



Scoped Transportation Impact Study

# Goodwood Pit Extension

April 20, 2023 — Project # 2221  
Lafarge Canada

TYLin

## Executive Summary

TYLin was retained by Lafarge Canada (Lafarge) to prepare a Scoped Transportation Impact Study (TIS) in support of the Planning Act Applications to permit an extension of the Lafarge's Goodwood Pit north of the existing pit area. The subject site is located at 4900 Concession 4 Road, south of Wagg Road on the west side of Concession 4 Road and east side of Concession 3 Road in the Township of Uxbridge, Durham Region.

The Goodwood Pit site ("the Pit") has a maximum annual extraction license limit of 1,177,000 tonnes per year, and this tonnage limit is not proposed to be modified (i.e., increased or decreased) as part of the proposed extension application. Therefore, the application is not seeking an increase in annual tonnage limit, which will remain at the current limit of 1,177,000 tonnes per year, but merely a continuation of extraction at the current levels. Accordingly, there are no new trips proposed to be generated by the Goodwood Pit Activity as part of this application. It is noted that Lafarge will be applying for a Class A license to allow the extraction of material from below the water table.

Under existing conditions, a portion of material from the Goodwood Pit is transferred to the Stouffville Pit for processing and a portion of material is processed on-site at the Goodwood Pit via portable crushing and screening plants used to produce granular material. This configuration is not proposed to change as part of the extension.

Access to the subject site is proposed to be maintained via the existing inbound and outbound driveways on Concession Road 3 and Regional Highway 47.

Accounting for the trip generation for the Pit based on the average annual tonnage, TYLin completed a review of the study intersection operations under 2022 existing conditions, as well as 2028 and 2033 future conditions. As trips from the site are not projected to change, the review of future conditions was completed to confirm that the Pit trips can still be accommodated by the boundary road network when accounting for general traffic growth and background developments.

The review confirms that the site trips are accommodated by the road network under both existing and future conditions, which is acceptable.

Overall, based on findings of the study, it is TYLin's opinion that the proposed development application is acceptable as it would not create any changes to the traffic volumes along the road network. Furthermore, in February 2023 Lafarge agreed to enter into a Cost Sharing Agreement with the Region of Durham to implement traffic management/calming measures in the Village of Goodwood to improve traffic safety on Regional Highway 47 and Regional Road 21. These traffic management and calming measures will be implemented by the Region of Durham to help alleviate the general impact of traffic through Goodwood.

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# 1 Introduction

TYLin was retained by Lafarge Canada (Lafarge) to prepare a Scoped Transportation Impact Study (TIS) in support of the Planning Act Applications to permit an extension of the Lafarge's Goodwood Pit north of the existing pit area. The subject site is located at 4900 Concession 4 Road, south of Wagg Road on the west side of Concession 4 Road and east side of Concession 3 Road in the Township of Uxbridge, Durham Region.

The Goodwood Pit site ("the Pit") has a maximum annual extraction license limit of 1,177,000 tonnes per year. This tonnage limit is not proposed to be modified (i.e., neither increased nor decreased) as part of the proposed extension application. Therefore, the application is not seeking an increase in the tonnage limit, which will remain at the current limit of 1,177,000 tonnes per year, but merely a continuation of production at the current levels. Accordingly, there are no new trips proposed to be generated by the Goodwood Pit activity as part of this application. It is noted that Lafarge will be applying for a Class A license to allow the extraction of material from below the water table.

Under existing conditions, a portion of material from the Goodwood Pit is transferred to the Stouffville Pit for processing and a portion of material is processed on-site at the Goodwood Pit via portable crushing and screening plants used to produce granular material. Overall, the Goodwood Pit traffic can be detailed in the below categories:

- The Goodwood pit employee trips;
- The transfer route truck traffic between the Stouffville and Goodwood pits; and
- The truck route for the Goodwood Pit to deliver aggregate to market.

Details related to the trip generation for each of the above noted trip categories have been provided within this report.

Access to the subject site is proposed to be maintained via the existing inbound and outbound driveways on Concession Road 3 and Regional Highway 47. As per correspondence with Durham Region, left-turn restrictions are currently in place for trucks in and out of the Goodwood Pit Access to Regional Highway 47. Note that this restriction only applies to trucks as passenger vehicles are permitted to make left-turn movements at the intersection.

The primary 'haul route' for trucks destined to/from the Goodwood Pit site from locations outside of the immediate study area includes Highway 404, Bloomington Road (RR 40), and Wagg Road. More details related to the haul routes has been provided in below sections of this report.

This TIS adopted future conditions with horizon years to 2028 and 2033.

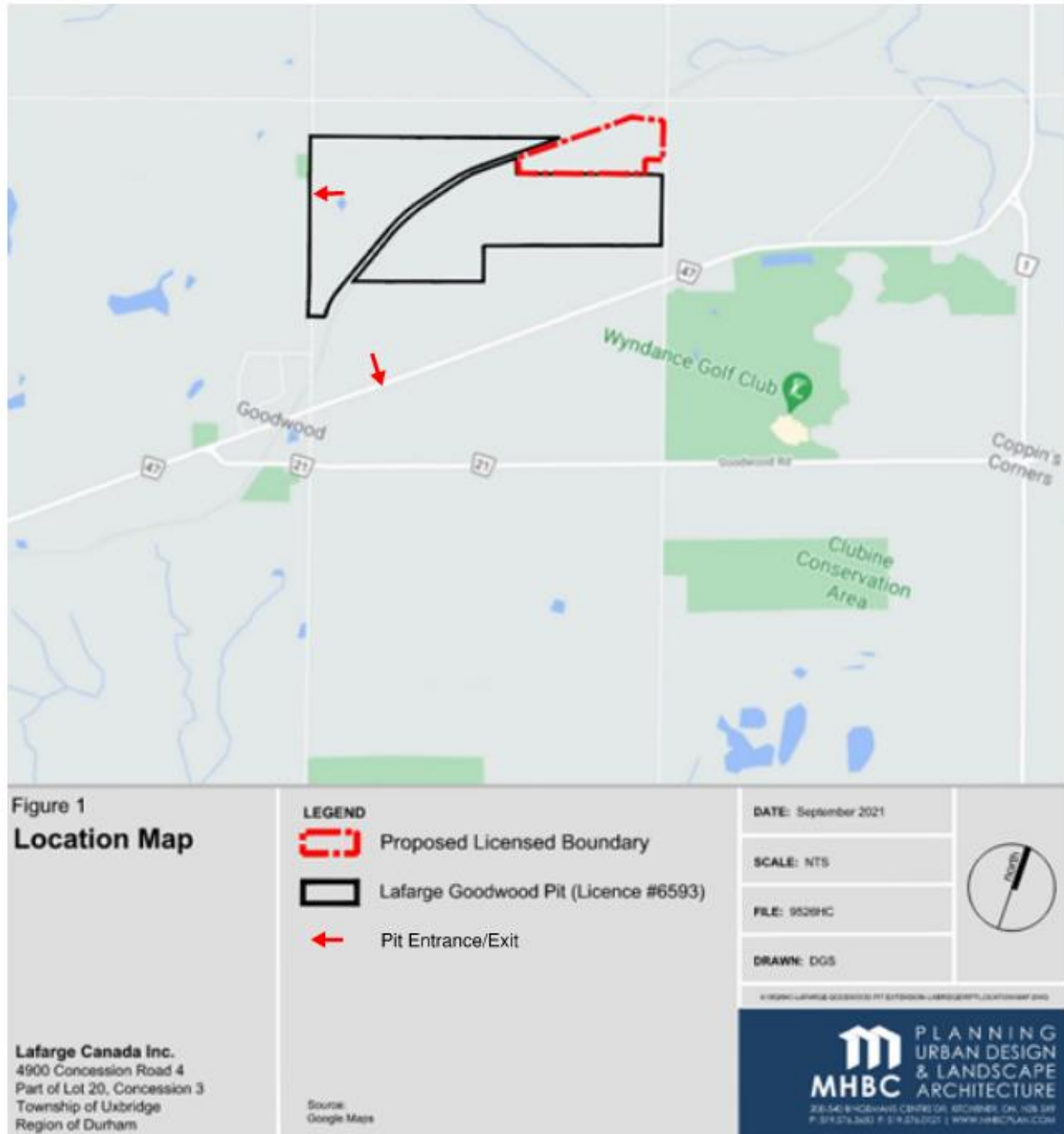
The objectives of this study are to:

- Establish baseline traffic conditions for the study area and review the existing traffic conditions;
- Derive the future conditions volumes for the study intersections based on a 2028 and 2033 planning horizon; and

- Analyse operations under future conditions at the study intersections; and determine what, if any, remedial measures would be required to accommodate future traffic within the study area.

Please refer to **Figure 1-1** for an illustration of the existing Pit and the proposed extension area.

Figure 1-1 Goodwood Pit – Existing and Proposed Extraction Areas



Source: MHBC

## 2 Baseline Traffic Conditions

This section summarizes the surrounding road network, the data collection program, and the existing traffic volume conditions on the proximate study area roadways. These 'baseline conditions' form the foundation for future traffic projections.

### 2.1 STUDY INTERSECTIONS

The haul route analysis includes the following intersections, as requested during pre-consultation with the review agencies:

- The existing inbound and outbound Stouffville Pit driveways on York-Durham Line;
- York-Durham Line and Aurora Road (Regional Road 15);
- York-Durham Line and Wagg Road /Yake Crescent;
- York-Durham Line and Bloomington Road (Regional Road 40 / Regional Highway 47);
- Goodwood Road (Regional Road 21) and Regional Highway 47;
- Front Street (Concession Road 3) and Regional Highway 47;
- Brock Road (Regional Road 1) and Regional Highway 47;
- Goodwood Pit Site Access and Regional Highway 47; and
- Concession Road 3 and Goodwood Pit North Access.

Please refer to **Figure 2-1** for an illustration of the existing lane configuration at the above noted intersections.

### 2.2 SITE STATISTICS

Goodwood Pit has a maximum annual extraction license limit of 1,177,000 tonnes per year. This tonnage limit is not intended to be modified (i.e., increased or decreased) as part of the proposed extension application. Therefore, the application is not seeking an increase in the annual tonnage limit (which will remain at the current limit of 1,177,000 tonnes per year), but merely a continuation of production at the current levels. Accordingly, there are **no new trips** proposed to be generated by the Goodwood Pit Activity as part of this application.

### 2.3 EXISTING HAUL ROUTE

There are currently two existing haul routes for trucks accessing the Goodwood Pit, based on the different activities detailed in the previous section. The routes have been summarized below. As part of the application, there are no changes proposed to these existing haul routes.

For the transfer trucks travelling between the Goodwood and Stouffville Pits

- Trucks transferring material exit the Goodwood Pit via the existing access on Regional Highway 47 and travel west to Regional Road 30 where they head north to the access to the Stouffville Pit located on the west side of Regional Road 30.

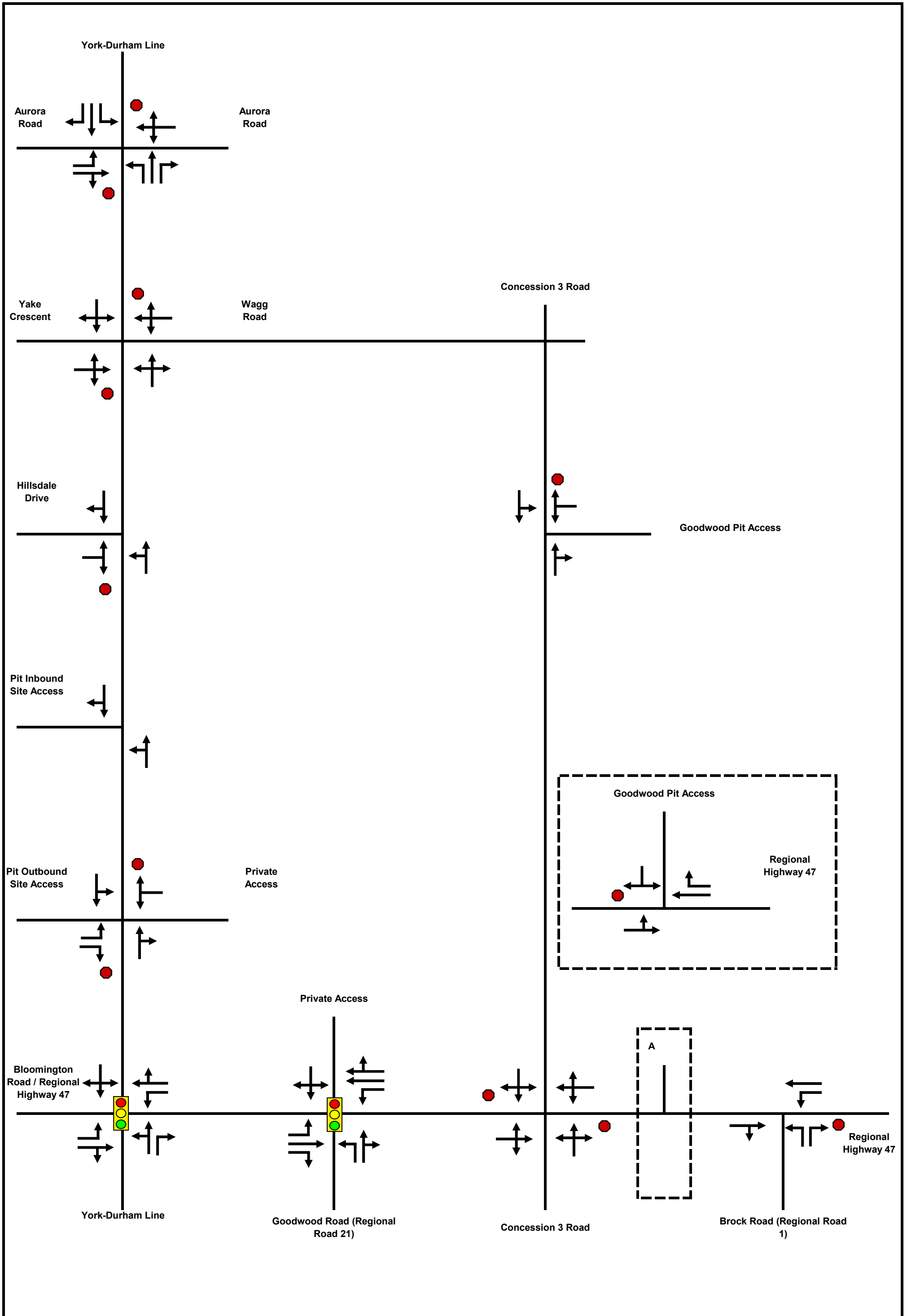


- Due to left-turn restrictions for trucks at the Goodwood Pit access to Regional Highway 47, empty trucks heading back to the Goodwood Pit must use another route. Accordingly, trucks exit the Stouffville Pit and travel north on Regional Road 30 to Wagg Road, travel east on Wagg Road to Concession Road 3 where they turn right and travel south to the existing Goodwood Pit access on the east side of Concession Road 3.
- The existing haul route for the transfer trucks is shown in **Figure 2-2**.

For the aggregate trucks generated by the Goodwood Pit to deliver aggregate to market;

- Due to the left-turn restrictions currently in place for trucks in and out of the Goodwood Pit access to Regional Highway 47, all trucks entering and exiting the Goodwood Pit access at Regional Highway 47 must make a right turn.
- Trucks exiting the Goodwood Pit destined to the east travel west along Regional Highway 47 and then turn left onto Goodwood Road (Regional Road 21) to continue traveling east along the roadway to their destination (exiting trucks destined to the west of the Goodwood Pit may continue along Regional Highway 47 as required).
- Trucks entering the pit from the west along Regional Highway 47 turn right onto Goodwood Road (Regional Road 21) and proceed along the roadway, then turn left onto Brock Road (Regional Road 1) and then turn left onto Regional Highway 47 to access the site via a right-turn (trucks destined to the pit from east along Regional Highway 47 may complete a right-turn into the site).
- The existing haul route for the aggregate trucks generated by the Goodwood Pit is shown in **Figure 2-3** for inbound vehicles, and **Figure 2-4** for outbound vehicles.

Note that neither of the above haul routes are proposed to change as part of the planned extension.



Legend

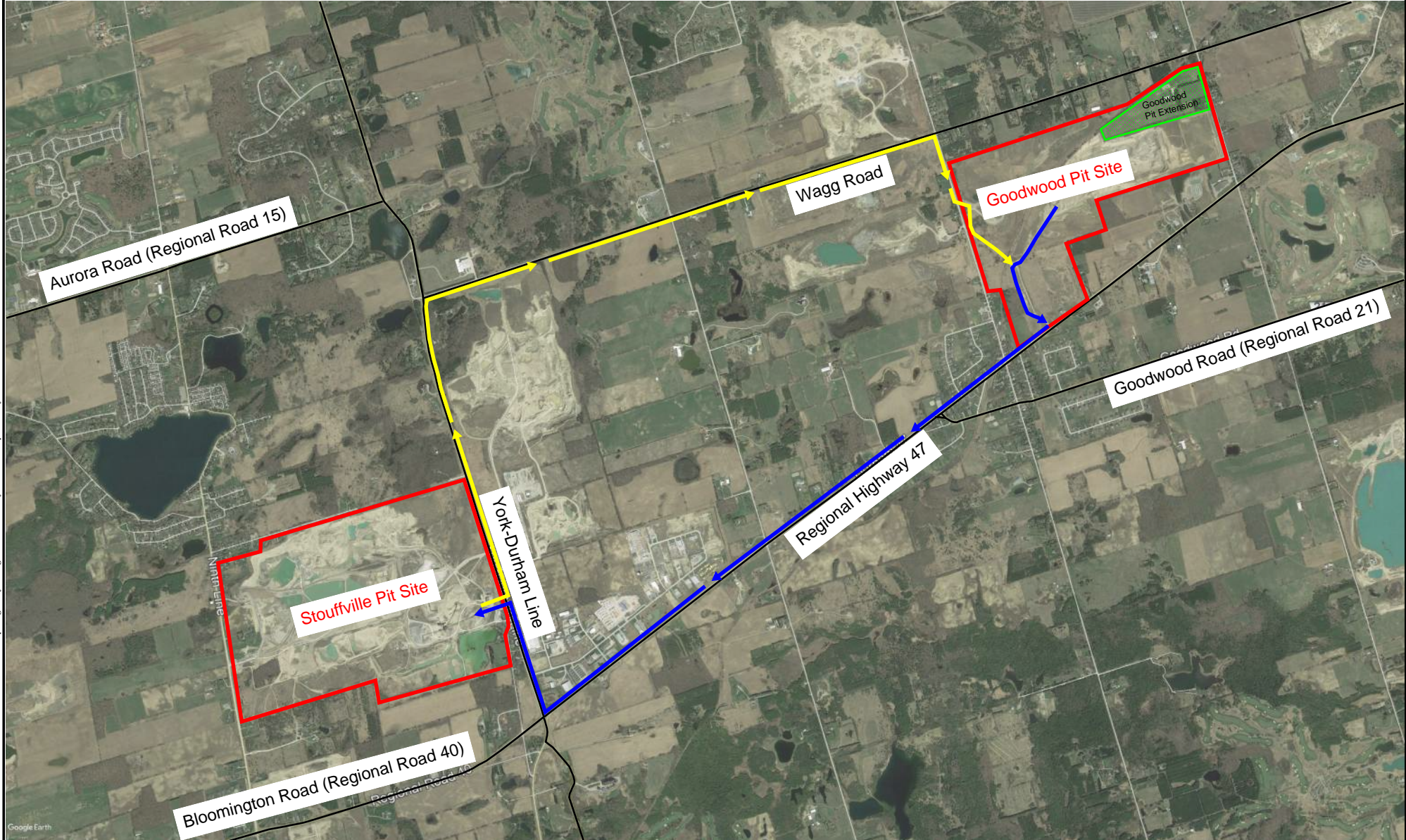
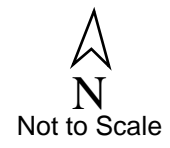
● Stop Sign



Traffic Signal

Figure 2-1

Existing Lane Configuration  
Goodwood Pit TIS



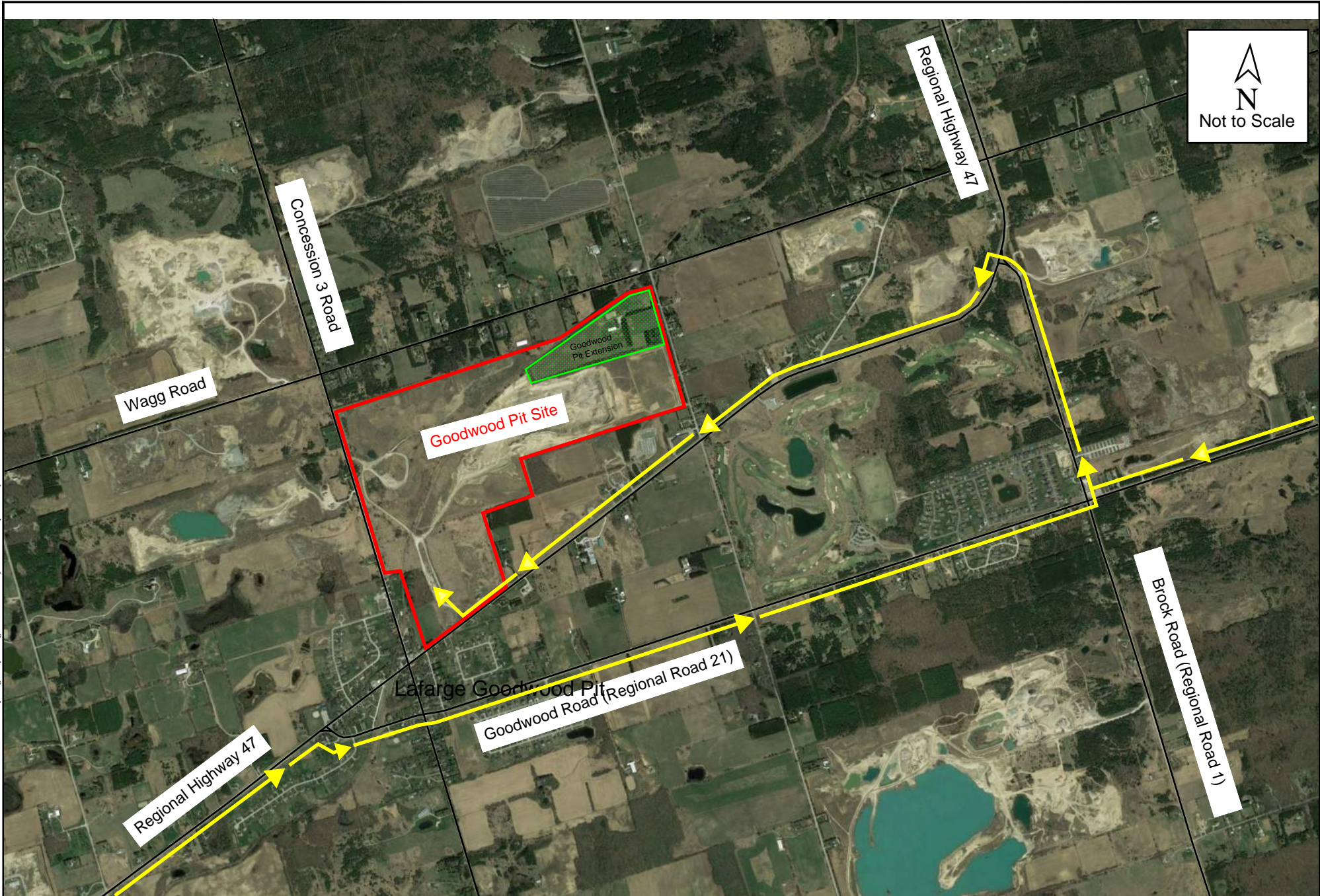
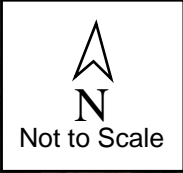
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Transfer Truck Haul Route (between Goodwood and Stouffville Pit)  
 Lafarge Goodwood Pit Transportation Impact Study

DATE: April 2022	PROJECT No. 2221
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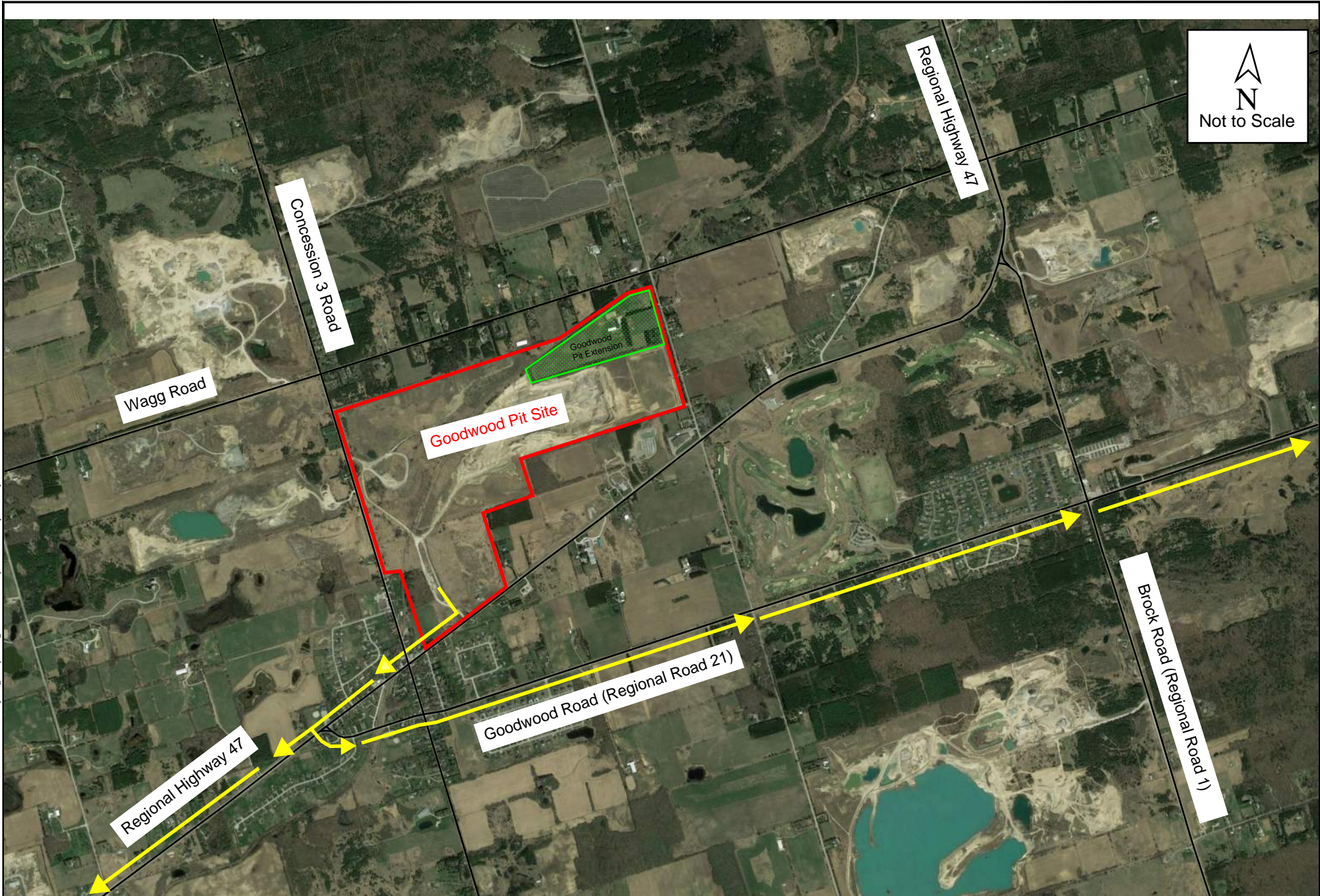
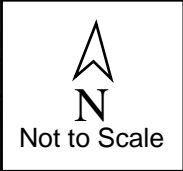


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Aggregate Truck Haul Route - Inbound  
 Lafarge Goodwood Pit Transportation Impact Study

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SCALE: N.T.S	DRAWING No. Figure 2-3



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Aggregate Truck Haul Route - Outbound  
Lafarge Goodwood Pit Transportation Impact Study

DATE:  
April 2022

PROJECT No.  
2221

SCALE:  
N.T.S

DRAWING No.  
Figure 2-4

## 2.4 HAUL ROUTE ROADWAYS

The below roadways are currently included as part of the site's existing haul routes (as detailed in the above section). The characteristics for these roadways have been detailed below:

- **York-Durham Line** is a north/south Type B arterial roadway located further west from the subject site. It has a rural two-lane cross-section, one lane for each direction of travel, and a posted speed limit of 80 km/h. The roadway is under the jurisdiction of the Region of Durham and York Region.
- **Regional Highway 47** is an east/west Type A arterial roadway located south of the subject site. It has a rural two-lane cross-section, one lane for each direction of travel, and a posted speed limit of 50 km/h fronting the lands. The roadway is under the jurisdiction of the Region of Durham.
- **Wagg Road** is an east/west local rural roadway located north of the subject site. It has a rural two-lane cross-section, one lane for each direction of travel, and a posted speed limit of 80 km/h. The roadway is under the jurisdiction of the Town of Uxbridge and is signed as a permitted truck route between York Durham Line and Concession 3 Road.
- **Concession Road 3** is a north/south local roadway located directly west of the subject site. It has a rural two-lane cross-section, one lane for each direction of travel, and a posted speed limit of 50 km/h. Within the vicinity of the study area, the roadway is under the jurisdiction of the Town of Uxbridge.
- **Regional Highway 21** is an east/west Type A arterial roadway located south of the subject site. It has a rural two-lane cross-section, one lane for each direction of travel, and a posted speed limit of 50 km/h within the study area. The roadway is under the jurisdiction of the Region of Durham.

## 2.5 BASELINE (2022) TRAFFIC VOLUMES

As part of this TIS, turning movement counts were commissioned and collected on August 24, 2021, for all study intersections. The TMC data has been included in **Appendix B** and includes peak operational traffic for the Goodwood Pit and the nearby Stouffville Pit as the counts were completed in August (i.e., peak operating month for the Pits). Note that only the intersection of York-Durham Line and Aurora Road (Regional Road 15) was surveyed on August 26 as there was a minor incident at the intersection which compromised the counts collected on August 24.

Traffic volumes surveyed during the peak hours for each intersection were utilized as part of this TIS for the purpose of conservative analysis. The surveyed 2021 existing traffic volumes have been illustrated in **Figure 2-5**.

It should be noted that, for undetermined reasons, traffic surveyed at the Goodwood Pit accesses were almost nil as part of the August 24, 2021, data. However, any traffic surveyed entering or exiting the Goodwood Pit accesses would have been removed regardless and replaced by a trip generation based on the permitted tonnage limit to ensure a conservative analysis.

Accordingly, in the absence of significant trips surveyed at the Goodwood Pit accesses based on the collected traffic data, TYLin derived the trip generation associated with the Goodwood Pit based on the average tonnage and added it to the baseline survey data, as detailed in the below sections. The trip generation was completed for Goodwood Pit employees, aggregate shipment activity and material transfer activity (between the Goodwood and Stouffville pits). The trip generation details have been documented below.

## 2.5.1 Existing Goodwood Pit Trip Generation

As stated above, TYLin derived all existing traffic generated by the Goodwood Pit and added these volumes to the surveyed 2021 existing traffic data in order to derive conservative volumes along the roadway network (i.e., accounting for the maximum trip generation from the pit).

The following Goodwood Pit traffic was generated and added to the network as part of this exercise:

- The Goodwood pit employee trips;
- The transfer route traffic between Stouffville and Goodwood pits; and
- The truck route for the Goodwood Pit to deliver aggregate to market.

### 2.5.1.1 Goodwood Pit Employee Trips

Currently, the standard employee day shifts are from 6:00 AM to 6:00 PM and night shifts are from 5:00 PM to 4:00 AM. There are 4 full-time employees that work at the Goodwood site. As employees coming in for the day shift would arrive prior to or at 6:00 AM, these trips were not included in the generation to add to existing conditions. However, a total of 4 outbound trips and 4 inbound trips were generated for the employees during the PM peak hour to be added to the existing surveyed traffic data. Existing traffic patterns at the intersection of the Goodwood access to Regional Highway 47 were derived for the AM and PM peak hours and the employee trips were assigned accordingly along Highway 47. Please refer to **Figure 2-6** for the Goodwood employee trip assignment.

### 2.5.1.2 Transfer Truck Route Between Stouffville and Goodwood Pits

Based on input from the project team, 500,000 tonnes is transferred annually between the Goodwood and Stouffville Pits. Based on a truck capacity of 40 tonnes and a total of 155 days of operation (from April to mid-November, based on input from the project team), the transfer truck trip generation for 500,000 tonnes per year is equivalent to a total of 81 trucks per day. The hourly distribution for these trucks is detailed in Section 2.5.1.4 below.

### 2.5.1.3 Goodwood Pit Aggregate Daily Trips

Based on a truck capacity of 40 tonnes, and a total of 155 days of operation (from April to mid-November, based on input from the project team), the aggregate truck trip generation (per the remaining tonnage per year) is equivalent to a total of 109 trucks per day. The hourly distribution for these trucks is detailed in Section 2.5.1.4 below.

#### 2.5.1.4 Truck Hourly Distribution

The project team provided TYLin with detailed hourly breakdowns of the aggregate truck generation for the nearby Stouffville Pit surveyed in July, August and September of 2020. This survey data took place during the high season for the Pit, and the project team advised TYLin that the surveyed average hourly breakdown distribution would be applicable to all truck routes for both Stouffville and Goodwood pits. For the AM and PM peak hour, the percentage of daily total trips was identified from the hourly distribution as 12% from 8:00-9:00 AM and 2% from 4:00-5:00 PM. Accordingly, the above hourly distribution was applied to all truck trip generation in order to derive the peak hour volumes.

#### 2.5.1.5 Goodwood Pit Aggregate and Transfer Truck Hourly Trips

Based on the above sections, the trip generation for the Goodwood Pit transfer and aggregate trucks was derived for the weekday AM and PM peak hours. Note that the hourly truck distribution identifies the number of trucks accessing the site; because each truck makes one inbound and one outbound trip, the total number of trips is twice as high as the number of vehicles. The detailed hourly Goodwood truck trip generation added to the existing surveyed traffic volumes has been included in **Table 2-1** below.

Table 2-1 Goodwood Pit Site Truck Trip Generation

Site Truck Trip Generation	AM Peak Hour			PM Peak Hour		
	Inbound	Outbound	Total	Inbound	Outbound	Total
Goodwood Transfer Truck Trips	10	10	20	2	2	4
Goodwood Aggregate Truck Trips	13	13	26	2	2	4

The transfer truck trip distribution has been illustrated in **Figure 2-2** and the aggregate trip distribution is detailed in **Table 2-2** (note that detailed below is the overall directional distribution of trucks, which is different than the individual routing assignment within the immediate study area as illustrated previously in **Figure 2-3** and **Figure 2-4**).

Table 2-2 Aggregate Truck Trip Distribution

Trip Orientation	Distribution
North	5%
South	5%
East	20%
West	70%

The trip assignment for the transfer trucks (between the Goodwood and Stouffville pits) and the trucks shipping aggregate directly to market from the Goodwood pit have been illustrated in **Figure 2-7** and **Figure 2-8**, respectively.



## 2.5.2 Growth Adjustment for 2021 Volumes

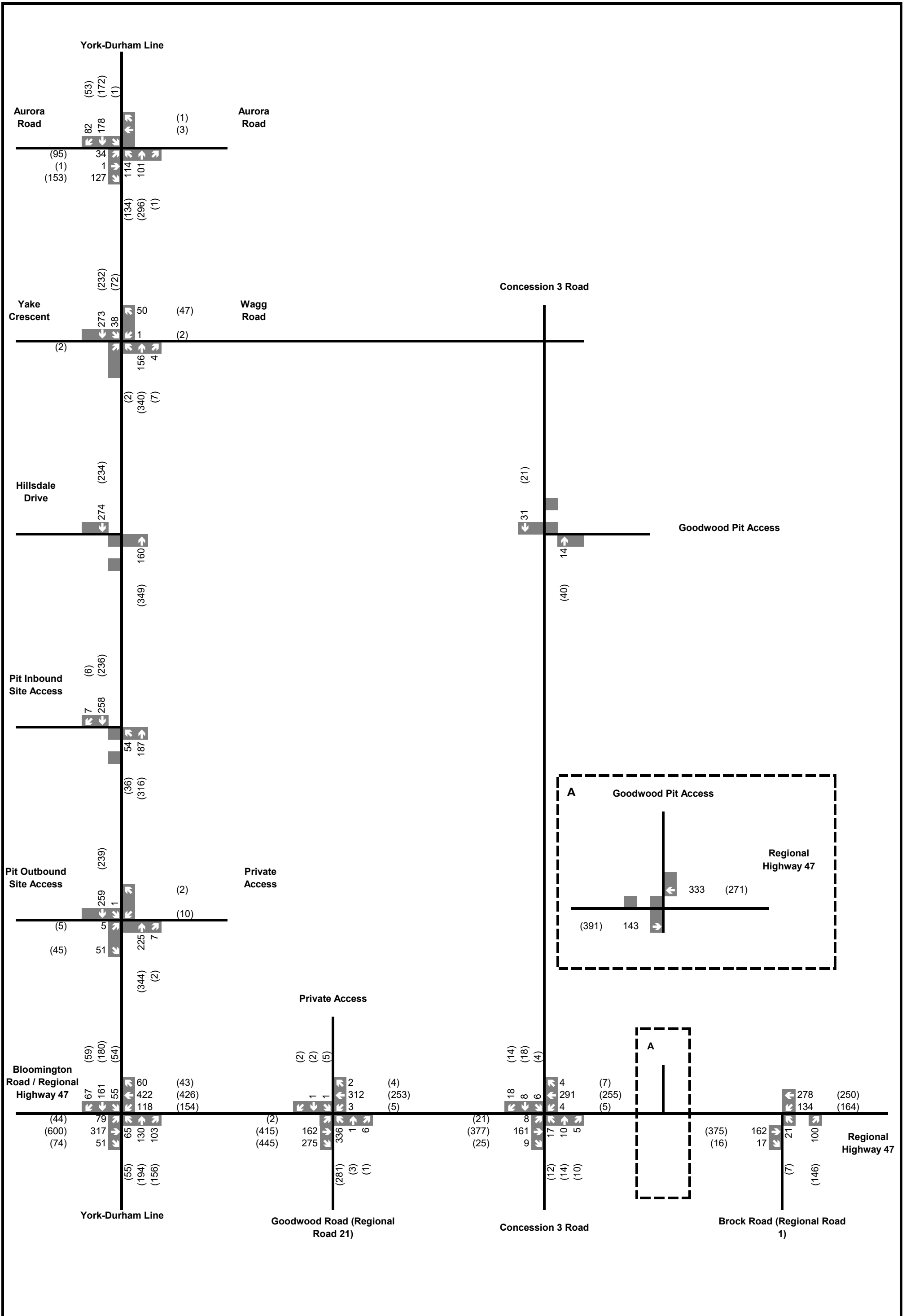
TYLin derived 2021 existing traffic data by adding the trip generation associated with the Goodwood Pit (transfer trucks, employees and aggregate trucks) to the surveyed August 2021 traffic data as detailed above. 2022 conditions were then derived by applying growth rates along the resulting boundary road network volumes.

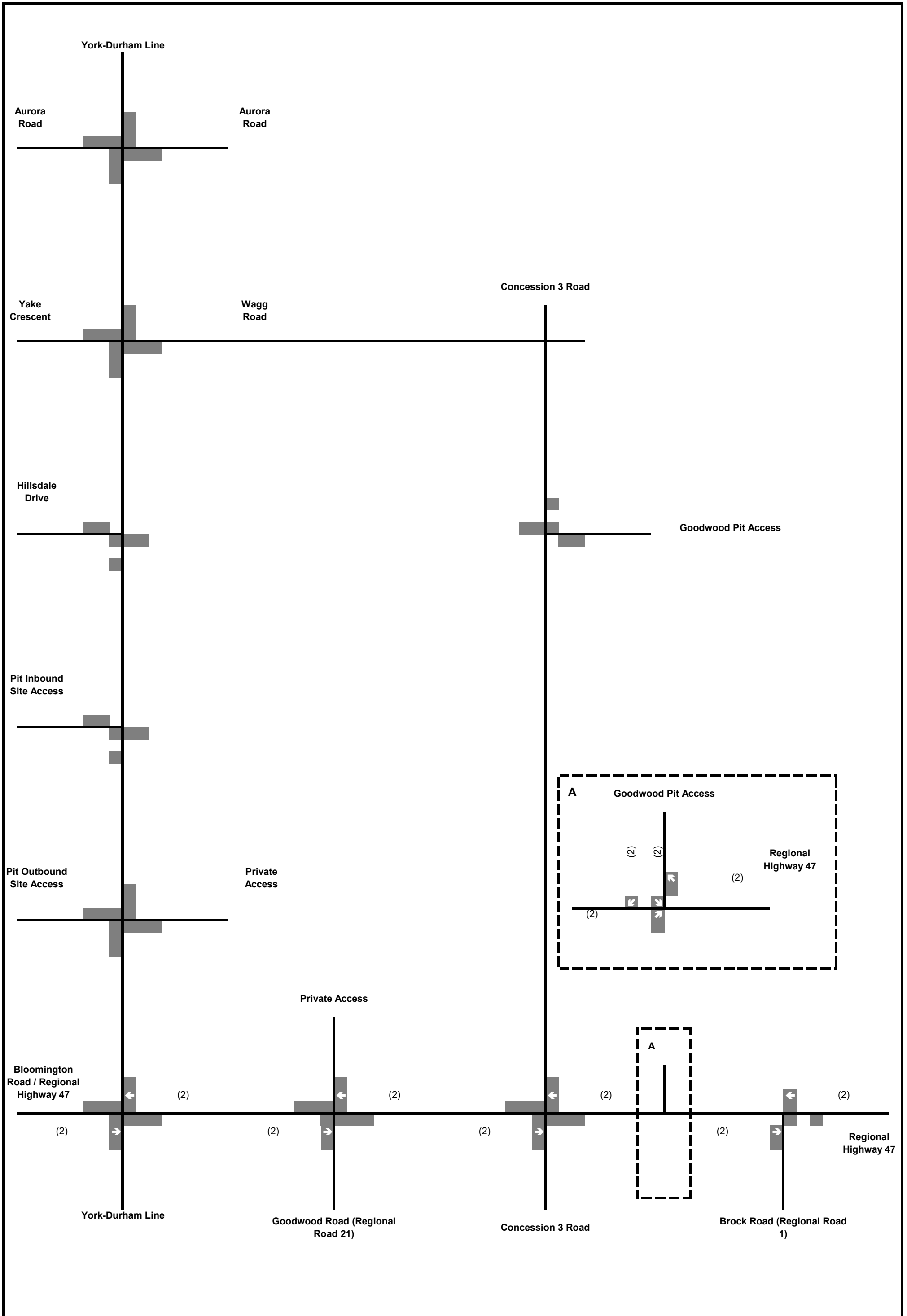
The growth rates used as part of this study have been detailed below and are based on a review of AADT data as well as input from the reviewing agencies:

- 1% growth rate for through movements along Regional Highway 47;
- 1% growth rate for through movements along York-Durham Line;
- 2% growth rate for movements to and from Aurora Road; and
- 2% growth rate on all turning movements at the York-Durham Line and Bloomington Road/Regional Highway 47 intersection.

## 2.5.3 Derived 2022 Existing Traffic Volumes

The 2022 existing traffic volumes were derived by adding the Goodwood Pit trip generation to the surveyed August 2021 traffic data and growing the resulting volumes to 2022 conditions. The derived 2022 existing traffic volumes have been illustrated in **Figure 2-9**.

