220 Arkell Road
Transportation Impact Study Update

Paradigm Transportation Solutions Limited

April 2023

Project Summary

Project Number
230080 / 180099

April 2023

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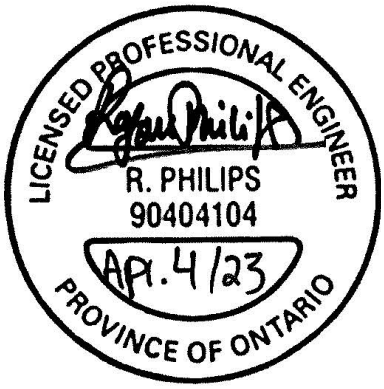

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Executive Summary

Content

Rockpoint Properties Inc. retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study for a proposed residential development located at 220 Arkell Road in Guelph, Ontario.

This Transportation Impact Study (TIS) analyzes existing traffic conditions, describes the proposed development, forecasts future traffic volumes for an assumed year for full build-out (2026), a horizon of five years from full build-out (2031), a horizon of ten years from full build-out (2036) both with and without the proposed site development, investigates if remedial measures are needed to mitigate the forecast traffic impacts and provides recommendations for remedial measures if required to accommodate the proposed development.

Development Concept

The proposed development is located at 220 Arkell Road in Guelph, Ontario. The development will include 30 single-family homes and 68 cluster townhouse dwellings for a total of 98 units (previously 90 units).

The subject site does not have direct road access to Arkell Road, therefore access will be provided via the neighbouring developments (Victoria Park Village to the north and future developments to the south/east). Temporary emergency access will be provided through Block 20 on Dawes Avenue. The development is expected to begin construction in 2024 and be completed and fully occupied by 2026.

TIS Update – April 2023

An earlier TIS for the development was completed in April 2019, and was based on a previous Draft Plan of Subdivision accommodating 90 dwelling units and was assumed to be completed by 2021. This present Update is based on the currently proposed Draft Plan of Subdivision, comprising 98 units with the same access arrangements as previously identified.

The Update analyzes future traffic conditions corresponding to 2026 (buildout), 2031 (five-year horizon), and 2036 (ten-year horizon), respectively different from the horizon years used in the 2019 TIS, viz., 2021, 2026, and 2031.

The TIS Update also includes an additional background development, viz., 190-216 Arkell Road, for estimating future background traffic, as outlined in **Section 3.3.6**.

This TIS Update also addresses review comments on the April 2019 TIS Report, as noted below:

- Comment #4 – Victoria Park Village Road / Decorso Drive: The 2019 TIS mistakenly identified Decorso Drive as Victoria Park Village Road. This has been corrected in the text and figures in this report.
- Comments #5 to #9 – Background Network Improvements: In Section 4 of the 2019 TIS, potential network and operational modifications were identified to address capacity issues under future background traffic conditions. In Section 7, intersection operations were analyzed with the identified modifications assumed to be in place. Staff comments have indicated the infeasibility of some of the recommended changes and the need for considering full development conditions in the study area before identifying potential modifications. Accordingly, Section 4 and Section 7 of the 2019 TIS report have been removed in this TIS Update. Section 5, Section 6 and Section 8 in the previous TIS are renumbered as Section 4, Section 5 and Section 6, respectively. Section 5 as well as the Conclusions in Section 6 in the Executive Summary have been appropriately revised to reflect the above-noted changes.
- Comment #10 – Synchro simulation: Synchro simulation has been adjusted per City's signal timing plan in this TIS Update.

In summary, it is to be noted that the above changes to the 2019 TIS and incorporated in this TIS Update, and the changes to the Draft Plan of Subdivision, do not impact the report's main conclusion that that the subject development is not a significant contributor to future traffic volumes in the study area road network (with development traffic accounting for 1.4% and 1.7% of all study area traffic, during the AM and PM peak hours, respectively); and the recommendation that the subject development be considered for approval as proposed without requiring off-site road improvements.

Conclusions

Based on the investigations carried out, it is concluded that:

Existing Traffic Operations

Currently, all intersections within the study area operate at acceptable levels of service during the AM and PM peak hours, with no individual problem movements, except:

- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM peak hour;
  - Northbound through-right movement – AM and PM peak hours; and
  - Southbound through-right movement – PM peak hour.

Background Growth & Other Planned Developments

A growth rate of 2.0% per year for 2017 to 2026, and a rate of 3.0% per year beyond 2026 was used for traffic in the study area, as requested by the City of Guelph.

The City requested that the traffic generated by other "approved but not yet built" developments in the study area be included in the background traffic forecasts, including: Kortright East, Victoria Park Village, Westminister Woods, Northwest Arkell Road and Victoria Road, 388 Arkell Road Secondary School, and 190-216 Arkell Road.

2026 Background Traffic Operations

Under 2026 background traffic conditions all intersections within the study area are forecast to operate at acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours; and
  - Southbound through movement – PM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours; and

2031 Background Traffic Operations

Under 2031 background traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:

- Northbound left-through-right movement – AM peak hour and PM peak hour; and
- Southbound left-through-right movement – AM peak hour and PM peak hour.

- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – AM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Westbound through movement – PM peak hour;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection –AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours; and
  - Southbound through movement – PM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours.

2036 Background Traffic Operations

Under 2036 background traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and
  - Southbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – PM peak hour.

- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – AM and PM peak hours.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Westbound through-right movement – PM peak hour;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours;
  - Southbound through movement – PM peak hours; and
  - Overall intersection – AM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours; and
  - Eastbound right-turn movement – PM peak hour.

Development Trip Generation

The development is forecast to generate 55 and 69 new trips during the AM and PM peak hours, respectively at full build-out.

The site generated traffic accounts for a maximum of 1.4% and 1.7% of all study area traffic, during the AM and PM peak hours, respectively.

2026 Total Traffic Operations

Under 2026 total traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and
  - Southbound left-through-right movement – AM peak hour and PM peak hour.

- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours;
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours.

2031 Total Traffic Operations

Under 2031 total traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and
  - Southbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – AM and PM peak hours.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Westbound left-turn movement – PM peak hour;

- Northbound through-right movement – AM and PM peak hours;
- Southbound through-right movement – AM and PM peak hours; and
- Overall intersection – AM and PM peak hours.

- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours; and
  - Southbound through movement – PM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours.

2036 Total Traffic Operations

Under 2036 total traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and
  - Southbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
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- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – AM and PM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
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  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours;

- Southbound through movement – AM and PM peak hours; and
- Overall intersection – AM and PM peak hours.

- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours; and
  - Eastbound right-turn movement – PM peak hour.

Study Area Development Impacts

The subject development is not a significant contributor to future traffic in the study area road network and does not create any specific capacity problems in addition to those identified under future background traffic conditions including other-area development traffic.

It is acknowledged that modifications and improvements, including the implementation of traffic signal controls at currently unsignalized intersections, are to be determined upon the full buildout of developments in the study area.

Potential Traffic Infiltration

While the proposed development does not have direct access to Arkell Road and traffic must travel through the neighbouring developments (Victoria Park Village, Northwest Arkell and Victoria), it would not be considered infiltration into the neighbourhood.

Once the entire neighbourhood is built-out, there will be an additional connection between Arkell Road and Victoria Road through the neighbourhood. This connection is not a direct route and will likely have reduced speed limits. The potential for traffic infiltration is low, and traffic calming measures are not required.

Recommendations

Based on the findings of this study, the subject development does not require offsite road improvements specific to the development. It is recommended that the development be considered for approval as proposed.

Contents

Appendices

Figures

Tables

1 Introduction

1.1 Overview

Rockpoint Properties Inc. retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study for a proposed residential development located at 220 Arkell Road in Guelph, Ontario. **Figure 1.1** details the study area and location of the subject development.

The proposed development is located at 220 Arkell Road in Guelph, Ontario. The development will include 30 single-family homes and 68 cluster townhouse dwellings for a total of 98 units.

The subject site does not have direct road access to Arkell Road, therefore access will be provided via the neighbouring developments (Victoria Park Village to the north and future developments to the south/east). Temporary emergency access will be provided through Block 20 on Dawes Avenue. The development is expected to begin construction in 2024 and be completed and fully occupied by 2026.

1.2 TIS Update – April 2023

An earlier TIS for the development was completed in April 2019, and was based on a previous Draft Plan of Subdivision accommodating 90 dwelling units and was assumed to be completed by 2021. This present Update is based on the currently proposed Draft Plan of Subdivision, comprising 98 units with the same access arrangements as previously identified.

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The TIS Update also includes an additional background development, viz., 190-216 Arkell Road, for estimating future background traffic, as outlined in **Section 3.3.6**.

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recommended changes and the need for considering full development conditions in the study area before identifying potential modifications. Accordingly, Section 4 and Section 7 of the 2019 TIS report have been removed in this TIS Update. Section 5, Section 6 and Section 8 in the previous TIS are renumbered as Section 4, Section 5 and Section 6, respectively. Section 5 as well as the Conclusions in Section 6 in the Executive Summary have been appropriately revised to reflect the above-noted changes.

- Comment #10 – Synchro simulation: Synchro simulation has been adjusted per City's signal timing plan in this TIS Update.

1.3 Purpose and Scope

The purpose of this study is to assess the impacts of the subject site on the adjacent roadway network, to determine if improvements are required to mitigate impacts, to make recommendations for improvements as identified and to assess the adequacy of the proposed parking supply.

The scope of the study includes the following:

- Determination and assessment of the current traffic conditions in the vicinity of the site;
- Determination and assessment of the additional traffic that will be generated by the proposed development;
- Analyses of the impacts of the additional traffic; and
- Recommendations on the measures required to accommodate the additional traffic impact in a satisfactory manner.

This report has been prepared to meet the City of Guelph Traffic Impact Study (TIS) Guidelines[1]. This report assesses traffic conditions corresponding to the 2026 (opening year), 2031 horizon (five years from occupancy) and 2036 horizon (10 years from occupancy), as required under the City of Guelph Guidelines.

The scope of the study was developed in consultation with the City of Guelph via e-mail in April 2018. **Appendix A** contains the pre-study consultation correspondence with the City of Guelph staff.

1.4 Study Area Intersections

The following intersections were investigated in this study:

- Victoria Road and Arkell Road (signalized);
- Arkell Road and Summerfield Drive (two-way stop controlled);
- Arkell Road and Zecca Drive / Amos Drive (two-way stop controlled);

[1] City of Guelph. *Traffic Impact Study Guidelines*. April 2016.

- Arkell Road and Colonial Drive (two-way stop controlled); and
- Arkell Road and 388 Arkell Road Site Driveway (two-way stop controlled);
- Victoria Road and 388 Arkell Road Site Driveway (two-way stop controlled); and
- Victoria Road and Decorso Drive (two-way stop controlled).

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Study Area and Subject Development Location

2 Existing Conditions

This section documents current traffic conditions, operational deficiencies and constraints experienced by the public travelling at the intersections within the study area. The operational deficiencies and constraints identified at this stage will be fundamental to the process of defining the required remedial measures.

2.1 Road Network

The characteristics of the roadways in the study area are described below. Reference was made to the City of Guelph's Official Plan[2].

- **Arkell Road,** an east-west arterial road with a posted speed limit of 50 km/h and assumed operating speed of 60 km/h. Arkell Road has a two-lane urban cross-section with on-street bicycle lanes on both sides of the roadway. Parking is restricted along both sides of the roadway. Heavy vehicles are not permitted on Arkell Road, with the exception of local deliveries.
- **Victoria Road,** a north-south arterial road with a posted speed limit of 70 km/h and assumed operating speed of 80 km/h. South of Arkell Road, Victoria Road has a two-lane cross-section with curb and gutter on the west side of the roadway and a gravel shoulder and ditch on the east side. Between Arkell Road and MacAllister Boulevard, Victoria Road has a three-lane urban cross-section with a single travel lane in each direction and a centre two-way left-turn lane (TWLTL). North of MacAllister Boulevard, Victoria Road has a four-lane urban cross-section. On-street bicycle lanes are provided on both sides of Victoria Road for the entirety of the study area. Parking is restricted along both sides of the roadway. Victoria Road is a 24-hour truck route.
- **Zecca Drive / Amos Drive,** a north-south local road with an assumed speed limit of 50 km/h. Zecca Drive / Amos Drive has a two-lane urban cross-section. Parking restrictions are not posted on Zecca Drive / Amos Drive. Therefore, parking is limited to a maximum of 48 hours under the City of Guelph Traffic By-law[3].
- **Summerfield Drive,** a north-south collector road with an assumed speed limit of 50 km/h. Summerfield Drive has a two-lane urban cross-section. Parking restrictions are not posted on Summerfield Drive. Therefore, parking is limited to a maximum of 48 hours under the City of Guelph Traffic By-law.
- **Colonial Drive,** a north-south collector road with an assumed speed limit of 50 km/h. A 30 km/h school zone speed limit begins approximately 100 metres south of Arkell Road and extends to Grey

[2] City of Guelph. *The City of Guelph Official Plan – Schedule 5: Road & Rail Network.* March 2018.
[3] City of Guelph. *Traffic By-law (2002)-17017.* 2012.

Oak Drive. Colonial Drive has a two-lane urban cross-section. Parking restrictions are not posted on Colonial Drive. Therefore, parking is limited to a maximum of 48 hours under the City of Guelph Traffic By-law.

- **Decorso Drive** is an east-west local road with an assumed speed limit of 50 km/h. The road has a two-lane urban cross-section. Parking is restricted along both sides of the roadway.

Existing land uses in the area consist mainly of residential properties to the west of Victoria Road and agricultural land to the east. Commercial developments are centred around the arterial road intersections. A golf course is present on the east side of Victoria Road, north of Arkell Road. The lands east of Victoria Road are under the jurisdiction of the Township of Puslinch.

The intersection of Victoria Road and Arkell Road is signalized. The remaining study area intersections are two-way stop-controlled. **Figure 2.1** shows the existing lane configuration and traffic control.

