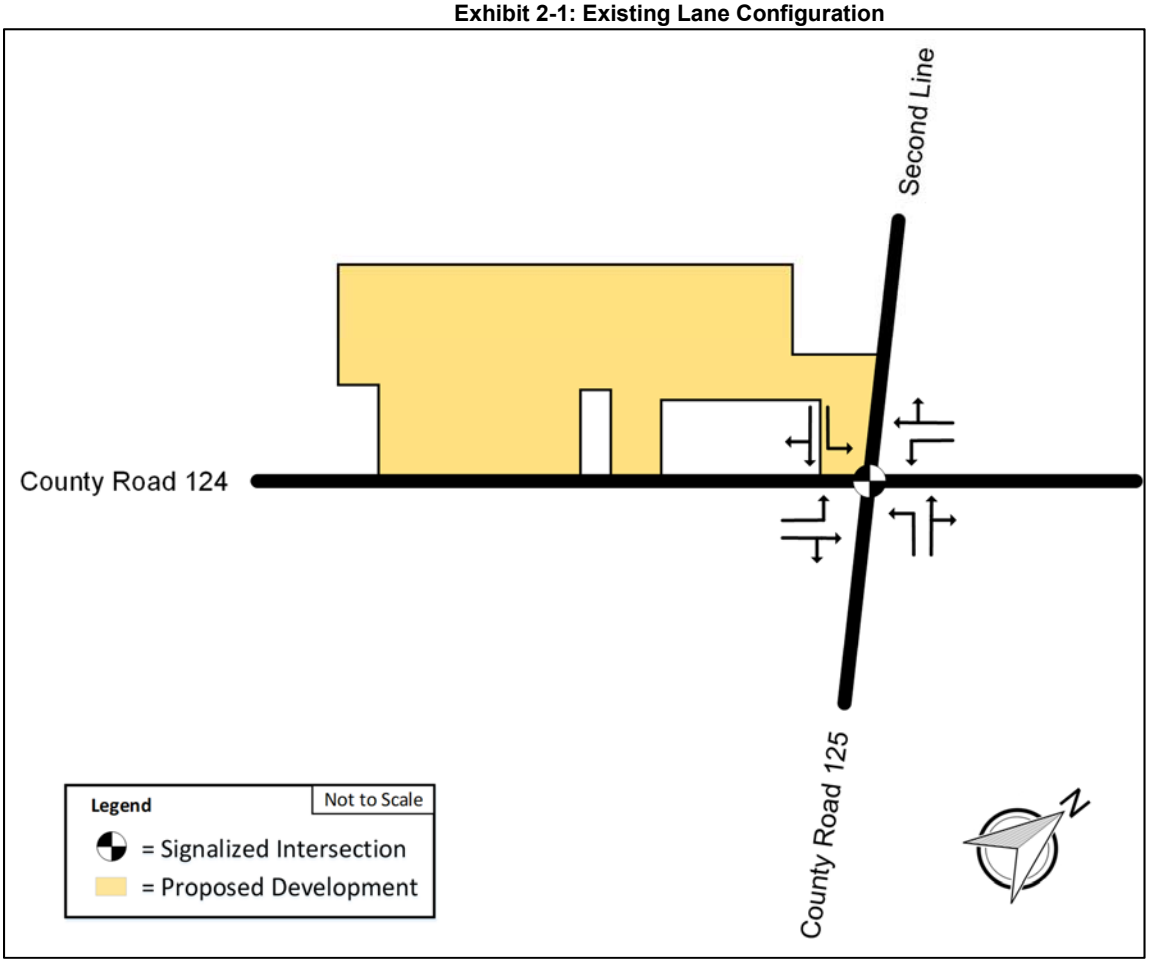
2.1 Existing Road Network

The roadways adjacent to the study area are County Road 124 and County Road 125 / Second Line. They are described in further detail, as follows:

- **County Road 124** is an east-west county road with one lane in each direction with a posted 60 km/hr speed limit. There is one signalized intersection within the study area, where County Road 124 and County Road 125 / Second Line intersects. There are no sidewalks and cycling facilities on this road. East-west transit service is not provided within walking distance of the subject site.
- **County Road 125 / Second Line** is a north-south county road with one lane in each direction. The road becomes Second Line north of the intersection of County Road 124 and County Road 125. Formerly on Second Line, the posted speed limit was 40 km/hr. However, from the time of the previous 2017 TIS report submission, the posted speed limit along Second Line has been increased to 50 km/h. Furthermore, on County Road 125, there is a posted speed limit of 80 km/hr. There are no sidewalk and cycling facilities on this road. North-south transit service is not provided within walking distance of the subject site.

The existing lane configuration is shown in Exhibit 2-1.

Exhibit 2-1: Existing Lane Configuration



2.2 Turning Movement Counts

A turning movement count survey for the adjacent County Road 124 / County Road 125 & Second Line major intersection was conducted by Ontario Traffic Inc. and the data is provided in **Appendix A**. The survey's study hours were chosen to coincide with weekday AM and PM peak period traffic activity on the adjacent road, and were confirmed with the County of Wellington and the Town of Erin.

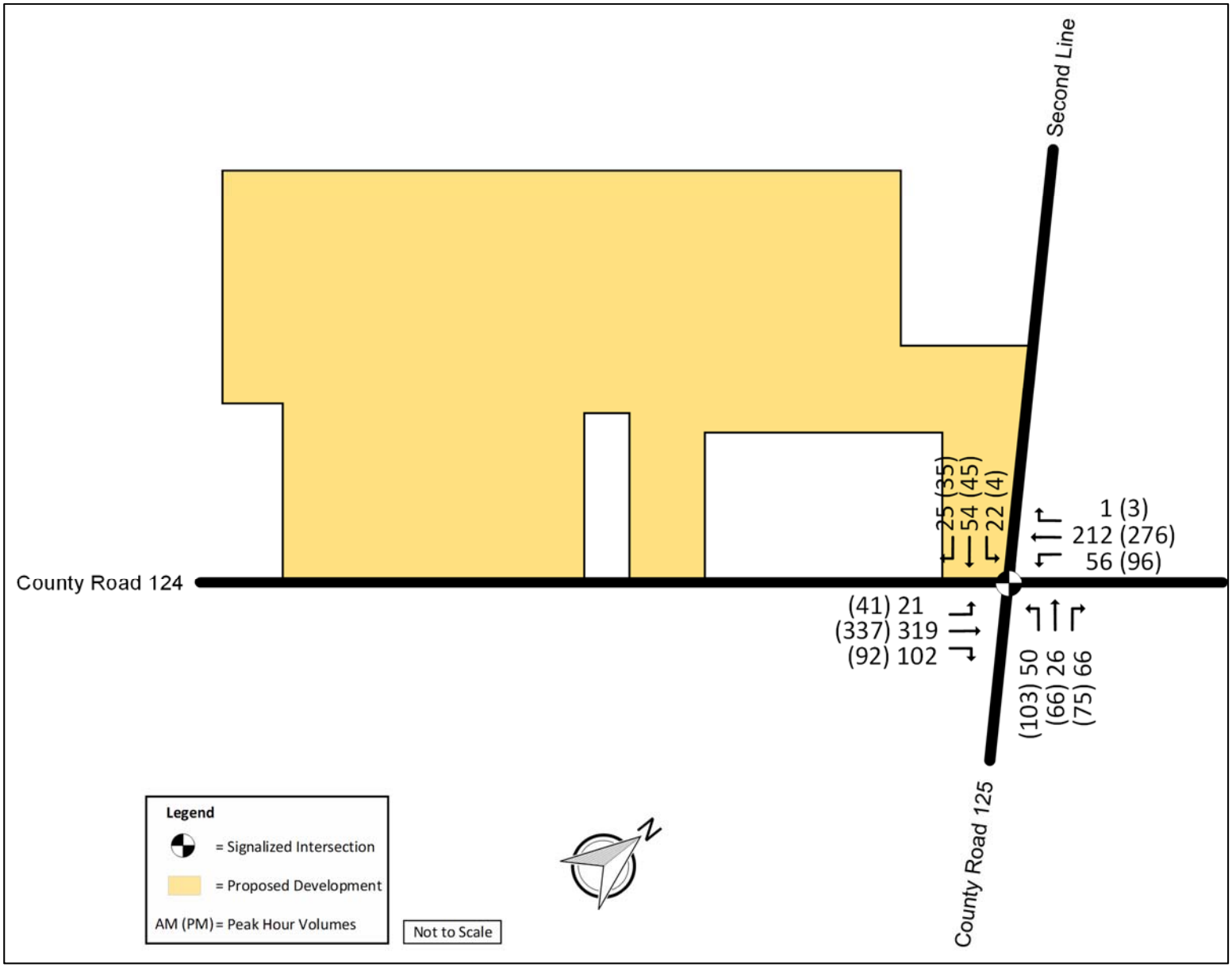
Exhibit 2-2 summarizes the dates of the turning movement counts collected for analysis. The signal timing plan for the intersection is provided in **Appendix B**.

Exhibit 2-2: Turning Movement Count Data

Intersection	Date
County Road 124 & County Road 125 / Second Line	Wednesday, September 13, 2017 7:00 AM - 9:00 AM 4:00 PM - 6:00 PM

IBI Group used the turning movement counts to establish a 2017 existing traffic conditions Synchro model. **Exhibit 2-3** illustrates the weekday AM and PM peak hour traffic volumes for the study area intersection.

Exhibit 2-3: 2017 Existing Conditions Traffic Volumes



2.3 2017 Existing Traffic Operations

The intersections were analyzed using the Synchro 9.1 analysis package for signalized and unsignalized intersections. Levels of service (LOS) were calculated using the HCM methodology contained in Synchro for the studied intersections. LOS evaluation uses a six-letter grade scale (A to F) to rank vehicle delay at intersections. LOS 'A' indicates excellent traffic operations with minimal delays, while LOS 'F' represents conditions with long delays.

Criteria for identifying critical intersections and movements are based on the City of Guelph Transportation Impact Study Guidelines (April 2016), as there were no applicable guidelines for the County or Town that were available. The criteria outlined below is common in many municipalities.

For signalized intersections, the criteria are as follows:

- Overall intersection operations, through movements, or shared/turning movements with overall volume-to-capacity ratio (v/c) of 0.85 or above;
- v/c ratios for exclusive turning movements increased to 0.90 or above; or
- Queues for an individual movement are projected to exceed available turning lane storage.

Identification of unsignalized intersection critical operation criteria are:

- Level of service (LOS) based on average delay per vehicle, on individual movements exceeds LOS 'E'; or
- The estimated 95th percentile queue length for an individual movement exceeds the available queue storage.

Exhibit 2-4 details existing traffic operations at the signalized County Road 124 / County Road 125 intersection for the AM and PM peak hours. Synchro outputs are found in **Appendix C**. Note that for the analysis of the existing conditions, the peak hour factors (PHF) were calculated for each approach and carried forward to the future background and future total analysis.

Exhibit 2-4: 2017 Existing Conditions Traffic Operations – Signalized Intersection

Intersection	Intersection			Movement					
	LOS	Delay	V/C Ratio	Movement	LOS	Delay (s)	V/C Ratio	95th Percentile Queue (m)	Storage Capacity (m)
AM Peak Hour									
County Road 125/Second Line & County Road 124	B	11.5	0.51	EBL	A	6.4	0.05	4	180
				EBTR	B	10.8	0.62	50	-
				WBL	A	7.4	0.21	9	140
				WBTR	A	7.5	0.29	24	-
				NBL	B	19.0	0.26	14	120
				NBTR	B	18.2	0.16	13	-
				SBL	B	18.0	0.10	7	140
				SBTR	B	18.4	0.19	16	-
PM Peak Hour									
County Road 125/Second Line & County Road 124	B	13.7	0.55	EBL	A	9.1	0.10	8	180
				EBTR	B	14.8	0.66	64	-
				WBL	B	11.9	0.39	17	140
				WBTR	B	11.3	0.44	37	-
				NBL	B	15.9	0.38	23	120
				NBTR	B	15.4	0.31	20	-
				SBL	B	13.7	0.02	3	140
				SBTR	B	14.2	0.13	13	-

Based on the analysis of the AM and PM peak hours, the intersection was observed to have overall acceptable operations during both peak hours.The queues did not exceed the storage length and all movements in the study area operate at an acceptable LOS with no critical movements.

3 2028 Future Background Conditions

After pre-consultation with the Town of Erin and the County of Wellington, a horizon year of five years from the estimated site occupancy was used. Also, the Proponent is scheduling a construction completion date of 2023. Therefore, the future background horizon year of 2028 is analyzed in this TIS report.

3.1 Background Growth

The Town of Erin 2015-2018 Economic Development Action Plan[1] states the projected population up to the horizon year of 2031. **Exhibit 3-1** shows the projected population for the County for the years 2011 and 2031, which was used to determine an annual population growth rate of 1.3%. It is assumed that this serves as an accurate representation of annual background traffic growth in

[1] "Town of Erin 2015-2018 Economic Development Action Plan," Town of Erin, http://www.erin.ca/uploads/userfiles/files/final%20approved_momentum%20town%20of%20erin%20action%20plan_november%203_2015_.pdf (September 28, 2017)

the study area. This growth rate was applied to all movements at the intersection of County Road 124 at County Road 125. The Town and County were provided these assumptions.

Exhibit 3-1: County of Wellington Traffic Growth Rate

Year	Population Projection	Annual Growth Rate Calculated
2011	94660	1.3%
2031	122000	

As per the received peer review comments, **Exhibit 3-3** illustrates the additional trips anticipated at the County Road 124 and County Road 125 / Second Line intersection due to background growth.

3.2 Background Developments

The Town of Erin and the County of Wellington were consulted to identify any future background developments. Discussions with County of Wellington staff identified a development in the southwest corner of County Road 124 at County Road 125 for 60 single detached homes. The document "Ospringe Residential Subdivision – Southwest Corner of CR 124/CR 125 – Transportation Impact Assessment" produced by Salvini Consulting in September 2016 was provided by the County of Wellington and was used as a reference for the development of background traffic.

As per the document "Planning Report for the Town of Erin", prepared by the County of Wellington and dated November 21, 2017[2], it was recommended by County staff that the Town's council approve this background development and that a subdivision agreement be prepared. Based on this information, as well as a June 2021 review of satellite and street-level imagery (dated October 2020), it is highly likely that the Ospringe Residential Subdivision background development has been approved, as observations (**Exhibit 3-2**) indicate that development construction is underway, with the stormwater pond and internal road system built.

Exhibit 3-2: Background Development at Southwest corner of CR 124 / CR 125.

Source: Google Streetview, October 2020

The Salvini TIS report was reviewed and the associated projected site traffic volumes passing through the study area were included in the future background traffic operations analysis. Trip generation, trip distribution, and trip assignment assumptions outlined in the respective TIS report was maintained.

[2] https://pub-erin.escribemeetings.com/filestream.ashx?DocumentId=1779

The corresponding 2828 background traffic growth and background development volumes travelling through the study area obtained from the Salvini TIS Report are respectively illustrated in **Exhibit 3-3** and **Exhibit 3-4**.

Exhibit 3-3: 2028 Background Traffic Growth

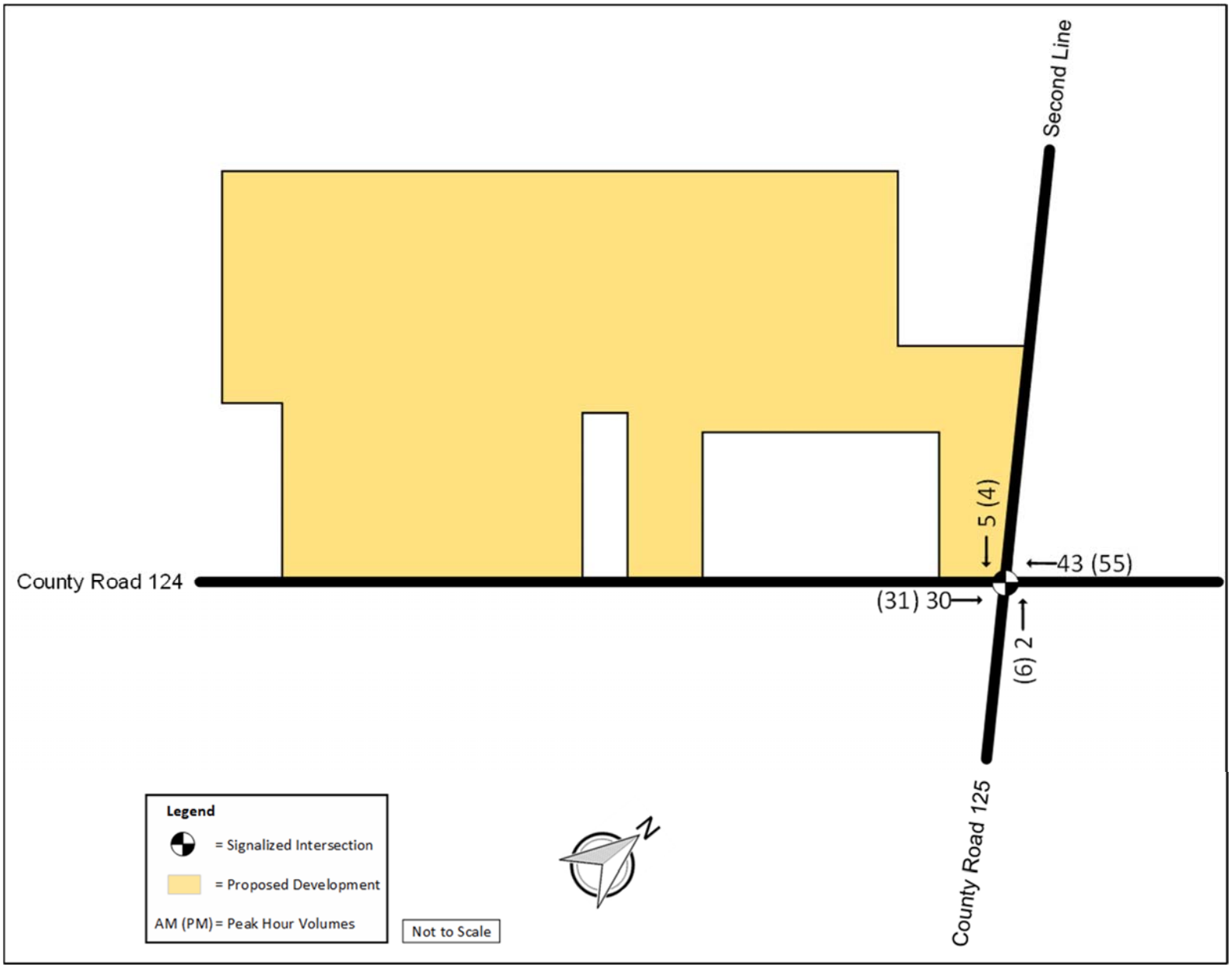
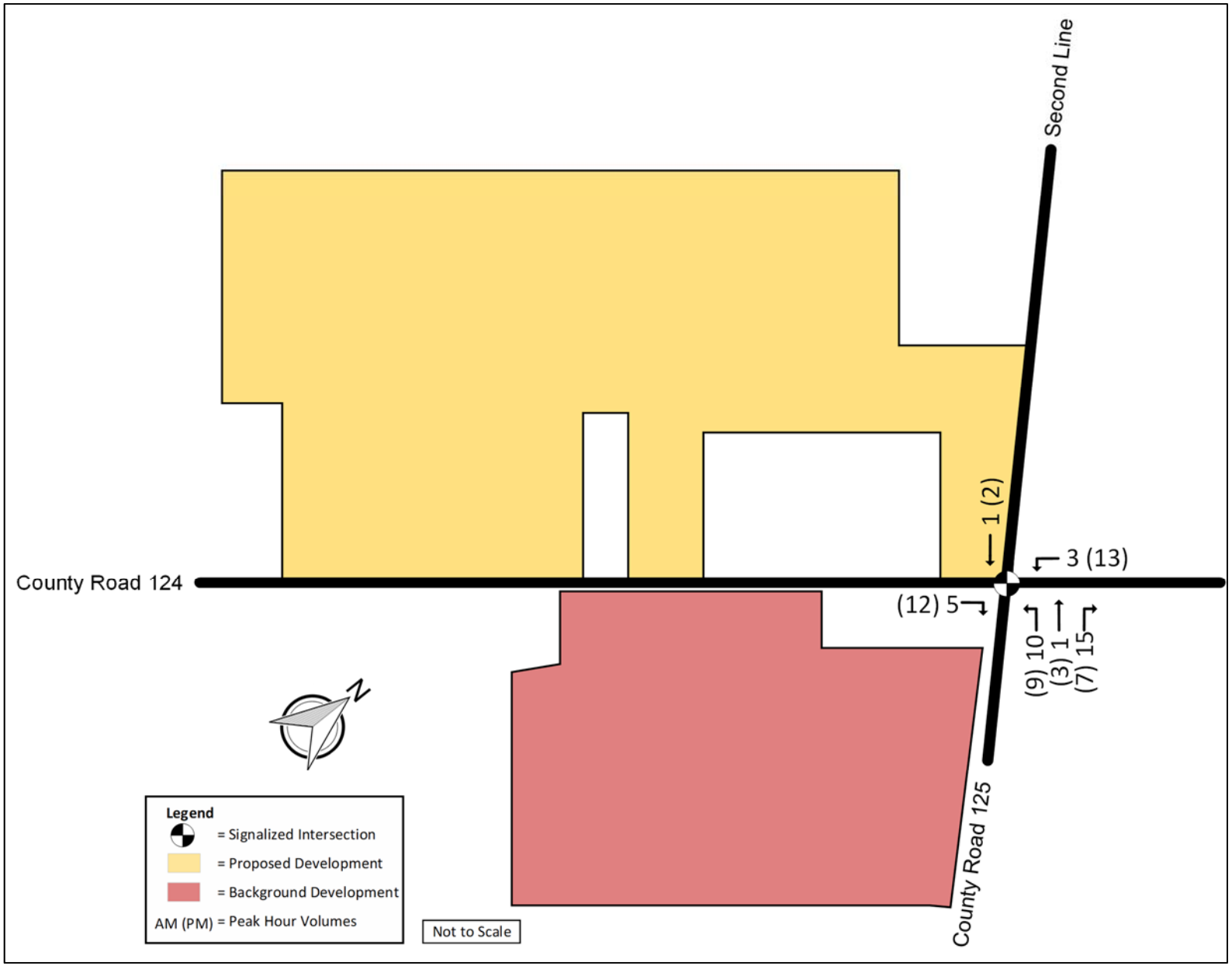


Exhibit 3-4: Background Development Traffic Activity in Study Area



3.3 2028 Future Background Traffic Operations

To provide a basis for comparison with existing conditions, the 2028 future background traffic operation analysis will consist of corridor traffic growth discussed in **Section 3.1**, and the background development noted. **Exhibit 3-5** illustrates 2028 future background traffic volumes into the study area during the weekday AM and PM peak hours.