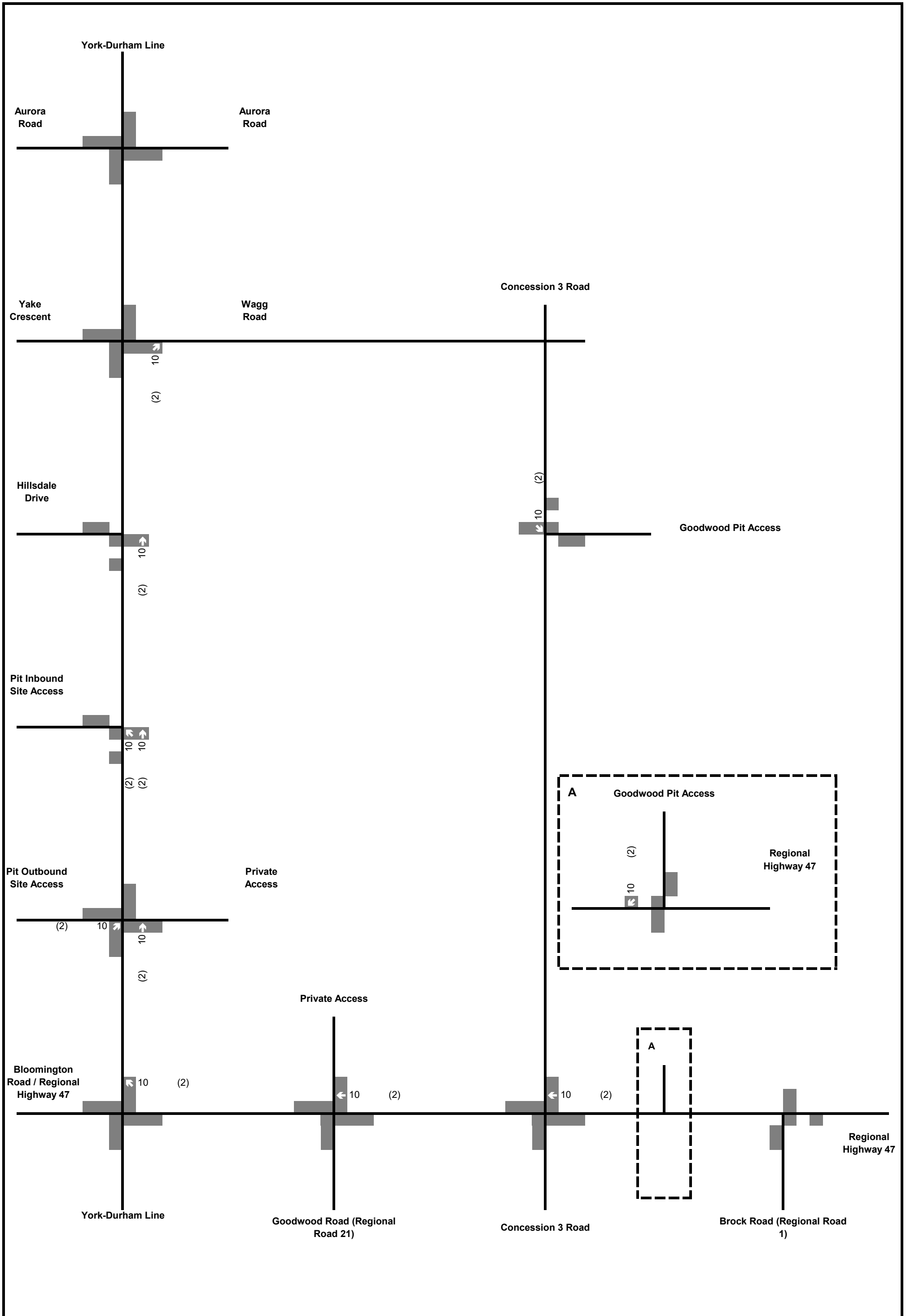




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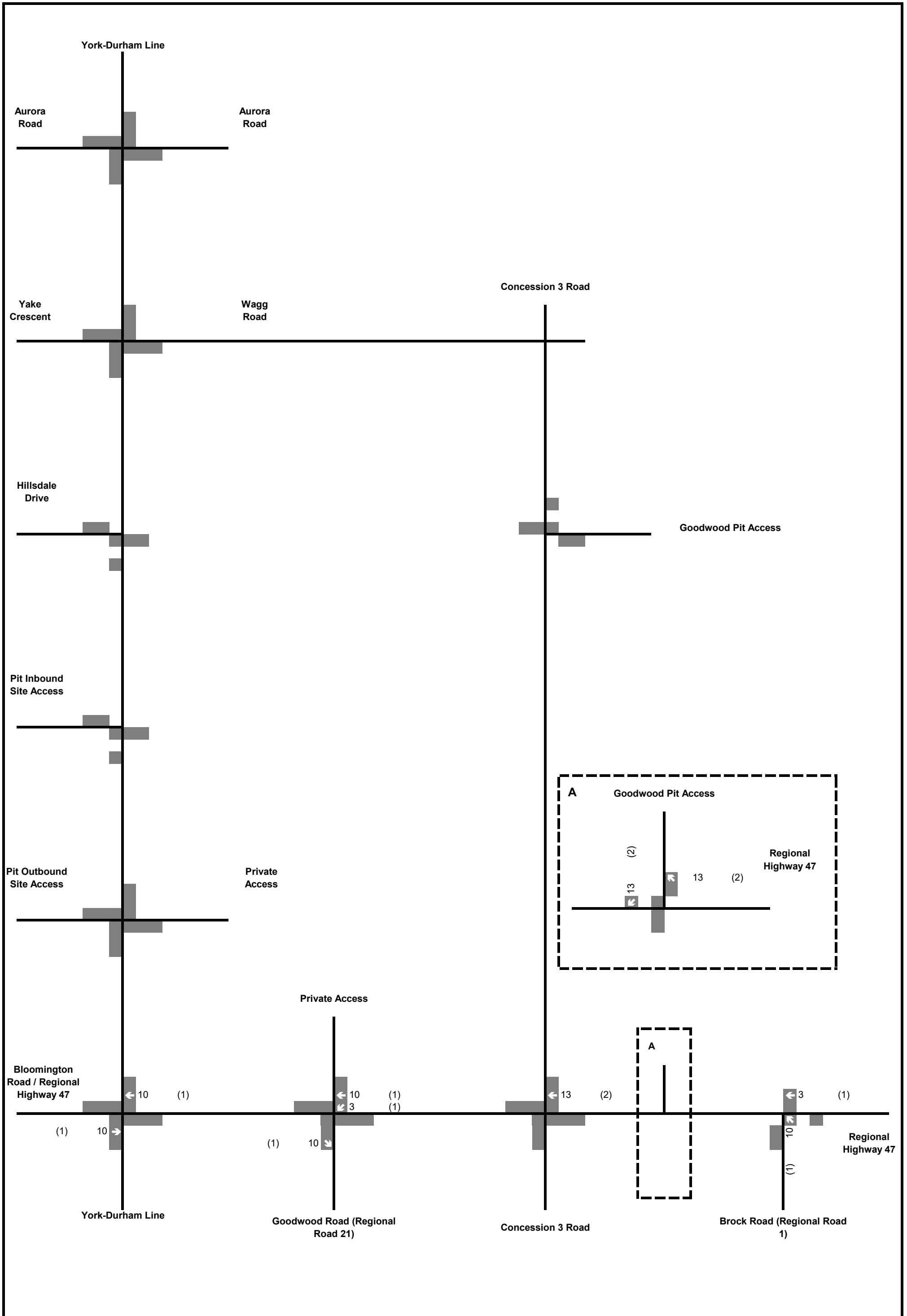
xx A.M. Peak Hour Traffic  
 (xx) P.M. Peak Hour Traffic

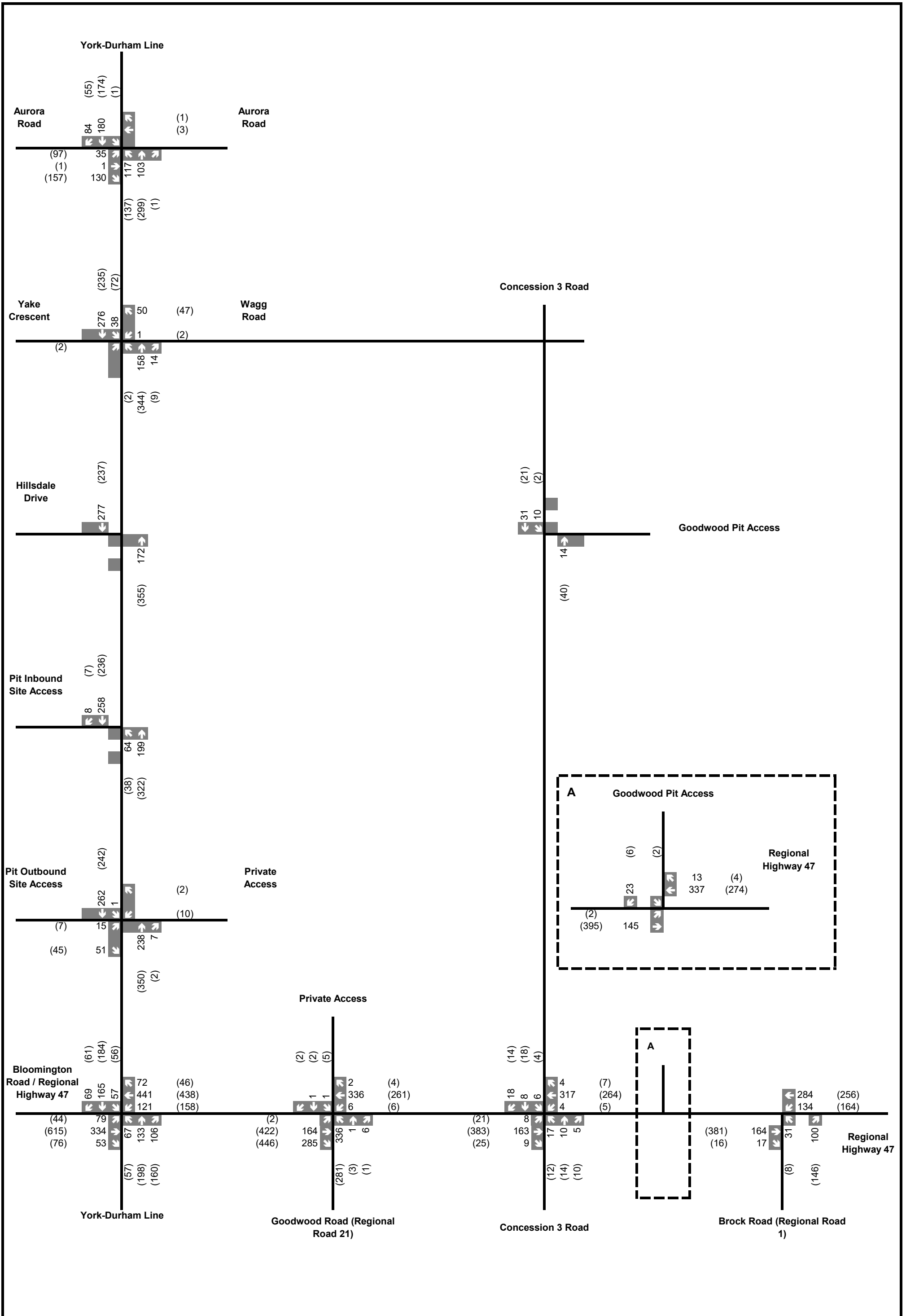
Figure 2-6  
 Goodwood Pit  
 Employee Trips  
 Goodwood Pit TIS



Legend  
 xx A.M. Peak Hour Traffic  
 (xx) P.M. Peak Hour Traffic

Figure 2-7  
 Goodwood Pit  
 Transfer Trips  
 Goodwood Pit TIS





Legend  
 xx A.M. Peak Hour Traffic  
 (xx) P.M. Peak Hour Traffic

Figure 2-9  
 Derived 2022  
 Existing Volumes  
 Goodwood Pit TIS

## 3 Future Traffic Conditions

### 3.1 STUDY HORIZON YEARS

The analysis considers future conditions at a 2028 and 2033 planning horizon year as confirmed with agency staff.

### 3.2 STUDY AREA ROAD NETWORK IMPROVEMENTS

The Region of Durham is planning to widen Regional Highway 47 to four lanes between York Durham Line and Goodwood Road, with construction currently proposed in 2027 (subject to change through future capital program forecasts). This road widening includes intersection improvements at the Regional Highway 47/Goodwood Road intersection. The Environmental Assessment Study for the Regional Highway 47 widening is currently forecast to start in 2023.

Furthermore, in February 2023 Lafarge agreed to enter into a Cost Sharing Agreement with the Region of Durham to implement traffic management/calming measures in the Village of Goodwood to improve traffic safety on Regional Highway 47 and Regional Road 21. These traffic management and calming measures will be implemented by the Region of Durham to help alleviate the general impact of traffic through Goodwood.

York Region has long-term plans to widen Bloomington Road west of York-Durham Line, but there currently is no timeline for that project.

Based on the above, the widening of Regional Highway 47 was considered as part of the 2033 study horizon year as implementation would not be completed by the 2028 horizon year for the purpose of conservative analysis. As part of the widening, the following was applied based on input from Durham Region staff:

- The additional eastbound lane between York-Durham Line and Goodwood Road would be added to the network as a continuation of the channelized northbound right-turn lane at York Durham Line, which would then be forced off via the existing channelized eastbound right-turn lane at Goodwood Road.
- The additional westbound lane between York-Durham Line and Goodwood Road is already in place directly west of Goodwood Road and would continue along the roadway, to be forced off via a planned westbound right-turn lane at York-Durham Line.

Finally, as derived as part of the Stouffville Pit Reclamation TIS report completed by TYLin, the following roadway improvements were recommended for the 2028 horizon year:

- Provision of a northbound left-turn lane, southbound left-turn lane, and southbound right-turn lane at the intersection of York-Durham Line at Regional Highway 47, along with an optimization of the signal timing splits.
- Optimization of the signal timing splits at the intersection of Goodwood Road at Regional Highway 47.
- Provision of a northbound left-turn lane into the Stouffville Pit inbound site access.

The storage associated with the above additional auxiliary turning lanes was derived as part of the Stouffville Pit Reclamation TIS report.

### 3.3 BACKGROUND DEVELOPMENT TRAFFIC

A residential development of 69-unit single detached dwellings located at Bloomington Road and 9<sup>th</sup> Line was considered as a background development for this study as agreed with the Region of York and Durham staff. The trip generation and assignment for this development, applied to the study intersections, was based on the Access Review Report completed for the application by Mark Engineering, dated May 2014.

Additionally, traffic associated with the fill operations for the 14395 Ninth Line Pit (located adjacent to the site), was also considered as part of our background developments. Note that the trip generation for this application was based on the 2012 study completed by BA Group (provided to TYLin by the project team), which is conservative as it considers a total of 800 fill trucks per day that since then reduced to 600 (as detailed in a subsequent 2017 submission by BA Group for the lands).

Finally, the proposed traffic associated with the Stouffville Pit Reclamation application was also included as background traffic for the future traffic forecast for this study.

Future trips generated by the background development detailed above were assigned to the study area road network for weekday AM and PM peak hours, considered for both study horizons. Please refer to **Figure 3-1** for the overall background development traffic. All study excerpts used to derive the background development trip assignments onto our roadway networks have been included in **Appendix C**.

### 3.4 FUTURE TRAFFIC GROWTH

As with existing conditions, traffic along the boundary road network was increased to future conditions using the following growth rates:

- 1% growth rate for through movements along Regional Highway 47;
- 1% growth rate for through movements along York-Durham Line;
- 2% growth rate for movements to and from Aurora Road; and
- 2% growth rate on all turning movements at the York-Durham Line and Bloomington Road/Regional Highway 47 intersection.

### 3.5 FUTURE TRAFFIC VOLUMES

There is no additional traffic projected from Goodwood Pit under future conditions as the existing site traffic will not be changing (the proposal is to extend the pit extraction application, but not to add additional annual tonnage). Accordingly, the derived 2022 existing traffic volumes were increased to future conditions and combined with the projected trips from the background developments in order to derive future traffic conditions. The 2028 and 2033 future traffic volumes have been illustrated in **Figure 3-2** and **Figure 3-3**, respectively.



## 3.6 TURN LANE ANALYSIS

The need for auxiliary turn lanes to facilitate access and egress to/from the subject site along Regional Highway 47 and Concession Road 3 was reviewed. It should be noted that the need for the turn lanes is not required to improve intersection capacity, as shown by the traffic operations review results detailed in later sections of this report.

### 3.6.1 Left-Turn Lane Requirements

As left-turns are prohibited for trucks at the intersection of the Goodwood Pit Site Access and Regional Highway 47, and due to the fact that employee trips are nominal during the peak hours, left-turn warrants were not completed at the Regional Highway 47 access intersection as left-turn lanes were not deemed necessary.

The intersection of the Goodwood Pit Site Access and Concession Road 3 was analyzed to determine if the traffic volumes warranted the need for auxiliary left-lanes on the main line approaches. A review of intersection operations identified that there are minimal truck trips making inbound or outbound left turns at this intersection. Given the nominal left-turn volumes at this intersection, left-turn lanes are deemed not required.

### 3.6.2 Right-Turn Lane Requirements

Given the nominal number of right-turning volumes into the Goodwood Pit accesses, the industry standard threshold of 60 vehicles per hour (and 10% of the total approach volume) is not met. Accordingly, right-turn lanes were not deemed required at the site accesses.

Based on the above, it is TYLin's opinion that the existing site access configurations are acceptable, and no further improvements are required at the Pit accesses to accommodate pit operations.

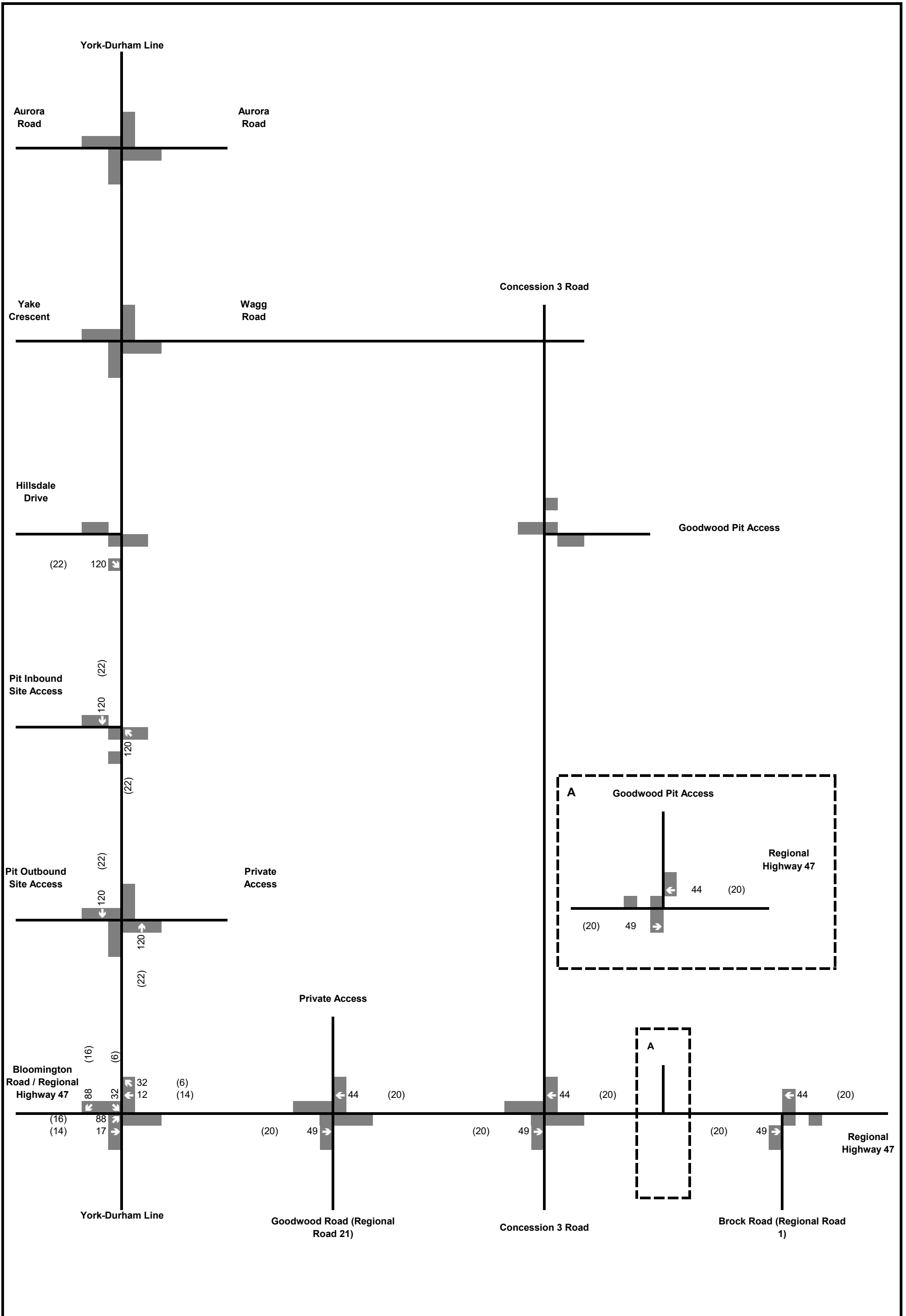
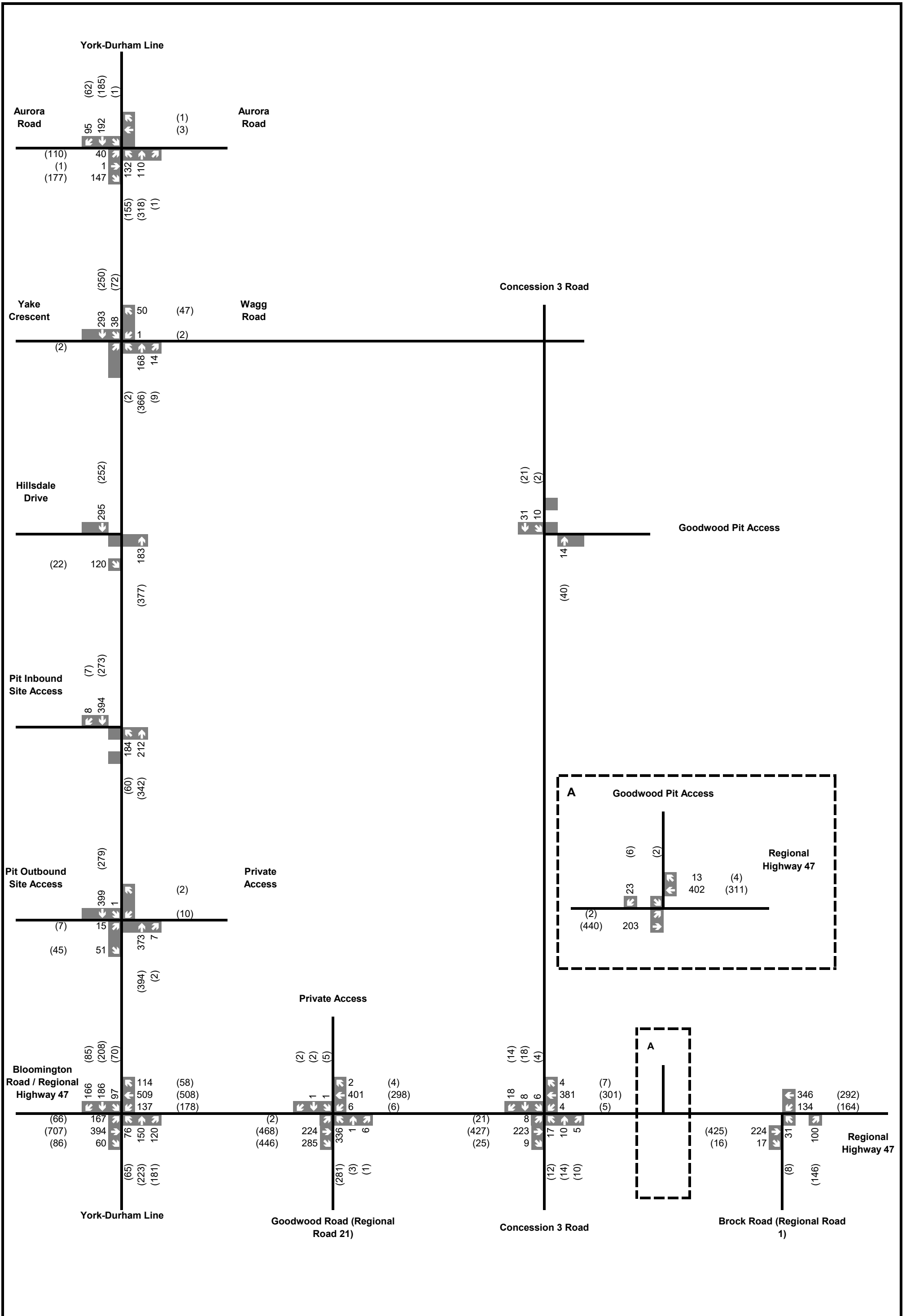
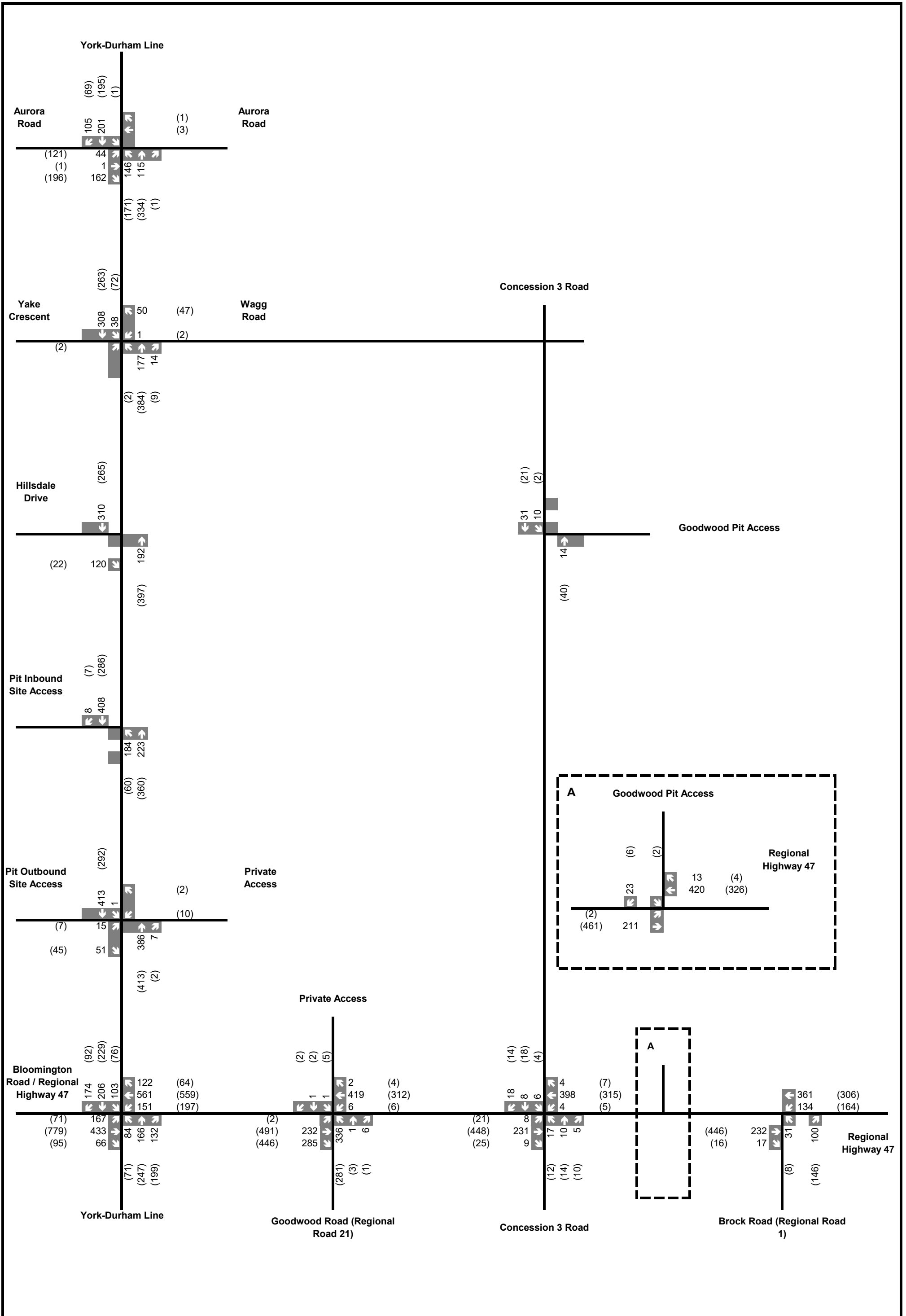


Figure 3-1  
 Background Development  
 Traffic Volumes  
 Goodwood Pit TIS



Legend  
 xx A.M. Peak Hour Traffic  
 (xx) P.M. Peak Hour Traffic

Figure 3-2  
 2028 Future Conditions  
 Traffic Volumes  
 Goodwood Pit TIS



Legend  
 xx A.M. Peak Hour Traffic  
 (xx) P.M. Peak Hour Traffic

Figure 3-3  
 2033 Future Conditions  
 Traffic Volumes  
 Goodwood Pit TIS

## 4 Capacity Analysis

The capacity analysis identifies how well the intersections and access driveways are operating and how they are expected to operate in the future. The analysis contained in this report utilized the Highway Capacity Manual (HCM) 2000 techniques within the Synchro Version 10 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement.

As part of this analysis, TYLin detailed only the critical movements at each intersection within the report. The traffic operations for all remaining movements have been detailed in the Synchro reports included in **Appendix D**. 'Critical' intersections and movements are classified as detailed below, as per the Durham Region and York Region Traffic Impact Study Guidelines/Mobility Plan Guidelines for a rural condition:

- Overall intersection operations, through movements or shared through/turning movements with a LOS 'D' or worse; and
- V/C ratios for movements increased to 0.70 or above.
- The following parameters were reflected in the existing Synchro analysis:
  - Lane configurations, link speeds, storage lengths, and taper lengths, were applied to reflect existing conditions using aerial imagery;
  - Saturation flow rates were set to 1,900 and 2,000 vehicles per hour per lane as per Durham and York Region guidelines, respectively;
  - Signal timings for signalized intersections were taken directly from York and Durham Region signal timing plans Appendix C);
  - Vehicular volumes, heavy vehicle percentages, and pedestrian volumes were adjusted to reflect turning movement count data (and any addition to the survey data); and
  - Peak hour factors were calculated based on peak hour traffic counts.

### 4.1 EXISTING 2022 CAPACITY ANALYSIS

**Table 4-1** summarizes the Synchro/HCM capacity results for the study intersections during the weekday AM and PM peak hours under the derived 2022 existing traffic conditions, while **Appendix D** contains the detailed intersection capacity sheets. As previously stated, only critical turning movements were detailed below, along with key turning movements at the Goodwood Pit accesses (i.e., movements with potential delay).

Table 4-1 Existing 2022 Capacity Analysis Summary

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
<b>Signalized</b>							
York-Durham Line & Regional Highway 47 / Bloomington Road	<b>Overall</b>	<b>0.74</b>	<b>33</b>	<b>C</b>	<b>0.87</b>	<b>38</b>	<b>D</b>
	EBTR	-	-	-	0.85	36	D
	WBL	-	-	-	0.74	31	C
	WBTR	0.71	28	C	-	-	-
	NBLT	0.62	40	D	0.68	43	D
	SBLTR	0.89	65	E	0.94	73	E
Goodwood Road (Regional Road 21) / Private Access & Regional Highway 47	<b>Overall</b>	<b>0.53</b>	<b>29</b>	<b>C</b>	<b>0.58</b>	<b>18</b>	<b>B</b>
	NBL	0.97	68	E	0.85	47	D
<b>Unsignalized</b>							
York-Durham Line & Aurora Road (Regional Road 15)	EBL	-	-	-	0.50	35	E
Regional Highway 47 & Goodwood Pit Access	WBR	0.01	0	-	0.00	0	-
	SBLR	0.06	13	B	0.02	13	B
Concession 3 Road & Goodwood Pit Access	SBLT	0.01	2	A	0.02	1	A

Under 2022 existing conditions, all turning movements operate below capacity with LOS E or better. Accordingly, delays experienced under existing conditions are deemed acceptable with no need for remedial measures.

At the site access intersections, there are no operational constraints at the site accesses.

Note that all turning movements not listed in the above table, for both signalized and stop-controlled intersections, operate with LOS C or better and a v/c of 0.69 or below, showing good operations.

## 4.2 FUTURE 2028 CAPACITY ANALYSIS

**Table 4-2** summarizes the Synchro/HCM capacity results for the critical movements during the weekday AM and PM peak hours under future 2028 traffic conditions, which takes into consideration the planned and derived road improvements detailed within Section 3.2 of this report. **Appendix D** contains the detailed intersection capacity sheets, with only critical movement detailed below along with key turning movements at the Goodwood Pit accesses (i.e., movements with potential delay).

Table 4-2 Future 2028 Capacity Analysis Summary

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
<b>Signalized</b>							
York-Durham Line & Regional Highway 47 / Bloomington Road	<b>Overall</b>	<b>0.78</b>	<b>31</b>	<b>C</b>	<b>0.80</b>	<b>32</b>	<b>C</b>
	EBTR	-	-	-	0.87	33	C
	WBTR	0.87	36	D	-	-	-
	NBL	0.93	39	D	0.43	44	D
	NBT	0.43	38	D	0.66	48	D
	NBR	-	-	-	0.13	38	D
	SBL	0.64	50	D	0.60	53	D
	SBT	0.55	41	D	0.65	48	D
Goodwood Road (Regional Road 21) / Private Access & Regional Highway 47	<b>Overall</b>	<b>0.59</b>	<b>20</b>	<b>B</b>	<b>0.62</b>	<b>17</b>	<b>B</b>
	NBL	0.83	33	C	0.80	38	D
<b>Unsignalized</b>							
York-Durham Line & Aurora Road (Regional Road 15)	EBL	-	-	-	0.66	52	F
Regional Highway 47 & Goodwood Pit Access	WBR	0.01	0	-	0.00	0	0
	SBLR	0.07	14	B	0.02	13	B
Concession 3 Road & Goodwood Pit Access	SBLT	0.01	2	A	0.00	1	A

All movements are projected to operate with reserve capacity and acceptable delays under 2028 future conditions.

The intersection of York-Durham Line at Aurora Road is projected to operate with the eastbound left-turn movement at LOS F during the PM peak hour. As the delay is projected to be below 1 minute per vehicle, and as there are no critical movements during the AM peak hour, TYLin does not recommend any changes to the intersection but recommends the Region to monitor the intersection to identify when potential remedial measures will be required.

As there are no changes to the site trips between existing and future conditions, any increase in delay for the vehicles accessing the site is based on the increase in traffic volumes along the boundary road network (due to general traffic growth and background developments). Review of 2028 future traffic conditions show acceptable operations at the site accesses and surrounding intersections.

Finally, all turning movements not listed in the above table, for both signalized and stop-controlled intersections, are projected to operate with LOS C or better and a v/c of 0.69 or below, showing good operations.

### 4.3 FUTURE 2033 CAPACITY ANALYSIS

**Table 4-3** summarizes the Synchro/HCM capacity results for the critical movements during the weekday AM and PM peak hours under future 2033 traffic conditions, which takes into consideration the planned and derived road improvements (as included in the 2028 conditions). **Appendix D** contains the detailed intersection capacity sheets, with only critical movement detailed below along with key turning movements at the Goodwood Pit accesses (i.e., movements with potential delay).

Table 4-3 Future 2033 Capacity Analysis Summary

Intersection	Movement	Weekday AM Peak Hour			Weekday PM Peak Hour		
		v/c	Delay (s)	LOS	v/c	Delay (s)	LOS
<b>Signalized</b>							
York-Durham Line & Regional Highway 47 / Bloomington Road	<b>Overall</b>	<b>0.69</b>	<b>28</b>	<b>C</b>	<b>0.90</b>	<b>42</b>	<b>D</b>
	EBTR	-	-	-	0.97	49	D
	WBL	-	-	-	0.92	74	E
	WBT	0.71	26	C	-	-	-
	NBL	0.45	40	D	0.49	46	D
	NBT	0.45	38	D	0.70	50	D
	NBR	-	-	-	0.19	39	D
	SBL	0.68	53	D	0.71	65	E
	SBT	0.59	41	D	0.69	49	D
SBR	0.20	36	D	0.08	38	D	
Goodwood Road (Regional Road 21) / Private Access & Regional Highway 47	<b>Overall</b>	<b>0.60</b>	<b>20</b>	<b>B</b>	<b>0.64</b>	<b>17</b>	<b>B</b>
	NBL	0.83	33	C	0.80	38	D
<b>Unsignalized</b>							
York-Durham Line & Aurora Road (Regional Road 15)	EBL	-	-	-	0.82	81	F
Regional Highway 47 & Goodwood Pit Access	WBR	0.01	0	-	0.00	0	-
	SBLR	0.07	15	B	0.02	13	B
Concession 3 Road & Goodwood Pit Access	SBLT	0.01	2	A	0.00	1	A



All movements are projected to operate with reserve capacity and acceptable delays under 2033 future conditions. At signalized intersections, all movements are projected below capacity with LOS D or better, with the exception of the westbound left-turn movement and the southbound left-turn movement at the York-Durham Line at Regional Highway 47 intersection in the PM, both projected at LOS E. As said movements are projected to operate below capacity with delays of 74 seconds or below, it is TYLin's opinion that these operations are deemed acceptable as it is customary for auxiliary left-turn lanes to experience longer delays at a large intersection.

The intersection of York-Durham Line at Aurora Road is projected to operate with the eastbound left-turn movement at LOS F during the PM peak hour. As the delay is not projected to be very large (approximately 1 minute and 20 seconds per vehicle), and as there are no critical movements during the AM peak hour, TYLin does not recommend any changes to the intersection at this time. TYLin recommends that the Region monitor the intersection to identify when operations will become critical during the AM peak hour and worsen during the PM peak hour in order to provide remedial measures.

As previously stated, based on the lack of changes to the site trips between existing and future conditions, any increase in delay for the vehicles accessing the site is based on the increase in traffic volumes along the boundary road network (due to general traffic growth and background developments). Review of 2033 future traffic conditions show acceptable operations at the site accesses and surrounding intersections.

Finally, all turning movements not listed in the above table, for both signalized and stop-controlled intersections, are projected to operate with LOS C or better and a v/c of 0.69 or below, showing good operations.

Based on the above, it is TYLin's opinion that the operations of the Goodwood Pit extension assuming maximum annual extraction can be accommodated by the road network under both existing (2022) and as well future (2028 and 2033) conditions. In all scenarios for all movements, volumes do not exceed the available capacity based on the optimizations and roadway improvements derived and planned for the intersections (as detailed in Section 3.2). Overall, the intersections in the study network are expected to operate with acceptable conditions in the future.

## 5 Traffic Queuing Operations

The 50<sup>th</sup> (average) and 95<sup>th</sup> percentile queues for auxiliary turning movements are presented in **Table 5-1**, **Table 5-2** and **Table 5-3** for the Existing conditions, and 2028 and 2033 Future conditions, respectively. The queuing report was prepared using SimTraffic V.10 micro-simulation software and the following methodology: 10 minutes seeding time, one-hour recording, and 10 runs. The 95<sup>th</sup> percentile queue lengths that are bolded are predicted to extend beyond the available storage of a dedicated turn lane. All queues for the remaining turning movements have been detailed in the SimTraffic reports included in **Appendix D**.

Table 5-1 Queuing Summary – 2022 Existing Conditions

Intersection	Movement [Proposed Future Movement]	Available Existing [Proposed Future] Storage (m)	Existing			
			2022			
			AM		PM	
			50 <sup>th</sup>	95 <sup>th</sup>	50 <sup>th</sup>	95 <sup>th</sup>
York-Durham Line & Aurora Road (Regional Road 15)	EBL	80	5	13	9	10
	NBL	50	6	17	7	16
	SBL	50	-	-	0	1
	SBR	70	0	2	0	1
York-Durham Line & Regional Highway 47	EBL	55	20	50	15	53
	WBL	55	21	<b>60</b>	28	57
	NBR	40	12	<b>51</b>	12	<b>52</b>
Goodwood Road (Regional Road 21) /Private Access & Regional Highway 47	EBL	70	-	-	0	2
	WBL	50	1	7	1	5
	WBTR	25	15	<b>32</b>	9	22
	NBL	30	<b>43</b>	<b>57</b>	<b>38</b>	<b>54</b>
Brock Road (Regional Road 1) & Regional Highway 47	WBL	110	5	13	10	21
	NBL	-	10	25	2	9
Regional Highway 47 & Goodwood Pit Access	EBLT	-	-	-	0	2
	SBLR	-	9	22	3	12
Concession 3 Road & Goodwood Pit Access	SBLT	-	0	3	-	-

Under existing conditions, nearly all 50<sup>th</sup> percentile queues are contained within the available storage lengths, with the exception of the northbound left movement at Goodwood Road at Regional Highway 47. Several movements have 95<sup>th</sup> percentile queues exceeding the available storage (at York-Durham Line and Regional Highway 47 as well as Goodwood Road at Regional Highway 47), however as the average queues are contained within the storage for the majority of movements, the operations are deemed acceptable.

Table 5-2 Queuing Summary – 2028 Future Conditions

Intersection	Movement [Proposed Future Movement]	Available Existing [Proposed Future] Storage (m)	Queues (m)			
			Future Total 2028			
			AM		PM	
			50 <sup>th</sup>	95 <sup>th</sup>	50 <sup>th</sup>	95 <sup>th</sup>
York-Durham Line & Aurora Road (Regional Road 15)	EBL	80	6	15	12	22
	NBL	50	7	17	7	16
	SBL	50	-	-	0	1
	SBR	70	0	3	0	2
York-Durham Line & Pit Inbound Site Access	NBLT [NBL]	- [50]	22	44	7	21
York-Durham Line & Regional Highway 47	EBL	55	58	<b>89</b>	28	<b>76</b>
	WBL	55	52	<b>116</b>	33	<b>66</b>
	[NBL]	[50]	19	38	15	31
	NBR	40	1	16	6	34
	[SBL]	[70]	33	66	23	45
	[SBR]	[70]	30	62	10	26
Goodwood Road (Regional Road 21) /Private Access & Regional Highway 47	EBL	70	-	-	0	2
	EBR	50 [-]	-	-	-	-
	WBL	50	1	8	1	6
	WBTR	25	18	<b>38</b>	11	25
	NBL	30	<b>40</b>	<b>56</b>	<b>36</b>	<b>53</b>
Brock Road (Regional Road 1) & Regional Highway 47	WBL	110	6	15	10	22
	NBL	-	10	24	2	7
	NBR	70	-	-	-	-
Regional Highway 47 & Goodwood Pit Access	EBLT	-	-	-	0	3
	SBLR	-	8	21	3	13
Concession 3 Road & Goodwood Pit Access	SBLT	-	0	2	-	-

As detailed in the table, the northbound left-turn lane at the inbound Stouffville Pit site access is recommended with a 50m storage, along with the northbound left-turn lane at the York-Durham Line and Highway 47 intersection, while the southbound left and right-turn lanes at the York-Durham Line and Highway 47 intersection are recommended with a 70m storage in order to accommodate the projected queues.

Under 2028 future conditions, most movements are shown to have average queues contained within the available storage length. The average queue for the northbound left-turn movement at Goodwood Road and Regional Highway 47 is projected to exceed the available storage length (as under existing conditions) during the study periods. However, the average queue is only projected to exceed storage by a maximum of 10m (i.e., less than 2 vehicles) under 2028 future total AM, which would not significantly impact traffic along the adjacent lane. As the average queue is

projected to be contained within the available storage at the remaining movements for which the 95<sup>th</sup> percentile is projected to exceed storage, it is TYLin’s opinion that the projected queues are deemed acceptable under 2028 future conditions. Queues at the Goodwood Pit accesses are projected to be acceptable.

As previously stated, there is no projected increase in traffic volumes generated by the Goodwood Pit as part of the extension application. Accordingly, any increase in queuing between existing and future conditions is based on general traffic and background growth. Overall, review of 2028 future conditions confirms that operations from the Pit will continue to be accommodated by the road network.

Table 5-3 Queuing Summary – 2033 Future Conditions

Intersection	Movement [Proposed Future Movement]	Available Existing [Proposed Future] Storage (m)	Queues (m)			
			Future Total 2033			
			AM		PM	
			50 <sup>th</sup>	95 <sup>th</sup>	50 <sup>th</sup>	95 <sup>th</sup>
York-Durham Line & Aurora Road (Regional Road 15)	EBL	80	6	14	12	24
	NBL	50	9	20	8	19
	SBL	50	-	-	0	1
	SBR	70	0	2	0	2
York-Durham Line & Pit Inbound Site Access	NBLT [NBL]	- [50]	22	44	6	20
York-Durham Line & Regional Highway 47	EBL	55	57	<b>90</b>	29	<b>77</b>
	WBL	55	34	<b>88</b>	33	<b>65</b>
	[WBR]	-	18	50	5	15
	[NBL]	[50]	26	52	18	41
	NBR	40	2	19	10	<b>47</b>
	[SBL]	[70]	36	71	24	51
	[SBR]	[70]	34	70	11	26
Goodwood Road (Regional Road 21) /Private Access & Regional Highway 47	EBL	70	-	-	0	2
	EBR	50 [-]	-	-	-	-
	WBL	50	2	9	1	6
	WBTR	25	19	<b>39</b>	11	<b>25</b>
	NBL	30	<b>39</b>	<b>56</b>	<b>35</b>	<b>52</b>
Brock Road (Regional Road 1) & Regional Highway 47	WBL	110	6	15	10	22
	NBL	-	10	26	2	9
	NBR	70	-	-	-	-
Regional Highway 47 & Goodwood Pit Access	EBLT	-	-	-	0	5
	SBLR	-	9	22	3	12
Concession 3 Road & Goodwood Pit Access	SBLT	-	0	1	0	2

Under 2033 future conditions, most movements are shown to have average queues contained within the available storage length. The average queue for the northbound left-turn movement at Goodwood Road and Regional Highway 47 is projected to exceed the available storage length (as under existing and 2028 future conditions) during the study periods. However, the average queue is only projected to exceed storage by a maximum of 9m (i.e., less than 2 vehicles), which would not significantly impact traffic along the adjacent lane. As the average queue is projected to be contained within the available storage at the remaining movements for which the 95<sup>th</sup> percentile is projected to exceed storage, it is TYLin's opinion that the projected queues are deemed acceptable under 2033 future conditions. Queues at the Goodwood Pit accesses are projected to be acceptable.

As previously stated, there is no projected increase in traffic volumes generated by the Goodwood Pit as part of the extension application. Accordingly, any increase in queueing between existing and future conditions is based on general traffic growth and background developments. Overall, review of 2033 future conditions confirms that operations from the Pit will continue to be accommodated by the road network.

## 6 Findings and Recommendations

TYLin was retained by Lafarge Canada (Lafarge) to prepare a Scoped Transportation Impact Study (TIS) in support of the Planning Act Applications to permit an extension of the Lafarge's Goodwood Pit north of the existing pit area. The subject site is located at 4900 Concession 4 Road, south of Wagg Road on the west side of Concession 4 Road and east side of Concession 3 Road in the Township of Uxbridge, Durham Region.

The Goodwood Pit site ("the Pit") has a maximum annual extraction license limit of 1,177,000 tonnes per year, and this tonnage limit is not proposed to be modified (i.e., increased or decreased) as part of the proposed extension application. Therefore, the application is not seeking an increase in the annual tonnage limit, which will remain at the current limit of 1,177,000 tonnes per year, but merely a continuation of production at the current levels. Accordingly, there are no new trips proposed to be generated by the Goodwood Pit Activity as part of this application. It is noted that Lafarge will be applying for a Class A license to allow the extraction of material from below the water table.

Under existing conditions, a large portion of material from the Goodwood Pit is transferred to the Stouffville Pit for processing and a portion of material is processed on-site at the Goodwood Pit via portable crushing and screening plants used to produce granular material. This configuration is not proposed to change as part of the extension. Overall, the Goodwood Pit traffic can be detailed in the below categories:

- The Goodwood pit employee trips;
- The transfer route truck traffic between the Stouffville and Goodwood pits
- The truck route for the Goodwood Pit to deliver aggregate to market.

The overall trip generation for the lands consists of 0 and 8 two-way employee trips during the AM and PM peak hour, respectively, 20 and 4 two-way transfer truck trips during the AM and PM peak hour, respectively, and finally 26 and 4 two-way aggregate truck trips during the AM and PM peak hour, respectively.

Access to the subject site is proposed to be maintained via the existing inbound and outbound driveways on Concession Road 3 and Regional Highway 47. As per correspondence with Durham Region, left-turn restrictions are currently in place for trucks in and out of the Goodwood Pit Access to Regional Highway 47. Note that this restriction only applies to trucks as passenger vehicles are permitted to make left-turn movements at the intersection. The truck routes have been illustrated in Section 2 of his study.

For the purpose of this study, TMC data was collected in August 2021. A trip generation for the Goodwood Pit was then completed based on the permitted annual tonnage limit (as detailed above) and added to the surveyed traffic data to account for shipping operations of the pit. The resulting traffic volumes were then grown to 2022 conditions to derive existing traffic conditions. Similarly, 2028 and 2033 future conditions volumes were derived by growing the derived 2022 existing conditions volumes to the appropriate horizon years and adding traffic generated by the

study area background developments.

Accounting for the maximum trip generation for the Pit based on the annual tonnage (as detailed above), TYLin completed a review of the study intersection operations under 2022 existing conditions, as well as 2028 and 2033 future conditions. As trips from the site are not projected to change, the review of future conditions was completed to confirm that the Pit trips can still be accommodated by the boundary road network when accounting for general traffic growth and background developments.

The review confirms that the site trips are accommodated by the road network under both existing and future conditions. Reviewing of queuing operations also confirms that the site trip will continue to be accommodated along the roadway under future conditions.

Overall, based on findings of the study, it is TYLin's opinion that the proposed development application is acceptable as it would not create any changes to the traffic volumes along the road network. Furthermore, in February 2023 Lafarge agreed to enter into a Cost Sharing Agreement with the Region of Durham to implement traffic management/calming measures in the Village of Goodwood to improve traffic safety on Regional Highway 47 and Regional Road 21. These traffic management and calming measures will be implemented by the Region of Durham to help alleviate the general impact of traffic through Goodwood.