2.2 Existing Transit Service

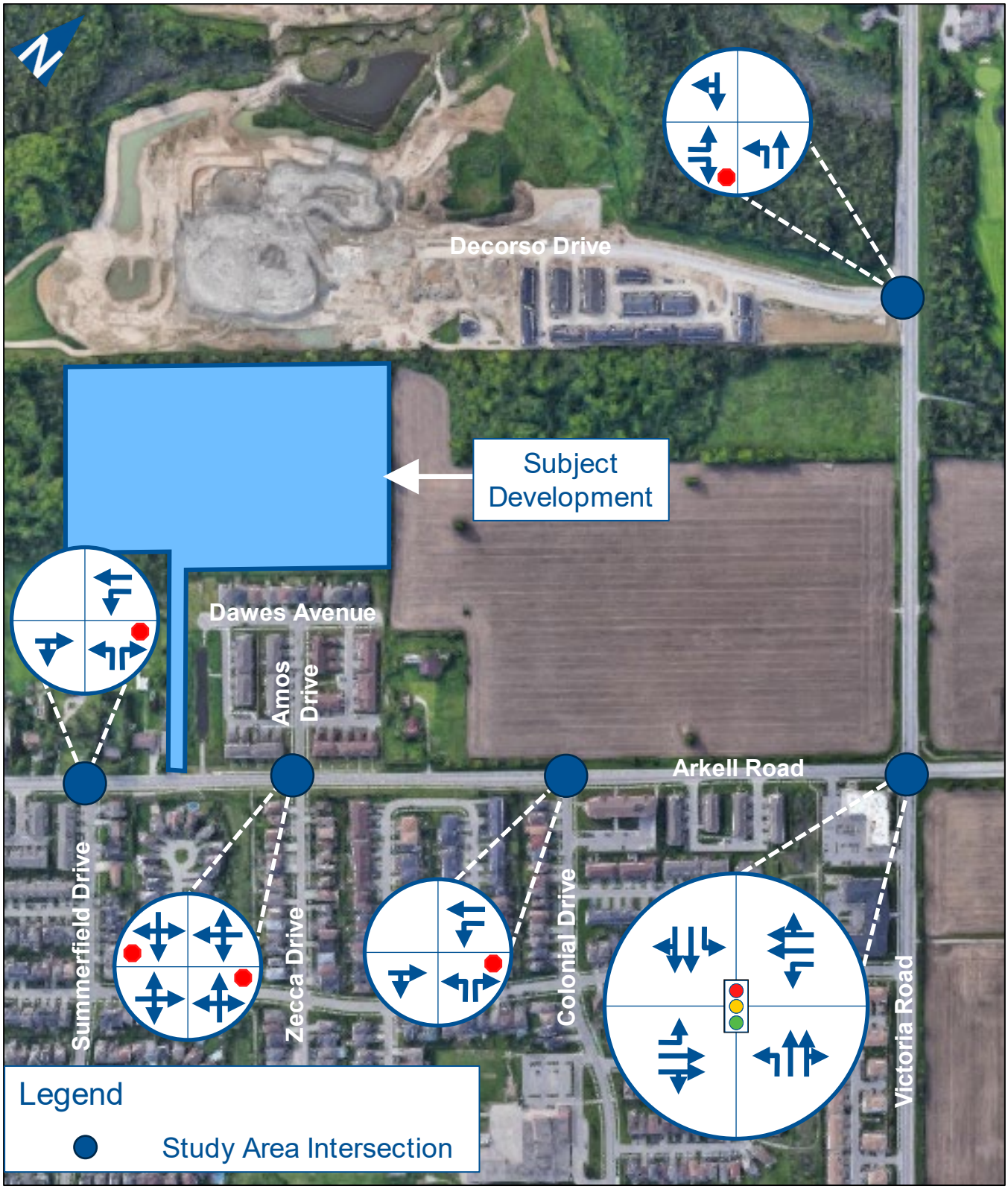
Guelph Transit is the public transit system operator in Guelph, Ontario. **Figure 2.2** shows the transit routes in the vicinity of the subject development. Presently, two transit routes are available in the study area along Arkell Road (Route 5 and Route 56U).

The transit routes in the study area are described as follows:

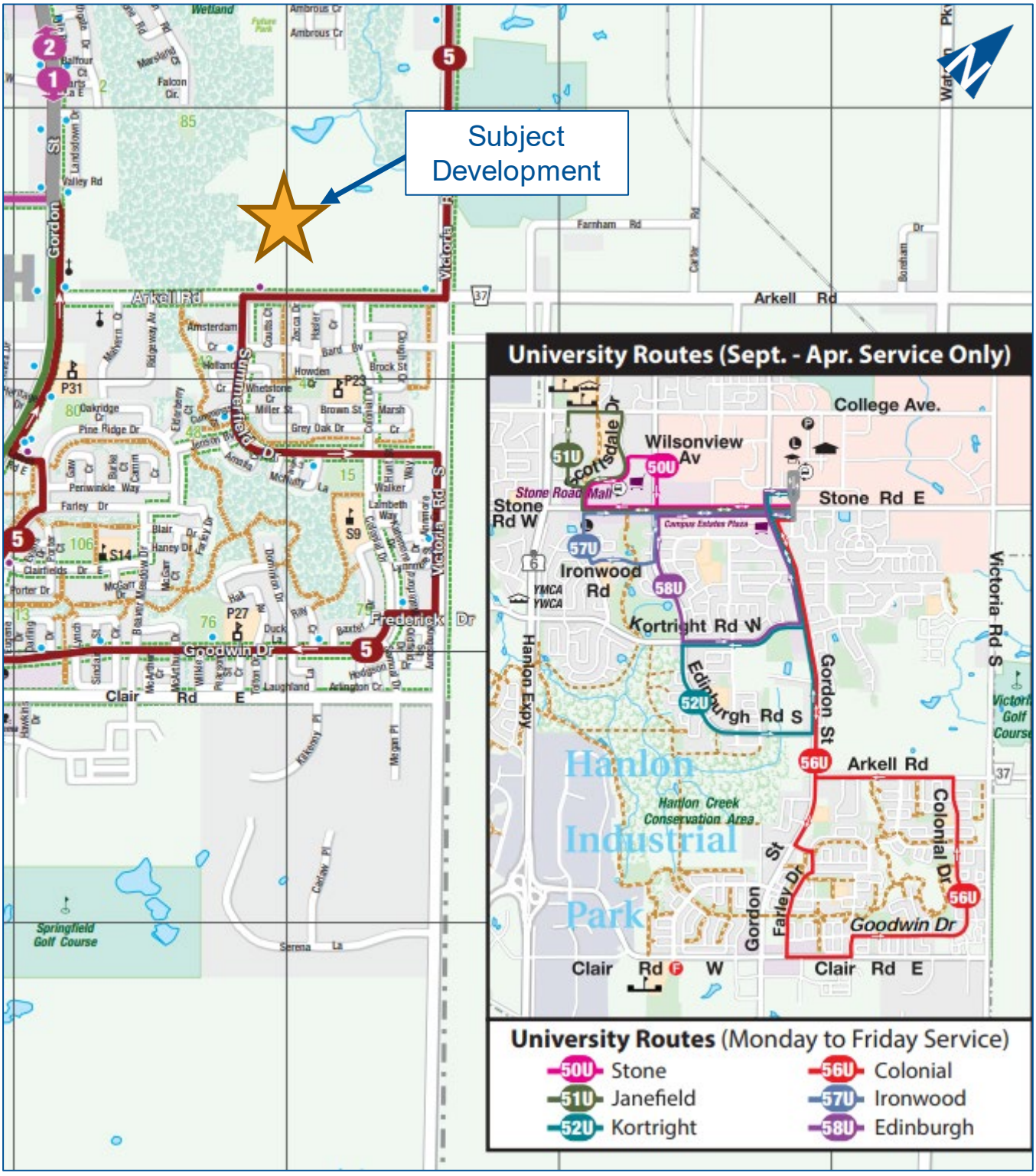
- **Route 5 Goodwin**[4] services southeast Guelph, with major stops at University Centre, Victoria at MacAllister, Summerfield at Amsterdam, Frederick at Waterford, Gordon at Lowes, and Gordon at Edinburgh. Monday to Saturday service operates from 5:50 AM to 12:43 AM on 30-minute headways. Sunday and holiday service operates from 9:20 AM to 7:12 PM on 30-minute headways.
- **Route 56U Colonial**[5] services southeast Guelph, with major stops at University Centre, Gordon at Kortright, Lowes at Gordon, Goodwin at Samuel and Gordon at Arkell. Service operates from 7:15 AM to 12:56 AM on 20-minute headways. Service is provided Monday to Friday, from September to April, during the University of Guelph fall and winter semesters. There is no holiday service and no service during winter and spring breaks.

The nearest bus stop to the subject development is located at Arkell Road and Amos Drive on the north side of the roadway.

[4] Guelph Transit. *Route 5 Goodwin Schedule.* January 2018.
[5] Guelph Transit. *Route 56U Colonial Schedule.* January 2018.



Existing Lane Configuration and Traffic Control



Source: Guelph Transit. *System Map*. 16 July 2017.

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Existing Transit Routes

2.3 Active Transportation

2.3.1 Walkability

Pedestrian sidewalks are provided throughout the study area as follows:

- Arkell Road:
  - A sidewalk is provided on the south side of the roadway west of Victoria Road.
- Victoria Road:
  - A sidewalk is provided along the west side of the roadway. The sidewalk is not present between Victoria Park East Golf Club at 1096 Victoria Road and Arkell Road and ends 100 metres north of Clair Road.
- Zecca Drive / Amos Drive, Summerfield Drive, Colonial Drive, and Decorso Drive:
  - Sidewalks are provided on both sides of the roadway.

2.3.2 Cycling

On-street bike lanes are provided within the study area on Arkell Road and Victoria Road.

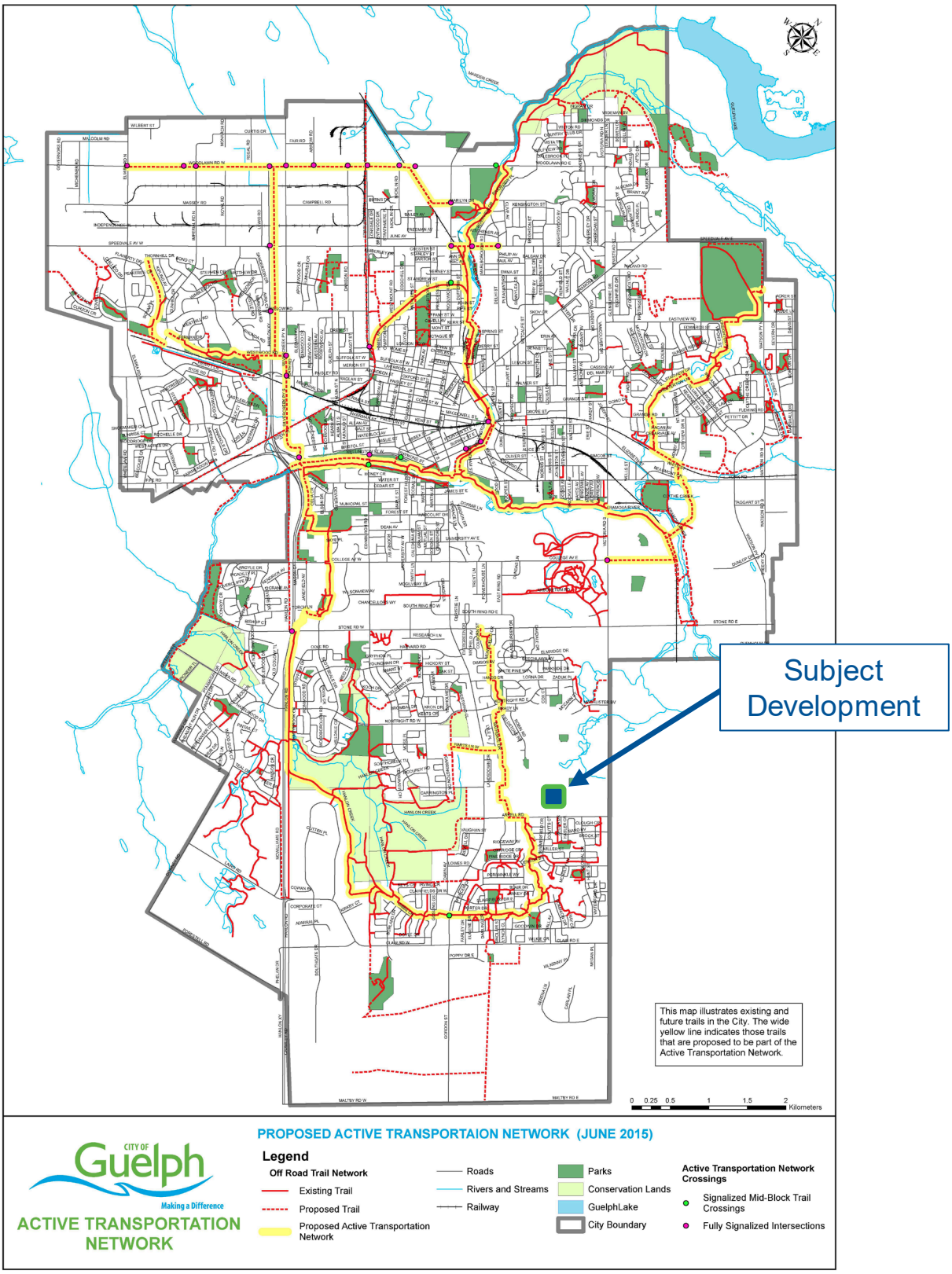
2.3.3 Trails

The City of Guelph Active Transportation Network Map 2015[6] identifies the following trails in the study area:

- An existing trail east of Ridgeway Avenue connecting Arkell Road southerly to Clair Road. An extension of the trail is proposed along Arkell Road and through the wooded areas north of Malvern Crescent;
- An existing trail to the west of Zecca Drive between Arkell Road and Howden Crescent Park; and
- An existing trail west of the commercial development on the west side of Victoria Road between Arkell Road and the south end of Clough Crescent.

Figure 2.3 shows the location of the trails within the study area.

[6] City of Guelph. *Proposed Active Transportation Network.* June 2015.