Exhibit 3-5: 2028 Future Background Traffic Volumes

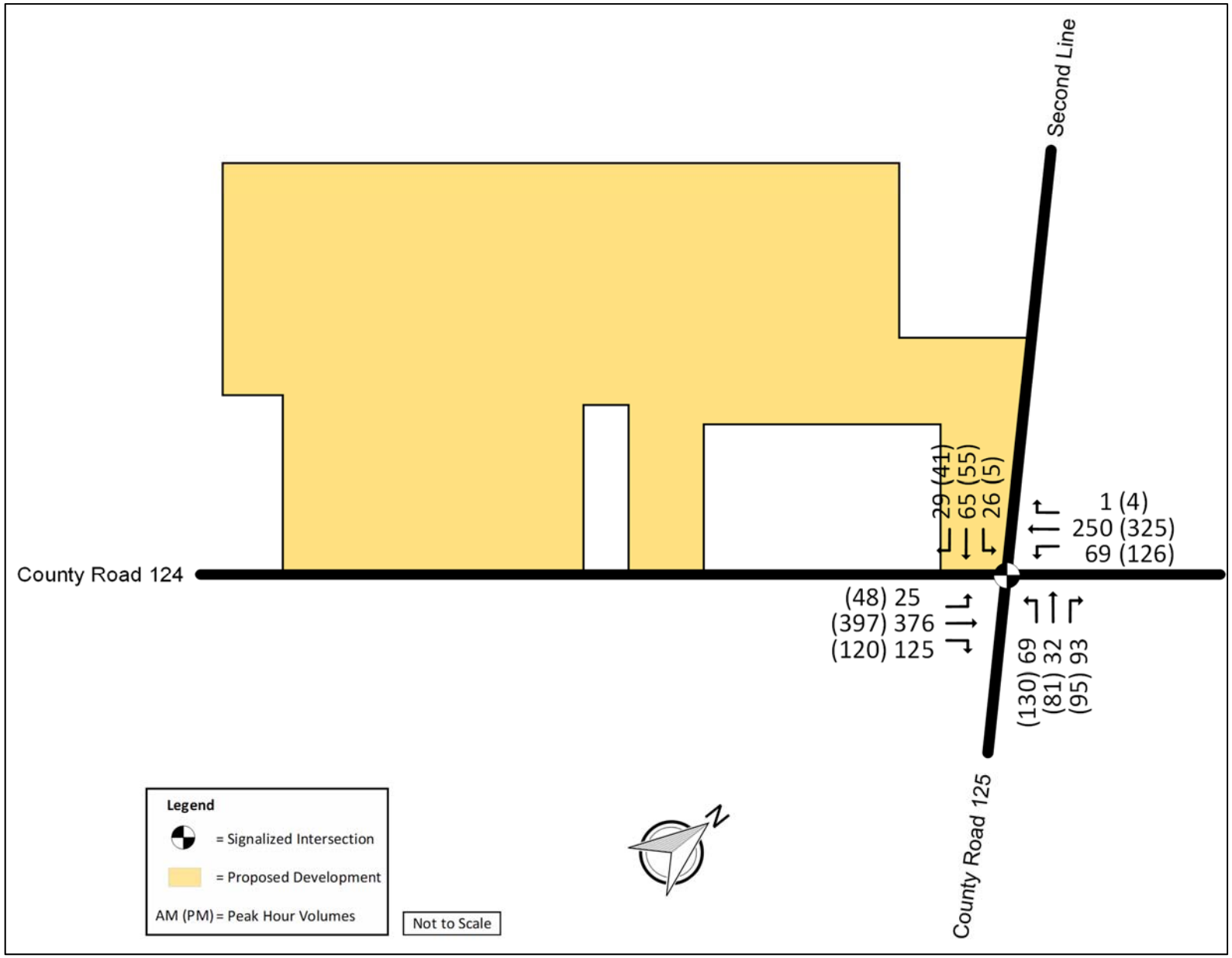


Exhibit 3-6 below summarizes 2028 future background signalized intersection operations in the study area during the AM and PM peak hours. Synchro outputs are provided in **Appendix D**.

Exhibit 3-6: 2028 Future Background Traffic Operations – Signalized Intersection

Intersection	Intersection			Critical Movement					
	LOS	Delay (s)	V/C Ratio	Movement	LOS	Delay (s)	V/C Ratio	95th Percentile Queue (m)	Storage Capacity (m)
AM Peak Hour									
County Road 125/Second Line & County Road 124	B	14.2	0.56	EBL	A	8.1	0.05	5	180
				EBTR	B	15.7	0.72	69	-
				WBL	B	10.2	0.30	11	140
				WBTR	A	9.9	0.37	29	-
				NBL	B	17.1	0.28	17	120
				NBTR	B	16.4	0.20	12	-
				SBL	B	16.0	0.12	9	140
				SBTR	B	16.4	0.20	19	-
PM Peak Hour									
County Road 125/Second Line & County Road 124	B	15.7	0.62	EBL	A	7.9	0.10	9	180
				EBTR	B	13.2	0.64	95	-
				WBL	B	11.8	0.48	28	140
				WBTR	A	9.9	0.41	50	-
				NBL	C	26.8	0.58	33	120
				NBTR	C	24.3	0.49	31	-
				SBL	C	20.7	0.03	3	140
				SBTR	C	21.7	0.19	18	-

Similar to the existing conditions, the signalized intersection in the study area will operate well with LOS B or better during both peak hours under 2028 background traffic conditions. There are no critical movements anticipated and queues are expected to be within storage capacity.

4 Proposed Development

The proposed residential development will consist of 13 single-family detached housing units. One full movement site access is proposed on the east side of the lot, as preferred by the County of Wellington, with additional sensitivity analysis conducted for a scenario where the site access is on the south side of the lot. These are discussed in this section as Scenario 1 and Scenario 2, respectively.

4.1 Site Access

As mentioned, the two scenarios will be examined for access to the site are:

1. A proposed full movement, one-way stop-controlled access onto Second Line; and

2. A proposed full movement, one-way stop-controlled access onto County Road 124.

4.2 Trip Generation

The ITE Trip Generation Manual (10th edition) was used to estimate vehicle trips generated during the weekday AM and PM peak hours of the adjacent street, summarized below in **Exhibit 4-1.** Trip generation consisted of the proposed single-family detached housing (ITE land use code 210) units.

Exhibit 4-1: Trip Generation Summary

Land Use	Unit	Weekday AM Peak Hour			Weekday PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single-Family Detached Housing, 13 Units (ITE Code 210)	Trips/Unit	0.23	0.85	**1.08**	0.69	0.39	**1.08**
	%	21%	79%	**100%**	64%	36%	**100%**
	Trips	3	11	**14**	9	5	**14**

Based on **Exhibit 4-1**, a total of 14 site trips are estimated during the weekday AM peak hour and PM peak hour, respectively.

4.3 Trip Distribution

To distribute the trips forecasted to be generated by the subject site, the existing traffic patterns during the weekday AM and PM peak hours were analyzed using the adjacent road network (i.e. County Road 124 & Second Line / County Road 125 four-legged signalized intersection). Using this method, **Exhibit 4-2** summarizes the trip distribution to apply to the new subject site trips.

Exhibit 4-2: Trip Distribution

Origin / Destination	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
To / From North: via Second Line	11%	5%	7%	10%
To / From South: via County Road 125	15%	22%	21%	20%
To / From East: via County Road 124	28%	43%	32%	35%
To / From West: via County Road 124	46%	30%	40%	35%
Total	**100%**	**100%**	**100%**	**100%**

4.4 Site Trip Assignment

Based on the proposed site connectivity, the assignment of site traffic for both scenarios are provided below in **Exhibit 4-3** and **Exhibit 4-4**.

Exhibit 4-3: Site Traffic Volume Assignment – Access via Second Line (Scenario 1)

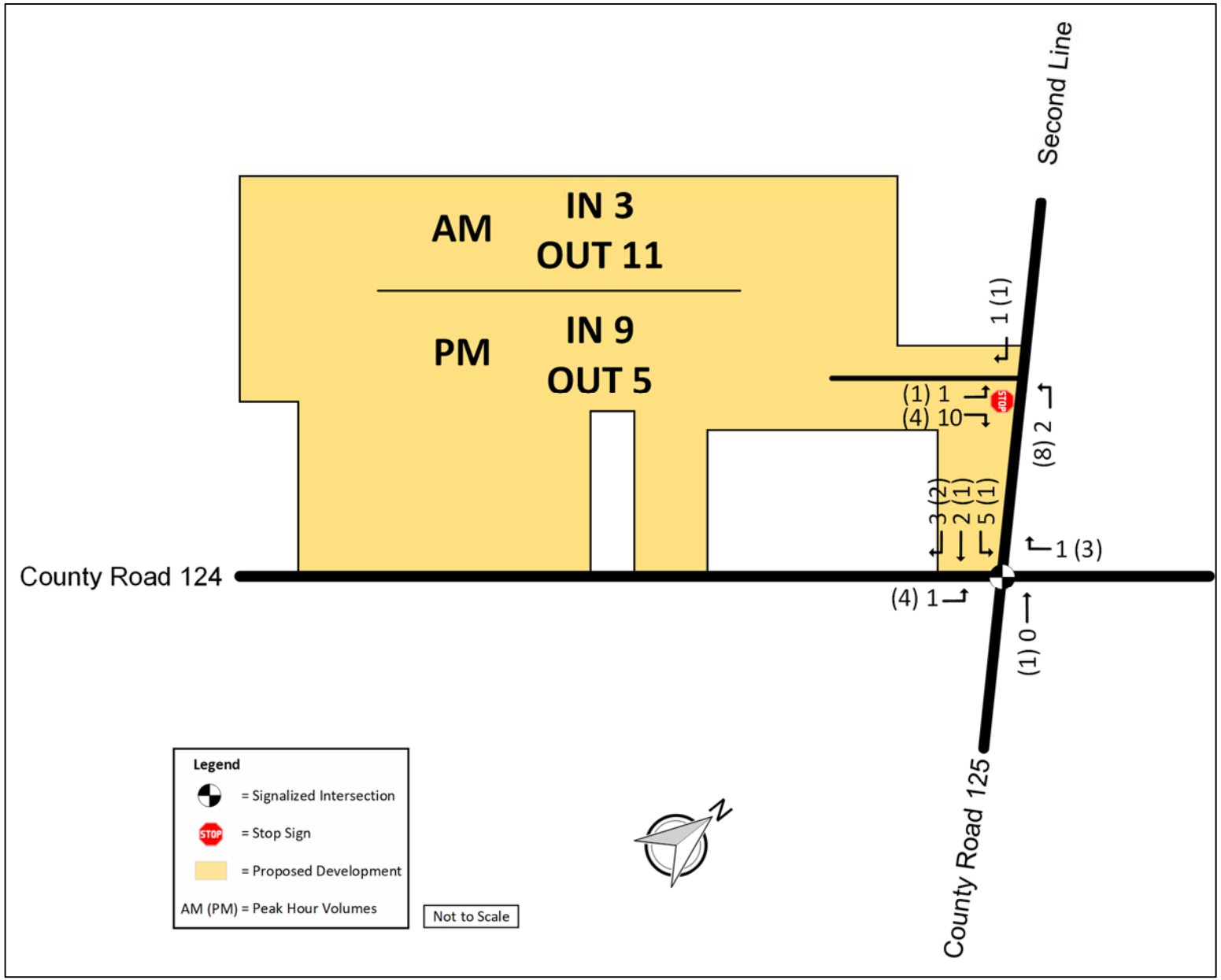
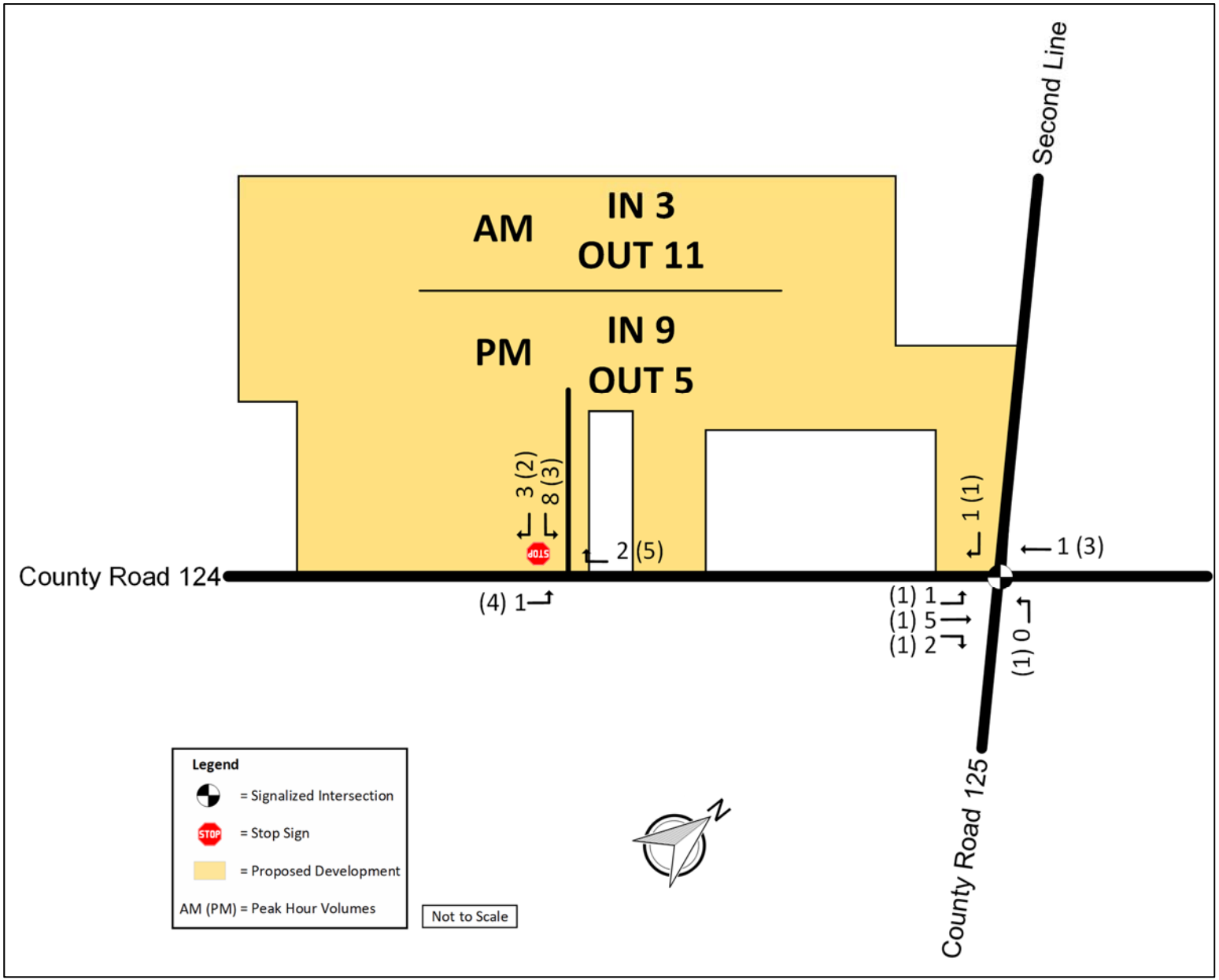


Exhibit 4-4: Site Traffic Volume Assignment via County Road 124 (Scenario 2)



5 2028 Future Total Traffic Conditions

The 2028 future background traffic volumes were added to the forecasted trips generated by the subject site to establish 2028 future total traffic volumes. The 2028 future total volumes for Scenario 1 and Scenario 2 are shown in **Exhibit 5-1** and **Exhibit 5-2**, respectively.

Exhibit 5-1: 2028 Future Total Traffic Volumes – Scenario 1 Configuration

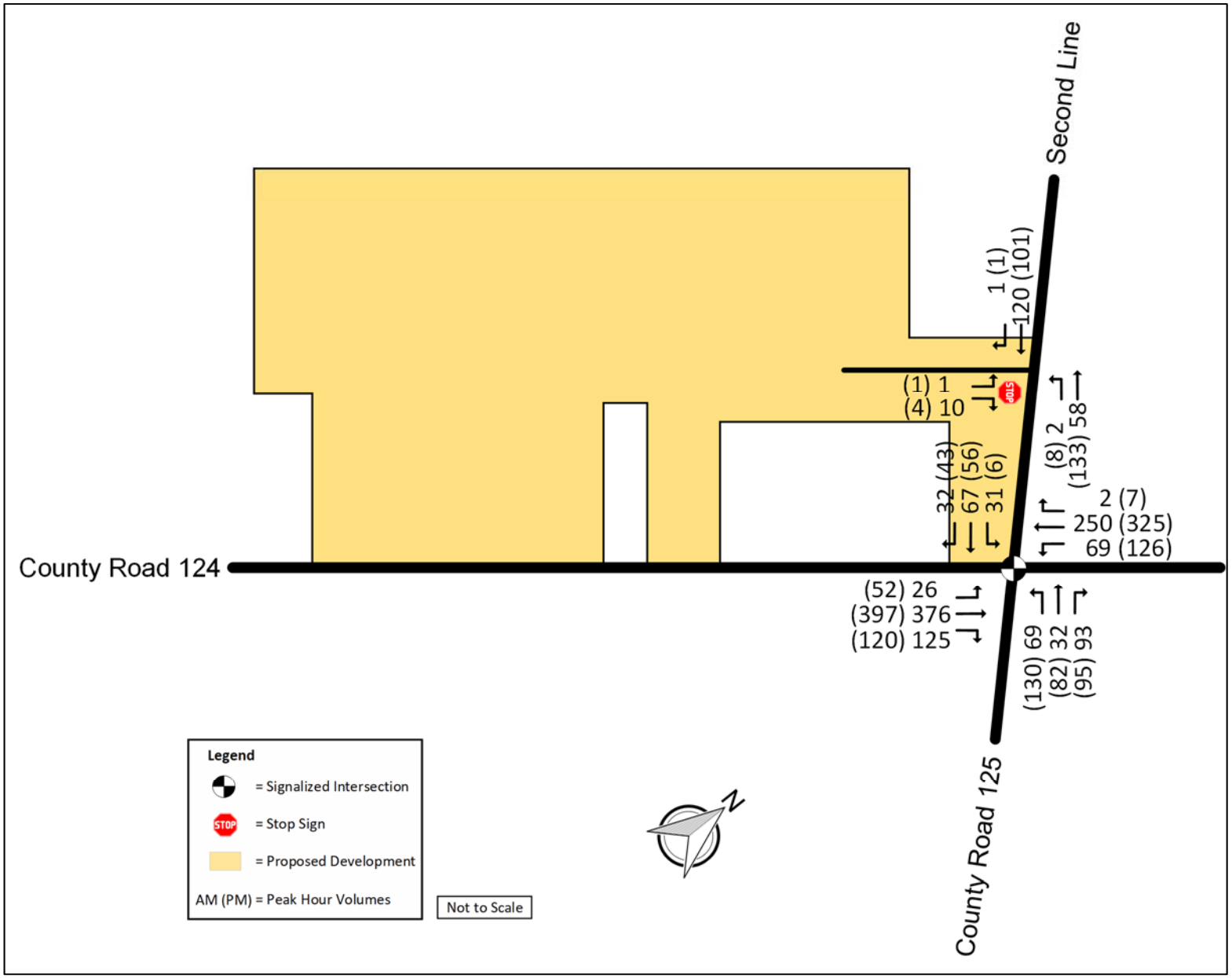
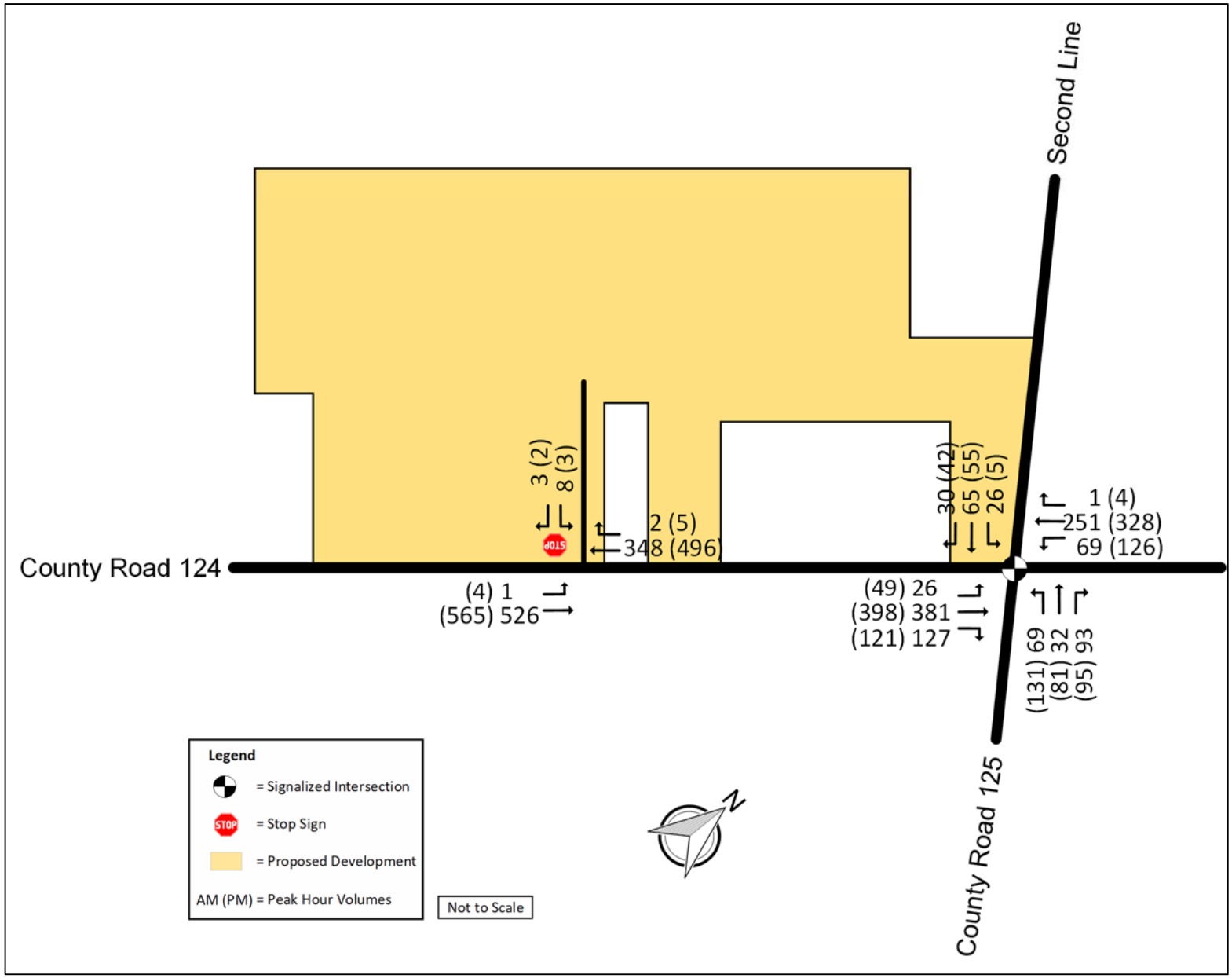


Exhibit 5-2: 2028 Future Total Traffic Volumes – Scenario 2 Configuration



The exhibits below summarize 2028 future total traffic operations at the studied intersections for Scenario 1 and Scenario 2. Synchro outputs for Scenario 1 and Scenario 2 are provided in **Appendix E** and **Appendix F**, respectively.