# **Appendix A:**

## **Traffic Data and Signal Timing Plans**





Turning Movement Count (3 . YORK-DURHAM LINE & AURORA ROAD)

Start Time	N Approach YORK DURHAM LINE						E Approach AURORA RD						S Approach YORK DURHAM LINE						W Approach AURORA RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	19	26	0	0	0	45	0	0	0	0	0	0	0	6	11	0	0	17	16	0	1	0	0	17	79	
06:15:00	18	45	0	0	0	63	0	0	0	0	0	0	0	18	17	0	0	35	20	2	1	0	0	23	121	
06:30:00	24	39	0	0	0	63	0	0	0	0	0	0	0	17	19	0	0	36	18	0	5	0	0	23	122	
06:45:00	22	48	0	0	0	70	0	0	0	0	0	0	0	20	31	0	0	51	26	0	6	0	0	32	153	475
07:00:00	13	40	1	0	0	54	0	0	0	0	0	0	1	23	14	0	0	38	21	0	8	0	0	29	121	517
07:15:00	21	45	0	0	0	66	0	0	0	0	0	0	0	30	25	0	0	55	32	0	8	0	0	40	161	557
07:30:00	23	45	0	0	0	68	0	0	0	0	0	0	0	19	25	0	0	44	29	0	9	0	0	38	150	585
07:45:00	22	51	0	0	0	73	0	0	0	0	0	0	0	27	39	0	0	66	39	0	6	0	0	45	184	616
08:00:00	16	37	0	0	0	53	0	0	0	0	0	0	0	25	25	0	0	50	27	1	11	0	0	39	142	637
08:15:00	19	37	1	0	0	57	0	0	0	0	0	0	0	21	29	0	0	50	18	2	13	0	0	33	140	616
08:30:00	23	37	0	0	0	60	0	0	0	0	0	0	0	40	19	0	0	59	33	1	9	0	0	43	162	628
08:45:00	11	36	0	0	0	47	0	0	0	0	0	0	0	31	29	0	0	60	27	0	15	0	0	42	149	593
09:00:00	9	26	0	0	0	35	0	0	0	0	0	0	0	34	15	0	0	49	34	1	7	0	0	42	126	577
09:15:00	8	22	0	0	0	30	0	0	0	0	0	0	1	31	14	0	0	46	24	1	11	0	0	36	112	549
09:30:00	14	29	0	0	0	43	0	0	0	0	0	0	0	28	20	0	0	48	27	0	16	0	0	43	134	521
09:45:00	17	37	1	0	0	55	0	0	0	0	0	0	1	32	18	0	0	51	26	0	9	0	0	35	141	513
10:00:00	11	31	1	0	0	43	0	0	1	0	0	1	0	15	15	0	0	30	29	1	12	0	0	42	116	503
10:15:00	9	35	0	0	0	44	0	0	0	0	0	0	1	34	19	0	0	54	28	0	25	0	0	53	151	542
10:30:00	11	35	0	0	0	46	1	0	0	0	0	1	0	36	23	1	0	60	28	1	7	0	0	36	143	551
10:45:00	13	27	0	0	0	40	0	0	0	0	0	0	1	27	21	0	0	49	21	0	8	0	0	29	118	528
11:00:00	7	22	0	0	0	29	0	0	0	0	0	0	0	31	14	0	0	45	17	0	14	0	0	31	105	517
11:15:00	7	23	0	0	0	30	2	0	0	0	0	2	0	38	12	0	0	50	21	1	9	0	0	31	113	479
11:30:00	16	33	0	0	0	49	0	0	1	0	0	1	1	21	21	0	0	43	28	4	11	0	0	43	136	472
11:45:00	12	36	0	0	0	48	1	2	0	0	0	3	2	29	17	0	0	48	22	1	11	0	0	34	133	487
12:00:00	16	21	1	0	0	38	0	0	1	0	0	1	0	27	21	0	0	48	26	4	17	1	0	48	135	517
12:15:00	14	20	0	0	0	34	0	0	0	0	0	0	1	33	19	1	0	54	21	2	9	0	0	32	120	524
12:30:00	9	30	0	0	0	39	0	0	0	0	0	0	0	41	21	0	0	62	30	0	13	0	0	43	144	532
12:45:00	5	27	0	0	0	32	0	0	0	0	0	0	0	32	34	0	0	66	26	1	10	0	0	37	135	534
13:00:00	15	22	0	0	0	37	0	1	0	0	0	1	0	25	18	0	0	43	17	1	15	0	0	33	114	513
13:15:00	9	37	0	0	0	46	0	0	0	0	0	0	1	38	28	0	0	67	23	0	15	0	0	38	151	544
13:30:00	13	33	0	0	0	46	0	1	0	0	0	1	1	25	14	0	0	40	22	0	12	0	0	34	121	521
13:45:00	20	28	0	0	0	48	0	0	0	0	0	0	0	43	39	0	0	82	29	1	19	0	0	49	179	565
14:00:00	14	24	0	0	0	38	0	0	0	0	0	0	0	31	20	0	0	51	35	1	11	0	0	47	136	587
14:15:00	9	31	0	0	0	40	0	1	0	0	0	1	0	27	22	0	0	49	32	1	19	0	0	52	142	578
14:30:00	7	26	0	0	0	33	0	2	0	0	0	2	0	45	26	0	0	71	27	0	17	0	0	44	150	607
14:45:00	9	28	0	0	0	37	0	0	0	0	0	0	0	47	30	0	0	77	27	0	17	0	0	44	158	586
15:00:00	13	32	0	0	0	45	0	2	1	0	0	3	1	57	19	0	0	77	27	0	17	0	0	44	169	619
15:15:00	13	32	0	0	0	45	1	1	0	0	0	2	0	43	25	0	0	68	39	0	17	0	0	56	171	648
15:30:00	5	25	0	0	0	30	0	0	1	0	0	1	0	53	30	0	0	83	30	0	21	0	0	51	165	663
15:45:00	14	29	0	0	0	43	0	2	0	0	0	2	0	57	31	0	0	88	28	0	24	0	0	52	185	690
16:00:00	18	40	0	0	0	58	0	0	0	0	0	0	0	57	28	0	0	85	32	0	24	0	0	56	199	720
16:15:00	13	38	0	0	0	51	0	0	0	0	0	0	0	66	33	0	0	99	46	0	21	0	0	67	217	766
16:30:00	16	43	1	0	0	60	0	0	0	0	0	0	1	93	48	0	0	142	44	0	25	0	0	69	271	872
16:45:00	7	45	0	0	0	52	0	0	0	0	0	0	0	70	26	0	0	96	33	0	30	0	0	63	211	898
17:00:00	17	46	0	0	0	63	1	3	0	0	0	4	0	67	27	0	0	94	30	1	19	0	0	50	211	910



17:15:00	15	37	0	0	0	52	1	2	2	0	0	5	1	52	34	0	0	87	40	0	27	0	0	67	211	904
17:30:00	9	37	0	0	0	46	0	3	0	0	0	3	0	63	30	0	0	93	25	0	23	0	0	48	190	823
17:45:00	7	39	0	0	0	46	1	2	0	0	0	3	0	55	27	0	0	82	24	0	19	0	0	43	174	786
<b>Grand Total</b>	<b>652</b>	<b>1612</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>2270</b>	<b>8</b>	<b>22</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>14</b>	<b>1780</b>	<b>1142</b>	<b>2</b>	<b>0</b>	<b>2938</b>	<b>1324</b>	<b>28</b>	<b>673</b>	<b>1</b>	<b>0</b>	<b>2026</b>	<b>7271</b>	<b>-</b>

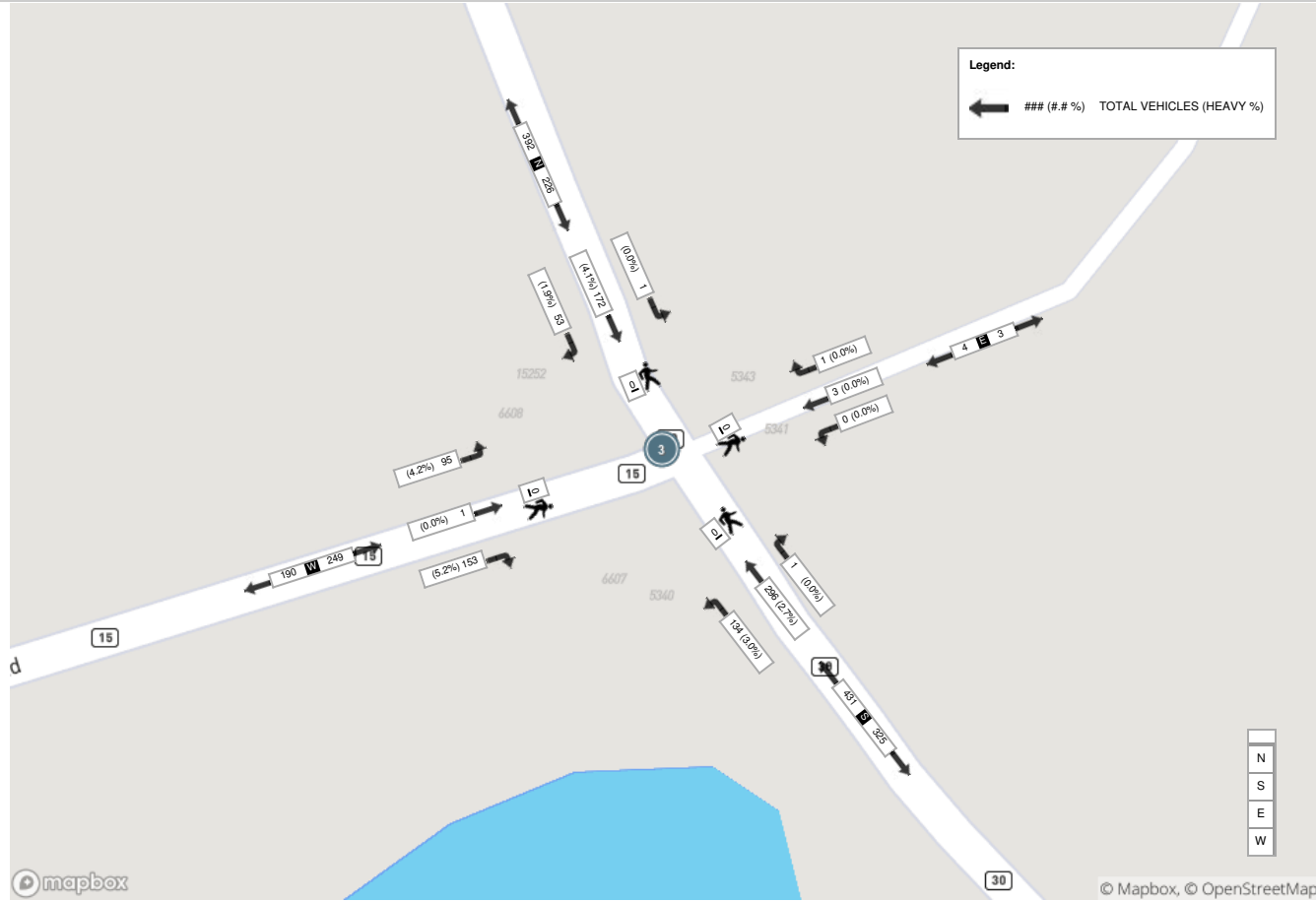
<b>Approach%</b>	28.7%	71%	0.3%	0%	-	21.6%	59.5%	18.9%	0%	-	0.5%	60.6%	38.9%	0.1%	-	65.4%	1.4%	33.2%	0%	-	-	-	-	-	-	-
<b>Totals %</b>	9%	22.2%	0.1%	0%	31.2%	0.1%	0.3%	0.1%	0%	0.5%	0.2%	24.5%	15.7%	0%	40.4%	18.2%	0.4%	9.3%	0%	27.9%	-	-	-	-	-	-
<b>Heavy</b>	23	152	0	0	-	0	0	0	0	-	0	179	111	1	-	154	0	30	0	-	-	-	-	-	-	-
<b>Heavy %</b>	3.5%	9.4%	0%	0%	-	0%	0%	0%	0%	-	0%	10.1%	9.7%	50%	-	11.6%	0%	4.5%	0%	-	-	-	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (20.75 °C)**

Start Time	N Approach YORK DURHAM LINE						E Approach AURORA RD						S Approach YORK DURHAM LINE						W Approach AURORA RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:15:00	13	38	0	0	0	51	0	0	0	0	0	0	0	66	33	0	0	99	46	0	21	0	0	67	217
16:30:00	16	43	1	0	0	60	0	0	0	0	0	0	1	93	48	0	0	142	44	0	25	0	0	69	271
16:45:00	7	45	0	0	0	52	0	0	0	0	0	0	0	70	26	0	0	96	33	0	30	0	0	63	211
17:00:00	17	46	0	0	0	63	1	3	0	0	0	4	0	67	27	0	0	94	30	1	19	0	0	50	211
<b>Grand Total</b>	<b>53</b>	<b>172</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>226</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>1</b>	<b>296</b>	<b>134</b>	<b>0</b>	<b>0</b>	<b>431</b>	<b>153</b>	<b>1</b>	<b>95</b>	<b>0</b>	<b>0</b>	<b>249</b>	<b>910</b>
<b>Approach%</b>	23.5%	76.1%	0.4%	0%		-	25%	75%	0%	0%		-	0.2%	68.7%	31.1%	0%		-	61.4%	0.4%	38.2%	0%		-	-
<b>Totals %</b>	5.8%	18.9%	0.1%	0%		24.8%	0.1%	0.3%	0%	0%		0.4%	0.1%	32.5%	14.7%	0%		47.4%	16.8%	0.1%	10.4%	0%		27.4%	-
<b>PHF</b>	0.78	0.93	0.25	0		0.9	0.25	0.25	0	0		0.25	0.25	0.8	0.7	0		0.76	0.83	0.25	0.79	0		0.9	-
<b>Heavy</b>	1	7	0	0		8	0	0	0	0		0	0	8	4	0		12	8	0	4	0		12	-
<b>Heavy %</b>	1.9%	4.1%	0%	0%		3.5%	0%	0%	0%	0%		0%	0%	2.7%	3%	0%		2.8%	5.2%	0%	4.2%	0%		4.8%	-
<b>Lights</b>	52	165	1	0		218	1	3	0	0		4	1	288	130	0		419	145	1	91	0		237	-
<b>Lights %</b>	98.1%	95.9%	100%	0%		96.5%	100%	100%	0%	0%		100%	100%	97.3%	97%	0%		97.2%	94.8%	100%	95.8%	0%		95.2%	-
<b>Single-Unit Trucks</b>	1	5	0	0		6	0	0	0	0		0	0	3	2	0		5	3	0	0	0		3	-
<b>Single-Unit Trucks %</b>	1.9%	2.9%	0%	0%		2.7%	0%	0%	0%	0%		0%	0%	1%	1.5%	0%		1.2%	2%	0%	0%	0%		1.2%	-
<b>Buses</b>	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
<b>Buses %</b>	0%	0.6%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
<b>Articulated Trucks</b>	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	3	0	1	0		4	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.2%	2%	0%	1.1%	0%		1.6%	-
<b>Aggregate Trucks</b>	0	1	0	0		1	0	0	0	0		0	0	4	2	0		6	2	0	3	0		5	-
<b>Aggregate Trucks %</b>	0%	0.6%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	1.4%	1.5%	0%		1.4%	1.3%	0%	3.2%	0%		2%	-
<b>Bicycles on Road</b>	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
<b>Bicycles on Road %</b>	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-

Peak Hour: 04:15 PM - 05:15 PM Weather: Broken Clouds (20.75 °C)





Turning Movement Count (4 . YORK-DURHAM LINE & WAGG ROAD / YAKES CRESCENT)

Start Time	N Approach YORK DURHAM LINE						E Approach WAGG RD						S Approach YORK DURHAM LINE						W Approach YAKES CRES						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	42	6	0	0	48	4	0	0	0	0	4	1	17	0	0	0	18	0	0	0	0	0	0	70	
06:15:00	0	45	8	0	0	53	15	0	0	0	0	15	3	23	0	0	0	26	0	0	0	0	0	0	94	
06:30:00	0	67	6	0	0	73	12	0	1	0	0	13	1	34	0	0	0	35	0	0	0	0	0	0	121	
06:45:00	0	70	4	0	0	74	9	0	0	0	0	9	1	40	0	0	0	41	1	0	0	0	0	1	125	410
07:00:00	0	45	6	0	0	51	7	0	0	0	0	7	0	31	0	0	0	31	1	0	0	0	0	1	90	430
07:15:00	0	62	9	0	0	71	18	0	1	0	0	19	4	28	0	0	0	32	0	0	0	0	0	0	122	458
07:30:00	0	68	14	0	0	82	9	0	0	0	0	9	0	36	0	0	0	36	0	0	0	0	0	0	127	464
07:45:00	0	79	8	0	0	87	14	0	0	0	0	14	0	31	0	0	0	31	0	0	0	0	0	0	132	471
08:00:00	0	64	7	0	0	71	9	0	0	0	0	9	0	61	0	0	0	61	0	0	0	0	0	0	141	522
08:15:00	0	48	10	0	0	58	15	0	1	0	0	16	1	43	0	0	0	44	0	1	0	0	0	1	119	519
08:30:00	0	66	8	0	0	74	8	0	4	0	0	12	3	39	0	0	0	42	0	0	0	0	0	0	128	520
08:45:00	0	56	7	0	0	63	7	0	1	0	0	8	2	48	0	0	0	50	0	0	0	0	0	0	121	509
09:00:00	0	33	8	0	0	41	10	0	3	0	0	13	2	48	0	0	0	50	0	0	0	0	0	0	104	472
09:15:00	0	43	10	0	0	53	4	0	2	0	0	6	2	43	0	0	0	45	0	0	0	0	0	0	104	457
09:30:00	0	44	9	0	0	53	9	0	1	0	0	10	4	51	0	0	0	55	0	0	0	0	0	0	118	447
09:45:00	0	42	2	0	0	44	7	0	0	0	0	7	2	32	1	0	0	35	0	0	0	0	0	0	86	412
10:00:00	0	46	9	0	0	55	7	0	0	0	0	7	0	50	0	1	0	51	0	0	0	0	0	0	113	421
10:15:00	0	32	6	0	0	38	7	0	1	0	0	8	3	37	1	0	0	41	0	0	0	0	0	0	87	404
10:30:00	0	49	9	0	0	58	8	0	1	0	0	9	2	39	0	0	0	41	0	0	0	0	0	0	108	394
10:45:00	0	58	5	0	0	63	10	0	1	0	0	11	2	38	0	0	0	40	0	0	0	0	0	0	114	422
11:00:00	0	47	8	0	0	55	5	0	4	0	0	9	3	43	0	0	0	46	0	0	0	0	0	0	110	419
11:15:00	0	41	10	0	0	51	11	0	0	0	0	11	1	55	0	0	0	56	0	1	0	0	0	1	119	451
11:30:00	0	46	11	0	0	57	5	0	2	0	0	7	4	35	0	0	0	39	0	0	0	0	0	0	103	446
11:45:00	0	41	9	0	0	50	9	0	2	0	0	11	2	39	0	0	0	41	0	0	0	0	0	0	102	434
12:00:00	0	36	11	0	0	47	6	0	2	0	0	8	2	48	0	0	0	50	1	0	0	0	0	1	106	430
12:15:00	0	46	10	0	0	56	7	0	0	0	0	7	0	54	0	0	0	54	0	0	0	0	0	0	117	428
12:30:00	0	47	15	0	0	62	7	1	2	0	0	10	2	34	0	0	0	36	0	0	0	0	0	0	108	433
12:45:00	0	60	16	0	0	76	12	0	1	0	0	13	0	74	0	0	0	74	0	1	0	0	0	1	164	495
13:00:00	0	48	16	0	0	64	11	0	1	0	0	12	2	47	0	0	0	49	0	0	0	0	0	0	125	514
13:15:00	0	55	7	0	0	62	3	0	2	0	0	5	1	50	0	0	0	51	0	0	0	0	0	0	118	515
13:30:00	0	46	9	0	0	55	7	1	0	0	0	8	4	45	0	0	0	49	0	0	0	0	0	0	112	519
13:45:00	0	47	6	0	0	53	8	0	1	0	0	9	2	42	0	0	0	44	0	0	0	0	0	0	106	461
14:00:00	0	35	11	0	0	46	6	1	1	0	0	8	0	45	0	0	0	45	0	0	0	0	0	0	99	435
14:15:00	1	31	3	0	0	35	12	0	1	0	0	13	3	39	1	0	0	43	1	0	0	0	0	1	92	409
14:30:00	0	56	9	0	0	65	4	0	1	0	0	5	5	57	0	0	0	62	0	0	0	0	0	0	132	429
14:45:00	0	48	12	0	0	60	13	0	2	0	0	15	2	57	0	0	0	59	0	0	0	0	0	0	134	457
15:00:00	0	47	9	0	0	56	6	0	3	0	0	9	3	60	0	0	0	63	0	0	0	0	0	0	128	486
15:15:00	0	64	12	0	0	76	4	0	2	0	0	6	2	54	0	0	0	56	0	0	0	0	0	0	138	532
15:30:00	0	75	12	0	0	87	9	0	3	0	0	12	2	73	0	0	0	75	0	0	0	0	0	0	174	574
15:45:00	0	49	11	0	0	60	11	0	2	0	0	13	3	78	0	0	0	81	0	0	0	0	0	0	154	594
16:00:00	0	50	13	0	0	63	16	0	0	0	0	16	5	90	0	0	0	95	0	0	0	0	0	0	174	640
16:15:00	0	59	18	0	0	77	21	0	2	0	0	23	4	66	0	0	0	70	0	0	0	0	0	0	170	672
16:30:00	0	56	19	0	0	75	16	0	1	0	0	17	4	100	0	0	0	104	0	0	1	0	0	1	197	695
16:45:00	0	42	19	0	0	61	9	0	0	0	0	9	0	73	2	0	0	75	0	0	1	0	0	1	146	687
17:00:00	0	70	21	0	0	91	8	0	0	0	0	8	1	83	0	0	0	84	0	0	0	0	0	0	183	696



17:15:00	0	64	13	0	0	77	14	0	1	0	0	15	2	84	0	0	0	86	0	0	0	0	0	0	178	704
17:30:00	0	60	9	0	0	69	11	0	2	0	0	13	2	83	1	0	0	86	0	0	0	0	0	0	168	675
17:45:00	0	52	12	0	0	64	4	0	2	0	0	6	1	59	0	0	0	60	0	0	0	0	0	0	130	659
<b>Grand Total</b>	<b>1</b>	<b>2477</b>	<b>482</b>	<b>0</b>	<b>0</b>	<b>2960</b>	<b>444</b>	<b>3</b>	<b>57</b>	<b>0</b>	<b>0</b>	<b>504</b>	<b>95</b>	<b>2436</b>	<b>6</b>	<b>1</b>	<b>0</b>	<b>2538</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>6011</b>	<b>-</b>

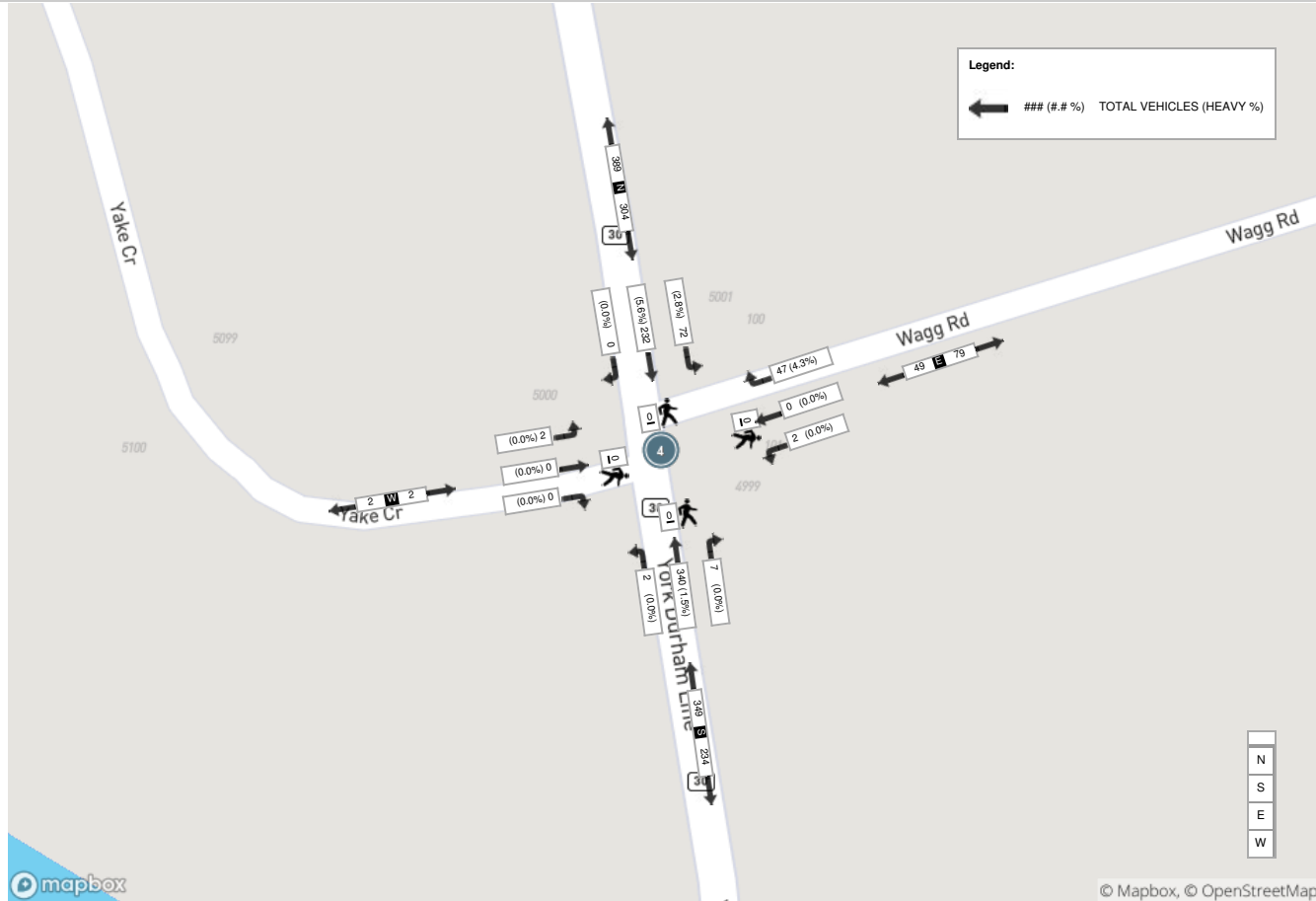
<b>Approach%</b>	0%	83.7%	16.3%	0%	-	88.1%	0.6%	11.3%	0%	-	3.7%	96%	0.2%	0%	-	44.4%	33.3%	22.2%	0%	-	-	-	-	-	-
<b>Totals %</b>	0%	41.2%	8%	0%	49.2%	7.4%	0%	0.9%	0%	8.4%	1.6%	40.5%	0.1%	0%	42.2%	0.1%	0%	0%	0%	0.1%	-	-	-	-	-
<b>Heavy</b>	0	285	34	0	-	35	0	9	0	-	22	243	0	0	-	0	1	0	0	-	-	-	-	-	-
<b>Heavy %</b>	0%	11.5%	7.1%	0%	-	7.9%	0%	15.8%	0%	-	23.2%	10%	0%	0%	-	0%	33.3%	0%	0%	-	-	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)

Start Time	N Approach YORK DURHAM LINE						E Approach WAGG RD						S Approach YORK DURHAM LINE						W Approach YAKES CRES						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	0	56	19	0	0	75	16	0	1	0	0	17	4	100	0	0	0	104	0	0	1	0	0	1	197
16:45:00	0	42	19	0	0	61	9	0	0	0	0	9	0	73	2	0	0	75	0	0	1	0	0	1	146
17:00:00	0	70	21	0	0	91	8	0	0	0	0	8	1	83	0	0	0	84	0	0	0	0	0	0	183
17:15:00	0	64	13	0	0	77	14	0	1	0	0	15	2	84	0	0	0	86	0	0	0	0	0	0	178
<b>Grand Total</b>	0	232	72	0	0	304	47	0	2	0	0	49	7	340	2	0	0	349	0	0	2	0	0	2	704
<b>Approach%</b>	0%	76.3%	23.7%	0%		-	95.9%	0%	4.1%	0%		-	2%	97.4%	0.6%	0%		-	0%	0%	100%	0%		-	-
<b>Totals %</b>	0%	33%	10.2%	0%		43.2%	6.7%	0%	0.3%	0%		7%	1%	48.3%	0.3%	0%		49.6%	0%	0%	0.3%	0%		0.3%	-
<b>PHF</b>	0	0.83	0.86	0		0.84	0.73	0	0.5	0		0.72	0.44	0.85	0.25	0		0.84	0	0	0.5	0		0.5	-
<b>Heavy</b>	0	13	2	0		15	2	0	0	0		2	0	5	0	0		5	0	0	0	0		0	-
<b>Heavy %</b>	0%	5.6%	2.8%	0%		4.9%	4.3%	0%	0%	0%		4.1%	0%	1.5%	0%	0%		1.4%	0%	0%	0%	0%		0%	-
<b>Lights</b>	0	219	70	0		289	45	0	2	0		47	7	335	2	0		344	0	0	2	0		2	-
<b>Lights %</b>	0%	94.4%	97.2%	0%		95.1%	95.7%	0%	100%	0%		95.9%	100%	98.5%	100%	0%		98.6%	0%	0%	100%	0%		100%	-
<b>Single-Unit Trucks</b>	0	3	1	0		4	1	0	0	0		1	0	2	0	0		2	0	0	0	0		0	-
<b>Single-Unit Trucks %</b>	0%	1.3%	1.4%	0%		1.3%	2.1%	0%	0%	0%		2%	0%	0.6%	0%	0%		0.6%	0%	0%	0%	0%		0%	-
<b>Buses</b>	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
<b>Buses %</b>	0%	0.4%	0%	0%		0.3%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
<b>Articulated Trucks</b>	0	3	0	0		3	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
<b>Articulated Trucks %</b>	0%	1.3%	0%	0%		1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
<b>Aggregate Trucks</b>	0	6	1	0		7	1	0	0	0		1	0	3	0	0		3	0	0	0	0		0	-
<b>Aggregate Trucks %</b>	0%	2.6%	1.4%	0%		2.3%	2.1%	0%	0%	0%		2%	0%	0.9%	0%	0%		0.9%	0%	0%	0%	0%		0%	-
<b>Bicycles on Road</b>	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
<b>Bicycles on Road %</b>	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)







**Turning Movement Count (1 . YORK-DURHAM LINE & LAFARGE STOUFFVILLE PIT (NORTH))**

Start Time	N Approach YORK DURHAM LINE					S Approach YORK DURHAM LINE					W Approach LAFARGE STOUFFVILLE PIT (NORTH)					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	UTurn N:N	Peds N:	Approach Total	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	2	40	0	0	42	21	6	0	0	27	0	0	0	0	0	69	
06:15:00	1	46	0	0	47	29	4	0	0	33	0	0	0	0	0	80	
06:30:00	1	64	0	0	65	39	7	0	0	46	0	0	0	0	0	111	
06:45:00	0	72	0	0	72	37	2	0	0	39	0	0	0	0	0	111	371
07:00:00	1	45	0	0	46	38	5	0	0	43	0	0	0	0	0	89	391
07:15:00	2	64	0	0	66	31	15	0	0	46	0	0	0	0	0	112	423
07:30:00	0	69	0	0	69	41	15	0	0	56	0	0	0	0	0	125	437
07:45:00	3	78	0	0	81	41	15	0	0	56	0	0	0	0	0	137	463
08:00:00	1	59	0	0	60	53	9	0	0	62	0	0	0	0	0	122	496
08:15:00	1	53	0	0	54	47	11	0	0	58	0	0	0	0	0	112	496
08:30:00	2	68	0	0	70	46	19	0	0	65	0	1	0	0	1	136	507
08:45:00	1	59	0	0	60	53	13	0	0	66	0	0	0	0	0	126	496
09:00:00	1	36	0	0	37	52	12	0	0	64	0	0	0	0	0	101	475
09:15:00	2	44	0	0	46	38	5	0	0	43	0	0	0	1	0	89	452
09:30:00	2	42	0	0	44	53	10	0	0	63	0	0	0	0	0	107	423
09:45:00	3	47	0	0	50	37	15	0	0	52	0	0	0	1	0	102	399
10:00:00	3	37	0	0	40	44	16	0	0	60	0	0	0	0	0	100	398
10:15:00	1	38	0	0	39	49	16	0	0	65	0	0	0	0	0	104	413
10:30:00	4	42	0	0	46	41	6	0	0	47	0	0	0	0	0	93	399
10:45:00	4	59	0	0	63	49	8	0	0	57	0	0	0	0	0	120	417
11:00:00	1	55	0	0	56	41	15	0	0	56	0	0	0	0	0	112	429
11:15:00	0	39	0	0	39	60	12	0	0	72	0	0	0	0	0	111	436
11:30:00	1	48	0	0	49	29	13	0	0	42	0	0	0	0	0	91	434
11:45:00	3	40	0	0	43	46	10	0	0	56	0	0	0	0	0	99	413
12:00:00	1	42	0	0	43	53	6	0	0	59	0	0	0	0	0	102	403
12:15:00	1	47	0	0	48	52	7	0	0	59	0	0	0	0	0	107	399
12:30:00	4	43	0	0	47	52	17	0	0	69	0	0	0	0	0	116	424
12:45:00	3	64	0	0	67	60	13	0	0	73	0	0	0	0	0	140	465
13:00:00	2	46	0	0	48	60	10	0	0	70	0	0	0	0	0	118	481
13:15:00	2	58	0	0	60	42	11	0	0	53	0	0	0	0	0	113	487
13:30:00	3	41	0	0	44	41	13	0	0	54	0	0	0	0	0	98	469
13:45:00	2	46	0	0	48	47	17	0	0	64	0	0	0	0	0	112	441
14:00:00	0	38	0	0	38	44	16	0	0	60	0	0	0	0	0	98	421



14:15:00	0	29	0	0	29	47	11	0	0	58	0	0	0	0	0	87	395
14:30:00	2	55	0	0	57	55	11	0	0	66	0	0	0	0	0	123	420
14:45:00	1	49	0	0	50	50	10	0	0	60	0	0	0	0	0	110	418
15:00:00	0	59	0	0	59	71	16	0	0	87	0	0	0	0	0	146	466
15:15:00	0	70	0	0	70	66	7	0	0	73	0	0	0	0	0	143	522
15:30:00	0	73	0	0	73	77	15	0	0	92	0	0	0	0	0	165	564
15:45:00	2	42	0	0	44	80	6	0	0	86	0	0	0	0	0	130	584
16:00:00	4	51	0	0	55	93	8	0	0	101	0	0	0	0	0	156	594
16:15:00	0	57	0	0	57	79	2	0	0	81	0	0	0	0	0	138	589
16:30:00	0	59	0	0	59	97	0	0	0	97	0	0	0	0	0	156	580
16:45:00	0	42	0	0	42	68	0	0	0	68	1	0	0	0	1	111	561
17:00:00	0	71	0	0	71	95	1	0	0	96	0	0	0	0	0	167	572
17:15:00	0	70	0	0	70	79	0	0	0	79	0	0	0	0	0	149	583
17:30:00	0	65	0	0	65	85	0	0	0	85	0	0	0	0	0	150	577
17:45:00	2	50	0	0	52	60	2	0	0	62	0	0	0	0	0	114	580
<b>Grand Total</b>	<b>69</b>	<b>2511</b>	<b>0</b>	<b>0</b>	<b>2580</b>	<b>2568</b>	<b>458</b>	<b>0</b>	<b>0</b>	<b>3026</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>5608</b>	<b>-</b>

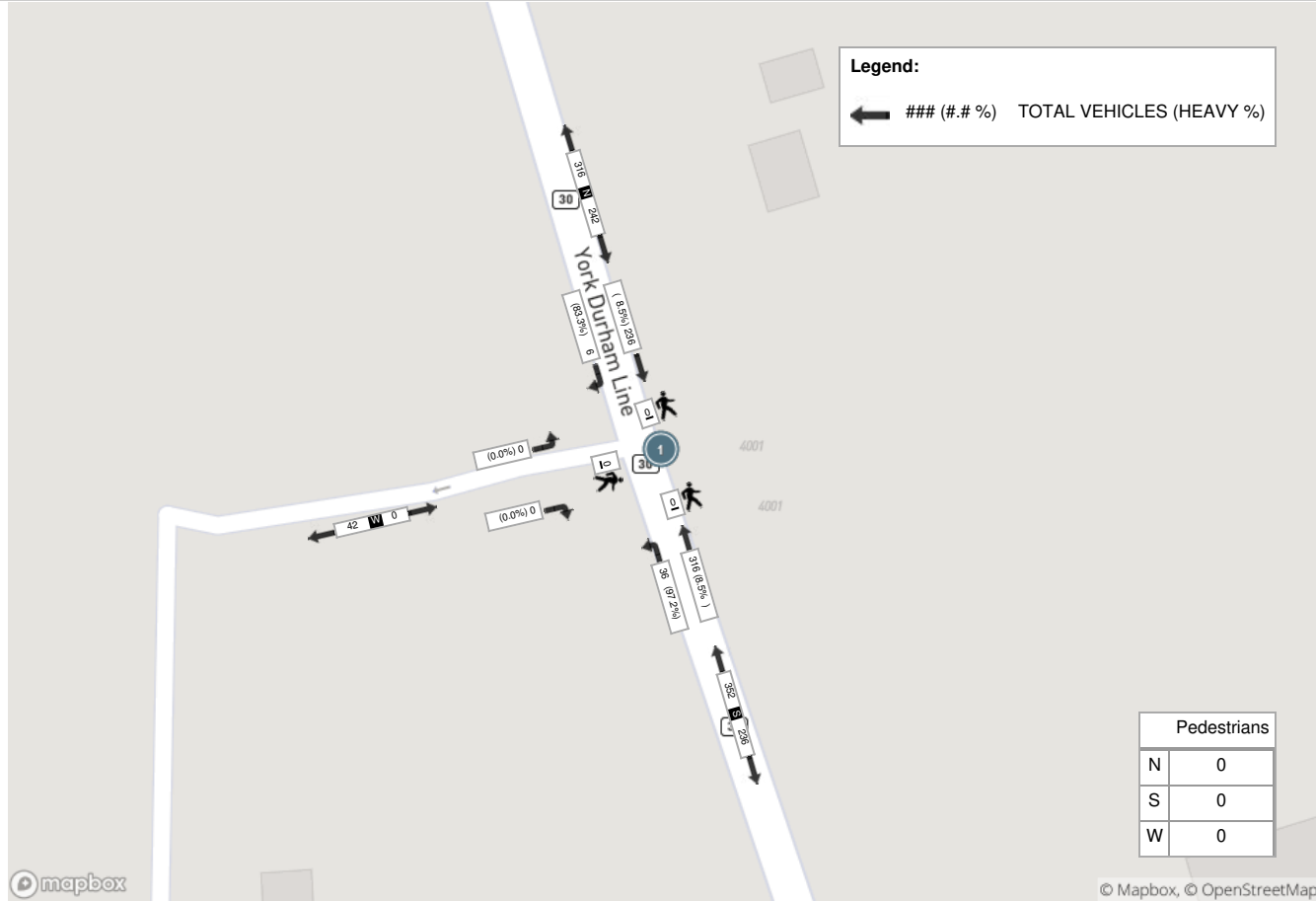
<b>Approach%</b>	2.7%	97.3%	0%	-	84.9%	15.1%	0%	-	50%	50%	0%	-	-	-
<b>Totals %</b>	1.2%	44.8%	0%	46%	45.8%	8.2%	0%	54%	0%	0%	0%	0%	-	-
<b>Heavy</b>	47	274	0	-	288	441	0	-	0	0	0	-	-	-
<b>Heavy %</b>	68.1%	10.9%	0%	-	11.2%	96.3%	0%	-	0%	0%	0%	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Peak Hour: 03:15 PM - 04:15 PM Weather: Clear Sky (17.4 °C)**

Start Time	N Approach YORK DURHAM LINE					S Approach YORK DURHAM LINE					W Approach LAFARGE STOUFFVILLE PIT (NORTH)					Int. Total (15 min)
	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	
15:15:00	0	70	0	0	70	66	7	0	0	73	0	0	0	0	0	143
15:30:00	0	73	0	0	73	77	15	0	0	92	0	0	0	0	0	165
15:45:00	2	42	0	0	44	80	6	0	0	86	0	0	0	0	0	130
16:00:00	4	51	0	0	55	93	8	0	0	101	0	0	0	0	0	156
<b>Grand Total</b>	<b>6</b>	<b>236</b>	<b>0</b>	<b>0</b>	<b>242</b>	<b>316</b>	<b>36</b>	<b>0</b>	<b>0</b>	<b>352</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>594</b>
<b>Approach%</b>	2.5%	97.5%	0%	-	-	89.8%	10.2%	0%	-	-	0%	0%	0%	-	-	-
<b>Totals %</b>	1%	39.7%	0%	40.7%	53.2%	6.1%	0%	59.3%	0%	0%	0%	0%	0%	0%	-	-
<b>PHF</b>	0.38	0.81	0	0.83	0.85	0.6	0	0.87	0	0	0	0	0	0	-	-
<b>Heavy</b>	5	20	0	25	27	35	0	62	0	0	0	0	0	0	-	-
<b>Heavy %</b>	83.3%	8.5%	0%	10.3%	8.5%	97.2%	0%	17.6%	0%	0%	0%	0%	0%	0%	-	-
<b>Lights</b>	1	216	0	217	289	1	0	290	0	0	0	0	0	0	-	-
<b>Lights %</b>	16.7%	91.5%	0%	89.7%	91.5%	2.8%	0%	82.4%	0%	0%	0%	0%	0%	0%	-	-
<b>Single-Unit Trucks</b>	1	9	0	10	13	2	0	15	0	0	0	0	0	0	-	-
<b>Single-Unit Trucks %</b>	16.7%	3.8%	0%	4.1%	4.1%	5.6%	0%	4.3%	0%	0%	0%	0%	0%	0%	-	-
<b>Buses</b>	0	0	0	0	1	0	0	1	0	0	0	0	0	0	-	-
<b>Buses %</b>	0%	0%	0%	0%	0.3%	0%	0%	0.3%	0%	0%	0%	0%	0%	0%	-	-
<b>Articulated Trucks</b>	0	2	0	2	2	1	0	3	0	0	0	0	0	0	-	-
<b>Articulated Trucks %</b>	0%	0.8%	0%	0.8%	0.6%	2.8%	0%	0.9%	0%	0%	0%	0%	0%	0%	-	-
<b>Aggregate Trucks</b>	4	9	0	13	11	32	0	43	0	0	0	0	0	0	-	-
<b>Aggregate Trucks %</b>	66.7%	3.8%	0%	5.4%	3.5%	88.9%	0%	12.2%	0%	0%	0%	0%	0%	0%	-	-
<b>Bicycles on Road</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-
<b>Bicycles on Road %</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	0	-	-	-	-	0	-	-	-
<b>Pedestrians%</b>	-	-	-	0%	-	-	-	0%	-	-	-	-	0%	-	-	-

Peak Hour: 03:15 PM - 04:15 PM Weather: Clear Sky (17.4 °C)





Turning Movement Count (2 . YORK-DURHAM LINE & LAFARGE STOUFFVILLE PIT (SOUTH))

Start Time	N Approach YORK DURHAM LINE						E Approach 3759 YORK DURHAM LINE						S Approach YORK DURHAM LINE						W Approach LAFARGE STOUFFVILLE PIT (SOUTH)						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	38	1	0	0	39	0	0	0	0	2	0	2	27	0	0	0	29	6	0	0	0	0	6	74	
06:15:00	0	45	0	0	0	45	0	0	0	0	0	0	2	33	0	0	0	35	4	0	0	0	0	4	84	
06:30:00	0	66	0	0	0	66	0	0	0	0	0	0	3	41	0	0	0	44	5	0	2	0	0	7	117	
06:45:00	0	71	0	0	0	71	0	0	0	0	0	0	1	40	0	0	0	41	5	0	1	0	0	6	118	393
07:00:00	0	46	0	0	0	46	0	0	2	0	0	2	0	43	0	0	0	43	4	0	1	0	0	5	96	415
07:15:00	0	63	1	0	0	64	0	0	0	0	0	0	0	45	0	0	0	45	2	0	1	0	0	3	112	443
07:30:00	0	68	0	0	0	68	0	0	0	0	0	0	1	55	0	0	0	56	15	0	0	0	0	15	139	465
07:45:00	0	79	0	0	0	79	0	0	0	0	0	0	1	47	0	0	0	48	14	0	1	0	0	15	142	489
08:00:00	0	60	1	0	0	61	0	0	0	0	0	0	2	69	0	0	0	71	16	0	3	0	0	19	151	544
08:15:00	0	52	0	0	0	52	0	0	0	0	0	0	3	54	0	0	0	57	6	0	1	0	0	7	116	548
08:30:00	0	62	0	0	0	62	0	0	1	0	0	1	2	64	0	0	0	66	9	0	2	0	0	11	140	549
08:45:00	0	65	0	0	0	65	0	0	0	0	0	0	1	66	0	0	0	67	20	0	0	0	0	20	152	559
09:00:00	0	36	0	0	0	36	0	0	0	0	0	0	2	61	0	0	0	63	11	0	2	0	0	13	112	520
09:15:00	0	44	0	0	0	44	0	0	0	0	0	0	0	45	0	0	0	45	8	0	1	0	1	9	98	502
09:30:00	0	42	0	0	0	42	0	0	1	0	2	1	0	58	0	0	0	58	9	0	3	0	0	12	113	475
09:45:00	0	45	0	0	0	45	0	0	1	0	0	1	0	54	0	0	0	54	7	0	0	0	1	7	107	430
10:00:00	0	39	0	0	0	39	0	0	0	0	0	0	0	59	0	0	0	59	15	0	2	0	0	17	115	433
10:15:00	0	38	0	0	0	38	0	0	0	0	0	0	2	64	0	0	0	66	18	0	1	0	0	19	123	458
10:30:00	0	42	0	0	0	42	0	0	1	0	0	1	0	47	0	0	0	47	15	0	2	0	0	17	107	452
10:45:00	0	58	0	0	0	58	0	0	1	0	0	1	1	50	0	0	0	51	9	0	4	0	0	13	123	468
11:00:00	0	55	0	0	0	55	0	0	0	0	0	0	0	57	0	0	0	57	7	0	1	0	0	8	120	473
11:15:00	0	40	0	0	0	40	0	0	0	0	0	0	0	69	0	0	0	69	12	0	3	0	0	15	124	474
11:30:00	0	47	0	0	0	47	0	0	1	0	0	1	1	41	0	0	0	42	15	0	1	0	0	16	106	473
11:45:00	0	41	0	0	0	41	0	0	0	0	0	0	2	53	0	0	0	55	11	0	2	0	0	13	109	459
12:00:00	0	39	0	0	0	39	2	0	0	0	0	2	1	51	0	0	0	52	11	0	2	0	0	13	106	445
12:15:00	0	49	0	0	0	49	0	0	1	0	0	1	0	61	0	0	0	61	8	0	2	0	0	10	121	442
12:30:00	0	44	0	0	0	44	0	0	1	0	0	1	3	66	0	1	0	70	8	0	1	0	0	9	124	460
12:45:00	0	63	0	0	0	63	1	0	1	0	0	2	0	72	0	0	0	72	15	0	2	0	0	17	154	505
13:00:00	0	47	0	0	0	47	0	0	0	0	0	0	2	65	0	0	0	67	11	0	7	0	0	18	132	531
13:15:00	0	56	0	0	0	56	0	0	1	0	0	1	1	46	0	0	0	47	8	0	5	0	0	13	117	527
13:30:00	0	44	0	0	0	44	0	0	2	0	0	2	0	53	0	0	0	53	12	0	1	0	0	13	112	515
13:45:00	0	46	0	0	0	46	0	0	0	0	0	0	0	67	0	0	0	67	12	0	0	0	0	12	125	486
14:00:00	0	36	0	0	0	36	0	0	0	0	0	0	0	57	0	0	0	57	17	0	2	0	0	19	112	466
14:15:00	0	31	0	0	0	31	0	0	0	0	0	0	1	53	0	0	0	54	13	0	5	0	0	18	103	452
14:30:00	0	55	0	0	0	55	0	0	0	0	0	0	1	67	0	0	0	68	12	0	0	0	0	12	135	475
14:45:00	0	48	0	0	0	48	0	0	2	0	0	2	1	60	0	0	0	61	11	0	1	0	0	12	123	473
15:00:00	0	59	0	0	0	59	1	0	0	0	0	1	1	81	0	0	0	82	6	0	5	0	0	11	153	514
15:15:00	0	67	0	0	0	67	0	0	1	0	0	1	1	71	0	0	0	72	18	0	0	0	0	18	158	569
15:30:00	0	73	0	0	0	73	0	0	1	0	0	1	0	93	0	0	0	93	8	0	1	0	0	9	176	610
15:45:00	0	49	0	0	0	49	0	0	1	0	0	1	1	78	0	0	0	79	10	0	2	0	0	12	141	628
16:00:00	0	50	0	0	0	50	2	0	7	0	0	9	0	102	0	0	0	102	9	0	2	0	0	11	172	647
16:15:00	0	58	0	0	0	58	0	0	0	0	0	0	1	77	0	0	0	78	9	0	2	0	0	11	147	636
16:30:00	0	57	0	0	0	57	0	0	1	0	0	1	0	99	0	0	0	99	5	0	4	0	0	9	166	626
16:45:00	0	45	0	0	0	45	0	0	1	0	0	1	1	66	0	0	0	67	2	0	2	0	0	4	117	602
17:00:00	0	72	0	0	0	72	0	0	6	0	0	6	0	95	0	0	0	95	0	0	0	0	0	0	173	603



17:15:00	0	64	0	0	0	64	0	0	0	0	0	0	0	77	0	0	0	77	0	0	1	0	0	1	142	598
17:30:00	0	66	0	0	0	66	0	0	0	0	0	0	0	87	0	1	0	88	2	0	0	0	0	2	156	588
17:45:00	0	51	0	0	0	51	0	0	0	0	0	0	0	54	0	0	0	54	5	0	1	0	0	6	111	582
<b>Grand Total</b>	<b>0</b>	<b>2511</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>2514</b>	<b>6</b>	<b>0</b>	<b>34</b>	<b>0</b>	<b>4</b>	<b>40</b>	<b>41</b>	<b>2940</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2983</b>	<b>455</b>	<b>0</b>	<b>82</b>	<b>0</b>	<b>2</b>	<b>537</b>	<b>6074</b>	<b>-</b>