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Active Transportation Network

220 Arkell Road Transportation Impact Study
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Figure 2.3

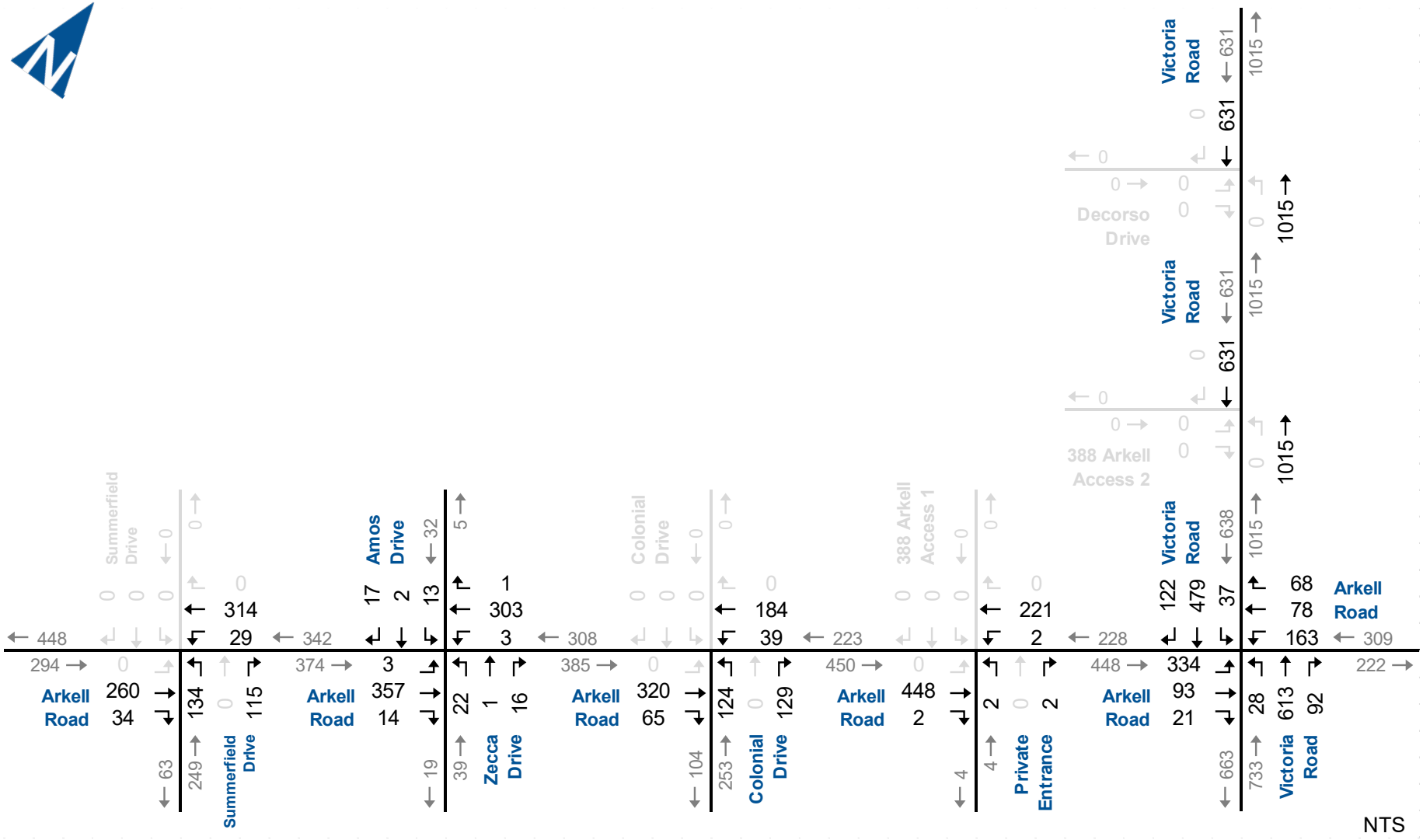
2.4 Existing Traffic Volumes

On October 4 to 6, 2016, using surveyors, study area intersection turning movement count (TMC) data were collected during the AM (7:00 AM to 10:00 AM) and PM (3:00 PM to 6:00 PM) peak periods.

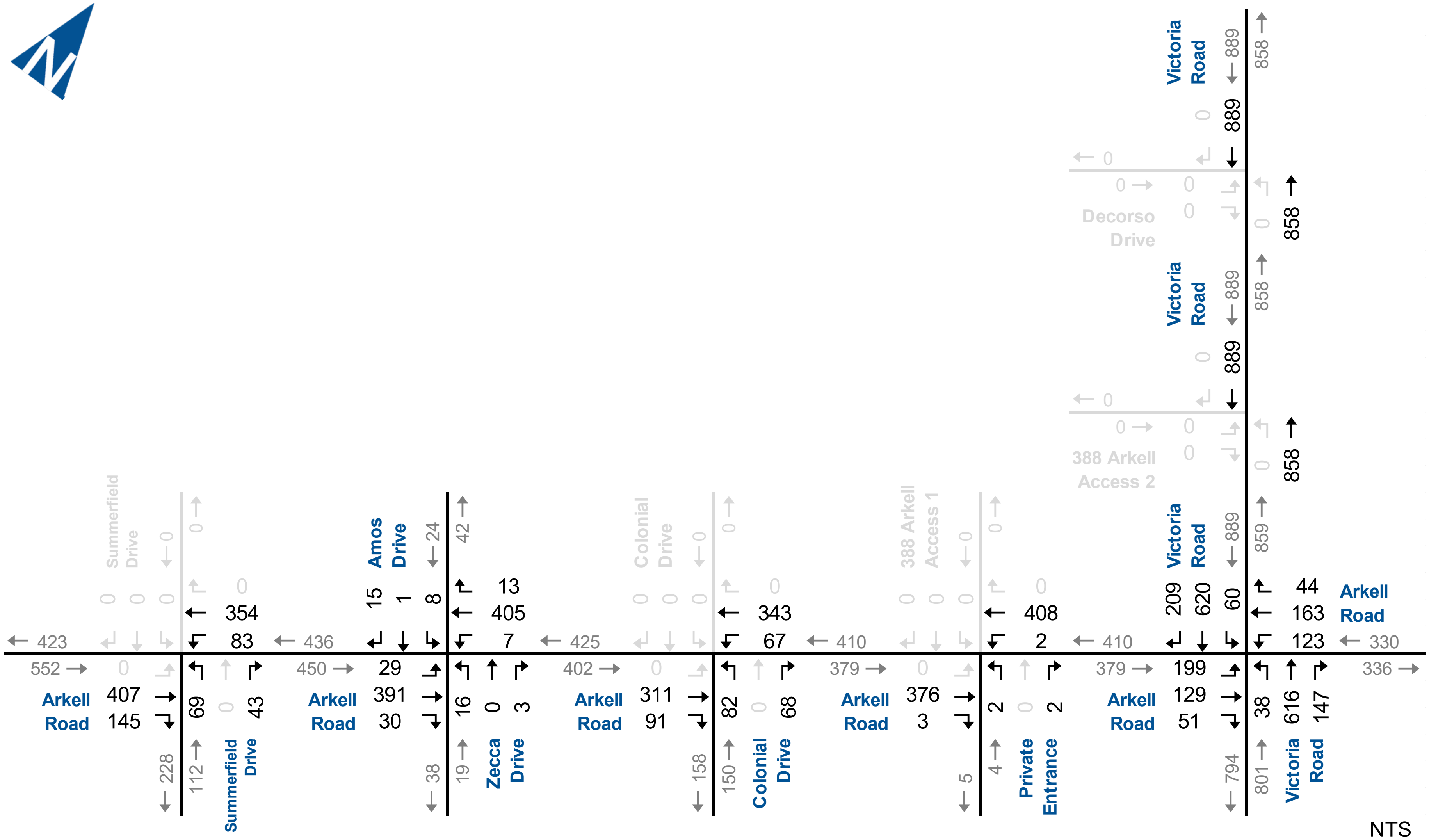
A growth rate of 2.0% per annum compounded was applied to all intersection volumes to reflect 2023 conditions. This growth rate was provided by the City of Guelph during pre-study consultation for the 2019 TIS.

To ensure consistency, network traffic volumes on Arkell Road were balanced using the higher volume intersections. Any further resultant traffic volume discrepancies were equalized based on percent distribution.

Figure 2.4 and **Figure 2.5** summarize the existing AM (8:00 to 9:00) and PM (4:30 to 5:30) peak hour traffic volumes, respectively. **Appendix B** contains the detailed count data and signal timings.



Base Year (2023) AM Traffic Volumes



Base Year (2023) PM Traffic Volumes

Figure 2.5

2.5 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the delay experienced by drivers at intersections. The term "Level of Service" denotes how well a traffic movement operates under given traffic demands, lane arrangements, and traffic controls. Each level is determined by the average amount of control delay per vehicle. Control delay is the total delay associated with stopping for a signal or stop sign, and includes four components: deceleration delay, stopped delay, queue move up time and final acceleration delay.

Table 2.1 contains the level of service criteria for signalized and stop-controlled intersections. As shown, LOS A indicates small average control delays (less than 10 second per vehicle) whereas LOS F indicates intersection failure, which results in extensive vehicular queues and long delays (over 50 seconds per vehicle at an unsignalized intersection, and over 80 seconds per vehicle at a signalized intersection). LOS D is typically considered acceptable peak-hour performance in an urban setting, and lower LOS values are tolerable for short-term time periods during peak hours when heavier traffic volumes are expected.

TABLE 2.1: VEHICLE LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersections Average Total Delay (sec/veh)	Unsignalized Intersections Average Total Delay (sec/veh)
A	< = 10	< = 10
B	> 10 & < = 20	> 10 & < = 15
C	> 20 & < = 35	> 15 & < = 25
D	> 35 & < = 55	> 25 & < = 35
E	> 55 & < = 80	> 35 & < = 50
F	> 80	> 50

As per the City of Guelph TIS Guidelines[7], the following defines critical movements or intersections:

- Volume to capacity ratios for overall intersection operation, through movements or shared through/turning movements that operate at 0.85 or greater for signalized intersections;
- Volume to capacity ratios for exclusive turning movements that operate at 0.90 or greater for signalized intersections;
- Level of service, based on average delay per vehicle or individual movements is LOS E or greater for unsignalized intersections; and

[7] City of Guelph. *Traffic Impact Study Guidelines.* April 2016.

- Estimated 95th percentile queue lengths exceed available turning lane storage.

The operations of the study intersections under existing, or base year (2023), traffic conditions were evaluated using Synchro 11. The intersection analysis considered three separate measures of performance:

- LOS for each movement and the entire intersection;
- The volume to capacity (v/c) ratio for each movement; and
- The estimated 95th percentile queue length for each movement.

Table 2.2 and **Table 2.3** indicate the existing LOS, v/c ratios and 95th percentile queues experienced within the study area, for the AM and PM peak hours, respectively.

The analyses indicate that all intersections and movements within the study area currently operate at overall acceptable levels of service, with the following exceptions:

- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – LOS E, v/c ratio 1.00, and 95th percentile queues exceeding available storage of 45 metres during the AM peak hour;
  - Northbound through-right movement – LOS E, v/c ratio 1.05 during the AM peak hour and LOS F, v/c ratio 1.14 during the PM peak hour; and
  - Southbound through-right movement – v/c ratio 0.90 during the AM peak hour and LOS F, v/c ratio 1.17 during the PM peak hour.

Appendix C provides the detailed Synchro 11 reports.

TABLE 2.2: BASE YEAR (2023) AM PEAK HOUR TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS		A	>	A	A	A		A	C		>	C					
			Delay		0	>	0	8	0		1	16		>	16					
			V/C		0.00	>		0.02	0.00			0.43		>						
			Q		0	>		1	0			16		>						
			Stor.		-	>		60	-			-		>						
			Avail.		-	>		59	-			-		>						
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	B	>	B	<	B	>	B	
			Delay	8	0	>	0	8	0	>	0	<	15	>	15	<	13	>	13	
			V/C	0.00	0.00	>		0.00	0.00	>		<	0.10	>		<	0.07	>		
			Q	0	0	>		0	0	>		<	2	>		<	2	>		
	Colonial Drive & Arkell Road	TWSC	LOS		A	>	A	A	A		A	C		>	C					
			Delay		0	>	0	8	0		2	25		>	25					
			V/C		0.00	>		0.04	0.00			0.61		>						
			Q		0	>		1	0			30		>						
			Stor.		-	>		60	-			-		>						
			Avail.		-	>		59	-			-		>						
	Victoria Road & Arkell Road	TCS	LOS	E	C	>	E	C	C	>	C	B	E	>	E	B	C	>	C	D
			Delay	72	27	>	61	21	29	>	25	14	66	>	64	16	32	>	31	48
			V/C	1.00	0.46	>		0.44	0.62	>		0.13	1.05	>		0.20	0.90	>		
			Q	46	6	>		4	8	>		0	71	>		0	21	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-6	-	>		16	-	>		90	-	>		50	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 2.3: BASE YEAR (2023) PM PEAK HOUR TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS		A	>	A	A	A		A	C		>	C					
			Delay		0	>	0	9	0		2	17		>	17					
			V/C		0.00	>		0.09	0.00			0.28		>						
			Q		0	>		2	0			8		>						
			Stor.		-	>		60	-			-		>						
			Avail.		-	>		58	-			-		>						
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	C	>	C	<	C	>	C	
			Delay	8	0	>	0	8	0	>	0	<	21	>	21	<	15	>	15	
			V/C	0.03	0.00	>		0.01	0.00	>		<	0.08	>		<	0.07	>		
			Q	1	0	>		0	0	>		<	2	>		<	2	>		
	Colonial Drive & Arkell Road	TWSC	LOS		A	>	A	A	A		A	C		>	C					
			Delay		0	>	0	8	0		1	23		>	23					
			V/C		0.00	>		0.06	0.00			0.44		>						
			Q		0	>		2	0			16		>						
			Stor.		-	>		60	-			-		>						
			Avail.		-	>		58	-			-		>						
	Victoria Road & Arkell Road	TCS	LOS	C	C	>	C	C	C	>	C	B	F	>	F	B	F	>	F	E
			Delay	26	29	>	27	22	32	>	28	16	100	>	96	16	112	>	106	79
			V/C	0.63	0.64	>		0.38	0.76	>		0.20	1.14	>		0.27	1.17	>		
			Q	9	10	>		4	11	>		0	118	>		0	144	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	31	-	>		16	-	>		90	-	>		50	-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