5.1 Scenario 1 Traffic Operations

Exhibit 5-3 summarizes AM and PM peak operations at the signalized County Road 124 / Second Line / County Road 125 intersection when the site access is connected to Second Line.

Exhibit 5-3: 2028 Future Total Traffic Operations – Signalized Intersection Results – Scenario 1

Intersection	Intersection			Critical Movement					
	LOS	Delay (s)	V/C Ratio	Movement	LOS	Delay (s)	V/C Ratio	95th Percentile Queue (m)	Storage Capacity (m)
AM Peak Hour									
County Road 125/Second Line & County Road 124	B	14.2	0.56	EBL	A	8.1	0.06	5	180
				EBTR	B	15.7	0.72	69	-
				WBL	B	10.2	0.30	11	140
				WBTR	A	9.9	0.37	29	-
				NBL	B	17.1	0.29	17	120
				NBTR	B	16.4	0.20	12	-
				SBL	B	16.2	0.14	10	140
				SBTR	B	16.5	0.21	20	-
PM Peak Hour									
County Road 125/Second Line & County Road 124	B	15.7	0.62	EBL	A	7.9	0.11	10	180
				EBTR	B	13.2	0.64	95	-
				WBL	B	11.8	0.48	28	140
				WBTR	A	10.0	0.42	51	-
				NBL	C	26.8	0.58	33	120
				NBTR	C	24.4	0.49	31	-
				SBL	C	20.7	0.03	3	140
				SBTR	C	21.8	0.20	19	-

For Scenario 1 during the weekday AM and PM peak hours, it is anticipated that the intersection will operate well for both peak periods with overall LOS B or better, and with no critical operations observed for individual movements. Site related traffic impacts to the intersection operations will be marginal, and all queues are anticipated to be comparable to 2028 future background conditions, with a marginal increase of up to two metres for individual movements. It is noted that the southbound queue of up to 17 metres during the AM peak hour is not expected to block subject site driveway operations, located approximately 60 metres north of the intersection.

Unsignalized operations for the Site Access / Second Line intersection are summarized below in **Exhibit 5-4**.

Exhibit 5-4: 2028 Future Total Traffic Operations – Unsignalized Intersection Results – Scenario 1

Intersection	Delay (s)	Lane	Lane LOS	Control Delay (s)	Approach LOS	V/C Ratio	Queue, 95th (m)	Storage Length (m)
AM Peak Hour								
Second Line & Site Access	0.6	EBL/R	A	9.0	A	0.02	0	-
		NBL	A	0.2	-	0.00	0	-
PM Peak Hour								
Second Line & Site Access	0.4	EBL/R	A	9.1	A	0.01	0	-
		NBL	A	0.5	-	0.01	0	-

During the AM and PM peak hours, acceptable overall intersection and specific movement operations are anticipated at the unsignalized intersection, with no capacity constraints.

5.2 Scenario 2 Traffic Operations

Exhibit 5-5 summarizes AM and PM peak operations at the signalized County Road 124 / Second Line / County Road 125 intersection when the site access is connected to County Road 124.

Exhibit 5-5: 2028 Future Total Traffic Operations – Signalized Intersection Results – Scenario 2

Intersection	Intersection			Critical Movement					
	LOS	Delay (s)	V/C Ratio	Movement	LOS	Delay (s)	V/C Ratio	95th Percentile Queue (m)	Storage Capacity (m)
AM Peak Hour									
County Road 125/Second Line & County Road 124	B	14.3	0.57	EBL	A	8.0	0.06	5	180
				EBTR	B	15.7	0.72	70	-
				WBL	B	10.2	0.31	11	140
				WBTR	A	9.8	0.36	28	-
				NBL	B	17.4	0.29	18	120
				NBTR	B	16.8	0.20	12	-
				SBL	B	16.4	0.12	9	140
				SBTR	B	16.7	0.20	19	-
AM Peak Hour									
County Road 125/Second Line & County Road 124	B	15.8	0.63	EBL	A	7.8	0.10	10	180
				EBTR	B	13.2	0.64	95	-
				WBL	B	11.8	0.48	28	140
				WBTR	A	9.9	0.42	51	-
				NBL	C	27.1	0.59	33	120
				NBTR	C	24.5	0.49	31	-
				SBL	C	20.8	0.03	3	140
				SBTR	C	21.9	0.19	18	-

The Scenario 2 site driveway configuration (driveway intersecting with County Road 124) is anticipated to operate with no capacity constraints for both peak hours and with overall LOS B or better. There will be no critical operations observed for individual movements.

Site related traffic impacts to the intersection operations will be marginal and all queues are anticipated to be comparable to 2028 future background conditions, with an increase of up to five metres for individual movements, as shown in **Exhibit 5-5**. Eastbound queue lengths of up to 76 metres during the PM peak hour are not expected to block site access operations, located approximately 150 metres west of the signalized intersection.

Unsignalized operations for the County Road 124 at Site Access are summarized below in **Exhibit 5-6**.

Exhibit 5-6: 2028 Future Total Traffic Operations – Unsignalized Intersection Results – Scenario 2

Intersection	Delay (s)	Lane	Lane LOS	Control Delay (s)	Approach LOS	V/C Ratio	Queue, 95th (m)	Storage Length (m)
AM Peak Hour								
County Road 124 & Site Access	0.2	EBL	A	0.0	-	0.00	0	-
		SBL/R	C	16.2	C	0.04	1	-
PM Peak Hour								
County Road 124 & Site Access	0.1	EBL	A	0.1	-	0.00	0	-
		SBL/R	C	18.6	C	0.02	0	-

During the AM and PM peak hours, acceptable overall intersection and specific movement operations are anticipated, with no capacity constraints.

6 Access Location Review

The Transportation Association of Canada's (TAC) **Geometric Design Guide for Canadian Roads** (June 2017) was used to determine if the minimum stopping sight distance and the minimum departure sight distances present at the location of the Proposed Site Access (under Scenario 1 and Scenario 2, respectively).

Under Scenario 1, a design speed of 100 km/h was chosen for traffic travelling northbound along County Road 125 (the posted speed of 80 km/h plus 20 km/h to account for driver speed variances under rural conditions). Furthermore, a design speed of 60 km/h was chosen for traffic travelling southbound along Second Line (the posted speed limit of 50 km/h plus 10 km/h to account for driver speed variances under built-up, residential area conditions) in this analysis.

Conversely, under Scenario 2, a design speed of 80 km/h was used for traffic travelling along County Road 124 (the posted speed limit of 60 km/h along Wellington County Road 124 plus 20 km/h to account for driver speed variances under rural conditions) in this analysis.

6.1 Scenario 1 Proposed Access

The following subsections discuss stopping sight distances and departure sight distances at the intersection of Second Line and the Proposed Access, under Scenario 1.

6.1.1 Stopping Sight Distance

Stopping sight distance refers to the distance necessary for a driver travelling on Second Line or County Road 125 to avoid a collision by coming to a complete stop in reaction to a vehicle departing from the Proposed Access. For vehicles approaching the site, this distance is given by Equation 2.5.2 in TAC:

$$SSD = 0.278Vt + 0.039\frac{V^2}{a}$$

Where:

SSD = Stopping sight distance (m)
t = Brake reaction time (2.5 s)
V = Design speed (60 km/h along Second Line, 100 km/h along County Road 124)
a = Deceleration rate (3.4 m/s^2)

The resulting stopping sight distance requirements for the Proposed Access (under Scenario 1) onto Second Line and County Road 125 are illustrated in Exhibit 6-1.

Exhibit 6-1: Proposed Access Scenario 1 – Stopping Sight Distance Summary

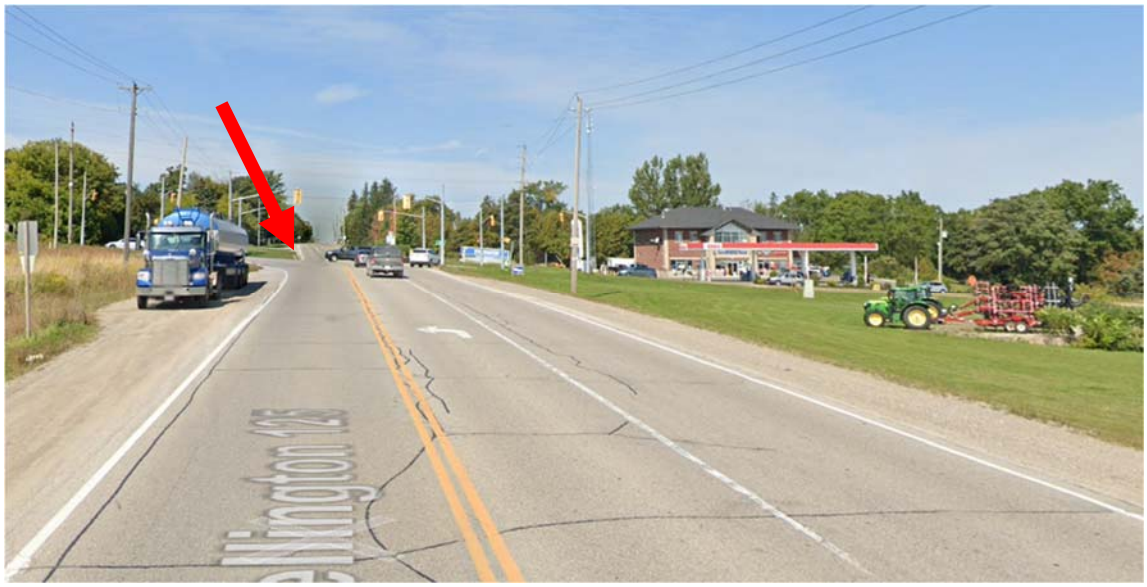
Scenario	Minimum TAC Stopping Sight Distance	Meets Minimum TAC Stopping Sight Distance	Maximum Distance Available (Estimated)
Approaching site access from the north (Second Line)	85 m	✔	>85 m
Approaching site access from the south (County Road 125)	185 m	✔	>185 m

As shown in **Exhibit 6-1**, stopping sight distance exceeds the minimum distance specified by TAC guidelines for vehicles approaching the access from the north and from the south. This is illustrated in **Exhibit 6-2** and **Exhibit 6-3**.

Exhibit 6-2: Stopping Sight Distance - North of Access (Looking Southbound from a point 85 m north of the Proposed Access)

Source: Google Maps. https://www.google.ca/maps. Accessed June 28, 2021.
Red arrow indicates location of the Proposed Access.

Exhibit 6-3: Stopping Sight Distance - South of Access (Looking Northbound from a point 185 m south of the Site Access)



Source: Google Maps. https://www.google.ca/maps. Accessed June 28, 2021.
Red arrow indicates location of the Proposed Access.

As noted above, stopping sight distance refers to the distance necessary for a driver travelling on Second Line or County Road 125 to avoid a collision by coming to a complete stop in reaction to a vehicle departing from the site access. As shown in both **Exhibit 6-2** and **Exhibit 6-3**, sightlines exceed these minimum requirements, indicating that a motorist on Second Line is expected to have an unobstructed view of outbound site traffic.

6.1.2 Departure Sight Distance

Departure sight distance (also known as Intersection Sight Distance) refers to the sight distance necessary for a driver to depart from a driveway and merge into traffic without causing a vehicle travelling along Second Line or County Road 125 to have to decrease their speed by more than 30%. The specified departure sight distance for automobiles is given by Equation 9.9.1 in TAC:

$$ISD = 0.278\,(V_{major} \times t_g)$$

where:

ISD	=	Intersection sight distance (m)
V_{major}	=	Design speed (60 km/h)
t_g	=	Time gap for turning movement from stop (8.0 s for left-turns by automobiles, 6.5 s for right-turns by automobiles)

The departure sight distance requirements for the Proposed Site Access (under Scenario 1) onto Second Line and County Road 125 are illustrated in **Exhibit 6-4**.

Exhibit 6-4: Proposed Access Scenario 1 – Departure Sight Distance Summary

Scenario	Minimum TAC Departure Sight Distance	Meets Minimum TAC Departure Sight Distance	Maximum Distance Available (Estimated)
Left-turn from intersection – looking north (toward Second Line)	135 m	✔	>135 m
Left-turn from intersection – looking south (toward Second Line)	210 m	✔	>210 m
Right-turn from intersection – looking north (toward County Road 125)	110 m	✔	>135 m

As shown in **Exhibit 6-4**, the observed departure sight distances meet or exceed the minimum distances specified by the TAC guidelines for automobiles making left- or right-turns from the site access. **Exhibit 6-5** and **Exhibit 6-6** show the view of a motorist positioned at the approximate location of the Proposed Access and illustrate the observations presented in **Exhibit 6-4**.

Exhibit 6-5: Departure Sight Distance – Looking North from Proposed Access Location

Source: Google Maps. https://www.google.ca/maps. Accessed June 28, 2021.
Red arrow indicates the specified departure sight distance for automobiles (135 m).

Exhibit 6-6: Departure Sight Distance – Looking South from Proposed Access Location

Source: Google Maps. https://www.google.ca/maps. Accessed June 28, 2021.
Red arrow indicates the specified departure sight distance for automobiles (210 m).

As shown in **Exhibit 6-5** and **Exhibit 6-6**, the departure sight distance meets or exceeds the minimum distances specified by TAC. This indicates that sightlines are sufficient for outbound motorists from the Proposed Access to determine if there is a suitable gap in traffic along Second Line and County Road 125.

6.1.3 Dedicated Northbound Left-Turn Lane

The need for a dedicated northbound left-turn lane on Second Line into the Proposed Access (under Scenario 1) was evaluated using the Geometric Design Standards for Ontario Highways Manual, published by the Ministry of Transportation of Ontario (MTO).

The left-turn lane warrants for two-lane undivided highways and an assumed design speed of 60 km/h (speed limit of 50 km/h plus 10 km/h to account for driver speed variances under built-up conditions) are based on traffic volumes from the 2028 Future Total Conditions scenario, as presented in **Exhibit 6-7**.

Exhibit 6-7: Volumes Used in Left-Turn Lane Warrant Analysis (Scenario 1)

Traffic Volume Parameter for Left-Turn Warrant	Weekday AM Peak Hour	Weekday PM Peak Hour
Advancing Volume (V_A)	56	133
Opposing Volume (V_O)	114	96
Left-turning Volume (V_L)	2	8

Using the volumes presented in **Exhibit 6-7**, the left-turn warrant analyses are presented in **Exhibit 6-8** and **Exhibit 6-9** for the Weekday AM and Weekday PM peak hours, respectively.

Exhibit 6-8: MTO Left-Turn Warrant – Figure EA-6-1 – Weekday AM Peak Hour

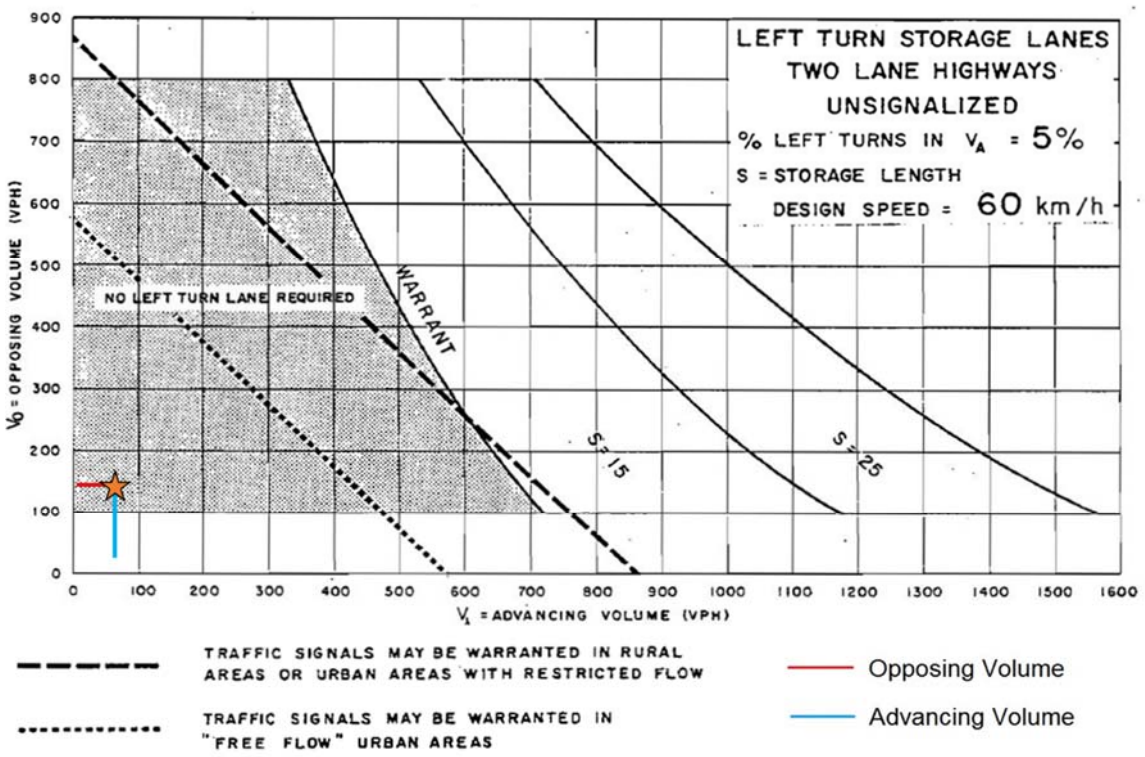
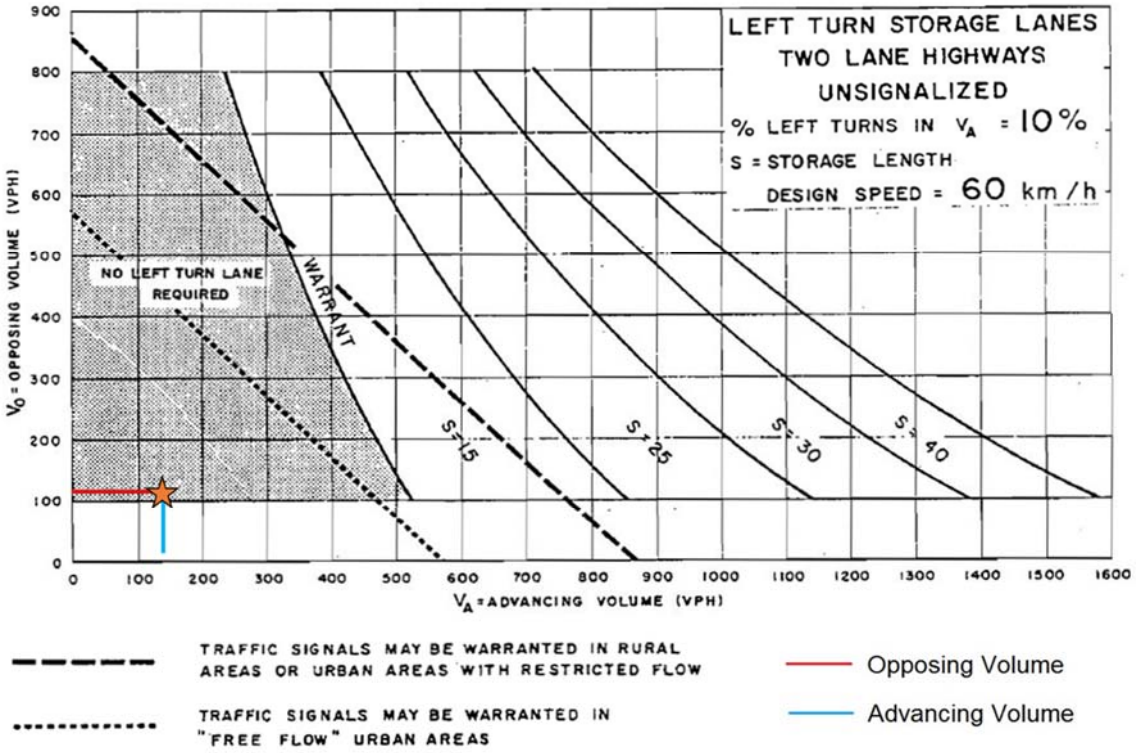


Exhibit 6-9: MTO Left-Turn Warrant – Figure EA-6-2 – Weekday PM Peak Hour



As shown in **Exhibit 6-8** and **Exhibit 6-9**, the MTO warrants indicate that a dedicated northbound left-turn lane on Second Line at the Proposed Access is not warranted to accommodate left-turning vehicles accessing the proposed development during Weekday AM and Weekday PM peak hours.

6.1.4 Dedicated Southbound Right-Turn Lane

The need for a dedicated southbound right-turn lane on Second Line to accommodate the expected volumes of right-turns into the Proposed Access (under Scenario 1) was determined using TAC equation 9.14.1:

$$S = \frac{NL}{30}$$

where:

S	=	Storage Length (m)
N	=	Design volume of turning vehicles (veh/h), and
L	=	Length occupied by each vehicle (m)

Based on a vehicle length of 6.0 meters and a design volume of 1 vehicle during the Weekday AM and Weekday PM Peak hours (under 2028 Future Total Conditions, see **Exhibit 5-1**), respectively, this calculation produces a required storage length of 0.2 metres as shown:

$$S = \frac{NL}{30}$$

$$S = \frac{(6)(1)}{30}$$

$$S = \frac{6}{30}$$

$$S = 0.2$$

0.2 metres of storage is less than one vehicle length. Therefore, a dedicated southbound right-turn lane is not warranted.

6.2 Scenario 2 Proposed Access

The following subsections discuss stopping sight distances and departure sight distances at the intersection of County Road 124 and the Proposed Access (under Scenario 2).

6.2.1 Stopping Sight Distance

Stopping sight distance refers to the distance necessary for a driver travelling on County Road 124 to avoid a collision by coming to a complete stop in reaction to a vehicle departing from the Proposed Access. For vehicles approaching the site, this distance is given by Equation 2.5.2 in TAC:

$$SSD = 0.278Vt + 0.039\frac{V^2}{a}$$

Where:

SSD = Stopping sight distance (m)
t = Brake reaction time (2.5 s)
V = Design speed (80 km/h)
a = Deceleration rate (3.4 m/s^2)

The resulting stopping sight distance requirements for the Proposed Access (under Scenario 2) onto County Road 124 are illustrated in **Exhibit 6-10**.

Exhibit 6-10: Proposed Access Scenario 2 – Stopping Sight Distance Summary

Scenario	Minimum TAC Stopping Sight Distance	Meets Minimum TAC Stopping Sight Distance	Maximum Distance Available (Estimated)
Approaching site access from the east	130 m	✔	>130 m
Approaching site access from the west	130 m	✔	>130 m

As shown in **Exhibit 6-10**, stopping sight distance exceeds the minimum distance specified by TAC guidelines for vehicles approaching the Proposed Access from the east and from the west along County Road 124. This is illustrated in **Exhibit 6-11** and **Exhibit 6-12**.

Exhibit 6-11: Stopping Sight Distance – East of Proposed Access Location (Looking Westbound from a point 130 m east of the Proposed Access Location)

Source: Google Maps. https://www.google.ca/maps. Accessed June 28, 2021.
Red arrow indicates the location of the Proposed Access.

Exhibit 6-12: Stopping Sight Distance - West of Proposed Access Location (Looking Eastbound from a point 130 m west of the Proposed Access Location)

Source: Google Maps. https://www.google.ca/maps. Accessed June 28, 2021.
Red arrow indicates the location of the Proposed Access.