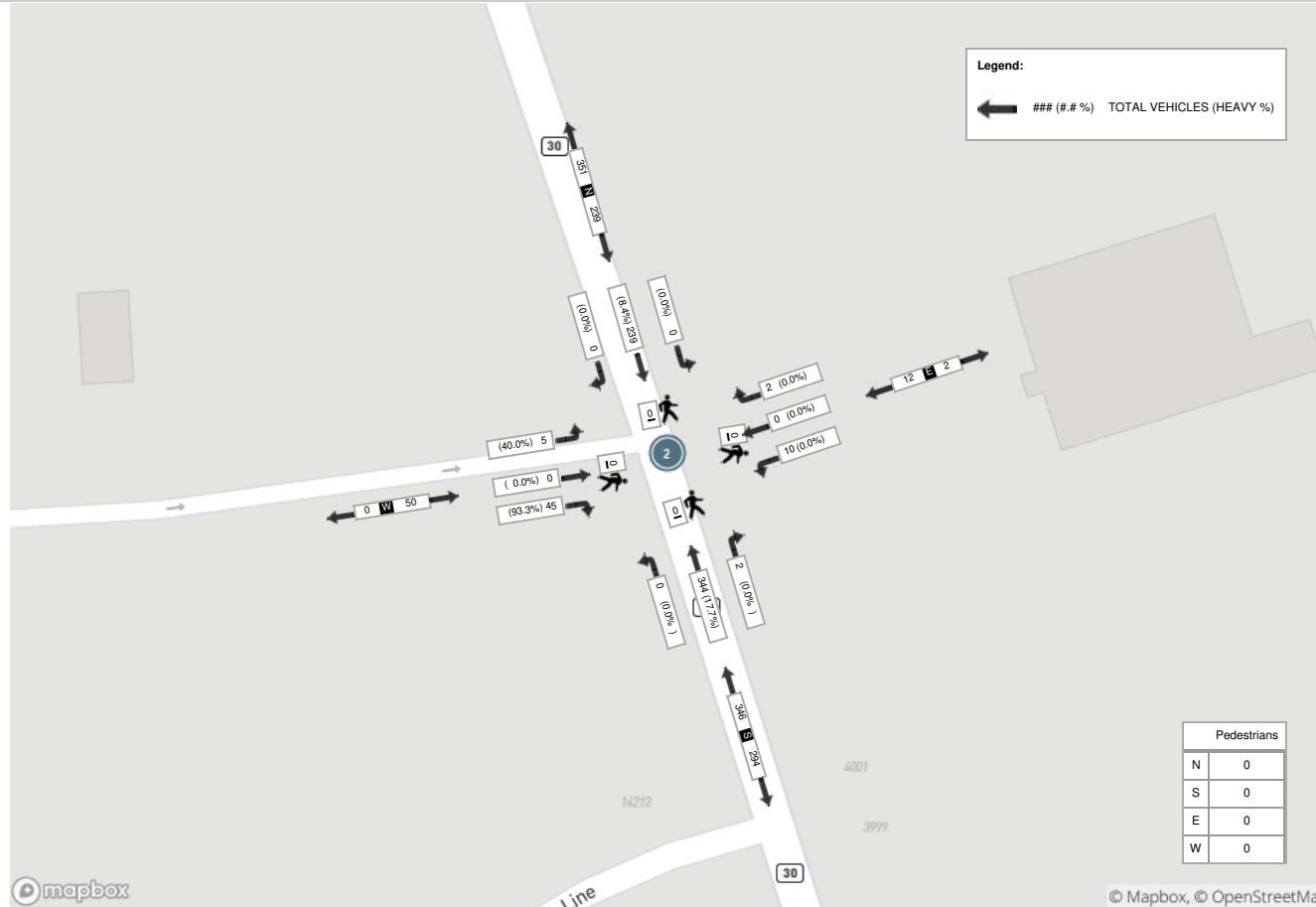
<b>Approach%</b>	0%	99.9%	0.1%	0%	-	15%	0%	85%	0%	-	1.4%	98.6%	0%	0.1%	-	84.7%	0%	15.3%	0%	-	-	-	-	-	-
<b>Totals %</b>	0%	41.3%	0%	0%	41.4%	0.1%	0%	0.6%	0%	0.7%	0.7%	48.4%	0%	0%	49.1%	7.5%	0%	1.4%	0%	8.8%	-	-	-	-	-
<b>Heavy</b>	0	275	0	0	-	0	0	1	0	-	1	676	0	0	-	435	0	58	0	-	-	-	-	-	-
<b>Heavy %</b>	0%	11%	0%	0%	-	0%	0%	2.9%	0%	-	2.4%	23%	0%	0%	-	95.6%	0%	70.7%	0%	-	-	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Peak Hour: 03:15 PM - 04:15 PM Weather: Clear Sky (17.4 °C)**

Start Time	N Approach YORK DURHAM LINE						E Approach 3759 YORK DURHAM LINE						S Approach YORK DURHAM LINE						W Approach LAFARGE STOUFFVILLE PIT (SOUTH)						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
15:15:00	0	67	0	0	0	67	0	0	1	0	0	1	1	71	0	0	0	72	18	0	0	0	0	18	158
15:30:00	0	73	0	0	0	73	0	0	1	0	0	1	0	93	0	0	0	93	8	0	1	0	0	9	176
15:45:00	0	49	0	0	0	49	0	0	1	0	0	1	1	78	0	0	0	79	10	0	2	0	0	12	141
16:00:00	0	50	0	0	0	50	2	0	7	0	0	9	0	102	0	0	0	102	9	0	2	0	0	11	172
<b>Grand Total</b>	<b>0</b>	<b>239</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>239</b>	<b>2</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>2</b>	<b>344</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>346</b>	<b>45</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>50</b>	<b>647</b>
<b>Approach%</b>	0%	100%	0%	0%		-	16.7%	0%	83.3%	0%		-	0.6%	99.4%	0%	0%		-	90%	0%	10%	0%		-	-
<b>Totals %</b>	0%	36.9%	0%	0%		36.9%	0.3%	0%	1.5%	0%		1.9%	0.3%	53.2%	0%	0%		53.5%	7%	0%	0.8%	0%		7.7%	-
<b>PHF</b>	0	0.82	0	0		0.82	0.25	0	0.36	0		0.33	0.5	0.84	0	0		0.85	0.63	0	0.63	0		0.69	-
<b>Heavy</b>	0	20	0	0		20	0	0	0	0		0	0	61	0	0		61	42	0	2	0		44	-
<b>Heavy %</b>	0%	8.4%	0%	0%		8.4%	0%	0%	0%	0%		0%	0%	17.7%	0%	0%		17.6%	93.3%	0%	40%	0%		88%	-
<b>Lights</b>	0	218	0	0		218	2	0	10	0		12	2	283	0	0		285	3	0	3	0		6	-
<b>Lights %</b>	0%	91.2%	0%	0%		91.2%	100%	0%	100%	0%		100%	100%	82.3%	0%	0%		82.4%	6.7%	0%	60%	0%		12%	-
<b>Single-Unit Trucks</b>	0	7	0	0		7	0	0	0	0		0	0	13	0	0		13	2	0	0	0		2	-
<b>Single-Unit Trucks %</b>	0%	2.9%	0%	0%		2.9%	0%	0%	0%	0%		0%	0%	3.8%	0%	0%		3.8%	4.4%	0%	0%	0%		4%	-
<b>Buses</b>	0	0	0	0		0	0	0	0	0		0	0	1	0	0		1	0	0	0	0		0	-
<b>Buses %</b>	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0.3%	0%	0%		0.3%	0%	0%	0%	0%		0%	-
<b>Articulated Trucks</b>	0	2	0	0		2	0	0	0	0		0	0	3	0	0		3	1	0	0	0		1	-
<b>Articulated Trucks %</b>	0%	0.8%	0%	0%		0.8%	0%	0%	0%	0%		0%	0%	0.9%	0%	0%		0.9%	2.2%	0%	0%	0%		2%	-
<b>Aggregate Trucks</b>	0	11	0	0		11	0	0	0	0		0	0	44	0	0		44	39	0	2	0		41	-
<b>Aggregate Trucks %</b>	0%	4.6%	0%	0%		4.6%	0%	0%	0%	0%		0%	0%	12.8%	0%	0%		12.7%	86.7%	0%	40%	0%		82%	-
<b>Bicycles on Road</b>	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	-
<b>Bicycles on Road %</b>	0%	0.4%	0%	0%		0.4%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	-
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-
<b>Pedestrians%</b>	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	-	0%	-	-	-

Peak Hour: 03:15 PM - 04:15 PM Weather: Clear Sky (17.4 °C)



mapbox

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Turning Movement Count (5 . YORK-DURHAM LINE & BLOOMINGTON ROAD)

Start Time	N Approach YORK DURHAM LINE						E Approach BLOOMINGTON RD						S Approach YORK DURHAM LINE						W Approach BLOOMINGTON RD						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	8	23	5	0	0	36	3	92	14	0	0	109	9	17	11	0	0	37	10	37	9	0	0	56	238	
06:15:00	11	27	6	0	0	44	11	120	16	0	0	147	11	22	13	0	0	46	10	40	4	0	0	54	291	
06:30:00	11	36	16	0	0	63	16	147	10	0	0	173	11	33	9	0	0	53	7	46	7	0	0	60	349	
06:45:00	10	36	9	0	0	55	9	118	25	0	0	152	22	31	11	0	0	64	14	51	25	0	0	90	361	
07:00:00	8	32	5	0	0	45	10	135	23	0	0	168	20	31	14	0	0	65	8	47	8	0	0	63	341	
07:15:00	11	42	6	0	0	59	12	97	17	0	0	126	19	29	10	0	0	58	8	86	14	0	0	108	351	
07:30:00	14	36	14	0	0	64	14	132	26	0	0	172	29	23	15	0	0	67	16	99	20	0	0	135	438	
07:45:00	12	41	13	0	0	66	10	109	21	0	0	140	25	35	14	0	0	74	8	76	20	0	0	104	384	
08:00:00	24	46	13	0	0	83	20	105	27	0	0	152	31	27	14	0	0	72	18	72	18	0	0	108	415	
08:15:00	9	35	12	0	0	56	14	100	28	0	0	142	26	37	16	0	0	79	9	82	17	0	0	108	385	
08:30:00	11	39	13	0	0	63	7	135	27	0	0	169	17	30	18	0	0	65	8	81	26	0	0	115	412	
08:45:00	23	41	17	0	0	81	19	82	36	0	0	137	29	36	17	0	0	82	16	82	18	0	0	116	416	
09:00:00	15	24	6	0	0	45	20	95	23	0	0	138	20	26	10	0	0	56	7	78	14	0	0	99	338	
09:15:00	13	34	5	0	0	52	11	95	16	0	0	122	22	23	7	0	0	52	9	81	8	0	0	98	324	
09:30:00	9	30	6	0	0	45	16	89	26	0	0	131	17	35	5	0	0	57	9	70	7	0	0	86	319	
09:45:00	12	28	13	0	0	53	5	67	18	0	0	90	14	26	4	0	0	44	11	86	17	0	0	114	301	
10:00:00	14	22	13	0	0	49	14	83	25	0	0	122	24	30	6	0	0	60	6	71	20	0	0	97	328	
10:15:00	20	21	12	0	0	53	14	81	18	0	0	113	16	38	13	0	0	67	5	71	19	0	0	95	328	
10:30:00	19	28	15	0	0	62	9	65	24	0	0	98	23	25	6	0	0	54	10	79	10	0	0	99	313	
10:45:00	14	33	18	0	0	65	7	69	18	0	0	94	17	38	5	0	0	60	7	77	9	0	0	93	312	
11:00:00	8	32	15	0	0	55	8	83	14	0	0	105	21	28	8	0	0	57	9	94	16	0	0	119	336	
11:15:00	20	29	13	0	0	62	15	91	25	0	0	131	17	38	8	0	0	63	5	81	18	0	0	104	360	
11:30:00	14	36	12	0	0	62	13	80	23	0	0	116	34	23	9	0	0	66	9	50	11	0	0	70	314	
11:45:00	14	29	11	0	0	54	9	64	21	0	0	94	27	25	7	0	0	59	6	78	18	0	0	102	309	
12:00:00	11	19	11	0	0	41	10	86	37	0	0	133	28	30	5	0	0	63	20	45	16	0	0	81	318	
12:15:00	7	29	19	0	0	55	9	70	26	0	0	105	29	35	8	0	0	72	14	53	11	0	0	78	310	
12:30:00	9	33	17	0	0	59	14	51	37	0	0	102	35	38	6	0	0	79	10	50	18	0	0	78	318	
12:45:00	11	30	15	0	0	56	20	56	42	0	0	118	39	33	8	0	0	80	6	74	15	0	0	95	349	
13:00:00	7	40	15	0	0	62	12	59	28	0	0	99	30	36	11	0	0	77	10	61	12	0	0	83	321	
13:15:00	13	32	11	0	0	56	6	59	29	0	0	94	38	29	8	0	0	75	7	114	14	0	0	135	360	
13:30:00	19	26	21	0	0	66	11	65	23	0	0	99	31	33	17	0	0	81	12	64	13	0	0	89	335	
13:45:00	17	27	14	0	0	58	10	95	27	0	0	132	23	37	16	0	0	76	11	68	18	0	0	97	363	
14:00:00	20	23	12	0	0	55	7	80	21	0	0	108	34	33	10	0	0	77	11	68	15	0	0	94	334	
14:15:00	12	24	7	0	0	43	10	88	28	0	0	126	25	28	10	0	0	63	10	107	15	0	0	132	364	
14:30:00	13	33	15	0	0	61	16	81	18	0	0	115	55	38	11	0	0	104	9	92	15	0	0	116	396	
14:45:00	14	35	12	0	0	61	9	78	26	0	0	113	22	40	8	0	0	70	12	125	13	0	0	150	394	
15:00:00	12	32	10	0	0	54	16	87	23	0	0	126	30	44	15	0	0	89	13	134	23	0	0	170	439	
15:15:00	20	48	15	0	0	83	16	85	16	0	0	117	37	41	6	0	0	84	10	128	10	0	0	148	432	
15:30:00	17	50	13	0	0	80	14	89	30	0	0	133	33	49	10	0	0	92	14	155	19	0	0	188	493	
15:45:00	13	37	9	0	0	59	16	79	29	0	0	124	46	50	15	0	0	111	11	122	11	0	0	144	438	
16:00:00	12	39	12	0	0	63	19	93	37	0	0	149	34	46	13	0	0	93	24	151	21	0	0	196	501	
16:15:00	12	39	10	0	0	61	12	82	27	0	0	121	45	48	20	0	0	113	19	128	18	0	0	165	460	
16:30:00	20	48	16	0	0	84	7	105	51	0	0	163	47	55	13	0	0	115	19	158	13	0	0	190	552	
16:45:00	16	34	10	0	0	60	11	105	29	0	0	145	35	45	17	0	0	97	17	127	8	0	0	152	454	
17:00:00	16	39	14	0	0	69	12	107	33	0	0	152	42	47	13	0	0	102	23	174	10	0	0	207	530	



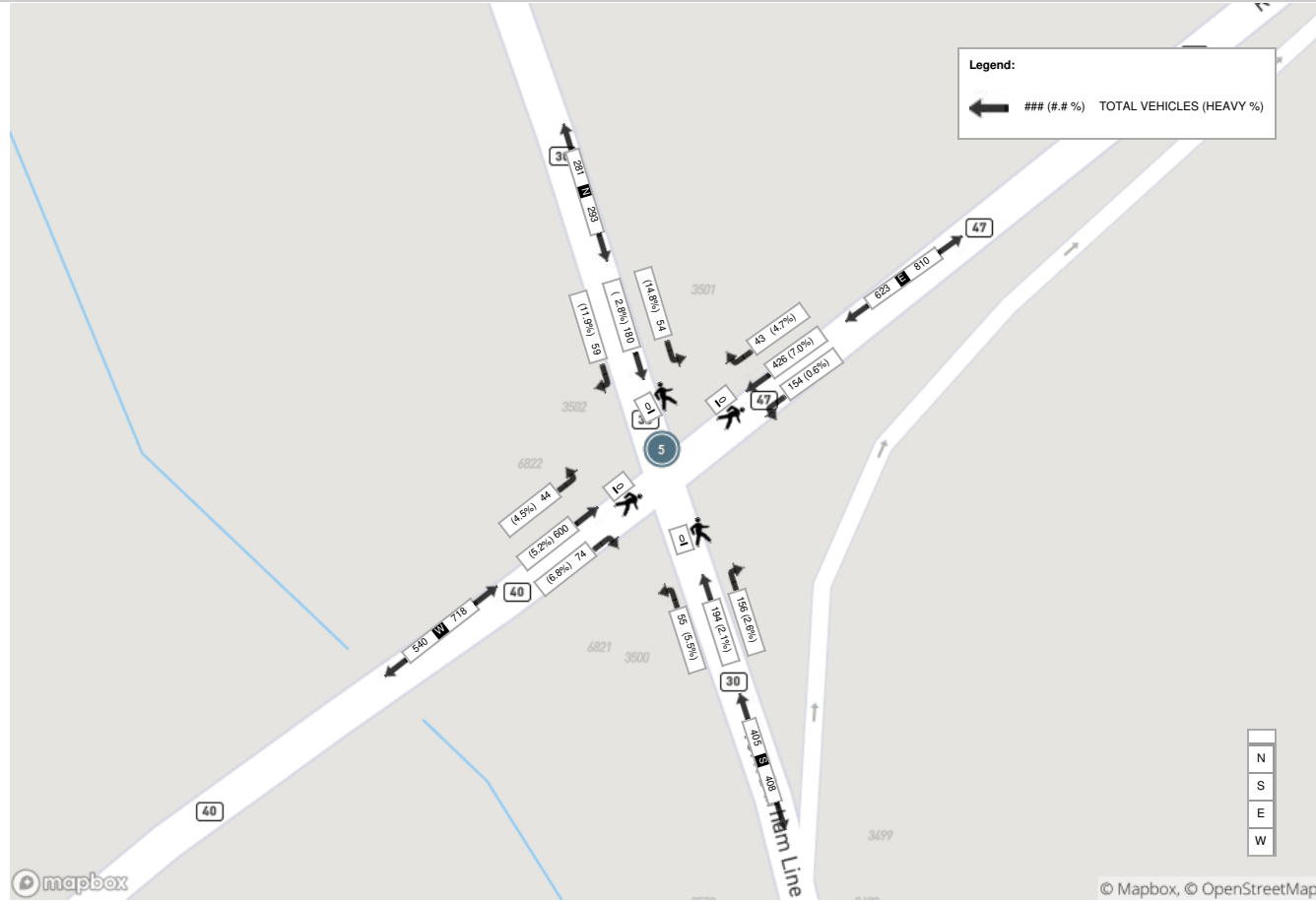
17:15:00	7	59	14	0	0	80	13	109	41	0	0	163	32	47	12	0	0	91	15	141	13	0	0	169	503	2039
17:30:00	21	44	16	0	0	81	11	82	27	0	0	120	47	60	15	0	0	122	14	135	8	0	0	157	480	1967
17:45:00	6	42	12	0	0	60	10	65	28	0	0	103	27	41	15	0	0	83	18	134	6	0	0	158	404	1917
<b>Grand Total</b>	<b>649</b>	<b>1642</b>	<b>588</b>	<b>0</b>	<b>0</b>	<b>2879</b>	<b>577</b>	<b>4290</b>	<b>1234</b>	<b>0</b>	<b>0</b>	<b>6101</b>	<b>1345</b>	<b>1689</b>	<b>532</b>	<b>0</b>	<b>0</b>	<b>3566</b>	<b>554</b>	<b>4323</b>	<b>688</b>	<b>0</b>	<b>0</b>	<b>5565</b>	<b>18111</b>	<b>-</b>
<b>Approach%</b>	22.5%	57%	20.4%	0%	-	9.5%	70.3%	20.2%	0%	-	-	37.7%	47.4%	14.9%	0%	-	-	10%	77.7%	12.4%	0%	-	-	-	-	-
<b>Totals %</b>	3.6%	9.1%	3.2%	0%	15.9%	3.2%	23.7%	6.8%	0%	33.7%	7.4%	9.3%	2.9%	0%	19.7%	3.1%	23.9%	3.8%	0%	30.7%	-	-	-	-	-	-
<b>Heavy</b>	315	168	192	0	-	213	625	85	0	-	-	83	167	54	0	-	-	54	618	305	0	-	-	-	-	-
<b>Heavy %</b>	48.5%	10.2%	32.7%	0%	-	36.9%	14.6%	6.9%	0%	-	-	6.2%	9.9%	10.2%	0%	-	-	9.7%	14.3%	44.3%	0%	-	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)**

Start Time	N Approach YORK DURHAM LINE						E Approach BLOOMINGTON RD						S Approach YORK DURHAM LINE						W Approach BLOOMINGTON RD						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	20	48	16	0	0	84	7	105	51	0	0	163	47	55	13	0	0	115	19	158	13	0	0	190	552
16:45:00	16	34	10	0	0	60	11	105	29	0	0	145	35	45	17	0	0	97	17	127	8	0	0	152	454
17:00:00	16	39	14	0	0	69	12	107	33	0	0	152	42	47	13	0	0	102	23	174	10	0	0	207	530
17:15:00	7	59	14	0	0	80	13	109	41	0	0	163	32	47	12	0	0	91	15	141	13	0	0	169	503
<b>Grand Total</b>	<b>59</b>	<b>180</b>	<b>54</b>	<b>0</b>	<b>0</b>	<b>293</b>	<b>43</b>	<b>426</b>	<b>154</b>	<b>0</b>	<b>0</b>	<b>623</b>	<b>156</b>	<b>194</b>	<b>55</b>	<b>0</b>	<b>0</b>	<b>405</b>	<b>74</b>	<b>600</b>	<b>44</b>	<b>0</b>	<b>0</b>	<b>718</b>	<b>2039</b>
<b>Approach%</b>	20.1%	61.4%	18.4%	0%	-	-	6.9%	68.4%	24.7%	0%	-	38.5%	47.9%	13.6%	0%	-	10.3%	83.6%	6.1%	0%	-	-	-	-	
<b>Totals %</b>	2.9%	8.8%	2.6%	0%	14.4%	2.1%	20.9%	7.6%	0%	30.6%	7.7%	9.5%	2.7%	0%	19.9%	3.6%	29.4%	2.2%	0%	35.2%	-	-	-	-	
<b>PHF</b>	0.74	0.76	0.84	0	0.87	0.83	0.98	0.75	0	0.96	0.83	0.88	0.81	0	0.88	0.8	0.86	0.85	0	0.87	-	-	-	-	
<b>Heavy</b>	7	5	8	0	20	2	30	1	0	33	4	4	3	0	11	5	31	2	0	38	-	-	-	-	
<b>Heavy %</b>	11.9%	2.8%	14.8%	0%	6.8%	4.7%	7%	0.6%	0%	5.3%	2.6%	2.1%	5.5%	0%	2.7%	6.8%	5.2%	4.5%	0%	5.3%	-	-	-	-	
<b>Lights</b>	52	175	46	0	273	41	396	153	0	590	152	190	52	0	394	69	569	42	0	680	-	-	-	-	
<b>Lights %</b>	88.1%	97.2%	85.2%	0%	93.2%	95.3%	93%	99.4%	0%	94.7%	97.4%	97.9%	94.5%	0%	97.3%	93.2%	94.8%	95.5%	0%	94.7%	-	-	-	-	
<b>Single-Unit Trucks</b>	2	1	1	0	4	0	10	0	0	10	2	3	0	0	5	1	17	1	0	19	-	-	-	-	
<b>Single-Unit Trucks %</b>	3.4%	0.6%	1.9%	0%	1.4%	0%	2.3%	0%	0%	1.6%	1.3%	1.5%	0%	0%	1.2%	1.4%	2.8%	2.3%	0%	2.6%	-	-	-	-	
<b>Buses</b>	1	0	0	0	1	0	2	1	0	3	1	0	0	0	1	0	0	0	0	0	-	-	-	-	
<b>Buses %</b>	1.7%	0%	0%	0%	0.3%	0%	0.5%	0.6%	0%	0.5%	0.6%	0%	0%	0%	0.2%	0%	0%	0%	0%	0%	-	-	-	-	
<b>Articulated Trucks</b>	0	1	1	0	2	0	5	0	0	5	0	0	2	0	2	4	3	0	0	7	-	-	-	-	
<b>Articulated Trucks %</b>	0%	0.6%	1.9%	0%	0.7%	0%	1.2%	0%	0%	0.8%	0%	0%	3.6%	0%	0.5%	5.4%	0.5%	0%	0%	1%	-	-	-	-	
<b>Aggregate Trucks</b>	4	3	6	0	13	2	13	0	0	15	1	1	1	0	3	0	11	1	0	12	-	-	-	-	
<b>Aggregate Trucks %</b>	6.8%	1.7%	11.1%	0%	4.4%	4.7%	3.1%	0%	0%	2.4%	0.6%	0.5%	1.8%	0%	0.7%	0%	1.8%	2.3%	0%	1.7%	-	-	-	-	
<b>Bicycles on Road</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	-	-	-	
<b>Bicycles on Road %</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	-	-	-	

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)





Turning Movement Count (6 . GOODWOOD ROAD & REGIONAL HIGHWAY 47)

Start Time	N Approach 268 REGIONAL HWY 47						Approach Total	E Approach REGIONAL HWY 47					Approach Total	S Approach GOODWOOD RD					Approach Total	W Approach REGIONAL HWY 47					Approach Total	Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Right E:N		Thru E:W	Left E:S	UTurn E:E	Peds E:	Right S:E		Thru S:N	Left S:W	UTurn S:S	Peds S:	Right W:S		Thru W:E	Left W:N	UTurn W:W	Peds W:				
06:00:00	0	0	0	0	0	0	0	50	0	0	0	50	0	0	80	0	0	80	22	18	0	0	40	170			
06:15:00	0	0	0	0	0	0	0	65	1	0	0	66	0	0	86	0	0	86	33	13	0	0	46	198			
06:30:00	0	0	0	0	0	0	0	73	0	0	0	73	1	0	108	0	0	109	45	26	0	0	71	253			
06:45:00	0	0	0	0	0	0	0	92	0	0	0	92	1	0	94	0	0	95	38	28	1	0	67	254	875		
07:00:00	0	1	0	0	0	1	0	86	0	0	0	86	3	0	58	0	0	61	33	25	0	0	58	206	911		
07:15:00	0	0	1	0	0	1	0	75	0	0	0	75	1	0	76	0	0	77	63	45	1	0	109	262	975		
07:30:00	0	0	0	0	0	0	0	93	0	0	0	93	2	0	81	0	0	83	65	41	0	0	106	282	1004		
07:45:00	0	1	1	0	0	2	2	83	0	0	0	85	2	0	102	0	0	104	79	41	0	0	120	311	1061		
08:00:00	0	0	0	0	0	0	0	65	2	0	0	67	0	0	70	0	0	70	58	34	0	0	92	229	1084		
08:15:00	0	0	0	0	0	0	0	71	1	0	0	72	2	1	83	0	0	86	73	46	0	0	119	277	1099		
08:30:00	1	0	1	0	0	2	2	70	0	0	0	72	1	1	90	0	0	92	61	35	1	0	97	263	1080		
08:45:00	0	0	0	0	0	0	0	68	1	0	0	69	0	0	63	0	0	63	55	58	0	0	113	245	1014		
09:00:00	0	2	0	0	0	2	0	66	0	0	1	66	2	1	71	0	0	74	65	40	0	0	105	247	1032		
09:15:00	1	0	0	0	0	1	0	54	0	0	0	54	1	0	51	0	0	52	57	47	1	0	105	212	967		
09:30:00	0	0	0	0	0	0	0	61	0	0	0	61	0	0	65	0	0	65	50	43	0	0	93	219	923		
09:45:00	0	0	1	0	0	1	0	54	0	0	0	54	1	0	56	0	0	57	62	45	0	0	107	219	897		
10:00:00	0	0	0	0	0	0	0	61	1	0	0	62	1	0	51	0	0	52	51	47	0	0	98	212	862		
10:15:00	0	0	0	0	0	0	0	59	0	0	0	59	1	0	53	0	0	54	55	54	1	0	110	223	873		
10:30:00	2	0	0	0	0	2	1	42	2	0	0	45	0	0	44	0	0	44	57	42	1	0	100	191	845		
10:45:00	0	1	1	0	0	2	1	38	0	0	0	39	2	0	55	0	0	57	74	53	0	0	127	225	851		
11:00:00	1	0	0	0	0	1	0	64	0	0	0	64	2	0	50	0	0	52	63	55	1	0	119	236	875		
11:15:00	1	0	2	0	0	3	1	60	0	0	0	61	1	2	48	0	0	51	65	46	0	0	111	226	878		
11:30:00	1	1	1	0	0	3	1	58	1	0	0	60	2	1	53	0	0	56	48	56	1	0	105	224	911		
11:45:00	2	0	2	0	0	4	1	60	2	0	0	63	1	2	48	0	0	51	56	42	2	0	100	218	904		
12:00:00	3	1	0	0	0	4	2	51	2	0	0	55	0	2	54	0	0	56	54	34	0	0	88	203	871		
12:15:00	1	0	2	0	0	3	2	36	1	0	0	39	1	1	59	0	0	61	58	43	0	0	101	204	849		
12:30:00	2	1	1	0	0	4	1	64	2	0	0	67	2	2	41	0	0	45	57	45	0	0	102	218	843		
12:45:00	0	0	0	0	0	0	0	52	1	0	0	53	0	0	47	0	0	47	58	52	0	0	110	210	835		
13:00:00	0	2	1	0	0	3	1	52	0	0	0	53	2	2	49	0	0	53	63	51	1	0	115	224	856		
13:15:00	0	1	2	0	0	3	1	49	0	0	0	50	2	1	37	0	0	40	67	69	0	0	136	229	881		
13:30:00	0	0	1	0	0	1	2	45	0	0	0	47	6	0	55	0	0	61	71	55	1	0	127	236	899		
13:45:00	2	0	0	0	0	2	2	64	1	0	0	67	2	0	60	0	0	62	52	48	0	0	100	231	920		
14:00:00	0	1	0	0	0	1	0	48	0	0	0	48	2	0	56	0	0	58	55	44	0	0	99	206	902		
14:15:00	1	0	3	0	0	4	4	48	3	0	0	55	1	1	71	0	0	73	74	67	1	0	142	274	947		
14:30:00	2	0	3	0	1	5	0	54	1	0	1	55	1	2	55	0	0	58	68	73	2	0	143	261	972		
14:45:00	0	1	1	0	0	2	0	54	1	0	1	55	3	1	60	0	1	64	93	78	0	0	171	292	1033		
15:00:00	0	1	2	0	0	3	2	49	1	0	0	52	0	1	74	0	0	75	80	83	2	0	165	295	1122		
15:15:00	0	2	1	0	0	3	0	61	0	0	0	61	2	0	57	0	0	59	89	83	2	0	174	297	1145		
15:30:00	0	2	4	0	0	6	1	55	1	0	0	57	0	0	64	0	0	64	116	96	2	0	214	341	1225		
15:45:00	4	0	0	0	0	4	2	59	2	0	0	63	0	1	65	0	0	66	94	89	2	0	185	318	1251		
16:00:00	0	1	4	0	0	5	2	49	4	0	0	55	2	1	78	0	0	81	116	103	2	0	221	362	1318		
16:15:00	1	1	0	0	0	2	1	58	2	0	0	61	1	0	69	0	0	70	102	81	0	0	183	316	1337		
16:30:00	0	1	1	0	0	2	0	67	1	0	0	68	0	1	68	0	2	69	116	100	1	0	217	356	1352		
16:45:00	1	1	1	0	0	3	2	57	0	0	0	59	0	0	65	0	0	65	97	84	1	0	182	309	1343		
17:00:00	0	0	2	0	0	2	1	62	1	0	0	64	1	1	69	0	1	71	125	125	0	0	250	387	1368		



17:15:00	1	0	1	0	0	2	1	67	3	0	0	71	0	1	79	0	0	80	107	106	0	0	0	213	366	1418
17:30:00	0	1	1	0	0	2	1	39	1	0	0	41	2	0	62	0	0	64	114	89	1	0	0	204	311	1373
17:45:00	0	1	2	0	0	3	2	43	3	0	0	48	3	0	56	0	0	59	91	82	2	0	0	175	285	1349
<b>Grand Total</b>	27	24	43	0	1	94	39	2851	42	0	3	2932	60	26	3086	0	4	3172	3345	2760	30	0	1	6135	12333	-
<b>Approach%</b>	28.7%	25.5%	45.7%	0%	-	1.3%	97.2%	1.4%	0%	-	1.9%	0.8%	97.3%	0%	-	54.5%	45%	0.5%	0%	-	-	-	-	-	-	-
<b>Totals %</b>	0.2%	0.2%	0.3%	0%	0.8%	0.3%	23.1%	0.3%	0%	23.8%	0.5%	0.2%	25%	0%	25.7%	27.1%	22.4%	0.2%	0%	49.7%	-	-	-	-	-	-
<b>Heavy</b>	0	0	1	0	-	1	309	1	0	-	2	0	543	0	-	599	266	0	0	-	-	-	-	-	-	-
<b>Heavy %</b>	0%	0%	2.3%	0%	-	2.6%	10.8%	2.4%	0%	-	3.3%	0%	17.6%	0%	-	17.9%	9.6%	0%	0%	-	-	-	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)**

Start Time	N Approach 268 REGIONAL HWY 47						E Approach REGIONAL HWY 47						S Approach GOODWOOD RD						W Approach REGIONAL HWY 47						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	0	1	1	0	0	2	0	67	1	0	0	68	0	1	68	0	2	69	116	100	1	0	0	217	356
16:45:00	1	1	1	0	0	3	2	57	0	0	0	59	0	0	65	0	0	65	97	84	1	0	0	182	309
17:00:00	0	0	2	0	0	2	1	62	1	0	0	64	1	1	69	0	1	71	125	125	0	0	0	250	387
17:15:00	1	0	1	0	0	2	1	67	3	0	0	71	0	1	79	0	0	80	107	106	0	0	0	213	366
<b>Grand Total</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>4</b>	<b>253</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>262</b>	<b>1</b>	<b>3</b>	<b>281</b>	<b>0</b>	<b>3</b>	<b>285</b>	<b>445</b>	<b>415</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>862</b>	<b>1418</b>
<b>Approach%</b>	22.2%	22.2%	55.6%	0%	-	-	1.5%	96.6%	1.9%	0%	-	-	0.4%	1.1%	98.6%	0%	-	-	51.6%	48.1%	0.2%	0%	-	-	-
<b>Totals %</b>	0.1%	0.1%	0.4%	0%	0.6%	0.6%	0.3%	17.8%	0.4%	0%	18.5%	18.5%	0.1%	0.2%	19.8%	0%	20.1%	20.1%	31.4%	29.3%	0.1%	0%	60.8%	60.8%	-
<b>PHF</b>	0.5	0.5	0.63	0	0.75	0.75	0.5	0.94	0.42	0	0.92	0.92	0.25	0.75	0.89	0	0.89	0.89	0.83	0.5	0	0	0.86	0.86	-
<b>Heavy</b>	0	0	0	0	0	0	0	8	0	0	8	8	0	0	23	0	23	23	28	10	0	0	38	38	-
<b>Heavy %</b>	0%	0%	0%	0%	0%	0%	0%	3.2%	0%	0%	3.1%	3.1%	0%	0%	8.2%	0%	8.1%	8.1%	6.3%	2.4%	0%	0%	4.4%	4.4%	-
<b>Lights</b>	2	2	5	0	9	9	4	245	5	0	254	254	1	3	258	0	262	262	417	405	2	0	824	824	-
<b>Lights %</b>	100%	100%	100%	0%	100%	100%	100%	96.8%	100%	0%	96.9%	96.9%	100%	100%	91.8%	0%	91.9%	91.9%	93.7%	97.6%	100%	0%	95.6%	95.6%	-
<b>Single-Unit Trucks</b>	0	0	0	0	0	0	0	4	0	0	4	4	0	0	5	0	5	5	10	4	0	0	14	14	-
<b>Single-Unit Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	1.6%	0%	0%	1.5%	1.5%	0%	0%	1.8%	0%	1.8%	1.8%	2.2%	1%	0%	0%	1.6%	1.6%	-
<b>Buses</b>	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	-
<b>Buses %</b>	0%	0%	0%	0%	0%	0%	0%	0.4%	0%	0%	0.4%	0.4%	0%	0%	0%	0%	0%	0%	0%	0.2%	0%	0%	0.1%	0.1%	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	1	0	0	1	1	0	0	5	0	5	5	5	1	0	0	6	6	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	0.4%	0%	0%	0.4%	0.4%	0%	0%	1.8%	0%	1.8%	1.8%	1.1%	0.2%	0%	0%	0.7%	0.7%	-
<b>Aggregate Trucks</b>	0	0	0	0	0	0	0	2	0	0	2	2	0	0	13	0	13	13	13	4	0	0	17	17	-
<b>Aggregate Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	0.8%	0%	0%	0.8%	0.8%	0%	0%	4.6%	0%	4.6%	4.6%	2.9%	1%	0%	0%	2%	2%	-
<b>Bicycles on Road</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
<b>Bicycles on Road %</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
<b>Pedestrians</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	0	-	-
<b>Pedestrians%</b>	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	100%	-	-	-	-	-	0%	-	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
<b>Bicycles on Crosswalk%</b>	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)







Turning Movement Count (7 . FRONT STREET & REGIONAL HIGHWAY 47)

Start Time	N Approach FRONT ST						E Approach REGIONAL HWY 47						S Approach FRONT ST						W Approach REGIONAL HWY 47						Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	1	0	0	1	1	52	1	0	0	54	0	0	0	0	0	0	0	21	0	0	0	21	76	
06:15:00	3	2	0	0	0	5	1	60	1	0	0	62	1	0	1	0	0	2	1	13	1	0	0	15	84	
06:30:00	2	3	3	0	0	8	0	66	0	0	0	66	1	2	4	0	1	7	1	22	2	0	0	25	106	
06:45:00	6	1	1	0	0	8	0	87	1	0	0	88	0	3	1	0	0	4	1	24	2	0	0	27	127	393
07:00:00	3	1	0	0	0	4	0	77	1	0	0	78	1	1	1	0	1	3	0	25	1	0	0	26	111	428
07:15:00	2	0	1	0	0	3	1	72	1	0	1	74	1	4	3	0	0	8	2	41	2	0	0	45	130	474
07:30:00	6	1	1	0	0	8	1	89	1	0	1	91	2	0	5	0	0	7	1	42	1	0	0	44	150	518
07:45:00	7	5	1	0	0	13	2	72	1	0	0	75	2	2	4	0	0	8	3	43	3	0	0	49	145	536
08:00:00	3	2	3	0	0	8	0	58	1	0	0	59	0	4	5	0	1	9	3	35	2	0	0	40	116	541
08:15:00	2	3	1	0	0	6	3	66	0	0	0	69	4	1	2	0	0	7	2	42	0	0	3	44	126	537
08:30:00	5	7	1	0	0	13	0	70	1	0	0	71	4	6	0	0	0	10	2	35	3	0	0	40	134	521
08:45:00	3	1	1	0	0	5	2	68	2	0	0	72	1	1	2	0	0	4	6	53	2	0	1	61	142	518
09:00:00	6	2	1	0	0	9	3	56	4	0	0	63	2	2	1	0	1	5	5	36	1	0	4	42	119	521
09:15:00	2	1	2	0	0	5	1	50	1	0	0	52	1	3	0	0	0	4	6	43	2	0	0	51	112	507
09:30:00	2	1	1	0	0	4	2	62	0	0	0	64	5	2	3	0	0	10	2	41	4	1	0	48	126	499
09:45:00	4	1	0	0	0	5	0	59	1	0	0	60	0	2	2	0	0	4	3	51	1	0	0	55	124	481
10:00:00	3	1	3	0	0	7	1	51	0	0	0	52	1	3	3	0	0	7	1	45	2	0	0	48	114	476
10:15:00	2	3	4	0	0	9	0	58	2	0	0	60	0	3	4	0	4	7	4	43	4	0	0	51	127	491
10:30:00	3	3	0	0	0	6	3	44	1	0	0	48	1	1	2	0	2	4	4	38	1	0	2	43	101	466
10:45:00	7	2	1	0	0	10	1	29	1	0	2	31	1	2	2	0	2	5	5	47	2	0	2	54	100	442
11:00:00	3	1	2	0	0	6	3	55	2	0	0	60	0	7	5	0	1	12	3	48	1	0	2	52	130	458
11:15:00	6	5	3	0	0	14	1	55	1	0	4	57	1	6	4	0	2	11	4	46	1	0	3	51	133	464
11:30:00	0	3	6	0	0	9	3	55	1	0	0	59	5	3	2	0	0	10	6	50	7	1	4	64	142	505
11:45:00	2	2	2	0	0	6	3	58	1	0	0	62	0	6	2	0	0	8	1	44	2	0	0	47	123	528
12:00:00	4	1	1	0	0	6	2	48	1	0	4	51	2	5	4	0	5	11	3	30	3	0	8	36	104	502
12:15:00	8	2	3	0	0	13	0	32	1	0	0	33	1	2	3	0	0	6	5	40	1	0	0	46	98	467
12:30:00	2	0	2	0	0	4	1	57	2	0	0	60	1	4	5	0	0	10	8	34	5	0	0	47	121	446
12:45:00	2	5	2	0	0	9	0	44	4	0	3	48	1	3	1	0	3	5	0	42	2	0	0	44	106	429
13:00:00	0	2	0	0	0	2	0	43	2	0	0	45	2	4	4	0	0	10	6	49	5	0	0	60	117	442
13:15:00	5	2	1	0	0	8	4	44	1	0	0	49	1	4	0	0	0	5	1	59	1	0	5	61	123	467
13:30:00	5	4	2	0	0	11	4	44	1	0	0	49	0	2	5	0	0	7	8	55	7	0	0	70	137	483
13:45:00	2	2	0	0	0	4	1	59	2	0	0	62	1	2	3	0	2	6	5	52	5	0	4	62	134	511
14:00:00	2	4	2	0	1	8	3	47	0	0	0	50	0	5	5	0	3	10	8	31	2	0	1	41	109	503
14:15:00	4	2	4	0	0	10	2	52	1	0	0	55	1	3	0	0	0	4	2	61	4	0	0	67	136	516
14:30:00	2	2	2	0	0	6	0	51	1	0	0	52	0	1	0	0	0	1	3	70	3	0	0	76	135	514
14:45:00	4	2	5	0	0	11	1	52	0	0	0	53	2	5	6	0	0	13	5	74	3	0	1	82	159	539
15:00:00	3	5	1	0	2	9	3	43	3	0	0	49	2	1	1	0	6	4	0	77	4	0	10	81	143	573
15:15:00	4	8	2	0	9	14	2	57	0	0	0	59	2	2	3	0	0	7	3	81	5	0	5	89	169	606
15:30:00	5	2	1	0	0	8	3	49	0	0	0	52	0	3	1	0	0	4	4	92	4	0	3	100	164	635
15:45:00	4	2	2	0	0	8	1	60	0	0	0	61	2	2	4	0	2	8	3	87	3	0	0	93	170	646
16:00:00	2	4	1	0	0	7	2	49	1	0	0	52	2	2	5	0	0	9	5	90	3	0	0	98	166	669
16:15:00	5	6	1	0	0	12	0	49	2	0	0	51	1	1	5	0	0	7	4	85	3	0	0	92	162	662
16:30:00	4	5	0	0	0	9	0	72	0	0	3	72	4	4	3	0	3	11	5	95	6	0	0	106	198	696
16:45:00	4	4	0	0	0	8	1	53	1	0	0	55	2	7	3	0	1	12	5	85	7	0	0	97	172	698
17:00:00	3	6	1	0	3	10	2	58	1	0	0	61	1	1	3	0	0	5	6	101	4	0	3	111	187	719



17:15:00	3	3	3	0	4	9	4	72	3	0	0	79	3	2	3	0	1	8	9	96	4	0	0	109	205	762
17:30:00	3	3	1	0	1	7	2	37	4	0	0	43	3	4	2	0	0	9	3	97	6	0	9	106	165	729
17:45:00	0	1	1	0	3	2	1	44	2	0	0	47	0	7	4	0	2	11	2	83	6	0	2	91	151	708
<b>Grand Total</b>	<b>162</b>	<b>128</b>	<b>77</b>	<b>0</b>	<b>23</b>	<b>367</b>	<b>71</b>	<b>2685</b>	<b>59</b>	<b>0</b>	<b>18</b>	<b>2815</b>	<b>68</b>	<b>140</b>	<b>131</b>	<b>0</b>	<b>43</b>	<b>339</b>	<b>169</b>	<b>2594</b>	<b>143</b>	<b>2</b>	<b>72</b>	<b>2908</b>	<b>6429</b>	<b>-</b>
<b>Approach%</b>	44.1%	34.9%	21%	0%	-	2.5%	95.4%	2.1%	0%	-	20.1%	41.3%	38.6%	0%	-	5.8%	89.2%	4.9%	0.1%	-	-	-	-	-	-	-
<b>Totals %</b>	2.5%	2%	1.2%	0%	5.7%	1.1%	41.8%	0.9%	0%	43.8%	1.1%	2.2%	2%	0%	5.3%	2.6%	40.3%	2.2%	0%	45.2%	-	-	-	-	-	-
<b>Heavy</b>	6	5	18	0	-	13	302	2	0	-	0	3	3	0	-	1	262	7	0	-	-	-	-	-	-	-
<b>Heavy %</b>	3.7%	3.9%	23.4%	0%	-	18.3%	11.2%	3.4%	0%	-	0%	2.1%	2.3%	0%	-	0.6%	10.1%	4.9%	0%	-	-	-	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)