3 Background Conditions

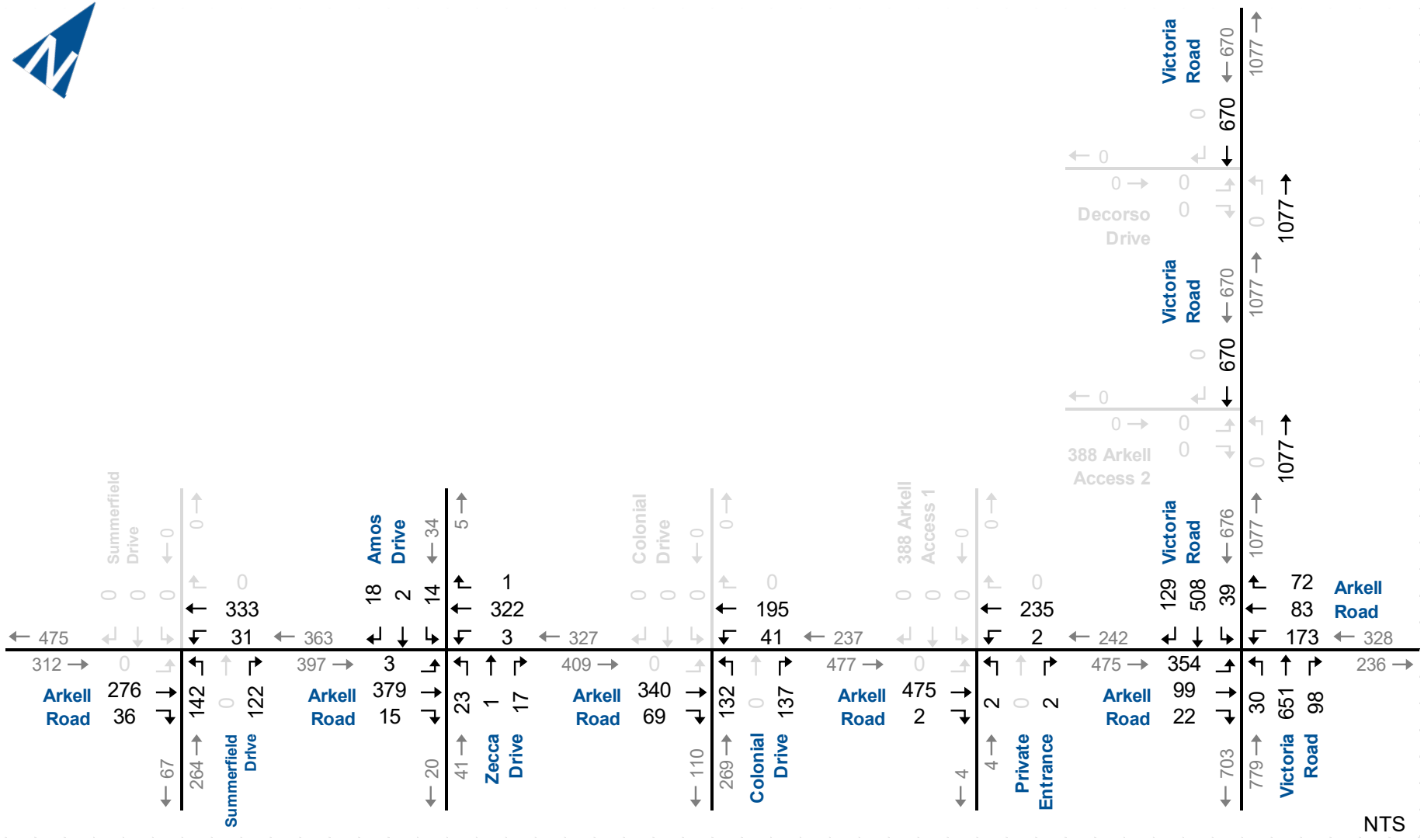
3.1 Horizon Years

To adhere to the terms of reference established during pre-study consultation with the City of Guelph engineering staff, three (3) horizon years, 2026, 2031, and 2036 were analyzed in this study. The 2026 horizon represents opening year of the development, and the 2031 and 2036 horizons represent five- and 10-year horizons from development occupancy, respectively. The development is expected to begin construction in 2024 and be completed and fully occupied by 2026.

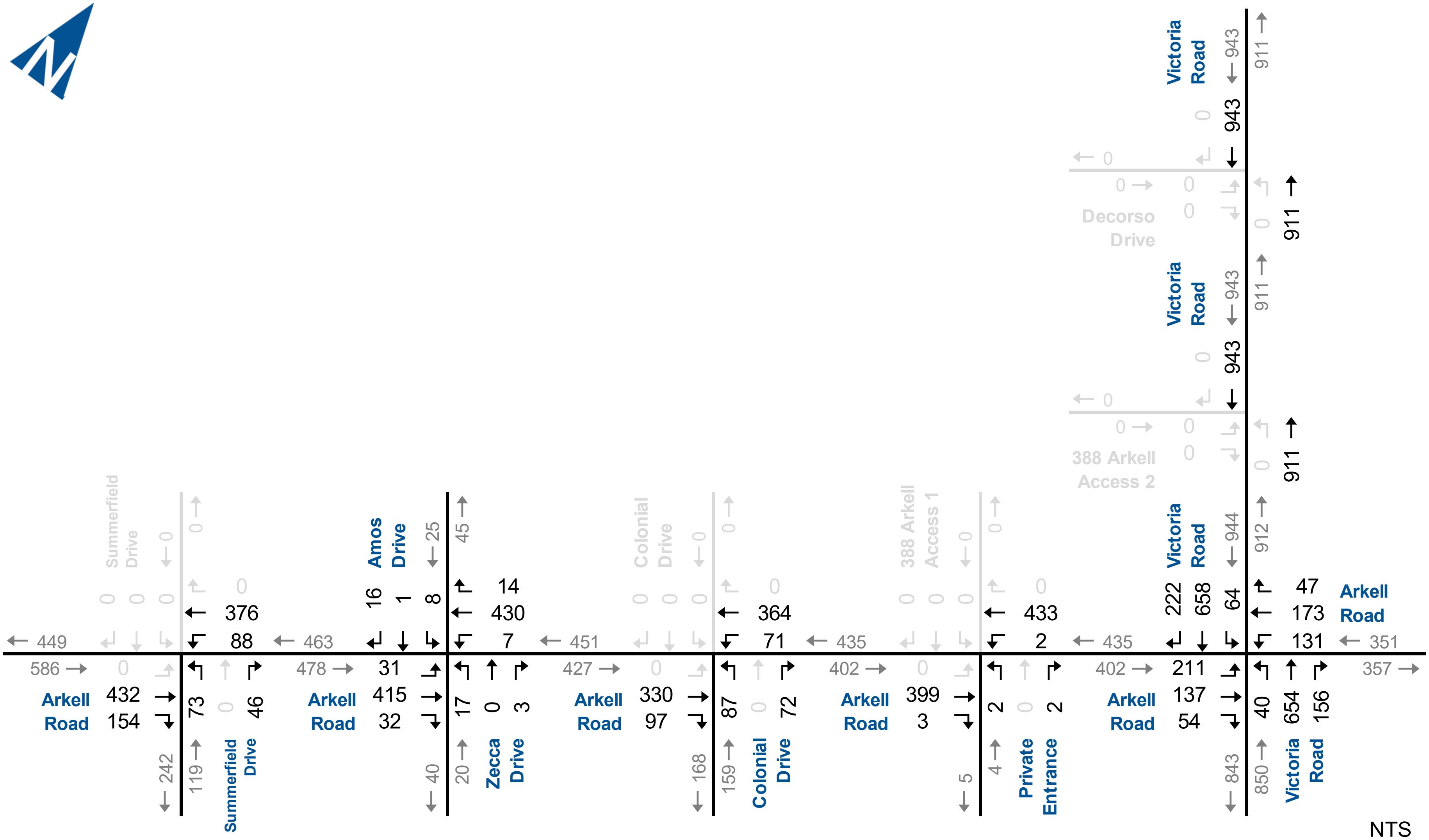
3.2 Background Growth Rate

The non-site traffic increase represents generalized traffic growth in the southeast area of Guelph. A growth rate of 2.0% per year for 2023 to 2026, and a rate of 3.0% per year beyond 2026 was used for traffic in the study area, as requested by the City of Guelph. This rate generally reflects typical annual increases within stable communities and in this context, accounts for the general population and employment growth that may occur. Statistics Canada data indicates that over the 2011-2016 period the City of Guelph population grew at 1.65% per annum. Therefore, a 2% to 3% annual traffic growth rate is conservative.

Figure 3.1 and **Figure 3.2** show the 2026 general background traffic forecasts for the AM and PM peak hours.



2026 AM Generalized Growth Background Traffic Forecasts



2026 PM Generalized Growth Background Traffic Forecasts

220 Arkell Road Transportation Impact Study
230080 / 180099

Figure 3.2

3.3 Other Area Developments

The City requested that the traffic generated by other "approved but not yet built" developments in the study area be included in the background traffic forecasts. There are five other developments with traffic expected to impact the study area. The traffic volumes generated by these developments, which were assumed to be completed by 2026, are included in the background traffic over and above the general background road traffic growth. **Figure 3.3** shows the development locations.

The City of Guelph provided the 2015 Westminister Woods Development Traffic Impact Study. Paradigm previously completed the TIS for 388 Arkell Road, updated in July 2018. TIS reports are not available for the other three developments; therefore, peak hour trip forecasts to be generated by the three developments are based on the Institute of Transportation Engineers (ITE) Trip Generation Manual[8] for the following Land Use Codes (LUC):

- **LUC 210 – Single-Family Detached Housing:** Includes all single-family detached homes on individual lots.
- **LUC 220 – Multifamily Housing (Low Rise):** Includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors).
- **LUC 221 – Multifamily Housing (Mid-Rise):** Includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and 10 levels (floors).

3.3.1 Kortright East

The Kortright East Development is located on the west side of Victoria Road at the extension of McCann Street and MacAllister Boulevard. The development is approved for Phase 3 and Phase 4, consisting of 102 semi-detached units and 161 single family dwellings.

Table 3.1 summarizes the estimated trip generation for the development, indicating a total of 168 and 220 new trips are forecast to be generated during the AM and PM peak hours, respectively, based on ITE rates.

3.3.2 Victoria Park Village

Victoria Park Village Development is located at the site of the former Victoria Park West Golf Club on the west side of Victoria Road, immediately north of the subject development. The development will be constructed in two phases, with a total of 82 single family dwellings, 36 semi-detached units, 212

[8] Institute of Transportation Engineers. *Trip Generation Manual 10th Edition.* September 2017.

townhouses and 168 apartment units. The development will have one street connection to Victoria Road approximately 400 metres north of Arkell Road.

Table 3.2 summarizes the estimated trip generation for the development, indicating a total of 233 and 290 new trips are forecast to be generated during the AM and PM peak hours, respectively, based on ITE rates.

3.3.3 Westminister Woods

Westminister Woods Development located at the northwest corner of Victoria Road and Clair Road, south of the subject development. The development will be constructed in a single phase, with a total of 101 apartment units and 745 m^2 of commercial retail space.

Table 3.3 summarizes the estimated trip generation for the development, indicating a total of 70 and 110 new trips are forecast to be generated during the AM and PM peak hours, respectively, based on the development's TIS report for this development.

3.3.4 Northwest Arkell Road and Victoria Road

Northwest Arkell Road and Victoria Road potential development located immediately west of the subject development. No approved development plans are available. Using current OP densities, potential residential development consisting of an estimated 172 single family dwellings, 231 townhouses and 95 apartment units was assumed for the area. Access to the area is expected to be via Amos Drive and the extensions of Colonial Drive and Dawes Avenue. It is anticipated the development will have vehicular access to the Victoria Park Village development.

Table 3.4 summarizes the estimated trip generation for the development, indicating a total of 266 and 337 new trips are forecast to be generated during the AM and PM peak hours, respectively, based on ITE rates.

3.3.5 388 Arkell Road Secondary School

A new secondary school is proposed at 388 Arkell Road, located at the northwest corner of Arkell Road and Victoria Road, east of the subject development. The development includes a multi-storey high school, with associated running track, sports field and parking facilities to accommodate 1,200 students. The school will be constructed in a single phase, planned to open in 2020 with 1,200 pupil spaces. It is anticipated the development will have vehicular access to Victoria Road and Arkell Road.

Paradigm completed the TIS report for 388 Arkell Road in August 2017, updated in July 2018. The TIS analyzes the PM peak hour of the school (3:00 PM to 4:00 PM), not the peak hour of the roadway. To ensure consistency with the PM peak hour of the roadway analyzed in this report, ITE LUC 530 (High School) was referenced.

Table 3.5 summarizes the estimated trip generation for the development indicating a total of 522 and 168 new trips are forecast to be generated during the AM and PM peak hours based on the TIS report and ITE rates, respectively.

3.3.6 190-216 Arkell Road

190-216 Arkell Road located on the north side of Arkell Road, opposite Summerfield Drive and southwest of the subject development. The development will be constructed in a single phase, with a total of 30 townhouse units.