As noted above, stopping sight distance refers to the distance necessary for a driver travelling along County Road 124 to avoid a collision by coming to a complete stop in reaction to a vehicle departing from the Proposed Access. As shown in both **Exhibit 6-11** and **Exhibit 6-12**, sightlines exceed these minimum requirements, indicating that a motorist on County Road 124 is expected to have an unobstructed view of outbound site traffic.

6.2.2 Departure Sight Distance

Departure sight distance (also known as Intersection Sight Distance) refers to the sight distance necessary for a driver to depart from a driveway and merge into traffic without causing a vehicle travelling along County Road 124 to have to decrease their speed by more than 30%. The specified departure sight distance for automobiles is given by Equation 9.9.1 in TAC:

$$ISD = 0.278\,(V_{major} \times t_g)$$

where:

ISD	=	Intersection sight distance (m)
V_{major}	=	Design speed (80 km/h)
t_g	=	Time gap for turning movement from stop (8.0 s for left-turns by automobiles, 6.5 s for right-turns by automobiles)

The departure sight distance requirements for the Proposed Access (under Scenario 2) onto County Road 124 are illustrated in **Exhibit 6-13**.

Exhibit 6-13: Proposed Access Scenario 2 – Departure Sight Distance Summary

Scenario	Minimum TAC Departure Sight Distance	Meets Minimum TAC Departure Sight Distance	Maximum Distance Available (Estimated)
Left-turn from intersection – looking east	170 m	✔	>170 m
Left-turn from intersection – looking west	170 m	✔	>170 m
Right-turn from intersection – looking east	145 m	✔	>170 m

As shown in **Exhibit 6-13**, the observed departure sight distances meet or exceed the minimum distances specified by TAC guidelines for automobiles making left- or right-turns from the Proposed Access. **Exhibit 6-14** and **Exhibit 6-15** show the view of a motorist positioned at the approximate location of the Proposed Access and illustrate the observations presented in **Exhibit 6-13**.

Exhibit 6-14: Departure Sight Distance - Looking East from Site Access

Source: Google Maps. https://www.google.ca/maps. Accessed June 28, 2021.
Red arrow indicates the specified departure sight distance for automobiles (170 m).

Exhibit 6-15: Departure Sight Distance – Looking West from Site Access

Source: Google Maps. https://www.google.ca/maps. Accessed June 28, 2021.
Red arrow indicates the specified departure sight distance for automobiles (170 m).

As shown in **Exhibit 6-14** and **Exhibit 6-15**, the departure sight distance meets or exceeds the minimum distances specified by TAC. This indicates that sightlines are sufficient for outbound motorists from the Proposed Access to determine if there is a suitable gap in County Road 124 traffic.

6.2.3 Dedicated Eastbound Left-Turn Lane

The need for a dedicated northbound left-turn lane on County Road 124 into the Proposed Access (under Scenario 2) was evaluated using the Geometric Design Standards for Ontario Highways Manual, published by the Ministry of Transportation of Ontario (MTO).

The left-turn lane warrant for a two-lane undivided highways and an assumed design speed of 80 km/h (speed limit of 60 km/h plus 20 km/h to account for driver speed variances under rural conditions) are based on traffic volumes from the 2028 Future Total Conditions scenario, as presented in **Exhibit 6-16**.

Exhibit 6-16: Volumes Used in Left-Turn Lane Warrant Analysis (Scenario 2)

Traffic Volume Parameter for Left-Turn Warrant	Weekday AM Peak Hour	Weekday PM Peak Hour
Advancing Volume (V_A)	496	538
Opposing Volume (V_O)	330	473
Left-turning Volume (V_L)	1	4

Using the volumes presented in Exhibit 6-16, the left-turn warrant analyses are presented in **Exhibit 6-17** and **Exhibit 6-18** for the Weekday AM and Weekday PM peak hours, respectively.

Exhibit 6-17: MTO Left-Turn Warrant – Figure EA-14-1 – Weekday AM Peak Hour

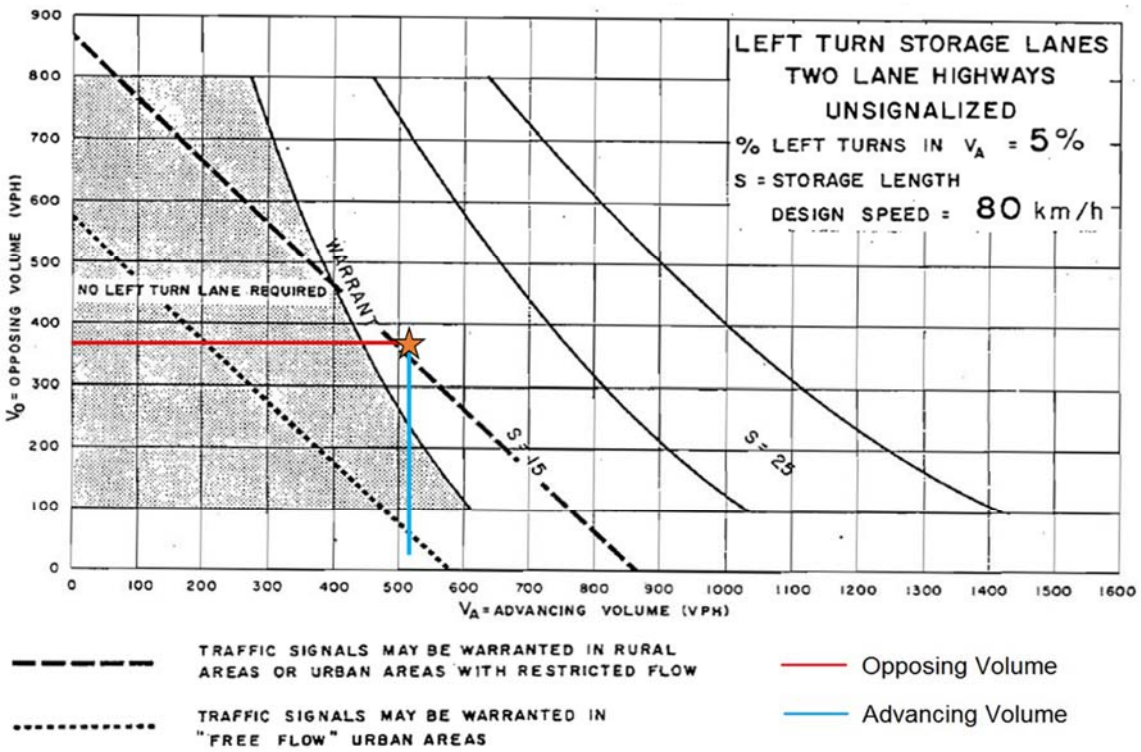
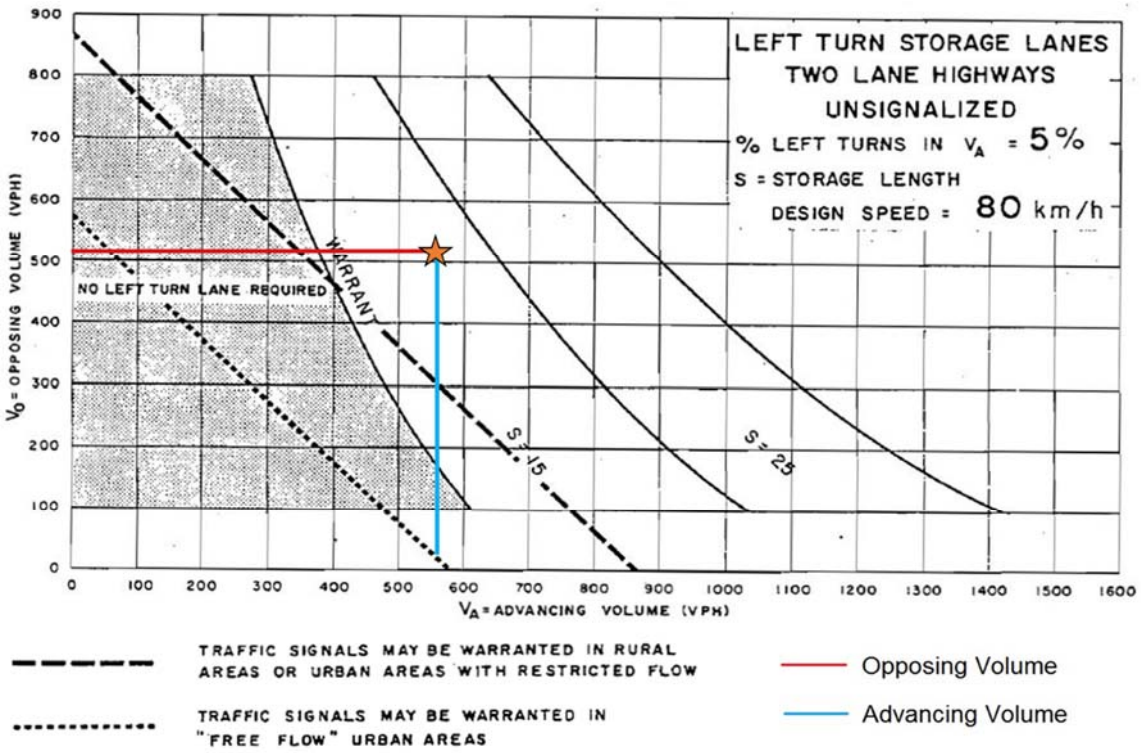


Exhibit 6-18: MTO Left-Turn Warrant – Figure EA-14-1 – Weekday PM Peak Hour



As shown in **Exhibit 6-17** and **Exhibit 6-18**, the MTO warrant indicates that a 15-metre dedicated eastbound left-turn lane on County Road 124 at the Proposed Access is warranted to accommodate left-turn volumes into the proposed development during the Weekday AM and Weekday PM peak hour.

Furthermore, given the design speed of 80 km/h and an assumed lane width of 3.7 metres, Table 9.17.1 from the TAC guidelines specifies an approach taper length (west of the Proposed Access under Scenario 2 conditions) of 55 metres, and a departure taper length (east of the Proposed Access) of 55 metres for this eastbound left-turn lane.

6.2.4 Dedicated Westbound Right-Turn Lane

The need for a dedicated westbound right-turn lane on County Road 124 to accommodate the expected volumes of right-turns into the Proposed Access (under Scenario 2) was determined using TAC equation 9.14.1:

$$S = \frac{NL}{30}$$

where:

S	=	Storage Length (m)
N	=	Design volume of turning vehicles (veh/h), and
L	=	Length occupied by each vehicle (m)

Based on a vehicle length of 6.0 meters and a design volume of 7 vehicles during the Weekday PM Peak hour (when right-turning volumes are expected to be highest), this calculation produces a required storage length of 1.4 metres as shown:

$$S = \frac{NL}{30}$$

$$S = \frac{(7)(6)}{30}$$

$$S = \frac{42}{30}$$

$$S = 1.4$$

1.4 metres of storage is less than one vehicle length. Therefore, a dedicated southbound right-turn lane on County Road 124 is not warranted.

7 Conclusions

This traffic impact study examined the potential impacts to the study area caused by the proposed development consisting of 13 single-family detached housing units.

Background traffic analysis shows that all study area intersections are anticipated to operate with acceptable LOS with no critical movements. This is seen throughout all future background analysis, as all intersections operate with overall LOS B or better.

Site traffic for the proposed development was calculated based on the ITE Trip Generation manual rates. The development is estimated to generate 14 trips (3 entering, 11 exiting) in the AM peak hour and 14 trips (9 entering, 5 exiting) in the PM peak hour.

Under 2028 total traffic conditions, acceptable traffic operations are expected at the County Road 124 / Second Line / County Road 125 signalized intersection during both weekday AM and PM peak hours with no critical movements.

The proposed site driveway intersecting with Second Line (Scenario 1) is anticipated to operate well with LOS A. The southbound queues for the County Road 124 / Second Line / County Road 125 signalized intersection is expected to not spill upstream and interfere with site driveway operations located approximately 60 metres north on Second Line.

Although a site driveway connection with County Road 124 (Scenario 2) is not permitted by the County of Wellington, it is anticipated that traffic operations will be acceptable with regards to LOS and queue lengths.

Based on a review of available sightlines at the locations of the Proposed Site Access (under Scenario 1 and Scenario 2), stopping sight distances and departure sight distances are anticipated to exceed the minimum requirements as specified by TAC. Furthermore, based on the projected future volumes for the Proposed Site Access, a dedicated eastbound left-turn lane, providing 15 metres of vehicle storage, is warranted under the TAC and MTO methodologies.

Appendix A – Turning Movement Counts

Ontario Traffic Inc.

Morning Peak Diagram

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

One Hour Peak
From: 7:15:00
To: 8:15:00

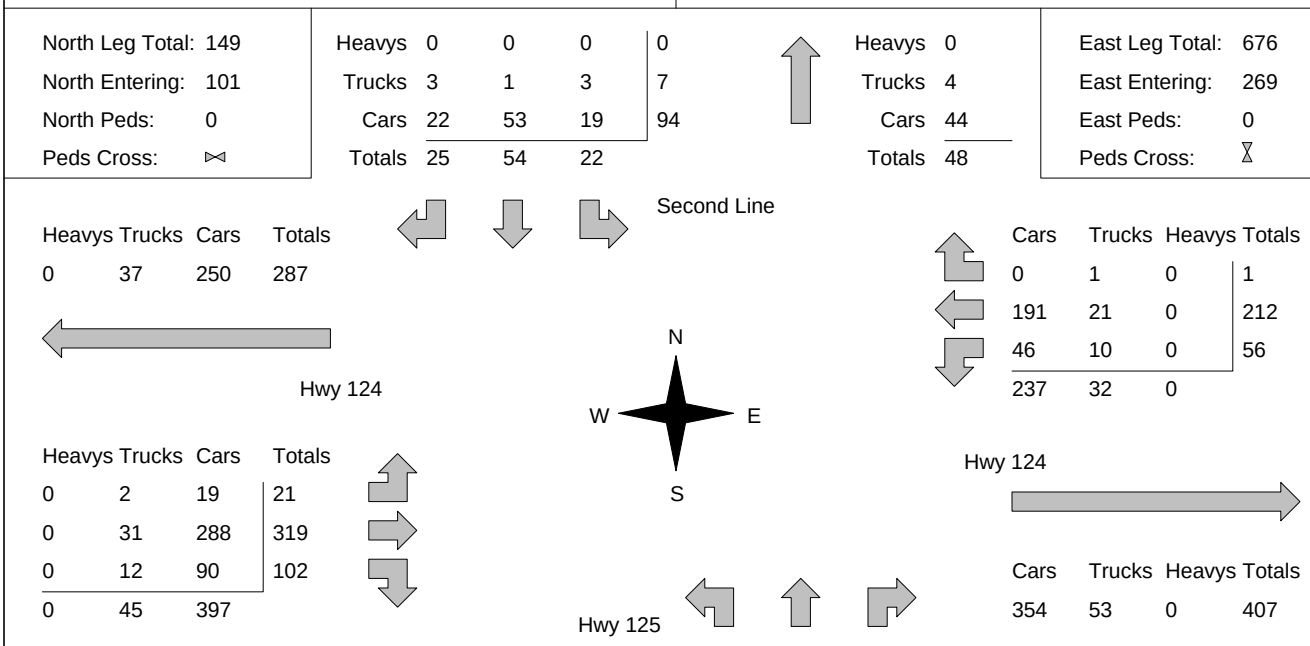
Municipality: Erin
Site #: 1725600001
Intersection: Hwy 124 & Second Line-Hwy 125
TFR File #: 3
Count date: 13-Sep-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hwy 124 runs W/E



Comments

Ontario Traffic Inc.

Afternoon Peak Diagram

Specified Period
From: 16:00:00
To: 18:00:00

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

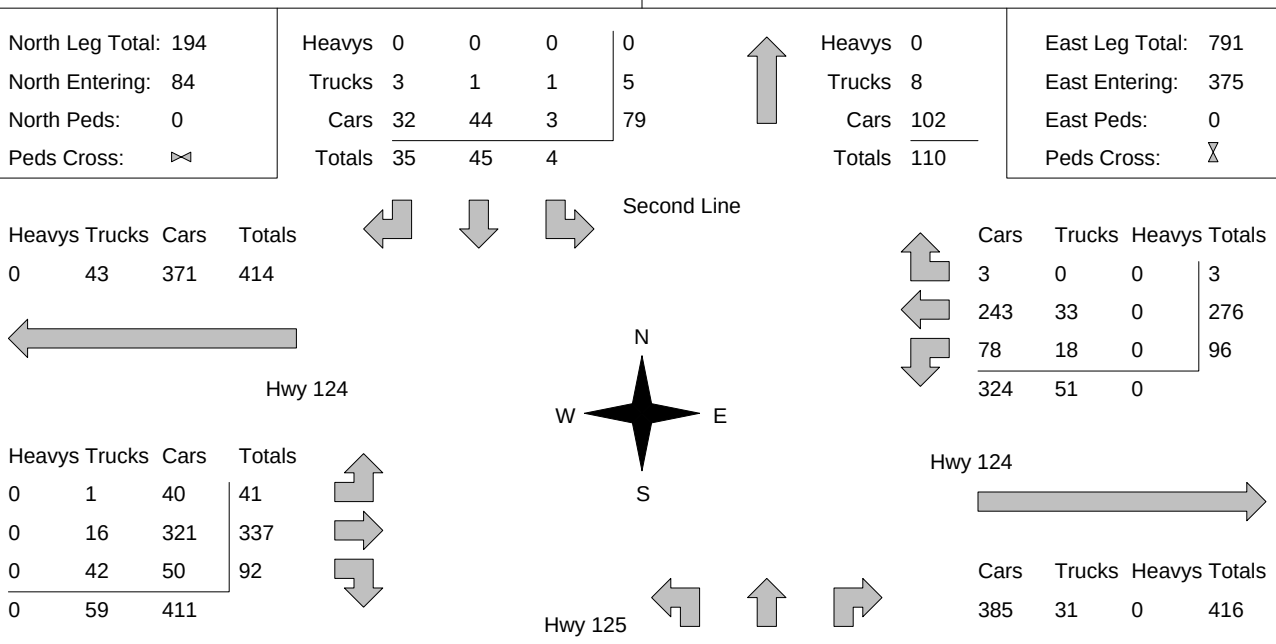
Municipality: Erin
Site #: 1725600001
Intersection: Hwy 124 & Second Line-Hwy 125
TFR File #: 3
Count date: 13-Sep-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hwy 124 runs W/E



Comments

Ontario Traffic Inc.

Total Count Diagram

Municipality: Erin
Site #: 1725600001
Intersection: Hwy 124 & Second Line-Hwy 125
TFR File #: 3
Count date: 13-Sep-17

Weather conditions:

Person(s) who counted:

**** Signalized Intersection ****

Major Road: Hwy 124 runs W/E

North Leg Total:	631			
North Entering:	323			
North Peds:	0			
Peds Cross:	⋈			

Heavys	0	0	0	0
Trucks	7	3	7	17
Cars	93	175	38	306
Totals	100	178	45	

Heavys	0	
Trucks	21	
Cars	287	
Totals	308	

East Leg Total:	2678		
East Entering:	1231		
East Peds:	0		
Peds Cross:	⧖		

Second Line

Heavys	Trucks	Cars	Totals
0	162	1159	1321

Cars	Trucks	Heavys	Totals
10	3	0	13
823	113	0	936
227	55	0	282
1060	171	0	

Hwy 124

N
W E
S

Heavys	Trucks	Cars	Totals
0	8	122	130
0	91	1076	1167
0	99	254	353
0	198	1452	

Hwy 124

Cars	Trucks	Heavys	Totals
1294	152	1	1447

Hwy 125

Peds Cross:	⧖		
West Peds:	0		
West Entering:	1650		
West Leg Total:	2971		

Cars	656			
Trucks	157			
Heavys	0			
Totals	813			

Cars	243	155	180	578
Trucks	42	10	54	106
Heavys	0	0	1	1
Totals	285	165	235	

Peds Cross:	⋈		
South Peds:	0		
South Entering:	685		
South Leg Total:	1498		

Comments

Ontario Traffic Inc.
Traffic Count Summary

Intersection: Hwy 124 & Second Line-Hwy 125 | **Count Date:** 13-Sep-17 | **Municipality:** Erin

North Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds	North/South Total Approaches
7:00:00	0	1	0	1	0	2
8:00:00	19	57	24	100	0	236
9:00:00	13	44	21	78	0	201
16:00:00	0	0	0	0	0	0
17:00:00	6	35	27	68	0	299
18:00:00	7	41	28	76	0	270
Totals:	45	178	100	323	0	1008

South Approach Totals

Hour Ending	Includes Cars, Trucks, & Heavys Left	Thru	Right	Grand Total	Total Peds
7:00:00	0	1	0	1	0
8:00:00	45	27	64	136	0
9:00:00	49	24	50	123	0
16:00:00	0	0	0	0	0
17:00:00	109	59	63	231	0
18:00:00	82	54	58	194	0
	285	165	235	685	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	52	196	0	248	0	661
9:00:00	58	214	7	279	0	668
16:00:00	1	3	0	4	0	6
17:00:00	72	255	1	328	0	764
18:00:00	99	266	5	370	0	777
Totals:	282	934	13	1229	0	2876

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	16	303	94	413	0
9:00:00	24	275	90	389	0
16:00:00	0	2	0	2	0
17:00:00	41	299	96	436	0
18:00:00	49	285	73	407	0
	130	1164	353	1647	0

Calculated Values for Traffic Crossing Major Street

Hours Ending:	0:00	0:00	7:00	8:00	9:00	16:00	17:00	18:00
Crossing Values:	0	0	1	121	106	0	174	143

Ontario Traffic Inc.

Count Date: 13-Sep-17 Site #: 1725600001

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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	2	2	16	15	4	4	0	0	1	1	0	0	0	0	0	0	0	0	0	0
7:30:00	7	5	35	19	6	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0
7:45:00	11	4	47	12	10	4	1	1	2	1	1	1	0	0	0	0	0	0	0	0
8:00:00	17	6	56	9	22	12	2	1	2	0	2	1	0	0	0	0	0	0	0	0
8:15:00	21	4	69	13	26	4	3	1	2	0	3	1	0	0	0	0	0	0	0	0
8:30:00	23	2	82	13	29	3	4	1	2	0	3	0	0	0	0	0	0	0	0	0
8:45:00	25	2	93	11	35	6	4	0	2	0	4	1	0	0	0	0	0	0	0	0
9:00:00	28	3	100	7	41	6	4	0	2	0	4	0	0	0	0	0	0	0	0	0
9:00:17	28	0	100	0	41	0	4	0	2	0	4	0	0	0	0	0	0	0	0	0
16:00:00	28	0	100	0	41	0	4	0	2	0	4	0	0	0	0	0	0	0	0	0
16:15:00	28	0	108	8	48	7	6	2	2	0	4	0	0	0	0	0	0	0	0	0
16:30:00	30	2	115	7	54	6	6	0	2	0	4	0	0	0	0	0	0	0	0	0
16:45:00	30	0	124	9	62	8	7	1	2	0	5	1	0	0	0	0	0	0	0	0
17:00:00	31	1	135	11	67	5	7	0	2	0	5	0	0	0	0	0	0	0	0	0
17:15:00	31	0	148	13	77	10	7	0	2	0	5	0	0	0	0	0	0	0	0	0
17:30:00	33	2	159	11	86	9	7	0	3	1	7	2	0	0	0	0	0	0	0	0
17:45:00	37	4	168	9	91	5	7	0	3	0	7	0	0	0	0	0	0	0	0	0
18:00:00	38	1	175	7	93	2	7	0	3	0	7	0	0	0	0	0	0	0	0	0
18:00:05	38	0	175	0	93	0	7	0	3	0	7	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.