Start Time	N Approach FRONT ST						E Approach REGIONAL HWY 47						S Approach FRONT ST						W Approach REGIONAL HWY 47						Int. Total (15 min)
	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	Right	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	4	5	0	0	0	9	0	72	0	0	3	72	4	4	3	0	3	11	5	95	6	0	0	106	198
16:45:00	4	4	0	0	0	8	1	53	1	0	0	55	2	7	3	0	1	12	5	85	7	0	0	97	172
17:00:00	3	6	1	0	3	10	2	58	1	0	0	61	1	1	3	0	0	5	6	101	4	0	3	111	187
17:15:00	3	3	3	0	4	9	4	72	3	0	0	79	3	2	3	0	1	8	9	96	4	0	0	109	205
<b>Grand Total</b>	<b>14</b>	<b>18</b>	<b>4</b>	<b>0</b>	<b>7</b>	<b>36</b>	<b>7</b>	<b>255</b>	<b>5</b>	<b>0</b>	<b>3</b>	<b>267</b>	<b>10</b>	<b>14</b>	<b>12</b>	<b>0</b>	<b>5</b>	<b>36</b>	<b>25</b>	<b>377</b>	<b>21</b>	<b>0</b>	<b>3</b>	<b>423</b>	<b>762</b>
<b>Approach%</b>	38.9%	50%	11.1%	0%	-	-	2.6%	95.5%	1.9%	0%	-	-	27.8%	38.9%	33.3%	0%	-	-	5.9%	89.1%	5%	0%	-	-	-
<b>Totals %</b>	1.8%	2.4%	0.5%	0%	4.7%	4.7%	0.9%	33.5%	0.7%	0%	35%	35%	1.3%	1.8%	1.6%	0%	4.7%	4.7%	3.3%	49.5%	2.8%	0%	55.5%	55.5%	-
<b>PHF</b>	0.88	0.75	0.33	0	0.9	0.9	0.44	0.89	0.42	0	0.84	0.84	0.63	0.5	1	0	0.75	0.75	0.69	0.93	0.75	0	0.95	0.95	-
<b>Heavy</b>	0	0	0	0	0	0	0	7	0	0	7	7	0	1	0	0	1	1	0	11	0	0	11	11	-
<b>Heavy %</b>	0%	0%	0%	0%	0%	0%	0%	2.7%	0%	0%	2.6%	2.6%	0%	7.1%	0%	0%	2.8%	2.8%	0%	2.9%	0%	0%	2.6%	2.6%	-
<b>Lights</b>	14	17	4	0	35	35	7	248	5	0	260	260	10	11	12	0	33	33	25	366	21	0	412	412	-
<b>Lights %</b>	100%	94.4%	100%	0%	97.2%	97.2%	100%	97.3%	100%	0%	97.4%	97.4%	100%	78.6%	100%	0%	91.7%	91.7%	100%	97.1%	100%	0%	97.4%	97.4%	-
<b>Single-Unit Trucks</b>	0	0	0	0	0	0	0	3	0	0	3	3	0	1	0	0	1	1	0	4	0	0	4	4	-
<b>Single-Unit Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	1.2%	0%	0%	1.1%	1.1%	0%	7.1%	0%	0%	2.8%	2.8%	0%	1.1%	0%	0%	0.9%	0.9%	-
<b>Buses</b>	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1	1	-
<b>Buses %</b>	0%	0%	0%	0%	0%	0%	0%	0.4%	0%	0%	0.4%	0.4%	0%	0%	0%	0%	0%	0%	0%	0.3%	0%	0%	0.2%	0.2%	-
<b>Articulated Trucks</b>	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	2	0	0	2	2	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	0.4%	0%	0%	0.4%	0.4%	0%	0%	0%	0%	0%	0%	0%	0.5%	0%	0%	0.5%	0.5%	-
<b>Aggregate Trucks</b>	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	0	4	0	0	4	4	-
<b>Aggregate Trucks %</b>	0%	0%	0%	0%	0%	0%	0%	0.8%	0%	0%	0.7%	0.7%	0%	0%	0%	0%	0%	0%	0%	1.1%	0%	0%	0.9%	0.9%	-
<b>Bicycles on Road</b>	0	1	0	0	1	1	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	-
<b>Bicycles on Road %</b>	0%	5.6%	0%	0%	2.8%	2.8%	0%	0%	0%	0%	0%	0%	0%	14.3%	0%	0%	5.6%	5.6%	0%	0%	0%	0%	0%	0%	-
<b>Pedestrians</b>	-	-	-	-	7	7	-	-	-	-	3	3	-	-	-	-	5	5	-	-	-	-	3	3	-
<b>Pedestrians%</b>	-	-	-	-	38.9%	38.9%	-	-	-	-	16.7%	16.7%	-	-	-	-	27.8%	27.8%	-	-	-	-	16.7%	16.7%	-
<b>Bicycles on Crosswalk</b>	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-
<b>Bicycles on Crosswalk%</b>	-	-	-	-	0%	0%	-	-	-	-	0%	0%	-	-	-	-	0%	0%	-	-	-	-	0%	0%	-

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)





**Turning Movement Count (10 . REGIONAL HIGHWAY 47 & LAFARGE GOODWOOD PIT SITE ACCESS)**

Start Time	N Approach LAFARGE GOODWOOD PIT SITE ACCESS					E Approach REGIONAL HWY 47					W Approach REGIONAL HWY 47					Int. Total (15 min)	Int. Total (1 hr)
	Right N:W	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Thru E:W	UTurn E:E	Peds E:	Approach Total	Thru W:E	Left W:N	UTurn W:W	Peds W:	Approach Total		
06:00:00	0	0	0	0	0	0	53	0	0	53	19	0	0	0	19	72	
06:15:00	0	0	0	0	0	0	63	0	0	63	12	0	0	0	12	75	
06:30:00	0	0	0	0	0	0	67	0	0	67	26	0	0	0	26	93	
06:45:00	0	0	0	0	0	0	94	0	0	94	27	0	0	0	27	121	361
07:00:00	0	0	0	0	0	0	70	0	0	70	27	0	0	0	27	97	386
07:15:00	0	0	0	0	0	0	70	0	0	70	40	0	0	0	40	110	421
07:30:00	0	0	0	0	0	0	99	0	0	99	49	0	0	0	49	148	476
07:45:00	0	0	0	0	0	0	66	0	0	66	45	0	0	0	45	111	466
08:00:00	0	0	0	0	0	0	60	0	0	60	35	0	0	0	35	95	464
08:15:00	0	0	0	0	0	0	68	0	0	68	49	0	0	0	49	117	471
08:30:00	1	0	0	0	1	0	73	0	0	73	43	1	0	0	44	118	441
08:45:00	0	0	0	0	0	0	70	0	0	70	53	0	1	0	54	124	454
09:00:00	0	0	0	0	0	0	56	0	0	56	37	0	0	0	37	93	452
09:15:00	0	0	0	0	0	0	52	0	0	52	45	0	0	0	45	97	432
09:30:00	0	0	0	0	0	0	60	0	0	60	48	0	0	0	48	108	422
09:45:00	0	0	0	0	0	0	60	0	0	60	51	0	0	0	51	111	409
10:00:00	0	0	0	0	0	0	52	0	0	52	49	0	0	0	49	101	417
10:15:00	0	0	0	0	0	0	56	0	0	56	46	0	0	0	46	102	422
10:30:00	0	0	0	0	0	0	42	0	0	42	37	0	0	0	37	79	393
10:45:00	0	0	0	0	0	0	37	0	0	37	46	0	0	0	46	83	365
11:00:00	0	0	0	0	0	0	57	0	0	57	60	0	0	0	60	117	381
11:15:00	0	0	0	0	0	0	57	0	0	57	47	0	0	0	47	104	383
11:30:00	0	0	0	0	0	0	54	0	0	54	62	0	0	0	62	116	420
11:45:00	0	0	0	0	0	0	64	0	0	64	39	0	0	0	39	103	440
12:00:00	0	0	0	0	0	0	47	0	0	47	30	0	0	0	30	77	400
12:15:00	0	0	0	0	0	0	33	0	0	33	45	0	0	0	45	78	374
12:30:00	0	0	0	0	0	0	61	0	0	61	35	0	0	0	35	96	354
12:45:00	0	0	0	0	0	0	51	0	0	51	45	0	0	0	45	96	347
13:00:00	0	0	0	0	0	0	45	0	0	45	52	0	0	0	52	97	367
13:15:00	0	0	0	0	0	0	48	0	0	48	63	0	0	0	63	111	400
13:30:00	0	0	0	0	0	0	51	0	0	51	52	0	0	0	52	103	407
13:45:00	0	0	0	0	0	0	56	0	0	56	52	1	0	0	53	109	420
14:00:00	0	0	0	0	0	0	49	0	0	49	33	0	0	0	33	82	405



14:15:00	1	0	0	0	1	0	53	0	0	53	71	0	0	0	71	125	419
14:30:00	0	0	0	0	0	0	48	0	0	48	72	0	0	0	72	120	436
14:45:00	0	0	0	0	0	1	57	0	0	58	78	0	0	0	78	136	463
15:00:00	0	0	0	0	0	0	50	0	0	50	75	0	0	0	75	125	506
15:15:00	0	0	0	0	0	0	54	0	0	54	86	0	0	0	86	140	521
15:30:00	0	0	0	0	0	0	53	0	0	53	87	0	1	0	88	141	542
15:45:00	1	0	0	0	1	0	59	0	0	59	92	0	0	0	92	152	558
16:00:00	0	0	0	0	0	0	50	0	0	50	92	0	0	0	92	142	575
16:15:00	1	0	0	0	1	1	49	0	0	50	85	0	0	0	85	136	571
16:30:00	0	0	0	0	0	0	79	0	0	79	102	0	0	0	102	181	611
16:45:00	0	0	0	0	0	0	47	0	0	47	84	0	0	0	84	131	590
17:00:00	0	0	0	0	0	0	64	0	0	64	111	0	0	0	111	175	623
17:15:00	0	0	0	0	0	0	81	0	0	81	94	0	0	0	94	175	662
17:30:00	0	0	0	0	0	0	36	0	0	36	103	0	0	0	103	139	620
17:45:00	0	0	0	0	0	0	44	0	0	44	75	0	1	0	76	120	609
<b>Grand Total</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>2</b>	<b>2765</b>	<b>0</b>	<b>0</b>	<b>2767</b>	<b>2706</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>2711</b>	<b>5482</b>	<b>-</b>

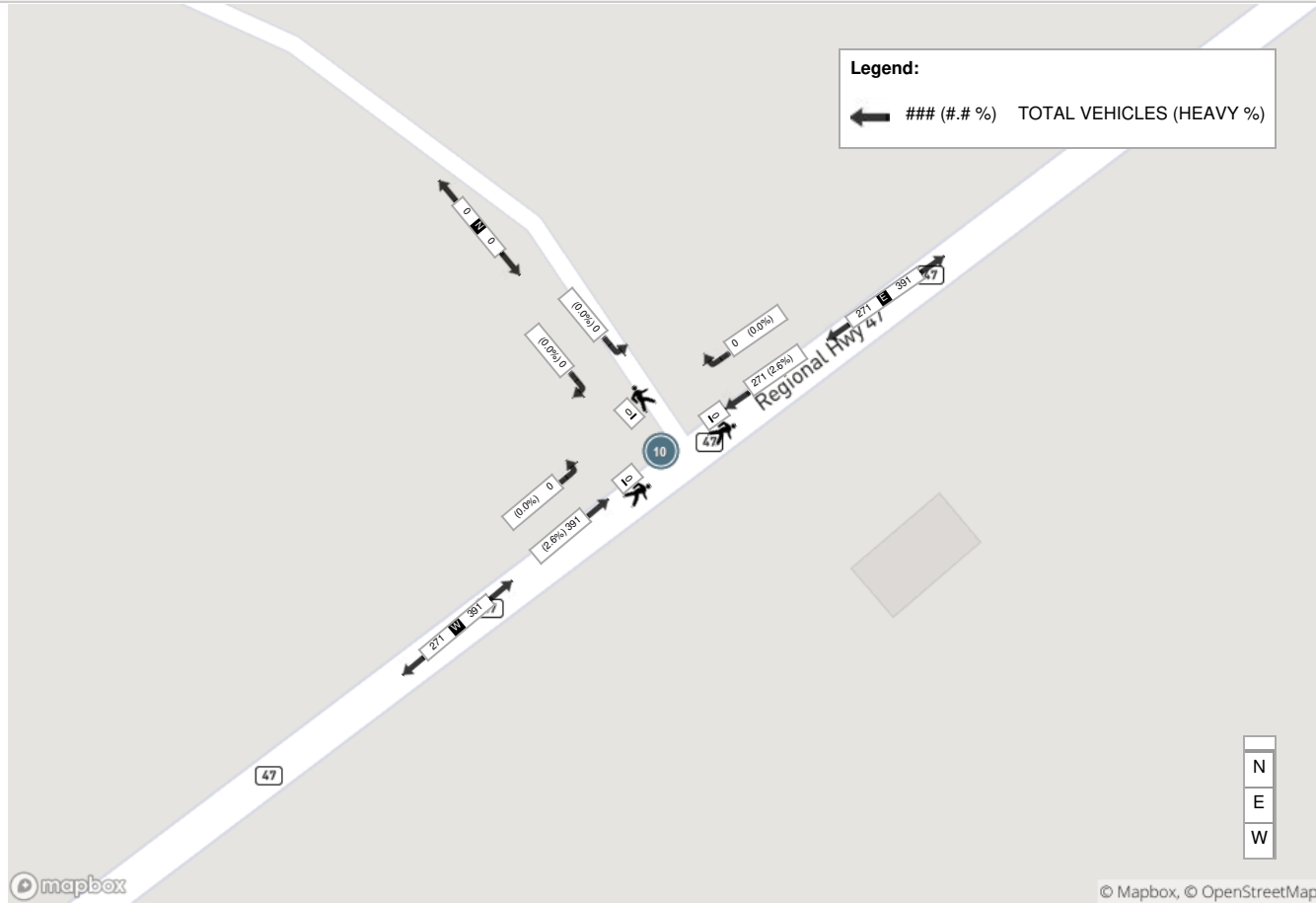
<b>Approach%</b>	100%	0%	0%	-	0.1%	99.9%	0%	-	99.8%	0.1%	0.1%	-	-	-
<b>Totals %</b>	0.1%	0%	0%	0.1%	0%	50.4%	0%	50.5%	49.4%	0%	0.1%	49.5%	-	-
<b>Heavy</b>	1	0	0	-	0	314	0	-	276	1	0	-	-	-
<b>Heavy %</b>	25%	0%	0%	-	0%	11.4%	0%	-	10.2%	50%	0%	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)**

Start Time	N Approach LAFARGE GOODWOOD PIT SITE ACCESS					E Approach REGIONAL HWY 47					W Approach REGIONAL HWY 47					Int. Total (15 min)
	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	Thru	Left	UTurn	Peds	Approach Total	
16:30:00	0	0	0	0	0	0	79	0	0	79	102	0	0	0	102	181
16:45:00	0	0	0	0	0	0	47	0	0	47	84	0	0	0	84	131
17:00:00	0	0	0	0	0	0	64	0	0	64	111	0	0	0	111	175
17:15:00	0	0	0	0	0	0	81	0	0	81	94	0	0	0	94	175
<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>271</b>	<b>0</b>	<b>0</b>	<b>271</b>	<b>391</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>391</b>	<b>662</b>
<b>Approach%</b>	0%	0%	0%	-	0%	100%	0%	-	100%	0%	0%	-	-	-	-	-
<b>Totals %</b>	0%	0%	0%	0%	0%	40.9%	0%	40.9%	59.1%	0%	0%	59.1%	-	-	-	-
<b>PHF</b>	0	0	0	0	0	0.84	0	0.84	0.88	0	0	0.88	-	-	-	-
<b>Heavy</b>	0	0	0	0	0	7	0	7	10	0	0	10	-	-	-	-
<b>Heavy %</b>	0%	0%	0%	0%	0%	2.6%	0%	2.6%	2.6%	0%	0%	2.6%	-	-	-	-
<b>Lights</b>	0	0	0	0	0	264	0	264	381	0	0	381	-	-	-	-
<b>Lights %</b>	0%	0%	0%	0%	0%	97.4%	0%	97.4%	97.4%	0%	0%	97.4%	-	-	-	-
<b>Single-Unit Trucks</b>	0	0	0	0	0	3	0	3	4	0	0	4	-	-	-	-
<b>Single-Unit Trucks %</b>	0%	0%	0%	0%	0%	1.1%	0%	1.1%	1%	0%	0%	1%	-	-	-	-
<b>Buses</b>	0	0	0	0	0	1	0	1	1	0	0	1	-	-	-	-
<b>Buses %</b>	0%	0%	0%	0%	0%	0.4%	0%	0.4%	0.3%	0%	0%	0.3%	-	-	-	-
<b>Articulated Trucks</b>	0	0	0	0	0	1	0	1	1	0	0	1	-	-	-	-
<b>Articulated Trucks %</b>	0%	0%	0%	0%	0%	0.4%	0%	0.4%	0.3%	0%	0%	0.3%	-	-	-	-
<b>Aggregate Trucks</b>	0	0	0	0	0	2	0	2	4	0	0	4	-	-	-	-
<b>Aggregate Trucks %</b>	0%	0%	0%	0%	0%	0.7%	0%	0.7%	1%	0%	0%	1%	-	-	-	-

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)







**Turning Movement Count (8 . BROCK ROAD & REGIONAL HIGHWAY 47)**

Start Time	E Approach REGIONAL HWY 47					S Approach BROCK RD					W Approach REGIONAL HWY 47					Int. Total (15 min)	Int. Total (1 hr)
	Thru E:W	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Left S:W	UTurn S:S	Peds S:	Approach Total	Right W:S	Thru W:E	UTurn W:W	Peds W:	Approach Total		
06:00:00	59	30	0	0	89	12	5	0	0	17	0	13	0	0	13	119	
06:15:00	59	21	0	0	80	8	2	0	0	10	3	12	0	0	15	105	
06:30:00	66	25	0	0	91	4	2	0	0	6	4	19	0	0	23	120	
06:45:00	82	37	0	0	119	24	4	0	0	28	4	15	0	0	19	166	510
07:00:00	69	38	0	0	107	23	1	0	0	24	4	25	0	0	29	160	551
07:15:00	71	36	0	0	107	22	5	0	0	27	2	35	0	0	37	171	617
07:30:00	86	32	0	0	118	28	6	0	0	34	4	45	0	0	49	201	698
07:45:00	58	35	0	0	93	25	3	0	0	28	8	47	0	0	55	176	708
08:00:00	63	31	0	0	94	25	7	0	0	32	3	35	0	0	38	164	712
08:15:00	69	27	0	0	96	23	1	0	0	24	7	36	0	0	43	163	704
08:30:00	66	29	0	0	95	30	8	0	0	38	2	46	0	0	48	181	684
08:45:00	61	30	0	0	91	18	6	0	0	24	5	51	0	0	56	171	679
09:00:00	48	22	0	0	70	28	5	0	0	33	5	45	0	0	50	153	668
09:15:00	54	28	0	0	82	23	3	0	0	26	3	35	0	0	38	146	651
09:30:00	48	21	0	0	69	26	6	0	0	32	5	34	0	0	39	140	610
09:45:00	56	25	0	0	81	29	8	0	0	37	4	41	0	0	45	163	602
10:00:00	48	28	0	0	76	18	5	0	0	23	7	47	0	0	54	153	602
10:15:00	44	28	0	0	72	21	7	0	0	28	7	40	0	0	47	147	603
10:30:00	37	24	0	0	61	26	3	0	0	29	3	35	0	0	38	128	591
10:45:00	38	24	0	0	62	22	3	0	0	25	6	39	0	0	45	132	560
11:00:00	50	17	0	0	67	27	5	0	0	32	4	49	0	0	53	152	559
11:15:00	58	23	0	0	81	26	2	0	0	28	7	41	0	0	48	157	569
11:30:00	44	29	0	0	73	21	2	0	0	23	5	60	0	0	65	161	602
11:45:00	61	14	0	0	75	26	5	0	0	31	5	34	0	0	39	145	615
12:00:00	41	22	0	0	63	26	4	0	0	30	4	35	0	0	39	132	595
12:15:00	40	29	0	0	69	23	1	0	0	24	2	39	0	0	41	134	572
12:30:00	54	26	0	0	80	32	11	0	0	43	5	39	0	0	44	167	578
12:45:00	42	31	0	0	73	29	1	0	0	30	8	39	0	0	47	150	583
13:00:00	55	36	0	0	91	27	4	0	0	31	7	55	0	0	62	184	635
13:15:00	50	32	0	0	82	31	7	0	0	38	4	49	0	0	53	173	674
13:30:00	38	27	0	0	65	24	3	0	0	27	5	55	0	0	60	152	659
13:45:00	50	23	0	0	73	30	4	0	0	34	4	49	0	0	53	160	669
14:00:00	40	23	0	0	63	27	6	0	0	33	4	34	0	0	38	134	619
14:15:00	51	27	0	0	78	23	6	0	0	29	9	59	0	0	68	175	621



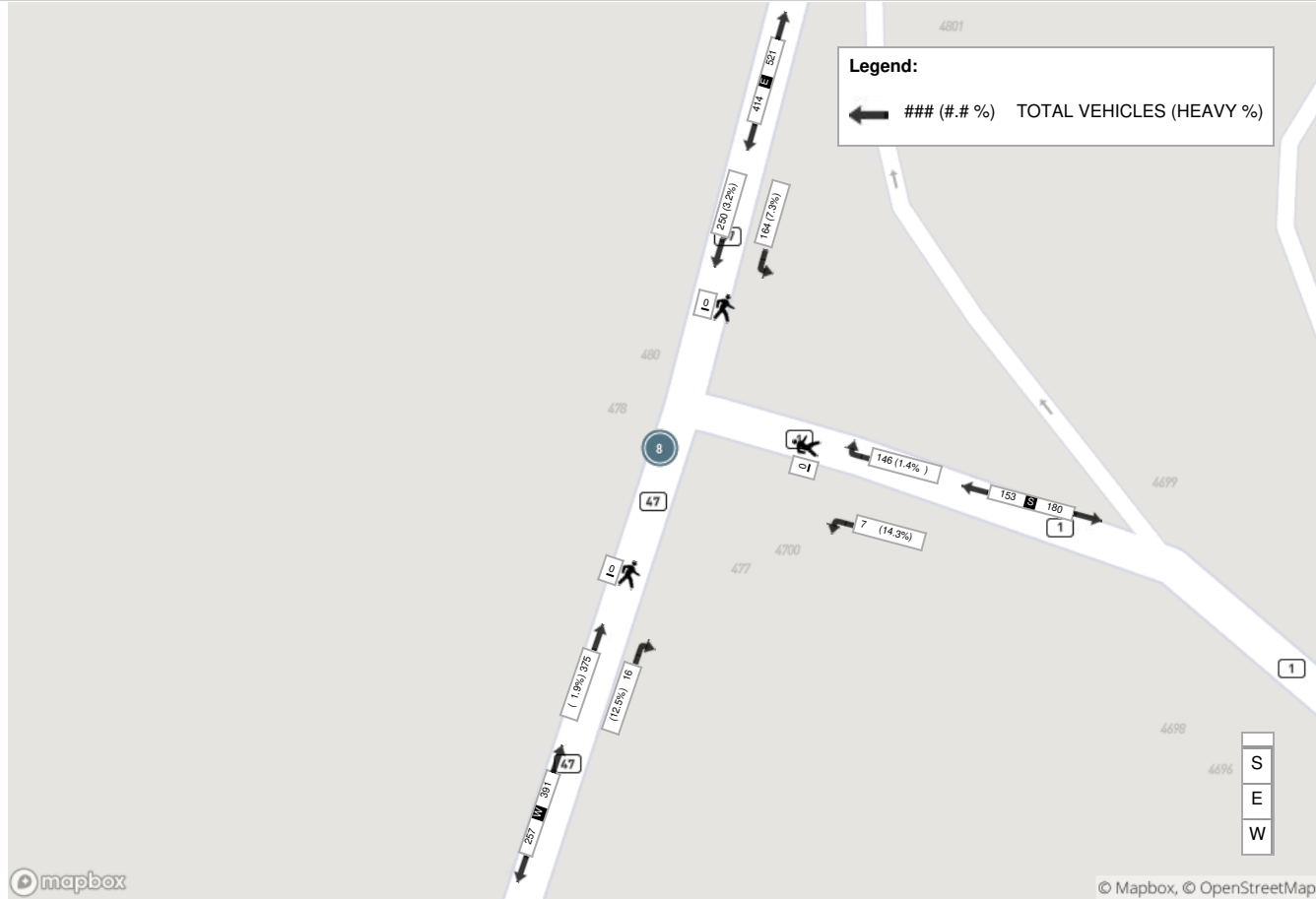
14:30:00	44	18	0	0	62	24	4	0	0	28	6	62	0	0	68	158	627
14:45:00	46	27	0	0	73	33	6	0	0	39	3	72	0	0	75	187	654
15:00:00	57	34	0	0	91	38	7	0	0	45	3	71	0	0	74	210	730
15:15:00	38	24	0	0	62	23	5	0	0	28	8	76	0	0	84	174	729
15:30:00	43	29	0	0	72	40	3	0	0	43	7	75	0	0	82	197	768
15:45:00	57	21	0	0	78	43	2	0	0	45	11	81	0	0	92	215	796
16:00:00	54	32	0	0	86	47	5	0	0	52	6	96	0	0	102	240	826
16:15:00	44	31	0	0	75	49	4	0	0	53	6	82	0	0	88	216	868
16:30:00	75	58	0	0	133	36	2	0	0	38	5	99	0	0	104	275	946
16:45:00	45	37	0	0	82	30	2	0	0	32	5	90	0	0	95	209	940
17:00:00	62	43	0	0	105	36	3	0	0	39	4	97	0	0	101	245	945
17:15:00	68	26	0	0	94	44	0	0	0	44	2	89	0	0	91	229	958
17:30:00	41	28	0	0	69	46	2	0	0	48	1	106	0	0	107	224	907
17:45:00	37	18	0	0	55	38	2	0	0	40	1	75	0	0	76	171	869
<b>Grand Total</b>	<b>2567</b>	<b>1356</b>	<b>0</b>	<b>0</b>	<b>3923</b>	<b>1334</b>	<b>198</b>	<b>0</b>	<b>0</b>	<b>1532</b>	<b>227</b>	<b>2503</b>	<b>0</b>	<b>0</b>	<b>2730</b>	<b>8185</b>	<b>-</b>
<b>Approach%</b>	65.4%	34.6%	0%	-	-	87.1%	12.9%	0%	-	-	8.3%	91.7%	0%	-	-	-	-
<b>Totals %</b>	31.4%	16.6%	0%	47.9%	16.3%	2.4%	0%	18.7%	2.8%	30.6%	0%	33.4%	-	-	-	-	-
<b>Heavy</b>	184	98	0	-	78	120	0	-	122	150	0	-	-	-	-	-	-
<b>Heavy %</b>	7.2%	7.2%	0%	-	5.8%	60.6%	0%	-	53.7%	6%	0%	-	-	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)**

Start Time	E Approach REGIONAL HWY 47					S Approach BROCK RD					W Approach REGIONAL HWY 47					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
16:30:00	75	58	0	0	133	36	2	0	0	38	5	99	0	0	104	275
16:45:00	45	37	0	0	82	30	2	0	0	32	5	90	0	0	95	209
17:00:00	62	43	0	0	105	36	3	0	0	39	4	97	0	0	101	245
17:15:00	68	26	0	0	94	44	0	0	0	44	2	89	0	0	91	229
<b>Grand Total</b>	<b>250</b>	<b>164</b>	<b>0</b>	<b>0</b>	<b>414</b>	<b>146</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>153</b>	<b>16</b>	<b>375</b>	<b>0</b>	<b>0</b>	<b>391</b>	<b>958</b>
<b>Approach%</b>	60.4%	39.6%	0%	-	-	95.4%	4.6%	0%	-	-	4.1%	95.9%	0%	-	-	-
<b>Totals %</b>	26.1%	17.1%	0%	43.2%	15.2%	0.7%	0%	16%	1.7%	39.1%	0%	40.8%	-	-	-	-
<b>PHF</b>	0.83	0.71	0	0.78	0.83	0.58	0	0.87	0.8	0.95	0	0.94	-	-	-	-
<b>Heavy</b>	8	12	0	20	2	1	0	3	2	7	0	9	-	-	-	-
<b>Heavy %</b>	3.2%	7.3%	0%	4.8%	1.4%	14.3%	0%	2%	12.5%	1.9%	0%	2.3%	-	-	-	-
<b>Lights</b>	242	152	0	394	144	6	0	150	14	368	0	382	-	-	-	-
<b>Lights %</b>	96.8%	92.7%	0%	95.2%	98.6%	85.7%	0%	98%	87.5%	98.1%	0%	97.7%	-	-	-	-
<b>Single-Unit Trucks</b>	3	6	0	9	1	1	0	2	1	2	0	3	-	-	-	-
<b>Single-Unit Trucks %</b>	1.2%	3.7%	0%	2.2%	0.7%	14.3%	0%	1.3%	6.3%	0.5%	0%	0.8%	-	-	-	-
<b>Buses</b>	1	6	0	7	0	0	0	0	0	1	0	1	-	-	-	-
<b>Buses %</b>	0.4%	3.7%	0%	1.7%	0%	0%	0%	0%	0%	0.3%	0%	0.3%	-	-	-	-
<b>Articulated Trucks</b>	1	0	0	1	1	0	0	1	0	1	0	1	-	-	-	-
<b>Articulated Trucks %</b>	0.4%	0%	0%	0.2%	0.7%	0%	0%	0.7%	0%	0.3%	0%	0.3%	-	-	-	-
<b>Aggregate Trucks</b>	3	0	0	3	0	0	0	0	1	3	0	4	-	-	-	-
<b>Aggregate Trucks %</b>	1.2%	0%	0%	0.7%	0%	0%	0%	0%	6.3%	0.8%	0%	1%	-	-	-	-

Peak Hour: 04:30 PM - 05:30 PM Weather: Clear Sky (17.4 °C)





**Turning Movement Count (9 . CONCESSION 3 ROAD & LAFARGE GOODWOOD ACCESS)**

Start Time	N Approach CONCESSION 3 RD					E Approach LAFARGE GOODWOOD ACCESS					S Approach CONCESSION 3 RD					Int. Total (15 min)	Int. Total (1 hr)
	Thru N:S	Left N:E	UTurn N:N	Peds N:	Approach Total	Right E:N	Left E:S	UTurn E:E	Peds E:	Approach Total	Right S:E	Thru S:N	UTurn S:S	Peds S:	Approach Total		
06:00:00	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2	
06:15:00	2	0	0	0	2	0	0	0	0	0	0	2	0	0	2	4	
06:30:00	8	0	0	0	8	0	0	0	0	0	0	1	0	0	1	9	
06:45:00	6	0	0	0	6	0	0	0	0	0	0	5	0	0	5	11	26
07:00:00	5	0	0	0	5	0	0	0	0	0	0	4	0	0	4	9	33
07:15:00	4	0	0	0	4	0	0	0	0	0	0	6	0	0	6	10	39
07:30:00	6	0	0	0	6	0	0	0	0	0	0	3	0	0	3	9	39
07:45:00	9	0	0	0	9	0	0	0	0	0	0	4	1	0	5	14	42
08:00:00	7	0	0	1	7	0	0	0	0	0	0	3	0	0	3	10	43
08:15:00	6	0	0	0	6	0	0	0	0	0	0	3	0	0	3	9	42
08:30:00	9	0	0	0	9	0	0	0	0	0	0	4	0	0	4	13	46
08:45:00	5	0	0	0	5	0	0	0	0	0	0	4	0	0	4	9	41
09:00:00	5	0	0	0	5	0	0	0	0	0	0	2	0	0	2	7	38
09:15:00	7	0	0	0	7	0	0	0	0	0	0	6	0	0	6	13	42
09:30:00	2	0	0	0	2	0	0	0	0	0	0	6	0	0	6	8	37
09:45:00	8	0	1	0	9	0	0	0	0	0	0	3	0	0	3	12	40
10:00:00	7	0	0	0	7	0	0	0	0	0	0	4	0	0	4	11	44
10:15:00	7	0	0	0	7	0	0	0	0	0	0	6	0	0	6	13	44
10:30:00	6	0	0	0	6	0	0	0	0	0	0	8	0	0	8	14	50
10:45:00	7	0	1	0	8	0	0	0	0	0	0	4	0	0	4	12	50
11:00:00	5	0	0	0	5	0	0	0	0	0	0	4	0	0	4	9	48
11:15:00	6	0	0	0	6	0	0	0	0	0	0	6	0	0	6	12	47
11:30:00	6	0	0	0	6	0	0	0	0	0	0	8	0	0	8	14	47
11:45:00	8	0	0	0	8	0	0	0	0	0	0	8	0	0	8	16	51
12:00:00	6	0	0	0	6	0	0	0	0	0	0	9	0	0	9	15	57
12:15:00	10	0	0	0	10	0	0	0	0	0	0	5	0	0	5	15	60
12:30:00	4	0	0	0	4	0	0	0	0	0	0	6	0	0	6	10	56
12:45:00	6	0	0	0	6	0	0	0	0	0	0	6	0	0	6	12	52
13:00:00	4	0	0	0	4	0	0	0	0	0	0	7	0	0	7	11	48
13:15:00	4	0	0	0	4	0	0	0	0	0	0	6	0	0	6	10	43
13:30:00	5	0	0	0	5	0	0	0	0	0	0	9	0	0	9	14	47
13:45:00	2	0	0	0	2	0	0	0	0	0	0	5	0	0	5	7	42
14:00:00	8	0	0	0	8	0	0	0	0	0	0	5	0	0	5	13	44
14:15:00	5	0	0	0	5	0	0	0	0	0	0	5	0	0	5	10	44



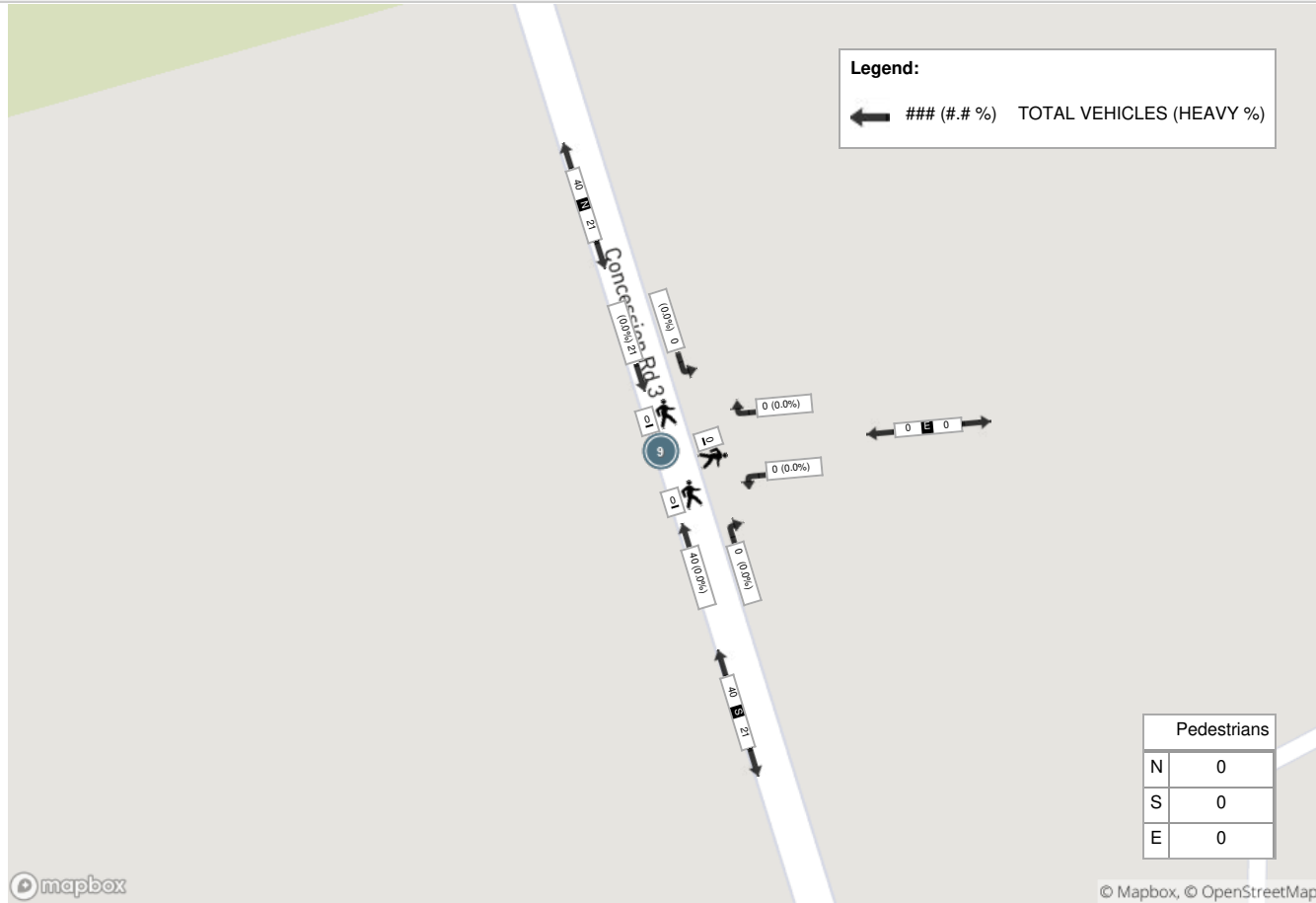
14:30:00	3	0	0	0	3	0	0	0	0	0	0	4	0	0	4	7	37
14:45:00	6	0	0	0	6	0	0	0	0	0	0	7	0	0	7	13	43
15:00:00	7	0	0	0	7	0	0	0	0	0	0	6	0	0	6	13	43
15:15:00	8	0	0	0	8	0	0	0	0	0	0	8	0	0	8	16	49
15:30:00	10	0	0	0	10	0	0	0	0	0	0	8	0	0	8	18	60
15:45:00	3	0	0	0	3	0	0	0	0	0	0	5	0	0	5	8	55
16:00:00	6	0	0	0	6	0	0	0	0	0	0	5	0	0	5	11	53
16:15:00	8	0	0	0	8	0	0	0	0	0	0	2	0	0	2	10	47
16:30:00	8	0	0	0	8	0	0	0	0	0	0	9	0	0	9	17	46
16:45:00	4	0	0	0	4	0	0	0	0	0	0	8	0	0	8	12	50
17:00:00	8	0	0	0	8	0	0	0	0	0	0	8	0	0	8	16	55
17:15:00	7	0	0	0	7	0	0	0	0	0	0	7	0	0	7	14	59
17:30:00	3	0	0	0	3	0	0	0	0	0	0	13	0	0	13	16	58
17:45:00	3	0	0	0	3	0	0	0	0	0	0	12	0	0	12	15	61
<b>Grand Total</b>	<b>280</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>282</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>270</b>	<b>1</b>	<b>0</b>	<b>271</b>	<b>553</b>	<b>-</b>
<b>Approach%</b>	99.3%	0%	0.7%	-	-	0%	0%	0%	-	-	0%	99.6%	0.4%	-	-	-	-
<b>Totals %</b>	50.6%	0%	0.4%	-	51%	0%	0%	0%	0%	0%	0%	48.8%	0.2%	-	49%	-	-
<b>Heavy</b>	27	0	0	-	-	0	0	0	-	-	0	19	0	-	-	-	-
<b>Heavy %</b>	9.6%	0%	0%	-	-	0%	0%	0%	-	-	0%	7%	0%	-	-	-	-
<b>Bicycles</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Bicycle %</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Peak Hour: 05:00 PM - 06:00 PM Weather: Clear Sky (17.4 °C)**

Start Time	N Approach CONCESSION 3 RD					E Approach LAFARGE GOODWOOD ACCESS					S Approach CONCESSION 3 RD					Int. Total (15 min)
	Thru	Left	UTurn	Peds	Approach Total	Right	Left	UTurn	Peds	Approach Total	Right	Thru	UTurn	Peds	Approach Total	
17:00:00	8	0	0	0	8	0	0	0	0	0	0	8	0	0	8	16
17:15:00	7	0	0	0	7	0	0	0	0	0	0	7	0	0	7	14
17:30:00	3	0	0	0	3	0	0	0	0	0	0	13	0	0	13	16
17:45:00	3	0	0	0	3	0	0	0	0	0	0	12	0	0	12	15
<b>Grand Total</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>61</b>
<b>Approach%</b>	100%	0%	0%		-	0%	0%	0%		-	0%	100%	0%		-	-
<b>Totals %</b>	34.4%	0%	0%		34.4%	0%	0%	0%		0%	0%	65.6%	0%		65.6%	-
<b>PHF</b>	0.66	0	0		0.66	0	0	0		0	0	0.77	0		0.77	-
<b>Heavy</b>	0	0	0		0	0	0	0		0	0	0	0		0	-
<b>Heavy %</b>	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
<b>Lights</b>	20	0	0		20	0	0	0		0	0	38	0		38	-
<b>Lights %</b>	95.2%	0%	0%		95.2%	0%	0%	0%		0%	0%	95%	0%		95%	-
<b>Single-Unit Trucks</b>	0	0	0		0	0	0	0		0	0	0	0		0	-
<b>Single-Unit Trucks %</b>	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
<b>Articulated Trucks</b>	0	0	0		0	0	0	0		0	0	0	0		0	-
<b>Articulated Trucks %</b>	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
<b>Aggregate Trucks</b>	0	0	0		0	0	0	0		0	0	0	0		0	-
<b>Aggregate Trucks %</b>	0%	0%	0%		0%	0%	0%	0%		0%	0%	0%	0%		0%	-
<b>Bicycles on Road</b>	1	0	0		1	0	0	0		0	0	2	0		2	-
<b>Bicycles on Road %</b>	4.8%	0%	0%		4.8%	0%	0%	0%		0%	0%	5%	0%		5%	-
<b>Pedestrians</b>	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
<b>Pedestrians%</b>	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-	-

Peak Hour: 05:00 PM - 06:00 PM Weather: Clear Sky (17.4 °C)



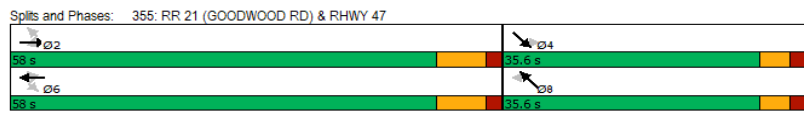


INTERSECTION SIGNAL TIMING REPORT				
Location	Hwy. 47 and Goodwood Rd. (RR 21)			
Date	September 15/2020	C&E No.	33903368	Prepared by
Prepared for	The Municipal Infrastructure Group Ltd.			

Runs local at all times.

	→	↘	←	↙
Phase Number	2	4	6	8
Movement	EBTL	SETL	WBTL	NWTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	None	Max	None
Maximum Split (s)	58	35.6	58	35.6
Maximum Split (%)	62.0%	38.0%	62.0%	38.0%
Minimum Split (s)	35	25	35	25
Yellow Time (s)	5.9	3.7	5.9	3.7
All-Red Time (s)	2.1	1.9	2.1	1.9
Minimum Initial (s)	25	12	25	12
Vehicle Extension (s)	4.2	3	4.2	3
Minimum Gap (s)	0.2	0.2	0.2	0.2
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	20	14	20	14
Flash Dont Walk (s)	7	5	7	5

Intersection Summary	
Cycle Length	93.6
Control Type	Semi Act-Uncoord
Natural Cycle	70



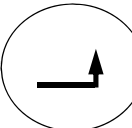
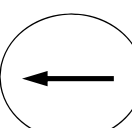
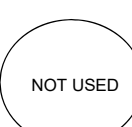
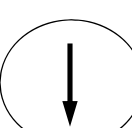
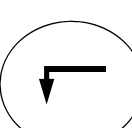
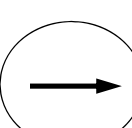
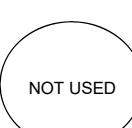
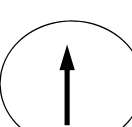
Dynamic max in use for E/W phases. Split time can fluctuate between min and max split times in 5 second intervals based on demand.

\*Please note a concerted effort has been made to ensure the accuracy and completeness of the data provided, however, inadvertent errors or omissions can still occur. Please bring any errors or omissions to the Region's attention.

LOCATION: **Bloomington Rd (YR 40) & York Durham Line (YR 30)**  
 CTCs: **359**  
 MODE/COMMENT: **SA**  
 PREPARED/CHECKED BY: **AM**  
 PREPARATION DATE: **July 3, 2020**  
 IMPLEMENTATION DATE: **July 3, 2020**

MUNICIPALITY: **Stouffville**  
 COMPUTER SYSTEM: **Centracs**  
 CONTROLLER/CABINET TYPE: **Econolite Cobalt / TS2T1**  
 CONFLICT FLASH: **Red & Red**  
 DESIGN WALK SPEED: **1.0 m/s (FDW based on full crossing at 1.0 m/s)**  
 CHANNEL/DROP:



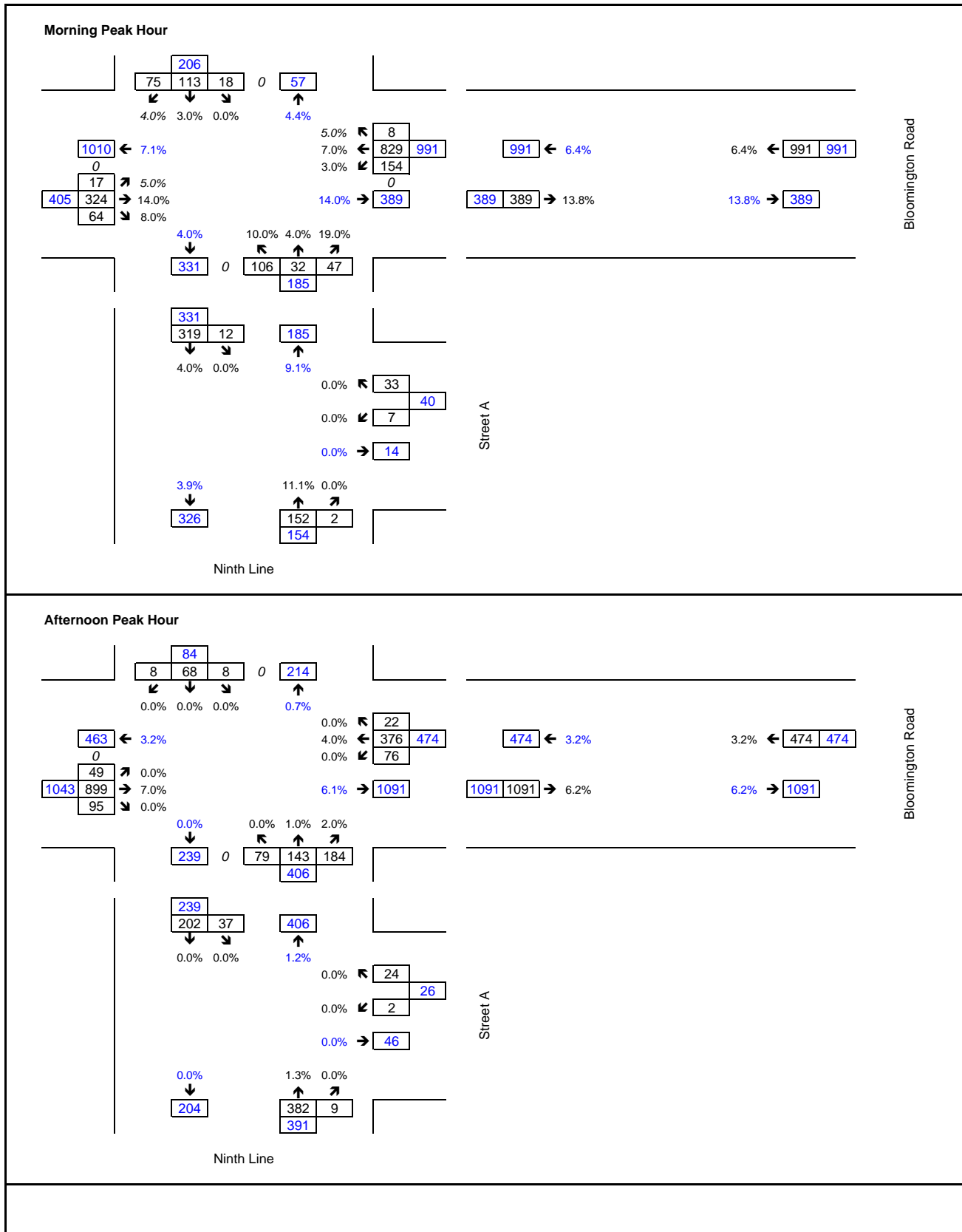
NEMA Phase (York)	Local Plan System Plan	PM	Free	Phase Mode (Fixe/Callable)	Remarks
		16:00-18:00 M-F	18:00 - 16:00 M-F; 24 Hrs Sat & Sun		
		Pattern 1 Plan 1	Pattern 99 Plan 99		
1. E/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 10 MAX2 0 AMB 3 ALR 1 SPLIT	<b>14</b>		Callable/Extendable by Setback Loop	
2. Westbound  Bloomington Rd	WLK FDW MIN 50 EXT 0 MAX1 50 MAX2 0 AMB 5.0 ALR 3.0 SPLIT	<b>65</b>	<b>0</b>	Fixed	NS phase is callable by vehicle or pedestrian actuation. If a vehicle call is received, the minimum NSG is served. If ongoing vehicle demand exists on the stopbar loop, the NSG is capable of providing vehicle extensions up to the maximum green split during coordinated operation or MAX1 during Free operation. Unused extension time is given to the EWG.
3. NOT USED 	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT				
4. Southbound  York Durham Line	WLK FDW MIN 10 EXT 5 MAX1 <b>35</b> MAX2 0 AMB 5.0 ALR 3.0 SPLIT	<b>41</b>	<b>0</b>	Callable by stopbar loop Extendable by stopbar loop.	
5. W/B Left Turn Arrow 	WLK FDW MIN 7 EXT 3 MAX1 10 MAX2 0 AMB 3 ALR 1 SPLIT	<b>14</b>		Callable/Extendable by Setback Loop	
6. Eastbound  Bloomington Rd	WLK FDW MIN 50 EXT 0 MAX1 50 MAX2 0 AMB 5.0 ALR 3.0 SPLIT	<b>65</b>	<b>0</b>	Fixed	
7. NOT USED 	WLK FDW MIN EXT MAX1 MAX2 AMB ALR SPLIT				<b>LEGEND:</b> SA - Semi-Actuated signal WLK - Walk time FDW - Flashing Don't Walk time MIN - Minimum green time EXT - Extension time MAX1 - Maximum green time 1 MAX2 - Maximum green time 2 AMB - Amber ALR - All Red CL - Cycle Length OF - Offset VP - Vehicle Permissive NSWK - North/South Walk EWWK - East/West Walk NSG - North/South Green EWG - East/West Green NSFD - North/South Flashing Don't Walk EWFd - East/West Flashing Don't Walk TSP - Transit Priority APS - Audible Pedestrian Signal
8. Northbound  York Durham Line	WLK FDW MIN 10 EXT 5 MAX1 <b>35</b> MAX2 0 AMB 5 ALR 3.0 SPLIT	<b>41</b>	<b>0</b>	Callable by stopbar loop Extendable by stopbar loop.	
	CL OF VP	<b>120</b> <b>0</b> <b>0</b>	<b>0 (FREE)</b> <b>0 (FREE)</b> <b>0 (FREE)</b>		

NOTES:

# **Appendix B:** **Background Development Traffic**

BLOOMINGTON SUBDIVISIONS  
19T-86101 & 19T-83015 ACCESS REVIEW  
BLOOMINGTON ROAD & NINTH LINE  
WHITCHURCH-STOUFFVILLE, ONTARIO

MARK ENGINEERING  
MAY 2, 2014



**BACKGROUND DEVELOPMENT VOLUME CALCULATION SUMMARY**

<u>Development: Bloomington Subdivisions</u>					
<b>AM Outbound to Bloomington Eastbound</b>			<b>PM Outbound to Bloomington Eastbound</b>		
Outbound trips (from Street A)	<b>33</b>		Outbound trips (from Street A)	<b>24</b>	
Turning Distribution (Outbound to north)			Turning Distribution (Outbound to north)		
	Trips	Percentage		Trips	Percentage
Northbound left volume	106	57.3%	Northbound left volume	79	19.5%
Northbound through volume	32	17.3%	Northbound through volume	143	35.2%
Northbound right volume	47	25.4%	Northbound right volume	184	45.3%
Bloomington Rd EB trips = NBR% * NB trips from Street A			Bloomington Rd EB trips = NBR% * NB trips from Street A		
Bloomington Rd AM EB trips	=33*25.4		Bloomington Rd PM EB trips	=24*45.3%	
	<b>8</b>			<b>11</b>	
<b>AM Inbound from Bloomington westbound</b>			<b>PM Inbound from Bloomington Westbound</b>		
Inbound trips (from Street A)	<b>12 trips</b>		Inbound trips (from Street A)	<b>37 trips</b>	
Turning Distribution (Inbound from north)			Turning Distribution (Inbound from north)		
	Trips	Percentage		Trips	Percentage
Eastbound right volume	64	19.3%	Eastbound right volume	95	39.7%
Southbound through volume	113	34.1%	Southbound through volume	68	28.5%
Westbound left volume	154	46.5%	Westbound left volume	76	31.8%
Bloomington Rd WB trips = WBL * NB trips from Street A			Bloomington Rd WB trips = WBL * NB trips from Street A		
Bloomington Rd AM WB trips	=12*46.5%		Bloomington Rd PM WB trips	=46.5%*12	
	<b>6</b>			<b>12</b>	

UNITED SOILS MANAGEMENT  
14245 NINTH LINE  
TRAFFIC OPERATIONS ASSESSMENT  
BLOOMINGTON ROAD & NINTH LINE  
WHITCHURCH-STOUFFVILLE, ONTARIO

BA GROUP  
DECEMBER 18, 2012.