It is noted that the development at 190-216 Arkell Road was not included in the 2019 TIS, and the trip generation for this development is based on the currently used 11th Edition of the ITE Trip Generation Manual.[9]

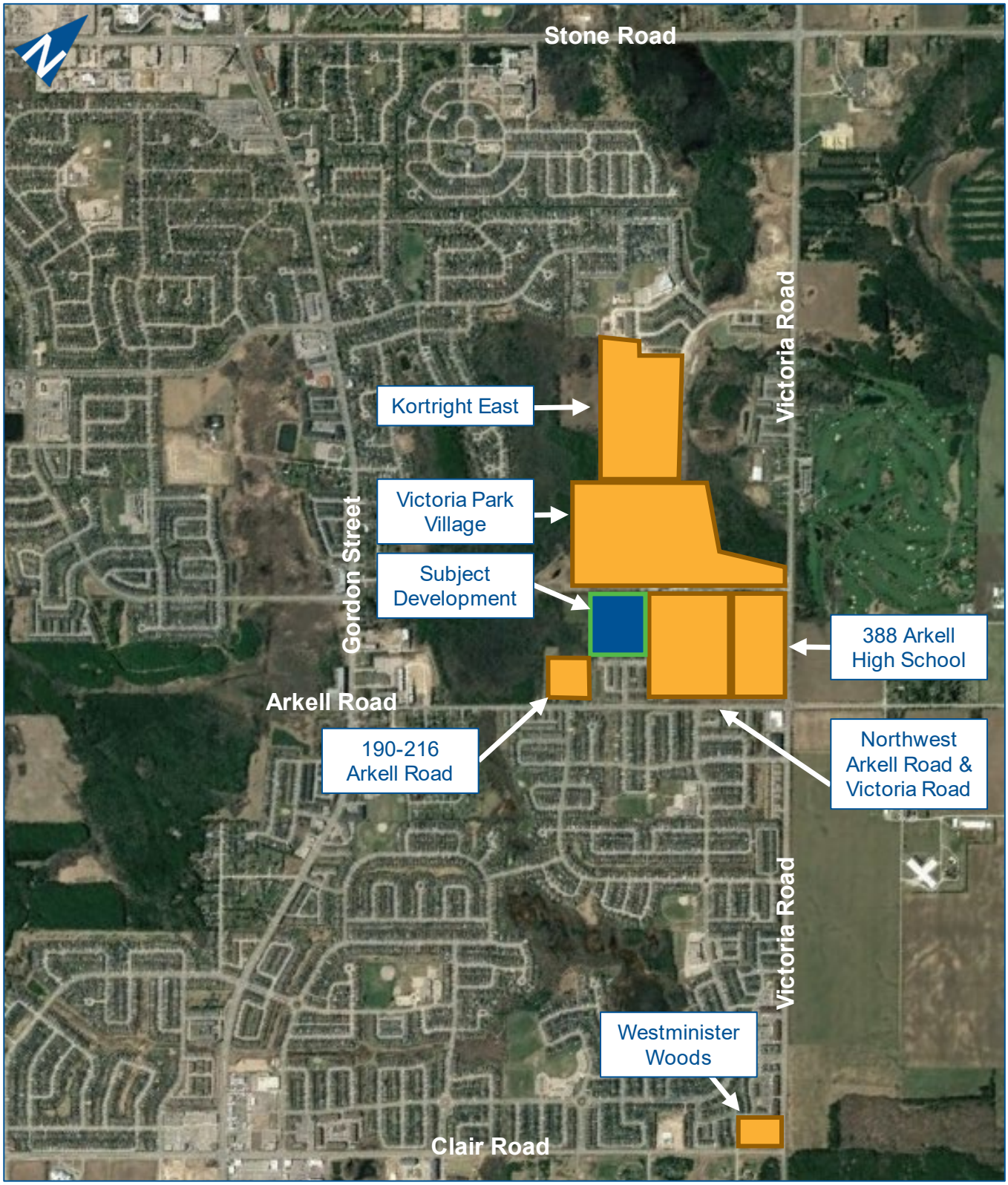
Table 3.6 summarizes the estimated trip generation for the development, indicating a total of 44 and 50 new trips are forecast to be generated during the AM and PM peak hours, respectively, based on ITE rates.

3.3.7 Total Background Development Trip Generation

Table 3.7 summarizes the estimated trip generation for the study area developments included in the analysis, indicating a total of 1259 and 1125 new trips are forecast to be generated during the AM and PM peak hours, respectively.

Figure 3.4 and **Figure 3.5** show the traffic volumes from the other developments in the study area. Note that not all trips generated by the other planned developments will enter the study area. The trips were assigned to the road network based on the assignment detailed in their respective TIS reports and the existing distribution of traffic within the study area. **Appendix D** provides the AM and PM peak hour individual traffic forecasts for the other area development traffic.

[9] Institute of Transportation Engineers, *Trip Generation Manual,* 11th ed., (Washington, DC: ITE, 2021). Trip generation for the other background developments are based on the 10th Edition, which was used in the 2019 TIS.



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Location of Other Area Developments

TABLE 3.1: KORTRIGHT EAST TRIP GENERATION

Land Use		Unit of Measure	Units/ GFA	AM Peak Hour				PM Peak Hour			
				Rate	In	Out	Total	Rate	In	Out	Total
Kortright East	LUC 210 - Single Family Detached	Units	161	FCE[1]	30	89	119	FCE[2]	101	59	160
	LUC 220 - Multifamily Housing (Low-Rise)	Units	102	FCE[3]	11	38	49	FCE[4]	38	22	60
Total Kortright East					**41**	**127**	**168**		**139**	**81**	**220**

[1] T = 0.71(x) + 4.80
[2] ln(t) = 0.96*ln(x) + 0.20
[3] ln(t) = 0.95*ln(x) - 0.51
[4] ln(t) = 0.89*ln(x) - 0.02

TABLE 3.2: VICTORIA PARK VILLAGE TRIP GENERATION

Land Use		Unit of Measure	Units/ GFA	AM Peak Hour				PM Peak Hour			
				Rate	In	Out	Total	Rate	In	Out	Total
Victoria Park Village	LUC 210 - Single Family Detached	Units	82	FCE[1]	16	47	63	FCE[2]	53	31	84
	LUC 220 - Multifamily Housing (Low-Rise)	Units	248	FCE[3]	26	87	113	FCE[4]	84	49	133
	LUC 221 - Multifamily Housing (Mid-Rise)	Units	168	FCE[5]	15	42	57	FCE[6]	45	28	73
Total Victoria Park Village					**57**	**176**	**233**		**182**	**108**	**290**

[1] T = 0.71(x) + 4.80
[2] ln(t) = 0.96*ln(x) + 0.20
[3] ln(t) = 0.95*ln(x) - 0.51
[4] ln(t) = 0.89*ln(x) - 0.02
[5] ln(t) = 0.99*ln(x) - 0.98
[4] ln(t) = 0.89*ln(x) - 0.02

TABLE 3.3: WESTMINISTER WOODS TRIP GENERATION

Land Use		Unit of Measure	Units/ GFA	AM Peak Hour				PM Peak Hour			
				Rate	In	Out	Total	Rate	In	Out	Total
Westminister Woods	Westminister Woods TIS Report	Units	101	-	38	32	70	-	53	57	110
Total Westminister Woods					**38**	**32**	**70**		**53**	**57**	**110**

TABLE 3.4: NORTHWEST ARKELL AND VICTORIA TRIP GENERATION

Land Use		Unit of Measure	Units/ GFA	AM Peak Hour				PM Peak Hour			
				Rate	In	Out	Total	Rate	In	Out	Total
Northwest Arkell/Victoria	LUC 210 - Single Family Detached	Units	172	FCE[1]	32	95	127	FCE[2]	108	63	171
	LUC 220 - Multifamily Housing (Low-Rise)	Units	231	FCE[3]	24	82	106	FCE[4]	78	46	124
	LUC 221 - Multifamily Housing (Mid-Rise)	Units	95	FCE[5]	9	24	33	FCE[6]	26	16	42
Total Northwest Arkell and Victoria					**65**	**201**	**266**		**212**	**125**	**337**

[1] T = 0.71(x) + 4.80
[2] ln(t) = 0.96*ln(x) + 0.20
[3] ln(t) = 0.95*ln(x) - 0.51
[4] ln(t) = 0.89*ln(x) - 0.02
[5] ln(t) = 0.99*ln(x) - 0.98
[4] ln(t) = 0.89*ln(x) - 0.02

TABLE 3.5: 388 ARKELL ROAD SECONDARY SCHOOL TRIP GENERATION

Land Use		Unit of Measure	Units/ GFA	AM Peak Hour				PM Peak Hour			
				Rate	In	Out	Total	Rate	In	Out	Total
388 Arkell	388 Arkell TIS Report	Students	1,200	-	331	191	456	0.14	78	90	168
Total 388 Arkell Road (High School)					**331**	**191**	**522**		**78**	**90**	**168**

TABLE 3.6: 190-216 ARKELL ROAD TRIP GENERATION

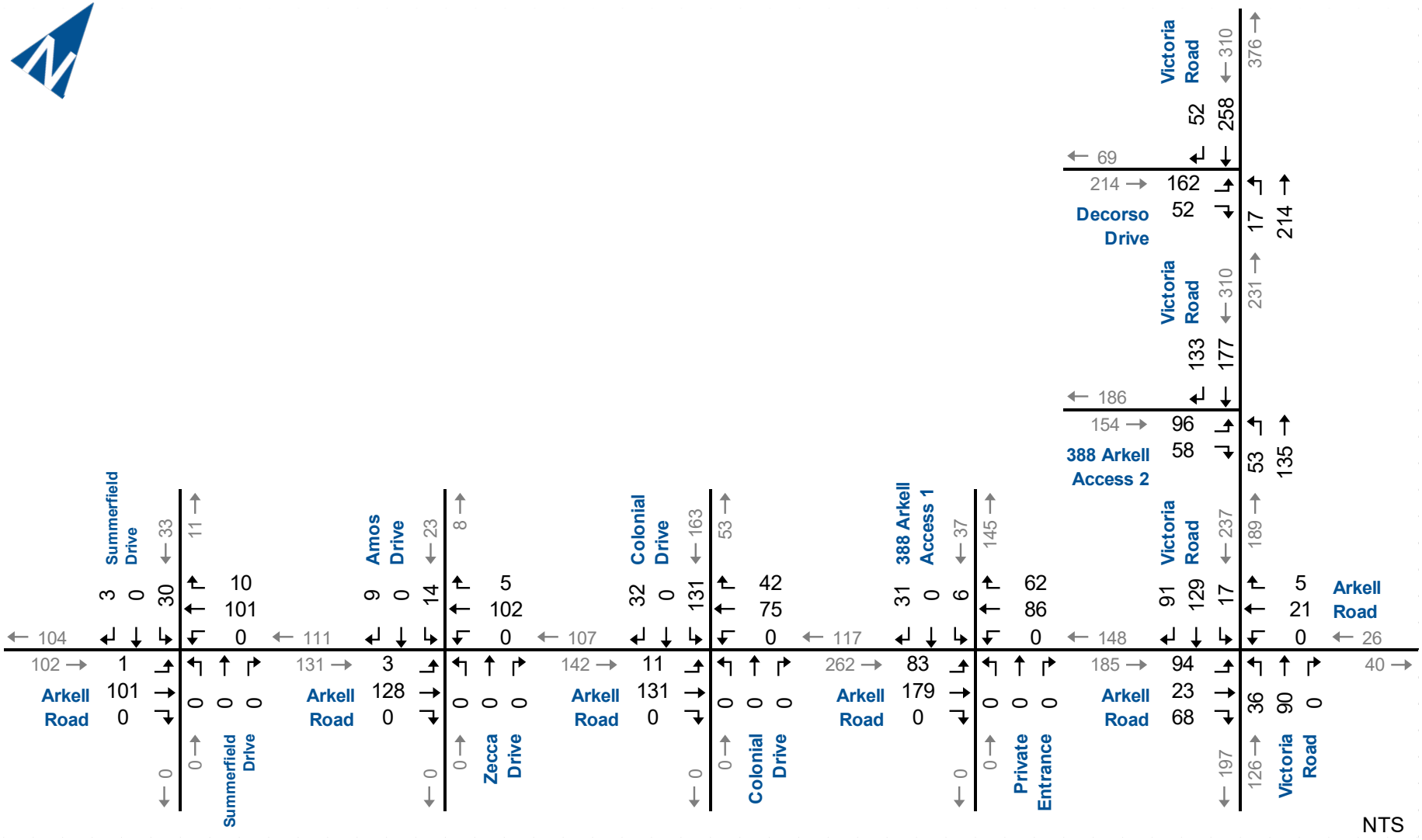
Land Use		Unit of Measure	Units/ GFA	AM Peak Hour				PM Peak Hour			
				Rate	In	Out	Total	Rate	In	Out	Total
190-216 Arkell Road	LUC 215 - Single-Family Attached Housing	Units	22	FCE[1]	2	4	6	FCE[2]	6	3	9
	LUC 220 - Multifamily Housing (Low-Rise)	Units	48	FCE[3]	10	28	38	FCE[4]	24	17	41
Total 190-216 Arkell Road					**12**	**32**	**44**		**30**	**20**	**50**

[1] T = 0.52(x) - 5.70
[2] T = 0.60(x) - 3.93
[3] T = 0.31(x) + 22.85
[4] T = 0.43(x) + 20.55

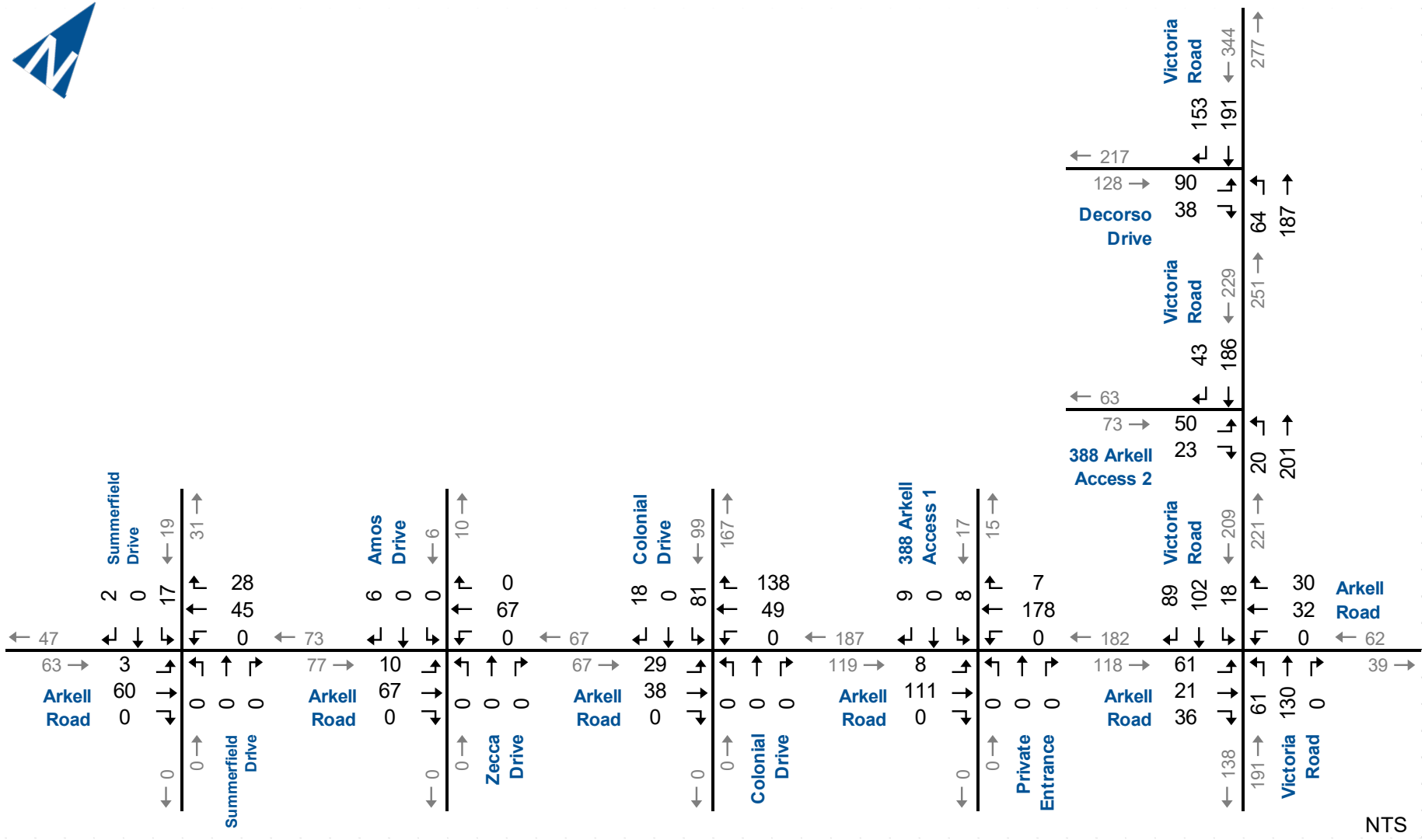
TABLE 3.7: OTHER AREA DEVELOPMENTS TRIP GENERATION