Count Date: 13-Sep-17 Site #: 1725600001

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	7	7	37	37	0	0	3	3	3	3	0	0	0	0	0	0	0	0	0	0
7:30:00	20	13	82	45	0	0	4	1	6	3	0	0	0	0	0	0	0	0	0	0
7:45:00	29	9	133	51	0	0	7	3	13	7	0	0	0	0	0	0	0	0	0	0
8:00:00	42	13	179	46	0	0	10	3	17	4	0	0	0	0	0	0	0	0	0	0
8:15:00	53	11	228	49	0	0	13	3	24	7	1	1	0	0	0	0	0	0	0	0
8:30:00	65	12	263	35	1	1	16	3	31	7	1	0	0	0	0	0	0	0	0	0
8:45:00	73	8	328	65	2	1	18	2	43	12	1	0	0	0	0	0	0	0	0	0
9:00:00	86	13	359	31	4	2	24	6	51	8	3	2	0	0	0	0	0	0	0	0
9:00:17	86	0	359	0	4	0	24	0	52	1	3	0	0	0	0	0	0	0	0	0
16:00:00	87	1	361	2	4	0	24	0	52	0	3	0	0	0	0	0	0	0	0	0
16:15:00	98	11	403	42	4	0	27	3	60	8	3	0	0	0	0	0	0	0	0	0
16:30:00	112	14	479	76	5	1	30	3	69	9	3	0	0	0	0	0	0	0	0	0
16:45:00	125	13	527	48	5	0	34	4	75	6	3	0	0	0	0	0	0	0	0	0
17:00:00	144	19	583	56	5	0	39	5	85	10	3	0	0	0	0	0	0	0	0	0
17:15:00	169	25	659	76	5	0	45	6	94	9	3	0	0	0	0	0	0	0	0	0
17:30:00	190	21	722	63	8	3	48	3	102	8	3	0	0	0	0	0	0	0	0	0
17:45:00	210	20	779	57	10	2	53	5	107	5	3	0	0	0	0	0	0	0	0	0
18:00:00	227	17	821	42	10	0	55	2	113	6	3	0	0	0	0	0	0	0	0	0
18:00:05	227	0	823	2	10	0	55	0	113	0	3	0	0	0	0	0	0	0	0	0

Ontario Traffic Inc.

Count Date: 13-Sep-17 Site #: 1725600001

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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15:00	9	9	9	8	7	7	0	0	0	0	5	5	0	0	0	0	0	0	0	0
7:30:00	14	5	14	5	18	11	5	5	0	0	11	6	0	0	0	0	0	0	0	0
7:45:00	26	12	22	8	27	9	7	2	0	0	17	6	0	0	0	0	0	0	0	0
8:00:00	34	8	27	5	43	16	11	4	1	1	21	4	0	0	0	0	0	0	0	0
8:15:00	46	12	34	7	54	11	13	2	1	0	24	3	0	0	0	0	0	0	0	0
8:30:00	55	9	38	4	60	6	17	4	2	1	27	3	0	0	0	0	1	1	0	0
8:45:00	62	7	43	5	74	14	19	2	2	0	29	2	0	0	0	0	1	0	0	0
9:00:00	73	11	50	7	80	6	21	2	2	0	33	4	0	0	0	0	1	0	0	0
9:00:17	73	0	50	0	80	0	21	0	2	0	33	0	0	0	0	0	1	0	0	0
16:00:00	73	0	50	0	80	0	21	0	2	0	33	0	0	0	0	0	1	0	0	0
16:15:00	96	23	61	11	87	7	27	6	2	0	36	3	0	0	0	0	1	0	0	0
16:30:00	117	21	75	14	101	14	35	8	3	1	39	3	0	0	0	0	1	0	0	0
16:45:00	139	22	90	15	112	11	37	2	8	5	41	2	0	0	0	0	1	0	0	0
17:00:00	163	24	103	13	131	19	40	3	8	0	45	4	0	0	0	0	1	0	0	0
17:15:00	191	28	119	16	149	18	42	2	8	0	51	6	0	0	0	0	1	0	0	0
17:30:00	213	22	134	15	162	13	42	0	10	2	53	2	0	0	0	0	1	0	0	0
17:45:00	230	17	146	12	172	10	42	0	10	0	54	1	0	0	0	0	1	0	0	0
18:00:00	243	13	155	9	180	8	42	0	10	0	54	0	0	0	0	0	1	0	0	0
18:00:05	243	0	155	0	180	0	42	0	10	0	54	0	0	0	0	0	1	0	0	0

Ontario Traffic Inc.

Count Date: 13-Sep-17 Site #: 1725600001

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	1	1	67	67	24	24	0	0	6	6	0	0	0	0	0	0	0	0	0	0
7:30:00	6	5	140	73	45	21	1	1	14	8	1	1	0	0	0	0	0	0	0	0
7:45:00	10	4	203	63	64	19	1	0	19	5	4	3	0	0	0	0	0	0	0	0
8:00:00	14	4	273	70	84	20	2	1	30	11	10	6	0	0	0	0	0	0	0	0
8:15:00	20	6	355	82	114	30	2	0	37	7	12	2	0	0	0	0	0	0	0	0
8:30:00	26	6	419	64	135	21	2	0	47	10	13	1	0	0	0	0	0	0	0	0
8:45:00	31	5	461	42	148	13	2	0	54	7	19	6	0	0	0	0	0	0	0	0
9:00:00	38	7	512	51	160	12	2	0	66	12	24	5	0	0	0	0	0	0	0	0
9:00:17	38	0	514	2	160	0	2	0	66	0	24	0	0	0	0	0	0	0	0	0
16:00:00	38	0	514	0	160	0	2	0	66	0	24	0	0	0	0	0	0	0	0	0
16:15:00	47	9	574	60	172	12	2	0	71	5	34	10	0	0	0	0	0	0	0	0
16:30:00	54	7	622	48	186	14	7	5	74	3	46	12	0	0	0	0	0	0	0	0
16:45:00	59	5	700	78	201	15	7	0	79	5	57	11	0	0	0	0	0	0	0	0
17:00:00	73	14	794	94	211	10	8	1	85	6	69	12	0	0	0	0	0	0	0	0
17:15:00	82	9	878	84	222	11	8	0	88	3	80	11	0	0	0	0	0	0	0	0
17:30:00	94	12	943	65	236	14	8	0	90	2	88	8	0	0	0	0	0	0	0	0
17:45:00	113	19	1007	64	246	10	8	0	90	0	94	6	0	0	0	0	0	0	0	0
18:00:00	122	9	1073	66	254	8	8	0	91	1	99	5	0	0	0	0	0	0	0	0
18:00:05	122	0	1076	3	254	0	8	0	91	0	99	0	0	0	0	0	0	0	0	0

Appendix B – Signal Timing Plan (County Road 124 / Wellington County Road 125 & Second Line)

Wellington county 12 -24 124 & 125 Ospringe 7/4/2013 6:18

Configuration

Controller Sequence Priority

	1	2	3	4	5	6	7	8	9	10	11	12
Ring 1 Phases . .	1	2	3	4	9	10	0	0	0	0	0	0
Ring 2 Phases . .	5	6	7	8	11	12	0	0	0	0	0	0

Phase

	1	2	3	4	5	6	7	8	9	10	11	12
In Use.		X		X		X		X				
Exclusive Ped . . .												
Direction												

Overlap

	A	B	C	D
Direction . . .				

Load Switch Channel/Driver Group Assign (Info Only):

Load Switch (MMU) Channel	Signal Driver Phase/ Ovlap	Group Ped
1	1	.
2	2	.
3	3	.
4	4	.
5	5	.
6	6	.
7	7	.
8	8	.
9	2	X
10	4	X
11	6	X
12	8	X
13	A	.
14	B	.
15	C	.
16	D	.

Configuration Continued

	Enable BIU: 1	2	3	4	5	6	7	8
Terminal/Facilities.								
Detector Rack.								

Type 2 Runs as Type 1. . .	.
MMU Disable.	X
Diagnostic Enable.	.
Peer-Peer Comm Enable. . .	.

	1	2	3	4	5	6	7	8	9	10
Peer To Peer Addresses . .	255	255	255	255	255	255	255	255	255	255

Port 2:

Port 2 Protocol	Terminal
Port 2 Enable	YES
AB3418 Address.	0
AB3418 Group Address.	0
AB3418 Response Delay	0
AB3418 Single Flag Enable . . .	NO
AB3418 Drop-Out Time.	0
AB3418 TOD SF Select.	0
Data Rate	1200 bps
Data, Parity, Stop.	8, 0, 1

Port 3:

Port 3 Protocol	Telemetry
Port 3 Enable	NO
Telemetry Address	0
System Detector 9-16 Address. .	0
Telemetry Response Delay. . . .	6000
AB3418 Address.	0
AB3418 Group Address.	0
AB3418 Response Delay	0
AB3418 Single Flag Enable . . .	NO
AB3418 Drop-Out Time.	0
AB3418 TOD SF Select.	0
Duplex.	Full
Data Rate	1200 bps
Data, Parity, Stop.	8, 0, 1

Configuration Continued

Event Enabling		Alarm Enabling
Critical RFE'S (MMU/TF)		ALARM 1
Non-Critical RFE'S (DET/TEST)		ALARM 2
Detector Errors		ALARM 3
Coordination Errors		ALARM 4
MMU Flash Faults.		ALARM 5
Local Flash Faults.	X	ALARM 6
Preempt		ALARM 7
Power On/Off.	X	ALARM 8
Low Battery	X	ALARM 9
		ALARM 10.
		ALARM 11.
		ALARM 12.
		ALARM 13.
		ALARM 14.
		ALARM 15.
		ALARM 16.

Supervisor Access Code. . . ****
Data Change Access Code . . ****

MMU Compatibility Program (Info Only)

Channel Is Allowed to Time With Channel

Channel	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
3	.	.	.	.	.	.	.	.	.	.	.	.	.		
4	.	.	.	.	.	.	.	.	.	.	.	.			
5	.	.	.	.	.	.	.	.	.	.	.				
6	.	.	.	.	.	.	.	.	.	.					
7	.	.	.	.	.	.	.	.	.						
8	.	.	.	.	.	.	.	.							
9	.	.	.	.	.	.	.								
10	.	.	.	.	.	.									
11	.	.	.	.	.										
12	.	.	.	.											
13	.	.	.												
14	.	.													
15	.														

Version Info:

Software Assy.	Part No.	Version
Boot	27831	2.33
Program	27871	5.1
Application		. 3
Help	27891	4.63
Configuration	27906	C000

Wellington county 12 -24 124 & 125 Ospringe 7/4/2013 6:18

By-Phase Timing Data

	Phase											
Direction	1	2	3	4	5	6	7	8	9	10	11	12
Minimum Green	5	20	5	15	5	20	5	15	5	5	5	5
Bike Min Green	0	0	0	0	0	0	0	0	0	0	0	0
Cond Serv Min Grn	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	15	0	13	0	15	0	13	0	10	0	10
Ped Clearance	0	5	0	5	0	5	0	5	0	16	0	16
Veh Extension	5.0	4.5	5.0	3.0	5.0	4.5	5.0	3.0	5.0	5.0	5.0	5.0
Alt Veh Exten	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Extension	0	0	0	0	0	0	0	0	0	0	0	0
Max 1	35	45	35	45	35	45	35	45	35	35	35	35
Max 2	40	40	40	40	40	40	40	40	40	40	40	40
Max 3	0	0	0	0	0	0	0	0	0	0	0	0
Det. Fail Max	0	0	0	0	0	0	0	0	0	0	0	0
Yellow Change	3.0	5.9	3.0	5.9	3.0	5.9	3.0	5.9	3.0	3.0	3.0	3.0
Red Clearance	1.0	1.4	1.0	1.4	1.0	1.4	1.0	1.4	1.0	1.0	1.0	1.0
Red Revert	2.0	5.0	2.0	2.0	2.0	5.0	2.0	2.0	2.0	2.0	2.0	2.0
Act. B4 Init	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Actuation	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Initial	30	30	30	30	30	30	30	30	30	30	30	30
Time B4 Reduction	0	0	0	0	0	0	0	0	0	0	0	0
Cars Waiting	0	0	0	0	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

No-Serve Phases

	Phase Cannot Serve With Phase										
Phase	12	11	10	9	8	7	6	5	4	3	2
1	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	
3	.	.	.	.	.	.	.	.	.		
4	.	.	.	.	.	.	.	.			
5	.	.	.	.	.	.	.				
6	.	.	.	.	.	.					
7	.	.	.	.	.						
8	.	.	.	.							
9	.	.	.								
10	.	.									
11	.										

Ped Carryover

Ped Start Phase	Carry Over Phase
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0

Vehicle/Ped Phase as Overlap

Ped Ovlap Phase	Ped Phase As Overlap Consists of Ped Phases											
	1	2	3	4	5	6	7	8	9	10	11	12
1	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.	.	.	.
12	.	.	.	.	.	.	.	.	.	.	.	.

Veh Ovlap Phase	Veh Phase As Overlap Consists of Veh Phases											
	1	2	3	4	5	6	7	8	9	10	11	12
1	X	.	.	.	.	.	.	.	.	.	.	.
2	.	X	.	.	.	.	.	.	.	.	.	.
3	.	.	X	.	.	.	.	.	.	.	.	.
4	.	.	.	X	.	.	.	.	.	.	.	.
5	.	.	.	.	X	.	.	.	.	.	.	.
6	.	.	.	.	.	X	.	.	.	.	.	.
7	.	.	.	.	.	.	X	.	.	.	.	.
8	.	.	.	.	.	.	.	X	.	.	.	.
9	.	.	.	.	.	.	.	.	X	.	.	.
10	.	.	.	.	.	.	.	.	.	X	.	.
11	.	.	.	.	.	.	.	.	.	.	X	.
12	.	.	.	.	.	.	.	.	.	.	.	X

Overlap Data

Overlap A	Phase: 1	2	3	4	5	6	7	8	9	10	11	12
Standard.												
Protected												
Permitted												
Enable Lag.												
Enable Lead												
Spare												
Advance Green Timer				0.0								

	Green	Yellow	Red
Lag/Lead Timers	0.0	0.0	0.0

Overlap B	Phase: 1	2	3	4	5	6	7	8	9	10	11	12
Standard.												
Protected												
Permitted												
Enable Lag.												
Enable Lead												
Spare												
Advance Green Timer				0.0								

	Green	Yellow	Red
Lag/Lead Timers	0.0	0.0	0.0

Overlap C	Phase: 1	2	3	4	5	6	7	8	9	10	11	12
Standard.												
Protected												
Permitted												
Enable Lag.												
Enable Lead												
Spare												
Advance Green Timer				0.0								

	Green	Yellow	Red
Lag/Lead Timers	0.0	0.0	0.0

Overlap D	Phase: 1	2	3	4	5	6	7	8	9	10	11	12
Standard.												
Protected												
Permitted												
Enable Lag.												
Enable Lead												
Spare												
Advance Green Timer				0.0								

	Green	Yellow	Red
Lag/Lead Timers	0.0	0.0	0.0

Power Start, Remote Flash

	Phase 1	2	3	4	5	6	7	8	9	10	11	12	Overlap A	B	C	D
Power Start	.	X	.	.	.	X	.	.	.	.	.	.				
External Start	.	X	.	.	.	X	.	.	.	.	.	.				
Into Remote Flash	.	X	.	.	.	X	.	.	.	.	.	.				
Exit Remote Flash	.	X	.	.	.	X	.	.	.	.	.	.				
Remote Flash Yellow	.	X	.	.	.	X	.	.	.	.	.	.				
Flash Together	.	X	.	X	X	.	X	.	.	.	.	.	.	X	.	X

Initialization Interval:

Power Start	Yellow
External Start	Yellow

Power Start All Red Time	0
Power Start Flash Time	0

Remote Flash Options:

Out of Flash Yellow	YES
Out of Flash All Red	NO
Minimum Recall	NO
Alternate Flash	NO
Flash Thru Load Switches	YES
Cycle Through Phases	NO

Option Data

	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
Guaranteed Passage												
Call To NonActuated 1		X				X						
Call To NonActuated 2				X				X				
Dual Entry		X		X		X		X				
Conditional Service	X		X		X		X		X		X	
Conditional Reservice												
Actuated Rest in Walk		X				X						
Flashing Walk												

Enable Programmable Options

Dual Entry	ON	Backup Protection Group 1	OFF
Conditional Service	OFF	Backup Protection Group 2	OFF
Ped Clearance Protection	OFF	Backup Protection Group 3	OFF
Special Preempt Overlap Flash	OFF	Simultaneous Gap Group 1	OFF
Cond Service Det Cross Switch	OFF	Simultaneous Gap Group 2	OFF
Lock Detectors in Red Only	OFF	Simultaneous Gap Group 3	OFF

Five Section Left Turn Control

Phases:	5-2	7-4	1-6	3-8	11-10	9-12
Left Turn Head						

Recall Data, Dimming

	Phase											
	1	2	3	4	5	6	7	8	9	10	11	12
Locking Detector. . . .	.	X	.	.	.	X	.	.	.	.	.	.
Vehicle Recall.	.	.	.	.	.	.	.	.	.	.	.	.
Pedestrian Recall . . .	.	X	.	.	.	X	.	.	.	.	.	.
Recall To Max	.	.	.	.	.	.	.	.	.	.	.	.
Soft Recall	.	.	.	.	.	.	.	.	.	.	.	.
Don't Rest Here	.	.	.	.	.	.	.	.	.	.	.	.
Ped Dark if No Call . .	.	.	.	.	.	.	.	.	.	.	.	.

Dimming:

	Load Switch															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Green/Walk. . . .	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Yellow/Ped Clear.	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Red/Don't Walk. .	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

Detector Type/Timers

Det.	Locking Memory	Log Enable	Timers Extend	Timers Delay	Don't Reset Extend	Type
1	NO	NO	0.0	0	.	0 - Normal
2	NO	NO	0.0	0	.	0 - Normal
3	NO	NO	0.0	0	.	0 - Normal
4	NO	NO	0.0	10	.	1 - Extend/Delay
5	NO	NO	0.0	0	.	0 - Normal
6	NO	NO	0.0	0	.	0 - Normal
7	NO	NO	0.0	0	.	0 - Normal
8	NO	NO	0.0	0	.	0 - Normal
9	NO	NO	0.0	0	.	0 - Normal
10	NO	NO	0.0	0	.	0 - Normal
11	NO	NO	0.0	10	.	1 - Extend/Delay
12	NO	NO	0.0	0	.	0 - Normal
13	NO	NO	0.0	0	.	0 - Normal
14	NO	NO	0.0	0	.	0 - Normal
15	NO	NO	0.0	0	.	0 - Normal
16	NO	NO	0.0	0	.	0 - Normal
17	NO	NO	0.0	0	.	0 - Normal
18	NO	NO	0.0	0	.	0 - Normal
19	NO	NO	0.0	0	.	0 - Normal
20	NO	NO	0.0	10	.	1 - Extend/Delay
21	NO	NO	0.0	0	.	0 - Normal
22	NO	NO	0.0	0	.	0 - Normal
23	NO	NO	0.0	0	.	0 - Normal
24	NO	NO	0.0	0	.	0 - Normal
25	NO	NO	0.0	0	.	0 - Normal
26	NO	NO	0.0	10	.	1 - Extend/Delay
27	NO	NO	0.0	0	.	0 - Normal
28	NO	NO	0.0	0	.	0 - Normal
29	NO	NO	0.0	0	.	0 - Normal
30	NO	NO	0.0	0	.	0 - Normal
31	NO	NO	0.0	0	.	0 - Normal
32	NO	NO	0.0	0	.	0 - Normal

Detector Names

Det 1: Detector 1	Det 17: Detector 17
Det 2: Detector 2	Det 18: Detector 18
Det 3: Detector 3	Det 19: Detector 19
Det 4: Detector 4	Det 20: Detector 20
Det 5: Detector 5	Det 21: Detector 21
Det 6: Detector 6	Det 22: Detector 22
Det 7: Detector 7	Det 23: Detector 23
Det 8: Detector 8	Det 24: Detector 24
Det 9: Detector 9	Det 25: Detector 25
Det 10: Detector 10	Det 26: Detector 26
Det 11: Detector 11	Det 27: Detector 27
Det 12: Detector 12	Det 28: Detector 28
Det 13: Detector 13	Det 29: Detector 29
Det 14: Detector 14	Det 30: Detector 30
Det 15: Detector 15	Det 31: Detector 31
Det 16: Detector 16	Det 32: Detector 32

Detector Type/Timers

33	NO	NO	0.0	0	.	0 - Normal
34	NO	NO	0.0	0	.	0 - Normal
35	NO	NO	0.0	0	.	0 - Normal
36	NO	NO	0.0	0	.	0 - Normal
37	NO	NO	0.0	0	.	0 - Normal
38	NO	NO	0.0	0	.	0 - Normal
39	NO	NO	0.0	0	.	0 - Normal
40	NO	NO	0.0	0	.	0 - Normal
41	NO	NO	0.0	0	.	0 - Normal
42	NO	NO	0.0	0	.	0 - Normal
43	NO	NO	0.0	0	.	0 - Normal
44	NO	NO	0.0	0	.	0 - Normal
45	NO	NO	0.0	0	.	0 - Normal
46	NO	NO	0.0	0	.	0 - Normal
47	NO	NO	0.0	0	.	0 - Normal
48	NO	NO	0.0	0	.	0 - Normal
49	NO	NO	0.0	0	.	0 - Normal
50	NO	NO	0.0	0	.	0 - Normal
51	NO	NO	0.0	0	.	0 - Normal
52	NO	NO	0.0	0	.	0 - Normal
53	NO	NO	0.0	0	.	0 - Normal
54	NO	NO	0.0	0	.	0 - Normal
55	NO	NO	0.0	0	.	0 - Normal
56	NO	NO	0.0	0	.	0 - Normal
57	NO	NO	0.0	0	.	0 - Normal
58	NO	NO	0.0	0	.	0 - Normal
59	NO	NO	0.0	0	.	0 - Normal
60	NO	NO	0.0	0	.	0 - Normal
61	NO	NO	0.0	0	.	0 - Normal
62	NO	NO	0.0	0	.	0 - Normal
63	NO	NO	0.0	0	.	0 - Normal
64	NO	NO	0.0	0	.	0 - Normal

Detector Names

Det 33: Detector 33	Det 49: Detector 49
Det 34: Detector 34	Det 50: Detector 50
Det 35: Detector 35	Det 51: Detector 51
Det 36: Detector 36	Det 52: Detector 52
Det 37: Detector 37	Det 53: Detector 53
Det 38: Detector 38	Det 54: Detector 54
Det 39: Detector 39	Det 55: Detector 55
Det 40: Detector 40	Det 56: Detector 56
Det 41: Detector 41	Det 57: Detector 57
Det 42: Detector 42	Det 58: Detector 58
Det 43: Detector 43	Det 59: Detector 59
Det 44: Detector 44	Det 60: Detector 60
Det 45: Detector 45	Det 61: Detector 61
Det 46: Detector 46	Det 62: Detector 62
Det 47: Detector 47	Det 63: Detector 63
Det 48: Detector 48	Det 64: Detector 64

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Detector Phase Assignment

	Phase											
Det.	1	2	3	4	5	6	7	8	9	10	11	12
1	X	.	.	.	.	.	.	.	.	.	.	.
2	.	X	.	.	.	.	.	.	.	.	.	.
3	.	.	X	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	X	.	.	.	.
5	.	.	.	.	X	.	.	.	.	.	.	.
6	.	.	.	.	.	X	.	.	.	.	.	.
7	.	.	.	.	.	.	X	.	.	.	.	.
8	.	.	.	.	.	.	.	X	.	.	.	.
9	.	.	.	.	.	.	.	.	X	.	.	.
10	.	.	.	.	.	.	.	.	.	X	.	.
11	.	.	.	.	.	.	.	X	.	.	.	.
12	.	.	.	X	.	.	.	X	.	.	.	.
13	.	.	.	.	.	.	.	.	.	.	.	.
14	.	.	.	.	.	.	.	.	.	.	.	.
15	.	.	.	.	.	.	.	.	.	.	.	.
16	.	.	.	.	.	.	.	.	.	.	.	.
17	.	.	.	.	.	.	.	.	.	.	.	.
18	.	X	.	.	.	.	.	.	.	.	.	.
19	.	.	.	.	.	.	.	.	.	.	.	.
20	.	.	.	X	.	.	.	.	.	.	.	.
21	.	.	.	.	.	.	.	.	.	.	.	.
22	.	.	.	.	.	.	.	.	.	.	.	.
23	.	.	.	.	.	.	.	.	.	.	.	.
24	.	.	.	.	.	.	.	.	.	.	.	.
25	.	.	.	.	.	X	.	.	.	.	.	.
26	.	.	.	X	.	.	.	.	.	.	.	.
27	.	.	.	.	.	.	.	.	.	.	.	.
28	.	.	.	.	.	.	.	.	.	.	.	.
29	.	.	.	.	.	.	.	.	.	.	.	.
30	.	.	.	.	.	.	.	.	.	.	.	.
31	.	.	.	.	.	.	.	.	.	.	.	.
32	.	.	.	.	.	.	.	.	.	.	.	.