## 2.3 Future Traffic Forecasts

### 2.3.1 Background Corridor Growth

A ten-year traffic forecast has been requested by staff at the Town of Whitchurch-Stouffville to better understand traffic operations in the future. BA Group reviewed historical growth trends along Ninth Line (south of Bloomington Road) based on several previous counts and determined that there has been a negative growth trend south of Ninth Line.

No historical traffic count information was able to be obtained for Bloomington Road so an assumption of 2% growth per year was made based on BA Group's experience with similar rural routes in York Region.

The proposed growth was applied to all movements at the Bloomington Road / Ninth Line intersection resulting in some carry-over growth on Ninth Line North of the Bloomington Road / Ninth Line intersection in front of the site.

### 2.3.2 Site Traffic Forecasts

There is currently no forecast available of how truck traffic at the pit will change going forward. However, for the purpose of estimating a ten-year forecast, we have conservatively assumed a potential growth in site traffic of up to 800 vehicles per day. This compares to existing volumes in the order of 175- 235 trips per day – or an assumed increase of over 350%.

The assumed increase in daily traffic was converted into hourly traffic volumes for the purpose of this analysis. Table 2 summaries the forecasted trip generation.

**Table 2 Forecasted Peak Traffic Demand  
Ninth Line / Bloomington Road**

	Hourly Traffic											
	Observed Traffic Site Peak Volumes		Observed Traffic Street Peak Volumes		Forecasted Site Peak Volumes (800 vpd)		Forecasted Street Peak Volumes (800 vpd)		Net-New Hourly Trips (Site Peak)		Net-New Hourly Trips (Street Peak)	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
North Driveway	70	39	39	19	320	181	176	88	250	142	137	69
South Driveway	10	1	14	0	44	3	64	0	34	2	50	0
Total Both Driveways	80	40	53	19	364	184	240	88	284	144	187	69
Total Daily Peak Period Traffic	120		72		548		328		428		256	

Net-new site traffic volumes were applied to the road network based on existing traffic patterns.



Project # 7272-02  
 17/12/2012  
 United Soils Management  
 (Lee Sand and Gravel)  
 10yr Horizon (Intersection Peak) AM

Ninth Line

<b>c</b>	<b>Node</b>	<u>121</u>		<u>52</u>					
			↓		0				
			↘		0				
<u>0</u>	0	116		5	53	↙		<u>53</u>	North Site Driveway
<u>0</u>									
					0	52	118	<u>123</u>	
						↑	↗		
				<u>169</u>	<u>170</u>				
<b>c</b>	<b>Node</b>	<u>169</u>			<u>170</u>				
			↓		2	↖			
					0				
<u>0</u>	0	169		0	30	↙		<u>32</u>	South Site Driveway
<u>0</u>									
					0	168	32	<u>32</u>	
						↑	↗		
				<u>199</u>	<u>200</u>				
<b>c</b>	<b>Node</b>	<u>199</u>			<u>200</u>				
			↙	↓	11	↖			
				↘	734	←			
<u>895</u>	101	70		28	172	↙		<u>917</u>	Bloomington Road
<u>580</u>			↗	156	60	33	41	<u>440</u>	
			→	371	↖	↑	↗		
			↘	53					
				<u>294</u>	<u>134</u>				

Project # 7272-02  
 17/12/2012  
 United Soils Management  
 (Lee Sand and Gravel)  
 10yr Horizon (Intersection Peak) PM

Ninth Line

<b>c</b>	<b>Node</b>	<u>65</u>		<u>164</u>					
			↓	0					
<u>0</u>	0	65	0	56	↙			<u>56</u>	North Site Driveway
<u>0</u>				0	↑	32		<u>32</u>	
				<u>121</u>					
<b>c</b>	<b>Node</b>	<u>121</u>		<u>196</u>					
			↓	0					
<u>0</u>	0	121	0	0				<u>0</u>	South Site Driveway
<u>0</u>				0					
				<u>121</u>					
<b>c</b>	<b>Node</b>	<u>121</u>		<u>196</u>					
			↙	17	↖				
<u>527</u>	66	48	7	408	←				
				66	↙			<u>491</u>	Bloomington Road
<u>1029</u>			↗	53	103	139		<u>1039</u>	
			→		↑				
			↘						
				<u>174</u>					
				<u>295</u>					

**BACKGROUND DEVELOPMENT VOLUME CALCULATION SUMMARY**

<b>Development: United Soils Management Site</b>					
<b>AM Total Site Trips</b>			<b>PM Total Site Trips</b>		
	Trips	Percentage		Trips	Percentage
AM In Site Trips (both driveways)	155	64.6%	PM In Site Trips (both driveways)	32	36.4%
AM Out Site Trips (both driveways)	85	35.4%	PM Out Site Trips (both driveways)	56	63.6%
AM Two-way Site Trips (both driveways)	240		PM Two-way Site Trips (both driveways)	88	
<b>AM Outbound to Bloomington Eastbound</b>			<b>PM Outbound to Bloomington eastbound</b>		
AM Net New Trips (from Table 2)	187		PM Net New Trips (from Table 2)	69	
AM Net New Outbound Trips	66		PM Net New Outbound Trips	44	
Percentage of Inbound Trips from south vs north	97.6%		Percentage of Inbound Trips from south vs north	100.0%	
AM Net New Inbound Trips from South	64		PM Net New Inbound Trips from South	44	
<u>Turning Distribution (Outbound to south)</u>			<u>Turning Distribution (Outbound to south)</u>		
	Trips	Percentage		Trips	Percentage
Southbound left volume	28	14.1%	Southbound left volume	7	5.8%
Southbound through volume	70	35.2%	Southbound through volume	48	39.7%
Southbound right volume	101	50.8%	Southbound right volume	66	54.5%
Bloomington Rd EB trips = SBL * Outbound New New AM Trips from south			Bloomington Rd EB trips = SBL * Outbound New New PM Trips from south		
Bloomington Rd AM EB trips	=64*14.1%		Bloomington Rd PM EB trips	=44*5.8%	
	<b>9</b>			<b>3</b>	
<b>AM Inbound from Bloomington westbound</b>			<b>PM Inbound from Bloomington westbound</b>		
AM Net New Trips (from Table 2)	187		PM Net New Trips (from Table 2)	69	
AM Net New Inbound Trips	121		PM Net New Inbound Trips	25	
Percentage of Inbound Trips from south vs north	96.8%		Percentage of Inbound Trips from south vs north	100.0%	
AM Net New Inbound Trips from South	117		PM Net New Inbound Trips from South	25	
<u>Turning Distribution (Inbound from south)</u>			<u>Turning Distribution (Inbound from south)</u>		
	Trips	Percentage		Trips	Percentage
Eastbound left volume	156	78.0%	Eastbound left volume	77	39.1%
Northbound through volume	33	16.5%	Northbound through volume	103	52.3%
Westbound right volume	11	5.5%	Westbound right volume	17	8.6%
Bloomington Rd WB trips = WBR * Inbound Net New AM Trips from south			Bloomington Rd WB trips = WBR * Inbound Net New PM Trips from south		
Bloomington Rd AM WB trips	=117*5.5%		Bloomington Rd PM WB trips	=25*8.6%	
	<b>6</b>			<b>2</b>	

# **Appendix C:** Synchro Capacity Analysis

***Appendix D1:***  
***Existing Capacity Analysis***

HCM Unsignalized Intersection Capacity Analysis Existing 2022 AM  
 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road 04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↔		↔	↔		↔	↔	↔
Traffic Volume (veh/h)	35	1	130	0	0	0	117	103	0	0	180	84
Future Volume (Veh/h)	35	1	130	0	0	0	117	103	0	0	180	84
Sign Control	Stop		Stop				Free		Free			
Grade	0%		0%				0%		0%			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	40	1	149	0	0	0	134	118	0	0	207	97
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	593	593	207	742	690	118	304		118			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	593	593	207	742	690	118	304		118			
tC, single (s)	7.2	6.5	6.4	7.1	6.5	6.2	4.2		4.1			
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3		2.2			
p0 queue free %	89	100	81	100	100	100	89		100			
cM capacity (veh/h)	369	375	802	249	330	939	1223		1483			
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3				
Volume Total	40	150	0	134	118	0	207	97				
Volume Left	40	0	0	134	0	0	0	0				
Volume Right	0	149	0	0	0	0	0	97				
cSH	369	796	1700	1223	1700	1700	1700	1700				
Volume to Capacity	0.11	0.19	0.00	0.11	0.07	0.00	0.12	0.06				
Queue Length 95th (m)	2.9	5.5	0.0	2.9	0.0	0.0	0.0	0.0				
Control Delay (s)	15.9	10.6	0.0	8.3	0.0	0.0	0.0	0.0				
Lane LOS	C	B	A	A								
Approach Delay (s)	11.7	0.0		4.4	0.0							
Approach LOS	B	A										
Intersection Summary												
Average Delay	4.5											
Intersection Capacity Utilization	34.1%		ICU Level of Service		A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis Existing 2022 AM  
 2: York-Durham Line & Wagg Road 04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔		↔	↔	↔
Traffic Volume (veh/h)	0	0	0	1	0	50	0	158	14	38	276	0
Future Volume (Veh/h)	0	0	0	1	0	50	0	158	14	38	276	0
Sign Control	Stop		Stop				Free		Free			
Grade	0%		0%				0%		0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	0	1	0	54	0	170	15	41	297	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None						None					
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	610	564	297	556	556	178	297		185			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	610	564	297	556	556	178	297		185			
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1		4.2			
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2		2.3			
p0 queue free %	100	100	100	100	100	94	100		97			
cM capacity (veh/h)	375	424	747	434	428	871	1276		1337			
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	55	185	338								
Volume Left	0	1	0	41								
Volume Right	0	54	15	0								
cSH	1700	855	1276	1337								
Volume to Capacity	0.00	0.06	0.00	0.03								
Queue Length 95th (m)	0.0	1.6	0.0	0.8								
Control Delay (s)	0.0	9.5	0.0	1.2								
Lane LOS	A	A	A	A								
Approach Delay (s)	0.0	9.5	0.0	1.2								
Approach LOS	A	A										
Intersection Summary												
Average Delay	1.6											
Intersection Capacity Utilization	39.1%		ICU Level of Service		A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
3: York-Durham Line & Pit Inbound Site Access

Existing 2022 AM  
04-01-2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (veh/h)	0	0	64	199	258	8
Future Volume (Veh/h)	0	0	64	199	258	8
Sign Control	Stop		Free			
Grade	0%		0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	69	214	277	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	634	282	286			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	634	282	286			
tC, single (s)	6.4	6.2	5.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	3.1			
p0 queue free %	100	100	92			
cM capacity (veh/h)	412	762	886			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>SB 1</b>				
Volume Total	283	286				
Volume Left	69	0				
Volume Right	0	9				
cSH	886	1700				
Volume to Capacity	0.08	0.17				
Queue Length 95th (m)	2.0	0.0				
Control Delay (s)	2.9	0.0				
Lane LOS	A					
Approach Delay (s)	2.9	0.0				
Approach LOS						
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			34.7%		ICU Level of Service A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
4: York-Durham Line & Pit Outbound Site Access/Private Access

Existing 2022 AM  
04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↕		↕	↕	↕	↕		↕		↕	↕	↕	
Traffic Volume (veh/h)	15	0	51	0	0	0	0	238	7	1	262	0	
Future Volume (Veh/h)	15	0	51	0	0	0	0	238	7	1	262	0	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Hourly flow rate (vph)	16	0	56	0	0	0	0	262	8	1	288	0	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None			None			
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	556	560	288	612	556	266	288						270
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	556	560	288	612	556	266	288						270
tC, single (s)	8.1	6.5	7.2	7.1	6.5	6.2	4.1						4.1
tC, 2 stage (s)													
tF (s)	4.4	4.0	4.2	3.5	4.0	3.3	2.2						2.2
p0 queue free %	95	100	90	100	100	100	100						100
cM capacity (veh/h)	323	437	567	365	439	773	1286						1305
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	16	56	0	270	289								
Volume Left	16	0	0	0	1								
Volume Right	0	56	0	8	0								
cSH	323	567	1700	1700	1305								
Volume to Capacity	0.05	0.10	0.00	0.16	0.00								
Queue Length 95th (m)	1.2	2.6	0.0	0.0	0.0								
Control Delay (s)	16.7	12.0	0.0	0.0	0.0								
Lane LOS	C	B	A	A	A								
Approach Delay (s)	13.1		0.0	0.0	0.0								
Approach LOS	B		A										
<b>Intersection Summary</b>													
Average Delay			1.5										
Intersection Capacity Utilization			24.6%		ICU Level of Service A								
Analysis Period (min)			15										

Timings  
5: York-Durham Line & Regional Highway 47

Existing 2022 AM  
04-01-2022

	↖	→	↙	←	↘	↑	↗	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↙	↘	↖	↗	↙	↘	↕
Traffic Volume (vph)	79	334	121	441	67	133	106	57	165
Future Volume (vph)	79	334	121	441	67	133	106	57	165
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases	1	6	5	2		8		4	4
Permitted Phases	6		2		8		8	4	
Detector Phase	1	6	5	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	50.0	7.0	50.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	58.0	11.0	58.0	18.0	18.0	18.0	18.0	18.0
Total Split (s)	14.0	58.0	14.0	58.0	43.0	43.0	43.0	43.0	43.0
Total Split (%)	12.2%	50.4%	12.2%	50.4%	37.4%	37.4%	37.4%	37.4%	37.4%
Yellow Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0
Total Lost Time (s)	4.0	8.0	4.0	8.0		8.0	8.0		8.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	62.6	50.2	64.1	53.0	29.8	29.8		29.8	
Actuated g/C Ratio	0.58	0.46	0.59	0.49	0.27	0.27		0.27	
v/c Ratio	0.24	0.54	0.24	0.70	0.62	0.21		0.89	
Control Delay	11.8	25.3	11.0	30.4	43.4	6.7		64.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	
Total Delay	11.8	25.3	11.0	30.4	43.4	6.7		64.4	
LOS	B	C	B	C	D	A		E	
Approach Delay		23.0		26.7		30.7		64.4	
Approach LOS		C		C		C		E	

Intersection Summary

Cycle Length: 115	
Actuated Cycle Length: 108.8	
Natural Cycle: 100	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 32.9	Intersection LOS: C
Intersection Capacity Utilization 97.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: York-Durham Line & Regional Highway 47

↖ Ø1	↗ Ø2	↙ Ø4
14 s	58 s	43 s
↘ Ø5	↖ Ø6	↗ Ø8
14 s	58 s	43 s

HCM Signalized Intersection Capacity Analysis  
5: York-Durham Line & Regional Highway 47

Existing 2022 AM  
04-01-2022

	↖	→	↙	←	↘	↑	↗	↘	↓	↖		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↙	↘		↖	↗	↙	↘	↕	↕
Traffic Volume (vph)	79	334	53	121	441	72	67	133	106	57	165	69
Future Volume (vph)	79	334	53	121	441	72	67	133	106	57	165	69
Ideal Flow (vphpl)	2000	2000	2000	1900	1900	1900	2000	2000	2000	1900	1900	1900
Total Lost time (s)	4.0	8.0		4.0	8.0		8.0	8.0		8.0		8.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00		1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.85		0.97		0.97
Fit Protected	0.95	1.00		0.95	1.00		0.98	1.00		0.99		0.99
Satd. Flow (prot)	1278	1565		1668	1518		1722	1616		1398		1398
Fit Permitted	0.35	1.00		0.43	1.00		0.69	1.00		0.84		0.84
Satd. Flow (perm)	467	1565		749	1518		1206	1616		1182		1182
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	81	341	54	123	450	73	68	136	108	58	168	70
RTOR Reduction (vph)	0	5	0	0	5	0	0	79	0	10	0	0
Lane Group Flow (vph)	81	390	0	123	518	0	204	29	0	286	0	0
Heavy Vehicles (%)	47%	25%	16%	7%	16%	53%	17%	11%	4%	42%	10%	63%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	NA
Protected Phases	1	6		5	2		8		8	4		4
Permitted Phases	6			2			8		8	4		
Actuated Green, G (s)	58.1	51.2		61.7	53.0		29.8	29.8		29.8		29.8
Effective Green, g (s)	58.1	51.2		61.7	53.0		29.8	29.8		29.8		29.8
Actuated g/C Ratio	0.53	0.47		0.56	0.48		0.27	0.27		0.27		0.27
Clearance Time (s)	4.0	8.0		4.0	8.0		8.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0		5.0		5.0
Lane Grp Cap (vph)	298	730		494	733		327	438		321		321
v/s Ratio Prot	0.02	0.25		c0.02	c0.34							
v/s Ratio Perm	0.13			0.12			0.17	0.02		c0.24		
v/c Ratio	0.27	0.53		0.25	0.71		0.62	0.07		0.89		
Uniform Delay, d1	13.9	20.8		11.9	22.3		35.0	29.6		38.4		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00		1.00
Incremental Delay, d2	0.5	2.8		0.3	5.7		5.2	0.1		26.4		
Delay (s)	14.4	23.6		12.2	27.9		40.2	29.8		64.7		
Level of Service	B	C		B	C		D	C		E		E
Approach Delay (s)		22.0			24.9		36.6			64.7		
Approach LOS		C			C		D			E		

Intersection Summary

HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	109.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

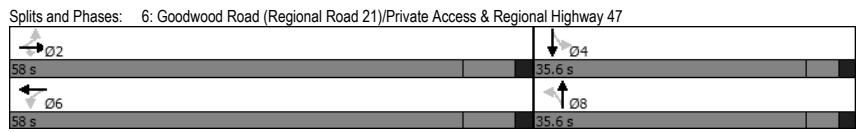


Timings Existing 2022 AM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

	→	↖	↗	←	↖	↑	↗	↓
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑	↖	↖	↖	↑	↖	↖
Traffic Volume (vph)	164	285	6	336	336	1	1	1
Future Volume (vph)	164	285	6	336	336	1	1	1
Turn Type	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2		6		8	8	4	4
Permitted Phases		2	6		8	8	4	4
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	12.0	12.0	12.0	12.0
Minimum Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	58.0	58.0	58.0	58.0	35.6	35.6	35.6	35.6
Total Split (%)	62.0%	62.0%	62.0%	62.0%	38.0%	38.0%	38.0%	38.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	3.7	3.7	3.7	3.7
All-Red Time (s)	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	5.6	5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)	50.0	50.0	50.0	50.0	29.9	29.9	29.9	29.9
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.32	0.32	0.32	0.32
v/c Ratio	0.21	0.40	0.02	0.23	0.97	0.02	0.00	0.00
Control Delay	12.3	2.9	10.5	12.0	71.2	13.6	21.5	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	2.9	10.5	12.0	71.2	13.6	21.5	21.5
LOS	B	A	B	B	E	B	C	C
Approach Delay	6.3			11.9		70.0	21.5	
Approach LOS	A			B		E	C	

**Intersection Summary**

Cycle Length: 93.6  
 Actuated Cycle Length: 93.5  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 27.2 Intersection LOS: C  
 Intersection Capacity Utilization 69.7% ICU Level of Service C  
 Analysis Period (min) 15



HCM Signalized Intersection Capacity Analysis Existing 2022 AM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

	↖	→	↗	↖	←	↖	↖	↑	↗	↖	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↖	↖	↖	↖	↖	↑	↖	↖	↖	↖
Traffic Volume (vph)	0	164	285	6	336	2	336	1	6	1	1	0
Future Volume (vph)	0	164	285	6	336	2	336	1	6	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0	8.0	8.0	8.0		5.6	5.6			5.6	
Lane Util. Factor		1.00	1.00	1.00	0.95		1.00	1.00			1.00	
Frt		1.00	0.85	1.00	1.00		1.00	0.87			1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)		1634	1238	1190	3131		1552	1632			1833	
Flt Permitted		1.00	1.00	0.64	1.00		0.76	1.00			0.96	
Satd. Flow (perm)		1634	1238	802	3131		1236	1632			1797	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	186	324	7	382	2	382	1	7	1	1	0
RTOR Reduction (vph)	0	0	151	0	0	0	5	0	0	0	0	0
Lane Group Flow (vph)	0	186	173	7	384	0	382	3	0	0	2	0
Heavy Vehicles (%)	50%	15%	29%	50%	14%	0%	15%	0%	0%	0%	0%	75%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		50.0	50.0	50.0	50.0		29.9	29.9			29.9	
Effective Green, g (s)		50.0	50.0	50.0	50.0		29.9	29.9			29.9	
Actuated g/C Ratio		0.53	0.53	0.53	0.53		0.32	0.32			0.32	
Clearance Time (s)		8.0	8.0	8.0	8.0		5.6	5.6			5.6	
Vehicle Extension (s)		4.2	4.2	4.2	4.2		3.0	3.0			3.0	
Lane Grp Cap (vph)		873	662	428	1674		395	521			574	
v/s Ratio Prot		0.11			0.12			0.00				
v/s Ratio Perm			c0.14	0.01			c0.31				0.00	
v/c Ratio		0.21	0.26	0.02	0.23		0.97	0.01			0.00	
Uniform Delay, d1		11.4	11.8	10.2	11.5		31.3	21.7			21.7	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		0.6	1.0	0.1	0.3		36.3	0.0			0.0	
Delay (s)		12.0	12.7	10.3	11.9		67.6	21.7			21.7	
Level of Service		B	B	B	B		E	C			C	
Approach Delay (s)		12.5			11.8		66.7				21.7	
Approach LOS		B			B		E				C	

**Intersection Summary**

HCM 2000 Control Delay 28.6 HCM 2000 Level of Service C  
 HCM 2000 Volume to Capacity ratio 0.53  
 Actuated Cycle Length (s) 93.5 Sum of lost time (s) 13.6  
 Intersection Capacity Utilization 69.7% ICU Level of Service C  
 Analysis Period (min) 15  
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
7: Concession Road 3 & Regional Highway 47

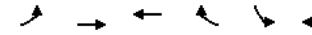
Existing 2022 AM  
04-01-2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations	↔			↔				↔			↔							
Traffic Volume (veh/h)	8	163	9	4	317	4	17	10	5	6	8	18						
Future Volume (Veh/h)	8	163	9	4	317	4	17	10	5	6	8	18						
Sign Control	Free			Free				Stop			Stop							
Grade	0%			0%				0%			0%							
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90						
Hourly flow rate (vph)	9	181	10	4	352	4	19	11	6	7	9	20						
Pedestrians				2				1										
Lane Width (m)				3.5				3.5										
Walking Speed (m/s)				1.2				1.2										
Percent Blockage				0				0										
Right turn flare (veh)																		
Median type	None			None														
Median storage (veh)																		
Upstream signal (m)																		
pX, platoon unblocked																		
vC, conflicting volume	356			192			592		569		189		580		572		354	
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	356			192			592		569		189		580		572		354	
tC, single (s)	4.1			4.3			7.1		6.5		6.2		7.4		6.5		6.2	
tC, 2 stage (s)																		
tF (s)	2.2			2.4			3.5		4.0		3.3		3.8		4.0		3.3	
p0 queue free %	99			100			95		97		99		98		98		97	
cM capacity (veh/h)	1214			1254			399		430		856		368		428		694	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1														
Volume Total	200	360	36	36														
Volume Left	9	4	19	7														
Volume Right	10	4	6	20														
cSH	1214	1254	449	523														
Volume to Capacity	0.01	0.00	0.08	0.07														
Queue Length 95th (m)	0.2	0.1	2.1	1.8														
Control Delay (s)	0.4	0.1	13.7	12.4														
Lane LOS	A	A	B	B														
Approach Delay (s)	0.4	0.1	13.7	12.4														
Approach LOS			B	B														
Intersection Summary																		
Average Delay			1.7															
Intersection Capacity Utilization			29.7%		ICU Level of Service		A											
Analysis Period (min)			15															

HCM Unsignalized Intersection Capacity Analysis  
8: Regional Highway 47 & Goodwood Pit Site Access

Existing 2022 AM  
04-01-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations		↑	↑	↑	↑	↑		
Traffic Volume (veh/h)	0	145	337	13	0	23		
Future Volume (Veh/h)	0	145	337	13	0	23		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80		
Hourly flow rate (vph)	0	181	421	16	0	29		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type	None		None					
Median storage (veh)								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	437				602		421	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	437				602		421	
tC, single (s)	5.1				7.4		7.2	
tC, 2 stage (s)								
tF (s)	3.1				4.4		4.2	
p0 queue free %	100				100		94	
cM capacity (veh/h)	750				335		467	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1				
Volume Total	181	421	16	29				
Volume Left	0	0	0	0				
Volume Right	0	0	16	29				
cSH	1700	1700	1700	467				
Volume to Capacity	0.11	0.25	0.01	0.06				
Queue Length 95th (m)	0.0	0.0	0.0	1.6				
Control Delay (s)	0.0	0.0	0.0	13.2				
Lane LOS				B				
Approach Delay (s)	0.0	0.0		13.2				
Approach LOS				B				
Intersection Summary								
Average Delay			0.6					
Intersection Capacity Utilization			27.7%		ICU Level of Service		A	
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis  
 9: Brock Road (Regional Road 1) & Regional Highway 47

Existing 2022 AM  
 04-01-2022

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	164	17	134	284	31	100
Future Volume (Veh/h)	164	17	134	284	31	100
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	184	19	151	319	35	112
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	9					
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			203		814 194	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			203		814 194	
tC, single (s)			4.2		7.2 6.3	
tC, 2 stage (s)						
tF (s)			2.3		4.2 3.4	
p0 queue free %			89		85 87	
cM capacity (veh/h)			1339		230 833	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	203	151	319	147		
Volume Left	0	151	0	35		
Volume Right	19	0	0	112		
cSH	1700	1339	1700	964		
Volume to Capacity	0.12	0.11	0.19	0.15		
Queue Length 95th (m)	0.0	3.0	0.0	4.3		
Control Delay (s)	0.0	8.0	0.0	13.2		
Lane LOS	A		B			
Approach Delay (s)	0.0		2.6		13.2	
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			3.8			
Intersection Capacity Utilization			30.4%		ICU Level of Service A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 11: Concession Road 3 & Goodwood Pit Site Access

Existing 2022 AM  
 04-01-2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	0	0	14	0	10	31
Future Volume (Veh/h)	0	0	14	0	10	31
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	0	17	0	12	38
Pedestrians	1					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	79	18			17	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79	18			17	
tC, single (s)	6.4	6.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			3.1	
p0 queue free %	100	100			99	
cM capacity (veh/h)	914	1060			1142	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	17	50			
Volume Left	0	0	12			
Volume Right	0	0	0			
cSH	1700	1700	1142			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (m)	0.0	0.0	0.3			
Control Delay (s)	0.0	0.0	2.0			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	2.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			19.2%		ICU Level of Service A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

Existing 2022 PM

1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	97	1	157	0	3	1	137	299	1	1	174	55	
Future Volume (Veh/h)	97	1	157	0	3	1	137	299	1	1	174	55	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Hourly flow rate (vph)	115	1	187	0	4	1	163	356	1	1	207	65	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None						None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	894	892	207	1079	956	356	272						357
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	894	892	207	1079	956	356	272						357
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1						4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2						2.2
p0 queue free %	50	100	77	100	98	100	87						100
cM capacity (veh/h)	230	247	823	137	227	692	1286						1213
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	115	188	5	163	357	1	207	65					
Volume Left	115	0	0	163	0	1	0	0					
Volume Right	0	187	1	0	1	0	0	65					
cSH	230	813	262	1286	1700	1213	1700	1700					
Volume to Capacity	0.50	0.23	0.02	0.13	0.21	0.00	0.12	0.04					
Queue Length 95th (m)	20.4	7.1	0.5	3.5	0.0	0.0	0.0	0.0					
Control Delay (s)	35.3	10.8	19.0	8.2	0.0	8.0	0.0	0.0					
Lane LOS	E	B	C	A	A	A							
Approach Delay (s)	20.1	19.0		2.6	0.0								
Approach LOS	C	C											
Intersection Summary													
Average Delay	6.8												
Intersection Capacity Utilization	41.2%		ICU Level of Service		A								
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis

Existing 2022 PM

2: York-Durham Line & Wagg Road

04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	2	0	0	2	0	47	2	344	9	72	235	0	
Future Volume (Veh/h)	2	0	0	2	0	47	2	344	9	72	235	0	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	2	0	0	2	0	53	2	387	10	81	264	0	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None						None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	875	827	264	822	822	392	264						397
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	875	827	264	822	822	392	264						397
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1						4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2						2.2
p0 queue free %	99	100	100	99	100	92	100						93
cM capacity (veh/h)	236	287	780	279	289	650	1312						1156
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	2	55	399	345									
Volume Left	2	2	2	81									
Volume Right	0	53	10	0									
cSH	236	620	1312	1156									
Volume to Capacity	0.01	0.09	0.00	0.07									
Queue Length 95th (m)	0.2	2.3	0.0	1.8									
Control Delay (s)	20.4	11.4	0.1	2.5									
Lane LOS	C	B	A	A									
Approach Delay (s)	20.4	11.4	0.1	2.5									
Approach LOS	C	B											
Intersection Summary													
Average Delay	1.9												
Intersection Capacity Utilization	48.4%		ICU Level of Service		A								
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis  
3: York-Durham Line & Pit Inbound Site Access

Existing 2022 PM  
04-01-2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (veh/h)	0	0	38	322	236	7
Future Volume (Veh/h)	0	0	38	322	236	7
Sign Control	Stop		Free			
Grade	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	42	358	262	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	708	266	270			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	708	266	270			
tC, single (s)	6.4	6.2	5.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	3.1			
p0 queue free %	100	100	95			
cM capacity (veh/h)	385	778	894			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>SB 1</b>				
Volume Total	400	270				
Volume Left	42	0				
Volume Right	0	8				
cSH	894	1700				
Volume to Capacity	0.05	0.16				
Queue Length 95th (m)	1.2	0.0				
Control Delay (s)	1.5	0.0				
Lane LOS	A					
Approach Delay (s)	1.5	0.0				
Approach LOS						
<b>Intersection Summary</b>						
Average Delay	0.9					
Intersection Capacity Utilization	38.6%		ICU Level of Service	A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
4: York-Durham Line & Pit Outbound Site Access/Private Access

Existing 2022 PM  
04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕	↕	↕	↕		↕		↕	↕	↕
Traffic Volume (veh/h)	7	0	45	10	0	2	0	350	2	0	242	0
Future Volume (Veh/h)	7	0	45	10	0	2	0	350	2	0	242	0
Sign Control	Stop		Stop				Free					
Grade	0%		0%				0%					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	49	11	0	2	0	380	2	0	263	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None		None			
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	646	645	263	693	644	381	263	382				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	646	645	263	693	644	381	263	382				
tC, single (s)	7.7	6.5	7.1	7.1	6.5	6.2	4.1	4.1				
tC, 2 stage (s)												
tF (s)	4.0	4.0	4.1	3.5	4.0	3.3	2.2	2.2				
p0 queue free %	97	100	92	97	100	100	100	100				
cM capacity (veh/h)	316	391	597	331	391	671	1313	1176				
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>							
Volume Total	8	49	13	382	263							
Volume Left	8	0	11	0	0							
Volume Right	0	49	2	2	0							
cSH	316	597	359	1700	1176							
Volume to Capacity	0.03	0.08	0.04	0.22	0.00							
Queue Length 95th (m)	0.6	2.1	0.9	0.0	0.0							
Control Delay (s)	16.7	11.6	15.4	0.0	0.0							
Lane LOS	C	B	C									
Approach Delay (s)	12.3		15.4	0.0	0.0							
Approach LOS	B		C									
<b>Intersection Summary</b>												
Average Delay	1.3											
Intersection Capacity Utilization	32.6%		ICU Level of Service	A								
Analysis Period (min)	15											

Timings  
5: York-Durham Line & Regional Highway 47

Existing 2022 PM  
04-01-2022

	↖	→	↗	←	↖	↑	↗	↘	↓
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗	↖
Traffic Volume (vph)	44	615	158	438	57	198	160	56	184
Future Volume (vph)	44	615	158	438	57	198	160	56	184
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA
Protected Phases	1	6	5	2		8		4	4
Permitted Phases	6		2		8		8	4	
Detector Phase	1	6	5	2	8	8	8	4	4
Switch Phase									
Minimum Initial (s)	7.0	50.0	7.0	50.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	58.0	11.0	58.0	18.0	18.0	18.0	18.0	18.0
Total Split (s)	11.0	62.0	11.0	62.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	9.2%	51.7%	9.2%	51.7%	39.2%	39.2%	39.2%	39.2%	39.2%
Yellow Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.0	4.0	8.0		8.0	8.0		8.0
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	65.2	54.2	66.1	56.6		32.5		32.5	
Actuated g/C Ratio	0.57	0.48	0.58	0.50		0.29		0.29	
v/c Ratio	0.11	0.86	0.71	0.62		0.68		0.93	
Control Delay	11.2	38.9	29.8	26.6		44.6		6.3	
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	
Total Delay	11.2	38.9	29.8	26.6		44.6		6.3	
LOS	B	D	C	C		D		A	
Approach Delay		37.2		27.4		29.8			71.7
Approach LOS		D		C		C			E

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 113.8	
Natural Cycle: 100	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 37.7	Intersection LOS: D
Intersection Capacity Utilization 103.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: York-Durham Line & Regional Highway 47

↖ 01	↗ 02	↖ 04
11 s	62 s	47 s
↖ 05	↗ 06	↖ 08
11 s	62 s	47 s

HCM Signalized Intersection Capacity Analysis  
5: York-Durham Line & Regional Highway 47

Existing 2022 PM  
04-01-2022

	↖	→	↗	←	↖	↑	↗	↘	↓	↖		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	44	615	76	158	438	46	57	198	160	56	184	61
Future Volume (vph)	44	615	76	158	438	46	57	198	160	56	184	61
Ideal Flow (vphpl)	2000	2000	2000	1900	1900	1900	2000	2000	2000	1900	1900	1900
Total Lost time (s)	4.0	8.0		4.0	8.0		8.0	8.0		8.0		8.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00		1.00
Fr't	1.00	0.98		1.00	0.99		1.00	0.85		1.00		0.97
Fit Protected	0.95	1.00		0.95	1.00		0.99	1.00		0.99		0.99
Satd. Flow (prot)	1789	1833		1767	1713		1887	1632		1632		1691
Fit Permitted	0.35	1.00		0.14	1.00		0.75	1.00		0.71		0.71
Satd. Flow (perm)	651	1833		256	1713		1435	1632		1204		1204
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	668	83	172	476	50	62	215	174	61	200	66
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	120	0	8	0
Lane Group Flow (vph)	48	747	0	172	523	0	277	54	0	319	0	0
Heavy Vehicles (%)	5%	6%	7%	1%	8%	9%	6%	3%	3%	15%	3%	12%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2		8			4		4
Permitted Phases	6			2			8			4		
Actuated Green, G (s)	60.6	55.1		63.6	56.6		32.5	32.5		32.5		32.5
Effective Green, g (s)	60.6	55.1		63.6	56.6		32.5	32.5		32.5		32.5
Actuated g/C Ratio	0.53	0.48		0.55	0.49		0.28	0.28		0.28		0.28
Clearance Time (s)	4.0	8.0		4.0	8.0		8.0	8.0		8.0		8.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0		5.0		5.0
Lane Grp Cap (vph)	398	881		234	846		406	462		341		
v/s Ratio Prot	0.01	c0.41		c0.04	0.31							
v/s Ratio Perm	0.06			0.36			0.19	0.03		c0.27		
v/c Ratio	0.12	0.85		0.74	0.62		0.68	0.12		0.94		
Uniform Delay, d1	14.0	26.1		20.1	21.1		36.5	30.4		40.0		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Incremental Delay, d2	0.1	10.0		11.3	3.4		6.0	0.2		33.3		
Delay (s)	14.2	36.1		31.4	24.5		42.5	30.6		73.3		
Level of Service	B	D		C	C		D	C		E		
Approach Delay (s)		34.7			26.2		37.9			73.3		
Approach LOS		C			C		D			E		

Intersection Summary

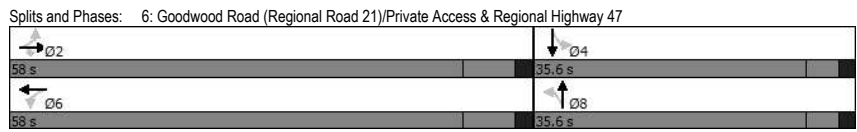
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	114.6	Sum of lost time (s)	20.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Timings Existing 2022 PM  
6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔	↑	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	2	422	446	6	261	281	3	5	2
Future Volume (vph)	2	422	446	6	261	281	3	5	2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4	
Permitted Phases	2		2	6		8		4	
Detector Phase	2	2	2	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	25.0	25.0	25.0	25.0	25.0	12.0	12.0	12.0	12.0
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	58.0	58.0	58.0	58.0	58.0	35.6	35.6	35.6	35.6
Total Split (%)	62.0%	62.0%	62.0%	62.0%	62.0%	38.0%	38.0%	38.0%	38.0%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	3.7	3.7	3.7	3.7
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	5.6	5.6	5.6	5.6

Recall Mode	Max	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)	50.2	50.2	50.2	50.2	50.2	24.5	24.5	24.5	24.5
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.28	0.28	0.28	0.28
v/c Ratio	0.00	0.44	0.47	0.02	0.15	0.85	0.01	0.02	0.02
Control Delay	10.0	13.7	2.7	10.3	10.0	52.0	20.0	19.9	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.0	13.7	2.7	10.3	10.0	52.0	20.0	19.9	19.9
LOS	A	B	A	B	B	D	B	B	B
Approach Delay		8.1			10.0		51.6	19.9	
Approach LOS		A			B		D	B	

**Intersection Summary**  
 Cycle Length: 93.6  
 Actuated Cycle Length: 88.4  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 17.2 Intersection LOS: B  
 Intersection Capacity Utilization 76.8% ICU Level of Service D  
 Analysis Period (min) 15



HCM Signalized Intersection Capacity Analysis Existing 2022 PM  
6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	2	422	446	6	261	4	281	3	1	5	2	2
Future Volume (vph)	2	422	446	6	261	4	281	3	1	5	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		5.6	5.6			5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.96			0.97	
Fit Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1785	1824	1456	1522	3395		1638	1808			1773	
Fit Permitted	0.58	1.00	1.00	0.45	1.00		0.75	1.00			0.92	
Satd. Flow (perm)	1081	1824	1456	719	3395		1296	1808			1684	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	459	485	7	284	4	305	3	1	5	2	2
RTOR Reduction (vph)	0	0	209	0	1	0	0	1	0	0	1	0
Lane Group Flow (vph)	2	459	276	7	287	0	305	3	0	0	8	0
Conf. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	0%	3%	7%	17%	5%	0%	9%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2		6			8			4		
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)	50.2	50.2	50.2	50.2	50.2		24.5	24.5		24.5		
Effective Green, g (s)	50.2	50.2	50.2	50.2	50.2		24.5	24.5		24.5		
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.28	0.28		0.28		
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		5.6	5.6		5.6		
Vehicle Extension (s)	4.2	4.2	4.2	4.2	4.2		3.0	3.0		3.0		
Lane Grp Cap (vph)	614	1036	827	408	1930		359	501		467		
v/s Ratio Prot		c0.25			0.08			0.00				
v/s Ratio Perm	0.00		0.19	0.01			c0.24				0.00	
v/c Ratio	0.00	0.44	0.33	0.02	0.15		0.85	0.01			0.02	
Uniform Delay, d1	8.2	11.0	10.1	8.3	9.0		30.2	23.1			23.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	1.4	1.1	0.1	0.2		16.9	0.0			0.0	
Delay (s)	8.2	12.4	11.2	8.4	9.1		47.0	23.1			23.2	
Level of Service	A	B	B	A	A		D	C			C	
Approach Delay (s)		11.8			9.1		46.7				23.2	
Approach LOS		B			A		D				C	

**Intersection Summary**  
 HCM 2000 Control Delay 18.3 HCM 2000 Level of Service B  
 HCM 2000 Volume to Capacity ratio 0.58  
 Actuated Cycle Length (s) 88.3 Sum of lost time (s) 13.6  
 Intersection Capacity Utilization 76.8% ICU Level of Service D  
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis  
7: Concession Road 3 & Regional Highway 47

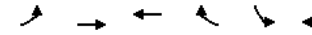
Existing 2022 PM  
04-01-2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔			↔			↔			↔			
Traffic Volume (veh/h)	21	383	25	5	264	7	12	14	10	4	18	14	
Future Volume (Veh/h)	21	383	25	5	264	7	12	14	10	4	18	14	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Hourly flow rate (vph)	23	412	27	5	284	8	13	15	11	4	19	15	
Pedestrians	3			3			5			7			
Lane Width (m)	3.5			3.5			3.5			3.5			
Walking Speed (m/s)	1.2			1.2			1.2			1.2			
Percent Blockage	0			0			0			1			
Right turn flare (veh)													
Median type	None			None									
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	299			444			802		786	434	798	795	298
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	299			444			802		786	434	798	795	298
tC, single (s)	4.1			4.1			7.1		6.6	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2			2.2			3.5		4.1	3.3	3.5	4.0	3.3
p0 queue free %	98			100			95		95	98	99	94	98
cM capacity (veh/h)	1266			1122			276		307	623	280	312	740
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>									
Volume Total	462	297	39	38									
Volume Left	23	5	13	4									
Volume Right	27	8	11	15									
cSH	1266	1122	343	398									
Volume to Capacity	0.02	0.00	0.11	0.10									
Queue Length 95th (m)	0.4	0.1	3.0	2.5									
Control Delay (s)	0.6	0.2	16.8	15.0									
Lane LOS	A	A	C	B									
Approach Delay (s)	0.6	0.2	16.8	15.0									
Approach LOS			C	B									
<b>Intersection Summary</b>													
Average Delay			1.8										
Intersection Capacity Utilization			45.2%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis  
8: Regional Highway 47 & Goodwood Pit Site Access

Existing 2022 PM  
04-01-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↑	↑	↑
Traffic Volume (veh/h)	2	395	274	4	2	6
Future Volume (Veh/h)	2	395	274	4	2	6
Sign Control	Free		Free	Stop		
Grade	0%		0%	0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2	434	301	4	2	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	305			739		301
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	305			739		301
tC, single (s)	5.1			7.4		7.2
tC, 2 stage (s)						
tF (s)	3.1			4.4		4.2
p0 queue free %	100			99		99
cM capacity (veh/h)	857			271		557
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>SB 1</b>		
Volume Total	436	301	4	9		
Volume Left	2	0	0	2		
Volume Right	0	0	4	7		
cSH	857	1700	1700	451		
Volume to Capacity	0.00	0.18	0.00	0.02		
Queue Length 95th (m)	0.1	0.0	0.0	0.5		
Control Delay (s)	0.1	0.0	0.0	13.1		
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	13.1			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.2			
Intersection Capacity Utilization			32.4%	ICU Level of Service	A	
Analysis Period (min)			15			



HCM Unsignalized Intersection Capacity Analysis  
9: Brock Road (Regional Road 1) & Regional Highway 47

Existing 2022 PM  
04-01-2022

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	381	16	164	256	8	146
Future Volume (Veh/h)	381	16	164	256	8	146
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	438	18	189	294	9	168
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	9					
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			456		1119	447
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			456		1119	447
tC, single (s)			4.2		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.7	3.3
p0 queue free %			82		95	73
cM capacity (veh/h)			1074		170	612
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	456	189	294	177		
Volume Left	0	189	0	9		
Volume Right	18	0	0	168		
cSH	1700	1074	1700	644		
Volume to Capacity	0.27	0.18	0.17	0.27		
Queue Length 95th (m)	0.0	5.1	0.0	8.9		
Control Delay (s)	0.0	9.1	0.0	13.8		
Lane LOS	A		B			
Approach Delay (s)	0.0	3.5	13.8			
Approach LOS	A		B			
<b>Intersection Summary</b>						
Average Delay			3.7			
Intersection Capacity Utilization			43.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
11: Concession Road 3 & Goodwood Pit Site Access

Existing 2022 PM  
04-01-2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	0	0	40	0	2	21
Future Volume (Veh/h)	0	0	40	0	2	21
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	42	0	2	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	68	42			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68	42			42	
tC, single (s)	6.4	6.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			3.1	
p0 queue free %	100	100			100	
cM capacity (veh/h)	935	1029			1114	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	42	24			
Volume Left	0	0	2			
Volume Right	0	0	0			
cSH	1700	1700	1114			
Volume to Capacity	0.00	0.02	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.7			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.7			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			6.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Queuing and Blocking Report

Existing 2022 AM  
04-01-2022

Intersection: 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

Movement	EB	EB	NB	SB	SB
Directions Served	L	TR	L	T	R
Maximum Queue (m)	19.5	22.5	22.9	0.6	2.6
Average Queue (m)	5.3	9.6	6.2	0.0	0.1
95th Queue (m)	13.3	18.5	16.5	0.6	1.7
Link Distance (m)	574.9		659.9		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	80.0		50.0		70.0
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: York-Durham Line & Wagg Road