Land Use		Unit of Measure	Units/ GFA	AM Peak Hour				PM Peak Hour			
				Rate	In	Out	Total	Rate	In	Out	Total
Kortright East	LUC 210 - Single Family Detached	Units	161	FCE[1]	30	89	119	FCE[2]	101	59	160
	LUC 220 - Multifamily Housing (Low-Rise)	Units	102	FCE[3]	11	38	49	FCE[4]	38	22	60
Total Kortright East					**41**	**127**	**168**		**139**	**81**	**220**
Victoria Park Village	LUC 210 - Single Family Detached	Units	82	FCE[1]	16	47	63	FCE[2]	53	31	84
	LUC 220 - Multifamily Housing (Low-Rise)	Units	248	FCE[3]	26	87	113	FCE[4]	84	49	133
	LUC 221 - Multifamily Housing (Mid-Rise)	Units	168	FCE[5]	15	42	57	FCE[6]	45	28	73
Total Victoria Park Village					**57**	**176**	**233**		**182**	**108**	**290**
Westminister Woods	Westminister Woods TIS Report	Units	101	-	38	32	70	-	53	57	110
Total Westminister Woods					**38**	**32**	**70**		**53**	**57**	**110**
Northwest Arkell/Victoria	LUC 210 - Single Family Detached	Units	172	FCE[1]	32	95	127	FCE[2]	108	63	171
	LUC 220 - Multifamily Housing (Low-Rise)	Units	231	FCE[3]	24	82	106	FCE[4]	78	46	124
	LUC 221 - Multifamily Housing (Mid-Rise)	Units	95	FCE[5]	9	24	33	FCE[6]	26	16	42
Total Northwest Arkell and Victoria					**65**	**201**	**266**		**212**	**125**	**337**
388 Arkell	388 Arkell TIS Report	Students	1,200	-	331	191	456	0.14	78	90	168
Total 388 Arkell Road (High School)					**331**	**191**	**522**		**78**	**90**	**168**
190-216 Arkell Road	LUC 215 - Single-Family Attached Housing	Units	22	FCE[7]	2	4	6	FCE[8]	5	4	9
	LUC 220 - Multifamily Housing (Low-Rise)	Units	48	FCE[9]	9	29	38	FCE[10]	26	15	41
Total 190-216 Arkell Road					**11**	**33**	**44**		**31**	**19**	**50**
Total New Trips					**543**	**760**	**1303**		**695**	**480**	**1175**

[1] T = 0.71(x) + 4.80
[2] ln(t) = 0.96*ln(x) + 0.20
[3] ln(t) = 0.95*ln(x) - 0.51
[4] ln(t) = 0.89*ln(x) - 0.02
[5] ln(t) = 0.99*ln(x) - 0.98
[6] ln(t) = 0.96*ln(x) - 0.63
[7] T = 0.52(x) - 5.70
[8] T = 0.60(x) - 3.93
[9] T = 0.31(x) + 22.85
[10] T = 0.43(x) + 20.55



2026 AM Other Area Development Trip Assignment



2026 PM Other Area Development Trip Assignment

3.4 2026 Background

3.4.1 2026 Background Traffic Forecasts

Figure 3.6 and **Figure 3.7** illustrate the 2026 total background traffic including the generalized background road traffic and site traffic from the above-noted area developments for the AM and PM peak hours, respectively.

3.4.2 2026 Background Traffic Operations

The operations of the study area intersections under 2026 background traffic volumes were analyzed using Synchro 11.

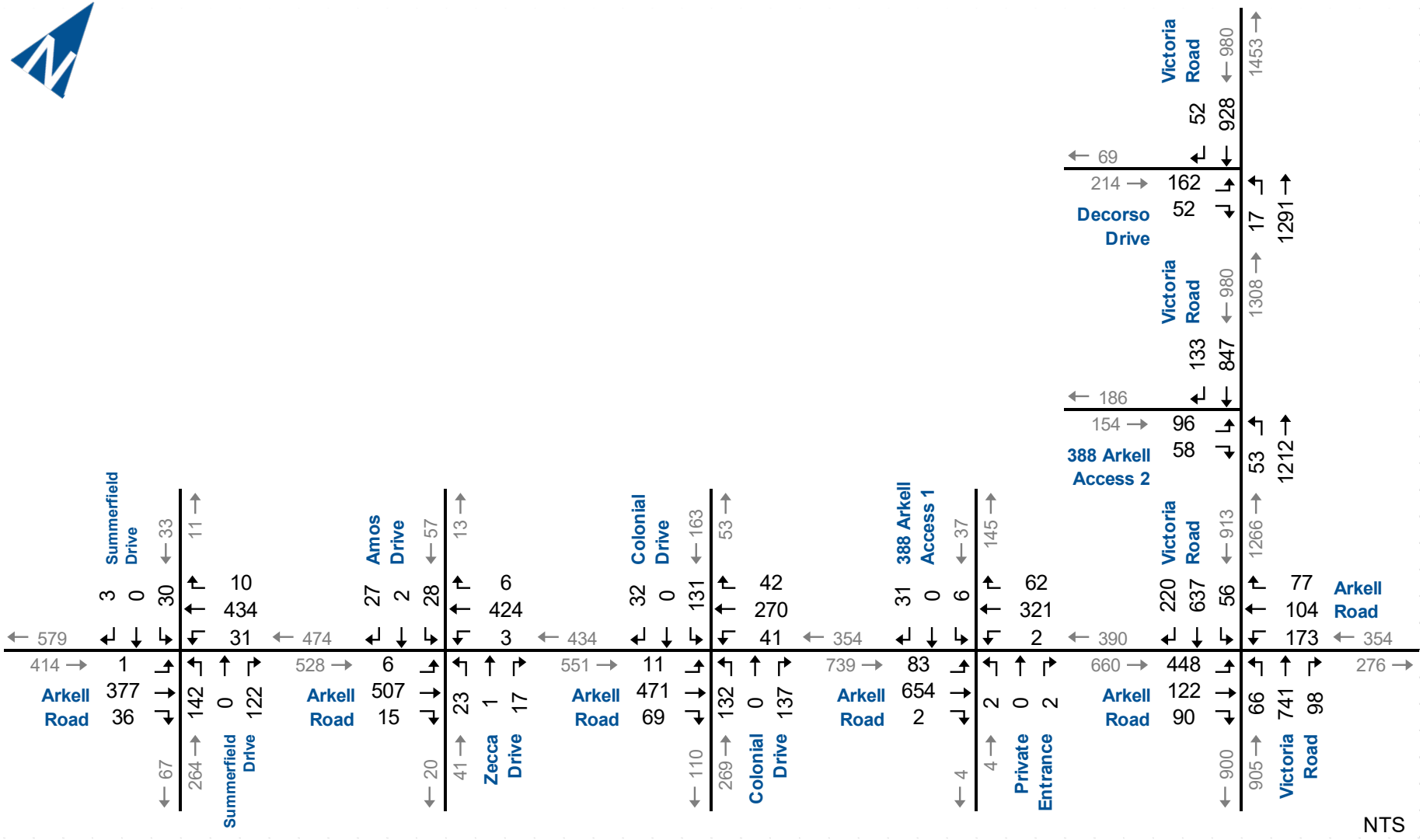
Table 3.8 and **Table 3.9** summarize the 2026 background traffic operations for the AM and PM peak hours, respectively. The analyses indicate all intersections and movements within the study area are forecast to operate at acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – LOS E, v/c ratio 0.81 during the AM peak hour and LOS F, v/c ratio 0.64 during the PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.04 during the AM peak hour and LOS E, v/c ratio 0.72 during the PM peak hour; and
  - Southbound left-through-right movement – LOS F, v/c ratio 1.07 during the AM peak hour and LOS F, v/c ratio 0.65 during the PM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – LOS F, v/c ratio 1.40 and 95th percentile queues exceeding available storage of 40 metres during the AM peak hour and LOS E, v/c ratio 0.93 during the PM peak hour;
  - Northbound through-right movement – LOS F, v/c ratio 1.29 during the AM peak hour and LOS F, v/c ratio 1.49 during the PM peak hour;
  - Southbound through-right movement – LOS F, v/c ratio 1.40 during the AM peak hour and LOS F, v/c ratio 1.71 during the PM peak hour; and
  - Overall intersection – LOS F during the AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – LOS E, v/c ratio 1.08 during the AM peak hour and LOS C, v/c ratio 0.93 during the PM peak hour.

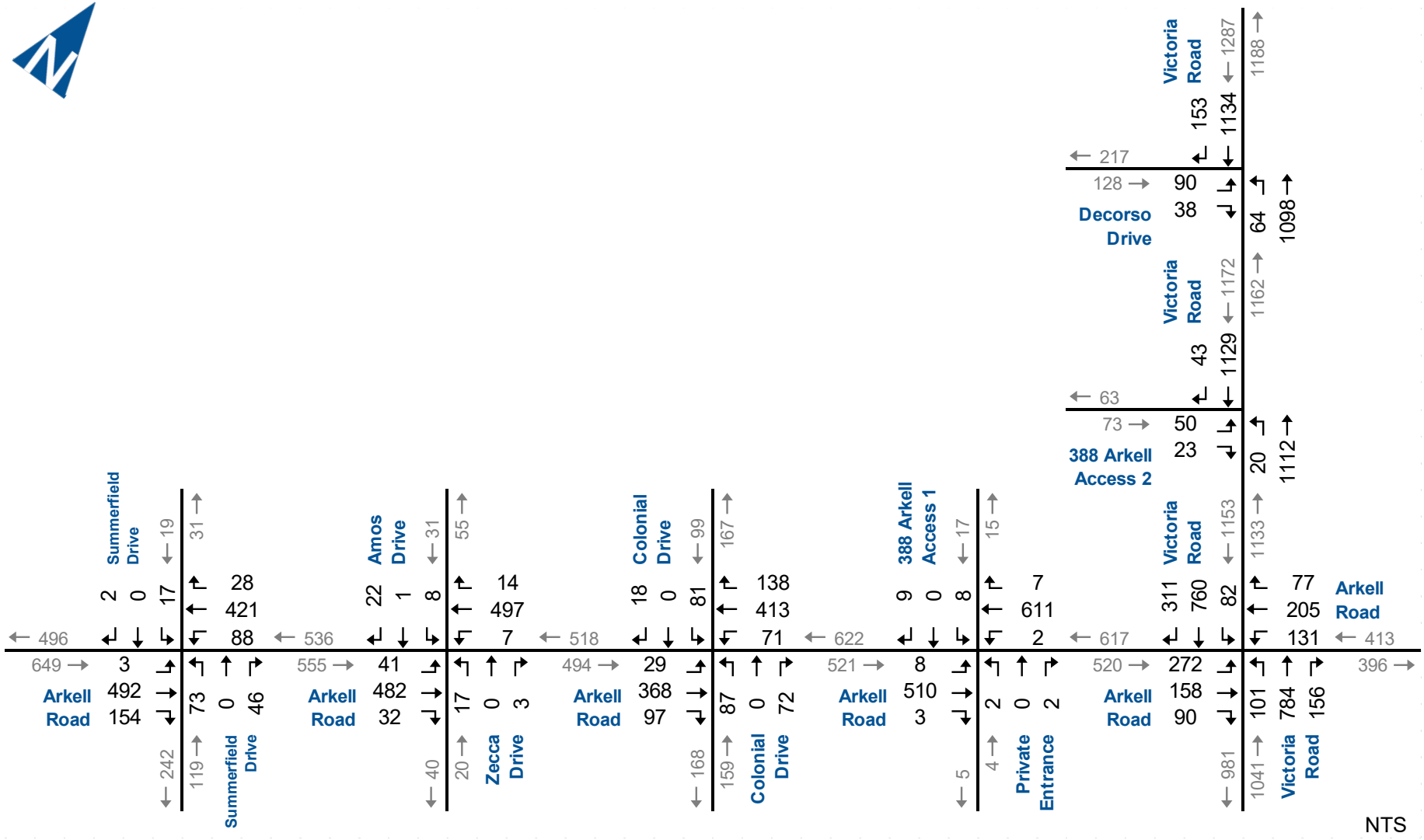
- Southbound through movement – LOS C, v/c ratio 0.92 during the PM peak hour.

- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – LOS F, v/c ratio 5.50 during the AM peak hour and LOS F, v/c ratio 4.45 during the PM peak hour.

Appendix E contains the detailed supporting Synchro 11 reports.