Detector Cross Switching

	Phase											
Det.	1	2	3	4	5	6	7	8	9	10	11	12
1	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	.	.	.	.
11	.	.	.	.	.	.	.	.	.	.	.	.
12	.	.	.	.	.	.	.	.	.	.	.	.
13	.	.	.	.	.	.	.	.	.	.	.	.
14	.	.	.	.	.	.	.	.	.	.	.	.
15	.	.	.	.	.	.	.	.	.	.	.	.
16	.	.	.	.	.	.	.	.	.	.	.	.
17	.	.	.	.	.	.	.	.	.	.	.	.
18	.	.	.	.	.	.	.	.	.	.	.	.
19	.	.	.	.	.	.	.	.	.	.	.	.
20	.	.	.	.	.	.	.	.	.	.	.	.
21	.	.	.	.	.	.	.	.	.	.	.	.
22	.	.	.	.	.	.	.	.	.	.	.	.
23	.	.	.	.	.	.	.	.	.	.	.	.
24	.	.	.	.	.	.	.	.	.	.	.	.
25	.	.	.	.	.	.	.	.	.	.	.	.
26	.	.	.	.	.	.	.	.	.	.	.	.
27	.	.	.	.	.	.	.	.	.	.	.	.
28	.	.	.	.	.	.	.	.	.	.	.	.
29	.	.	.	.	.	.	.	.	.	.	.	.
30	.	.	.	.	.	.	.	.	.	.	.	.
31	.	.	.	.	.	.	.	.	.	.	.	.
32	.	.	.	.	.	.	.	.	.	.	.	.

Detector Cross Switching

	Phase											
Det.	1	2	3	4	5	6	7	8	9	10	11	12
33	.	.	.	.	.	.	.	.	.	.	.	.
34	.	.	.	.	.	.	.	.	.	.	.	.
35	.	.	.	.	.	.	.	.	.	.	.	.
36	.	.	.	.	.	.	.	.	.	.	.	.
37	.	.	.	.	.	.	.	.	.	.	.	.
38	.	.	.	.	.	.	.	.	.	.	.	.
39	.	.	.	.	.	.	.	.	.	.	.	.
40	.	.	.	.	.	.	.	.	.	.	.	.
41	.	.	.	.	.	.	.	.	.	.	.	.
42	.	.	.	.	.	.	.	.	.	.	.	.
43	.	.	.	.	.	.	.	.	.	.	.	.
44	.	.	.	.	.	.	.	.	.	.	.	.
45	.	.	.	.	.	.	.	.	.	.	.	.
46	.	.	.	.	.	.	.	.	.	.	.	.
47	.	.	.	.	.	.	.	.	.	.	.	.
48	.	.	.	.	.	.	.	.	.	.	.	.
49	.	.	.	.	.	.	.	.	.	.	.	.
50	.	.	.	.	.	.	.	.	.	.	.	.
51	.	.	.	.	.	.	.	.	.	.	.	.
52	.	.	.	.	.	.	.	.	.	.	.	.
53	.	.	.	.	.	.	.	.	.	.	.	.
54	.	.	.	.	.	.	.	.	.	.	.	.
55	.	.	.	.	.	.	.	.	.	.	.	.
56	.	.	.	.	.	.	.	.	.	.	.	.
57	.	.	.	.	.	.	.	.	.	.	.	.
58	.	.	.	.	.	.	.	.	.	.	.	.
59	.	.	.	.	.	.	.	.	.	.	.	.
60	.	.	.	.	.	.	.	.	.	.	.	.
61	.	.	.	.	.	.	.	.	.	.	.	.
62	.	.	.	.	.	.	.	.	.	.	.	.
63	.	.	.	.	.	.	.	.	.	.	.	.
64	.	.	.	.	.	.	.	.	.	.	.	.

Ped/SD Local Assign,Log Interval

	Phase Ped Detector											
	1	2	3	4	5	6	7	8	9	10	11	12
Is Ped Detector No. . . .	0	1	0	2	0	3	0	4	0	0	0	0

	*Local System Detector No.															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Is Local Detector No. . .	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Detector Log Interval . . 0

*NOTE: System master designations cross referenced to local
system detector numbers are:
SDA1 = 1 & 9
SDA2 = 2 & 10
SDB1 = 3 & 11
SDB2 = 4 & 12
SDC1 = 5 & 13
SDC2 = 6 & 14
SDD1 = 7 & 15
SDD2 = 8 & 16

Diagnostic Plans/Fail Action

	Detector															
Plan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
*Fail Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Detector															
Plan	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
*Fail Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*NOTE: 0 = No Action, 1 = Min Recall, 2 = Max Recall in Effect
3 = Detector Fail Max Tiime from By-Phase Timing Data

Diagnostic Plans/Fail Action

Plan	Detector 33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
*Fail Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Plan	Detector 49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
1 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8 Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scaling	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
*Fail Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*NOTE: 0 = No Action, 1 = Min Recall, 2 = Max Recall in Effect
3 = Detector Fail Max Tiime from By-Phase Timing Data

Ped Diagnostic Plans

Plan		1	2	3	4	5	6	7	8	9	10	11	12
1	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1
2	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1
3	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1
4	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1
5	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1
6	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1
7	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1
8	Diagnostic	0	0	0	0	0	0	0	0	0	0	0	0
	Scaling	1	1	1	1	1	1	1	1	1	1	1	1

Detector Diagnostic Intervals

Diagnostic Number	*No-Activity Diagnostic Interval	*Max Presence Diagnostic Interval	Erratic Counts
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	0
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	0	0	0
24	0	0	0
25	0	0	0
26	0	0	0
27	0	0	0
28	0	0	0
29	0	0	0
30	0	0	0
31	0	0	0
32	0	0	0

*NOTE: Scaling is specified in each detector diagnostic plan.

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Speed Detectors

	Local Speed Detector							
One Detector Speed:	1	2	3	4	5	6	7	8
Local Detector Number. . . .	0	0	0	0	0	0	0	0
Vehicle Length	0	0	0	0	0	0	0	0
Loop Length.	0	0	0	0	0	0	0	0
Two Detector Speed:								
Local Detector Number. . . .	0	0	0	0	0	0	0	0
Speed Trap Length.	0	0	0	0	0	0	0	0

	Local Speed Detector							
One Detector Speed:	9	10	11	12	13	14	15	16
Local Detector Number. . . .	0	0	0	0	0	0	0	0
Vehicle Length	0	0	0	0	0	0	0	0
Loop Length.	0	0	0	0	0	0	0	0
Two Detector Speed:								
Local Detector Number. . . .	0	0	0	0	0	0	0	0
Speed Trap Length.	0	0	0	0	0	0	0	0

Units. . . . . Inches

NOTE: Speed Detector 1 = STA, Speed Detector 2 = STB

Coordinator Manual Command and Options

Manual Enable . . . . . Pattern 0

Split Units . . . . . Percent OffsetUnits . . . . . Percent
Interconnect Format . PLAN Interconnect Source . NIC
Transition. . . . . SMOOTH Dwell Period. 0
Resync Count. 0

Actuated Coord Phase . . . . Actuated Walk Rest . . . .
Inhibit Max Timing . . . . . Max 2 Select . . . . . .
Floating Force Off . . . . . Multisync. . . . . .

Split Demand:	Call	Time	Cyc Count	Phase 1	2	3	4	5	6	7	8	9	10	11	12
Demand 1 . .	0		0	.	.	.	.	.	.	.	.	.	.	.	.
Demand 2 . .	0		0	.	.	.	.	.	.	.	.	.	.	.	.

	Phase 1	2	3	4	5	6	7	8	9	10	11	12
Auto Permissive Min Green .	0	0	0	0	0	0	0	0	0	0	0	0

	A	B	C	D	E	F
Free Alternate Sequence . .	.	.	.	.	.	.

Coordination Patterns

Preemptors

Preemptor 1

Active	Det Lock	Ped Dark
Priority Preemption	Yel-Red To Grn	Ped Active
Outputs Only During Hold	Flash All Outputs	Zero Ped Clr Time
Terminate Overlap ASAP	Terminate Phases	Ped Clr Thru Yel
Don't Override Flash	Duration Time 0	
Flash During Hold	Delay Time 0	
No CVM in Flash	Inhibit Time 0	
Fast Flash Grn on Hold Phase	Min Ped Clear 0	
Enable Max Time	Max Time 0	
	Exit Max 0	
	Min Hold Time 0	
	Hold Delay Time 0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold		0.0	0.0

Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap																
Track Clearance Phase																
Hold Phases																
Exit Phases																
Exit Calls on Phase																

Out of Flash Color for Exit Phases . . . . Green

Preemptor 2

Active	Det Lock	Ped Dark
Priority Preemption	Yel-Red To Grn	Ped Active
Outputs Only During Hold	Flash All Outputs	Zero Ped Clr Time
Terminate Overlap ASAP	Terminate Phases	Ped Clr Thru Yel
Don't Override Flash	Duration Time 0	
Flash During Hold	Delay Time 0	
No CVM in Flash	Inhibit Time 0	
Fast Flash Grn on Hold Phase	Min Ped Clear 0	
Enable Max Time	Max Time 0	
	Exit Max 0	
	Min Hold Time 0	
	Hold Delay Time 0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold		0.0	0.0

Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap																
Track Clearance Phase																
Hold Phases																
Exit Phases																
Exit Calls on Phase																

Out of Flash Color for Exit Phases . . . . Green
Linked Preemptor 0

Preemptors

Preemptor 3

Active	Det Lock.	Ped Dark . . . . .
Priority Preemption.	Yel-Red To Grn. . .	Ped Active . . . . .
Outputs Only During Hold . . .	Flash All Outputs .	Zero Ped Clr Time. .
Terminate Overlap ASAP	Terminate Phases. .	Ped Clr Thru Yel . .
Don't Override Flash	Duration Time. . . 0	
Flash During Hold.	Delay Time 0	
No CVM in Flash.	Inhibit Time . . . 0	
Fast Flash Grn on Hold Phase. .	Min Ped Clear. . . 0	
Enable Max Time.	Max Time 0	
	Exit Max 0	
	Min Hold Time. . . 0	
	Hold Delay Time. . 0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap																
Track Clearance Phase																
Hold Phases																
Exit Phases																
Exit Calls on Phase																

Out of Flash Color for Exit Phases . . . . Green

Linked Preemptor 0

Preemptor 4

Active	Det Lock.	Ped Dark . . . . .
Priority Preemption.	Yel-Red To Grn. . .	Ped Active . . . . .
Outputs Only During Hold . . .	Flash All Outputs .	Zero Ped Clr Time. .
Terminate Overlap ASAP	Terminate Phases. .	Ped Clr Thru Yel . .
Don't Override Flash	Duration Time. . . 0	
Flash During Hold.	Delay Time 0	
No CVM in Flash.	Inhibit Time . . . 0	
Fast Flash Grn on Hold Phase. .	Min Ped Clear. . . 0	
Enable Max Time.	Max Time 0	
	Exit Max 0	
	Min Hold Time. . . 0	
	Hold Delay Time. . 0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap																
Track Clearance Phase																
Hold Phases																
Exit Phases																
Exit Calls on Phase																

Out of Flash Color for Exit Phases . . . . Green

Linked Preemptor 0

Preemptors

Preemptor 5

Active	Det Lock.	Ped Dark . . . . .
Priority Preemption.	Yel-Red To Grn. . .	Ped Active . . . . .
Outputs Only During Hold . . .	Flash All Outputs .	Zero Ped Clr Time. .
Terminate Overlap ASAP	Terminate Phases. .	Ped Clr Thru Yel . .
Don't Override Flash	Duration Time. . . 0	
Flash During Hold.	Delay Time 0	
No CVM in Flash.	Inhibit Time . . . 0	
Fast Flash Grn on Hold Phase. .	Min Ped Clear. . . 0	
Enable Max Time.	Max Time 0	
	Exit Max 0	
	Min Hold Time. . . 0	
	Hold Delay Time. . 0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap																
Track Clearance Phase																
Hold Phases																
Exit Phases																
Exit Calls on Phase																

Out of Flash Color for Exit Phases . . . . Green

Linked Preemptor 0

Preemptor 6

Active	Det Lock.	Ped Dark . . . . .
Priority Preemption.	Yel-Red To Grn. . .	Ped Active . . . . .
Outputs Only During Hold . . .	Flash All Outputs .	Zero Ped Clr Time. .
Terminate Overlap ASAP	Terminate Phases. .	Ped Clr Thru Yel . .
Don't Override Flash	Duration Time. . . 0	
Flash During Hold.	Delay Time 0	
No CVM in Flash.	Inhibit Time . . . 0	
Fast Flash Grn on Hold Phase. .	Min Ped Clear. . . 0	
Enable Max Time.	Max Time 0	
	Exit Max 0	
	Min Hold Time. . . 0	
	Hold Delay Time. . 0	

	Green	Yellow	Red
Minimum	0	0.0	0.0
Track Clear	0	0.0	0.0
Hold.		0.0	0.0

Phase/Overlap	1	2	3	4	5	6	7	8	9	10	11	12/	A	B	C	D
Terminate Overlap																
Track Clearance Phase																
Hold Phases																
Exit Phases																
Exit Calls on Phase																

Out of Flash Color for Exit Phases . . . . Green

Linked Preemptor 0

Bus Preemptors

	Bus Preemptor 1	2	3	4
Preemptor Active	.	.	.	.
Detector Lock	.	.	.	.
Maximum Time	0	0	0	0
Reservice Time	0	0	0	0
Delay Time	0	0	0	0
Inhibit Time	0	0	0	0
Entrance Green	0	0	0	0
Entrance Ped Clearance	0	0	0	0
Entrance Yellow	0.0	0.0	0.0	0.0
Entrance Red	0.0	0.0	0.0	0.0
Minimum Hold Time	0	0	0	0

	Hold Phases 1	2	3	4	5	6	7	8	9	10	11	12
Preemptor 1	.	.	.	.	.	.	.	.	.	.	.	.
Preemptor 2	.	.	.	.	.	.	.	.	.	.	.	.
Preemptor 3	.	.	.	.	.	.	.	.	.	.	.	.
Preemptor 4	.	.	.	.	.	.	.	.	.	.	.	.

NIC/TOD Clock/Calendar

Manual NIC Program Step 0

Manual TOD Program Step 0

NIC Resync Time 0000

Sync Reference is . . . . . Reference Time

Week 1 Begins on 1st Sunday . . . . . NO If NO, then week containing Jan. 1

Disable Daylight Savings Time . . . . . NO

Daylight Savings
Begins Last Sunday in March . . . . . NO If NO, then Second Sunday as per 2007 DST Law

TOD Weekly/Yearly

Weekly Program Numbers

	1	2	3	4	5	6	7	8	9	10	
Sunday . . .	1	1	1	1	1	1	1	1	1	1	Program No.
Monday . . .	1	1	1	1	1	1	1	1	1	1	Program No.
Tuesday. . .	1	1	1	1	1	1	1	1	1	1	Program No.
Wednesday. .	1	1	1	1	1	1	1	1	1	1	Program No.
Thursday . .	1	1	1	1	1	1	1	1	1	1	Program No.
Friday . . .	1	1	1	1	1	1	1	1	1	1	Program No.
Saturday . .	1	1	1	1	1	1	1	1	1	1	Program No.

Week of Year

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Prog	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Prog	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
Prog	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Holiday Programs

Holiday	Type	Month	Day of Week/ Day of Month	Week of Year/ Year	Program
1	Fixed	0	0	0	0
2	Fixed	0	0	0	0
3	Fixed	0	0	0	0
4	Fixed	0	0	0	0
5	Fixed	0	0	0	0
6	Fixed	0	0	0	0
7	Fixed	0	0	0	0
8	Fixed	0	0	0	0
9	Fixed	0	0	0	0
10	Fixed	0	0	0	0
11	Fixed	0	0	0	0
12	Fixed	0	0	0	0
13	Fixed	0	0	0	0
14	Fixed	0	0	0	0
15	Fixed	0	0	0	0
16	Fixed	0	0	0	0
17	Fixed	0	0	0	0
18	Fixed	0	0	0	0
19	Fixed	0	0	0	0
20	Fixed	0	0	0	0
21	Fixed	0	0	0	0
22	Fixed	0	0	0	0
23	Fixed	0	0	0	0
24	Fixed	0	0	0	0
25	Fixed	0	0	0	0
26	Fixed	0	0	0	0
27	Fixed	0	0	0	0
28	Fixed	0	0	0	0
29	Fixed	0	0	0	0
30	Fixed	0	0	0	0
31	Fixed	0	0	0	0
32	Fixed	0	0	0	0
33	Fixed	0	0	0	0
34	Fixed	0	0	0	0
35	Fixed	0	0	0	0
36	Fixed	0	0	0	0

NIC Program Steps

Step	Program	Step Begins	Pattern	Override

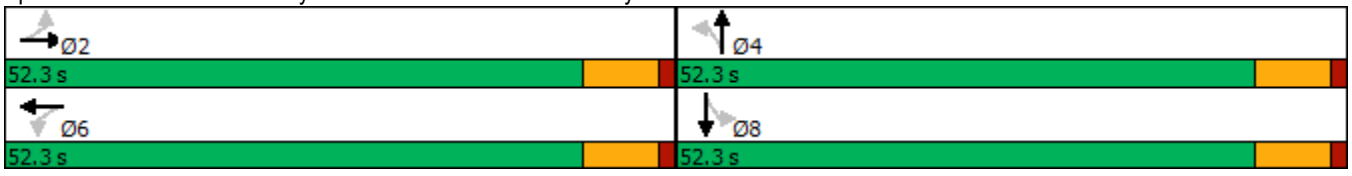
TOD Program Steps

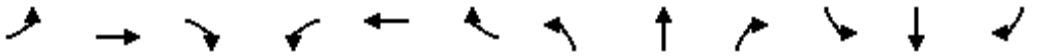
Appendix C – Existing Traffic Conditions: Synchro Outputs

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	21	319	56	212	50	26	22	54
Future Volume (vph)	21	319	56	212	50	26	22	54
Lane Group Flow (vph)	28	554	69	263	57	106	25	91
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Minimum Split (s)	33.3	33.3	33.3	33.3	31.3	31.3	31.3	31.3
Total Split (s)	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Ped	Ped	Ped	Ped	None	None	None	None
v/c Ratio	0.05	0.57	0.19	0.26	0.19	0.23	0.08	0.18
Control Delay	7.9	13.0	10.1	9.4	19.8	9.6	18.5	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	13.0	10.1	9.4	19.8	9.6	18.5	14.3
Queue Length 50th (m)	1.4	39.5	3.9	15.4	4.2	2.1	1.8	4.6
Queue Length 95th (m)	3.8	49.8	8.9	23.8	13.8	12.8	7.4	15.5
Internal Link Dist (m)		331.5		258.7		306.5		320.6
Turn Bay Length (m)	180.0		140.0		120.0		140.0	
Base Capacity (vph)	877	1412	534	1462	895	1193	976	1467
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.39	0.13	0.18	0.06	0.09	0.03	0.06

Intersection Summary
Cycle Length: 104.6
Actuated Cycle Length: 53.8
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 3: County Road 125/Second Line & County Road 124