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (m)	11.1	15.8
Average Queue (m)	6.3	1.7
95th Queue (m)	11.6	8.9
Link Distance (m)	1653.9	736.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: York-Durham Line & Pit Inbound Site Access

Movement	NB	SB
Directions Served	LT	TR
Maximum Queue (m)	32.1	1.3
Average Queue (m)	6.4	0.0
95th Queue (m)	22.7	0.9
Link Distance (m)	81.8	986.8
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Existing 2022 AM  
04-01-2022

Intersection: 4: York-Durham Line & Pit Outbound Site Access/Private Access

Movement	EB	EB	SB
Directions Served	L	R	LT
Maximum Queue (m)	24.8	30.9	1.8
Average Queue (m)	6.8	14.7	0.1
95th Queue (m)	21.1	27.4	1.4
Link Distance (m)	192.1	192.1	81.8
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: York-Durham Line & Regional Highway 47

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (m)	71.6	134.0	82.8	170.8	124.9	60.0	121.8
Average Queue (m)	20.3	57.6	21.1	76.3	47.2	12.1	64.6
95th Queue (m)	50.2	106.7	59.7	139.5	96.8	51.4	111.3
Link Distance (m)	1468.4		2731.9		720.3	726.6	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	55.0		55.0			40.0	
Storage Blk Time (%)	0	8	0	16	21	0	
Queuing Penalty (veh)	1	7	0	19	22	0	

Intersection: 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47

Movement	EB	EB	B29	WB	WB	WB	NB	NB	SB
Directions Served	T	R	T	L	T	TR	L	TR	LTR
Maximum Queue (m)	49.2	6.6	1093.7	14.6	41.7	37.1	49.9	100.7	4.9
Average Queue (m)	15.2	0.2	45.6	1.1	14.8	14.5	43.3	32.8	0.3
95th Queue (m)	38.4	6.5	623.5	7.2	32.1	31.7	56.6	94.5	3.1
Link Distance (m)	888.7		2731.9		556.1		328.2 155.7		
Upstream Blk Time (%)	0								
Queuing Penalty (veh)	1								
Storage Bay Dist (m)	50.0			50.0			25.0	30.0	
Storage Blk Time (%)	0	0				2	2	31	0
Queuing Penalty (veh)	1	0				3	4	2	0

Queuing and Blocking Report

Existing 2022 AM  
04-01-2022

Intersection: 7: Concession Road 3 & Regional Highway 47

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.5	7.0	10.0	19.6
Average Queue (m)	0.8	0.3	4.1	5.6
95th Queue (m)	5.6	3.5	9.2	13.6
Link Distance (m)	556.1	395.3	439.5	1208.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Regional Highway 47 & Goodwood Pit Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	25.6
Average Queue (m)	8.7
95th Queue (m)	21.7
Link Distance (m)	381.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Brock Road (Regional Road 1) & Regional Highway 47

Movement	WB	NB
Directions Served	L	L
Maximum Queue (m)	19.0	30.1
Average Queue (m)	4.9	9.9
95th Queue (m)	13.4	24.6
Link Distance (m)		1045.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	110.0	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Existing 2022 AM  
04-01-2022

Intersection: 11: Concession Road 3 & Goodwood Pit Site Access

Movement	SB
Directions Served	LT
Maximum Queue (m)	4.5
Average Queue (m)	0.1
95th Queue (m)	2.6
Link Distance (m)	387.2
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 60
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Queuing and Blocking Report

Existing 2022 PM  
04-01-2022

Intersection: 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	L	L	R
Maximum Queue (m)	29.0	19.5	7.8	21.8	2.8	2.6
Average Queue (m)	9.9	8.2	1.1	6.6	0.1	0.1
95th Queue (m)	20.4	15.4	5.5	16.4	1.4	1.3
Link Distance (m)		574.9	234.7			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			50.0	50.0	70.0
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: York-Durham Line & Wagg Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.7	15.5	3.0	18.1
Average Queue (m)	0.6	6.8	0.1	4.3
95th Queue (m)	4.6	13.4	2.6	13.2
Link Distance (m)	104.9	1653.9	1318.6	736.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: York-Durham Line & Pit Inbound Site Access

Movement	NB
Directions Served	LT
Maximum Queue (m)	23.8
Average Queue (m)	3.4
95th Queue (m)	14.8
Link Distance (m)	82.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report

Existing 2022 PM  
04-01-2022

Intersection: 4: York-Durham Line & Pit Outbound Site Access/Private Access

Movement	EB	EB	WB
Directions Served	L	R	LTR
Maximum Queue (m)	17.3	33.0	8.2
Average Queue (m)	2.0	13.7	2.9
95th Queue (m)	10.1	27.5	9.1
Link Distance (m)	192.1	192.1	105.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: York-Durham Line & Regional Highway 47

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	LTR
Maximum Queue (m)	74.8	255.6	78.0	118.1	123.9	60.0	109.0
Average Queue (m)	14.7	138.5	27.8	55.4	49.9	12.4	54.3
95th Queue (m)	53.2	243.7	56.9	99.1	100.5	52.3	93.5
Link Distance (m)		1468.4		2732.5	720.3		726.3
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)	55.0		55.0			40.0	
Storage Blk Time (%)		37	0	9	19		
Queuing Penalty (veh)		16	2	13	30		

Intersection: 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47

Movement	EB	EB	B29	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	L	T	TR	L	TR	LTR
Maximum Queue (m)	3.0	73.7	1095.7	7.7	25.0	27.8	49.8	84.2	11.4
Average Queue (m)	0.1	29.4	36.5	0.9	8.8	8.7	38.4	17.2	2.1
95th Queue (m)	1.7	57.3	554.9	5.2	19.9	21.8	54.4	65.9	8.3
Link Distance (m)		888.2	2732.5		556.1		328.2	155.7	
Upstream Blk Time (%)			0						
Queuing Penalty (veh)			1						
Storage Bay Dist (m)	70.0			50.0		25.0	30.0		
Storage Blk Time (%)		1			0	1	22		
Queuing Penalty (veh)		5			0	1	1		

Queuing and Blocking Report

Existing 2022 PM  
04-01-2022

Intersection: 7: Concession Road 3 & Regional Highway 47

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	27.1	19.2	13.8	12.2
Average Queue (m)	2.5	1.2	4.7	5.1
95th Queue (m)	13.9	9.5	10.7	11.0
Link Distance (m)	556.1	395.5	439.5	1196.6
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Regional Highway 47 & Goodwood Pit Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	3.1	19.3
Average Queue (m)	0.1	2.6
95th Queue (m)	2.2	11.9
Link Distance (m)	395.5	381.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Brock Road (Regional Road 1) & Regional Highway 47

Movement	EB	WB	NB
Directions Served	TR	L	L
Maximum Queue (m)	1.3	26.3	15.2
Average Queue (m)	0.0	9.8	1.9
95th Queue (m)	0.9	20.5	9.0
Link Distance (m)	3705.4		1045.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		110.0	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

Existing 2022 PM  
04-01-2022

Intersection: 11: Concession Road 3 & Goodwood Pit Site Access

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 71
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***Appendix D2:***  
***Future 2028 Capacity Analysis***

HCM Unsignalized Intersection Capacity Analysis  
 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

Future Total 2028 AM  
 04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	40	1	147	0	0	0	132	110	0	0	192	95	
Future Volume (Veh/h)	40	1	147	0	0	0	132	110	0	0	192	95	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	46	1	169	0	0	0	152	126	0	0	221	109	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None						None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	651	651	221	820	760	126	330						126
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	651	651	221	820	760	126	330						126
tC, single (s)	7.2	6.5	6.4	7.1	6.5	6.2	4.2						4.1
tC, 2 stage (s)													
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3						2.2
p0 queue free %	86	100	79	100	100	100	87						100
cM capacity (veh/h)	331	341	787	209	295	930	1197						1473
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	46	170	0	152	126	0	221	109					
Volume Left	46	0	0	152	0	0	0	0					
Volume Right	0	169	0	0	0	0	0	109					
cSH	331	781	1700	1197	1700	1700	1700	1700					
Volume to Capacity	0.14	0.22	0.00	0.13	0.07	0.00	0.13	0.06					
Queue Length 95th (m)	3.8	6.6	0.0	3.5	0.0	0.0	0.0	0.0					
Control Delay (s)	17.6	10.9	0.0	8.4	0.0	0.0	0.0	0.0					
Lane LOS	C	B	A	A									
Approach Delay (s)	12.3	A		0.0	4.6	0.0							
Approach LOS	B	A											
Intersection Summary													
Average Delay	4.8												
Intersection Capacity Utilization	36.6%			ICU Level of Service			A						
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis  
 2: York-Durham Line & Wagg Road

Future Total 2028 AM  
 04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	0	1	0	50	0	168	14	38	293	0	
Future Volume (Veh/h)	0	0	0	1	0	50	0	168	14	38	293	0	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Hourly flow rate (vph)	0	0	0	1	0	54	0	181	15	41	315	0	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None						None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	640	593	315	586	586	188	315						196
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	640	593	315	586	586	188	315						196
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1						4.2
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2						2.3
p0 queue free %	100	100	100	100	100	94	100						97
cM capacity (veh/h)	358	408	730	415	412	859	1257						1325
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	0	55	196	356									
Volume Left	0	1	0	41									
Volume Right	0	54	15	0									
cSH	1700	842	1257	1325									
Volume to Capacity	0.00	0.07	0.00	0.03									
Queue Length 95th (m)	0.0	1.7	0.0	0.8									
Control Delay (s)	0.0	9.6	0.0	1.2									
Lane LOS	A	A	A	A									
Approach Delay (s)	0.0	9.6	0.0	1.2									
Approach LOS	A	A											
Intersection Summary													
Average Delay	1.5												
Intersection Capacity Utilization	40.5%			ICU Level of Service			A						
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis  
3: York-Durham Line & Pit Inbound Site Access

Future Total 2028 AM  
04-01-2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↘	↗	↗	↘
Traffic Volume (veh/h)	0	0	184	212	394	8
Future Volume (Veh/h)	0	0	184	212	394	8
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	198	228	424	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1052	428	433			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1052	428	433			
tC, single (s)	6.4	6.2	5.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	3.1			
p0 queue free %	100	100	74			
cM capacity (veh/h)	187	631	759			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>			
Volume Total	198	228	433			
Volume Left	198	0	0			
Volume Right	0	0	9			
cSH	759	1700	1700			
Volume to Capacity	0.26	0.13	0.25			
Queue Length 95th (m)	8.3	0.0	0.0			
Control Delay (s)	11.4	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	5.3		0.0			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay			2.6			
Intersection Capacity Utilization			38.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
4: York-Durham Line & Pit Outbound Site Access/Private Access

Future Total 2028 AM  
04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘		↗	↘	↗	↘		↗	↘	↘	↗	↘
Traffic Volume (veh/h)	15	0	51	0	0	0	0	373	7	1	399	0
Future Volume (Veh/h)	15	0	51	0	0	0	0	373	7	1	399	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	16	0	56	0	0	0	0	410	8	1	438	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	854	858	438	910	854	414	438		418			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	854	858	438	910	854	414	438		418			
tC, single (s)	8.1	6.5	7.2	7.1	6.5	6.2	4.1		4.1			
tC, 2 stage (s)												
tF (s)	4.4	4.0	4.2	3.5	4.0	3.3	2.2		2.2			
p0 queue free %	92	100	88	100	100	100	100		100			
cM capacity (veh/h)	193	296	456	226	298	643	1133		1152			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>							
Volume Total	16	56	0	418	439							
Volume Left	16	0	0	0	1							
Volume Right	0	56	0	8	0							
cSH	193	456	1700	1700	1152							
Volume to Capacity	0.08	0.12	0.00	0.25	0.00							
Queue Length 95th (m)	2.1	3.3	0.0	0.0	0.0							
Control Delay (s)	25.4	14.0	0.0	0.0	0.0							
Lane LOS	D	B	A		A							
Approach Delay (s)	16.5		0.0		0.0							
Approach LOS	C		A									
<b>Intersection Summary</b>												
Average Delay				1.3								
Intersection Capacity Utilization				31.8%			ICU Level of Service	A				
Analysis Period (min)				15								



Timings  
5: York-Durham Line & Regional Highway 47

Future Total 2028 AM  
04-01-2022

	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	167	394	137	509	76	150	120	97	186	166
Future Volume (vph)	167	394	137	509	76	150	120	97	186	166
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6	5	2		8		4		4
Permitted Phases	6	1	2	8	8	8	8	4	4	4
Detector Phase	1	6	5	2	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	50.0	7.0	50.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	58.0	11.0	58.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (s)	17.0	64.0	11.0	58.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	14.8%	55.7%	9.6%	50.4%	34.8%	34.8%	34.8%	34.8%	34.8%	34.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.0	4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	None	Max	None	None	None	None	None	None
Act Effct Green (s)	70.7	56.3	62.8	51.7	21.0	21.0	21.0	21.0	21.0	21.0
Actuated g/C Ratio	0.68	0.54	0.60	0.50	0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.63	0.55	0.26	0.87	0.39	0.43	0.29	0.64	0.55	0.55
Control Delay	19.0	19.8	8.7	39.7	41.4	39.4	7.5	56.8	43.2	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.0	19.8	8.7	39.7	41.4	39.4	7.5	56.8	43.2	12.2
LOS	B	B	A	D	D	D	A	E	D	B
Approach Delay		19.6		34.1		28.8		34.7		
Approach LOS		B		C		C		C		

Intersection Summary

Cycle Length: 115	
Actuated Cycle Length: 104.4	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 29.2	Intersection LOS: C
Intersection Capacity Utilization 91.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: York-Durham Line & Regional Highway 47

↔ 01	↔ 02	↔ 04
17 s	58 s	40 s
↔ 05	↔ 06	↔ 08
11 s	54 s	40 s

HCM Signalized Intersection Capacity Analysis  
5: York-Durham Line & Regional Highway 47

Future Total 2028 AM  
04-01-2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	167	394	60	137	509	114	76	150	120	97	186	166
Future Volume (vph)	167	394	60	137	509	114	76	150	120	97	186	166
Ideal Flow (vphpl)	2000	2000	2000	1900	1900	1900	2000	2000	2000	1900	1900	1900
Total Lost time (s)	4.0	8.0		4.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1074	1564		1668	1460		1606	1782	1616	1109	1708	873
Flt Permitted	0.24	1.00		0.46	1.00		0.58	1.00	1.00	0.66	1.00	1.00
Satd. Flow (perm)	267	1564		805	1460		984	1782	1616	770	1708	873
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	170	402	61	140	519	116	78	153	122	99	190	169
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	97	0	0	135
Lane Group Flow (vph)	170	459	0	140	629	0	78	153	25	99	190	34
Heavy Vehicles (%)	75%	25%	17%	7%	16%	66%	17%	11%	4%	61%	10%	83%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2		8		8	4		4
Permitted Phases	6	1		2	8		8		4	4		4
Actuated Green, G (s)	67.3	56.3		58.7	51.7		21.0	21.0	21.0	21.0	21.0	21.0
Effective Green, g (s)	67.3	56.3		58.7	51.7		21.0	21.0	21.0	21.0	21.0	21.0
Actuated g/C Ratio	0.65	0.54		0.56	0.50		0.20	0.20	0.20	0.20	0.20	0.20
Clearance Time (s)	4.0	8.0		4.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	262	844		510	723		198	358	325	155	343	175
v/s Ratio Prot	c0.07	0.29		0.02	c0.43		0.09					0.11
v/s Ratio Perm	0.35			0.14			0.08		0.02	c0.13		0.04
v/c Ratio	0.65	0.54		0.27	0.87		0.39	0.43	0.08	0.64	0.55	0.19
Uniform Delay, d1	12.3	15.6		11.0	23.3		36.1	36.4	33.8	38.2	37.4	34.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.4	2.5		0.3	13.5		2.7	1.7	0.2	11.4	3.3	1.1
Delay (s)	17.8	18.1		11.3	36.8		38.8	38.1	34.0	49.6	40.7	35.8
Level of Service	B	B		B	D		D	D	C	D	D	D
Approach Delay (s)		18.0			32.2			36.8			40.8	
Approach LOS		B			C			D			D	

Intersection Summary

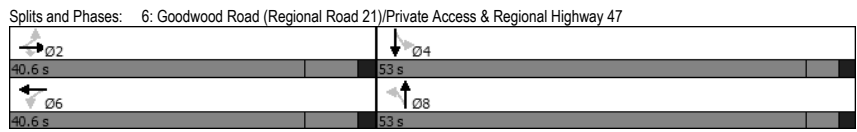
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	104.3	Sum of lost time (s)	20.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Timings Future Total 2028 AM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

	→	↖	↗	←	↖	↑	↗	↓
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑	↖	↗	↖	↑	↗	↕
Traffic Volume (vph)	224	285	6	401	336	1	1	1
Future Volume (vph)	224	285	6	401	336	1	1	1
Turn Type	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2		6		8	8	4	4
Permitted Phases		2	6		8	8	4	4
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	12.0	12.0	12.0	12.0
Minimum Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	40.6	40.6	40.6	40.6	53.0	53.0	53.0	53.0
Total Split (%)	43.4%	43.4%	43.4%	43.4%	56.6%	56.6%	56.6%	56.6%
Yellow Time (s)	5.9	5.9	5.9	5.9	3.7	3.7	3.7	3.7
All-Red Time (s)	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	5.6	5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)	33.1	33.1	33.1	33.1	27.6	27.6	27.6	27.6
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.37	0.37	0.37	0.37
v/c Ratio	0.39	0.44	0.02	0.35	0.83	0.01	0.00	0.00
Control Delay	18.6	4.5	16.3	16.5	37.2	8.0	12.5	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	4.5	16.3	16.5	37.2	8.0	12.5	12.5
LOS	B	A	B	B	D	A	B	B
Approach Delay	10.7		16.5		36.6		12.5	
Approach LOS	B		B		D		B	

**Intersection Summary**

Cycle Length: 93.6  
 Actuated Cycle Length: 74.5  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 19.6 Intersection LOS: B  
 Intersection Capacity Utilization 69.7% ICU Level of Service C  
 Analysis Period (min) 15



HCM Signalized Intersection Capacity Analysis Future Total 2028 AM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

	↖	→	↗	↖	←	↖	↗	↑	↗	↖	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↗	↖	↗	↖	↖	↕	↗
Traffic Volume (vph)	0	224	285	6	401	2	336	1	6	1	1	0
Future Volume (vph)	0	224	285	6	401	2	336	1	6	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0	8.0	8.0	8.0		5.6	5.6			5.6	
Lane Util. Factor		1.00	1.00	1.00	0.95		1.00	1.00			1.00	
Fr't		1.00	0.85	1.00	1.00		1.00	0.87			1.00	
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)		1479	1238	1190	2951		1552	1632			1833	
Flt Permitted		1.00	1.00	0.60	1.00		0.76	1.00			0.96	
Satd. Flow (perm)		1479	1238	753	2951		1236	1632			1795	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	255	324	7	456	2	382	1	7	1	1	0
RTOR Reduction (vph)	0	0	180	0	0	0	4	0	0	0	0	0
Lane Group Flow (vph)	0	255	144	7	458	0	382	4	0	0	2	0
Heavy Vehicles (%)	0%	27%	29%	50%	21%	0%	15%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2		6			8				4	
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		33.1	33.1	33.1	33.1		27.6	27.6			27.6	
Effective Green, g (s)		33.1	33.1	33.1	33.1		27.6	27.6			27.6	
Actuated g/C Ratio		0.45	0.45	0.45	0.45		0.37	0.37			0.37	
Clearance Time (s)		8.0	8.0	8.0	8.0		5.6	5.6			5.6	
Vehicle Extension (s)		4.2	4.2	4.2	4.2		3.0	3.0			3.0	
Lane Grp Cap (vph)		658	551	335	1314		459	606			666	
v/s Ratio Prot		c0.17		0.16			0.00				0.00	
v/s Ratio Perm			0.12	0.01			c0.31				0.00	
v/c Ratio		0.39	0.26	0.02	0.35		0.83	0.01			0.00	
Uniform Delay, d1		13.8	12.9	11.5	13.5		21.2	14.7			14.7	
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		1.7	1.2	0.1	0.7		12.2	0.0			0.0	
Delay (s)		15.5	14.1	11.6	14.3		33.4	14.7			14.7	
Level of Service		B	B	B	B		C	B			B	
Approach Delay (s)		14.7			14.2		33.1				14.7	
Approach LOS		B			B		C				B	

**Intersection Summary**

HCM 2000 Control Delay 19.5 HCM 2000 Level of Service B  
 HCM 2000 Volume to Capacity ratio 0.59  
 Actuated Cycle Length (s) 74.3 Sum of lost time (s) 13.6  
 Intersection Capacity Utilization 69.7% ICU Level of Service C  
 Analysis Period (min) 15  
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
7: Concession Road 3 & Regional Highway 47

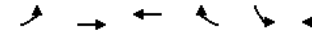
Future Total 2028 AM  
04-01-2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔				↔			↔	
Traffic Volume (veh/h)	8	223	9	4	381	4	17	10	5	6	8	18
Future Volume (Veh/h)	8	223	9	4	381	4	17	10	5	6	8	18
Sign Control	Free			Free				Stop			Stop	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	248	10	4	423	4	19	11	6	7	9	20
Pedestrians				2				1				
Lane Width (m)				3.5				3.5				
Walking Speed (m/s)				1.2				1.2				
Percent Blockage				0				0				
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	427			259			730	707	256	718	710	425
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	427			259			730	707	256	718	710	425
tC, single (s)	4.1			4.3			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.4			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	99			100			94	97	99	98	97	97
cM capacity (veh/h)	1143			1182			320	358	786	295	357	634
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	267	431	36	36								
Volume Left	9	4	19	7								
Volume Right	10	4	6	20								
cSH	1143	1182	369	447								
Volume to Capacity	0.01	0.00	0.10	0.08								
Queue Length 95th (m)	0.2	0.1	2.6	2.1								
Control Delay (s)	0.3	0.1	15.8	13.8								
Lane LOS	A	A	C	B								
Approach Delay (s)	0.3	0.1	15.8	13.8								
Approach LOS			C	B								
<b>Intersection Summary</b>												
Average Delay			1.6									
Intersection Capacity Utilization			33.3%	ICU Level of Service		A						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
8: Regional Highway 47 & Goodwood Pit Site Access

Future Total 2028 AM  
04-01-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↑	↑	↑
Traffic Volume (veh/h)	0	203	402	13	0	23
Future Volume (Veh/h)	0	203	402	13	0	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	254	503	16	0	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	519				757	503
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	519				757	503
tC, single (s)	4.1				6.4	7.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	4.2
p0 queue free %	100				100	93
cM capacity (veh/h)	1057				378	414
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>SB 1</b>		
Volume Total	254	503	16	29		
Volume Left	0	0	0	0		
Volume Right	0	0	16	29		
cSH	1700	1700	1700	414		
Volume to Capacity	0.15	0.30	0.01	0.07		
Queue Length 95th (m)	0.0	0.0	0.0	1.8		
Control Delay (s)	0.0	0.0	0.0	14.3		
Lane LOS				B		
Approach Delay (s)	0.0	0.0		14.3		
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			0.5			
Intersection Capacity Utilization			31.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
9: Brock Road (Regional Road 1) & Regional Highway 47

Future Total 2028 AM  
04-01-2022

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	224	17	134	346	31	100
Future Volume (Veh/h)	224	17	134	346	31	100
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	252	19	151	389	35	112
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	9					
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			271		952	262
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			271		952	262
tC, single (s)			4.2		7.2	6.3
tC, 2 stage (s)						
tF (s)			2.3		4.2	3.4
p0 queue free %			88		81	85
cM capacity (veh/h)			1264		185	763
Direction, Lane #	EB 1	WB 1	WB 2	NB 1		
Volume Total	271	151	389	147		
Volume Left	0	151	0	35		
Volume Right	19	0	0	112		
cSH	1700	1264	1700	776		
Volume to Capacity	0.16	0.12	0.23	0.19		
Queue Length 95th (m)	0.0	3.2	0.0	5.6		
Control Delay (s)	0.0	8.2	0.0	14.9		
Lane LOS	A		B			
Approach Delay (s)	0.0	2.3	14.9			
Approach LOS	A		B			
<b>Intersection Summary</b>						
Average Delay			3.6			
Intersection Capacity Utilization			33.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
11: Concession Road 3 & Goodwood Pit Site Access

Future Total 2028 AM  
04-01-2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	14	0	10	31
Future Volume (Veh/h)	0	0	14	0	10	31
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	0	17	0	12	38
Pedestrians	1					
Lane Width (m)	3.5					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	79	18			17	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79	18			17	
tC, single (s)	6.4	6.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			3.1	
p0 queue free %	100	100			99	
cM capacity (veh/h)	919	1065			1142	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	0	17	50			
Volume Left	0	0	12			
Volume Right	0	0	0			
cSH	1700	1700	1142			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (m)	0.0	0.0	0.3			
Control Delay (s)	0.0	0.0	2.0			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	2.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			19.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road  
 Future Total 2028 PM  
 04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	110	1	177	0	3	1	155	318	1	1	185	62	
Future Volume (Veh/h)	110	1	177	0	3	1	155	318	1	1	185	62	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Hourly flow rate (vph)	131	1	211	0	4	1	185	379	1	1	220	74	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None						None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	974	972	220	1183	1046	380	294						380
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	974	972	220	1183	1046	380	294						380
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1						4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2						2.2
p0 queue free %	34	100	74	100	98	100	85						100
cM capacity (veh/h)	199	217	810	110	196	672	1262						1190
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	131	212	5	185	380	1	220	74					
Volume Left	131	0	0	185	0	1	0	0					
Volume Right	0	211	1	0	1	0	0	74					
cSH	199	799	229	1262	1700	1190	1700	1700					
Volume to Capacity	0.66	0.27	0.02	0.15	0.22	0.00	0.13	0.04					
Queue Length 95th (m)	31.6	8.5	0.5	4.1	0.0	0.0	0.0	0.0					
Control Delay (s)	52.3	11.1	21.1	8.3	0.0	8.0	0.0	0.0					
Lane LOS	F	B	C	A	A	A							
Approach Delay (s)	26.9	21.1		2.7	0.0								
Approach LOS	D	C											
Intersection Summary													
Average Delay	9.0												
Intersection Capacity Utilization	42.9%		ICU Level of Service		A								
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis  
 2: York-Durham Line & Wagg Road  
 Future Total 2028 PM  
 04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	2	0	0	2	0	47	2	366	9	72	250	0	
Future Volume (Veh/h)	2	0	0	2	0	47	2	366	9	72	250	0	
Sign Control	Stop			Stop			Free			Free			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	2	0	0	2	0	53	2	411	10	81	281	0	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type	None						None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	916	868	281	863	863	416	281						421
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	916	868	281	863	863	416	281						421
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1						4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2						2.2
p0 queue free %	99	100	100	99	100	92	100						93
cM capacity (veh/h)	221	271	763	262	273	632	1293						1133
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	2	55	423	362									
Volume Left	2	2	2	81									
Volume Right	0	53	10	0									
cSH	221	601	1293	1133									
Volume to Capacity	0.01	0.09	0.00	0.07									
Queue Length 95th (m)	0.2	2.4	0.0	1.8									
Control Delay (s)	21.5	11.6	0.1	2.4									
Lane LOS	C	B	A	A									
Approach Delay (s)	21.5	11.6	0.1	2.4									
Approach LOS	C	B											
Intersection Summary													
Average Delay	1.9												
Intersection Capacity Utilization	50.4%		ICU Level of Service		A								
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis  
3: York-Durham Line & Pit Inbound Site Access

Future Total 2028 PM  
04-01-2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↘	↗	↗	
Traffic Volume (veh/h)	0	0	60	342	273	7
Future Volume (Veh/h)	0	0	60	342	273	7
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	67	380	303	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	821	307	311			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	821	307	311			
tC, single (s)	6.4	6.2	5.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	3.1			
p0 queue free %	100	100	92			
cM capacity (veh/h)	320	738	858			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>			
Volume Total	67	380	311			
Volume Left	67	0	0			
Volume Right	0	0	8			
cSH	858	1700	1700			
Volume to Capacity	0.08	0.22	0.18			
Queue Length 95th (m)	2.0	0.0	0.0			
Control Delay (s)	9.6	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	1.4		0.0			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			24.8%		ICU Level of Service A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
4: York-Durham Line & Pit Outbound Site Access/Private Access

Future Total 2028 PM  
04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘		↗	↘	↗	↗		↗		↘	↗	↘
Traffic Volume (veh/h)	7	0	45	10	0	2	0	394	2	0	279	0
Future Volume (Veh/h)	7	0	45	10	0	2	0	394	2	0	279	0
Sign Control	Stop		Stop		Stop		Free		Free		Free	
Grade	0%		0%		0%		0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	49	11	0	2	0	428	2	0	303	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None		None			
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	734	733	303	781	732	429	303		430			
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	734	733	303	781	732	429	303		430			
tC, single (s)	7.7	6.5	7.1	7.1	6.5	6.2	4.1		4.1			
tC, 2 stage (s)												
tF (s)	4.0	4.0	4.1	3.5	4.0	3.3	2.2		2.2			
p0 queue free %	97	100	91	96	100	100	100		100			
cM capacity (veh/h)	274	350	565	287	351	630	1269		1140			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>							
Volume Total	8	49	13	430	303							
Volume Left	8	0	11	0	0							
Volume Right	0	49	2	2	0							
cSH	274	565	314	1700	1140							
Volume to Capacity	0.03	0.09	0.04	0.25	0.00							
Queue Length 95th (m)	0.7	2.3	1.0	0.0	0.0							
Control Delay (s)	18.5	12.0	17.0	0.0	0.0							
Lane LOS	C		B		C							
Approach Delay (s)	12.9		17.0		0.0							
Approach LOS	B		C									
<b>Intersection Summary</b>												
Average Delay					1.2							
Intersection Capacity Utilization			34.9%		ICU Level of Service A							
Analysis Period (min)					15							

Timings  
5: York-Durham Line & Regional Highway 47

Future Total 2028 PM  
04-01-2022

	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	66	707	178	508	65	223	181	70	208	85
Future Volume (vph)	66	707	178	508	65	223	181	70	208	85
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6	5	2		8		4		4
Permitted Phases	6	5	2		8		8	4		4
Detector Phase	1	6	5	2	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	50.0	7.0	50.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	58.0	11.0	58.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (s)	11.0	68.0	15.0	72.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	9.2%	56.7%	12.5%	60.0%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.0	4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	None	Max	None	None	None	None	None	None
Act Effct Green (s)	71.2	60.2	78.7	66.1	21.6	21.6	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.63	0.54	0.70	0.59	0.19	0.19	0.19	0.19	0.19	0.19
v/c Ratio	0.18	0.87	0.66	0.61	0.42	0.66	0.42	0.60	0.65	0.29
Control Delay	7.7	35.4	23.2	20.0	47.7	50.7	8.5	61.5	50.7	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	35.4	23.2	20.0	47.7	50.7	8.5	61.5	50.7	10.0
LOS	A	D	C	B	D	D	A	E	D	B
Approach Delay		33.2		20.7		34.0			43.3	
Approach LOS		C		C		C			D	

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 112.4	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 31.1	Intersection LOS: C
Intersection Capacity Utilization 94.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: York-Durham Line & Regional Highway 47

Ø1	Ø2	Ø4
11 s	72 s	37 s
Ø5	Ø6	Ø8
15 s	69 s	37 s

HCM Signalized Intersection Capacity Analysis  
5: York-Durham Line & Regional Highway 47

Future Total 2028 PM  
04-01-2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	66	707	86	178	508	58	65	223	181	70	208	85
Future Volume (vph)	66	707	86	178	508	58	65	223	181	70	208	85
Ideal Flow (vphpl)	2000	2000	2000	1900	1900	1900	2000	2000	2000	1900	1900	1900
Total Lost time (s)	4.0	8.0		4.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1457	1834		1767	1695		1773	1920	1632	1451	1824	1248
Fit Permitted	0.35	1.00		0.11	1.00		0.47	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)	538	1834		209	1695		877	1920	1632	661	1824	1248
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	768	93	193	552	63	71	242	197	76	226	92
RTOR Reduction (vph)	0	3	0	0	3	0	0	156	0	0	74	
Lane Group Flow (vph)	72	858	0	193	612	0	71	242	41	76	226	18
Heavy Vehicles (%)	29%	6%	7%	1%	8%	19%	6%	3%	3%	23%	3%	28%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2		8		8	4		4
Permitted Phases	6			2			8		8	4		4
Actuated Green, G (s)	66.6	61.1		75.6	66.1		21.6	21.6	21.6	21.6	21.6	21.6
Effective Green, g (s)	66.6	61.1		75.6	66.1		21.6	21.6	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.59	0.54		0.67	0.58		0.19	0.19	0.19	0.19	0.19	0.19
Clearance Time (s)	4.0	8.0		4.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2		5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	361	989		284	989		167	366	311	126	348	238
v/s Ratio Prot	0.01	c0.47		c0.06	0.36			c0.13				0.12
v/s Ratio Perm	0.11			0.39			0.08		0.03	0.11		0.01
v/c Ratio	0.20	0.87		0.68	0.62		0.43	0.66	0.13	0.60	0.65	0.07
Uniform Delay, d1	10.7	22.5		19.1	15.3		40.3	42.4	38.0	41.9	42.3	37.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	10.2		6.3	2.9		3.6	5.8	0.4	11.4	5.6	0.3
Delay (s)	11.0	32.7		25.5	18.2		43.9	48.3	38.4	53.3	47.9	37.9
Level of Service	B	C		C	B		D	D	D	D	D	D
Approach Delay (s)		31.0			20.0			43.9			46.6	
Approach LOS		C			B			D			D	

Intersection Summary

HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	113.2	Sum of lost time (s)	20.0
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

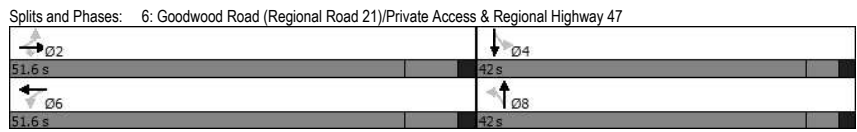
Timings Future Total 2028 PM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

Lane Configurations									
Traffic Volume (vph)	2	468	446	6	298	281	3	5	2
Future Volume (vph)	2	468	446	6	298	281	3	5	2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		8	4
Permitted Phases	2		2	6		8		4	
Detector Phase	2	2	2	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	25.0	25.0	25.0	25.0	25.0	12.0	12.0	12.0	12.0
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	51.6	51.6	51.6	51.6	51.6	42.0	42.0	42.0	42.0
Total Split (%)	55.1%	55.1%	55.1%	55.1%	55.1%	44.9%	44.9%	44.9%	44.9%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	3.7	3.7	3.7	3.7
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	5.6	5.6	5.6	5.6

Recall Mode	Max	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)	44.0	44.0	44.0	44.0	44.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54	0.29	0.29	0.29	0.29
v/c Ratio	0.00	0.52	0.48	0.02	0.18	0.80	0.01	0.02	0.02
Control Delay	12.0	16.3	3.2	12.3	11.3	42.5	16.8	16.8	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	16.3	3.2	12.3	11.3	42.5	16.8	16.8	16.8
LOS	B	B	A	B	B	D	B	B	B
Approach Delay		9.9			11.3		42.2		16.8
Approach LOS		A			B		D		B

**Intersection Summary**

Cycle Length: 93.6  
 Actuated Cycle Length: 81.7  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 16.3 Intersection LOS: B  
 Intersection Capacity Utilization 76.8% ICU Level of Service D  
 Analysis Period (min) 15



HCM Signalized Intersection Capacity Analysis Future Total 2028 PM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

Lane Configurations												
Traffic Volume (vph)	2	468	446	6	298	4	281	3	1	5	2	2
Future Volume (vph)	2	468	446	6	298	4	281	3	1	5	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		5.6	5.6			5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.96			0.97	
Fit Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			0.97	
Satd. Flow (prot)	1785	1807	1456	1523	3333		1638	1808			1773	
Fit Permitted	0.55	1.00	1.00	0.40	1.00		0.75	1.00			0.92	
Satd. Flow (perm)	1040	1807	1456	645	3333		1296	1808			1686	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	509	485	7	324	4	305	3	1	5	2	2
RTOR Reduction (vph)	0	0	223	0	1	0	0	1	0	0	1	0
Lane Group Flow (vph)	2	509	262	7	327	0	305	3	0	0	8	0
Conf. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	0%	4%	7%	17%	7%	0%	9%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2		6			8				4	
Permitted Phases	2		2	6			8				4	
Actuated Green, G (s)	44.0	44.0	44.0	44.0	44.0		24.0	24.0			24.0	
Effective Green, g (s)	44.0	44.0	44.0	44.0	44.0		24.0	24.0			24.0	
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.29	0.29			0.29	
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		5.6	5.6			5.6	
Vehicle Extension (s)	4.2	4.2	4.2	4.2	4.2		3.0	3.0			3.0	
Lane Grp Cap (vph)	560	974	785	347	1797		381	531			495	
v/s Ratio Prot		c0.28			0.10			0.00				
v/s Ratio Perm	0.00		0.18	0.01			c0.24				0.00	
v/c Ratio	0.00	0.52	0.33	0.02	0.18		0.80	0.01			0.02	
Uniform Delay, d1	8.7	12.1	10.6	8.8	9.6		26.6	20.4			20.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.0	2.0	1.1	0.1	0.2		11.4	0.0			0.0	
Delay (s)	8.7	14.1	11.7	8.9	9.8		38.0	20.4			20.4	
Level of Service	A	B	B	A	A		D	C			C	
Approach Delay (s)		12.9			9.8			37.8			20.4	
Approach LOS		B			A			D			C	

**Intersection Summary**

HCM 2000 Control Delay 17.0 HCM 2000 Level of Service B  
 HCM 2000 Volume to Capacity ratio 0.62  
 Actuated Cycle Length (s) 81.6 Sum of lost time (s) 13.6  
 Intersection Capacity Utilization 76.8% ICU Level of Service D  
 Analysis Period (min) 15



HCM Unsignalized Intersection Capacity Analysis  
7: Concession Road 3 & Regional Highway 47

Future Total 2028 PM  
04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔				↔	
Traffic Volume (veh/h)	21	427	25	5	301	7	12	14	10	4	18	14
Future Volume (Veh/h)	21	427	25	5	301	7	12	14	10	4	18	14
Sign Control	Free				Free				Stop			
Grade	0%				0%				0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	23	459	27	5	324	8	13	15	11	4	19	15
Pedestrians	3			3			5			7		
Lane Width (m)	3.5			3.5			3.5			3.5		
Walking Speed (m/s)	1.2			1.2			1.2			1.2		
Percent Blockage	0			0			0			1		
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	339		491		889		872		480		885	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	339		491		889		872		480		885	
tC, single (s)	4.1		4.1		7.1		6.6		6.2		7.1	
tC, 2 stage (s)												
tF (s)	2.2		2.2		3.5		4.1		3.3		3.5	
p0 queue free %	98		100		95		95		98		98	
cM capacity (veh/h)	1224		1078		239		274		586		244	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	509	337	39	38								
Volume Left	23	5	13	4								
Volume Right	27	8	11	15								
cSH	1224	1078	305	358								
Volume to Capacity	0.02	0.00	0.13	0.11								
Queue Length 95th (m)	0.5	0.1	3.5	2.8								
Control Delay (s)	0.6	0.2	18.5	16.2								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.6	0.2	18.5	16.2								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			47.9%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
8: Regional Highway 47 & Goodwood Pit Site Access

Future Total 2028 PM  
04-01-2022

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↑	↔	↔
Traffic Volume (veh/h)	2	440	311	4	2	6
Future Volume (Veh/h)	2	440	311	4	2	6
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2	484	342	4	2	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	346		830		342	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	346		830		342	
tC, single (s)	4.1		6.4		7.2	
tC, 2 stage (s)						
tF (s)	2.2		3.5		4.2	
p0 queue free %	100		99		99	
cM capacity (veh/h)	1224		342		525	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	486	342	4	9		
Volume Left	2	0	0	2		
Volume Right	0	0	4	7		
cSH	1224	1700	1700	469		
Volume to Capacity	0.00	0.20	0.00	0.02		
Queue Length 95th (m)	0.0	0.0	0.0	0.5		
Control Delay (s)	0.1	0.0	0.0	12.8		
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	12.8			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			34.7%		ICU Level of Service	
Analysis Period (min)			15		A	

HCM Unsignalized Intersection Capacity Analysis  
9: Brock Road (Regional Road 1) & Regional Highway 47

Future Total 2028 PM  
04-01-2022

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	425	16	164	292	8	146
Future Volume (Veh/h)	425	16	164	292	8	146
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	489	18	189	336	9	168
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)	9					
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			507	1212	498	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			507	1212	498	
tC, single (s)			4.2	6.6	6.2	
tC, 2 stage (s)						
tF (s)			2.3	3.7	3.3	
p0 queue free %			82	94	71	
cM capacity (veh/h)			1028	148	572	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	507	189	336	177		
Volume Left	0	189	0	9		
Volume Right	18	0	0	168		
cSH	1700	1028	1700	603		
Volume to Capacity	0.30	0.18	0.20	0.29		
Queue Length 95th (m)	0.0	5.4	0.0	9.8		
Control Delay (s)	0.0	9.3	0.0	14.8		
Lane LOS	A		B			
Approach Delay (s)	0.0	3.3	14.8			
Approach LOS	A		B			
<b>Intersection Summary</b>						
Average Delay			3.6			
Intersection Capacity Utilization			45.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
11: Concession Road 3 & Goodwood Pit Site Access

Future Total 2028 PM  
04-01-2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	0	0	40	0	2	21
Future Volume (Veh/h)	0	0	40	0	2	21
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	42	0	2	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	68	42			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68	42			42	
tC, single (s)	6.4	6.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			3.1	
p0 queue free %	100	100			100	
cM capacity (veh/h)	940	1034			1114	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	42	24			
Volume Left	0	0	2			
Volume Right	0	0	0			
cSH	1700	1700	1114			
Volume to Capacity	0.00	0.02	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.7			
Lane LOS	A		A			
Approach Delay (s)	0.0	0.0	0.7			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			6.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Queuing and Blocking Report

Future Total 2028 AM  
04-01-2022

Intersection: 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

Movement	EB	EB	NB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	20.6	25.5	21.6	4.7
Average Queue (m)	5.9	10.0	7.4	0.2
95th Queue (m)	14.6	19.4	17.4	2.7
Link Distance (m)	574.9			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	80.0		50.0	70.0
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: York-Durham Line & Wagg Road

Movement	WB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	12.9	1.2	16.0
Average Queue (m)	6.7	0.0	1.9
95th Queue (m)	11.7	1.2	9.2
Link Distance (m)	1653.9	1317.3	736.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: York-Durham Line & Pit Inbound Site Access

Movement	NB	SB
Directions Served	L	TR
Maximum Queue (m)	51.7	8.6
Average Queue (m)	22.0	0.5
95th Queue (m)	43.7	4.6
Link Distance (m)	986.6	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	70.0	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Future Total 2028 AM  
04-01-2022

Intersection: 4: York-Durham Line & Pit Outbound Site Access/Private Access

Movement	EB	EB	SB
Directions Served	L	R	LT
Maximum Queue (m)	23.4	30.8	2.5
Average Queue (m)	6.9	14.8	0.1
95th Queue (m)	21.3	27.8	2.1
Link Distance (m)	190.3	190.3	82.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: York-Durham Line & Regional Highway 47

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	TR	L	TR	L	T	R	L	T	R	
Maximum Queue (m)	74.9	236.7	94.9	594.4	47.7	61.9	30.0	79.5	102.7	80.3	
Average Queue (m)	58.4	103.1	52.0	290.8	18.7	23.9	1.4	33.3	38.1	29.6	
95th Queue (m)	89.0	209.4	116.3	647.5	38.2	48.3	16.3	65.6	75.7	61.9	
Link Distance (m)	1467.0		2730.0		719.9		726.2				
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (m)	55.0		55.0		50.0		40.0	50.0		50.0	
Storage Blk Time (%)	20	11	0	47	1	2		6	3	2	
Queuing Penalty (veh)	92	19	2	65	2	4		21	9	6	

Intersection: 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47

Movement	EB	B29	WB	WB	WB	NB	NB	SB
Directions Served	T	T	L	T	TR	L	TR	LTR
Maximum Queue (m)	58.1	1096.1	14.4	47.3	49.2	49.8	92.4	6.6
Average Queue (m)	23.2	73.0	1.3	19.6	18.3	40.1	19.8	0.4
95th Queue (m)	46.4	800.3	7.5	38.5	38.2	56.2	72.1	3.3
Link Distance (m)	888.7	2730.0		556.1			328.2	155.7
Upstream Blk Time (%)	0							
Queuing Penalty (veh)	0							
Storage Bay Dist (m)			50.0		25.0	30.0		
Storage Blk Time (%)	1			4	4	19		
Queuing Penalty (veh)	2			8	8	1		

Queuing and Blocking Report

Future Total 2028 AM  
04-01-2022

Intersection: 7: Concession Road 3 & Regional Highway 47

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	21.9	11.6	11.4	14.7
Average Queue (m)	1.5	0.6	4.5	5.2
95th Queue (m)	9.5	5.7	10.1	12.7
Link Distance (m)	556.1	395.4	439.5	1196.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Regional Highway 47 & Goodwood Pit Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	23.2
Average Queue (m)	7.7
95th Queue (m)	21.0
Link Distance (m)	381.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Brock Road (Regional Road 1) & Regional Highway 47

Movement	EB	WB	NB
Directions Served	TR	L	L
Maximum Queue (m)	2.3	20.0	29.3
Average Queue (m)	0.1	5.6	9.9
95th Queue (m)	2.2	15.1	23.6
Link Distance (m)	3705.4		1045.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		110.0	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

Future Total 2028 AM  
04-01-2022

Intersection: 11: Concession Road 3 & Goodwood Pit Site Access

Movement	SB
Directions Served	LT
Maximum Queue (m)	1.7
Average Queue (m)	0.1
95th Queue (m)	1.6
Link Distance (m)	394.7
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 238
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Queuing and Blocking Report

Future Total 2028 PM  
04-01-2022

Intersection: 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	L	L	R
Maximum Queue (m)	26.8	21.3	7.9	20.0	1.5	2.7
Average Queue (m)	11.6	9.7	0.8	7.1	0.0	0.1
95th Queue (m)	21.6	18.1	4.5	16.3	1.1	1.5
Link Distance (m)		574.9	234.7			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			50.0	50.0	70.0
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: York-Durham Line & Wagg Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	7.2	16.6	1.5	23.3
Average Queue (m)	0.4	6.8	0.0	5.3
95th Queue (m)	3.7	13.5	1.5	16.1
Link Distance (m)	104.9	1653.9	1318.6	736.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: York-Durham Line & Pit Inbound Site Access

Movement	NB	SB
Directions Served	L	TR
Maximum Queue (m)	26.8	0.7
Average Queue (m)	6.6	0.0
95th Queue (m)	20.8	0.6
Link Distance (m)		985.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	70.0	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Future Total 2028 PM  
04-01-2022

Intersection: 4: York-Durham Line & Pit Outbound Site Access/Private Access

Movement	EB	EB	WB
Directions Served	L	R	LTR
Maximum Queue (m)	18.5	28.5	10.2
Average Queue (m)	2.3	14.0	2.7
95th Queue (m)	11.2	26.3	9.3
Link Distance (m)	190.3	190.3	103.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: York-Durham Line & Regional Highway 47

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	R	L	T	R
Maximum Queue (m)	74.9	310.6	88.1	150.8	36.2	81.9	59.8	49.7	75.5	33.7
Average Queue (m)	28.1	175.4	32.8	61.0	14.8	38.1	5.7	22.5	36.2	10.3
95th Queue (m)	75.6	301.4	65.5	115.4	30.6	64.5	34.3	44.5	62.5	25.8
Link Distance (m)		1467.0		2730.7		719.9			725.8	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	55.0		55.0		50.0		40.0	50.0		50.0
Storage Blk Time (%)	0	40	1	9		8		1	3	
Queuing Penalty (veh)	0	26	8	17		19		4	5	