2026 AM Total Background Traffic Forecasts



2026 PM Total Background Traffic Forecasts

TABLE 3.8: 2026 AM BACKGROUND TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	E	>	E	<	D	>	D	
			Delay	8	0	>	0	8	0	>	0	<	48	>	48	<	28	>	28	
			V/C	0.00	0.00	>		0.03	0.00	>		<	0.81	>		<	0.19	>		
			Q	0	0	>		1	0	>		<	51	>		<	5	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		59	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	C	>	C	<	C	>	C	
			Delay	8	0	>	0	9	0	>	0	<	21	>	21	<	20	>	20	
			V/C	0.01	0.00	>		0.00	0.00	>		<	0.16	>		<	0.19	>		
			Q	0	0	>		0	0	>		<	4	>		<	5	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	8	0	>	0	9	0	>	1	<	104	>	104	<	147	>	147	
			V/C	0.01	0.00	>		0.05	0.00	>		<	1.04	>		<	1.07	>		
			Q	0	0	>		1	0	>		<	83	>		<	67	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	50	-	>		59	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	C	>	C	D	B	>	B	
			Delay	8	0	>	1	<	9	>	0	<	24	>	24	33	11	>	14	
			V/C	0.08	0.00	>		<	0.00	>		<	0.02	>		0.05	0.05	>		
			Q	2	0	>		<	0	>		<	1	>		2	2	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	23	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	C	>	F	C	C	>	C	B	F	>	F	B	F	>	F	F
			Delay	222	32	>	161	24	30	>	27	16	163	>	152	17	209	>	197	153
			V/C	1.40	0.78	>		0.57	0.67	>		0.31	1.29	>		0.28	1.40	>		
			Q	155	14	>		6	10	>		0	215	>		0	268	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-115	-	>		14	-	>		90	-	>		50	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					B	E		E		B	A	B	D
			Delay	27		26	27					18	59		58		12	4	11	36
			V/C	0.40		0.27						0.20	1.08				0.76	0.13		
			Q	5		3						2	124				12	1		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						28	-				-	59		
	Victoria Road & Decorso Drive	TWSC	LOS	F		C	F					B	A		A		A	>	A	
			Delay	2273		21	1726					11	0		0		0	>	0	
			V/C	5.50		0.20						0.03	0.00				0.00	>		
			Q	158		5						1	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-138		-						29	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 3.9: 2026 PM BACKGROUND TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	E	>	E	
			Delay	8	0	>	0	9	0	>	2	<	52	>	52	<	37	>	37	
			V/C	0.00	0.00	>		0.10	0.00	>		<	0.64	>		<	0.15	>		
			Q	0	0	>		2	0	>		<	28	>		<	4	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		58	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	D	>	D	<	C	>	C	
			Delay	9	0	>	1	8	0	>	0	<	30	>	30	<	17	>	17	
			V/C	0.04	0.00	>		0.01	0.00	>		<	0.12	>		<	0.10	>		
			Q	1	0	>		0	0	>		<	3	>		<	2	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	9	0	>	1	<	52	>	52	<	62	>	62	
			V/C	0.03	0.00	>		0.07	0.00	>		<	0.72	>		<	0.65	>		
			Q	1	0	>		2	0	>		<	36	>		<	27	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	49	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	C	>	C	D	B	>	C	
			Delay	9	0	>	0	<	8	>	0	<	21	>	21	30	13	>	21	
			V/C	0.01	0.00	>		<	0.00	>		<	0.02	>		0.06	0.02	>		
			Q	0	0	>		<	0	>		<	1	>		2	1	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	25	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	E	C	>	D	C	D	>	C	B	F	>	F	B	F	>	F	F
			Delay	59	31	>	46	22	37	>	32	18	249	>	227	18	351	>	328	208
			V/C	0.93	0.72	>		0.43	0.83	>		0.43	1.49	>		0.36	1.71	>		
			Q	32	16	>		4	21	>		1	329	>		1	466	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	8	-	>		16	-	>		89	-	>		49	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					C	C		C		C	A	B	C
			Delay	29		28	29					27	22		22		20	3	20	21
			V/C	0.27		0.14						0.13	0.93				0.92	0.04		
			Q	3		2						2	36				34	0		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						28	-				-	60		
	Victoria Road & Decorso Drive	TWSC	LOS	F		D	F					B	A		A		A	>	A	
			Delay	1908		28	1350					14	0		1		0	>	0	
			V/C	4.45		0.21						0.14	0.00				0.00	>		
			Q	93		6						4	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-73		-						26	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

3.5 2031 Background

3.5.1 2031 Background Traffic Forecasts

Figure 3.8 and **Figure 3.9** illustrate the 2031 total background traffic including the generalized background traffic and site traffic from the above-noted area developments for the AM and PM peak hours, respectively.

3.5.2 2031 Background Traffic Operations

The operations of the study area intersections under 2031 background traffic volumes were analyzed using Synchro 11.

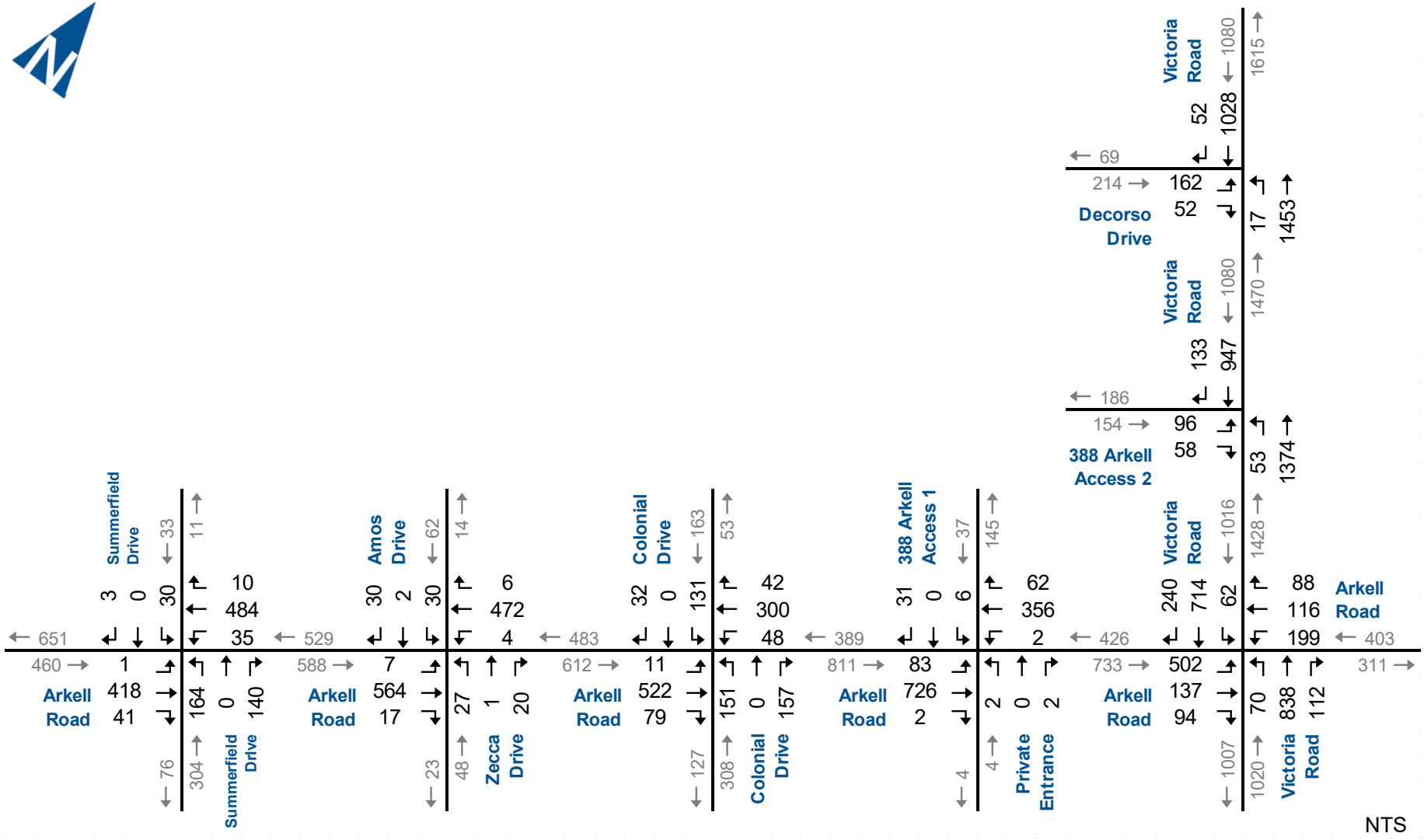
Table 3.10 and **Table 3.11** summarize the 2031 background traffic operations for the AM and PM peak hours, respectively. The analyses indicate all intersections and movements within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.07 during the AM peak hour and LOS F, v/c ratio 0.94 during the PM peak hour; and
  - Southbound left-through-right movement – LOS E, v/c ratio 0.24 during the AM peak hour and LOS F, v/c ratio 0.21 during the PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – LOS E, v/c ratio 0.19 during the PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.38 during the AM peak hour and LOS F, v/c ratio 1.02 during the PM peak hour; and
  - Southbound left-through-right movement – LOS F, v/c ratio 1.43 during the AM peak hour and LOS F, v/c ratio 0.84 during the PM peak hour.
- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – LOS E, v/c ratio 0.06 during the AM peak hour and LOS E, v/c ratio 0.07 during the PM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – LOS F, v/c ratio 1.61 and 95th percentile queues exceeding available storage of 40 metres during the AM peak hour and LOS F, v/c ratio 1.07 and 95th percentile queues exceeding available storage by 40 metres during the PM peak hour;

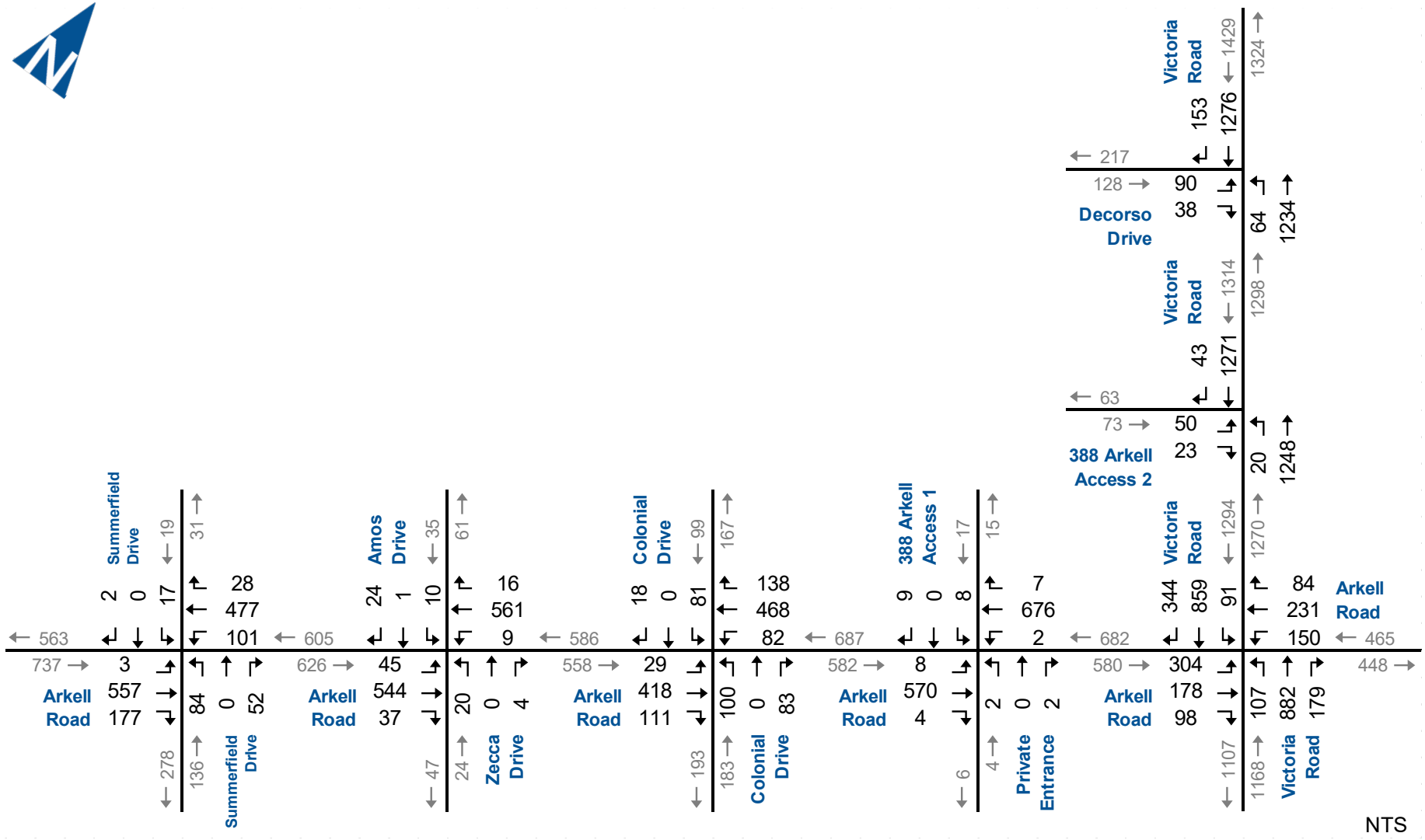
- Westbound through-right movement – LOS D, v/c ratio 0.86 during the PM peak hour;
- Northbound through-right movement – LOS F, v/c ratio 1.49 during the AM peak hour and LOS F, v/c 1.72 ratio during the PM peak hour;
- Southbound through-right movement – LOS F, v/c ratio 1.58 during the AM peak hour and LOS F, v/c ratio 1.97 during the PM peak hour; and
- Overall intersection – LOS F during the AM and PM peak hours.

- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – LOS F, v/c ratio 1.22 during the AM peak hour and LOS D, v/c ratio 1.05 during the PM peak hour; and
  - Southbound through movement – LOS D, v/c ratio 1.04 during the PM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – LOS F, v/c ratio 8.38 during the AM peak hour and LOS F v/c ratio 7.53 during the PM peak hour.

Appendix F contains the detailed supporting Synchro 11 reports.