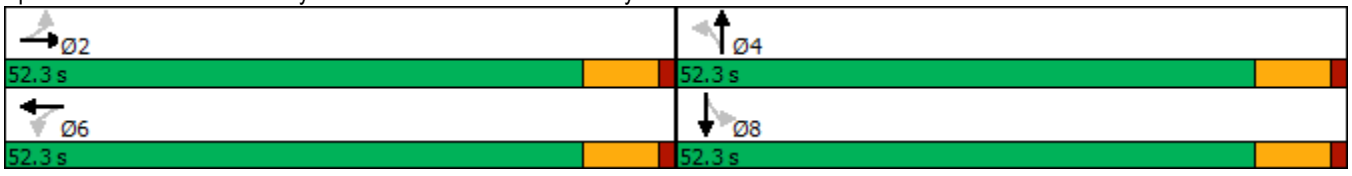
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	319	102	56	212	1	50	26	66	22	54	25
Future Volume (vph)	21	319	102	56	212	1	50	26	66	22	54	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1659	1676		1547	1740		1448	1406		1601	1739	
Flt Permitted	0.60	1.00		0.39	1.00		0.70	1.00		0.69	1.00	
Satd. Flow (perm)	1042	1676		634	1740		1064	1406		1160	1739	
Peak-hour factor, PHF	0.76	0.76	0.76	0.81	0.81	0.81	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	28	420	134	69	262	1	57	30	76	25	62	29
RTOR Reduction (vph)	0	9	0	0	0	0	0	60	0	0	22	0
Lane Group Flow (vph)	28	545	0	69	263	0	57	46	0	25	69	0
Heavy Vehicles (%)	10%	10%	12%	18%	10%	100%	26%	4%	29%	14%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	29.3	29.3		29.3	29.3		11.5	11.5		11.5	11.5	
Effective Green, g (s)	29.3	29.3		29.3	29.3		11.5	11.5		11.5	11.5	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.21	0.21		0.21	0.21	
Clearance Time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Vehicle Extension (s)	4.5	4.5		4.5	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	551	886		335	920		220	291		240	360	
v/s Ratio Prot		c0.33			0.15			0.03			0.04	
v/s Ratio Perm	0.03			0.11			c0.05			0.02		
v/c Ratio	0.05	0.62		0.21	0.29		0.26	0.16		0.10	0.19	
Uniform Delay, d1	6.3	9.1		6.9	7.2		18.4	18.0		17.8	18.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	1.6		0.5	0.3		0.6	0.3		0.2	0.3	
Delay (s)	6.4	10.8		7.4	7.5		19.0	18.2		18.0	18.4	
Level of Service	A	B		A	A		B	B		B	B	
Approach Delay (s)		10.5			7.5			18.5			18.3	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	55.4	Sum of lost time (s)	14.6
Intersection Capacity Utilization	70.4%	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)	41	337	96	276	103	66	4	45
Future Volume (vph)	41	337	96	276	103	66	4	45
Lane Group Flow (vph)	46	482	114	333	139	190	5	96
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Minimum Split (s)	33.3	33.3	33.3	33.3	31.3	31.3	31.3	31.3
Total Split (s)	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Ped	Ped	Ped	Ped	None	None	None	None
v/c Ratio	0.10	0.67	0.40	0.45	0.38	0.38	0.02	0.18
Control Delay	9.5	17.0	15.2	12.8	20.6	13.7	16.5	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.5	17.0	15.2	12.8	20.6	13.7	16.5	11.4
Queue Length 50th (m)	2.4	32.6	6.9	20.6	9.8	8.2	0.3	3.5
Queue Length 95th (m)	7.5	63.9	17.3	37.3	22.5	20.1	2.5	13.3
Internal Link Dist (m)		331.5		258.7		306.5		320.6
Turn Bay Length (m)	180.0		140.0		120.0		140.0	
Base Capacity (vph)	884	1372	553	1436	1046	1297	822	1438
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.35	0.21	0.23	0.13	0.15	0.01	0.07

Intersection Summary
Cycle Length: 104.6
Actuated Cycle Length: 54.5
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 3: County Road 125/Second Line & County Road 124



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	337	92	96	276	3	103	66	75	4	45	35
Future Volume (vph)	41	337	92	96	276	3	103	66	75	4	45	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.92		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1635		1534	1714		1706	1534		1460	1709	
Flt Permitted	0.56	1.00		0.41	1.00		0.69	1.00		0.64	1.00	
Satd. Flow (perm)	1054	1635		661	1714		1248	1534		980	1709	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.74	0.74	0.74	0.83	0.83	0.83
Adj. Flow (vph)	46	379	103	114	329	4	139	89	101	5	54	42
RTOR Reduction (vph)	0	9	0	0	1	0	0	49	0	0	30	0
Lane Group Flow (vph)	46	473	0	114	332	0	139	141	0	5	66	0
Heavy Vehicles (%)	2%	5%	46%	19%	12%	0%	7%	11%	19%	25%	2%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	23.8	23.8		23.8	23.8		15.9	15.9		15.9	15.9	
Effective Green, g (s)	23.8	23.8		23.8	23.8		15.9	15.9		15.9	15.9	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.29	0.29		0.29	0.29	
Clearance Time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Vehicle Extension (s)	4.5	4.5		4.5	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	461	716		289	751		365	449		286	500	
v/s Ratio Prot		c0.29			0.19			0.09			0.04	
v/s Ratio Perm	0.04			0.17			c0.11			0.01		
v/c Ratio	0.10	0.66		0.39	0.44		0.38	0.31		0.02	0.13	
Uniform Delay, d1	9.0	12.1		10.4	10.6		15.3	15.0		13.6	14.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.7		1.5	0.7		0.7	0.4		0.0	0.1	
Delay (s)	9.1	14.8		11.9	11.3		15.9	15.4		13.7	14.2	
Level of Service	A	B		B	B		B	B		B	B	
Approach Delay (s)		14.3			11.5			15.6			14.2	
Approach LOS		B			B			B			B	

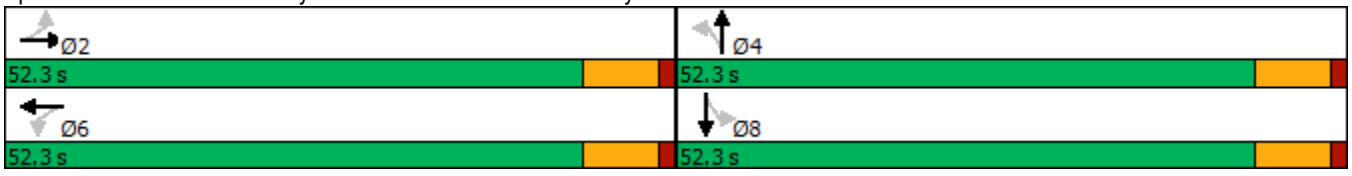
Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	54.3	Sum of lost time (s)	14.6
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

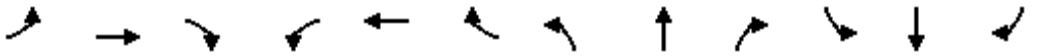
Appendix D – 2028 Future Background Traffic Conditions: Synchro Outputs

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	25	376	69	250	69	32	26	65
Future Volume (vph)	25	376	69	250	69	32	26	65
Lane Group Flow (vph)	28	562	82	299	93	169	31	113
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Minimum Split (s)	33.3	33.3	33.3	33.3	31.3	31.3	31.3	31.3
Total Split (s)	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Ped	Ped	Ped	Ped	None	None	None	None
v/c Ratio	0.05	0.73	0.31	0.37	0.29	0.35	0.12	0.23
Control Delay	7.6	17.4	12.1	10.5	22.1	9.7	20.3	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	17.4	12.1	10.5	22.1	9.7	20.3	16.6
Queue Length 50th (m)	1.5	41.2	4.8	18.1	7.5	3.3	2.4	6.7
Queue Length 95th (m)	4.5	69.0	11.2	28.6	17.4	12.2	8.6	18.8
Internal Link Dist (m)		331.5		258.7		306.5		320.6
Turn Bay Length (m)	180.0		140.0		120.0		140.0	
Base Capacity (vph)	866	1282	449	1364	977	1186	795	1405
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.44	0.18	0.22	0.10	0.14	0.04	0.08

Intersection Summary
Cycle Length: 104.6
Actuated Cycle Length: 57.2
Natural Cycle: 65
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 125/Second Line & County Road 124





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	376	125	69	250	1	69	32	93	26	65	29
Future Volume (vph)	25	376	125	69	250	1	69	32	93	26	65	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1605		1534	1715		1706	1459		1460	1759	
Flt Permitted	0.58	1.00		0.35	1.00		0.68	1.00		0.65	1.00	
Satd. Flow (perm)	1088	1605		564	1715		1228	1459		999	1759	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.74	0.74	0.74	0.83	0.83	0.83
Adj. Flow (vph)	28	422	140	82	298	1	93	43	126	31	78	35
RTOR Reduction (vph)	0	10	0	0	0	0	0	92	0	0	20	0
Lane Group Flow (vph)	28	552	0	82	299	0	93	77	0	31	93	0
Heavy Vehicles (%)	2%	5%	46%	19%	12%	0%	7%	11%	19%	25%	2%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	27.2	27.2		27.2	27.2		15.2	15.2		15.2	15.2	
Effective Green, g (s)	27.2	27.2		27.2	27.2		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.27	0.27		0.27	0.27	
Clearance Time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Vehicle Extension (s)	4.5	4.5		4.5	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	519	765		269	818		327	389		266	469	
v/s Ratio Prot		c0.34			0.17			0.05			0.05	
v/s Ratio Perm	0.03			0.15			c0.08			0.03		
v/c Ratio	0.05	0.72		0.30	0.37		0.28	0.20		0.12	0.20	
Uniform Delay, d1	8.0	11.9		9.1	9.4		16.6	16.2		15.8	16.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	3.8		1.1	0.5		0.5	0.2		0.2	0.2	
Delay (s)	8.1	15.7		10.2	9.9		17.1	16.4		16.0	16.4	
Level of Service	A	B		B	A		B	B		B	B	
Approach Delay (s)		15.3			10.0			16.7			16.3	
Approach LOS		B			A			B			B	

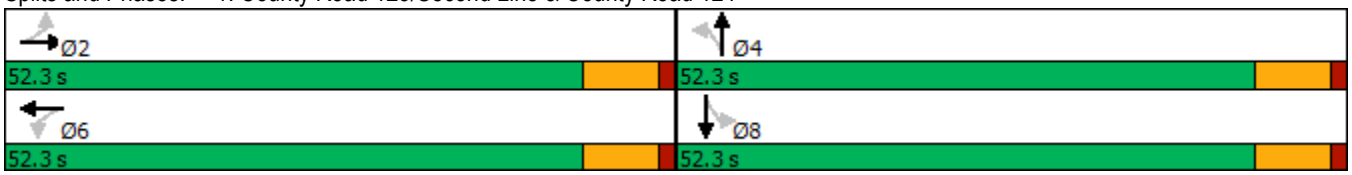
Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	14.6
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

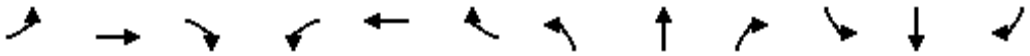
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	48	397	126	325	130	81	5	55
Future Volume (vph)	48	397	126	325	130	81	5	55
Lane Group Flow (vph)	54	581	150	392	176	237	6	115
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Minimum Split (s)	33.3	33.3	33.3	33.3	31.3	31.3	31.3	31.3
Total Split (s)	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Ped	Ped	Ped	Ped	None	None	None	None
v/c Ratio	0.10	0.65	0.48	0.42	0.58	0.55	0.03	0.25
Control Delay	8.9	15.5	16.9	11.4	34.4	22.9	22.6	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	15.5	16.9	11.4	34.4	22.9	22.6	17.1
Queue Length 50th (m)	3.0	45.2	10.5	26.3	23.2	21.2	0.7	8.3
Queue Length 95th (m)	9.4	94.5	28.4	50.4	33.1	30.8	3.2	18.1
Internal Link Dist (m)		331.5		258.7		306.5		320.6
Turn Bay Length (m)	180.0		140.0		120.0		140.0	
Base Capacity (vph)	604	1031	361	1085	776	995	563	1101
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.56	0.42	0.36	0.23	0.24	0.01	0.10

Intersection Summary

Cycle Length: 104.6
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: County Road 125/Second Line & County Road 124





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	397	120	126	325	4	130	81	95	5	55	41
Future Volume (vph)	48	397	120	126	325	4	130	81	95	5	55	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.92		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1619		1534	1714		1706	1531		1460	1713	
Flt Permitted	0.51	1.00		0.35	1.00		0.68	1.00		0.58	1.00	
Satd. Flow (perm)	956	1619		572	1714		1226	1531		889	1713	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.74	0.74	0.74	0.83	0.83	0.83
Adj. Flow (vph)	54	446	135	150	387	5	176	109	128	6	66	49
RTOR Reduction (vph)	0	8	0	0	0	0	0	53	0	0	34	0
Lane Group Flow (vph)	54	573	0	150	392	0	176	184	0	6	81	0
Heavy Vehicles (%)	2%	5%	46%	19%	12%	0%	7%	11%	19%	25%	2%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	39.8	39.8		39.8	39.8		17.8	17.8		17.8	17.8	
Effective Green, g (s)	39.8	39.8		39.8	39.8		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.25	0.25		0.25	0.25	
Clearance Time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Vehicle Extension (s)	4.5	4.5		4.5	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	526	892		315	944		302	377		219	422	
v/s Ratio Prot		c0.35			0.23			0.12			0.05	
v/s Ratio Perm	0.06			0.26			c0.14			0.01		
v/c Ratio	0.10	0.64		0.48	0.41		0.58	0.49		0.03	0.19	
Uniform Delay, d1	7.7	11.3		9.9	9.4		23.9	23.3		20.6	21.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	2.0		2.0	0.5		2.9	1.0		0.1	0.2	
Delay (s)	7.9	13.2		11.8	9.9		26.8	24.3		20.7	21.7	
Level of Service	A	B		B	A		C	C		C	C	
Approach Delay (s)		12.8			10.5			25.3			21.7	
Approach LOS		B			B			C			C	

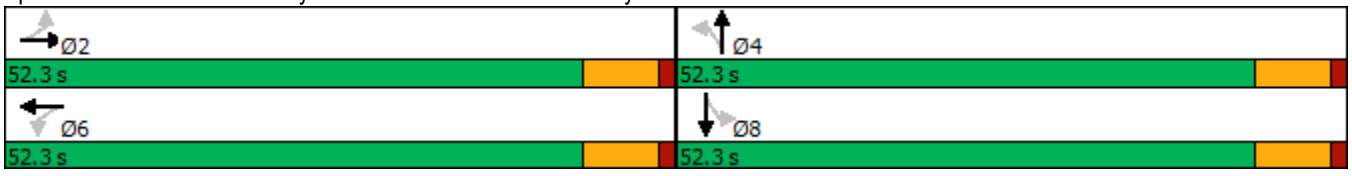
Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	14.6
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

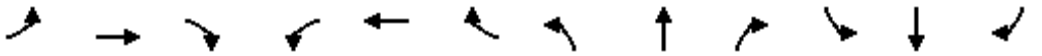
Appendix E – 2028 Future Total Traffic Conditions (Scenario 1): Synchro Outputs

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	376	69	250	69	32	31	67
Future Volume (vph)	26	376	69	250	69	32	31	67
Lane Group Flow (vph)	29	562	82	300	93	169	37	120
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Minimum Split (s)	33.3	33.3	33.3	33.3	31.3	31.3	31.3	31.3
Total Split (s)	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Ped	Ped	Ped	Ped	None	None	None	None
v/c Ratio	0.06	0.73	0.31	0.37	0.29	0.35	0.14	0.25
Control Delay	7.6	17.4	12.1	10.5	22.1	9.7	20.6	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.6	17.4	12.1	10.5	22.1	9.7	20.6	16.7
Queue Length 50th (m)	1.5	41.2	4.8	18.2	7.5	3.3	2.9	7.1
Queue Length 95th (m)	4.6	69.0	11.2	28.6	17.4	12.2	9.8	19.7
Internal Link Dist (m)		331.5		258.7		306.5		41.5
Turn Bay Length (m)	180.0		140.0		120.0		140.0	
Base Capacity (vph)	865	1282	449	1364	971	1186	795	1400
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.44	0.18	0.22	0.10	0.14	0.05	0.09

Intersection Summary
Cycle Length: 104.6
Actuated Cycle Length: 57.2
Natural Cycle: 65
Control Type: Semi Act-Uncoord

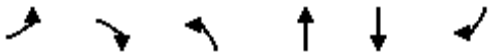
Splits and Phases: 1: County Road 125/Second Line & County Road 124





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	376	125	69	250	2	69	32	93	31	67	32
Future Volume (vph)	26	376	125	69	250	2	69	32	93	31	67	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1605		1534	1715		1706	1459		1460	1753	
Flt Permitted	0.58	1.00		0.35	1.00		0.68	1.00		0.65	1.00	
Satd. Flow (perm)	1087	1605		564	1715		1221	1459		999	1753	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.74	0.74	0.74	0.83	0.83	0.83
Adj. Flow (vph)	29	422	140	82	298	2	93	43	126	37	81	39
RTOR Reduction (vph)	0	10	0	0	0	0	0	92	0	0	21	0
Lane Group Flow (vph)	29	552	0	82	300	0	93	77	0	37	99	0
Heavy Vehicles (%)	2%	5%	46%	19%	12%	0%	7%	11%	19%	25%	2%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	27.2	27.2		27.2	27.2		15.2	15.2		15.2	15.2	
Effective Green, g (s)	27.2	27.2		27.2	27.2		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.27	0.27		0.27	0.27	
Clearance Time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Vehicle Extension (s)	4.5	4.5		4.5	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	518	765		269	818		325	389		266	467	
v/s Ratio Prot		c0.34			0.17			0.05			0.06	
v/s Ratio Perm	0.03			0.15			c0.08			0.04		
v/c Ratio	0.06	0.72		0.30	0.37		0.29	0.20		0.14	0.21	
Uniform Delay, d1	8.0	11.9		9.1	9.4		16.6	16.2		15.9	16.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	3.8		1.1	0.5		0.5	0.2		0.2	0.2	
Delay (s)	8.1	15.7		10.2	9.9		17.1	16.4		16.2	16.5	
Level of Service	A	B		B	A		B	B		B	B	
Approach Delay (s)		15.3			10.0			16.7			16.4	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	57.0	Sum of lost time (s)	14.6
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	10	2	58	120	1
Future Volume (Veh/h)	1	10	2	58	120	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	11	2	63	130	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				66		
pX, platoon unblocked						
vC, conflicting volume	198	130	131			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	130	131			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	790	919	1454			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	12	65	131
Volume Left	1	2	0
Volume Right	11	0	1
cSH	907	1454	1700
Volume to Capacity	0.01	0.00	0.08
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.0	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	0.2	0.0
Approach LOS	A		

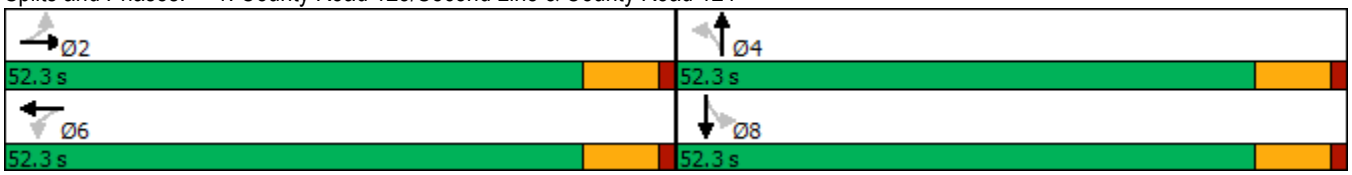
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		

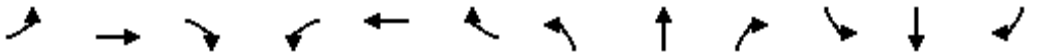
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	52	397	126	325	130	82	6	56
Future Volume (vph)	52	397	126	325	130	82	6	56
Lane Group Flow (vph)	58	581	150	395	176	239	7	119
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Minimum Split (s)	33.3	33.3	33.3	33.3	31.3	31.3	31.3	31.3
Total Split (s)	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Ped	Ped	Ped	Ped	None	None	None	None
v/c Ratio	0.11	0.65	0.48	0.42	0.59	0.56	0.03	0.26
Control Delay	9.0	15.5	16.9	11.4	34.5	23.2	22.7	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	15.5	16.9	11.4	34.5	23.2	22.7	17.0
Queue Length 50th (m)	3.2	45.2	10.5	26.5	23.3	21.6	0.8	8.5
Queue Length 95th (m)	10.1	94.5	28.4	51.0	33.1	31.3	3.4	18.5
Internal Link Dist (m)		331.5		258.7		306.5		41.5
Turn Bay Length (m)	180.0		140.0		120.0		140.0	
Base Capacity (vph)	602	1031	361	1085	774	996	559	1099
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.56	0.42	0.36	0.23	0.24	0.01	0.11

Intersection Summary

Cycle Length: 104.6
Actuated Cycle Length: 72.4
Natural Cycle: 70
Control Type: Semi Act-Uncoord

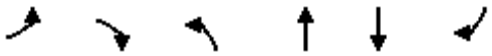
Splits and Phases: 1: County Road 125/Second Line & County Road 124





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	397	120	126	325	7	130	82	95	6	56	43
Future Volume (vph)	52	397	120	126	325	7	130	82	95	6	56	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.92		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1619		1534	1714		1706	1533		1460	1709	
Flt Permitted	0.50	1.00		0.35	1.00		0.68	1.00		0.57	1.00	
Satd. Flow (perm)	951	1619		572	1714		1222	1533		883	1709	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.74	0.74	0.74	0.83	0.83	0.83
Adj. Flow (vph)	58	446	135	150	387	8	176	111	128	7	67	52
RTOR Reduction (vph)	0	8	0	0	0	0	0	53	0	0	35	0
Lane Group Flow (vph)	58	573	0	150	395	0	176	186	0	7	84	0
Heavy Vehicles (%)	2%	5%	46%	19%	12%	0%	7%	11%	19%	25%	2%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	39.8	39.8		39.8	39.8		17.8	17.8		17.8	17.8	
Effective Green, g (s)	39.8	39.8		39.8	39.8		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.25	0.25		0.25	0.25	
Clearance Time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Vehicle Extension (s)	4.5	4.5		4.5	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	524	892		315	944		301	377		217	421	
v/s Ratio Prot		c0.35			0.23			0.12			0.05	
v/s Ratio Perm	0.06			0.26			c0.14			0.01		
v/c Ratio	0.11	0.64		0.48	0.42		0.58	0.49		0.03	0.20	
Uniform Delay, d1	7.7	11.3		9.9	9.4		23.9	23.3		20.7	21.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.0		2.0	0.5		2.9	1.0		0.1	0.2	
Delay (s)	7.9	13.2		11.8	10.0		26.8	24.4		20.7	21.8	
Level of Service	A	B		B	A		C	C		C	C	
Approach Delay (s)		12.7			10.5			25.4			21.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	14.6
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	4	8	133	101	1
Future Volume (Veh/h)	1	4	8	133	101	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	4	9	145	110	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)				66		
pX, platoon unblocked						
vC, conflicting volume	274	110	111			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274	110	111			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	99			
cM capacity (veh/h)	712	943	1479			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	5	154	111
Volume Left	1	9	0
Volume Right	4	0	1
cSH	885	1479	1700
Volume to Capacity	0.01	0.01	0.07
Queue Length 95th (m)	0.1	0.1	0.0
Control Delay (s)	9.1	0.5	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	0.5	0.0
Approach LOS	A		

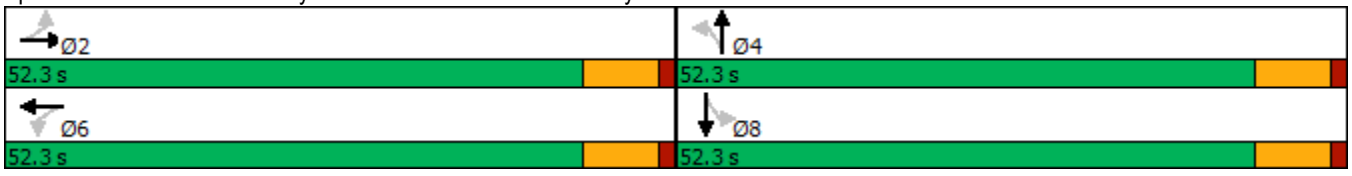
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