Intersection: 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47

Movement	EB	EB	B29	WB	WB	WB	NB	NB	SB
Directions Served	L	T	T	L	T	TR	L	TR	LTR
Maximum Queue (m)	3.6	72.5	2189.6	11.6	35.7	32.8	49.8	80.7	11.8
Average Queue (m)	0.2	32.5	91.2	1.0	10.9	10.5	36.2	11.7	2.0
95th Queue (m)	2.2	58.8	901.1	6.2	25.1	25.3	53.2	54.1	8.1
Link Distance (m)		888.2	2730.7		556.1			328.2	155.7
Upstream Blk Time (%)			0						
Queuing Penalty (veh)			1						
Storage Bay Dist (m)	70.0			50.0		25.0	30.0		
Storage Blk Time (%)		2			1	1	19		
Queuing Penalty (veh)		7			1	1	1		

***Appendix D3:***  
***Future 2033 Capacity Analysis***

Queuing and Blocking Report

Future Total 2028 PM  
04-01-2022

Intersection: 7: Concession Road 3 & Regional Highway 47

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	28.6	19.4	14.9	13.2
Average Queue (m)	2.9	1.4	4.9	4.6
95th Queue (m)	16.1	10.0	10.9	10.4
Link Distance (m)	556.1	395.3	439.5	1198.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Regional Highway 47 & Goodwood Pit Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	6.4	18.0
Average Queue (m)	0.2	3.4
95th Queue (m)	3.4	13.1
Link Distance (m)	395.3	381.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Brock Road (Regional Road 1) & Regional Highway 47

Movement	EB	WB	NB
Directions Served	TR	L	L
Maximum Queue (m)	1.3	30.4	12.3
Average Queue (m)	0.0	9.8	1.5
95th Queue (m)	0.9	21.6	7.3
Link Distance (m)	3705.4		1045.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		110.0	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

Future Total 2028 PM  
04-01-2022

Intersection: 11: Concession Road 3 & Goodwood Pit Site Access

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 90
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HCM Unsignalized Intersection Capacity Analysis  
 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

Future Total 2033 AM  
 04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	44	1	162	0	0	0	146	115	0	0	201	105	
Future Volume (Veh/h)	44	1	162	0	0	0	146	115	0	0	201	105	
Sign Control	Stop		Stop				Free			Free			
Grade	0%		0%				0%			0%			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Hourly flow rate (vph)	51	1	186	0	0	0	168	132	0	0	231	121	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type						None			None				
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	699	699	231	886	820	132	352						132
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	699	699	231	886	820	132	352						132
tC, single (s)	7.2	6.5	6.4	7.1	6.5	6.2	4.2						4.1
tC, 2 stage (s)													
tF (s)	3.6	4.0	3.4	3.5	4.0	3.3	2.3						2.2
p0 queue free %	83	100	76	100	100	100	86						100
cM capacity (veh/h)	305	314	777	181	267	923	1174						1466
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	51	187	0	168	132	0	231	121					
Volume Left	51	0	0	168	0	0	0	0					
Volume Right	0	186	0	0	0	0	0	121					
cSH	305	771	1700	1174	1700	1700	1700	1700					
Volume to Capacity	0.17	0.24	0.00	0.14	0.08	0.00	0.14	0.07					
Queue Length 95th (m)	4.7	7.6	0.0	4.0	0.0	0.0	0.0	0.0					
Control Delay (s)	19.1	11.2	0.0	8.6	0.0	0.0	0.0	0.0					
Lane LOS	C	B	A	A									
Approach Delay (s)	12.9	A		0.0	4.8	0.0							
Approach LOS	B	A											
Intersection Summary													
Average Delay	5.1												
Intersection Capacity Utilization	38.7%		ICU Level of Service			A							
Analysis Period (min)	15												

HCM Unsignalized Intersection Capacity Analysis  
 2: York-Durham Line & Wagg Road

Future Total 2033 AM  
 04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	0	1	0	50	0	177	14	38	308	0	
Future Volume (Veh/h)	0	0	0	1	0	50	0	177	14	38	308	0	
Sign Control	Stop		Stop				Free			Free			
Grade	0%		0%				0%			0%			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Hourly flow rate (vph)	0	0	0	1	0	54	0	190	15	41	331	0	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type						None			None				
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	664	618	331	610	610	198	331						205
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	664	618	331	610	610	198	331						205
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1						4.2
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2						2.3
p0 queue free %	100	100	100	100	100	94	100						97
cM capacity (veh/h)	344	395	715	399	399	849	1240						1315
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	0	55	205	372									
Volume Left	0	1	0	41									
Volume Right	0	54	15	0									
cSH	1700	832	1240	1315									
Volume to Capacity	0.00	0.07	0.00	0.03									
Queue Length 95th (m)	0.0	1.7	0.0	0.8									
Control Delay (s)	0.0	9.6	0.0	1.1									
Lane LOS	A	A	A	A									
Approach Delay (s)	0.0	9.6	0.0	1.1									
Approach LOS	A	A											
Intersection Summary													
Average Delay	1.5												
Intersection Capacity Utilization	41.8%			ICU Level of Service			A						
Analysis Period (min)	15												



HCM Unsignalized Intersection Capacity Analysis  
3: York-Durham Line & Pit Inbound Site Access

Future Total 2033 AM  
04-01-2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↘	↗	↗	
Traffic Volume (veh/h)	0	0	184	223	408	8
Future Volume (Veh/h)	0	0	184	223	408	8
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	198	240	439	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1080	444	448			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1080	444	448			
tC, single (s)	6.4	6.2	5.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	3.1			
p0 queue free %	100	100	74			
cM capacity (veh/h)	179	619	747			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>			
Volume Total	198	240	448			
Volume Left	198	0	0			
Volume Right	0	0	9			
cSH	747	1700	1700			
Volume to Capacity	0.26	0.14	0.26			
Queue Length 95th (m)	8.5	0.0	0.0			
Control Delay (s)	11.5	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	5.2		0.0			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay			2.6			
Intersection Capacity Utilization			38.8%		ICU Level of Service A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
4: York-Durham Line & Pit Outbound Site Access/Private Access

Future Total 2033 AM  
04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘		↗	↘	↗	↗		↗		↘	↗	↘
Traffic Volume (veh/h)	15	0	51	0	0	0	0	386	7	1	413	0
Future Volume (Veh/h)	15	0	51	0	0	0	0	386	7	1	413	0
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	16	0	56	0	0	0	0	424	8	1	454	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	884	888	454	940	884	428	454	432				
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	884	888	454	940	884	428	454	432				
tC, single (s)	8.1	6.5	7.2	7.1	6.5	6.2	4.1	4.1				
tC, 2 stage (s)												
tF (s)	4.4	4.0	4.2	3.5	4.0	3.3	2.2	2.2				
p0 queue free %	91	100	87	100	100	100	100	100				
cM capacity (veh/h)	183	285	445	215	286	631	1117	1138				
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>							
Volume Total	16	56	0	432	455							
Volume Left	16	0	0	0	1							
Volume Right	0	56	0	8	0							
cSH	183	445	1700	1700	1138							
Volume to Capacity	0.09	0.13	0.00	0.25	0.00							
Queue Length 95th (m)	2.3	3.4	0.0	0.0	0.0							
Control Delay (s)	26.5	14.2	0.0	0.0	0.0							
Lane LOS	D	B	A	A	A							
Approach Delay (s)	17.0		0.0		0.0							
Approach LOS	C		A									
<b>Intersection Summary</b>												
Average Delay			1.3									
Intersection Capacity Utilization			32.5%		ICU Level of Service A							
Analysis Period (min)			15									

Timings  
5: York-Durham Line & Regional Highway 47

Future Total 2033 AM  
04-01-2022

	←	→	↙	↘	↖	↗	↑	↙	↘	↓	↖	↗
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗	↖	↗	↖	↗	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	167	433	151	561	122	84	166	132	103	206	174	
Future Volume (vph)	167	433	151	561	122	84	166	132	103	206	174	
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	
Protected Phases	1	6	5	2			8			4		
Permitted Phases	6	2	2	2	8		8	4	4	4		
Detector Phase	1	6	5	2	2	8	8	8	4	4	4	
Switch Phase												
Minimum Initial (s)	7.0	50.0	7.0	50.0	50.0	10.0	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	11.0	58.0	11.0	58.0	58.0	18.0	18.0	18.0	18.0	18.0	18.0	
Total Split (s)	17.0	64.0	11.0	58.0	58.0	40.0	40.0	40.0	40.0	40.0	40.0	
Total Split (%)	14.8%	55.7%	9.6%	50.4%	50.4%	34.8%	34.8%	34.8%	34.8%	34.8%	34.8%	
Yellow Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	8.0	4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
Lead/Lag	Lead	Lag	Lead	Lag	Lag							
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes							
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None	
Act Effct Green (s)	70.3	56.2	63.2	52.2	52.2	22.0	22.0	22.0	22.0	22.0	22.0	
Actuated g/C Ratio	0.67	0.53	0.60	0.50	0.50	0.21	0.21	0.21	0.21	0.21	0.21	
v/c Ratio	0.58	0.61	0.31	0.71	0.23	0.45	0.46	0.30	0.68	0.59	0.55	
Control Delay	16.3	21.9	9.6	29.1	4.6	43.6	39.8	7.4	60.0	44.1	11.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.3	21.9	9.6	29.1	4.6	43.6	39.8	7.4	60.0	44.1	11.9	
LOS	B	C	A	C	A	D	D	A	E	D	B	
Approach Delay		20.5		22.0			29.4			35.9		
Approach LOS		C		C			C			D		

Intersection Summary	
Cycle Length: 115	
Actuated Cycle Length: 105.3	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 25.6	Intersection LOS: C
Intersection Capacity Utilization 93.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: York-Durham Line & Regional Highway 47

↖	↗	↖	↗
17 s	58 s	40 s	40 s
↖	↗	↖	↗
11 s	54 s	40 s	40 s

HCM Signalized Intersection Capacity Analysis  
5: York-Durham Line & Regional Highway 47

Future Total 2033 AM  
04-01-2022

	←	→	↙	↘	↖	↗	↑	↙	↘	↓	↖	↗
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↗	↖	↗	↖	↗	↖
Traffic Volume (vph)	167	433	66	151	561	122	84	166	132	103	206	174
Future Volume (vph)	167	433	66	151	561	122	84	166	132	103	206	174
Ideal Flow (vphpl)	2000	2000	2000	1900	1900	1900	2000	2000	2000	1900	1900	1900
Total Lost time (s)	4.0	8.0		4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr't	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1074	1564		1668	1620	962	1606	1782	1616	1116	1708	878
Flt Permitted	0.28	1.00		0.41	1.00	1.00	0.54	1.00	1.00	0.63	1.00	1.00
Satd. Flow (perm)	320	1564		721	1620	962	914	1782	1616	742	1708	878
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	170	442	67	154	572	124	86	169	135	105	210	178
RTOR Reduction (vph)	0	4	0	0	0	63	0	0	107	0	0	141
Lane Group Flow (vph)	170	505	0	154	572	61	86	169	28	105	210	37
Heavy Vehicles (%)	75%	25%	17%	7%	16%	66%	17%	11%	4%	60%	10%	82%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2		8				4	
Permitted Phases	6	2		2	2	8	8	4	4	4	4	
Actuated Green, G (s)	67.3	56.3		59.2	52.2	52.2	22.0	22.0	22.0	22.0	22.0	22.0
Effective Green, g (s)	67.3	56.3		59.2	52.2	52.2	22.0	22.0	22.0	22.0	22.0	22.0
Actuated g/C Ratio	0.64	0.53		0.56	0.50	0.50	0.21	0.21	0.21	0.21	0.21	0.21
Clearance Time (s)	4.0	8.0		4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	284	836		468	803	476	190	372	337	155	356	183
v/s Ratio Prot	c0.06	0.32		0.02	c0.35		0.09				0.12	
v/s Ratio Perm	0.32			0.16		0.06	0.09		0.02	c0.14		0.04
v/c Ratio	0.60	0.60		0.33	0.71	0.13	0.45	0.45	0.08	0.68	0.59	0.20
Uniform Delay, d1	11.2	16.8		11.4	20.7	14.3	36.4	36.4	33.5	38.4	37.6	34.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	3.2		0.4	5.3	0.6	3.6	1.8	0.2	14.3	3.8	1.2
Delay (s)	14.6	20.1		11.8	26.0	14.9	39.9	38.2	33.8	52.7	41.4	35.6
Level of Service	B	C		B	C	B	D	D	C	D	D	D
Approach Delay (s)		18.7			21.8		37.1			41.7		
Approach LOS		B			C		D			D		

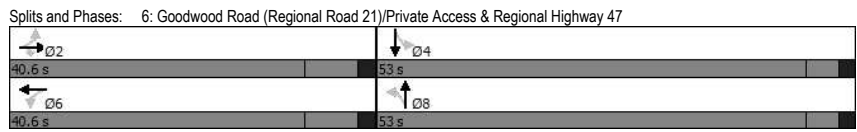
Intersection Summary	
HCM 2000 Control Delay	27.5
HCM 2000 Volume to Capacity ratio	0.69
Actuated Cycle Length (s)	105.3
Intersection Capacity Utilization	93.0%
Analysis Period (min)	15
c Critical Lane Group	

Timings Future Total 2033 AM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

	→	↖	↗	←	↖	↑	↗	↓
Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↑	↑	↖	↗	↖	↑	↗	↕
Traffic Volume (vph)	232	285	6	419	336	1	1	1
Future Volume (vph)	232	285	6	419	336	1	1	1
Turn Type	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2		6	6	8	8	4	4
Permitted Phases		2	6	6	8	8	4	4
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	25.0	25.0	25.0	25.0	12.0	12.0	12.0	12.0
Minimum Split (s)	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	40.6	40.6	40.6	40.6	53.0	53.0	53.0	53.0
Total Split (%)	43.4%	43.4%	43.4%	43.4%	56.6%	56.6%	56.6%	56.6%
Yellow Time (s)	5.9	5.9	5.9	5.9	3.7	3.7	3.7	3.7
All-Red Time (s)	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	5.6	5.6	5.6	5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)	33.1	33.1	33.1	33.1	27.6	27.6	27.6	27.6
Actuated g/C Ratio	0.44	0.44	0.44	0.44	0.37	0.37	0.37	0.37
v/c Ratio	0.40	0.44	0.02	0.37	0.83	0.01	0.00	0.00
Control Delay	18.8	4.5	16.3	16.6	37.2	8.0	12.5	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.8	4.5	16.3	16.6	37.2	8.0	12.5	12.5
LOS	B	A	B	B	D	A	B	B
Approach Delay	11.0			16.6		36.6		12.5
Approach LOS	B			B		D		B

**Intersection Summary**

Cycle Length: 93.6  
 Actuated Cycle Length: 74.5  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay: 19.7 Intersection LOS: B  
 Intersection Capacity Utilization 69.7% ICU Level of Service C  
 Analysis Period (min) 15



HCM Signalized Intersection Capacity Analysis Future Total 2033 AM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

	↖	→	↗	↖	←	↖	↗	↑	↗	↖	↓	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗	↗	↖	↗	↖	↖	↕	↗
Traffic Volume (vph)	0	232	285	6	419	2	336	1	6	1	1	0
Future Volume (vph)	0	232	285	6	419	2	336	1	6	1	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		8.0	8.0	8.0	8.0		5.6	5.6				5.6
Lane Util. Factor		1.00	1.00	1.00	0.95		1.00	1.00				1.00
Frt		1.00	0.85	1.00	1.00		1.00	0.87				1.00
Flt Protected		1.00	1.00	0.95	1.00		0.95	1.00				0.98
Satd. Flow (prot)		1479	1238	1190	2951		1552	1632				1833
Flt Permitted		1.00	1.00	0.60	1.00		0.76	1.00				0.96
Satd. Flow (perm)		1479	1238	747	2951		1236	1632				1795
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	0	264	324	7	476	2	382	1	7	1	1	0
RTOR Reduction (vph)	0	0	180	0	0	0	4	0	0	0	0	0
Lane Group Flow (vph)	0	264	144	7	478	0	382	4	0	0	2	0
Heavy Vehicles (%)	0%	27%	29%	50%	21%	0%	15%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8				4
Permitted Phases	2		2	6			8			4		
Actuated Green, G (s)		33.1	33.1	33.1	33.1		27.6	27.6				27.6
Effective Green, g (s)		33.1	33.1	33.1	33.1		27.6	27.6				27.6
Actuated g/C Ratio		0.45	0.45	0.45	0.45		0.37	0.37				0.37
Clearance Time (s)		8.0	8.0	8.0	8.0		5.6	5.6				5.6
Vehicle Extension (s)		4.2	4.2	4.2	4.2		3.0	3.0				3.0
Lane Grp Cap (vph)		658	551	332	1314		459	606				666
v/s Ratio Prot		c0.18			0.16			0.00				
v/s Ratio Perm			0.12	0.01			c0.31					0.00
v/c Ratio		0.40	0.26	0.02	0.36		0.83	0.01				0.00
Uniform Delay, d1		13.9	12.9	11.5	13.6		21.2	14.7				14.7
Progression Factor		1.00	1.00	1.00	1.00		1.00	1.00				1.00
Incremental Delay, d2		1.8	1.2	0.1	0.8		12.2	0.0				0.0
Delay (s)		15.7	14.1	11.6	14.4		33.4	14.7				14.7
Level of Service		B	B	B	B		C	B				B
Approach Delay (s)		14.8			14.4			33.1				14.7
Approach LOS		B			B			C				B

**Intersection Summary**

HCM 2000 Control Delay 19.5 HCM 2000 Level of Service B  
 HCM 2000 Volume to Capacity ratio 0.60  
 Actuated Cycle Length (s) 74.3 Sum of lost time (s) 13.6  
 Intersection Capacity Utilization 69.7% ICU Level of Service C  
 Analysis Period (min) 15  
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
7: Concession Road 3 & Regional Highway 47

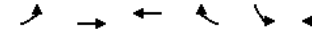
Future Total 2033 AM  
04-01-2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔			↔			↔			↔			
Traffic Volume (veh/h)	8	231	9	4	398	4	17	10	5	6	8	18	
Future Volume (Veh/h)	8	231	9	4	398	4	17	10	5	6	8	18	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	9	257	10	4	442	4	19	11	6	7	9	20	
Pedestrians				2			1						
Lane Width (m)				3.5			3.5						
Walking Speed (m/s)				1.2			1.2						
Percent Blockage				0			0						
Right turn flare (veh)													
Median type	None			None									
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	446			268			758		735	265	746	738	444
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	446			268			758		735	265	746	738	444
tC, single (s)	4.1			4.3			7.1		6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2			2.4			3.5		4.0	3.3	3.8	4.0	3.3
p0 queue free %	99			100			94		97	99	98	97	97
cM capacity (veh/h)	1125			1173			306		345	777	281	344	618
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	276	450	36	36									
Volume Left	9	4	19	7									
Volume Right	10	4	6	20									
cSH	1125	1173	354	432									
Volume to Capacity	0.01	0.00	0.10	0.08									
Queue Length 95th (m)	0.2	0.1	2.7	2.2									
Control Delay (s)	0.3	0.1	16.3	14.1									
Lane LOS	A	A	C	B									
Approach Delay (s)	0.3	0.1	16.3	14.1									
Approach LOS			C	B									
Intersection Summary													
Average Delay			1.6										
Intersection Capacity Utilization			34.3%		ICU Level of Service		A						
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis  
8: Regional Highway 47 & Goodwood Pit Site Access

Future Total 2033 AM  
04-01-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↑	↑	↑
Traffic Volume (veh/h)	0	211	420	13	0	23
Future Volume (Veh/h)	0	211	420	13	0	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	264	525	16	0	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	541			789		525
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	541			789		525
tC, single (s)	4.1			6.4		7.2
tC, 2 stage (s)						
tF (s)	2.2			3.5		4.2
p0 queue free %	100			100		93
cM capacity (veh/h)	1038			362		401
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	264	525	16	29		
Volume Left	0	0	0	0		
Volume Right	0	0	16	29		
cSH	1700	1700	1700	401		
Volume to Capacity	0.16	0.31	0.01	0.07		
Queue Length 95th (m)	0.0	0.0	0.0	1.9		
Control Delay (s)	0.0	0.0	0.0	14.7		
Lane LOS				B		
Approach Delay (s)	0.0	0.0		14.7		
Approach LOS				B		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			32.1%		ICU Level of Service	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
9: Brock Road (Regional Road 1) & Regional Highway 47

Future Total 2033 AM  
04-01-2022

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	232	17	134	361	31	100
Future Volume (Veh/h)	232	17	134	361	31	100
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	261	19	151	406	35	112
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						9
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			280		978	270
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			280		978	270
tC, single (s)			4.2		7.2	6.3
tC, 2 stage (s)						
tF (s)			2.3		4.2	3.4
p0 queue free %			88		80	85
cM capacity (veh/h)			1254		178	754
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	280	151	406	147		
Volume Left	0	151	0	35		
Volume Right	19	0	0	112		
cSH	1700	1254	1700	746		
Volume to Capacity	0.16	0.12	0.24	0.20		
Queue Length 95th (m)	0.0	3.3	0.0	5.8		
Control Delay (s)	0.0	8.3	0.0	15.3		
Lane LOS		A		C		
Approach Delay (s)	0.0	2.2		15.3		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			3.5			
Intersection Capacity Utilization			34.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
11: Concession Road 3 & Goodwood Pit Site Access

Future Total 2033 AM  
04-01-2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	0	14	0	10	31
Future Volume (Veh/h)	0	0	14	0	10	31
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	0	0	17	0	12	38
Pedestrians						1
Lane Width (m)						3.5
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	79	18			17	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	79	18			17	
tC, single (s)	6.4	6.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			3.1	
p0 queue free %	100	100			99	
cM capacity (veh/h)	919	1065			1142	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	17	50			
Volume Left	0	0	12			
Volume Right	0	0	0			
cSH	1700	1700	1142			
Volume to Capacity	0.00	0.01	0.01			
Queue Length 95th (m)	0.0	0.0	0.3			
Control Delay (s)	0.0	0.0	2.0			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.0	2.0			
Approach LOS		A				
<b>Intersection Summary</b>						
Average Delay			1.5			
Intersection Capacity Utilization			19.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

Future Total 2033 PM

1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔	↔			↔		↔	↔		↔	↔	↔	
Traffic Volume (veh/h)	121	1	196	0	3	1	171	334	1	1	195	69	
Future Volume (Veh/h)	121	1	196	0	3	1	171	334	1	1	195	69	
Sign Control	Stop				Stop		Free				Free		
Grade	0%				0%		0%				0%		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
Hourly flow rate (vph)	144	1	233	0	4	1	204	398	1	1	232	82	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None			None			
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	1043	1041	232	1274	1122	398	314						399
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1043	1041	232	1274	1122	398	314						399
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1						4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2						2.2
p0 queue free %	18	99	71	100	98	100	84						100
cM capacity (veh/h)	175	194	797	90	173	656	1241						1171
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	144	234	5	204	399	1	232	82					
Volume Left	144	0	0	204	0	1	0	0					
Volume Right	0	233	1	0	1	0	0	82					
cSH	175	787	203	1241	1700	1171	1700	1700					
Volume to Capacity	0.82	0.30	0.02	0.16	0.23	0.00	0.14	0.05					
Queue Length 95th (m)	45.1	10.0	0.6	4.7	0.0	0.0	0.0	0.0					
Control Delay (s)	81.2	11.5	23.2	8.5	0.0	8.1	0.0	0.0					
Lane LOS	F	B	C	A		A							
Approach Delay (s)	38.0		23.2	2.9	0.0								
Approach LOS	E		C										
Intersection Summary													
Average Delay			12.5										
Intersection Capacity Utilization			44.3%		ICU Level of Service		A						
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

Future Total 2033 PM

2: York-Durham Line & Wagg Road

04-01-2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔		↔	↔		↔	↔	↔	
Traffic Volume (veh/h)	2	0	0	2	0	47	2	384	9	72	263	0	
Future Volume (Veh/h)	2	0	0	2	0	47	2	384	9	72	263	0	
Sign Control	Stop				Stop		Free				Free		
Grade	0%				0%		0%				0%		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	2	0	0	2	0	53	2	431	10	81	296	0	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None			None			
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	951	903	296	898	898	436	296						441
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	951	903	296	898	898	436	296						441
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1						4.1
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2						2.2
p0 queue free %	99	100	100	99	100	91	100						93
cM capacity (veh/h)	208	259	748	248	260	616	1277						1114
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	2	55	443	377									
Volume Left	2	2	2	81									
Volume Right	0	53	10	0									
cSH	208	584	1277	1114									
Volume to Capacity	0.01	0.09	0.00	0.07									
Queue Length 95th (m)	0.2	2.5	0.0	1.9									
Control Delay (s)	22.5	11.8	0.1	2.4									
Lane LOS	C	B	A	A									
Approach Delay (s)	22.5	11.8	0.1	2.4									
Approach LOS	C	B											
Intersection Summary													
Average Delay			1.9										
Intersection Capacity Utilization			52.0%		ICU Level of Service		A						
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis  
3: York-Durham Line & Pit Inbound Site Access

Future Total 2033 PM  
04-01-2022

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			↘	↗	↗	
Traffic Volume (veh/h)	0	0	60	360	286	7
Future Volume (Veh/h)	0	0	60	360	286	7
Sign Control	Stop		Free			
Grade	0%		0%			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	67	400	318	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	856	322	326			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	856	322	326			
tC, single (s)	6.4	6.2	5.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	3.1			
p0 queue free %	100	100	92			
cM capacity (veh/h)	305	724	845			
<b>Direction, Lane #</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>			
Volume Total	67	400	326			
Volume Left	67	0	0			
Volume Right	0	0	8			
cSH	845	1700	1700			
Volume to Capacity	0.08	0.24	0.19			
Queue Length 95th (m)	2.1	0.0	0.0			
Control Delay (s)	9.6	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	1.4		0.0			
Approach LOS						
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			25.5%		ICU Level of Service A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
4: York-Durham Line & Pit Outbound Site Access/Private Access

Future Total 2033 PM  
04-01-2022

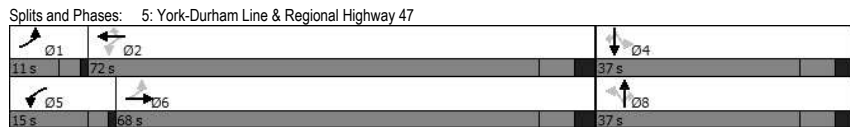
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘		↗	↘	↗	↗		↗		↘	↗	↘
Traffic Volume (veh/h)	7	0	45	10	0	2	0	413	2	0	292	0
Future Volume (Veh/h)	7	0	45	10	0	2	0	413	2	0	292	0
Sign Control	Stop		Stop				Free					
Grade	0%		0%				0%					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	49	11	0	2	0	449	2	0	317	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	769	768	317	816	767	450	317			451		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	769	768	317	816	767	450	317			451		
tC, single (s)	7.7	6.5	7.1	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	4.1	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	91	96	100	100	100			100		
cM capacity (veh/h)	259	334	554	272	335	613	1255			1120		
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>							
Volume Total	8	49	13	451	317							
Volume Left	8	0	11	0	0							
Volume Right	0	49	2	2	0							
cSH	259	554	297	1700	1120							
Volume to Capacity	0.03	0.09	0.04	0.27	0.00							
Queue Length 95th (m)	0.8	2.3	1.1	0.0	0.0							
Control Delay (s)	19.4	12.1	17.7	0.0	0.0							
Lane LOS	C		B		C							
Approach Delay (s)	13.1		17.7		0.0							
Approach LOS	B		C									
<b>Intersection Summary</b>												
Average Delay					1.2							
Intersection Capacity Utilization			35.9%		ICU Level of Service A							
Analysis Period (min)					15							

Timings  
5: York-Durham Line & Regional Highway 47

Future Total 2033 PM  
04-01-2022

	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	71	779	197	559	64	71	247	199	76	229	92
Future Volume (vph)	71	779	197	559	64	71	247	199	76	229	92
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6	5	2			8		4		4
Permitted Phases	6		2		2	8		8	4		4
Detector Phase	1	6	5	2	2	8	8	8	4	4	4
Switch Phase											
Minimum Initial (s)	7.0	50.0	7.0	50.0	50.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.0	58.0	11.0	58.0	58.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (s)	11.0	68.0	15.0	72.0	72.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	9.2%	56.7%	12.5%	60.0%	60.0%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	3.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.0	4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effect Green (s)	71.1	60.1	79.2	66.5	66.5	22.9	22.9	22.9	22.9	22.9	22.9
Actuated g/C Ratio	0.62	0.53	0.69	0.58	0.58	0.20	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.19	0.98	0.90	0.60	0.08	0.48	0.70	0.45	0.70	0.68	0.30
Control Delay	8.0	52.3	65.4	20.2	2.5	50.8	52.2	10.7	72.9	52.0	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.0	52.3	65.4	20.2	2.5	50.8	52.2	10.7	72.9	52.0	9.6
LOS	A	D	E	C	A	D	D	B	E	D	A
Approach Delay		49.0		29.7			36.0			46.2	
Approach LOS		D		C			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 114.1	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 40.1	Intersection LOS: D
Intersection Capacity Utilization 99.4%	ICU Level of Service F
Analysis Period (min) 15	



HCM Signalized Intersection Capacity Analysis  
5: York-Durham Line & Regional Highway 47

Future Total 2033 PM  
04-01-2022

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	71	779	95	197	559	64	71	247	199	76	229	92
Future Volume (vph)	71	779	95	197	559	64	71	247	199	76	229	92
Ideal Flow (vphpl)	2000	2000	2000	1900	1900	1900	2000	2000	2000	1900	1900	1900
Total Lost time (s)	4.0	8.0		4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1479	1834		1767	1740	1365	1773	1920	1632	1463	1824	1258
Flt Permitted	0.35	1.00		0.06	1.00	1.00	0.43	1.00	1.00	0.38	1.00	1.00
Satd. Flow (perm)	553	1834		114	1740	1365	795	1920	1632	592	1824	1258
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	847	103	214	608	70	77	268	216	83	249	100
RTOR Reduction (vph)	0	3	0	0	0	29	0	153	0	0	80	20
Lane Group Flow (vph)	77	947	0	214	608	41	77	268	63	83	249	20
Heavy Vehicles (%)	27%	6%	7%	1%	8%	17%	6%	3%	3%	22%	3%	27%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	1	6		5	2		8		8	4		4
Permitted Phases	6			2		2	8		8	4		4
Actuated Green, G (s)	66.5	61.0		76.0	66.5	66.5	22.9	22.9	22.9	22.9	22.9	22.9
Effective Green, g (s)	66.5	61.0		76.0	66.5	66.5	22.9	22.9	22.9	22.9	22.9	22.9
Actuated g/C Ratio	0.58	0.53		0.66	0.58	0.58	0.20	0.20	0.20	0.20	0.20	0.20
Clearance Time (s)	4.0	8.0		4.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	5.0	5.0	5.0	5.0	5.0	5.0
Lane Grp Cap (vph)	364	973		233	1007	790	158	382	325	117	363	250
v/s Ratio Prot	0.01	c0.52		c0.09	0.35		0.14				0.14	
v/s Ratio Perm	0.11			0.52		0.03	0.10		0.04	c0.14		0.02
v/c Ratio	0.21	0.97		0.92	0.60	0.05	0.49	0.70	0.19	0.71	0.69	0.08
Uniform Delay, d1	11.4	26.2		36.7	15.7	10.5	40.8	42.8	38.3	42.9	42.7	37.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	23.0		37.1	2.7	0.1	4.9	7.2	0.6	21.9	6.8	0.3
Delay (s)	11.7	49.2		73.8	18.4	10.6	45.7	50.0	38.9	64.8	49.4	37.7
Level of Service	B	D		E	B	B	D	D	D	E	D	D
Approach Delay (s)		46.4			31.0			45.1			49.7	
Approach LOS		D			C			D			D	

Intersection Summary	
HCM 2000 Control Delay	41.9
HCM 2000 Volume to Capacity ratio	0.90
Actuated Cycle Length (s)	114.9
Intersection Capacity Utilization	99.4%
Analysis Period (min)	15
c Critical Lane Group	



Timings Future Total 2033 PM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

Lane Configurations									
Traffic Volume (vph)	2	491	446	6	312	281	3	5	2
Future Volume (vph)	2	491	446	6	312	281	3	5	2
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		8	4
Permitted Phases	2		2	6		8		4	
Detector Phase	2	2	2	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	25.0	25.0	25.0	25.0	25.0	12.0	12.0	12.0	12.0
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	25.0	25.0	25.0	25.0
Total Split (s)	51.6	51.6	51.6	51.6	51.6	42.0	42.0	42.0	42.0
Total Split (%)	55.1%	55.1%	55.1%	55.1%	55.1%	44.9%	44.9%	44.9%	44.9%
Yellow Time (s)	5.9	5.9	5.9	5.9	5.9	3.7	3.7	3.7	3.7
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	5.6	5.6	5.6	5.6

Recall Mode	Max	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)	44.0	44.0	44.0	44.0	44.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54	0.29	0.29	0.29	0.29
v/c Ratio	0.00	0.55	0.48	0.02	0.19	0.80	0.01	0.02	0.02
Control Delay	12.0	16.8	3.2	12.3	11.4	42.5	16.8	16.8	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	16.8	3.2	12.3	11.4	42.5	16.8	16.8	16.8
LOS	B	B	A	B	B	D	B	B	B
Approach Delay		10.3			11.4		42.2		16.8
Approach LOS		B			B		D		B

**Intersection Summary**

Cycle Length: 93.6  
 Actuated Cycle Length: 81.7  
 Natural Cycle: 60  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay: 16.4  
 Intersection Capacity Utilization 76.8%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service D



HCM Signalized Intersection Capacity Analysis Future Total 2033 PM  
 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47 04-01-2022

Lane Configurations												
Traffic Volume (vph)	2	491	446	6	312	4	281	3	1	5	2	2
Future Volume (vph)	2	491	446	6	312	4	281	3	1	5	2	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0	8.0	5.6	5.6			5.6	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00			1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00			1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	1.00	1.00	0.96			0.97	
Fit Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00			0.97	
Satd. Flow (prot)	1785	1807	1456	1523	3333	1638	1808				1773	
Fit Permitted	0.55	1.00	1.00	0.38	1.00	0.75	1.00				0.92	
Satd. Flow (perm)	1025	1807	1456	613	3333	1296	1808				1686	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	534	485	7	339	4	305	3	1	5	2	2
RTOR Reduction (vph)	0	0	223	0	1	0	0	1	0	0	1	0
Lane Group Flow (vph)	2	534	262	7	342	0	305	3	0	0	8	0
Conf. Peds. (#/hr)			3	3								
Heavy Vehicles (%)	0%	4%	7%	17%	7%	0%	9%	0%	0%	0%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	NA	NA
Protected Phases		2		6		8		8		4		
Permitted Phases	2		2	6		8		4				
Actuated Green, G (s)	44.0	44.0	44.0	44.0	44.0	24.0	24.0			24.0		
Effective Green, g (s)	44.0	44.0	44.0	44.0	44.0	24.0	24.0			24.0		
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54	0.29	0.29			0.29		
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0	5.6	5.6			5.6		
Vehicle Extension (s)	4.2	4.2	4.2	4.2	4.2	3.0	3.0			3.0		
Lane Grp Cap (vph)	552	974	785	330	1797	381	531			495		
v/s Ratio Prot		c0.30			0.10							
v/s Ratio Perm	0.00		0.18	0.01		c0.24						0.00
v/c Ratio	0.00	0.55	0.33	0.02	0.19	0.80	0.01			0.02		
Uniform Delay, d1	8.7	12.3	10.6	8.8	9.7	26.6	20.4			20.4		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00		
Incremental Delay, d2	0.0	2.2	1.1	0.1	0.2	11.4	0.0			0.0		
Delay (s)	8.7	14.5	11.7	8.9	9.9	38.0	20.4			20.4		
Level of Service	A	B	B	A	A	D	C			C		
Approach Delay (s)		13.2			9.9		37.8			20.4		
Approach LOS		B			A		D			C		

**Intersection Summary**

HCM 2000 Control Delay 17.0 HCM 2000 Level of Service B  
 HCM 2000 Volume to Capacity ratio 0.64  
 Actuated Cycle Length (s) 81.6 Sum of lost time (s) 13.6  
 Intersection Capacity Utilization 76.8% ICU Level of Service D  
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis  
7: Concession Road 3 & Regional Highway 47

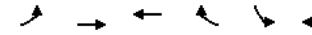
Future Total 2033 PM  
04-01-2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕				↕			↕	
Traffic Volume (veh/h)	21	448	25	5	315	7	12	14	10	4	18	14
Future Volume (Veh/h)	21	448	25	5	315	7	12	14	10	4	18	14
Sign Control	Free			Free				Stop			Stop	
Grade	0%			0%				0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	23	482	27	5	339	8	13	15	11	4	19	15
Pedestrians	3			3				5			7	
Lane Width (m)	3.5			3.5				3.5			3.5	
Walking Speed (m/s)	1.2			1.2				1.2			1.2	
Percent Blockage	0			0				0			1	
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	354		514		927		910		504		923	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	354		514		927		910		504		923	
tC, single (s)	4.1		4.1		7.1		6.6		6.2		7.1	
tC, 2 stage (s)												
tF (s)	2.2		2.2		3.5		4.1		3.3		3.5	
p0 queue free %	98		100		94		94		98		98	
cM capacity (veh/h)	1209		1058		225		260		569		229	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	532	352	39	38								
Volume Left	23	5	13	4								
Volume Right	27	8	11	15								
cSH	1209	1058	289	342								
Volume to Capacity	0.02	0.00	0.13	0.11								
Queue Length 95th (m)	0.5	0.1	3.7	3.0								
Control Delay (s)	0.6	0.2	19.4	16.9								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.6	0.2	19.4	16.9								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			49.2%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis  
8: Regional Highway 47 & Goodwood Pit Site Access

Future Total 2033 PM  
04-01-2022



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↑	↑	↑
Traffic Volume (veh/h)	2	461	326	4	2	6
Future Volume (Veh/h)	2	461	326	4	2	6
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2	507	358	4	2	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	362		869		358	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	362		869		358	
tC, single (s)	4.1		6.4		7.2	
tC, 2 stage (s)						
tF (s)	2.2		3.5		4.2	
p0 queue free %	100		99		99	
cM capacity (veh/h)	1208		324		512	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	509	358	4	9		
Volume Left	2	0	0	2		
Volume Right	0	0	4	7		
cSH	1208	1700	1700	454		
Volume to Capacity	0.00	0.21	0.00	0.02		
Queue Length 95th (m)	0.0	0.0	0.0	0.5		
Control Delay (s)	0.1	0.0	0.0	13.1		
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	13.1			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			35.9%		ICU Level of Service	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
9: Brock Road (Regional Road 1) & Regional Highway 47

Future Total 2033 PM  
04-01-2022

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	446	16	164	306	8	146
Future Volume (Veh/h)	446	16	164	306	8	146
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	513	18	189	352	9	168
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						9
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			531		1252	522
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			531		1252	522
tC, single (s)			4.2		6.6	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.7	3.3
p0 queue free %			81		94	70
cM capacity (veh/h)			1007		139	555
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>		
Volume Total	531	189	352	177		
Volume Left	0	189	0	9		
Volume Right	18	0	0	168		
cSH	1700	1007	1700	584		
Volume to Capacity	0.31	0.19	0.21	0.30		
Queue Length 95th (m)	0.0	5.5	0.0	10.2		
Control Delay (s)	0.0	9.4	0.0	15.2		
Lane LOS		A		C		
Approach Delay (s)	0.0	3.3		15.2		
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			3.6			
Intersection Capacity Utilization			46.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
11: Concession Road 3 & Goodwood Pit Site Access

Future Total 2033 PM  
04-01-2022

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	0	0	40	0	2	21
Future Volume (Veh/h)	0	0	40	0	2	21
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	42	0	2	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	68	42			42	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68	42			42	
tC, single (s)	6.4	6.2			5.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			3.1	
p0 queue free %	100	100			100	
cM capacity (veh/h)	940	1034			1114	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	0	42	24			
Volume Left	0	0	2			
Volume Right	0	0	0			
cSH	1700	1700	1114			
Volume to Capacity	0.00	0.02	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.7			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.0	0.7			
Approach LOS		A				
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			6.7%		ICU Level of Service	A
Analysis Period (min)			15			

Queuing and Blocking Report

Future Total 2033 AM  
04-01-2022

Intersection: 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

Movement	EB	EB	NB	SB
Directions Served	L	TR	L	R
Maximum Queue (m)	19.0	23.5	24.8	3.8
Average Queue (m)	6.3	10.5	8.7	0.2
95th Queue (m)	14.1	19.6	19.7	2.2
Link Distance (m)	574.9			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	80.0		50.0	70.0
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: York-Durham Line & Wagg Road

Movement	WB	SB
Directions Served	LTR	LTR
Maximum Queue (m)	11.6	15.7
Average Queue (m)	6.2	1.7
95th Queue (m)	11.5	8.4
Link Distance (m)	1653.9	736.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: York-Durham Line & Pit Inbound Site Access

Movement	NB	NB	SB
Directions Served	L	T	TR
Maximum Queue (m)	54.3	1.5	12.8
Average Queue (m)	22.4	0.0	0.5
95th Queue (m)	44.1	1.5	4.7
Link Distance (m)		82.2	986.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	70.0		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

Future Total 2033 AM  
04-01-2022

Intersection: 4: York-Durham Line & Pit Outbound Site Access/Private Access

Movement	EB	EB	SB
Directions Served	L	R	LT
Maximum Queue (m)	25.0	31.0	0.4
Average Queue (m)	7.1	15.0	0.0
95th Queue (m)	21.3	28.5	0.4
Link Distance (m)	190.3	190.3	82.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: York-Durham Line & Regional Highway 47

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	TR	L	T	R	L	T	R	L	T	R	
Maximum Queue (m)	74.9	298.8	94.8	212.6	66.0	61.1	74.1	36.0	88.3	102.9	89.5	
Average Queue (m)	57.1	123.1	34.1	97.5	18.3	25.7	28.7	1.8	36.4	43.1	34.2	
95th Queue (m)	90.1	292.4	88.0	174.1	49.6	51.7	56.9	18.6	71.4	83.1	69.9	
Link Distance (m)	1467.0		3634.3		3634.3		719.9		722.5			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (m)	55.0		55.0			50.0		40.0	50.0		50.0	
Storage Blk Time (%)	18	16	1	24		5	3		7	4	3	
Queuing Penalty (veh)	90	26	5	37		14	8		28	12	10	

Intersection: 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47

Movement	EB	WB	WB	WB	NB	NB	SB
Directions Served	T	L	T	TR	L	TR	LTR
Maximum Queue (m)	64.1	15.3	49.8	48.0	49.8	85.9	5.2
Average Queue (m)	22.9	1.6	19.2	19.1	38.6	16.9	0.3
95th Queue (m)	50.1	8.8	40.2	38.5	56.4	64.7	2.9
Link Distance (m)	3634.3		556.1		328.2	155.7	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (m)		50.0		25.0	30.0		
Storage Blk Time (%)	0		3	4	18	0	
Queuing Penalty (veh)	0		7	10	1	0	

Queuing and Blocking Report

Future Total 2033 AM  
04-01-2022

Intersection: 7: Concession Road 3 & Regional Highway 47

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	19.9	16.0	13.0	18.9
Average Queue (m)	1.1	0.8	4.4	5.9
95th Queue (m)	8.9	8.1	10.0	13.9
Link Distance (m)	556.1	395.4	439.5	1197.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Regional Highway 47 & Goodwood Pit Site Access

Movement	SB
Directions Served	LR
Maximum Queue (m)	24.6
Average Queue (m)	8.8
95th Queue (m)	21.8
Link Distance (m)	381.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Brock Road (Regional Road 1) & Regional Highway 47

Movement	WB	NB
Directions Served	L	L
Maximum Queue (m)	19.3	35.3
Average Queue (m)	5.9	9.8
95th Queue (m)	15.2	25.6
Link Distance (m)		1045.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	110.0	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report

Future Total 2033 AM  
04-01-2022

Intersection: 11: Concession Road 3 & Goodwood Pit Site Access

Movement	SB
Directions Served	LT
Maximum Queue (m)	1.4
Average Queue (m)	0.0
95th Queue (m)	1.4
Link Distance (m)	400.4
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 247
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Queuing and Blocking Report

Future Total 2033 PM  
04-01-2022

Intersection: 1: York-Durham Line & Aurora Road (Regional Road 15)/Aurora Road

Movement	EB	EB	WB	NB	SB	SB
Directions Served	L	TR	LTR	L	L	R
Maximum Queue (m)	32.3	23.1	8.0	23.8	0.7	4.6
Average Queue (m)	11.8	9.9	0.9	8.2	0.0	0.3
95th Queue (m)	23.7	18.7	4.8	18.8	0.7	2.4
Link Distance (m)		574.9	234.7			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (m)	80.0			50.0	50.0	70.0
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: York-Durham Line & Wagg Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.0	18.7	5.5	24.4
Average Queue (m)	0.6	7.1	0.2	5.6
95th Queue (m)	4.4	14.6	3.0	16.8
Link Distance (m)	104.9	1653.9	1318.6	736.3
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: York-Durham Line & Pit Inbound Site Access

Movement	NB
Directions Served	L
Maximum Queue (m)	26.0
Average Queue (m)	6.2
95th Queue (m)	20.3
Link Distance (m)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	70.0
Storage Blk Time (%)	
Queuing Penalty (veh)	

Queuing and Blocking Report

Future Total 2033 PM  
04-01-2022

Intersection: 4: York-Durham Line & Pit Outbound Site Access/Private Access

Movement	EB	EB	WB
Directions Served	L	R	LTR
Maximum Queue (m)	19.8	31.6	8.9
Average Queue (m)	3.0	14.1	2.6
95th Queue (m)	13.0	27.1	8.8
Link Distance (m)	190.3	190.3	103.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: York-Durham Line & Regional Highway 47

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	R	L	T	R
Maximum Queue (m)	74.9	742.8	80.3	119.0	21.8	51.8	97.1	60.0	66.8	86.7	36.7
Average Queue (m)	29.1	429.8	32.7	54.8	5.2	18.0	44.2	9.9	23.5	40.6	10.6
95th Queue (m)	76.7	919.4	64.7	98.1	15.0	40.5	78.8	46.5	50.8	70.9	26.3
Link Distance (m)		1467.0		3634.3	3634.3		719.9			722.0	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (m)	55.0		55.0			50.0		40.0	50.0		50.0
Storage Blk Time (%)	0	47	3	7		1	12		5	6	0
Queuing Penalty (veh)	0	33	18	14		4	34		15	10	0

Intersection: 6: Goodwood Road (Regional Road 21)/Private Access & Regional Highway 47

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	L	T	TR	L	TR	LTR
Maximum Queue (m)	3.5	76.3	11.8	33.8	31.0	49.8	79.2	11.1
Average Queue (m)	0.2	30.3	1.1	10.5	11.1	34.8	9.5	1.5
95th Queue (m)	1.8	60.2	6.2	24.5	24.7	51.8	47.8	7.1
Link Distance (m)		3634.3		556.1			328.2	155.7
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	70.0		50.0		25.0	30.0		
Storage Blk Time (%)		0		1	1	16		
Queuing Penalty (veh)		0		1	1	1		

Queuing and Blocking Report

Future Total 2033 PM  
04-01-2022

Intersection: 7: Concession Road 3 & Regional Highway 47

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	33.0	24.9	17.4	15.3
Average Queue (m)	3.5	1.5	4.9	4.5
95th Queue (m)	18.0	10.9	11.8	11.2
Link Distance (m)	556.1	395.2	439.5	1157.0
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Regional Highway 47 & Goodwood Pit Site Access

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	8.0	17.6
Average Queue (m)	0.4	3.0
95th Queue (m)	5.2	12.3
Link Distance (m)	395.2	381.3
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Brock Road (Regional Road 1) & Regional Highway 47

Movement	EB	WB	NB
Directions Served	TR	L	L
Maximum Queue (m)	2.0	28.4	15.5
Average Queue (m)	0.1	9.9	1.8
95th Queue (m)	1.2	22.1	8.5
Link Distance (m)	3705.4		1045.3
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		110.0	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

Future Total 2033 PM  
04-01-2022

Intersection: 11: Concession Road 3 & Goodwood Pit Site Access

Movement	SB
Directions Served	LT
Maximum Queue (m)	1.5
Average Queue (m)	0.0
95th Queue (m)	1.5
Link Distance (m)	391.2
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 132
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