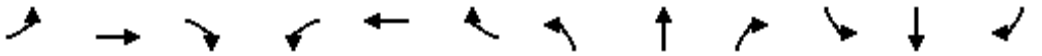
Appendix F – 2028 Future Total Traffic Conditions (Scenario 2): Synchro Outputs

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	26	381	69	251	69	32	26	65
Future Volume (vph)	26	381	69	251	69	32	26	65
Lane Group Flow (vph)	29	571	82	300	93	169	31	114
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Minimum Split (s)	33.3	33.3	33.3	33.3	31.3	31.3	31.3	31.3
Total Split (s)	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Ped	Ped	Ped	Ped	None	None	None	None
v/c Ratio	0.06	0.73	0.31	0.36	0.29	0.36	0.12	0.24
Control Delay	7.5	17.5	12.1	10.4	22.6	9.8	20.8	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	17.5	12.1	10.4	22.6	9.8	20.8	16.9
Queue Length 50th (m)	1.5	42.3	4.8	18.2	7.7	3.4	2.4	6.9
Queue Length 95th (m)	4.5	70.6	11.3	28.6	17.6	12.4	8.8	19.1
Internal Link Dist (m)		161.6		258.7		306.5		156.3
Turn Bay Length (m)	180.0		140.0		120.0		140.0	
Base Capacity (vph)	855	1266	436	1349	966	1175	786	1389
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.45	0.19	0.22	0.10	0.14	0.04	0.08

Intersection Summary
Cycle Length: 104.6
Actuated Cycle Length: 57.9
Natural Cycle: 65
Control Type: Semi Act-Uncoord

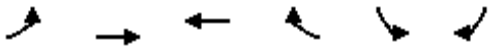
Splits and Phases: 1: County Road 125/Second Line & County Road 124





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	381	127	69	251	1	69	32	93	26	65	30
Future Volume (vph)	26	381	127	69	251	1	69	32	93	26	65	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00		1.00	0.89		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1604		1534	1715		1706	1459		1460	1756	
Flt Permitted	0.58	1.00		0.34	1.00		0.68	1.00		0.65	1.00	
Satd. Flow (perm)	1087	1604		556	1715		1227	1459		999	1756	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.74	0.74	0.74	0.83	0.83	0.83
Adj. Flow (vph)	29	428	143	82	299	1	93	43	126	31	78	36
RTOR Reduction (vph)	0	10	0	0	0	0	0	93	0	0	21	0
Lane Group Flow (vph)	29	561	0	82	300	0	93	76	0	31	93	0
Heavy Vehicles (%)	2%	5%	46%	19%	12%	0%	7%	11%	19%	25%	2%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	27.9	27.9		27.9	27.9		15.2	15.2		15.2	15.2	
Effective Green, g (s)	27.9	27.9		27.9	27.9		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.26	0.26		0.26	0.26	
Clearance Time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Vehicle Extension (s)	4.5	4.5		4.5	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	525	775		268	829		323	384		263	462	
v/s Ratio Prot		c0.35			0.17			0.05			0.05	
v/s Ratio Perm	0.03			0.15			c0.08			0.03		
v/c Ratio	0.06	0.72		0.31	0.36		0.29	0.20		0.12	0.20	
Uniform Delay, d1	7.9	11.8		9.0	9.3		16.9	16.5		16.2	16.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	3.8		1.1	0.5		0.5	0.3		0.2	0.2	
Delay (s)	8.0	15.7		10.2	9.8		17.4	16.8		16.4	16.7	
Level of Service	A	B		B	A		B	B		B	B	
Approach Delay (s)		15.3			9.9			17.0			16.7	
Approach LOS		B			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	57.7	Sum of lost time (s)	14.6
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	526	348	2	8	3
Future Volume (Veh/h)	1	526	348	2	8	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	572	378	2	9	3
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			186			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	380				953	379
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	332				930	331
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				97	100
cM capacity (veh/h)	1177				284	681

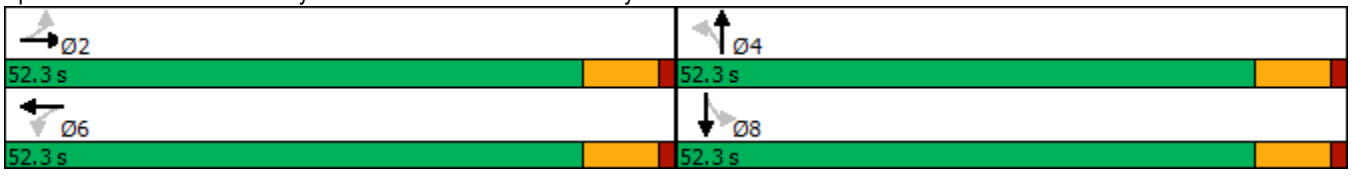
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	573	380	12
Volume Left	1	0	9
Volume Right	0	2	3
cSH	1177	1700	333
Volume to Capacity	0.00	0.22	0.04
Queue Length 95th (m)	0.0	0.0	0.9
Control Delay (s)	0.0	0.0	16.2
Lane LOS	A		C
Approach Delay (s)	0.0	0.0	16.2
Approach LOS			C

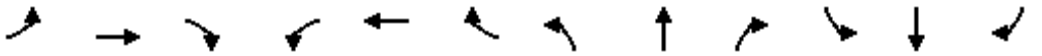
Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		38.5%	ICU Level of Service A
Analysis Period (min)		15	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	49	398	126	328	131	81	5	55
Future Volume (vph)	49	398	126	328	131	81	5	55
Lane Group Flow (vph)	55	583	150	395	177	237	6	117
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		4		8
Permitted Phases	2		6		4		8	
Detector Phase	2	2	6	6	4	4	8	8
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	15.0	15.0	15.0	15.0
Minimum Split (s)	33.3	33.3	33.3	33.3	31.3	31.3	31.3	31.3
Total Split (s)	52.3	52.3	52.3	52.3	52.3	52.3	52.3	52.3
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
All-Red Time (s)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Ped	Ped	Ped	Ped	None	None	None	None
v/c Ratio	0.10	0.65	0.48	0.42	0.59	0.55	0.03	0.26
Control Delay	8.9	15.5	16.8	11.4	34.8	23.0	22.6	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	15.5	16.8	11.4	34.8	23.0	22.6	16.8
Queue Length 50th (m)	3.0	45.4	10.5	26.5	23.4	21.2	0.7	8.3
Queue Length 95th (m)	9.6	95.3	28.5	51.1	33.3	30.8	3.2	18.1
Internal Link Dist (m)		161.6		258.7		306.5		156.3
Turn Bay Length (m)	180.0		140.0		120.0		140.0	
Base Capacity (vph)	598	1024	359	1078	769	989	557	1092
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.57	0.42	0.37	0.23	0.24	0.01	0.11

Intersection Summary
Cycle Length: 104.6
Actuated Cycle Length: 72.8
Natural Cycle: 70
Control Type: Semi Act-Uncoord

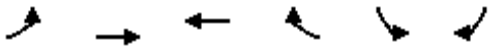
Splits and Phases: 1: County Road 125/Second Line & County Road 124





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	398	121	126	328	4	131	81	95	5	55	42
Future Volume (vph)	49	398	121	126	328	4	131	81	95	5	55	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00		1.00	0.92		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1789	1618		1534	1714		1706	1531		1460	1709	
Flt Permitted	0.51	1.00		0.35	1.00		0.68	1.00		0.58	1.00	
Satd. Flow (perm)	951	1618		571	1714		1224	1531		887	1709	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.74	0.74	0.74	0.83	0.83	0.83
Adj. Flow (vph)	55	447	136	150	390	5	177	109	128	6	66	51
RTOR Reduction (vph)	0	8	0	0	0	0	0	54	0	0	35	0
Lane Group Flow (vph)	55	575	0	150	395	0	177	183	0	6	82	0
Heavy Vehicles (%)	2%	5%	46%	19%	12%	0%	7%	11%	19%	25%	2%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	40.1	40.1		40.1	40.1		17.8	17.8		17.8	17.8	
Effective Green, g (s)	40.1	40.1		40.1	40.1		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.25	0.25		0.25	0.25	
Clearance Time (s)	7.3	7.3		7.3	7.3		7.3	7.3		7.3	7.3	
Vehicle Extension (s)	4.5	4.5		4.5	4.5		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	526	894		315	948		300	375		217	419	
v/s Ratio Prot		c0.36			0.23			0.12			0.05	
v/s Ratio Perm	0.06			0.26			c0.14			0.01		
v/c Ratio	0.10	0.64		0.48	0.42		0.59	0.49		0.03	0.19	
Uniform Delay, d1	7.7	11.2		9.8	9.4		24.1	23.5		20.8	21.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.0		2.0	0.5		3.0	1.0		0.1	0.2	
Delay (s)	7.8	13.2		11.8	9.9		27.1	24.5		20.8	21.9	
Level of Service	A	B		B	A		C	C		C	C	
Approach Delay (s)		12.7			10.4			25.6			21.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	14.6
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	565	496	5	3	2
Future Volume (Veh/h)	4	565	496	5	3	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	614	539	5	3	2
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)			186			
pX, platoon unblocked	0.88				0.88	0.88
vC, conflicting volume	544				1164	542
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414				1118	412
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	100
cM capacity (veh/h)	1008				201	564

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	618	544	5
Volume Left	4	0	3
Volume Right	0	5	2
cSH	1008	1700	271
Volume to Capacity	0.00	0.32	0.02
Queue Length 95th (m)	0.1	0.0	0.4
Control Delay (s)	0.1	0.0	18.6
Lane LOS	A		C
Approach Delay (s)	0.1	0.0	18.6
Approach LOS			C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix G – Peer Review Comments (Ainley & Associates Limited, February 2, 2021)

Ainley & Associates Limited
550 Welham Road, Barrie, ON L4N 8Z7
Tel: (705) 726-3371 • Fax: (705) 726-4391
E-mail barrie@ainleygroup.com

VIA EMAIL

February 2nd, 2021 File No. 220093

Town of Erin
5684 Trafalgar Rd.
Hillsburgh, ON N0B 1Z0

Attn: Nick Colucci, P. Eng., BASc, MBA, FEC
Director of Infrastructure Services

Ref: **Proposed Terrell Heard Subdivision, Ospringe**
Part of Lot 13 Concession 2 Erin
County Road 124-County Road 125/Second Line Intersection
1st Submission Engineering Peer Review

Dear Mr. Colucci:

We have received the 1st submission of reports and documentation in support of the proposed estate lot residential subdivision for the Terrell Heard subdivision in Ospringe. The documentation received is listed below.

1. Wastewater Servicing Assessment, Proposed Residential Subdivision (September 5, 2019) – FlowSpec Engineering
2. Functional Servicing Report (November 8, 2018) – IBI Group
3. Stormwater Management Report (November 9, 2018) – IBI Group
4. Geotechnical Investigation, Proposed Residential Development, Part of Lot 13, Concession 2, Town of Erin (November 16, 2018) – Chung & Vander Doelen letter report
5. Transportation Impact Study - Northwest Corner of Highway 124 and Second Line, Ospringe, Erin, Wellington County (October 19, 2017) – IBI Group

In addition, the following documents were provided for background information:

1. Site Location, Figure 1 (2018 Oct. 31) – IBI Group
2. Existing Conditions SWM Areas, Figure 2 (2018 Nov. 16) – IBI Group
3. Proposed Conditions SWM Areas, Figure 3 (2018 Nov. 16) – IBI Group
4. Preliminary Road Cross Sections, Figure 6 (2018 Nov. 16) – IBI Group
5. Draft Plan of Subdivision, Ospringe Development, Grading Plan (2019 Jul. 25) – IBI Group
6. Draft Plan of Subdivision, Ospringe Development, Plan and Profile (2019 Jul. 25) – IBI Group

Subsequent to our detailed review of the above package, we have compiled the following Peer Review comments:

1.0 General Comments

1.1 County Road 124 is oriented in a southwest-northeast direction and the subdivision is in the west corner of this intersection. The orientation wording for the subdivision location should be revised.

1.2 The proposed road right-of-way should be increased from 18m to 20m in accordance with Town Municipal Servicing Standards.

1.3 The proposed width of the asphalt on the 50±m of urban road adjacent to the Second Line should be increased from 7.0m to 8.0m in accordance with Town Municipal Servicing Standards.

1.4 Ensure that the Cul-De-Sac has a 22.0m property line radius and a 19.0m asphalt radius, in accordance with Town Municipal Servicing Standards.

2.0 Wastewater Servicing Assessment (September 5, 2019) – FlowSpec Engineering

2.1 The design flow calculations, required nitrogen removal, and proposed Class 4 Wastewater Treatment Systems of this report are expected to be reviewed by the Building Department.

2.2 The proposed lot sizes appear to accommodate the proposed Class 4 Wastewater Treatment Systems and their spatial separation from other features (e.g., private wells, driveways, sheds, decks, pools).

2.3 Page 2, Section 3.1, Percolation Time, 3rd paragraph mentions that the geotechnical report prepared by Chung & Vander Doelen Engineering (CVDE) provides recommendations for filling procedures, equipment and soil-type in the proposed leaching bed areas. Given that adherence to those recommendations is critical, those recommendations with sufficient context of the CVDE report should be quoted in the main body of this Wastewater Servicing Assessment report and should appear on the detail design drawings.

2.4 In Appendix B, Figure 2, Interpreted Water Table Configuration, is borehole data from the CVDE Geotechnical Investigation. The borehole identification numbers should be added to Figure 2.

3.0 Functional Servicing Report (November 8, 2018) – IBI Group

3.1 Section 4, Septic Design, references the FlowSpec Engineering Ltd. septic design report dated September 5, 2019. This Functional Servicing Report is dated November 8, 2018 but has obviously been revised since it was originally dated. The report should be re-issued with a date reflecting the most recent revisions.

3.2 The Salvini development on the east side of Wellington County Road 124 has recently been constructed. This report should be expanded to confirm there are no impacts of one development on the other with respect to private wells and/or septic systems.

3.3 Page 1, Section 2.1, Site Description, characterizes the existing ground surface topography saying, ". . . the site ascends gently at about 2 to 4 percent grade in a southwesterly direction, crests in a knoll near the west corner of the site, and then descends moderately to the west and south . . .". In the Functional Servicing Report (November 8, 2018) the same existing topography is described as, ". . . moderate to steep topography with drainage directed northeast . . ." The two descriptions of the topography should be more aligned with each other.

3.4 Page 2, Section 3, Proposed Area Grading, 2nd paragraph says that the general maximum slope on travelled portions by vehicles and pedestrians is approximately

4%. On the Plan & Profile drawing for Street A, the steepest slope for the road centreline profile is approximately 110 m at 5%. This discrepancy should be corrected.

3.5 Page 3, Section 7, Erosion and Sediment Control, describes the proposed erosion and sedimentation controls during area grading and, presumably, the whole construction phase. This section should also describe the proposed erosion and sedimentation controls that will be in place after construction (e.g., sod, staked sod, hard surfacing, permanent flow check dams, means of capturing sand from winter roadway clearing operations).

3.6 Page 3, Section 7, Erosion and Sediment Control, 2nd paragraph, should indicate what the contingency plan is in the case erosion and sediment controls fail.

3.7 Page 3, Section 8, Utilities, describes the existing utility facilities (i.e., hydro, gas, cable and telephone) surrounding the site. Letters of understanding from each utility company (e.g., Hydro One, Bell Canada, Rogers Cable TV and Enbridge) should be provided to confirm that adequate utilities can be provided to service the proposed development.

3.8 Pages 3-4, the section numbering progresses from Section 8, Utilities to Section 10, Summary and appears to skip Section 9. In addition, on Page I, Table of Contents, Sections 9 and 10 are not listed. These discrepancies should be resolved.

4.0 Stormwater Management Report (November 9, 2018) – IBI Group

4.1 Confirmation should be obtained from the Grand River Conservation Authority (GRCA) that the proposed stormwater controls are acceptable.

4.2 Confirmation should be obtained from Wellington County that the existing 375mm storm sewer and any overland flow to County Roads 124 or 125 collectively form a sufficient outlet for the proposed development, including the proposed drainage to the existing DICB east of the church.

4.3 We have significant concerns with the proposed drainage along the rear of the lots 7 through 13. In particular, the filling of these lots will push a portion the lot drainage back onto the neighboring property north-east of these lots, which changes the existing flow route. We also have concerns that the drainage along the rear of these lots will have a negative impact on the existing lot north-east of Lot 13 that fronts onto the Second Line.

Therefore, additional topographical survey information should be provided on the adjacent properties, along with specifics of the trees along the property line. In addition, more design details on the proposed drainage path through this area should be provided.

4.4 Capacity calculations should be provided for all overland flow routes and intercept swales to demonstrate that runoff generated during major events can be conveyed to an appropriate location. Particular consideration should be provided for the area along the rear Lots 7 through 13 continuing to the proposed pond, as well as along the west boundary of Lot 4 to convey drainage to County Road 124.

4.5 In accordance with the Town's Municipal Servicing Standards fencing will be required where the dry pond abuts private lands.

4.6 The proposed SWM pond should include landscaping around the proposed facility to provide buffering and to soften the appearance. The "*Design Principles of Stormwater Management Facilities*" August 1996 by the GRCA, referenced in Section B8 of the Town's Municipal Servicing Standards for facility configuration and landscaping shall be used as the guidance document.

4.7 Page 2, Section 4, Stormwater Management, the Regional design storm should be included in the storm water management modeling to, for example, support the designs of the various overland flow routes and confirm the 100-year storm is governing the design of the overland flow routes.

4.8 Additional information should be included in Appendix B as supporting calculations for the MIDUSS Modelling Variables as well as relevant reference material. For example, Area 201 which represents practically all the proposed development on site has an imperviousness of 48% and impervious area calculations for estate residential lots should be based on a maximum lot coverage for main buildings in accordance with the Zoning By-Law to verify the impervious areas utilized in the hydrologic model for the post-development condition.

5.0 Geotechnical Investigation (November 16, 2018) – Chung & Vander Doelen

5.1 Page 7, Site Grading for Wastewater Treatment Leaching Bed Envelopes, 1st paragraph, re-word the phrase "percolation rate higher than expected" to read, "percolation rate slower than expected."

5.2 Page 9, Pavement Design, provides in a table the Granular Base Equivalency (GBE) for the recommended roadway structure. Discuss in the report the minimum required GBE and confirming the Town standard is adequate. In addition, spell out "CBR" in full when the acronym is first presented in the text of the report to confirm its meaning.

5.3 Page 9, Pavement Design, 4th paragraph references OPSS Form 310. Should this reference OPSS.MUNI 310? Is the label "OPSS Form 310" referring to a specific inspection form or is it referring to the Ontario Provincial Standard Specification (OPSS) for Municipalities (.MUNI)? Please clarify these questions.

6.0 Plan & Profile Drawings

6.1 The Town's Municipal Servicing Standards require a 20 m road right-of-way; therefore the road right-of-way should be increased from 18m to 20m.

6.2 The Town's Municipal Servicing Standards require urban roads to have an 8.0m width of asphalt; therefore, the width of asphalt on the 50±m of urban road adjacent to the Second Line needs to be increased from 7.0m to 8.0m.

6.3 Ensure that the Cul-De-Sac has a 22.0m property line radius and a 19.0m asphalt radius, in accordance with Town Municipal Servicing Standards.

7.0 Transportation Impact Study - (October 19, 2017) – IBI Group

7.1 Page 1, Section 1.1 Proposed Development, 3rd paragraph, assumes the development will be fully occupied by 2023. Given that construction on the subdivision has not begun and it is early 2021, the horizon year should be re-evaluated and updated if necessary.

7.2 Page 5, Exhibit 2-1: Existing Lane Configuration, the east leg is shown to have a right turning lane and a thru+left turning lane. That leg of the intersection is painted today similar to the other 3 legs with a right+thru turning lane and a left turning lane. The Synchro modeling in Appendix D and Appendix E appear to model this leg consistent with the current pavement marking. Exhibit 2-1 should be edited.

7.3 Page 7, Exhibit 2-3: Existing Traffic Volumes, include in the title the year it represents. The text on page 6 that references this exhibit indicates the turning movement counts are representing 2017.

7.4 Page 8, Exhibit 2-4: Existing Traffic Operations – Signalized Intersections, in the Movement column is the abbreviation "EBT". For clarification, this should read, "EBTR" for the Eastbound Thru+Right turning movements in that lane. The abbreviations for the Thru+Right lanes in the other 3 directions should have a similar abbreviation. This comment applies to the exhibits that are similar to this exhibit and follow this exhibit (e.g., Exhibit 3-3).

7.5 Page 10, Section 3.1, Other Developments within Study Area, 2nd paragraph, discusses the Salvini Traffic Impact Study (TIS) report. The paragraph should be expanded to comment on if that report has been accepted by the Town of Erin and County of Wellington.

7.6 Page 11, Exhibit 3-2: 2023 Future Background Traffic Volumes, combines the traffic volumes from the neighbouring Ospringe Residential Subdivision documented in the Salvini TIS for that development with the projected growth of traffic at the County Road 124-County Road 125/Second Line Intersection. For Exhibit 3-2, include in the report appendix two (2) future background traffic turning movement charts that were used to derive Exhibit 3-2. The one chart would show only the growth in background traffic that is illustrated in Exhibit 2.3: Existing Traffic Volumes, and the other chart would show only the projected traffic generated by the Ospringe Residential Subdivision.

7.7 Page 20, 5.1 Scenario 1 Traffic Operations, 1st paragraph, says in the second line, ". . . the unsignalized intersections . . .". The proposed development will have only one (1) intersection on the Second Line in Scenario 1, and the phrase can be edited to read ". . . the unsignalized intersection . . .".

7.8 In Sections 5.1 and 5.2 confirm that left turn lanes and right turn lanes are not warranted for the access road into the proposed development in each scenario. The materials referenced for the warrants should be appended in the report.

7.9 Confirm that the available sight distances at the proposed development access for both scenarios meet or exceed the required minimum sight distance for the respective design speeds on the Second Line (i.e., Scenario 1) and on County Road 124 (i.e., Scenario 2). The materials referenced for sight distances should be appended in the report.

7.10 Consideration should be given to the 85% speed of vehicles recorded during the background traffic data collection and the records of accidents involving vehicles on the segments of County Road 124 and the Second Line within at least the study limits of this report. If concerns are raised in that data, the traffic impact study may provide recommendations for addressing those concerns.

7.11 The TIS should include a section on collision analysis, presenting collision information, based upon information from the Town and County, over the last three (3) years on vehicular accidents at the intersection of County Road 124 and the Second Line.

7.12 A revised "stand-alone" Traffic Impact Study should be submitted that can be referenced in the future. That is, a complete report with all its supporting figures, graphs, and referenced material such that future readers do not need to search beyond the report document to find the resources referenced.

We trust this is satisfactory. Please contact the undersigned if you require further clarification or input.

Yours truly,

AINLEY & ASSOCIATES LIMITED

Leonard H. Borgdorff, P. Eng., PMP
Senior Project Engineer

\\220093\Correspondence\Letters\220093 Terrell Heard Sub - Prelim Sub - Eng Peer Reveiw Comments (Feb 2 2021).docx

cc: Joanna Salsberg – Town of Erin (By Email)
Angela Sciberras - Macaulay Shiomi Howson Ltd. (By Email)