2031 AM Background Traffic Forecasts



2031 PM Background Traffic Forecasts

TABLE 3.10: 2031 AM BACKGROUND TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	E	>	E	
			Delay	8	0	>	0	9	0	>	1	<	112	>	112	<	36	>	36	
			V/C	0.00	0.00	>		0.03	0.00	>		<	1.07	>		<	0.24	>		
			Q	0	0	>		1	0	>		<	91	>		<	7	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		59	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	D	>	D	<	C	>	C	
			Delay	8	0	>	0	9	0	>	0	<	26	>	26	<	23	>	23	
			V/C	0.01	0.00	>		0.00	0.00	>		<	0.22	>		<	0.24	>		
			Q	0	0	>		0	0	>		<	6	>		<	7	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	8	0	>	0	9	0	>	1	<	235	>	235	<	298	>	298	
			V/C	0.01	0.00	>		0.06	0.00	>		<	1.38	>		<	1.43	>		
			Q	0	0	>		2	0	>		<	138	>		<	91	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	50	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	D	>	D	E	B	B	C	
			Delay	8	0	>	1	<	9	>	0	<	28	>	28	39	11	11	16	
			V/C	0.08	0.00	>		<	0.00	>		<	0.03	>		0.06	0.05	0.05		
			Q	2	0	>		<	0	>		<	1	>		2	2	2		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	-		
			Avail.	23	-	>		<	-	>		<	-	>		-	-	-		
	Victoria Road & Arkell Road	TCS	LOS	F	C	>	F	C	C	>	C	B	F	>	F	B	F	>	F	F
			Delay	316	33	>	227	28	30	>	29	17	251	>	235	17	289	>	273	219
			V/C	1.61	0.80	>		0.67	0.71	>		0.32	1.49	>		0.30	1.58	>		
			Q	218	16	>		9	11	>		1	340	>		0	377	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-178	-	>		11	-	>		89	-	>		50	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					C	F		F		B	A	B	E
			Delay	27		26	27					25	117		114		16	4	15	68
			V/C	0.40		0.27						0.26	1.22				0.85	0.13		
			Q	5		3						3	271				20	1		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						27	-				-	59		
	Victoria Road & Decorso Drive	TWSC	LOS	F		C	F					B	A		A		A	>	A	
			Delay	3684		24	2795					11	0		0		0	>	0	
			V/C	8.38		0.23						0.03	0.00				0.00	>		
			Q	167		7						1	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-147		-						29	-				-	-		

MOE - Measure of Effectiveness
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Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 3.11: 2031 PM BACKGROUND TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	8	0	>	0	10	0	>	2	<	118	>	118	<	51	>	51	
			V/C	0.00	0.00	>		0.12	0.00	>		<	0.94	>		<	0.21	>		
			Q	0	0	>		3	0	>		<	51	>		<	5	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		57	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	E	>	E	<	C	>	C	
			Delay	9	0	>	1	9	0	>	0	<	39	>	39	<	21	>	21	
			V/C	0.05	0.00	>		0.01	0.00	>		<	0.19	>		<	0.14	>		
			Q	2	0	>		0	0	>		<	5	>		<	4	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	9	0	>	1	<	123	>	123	<	111	>	111	
			V/C	0.03	0.00	>		0.08	0.00	>		<	1.02	>		<	0.84	>		
			Q	1	0	>		2	0	>		<	65	>		<	39	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	49	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	C	>	C	E	B	>	C	
			Delay	9	0	>	0	<	9	>	0	<	24	>	24	37	14	>	25	
			V/C	0.01	0.00	>		<	0.00	>		<	0.02	>		0.07	0.02	>		
			Q	0	0	>		<	0	>		<	1	>		2	1	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	25	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	C	>	E	C	D	>	C	B	F	>	F	B	F	>	F	F
			Delay	100	34	>	68	22	41	>	35	19	356	>	325	18	466	>	434	284
			V/C	1.07	0.76	>		0.50	0.86	>		0.46	1.72	>		0.40	1.97	>		
			Q	56	20	>		5	26	>		1	468	>		1	614	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-16	-	>		15	-	>		89	-	>		49	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					D	D		D		D	A	D	D
			Delay	29		28	29					40	48		48		46	3	44	46
			V/C	0.27		0.14						0.21	1.05				1.04	0.04		
			Q	3		2						2	103				99	0		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						28	-				-	60		
	Victoria Road & Decorso Drive	TWSC	LOS	F		E	F					B	A		A		A	>	A	
			Delay	3509		36	2478					15	0		1		0	>	0	
			V/C	7.53		0.26						0.16	0.00				0.00	>		
			Q	100		8						4	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-80		-						26	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

3.6 2036 Background

3.6.1 2036 Background Traffic Forecasts

Figure 3.10 and **Figure 3.11** illustrate the 2036 total background traffic including the generalized background traffic and site traffic from the above-noted area developments for the AM and PM peak hours, respectively.

3.6.2 2036 Background Traffic Operations

The operations of the study area intersections under 2036 background traffic volumes were analyzed using Synchro 11.

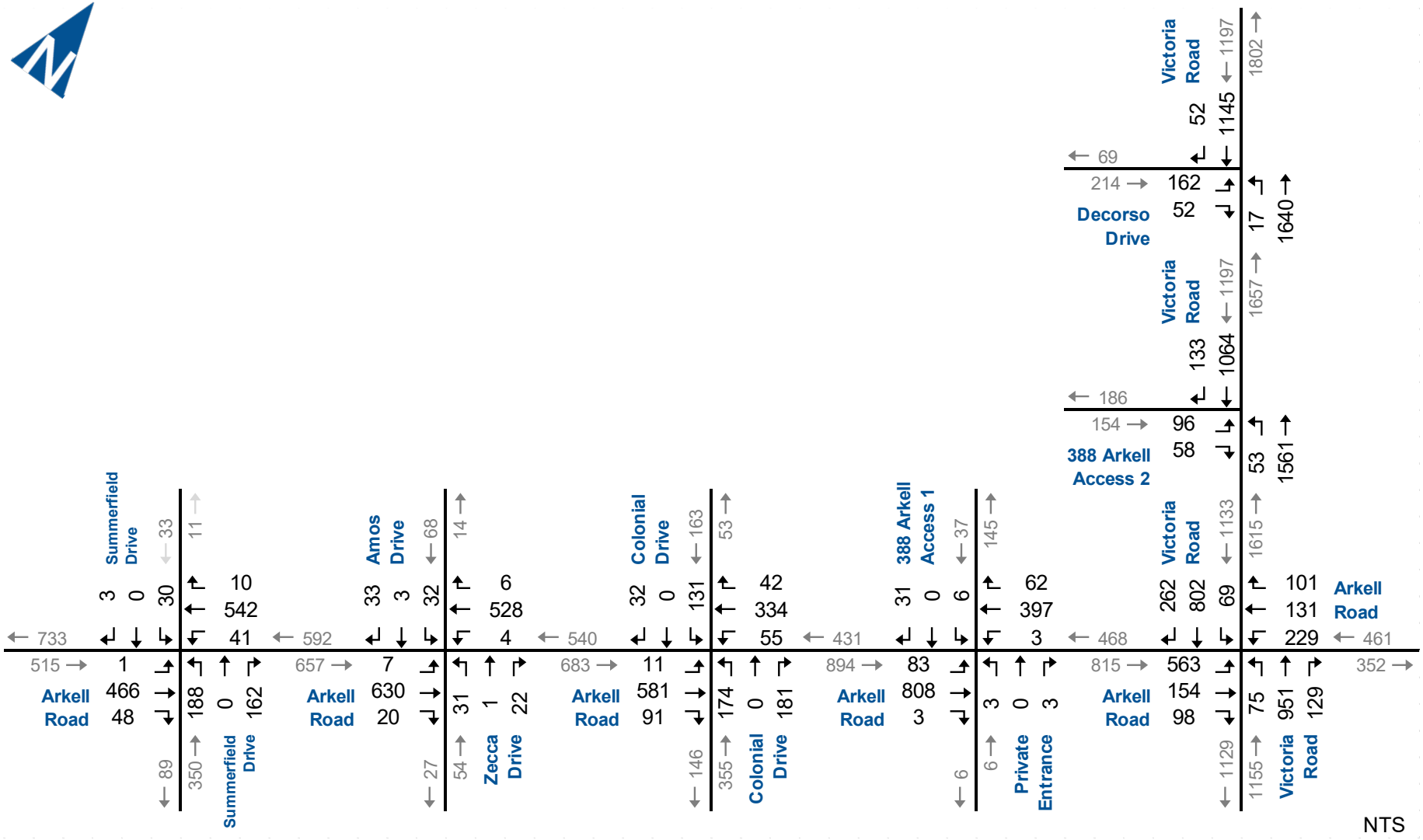
Table 3.12 and **Table 3.13** summarize the 2036 background traffic operations for the AM and PM peak hours, respectively. The analyses indicate all intersections and movements within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.46 during the AM peak hour and LOS F, v/c ratio 1.49 during the PM peak hour; and
  - Southbound left-through-right movements – LOS F, v/c ratio 0.32 during the AM peak hour and LOS F, v/c ratio 0.31 during the PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 0.28 during the PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.92 during the AM peak hour and LOS F, v/c 1.50 during the PM peak hour;
  - Southbound left-through-right movement – LOS F, v/c ratio 2.08 during the AM peak hour and LOS F, v/c ratio 1.16 during the PM peak hour.
- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – LOS E, v/c ratio 0.07 during the AM peak hour and LOS E, v/c ratio 0.09 during the PM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – LOS F, v/c ratio 1.88 and 95th percentile queues exceeding available storage of 40 metres during the AM peak hour and LOS F, v/c ratio 1.26 and 95th percentile queues exceeding available storage of 40 metres during the PM peak hour;

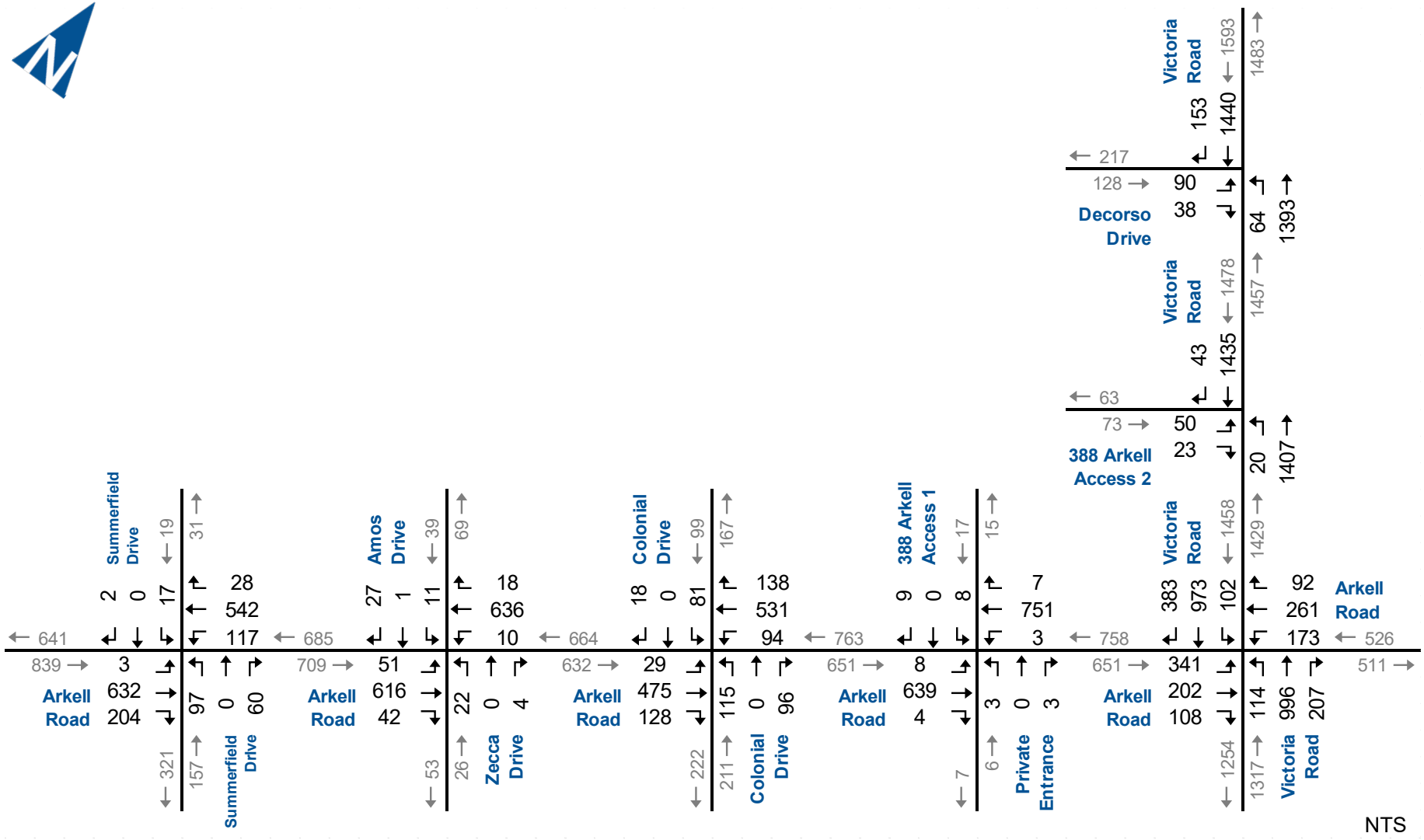
- Westbound through-right movement – LOS D, v/c ratio 0.89 during the PM peak hour;
- Northbound through-right movement – LOS F, v/c ratio 1.74 during the AM peak hour and LOS F, v/c ratio 2.02 during the PM peak hour;
- Southbound through-right movement – LOS F, v/c ratio 1.79 during the AM peak hour and LOS F, v/c ratio 2.27 during the PM peak hour; and
- Overall intersection – LOS F during the AM and PM peak hours.

- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – LOS F, v/c ratio 1.39 during the AM peak hour and LOS F, v/c ratio 1.18 during the PM peak hour;
  - Southbound through movement – LOS C, v/c ratio 0.96 during the AM peak hour and LOS F, v/c ratio 1.17 during the PM peak hour; and
  - Overall intersection – LOS F during the AM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – LOS F, v/c ratio 13.54 during the AM peak hour and LOS F, v/c ratio 12.23 during the PM peak hour; and
  - Eastbound right-turn movement – LOS E, v/c ratio 0.33 during the PM peak hour.

Appendix G contains the detailed supporting Synchro 11 reports.



2036 AM Background Traffic Forecasts



2036 PM Background Traffic Forecasts

TABLE 3.12: 2036 AM BACKGROUND TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	9	0	>	1	<	265	>	265	<	51	>	51	
			V/C	0.00	0.00	>		0.04	0.00	>		<	1.46	>		<	0.32	>		
			Q	0	0	>		1	0	>		<	154	>		<	9	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		59	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	D	>	D	<	D	>	D	
			Delay	8	0	>	0	9	0	>	0	<	33	>	33	<	29	>	29	
			V/C	0.01	0.00	>		0.01	0.00	>		<	0.31	>		<	0.32	>		
			Q	0	0	>		0	0	>		<	9	>		<	10	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	8	0	>	0	10	0	>	1	<	471	>	471	<	606	>	606	
			V/C	0.01	0.00	>		0.07	0.00	>		<	1.92	>		<	2.08	>		
			Q	0	0	>		2	0	>		<	212	>		<	118	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	50	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	D	>	D	E	B	>	C	
			Delay	9	0	>	1	<	10	>	0	<	33	>	33	49	11	>	17	
			V/C	0.08	0.00	>		<	0.00	>		<	0.05	>		0.07	0.06	>		
			Q	2	0	>		<	0	>		<	2	>		2	2	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	23	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	D	>	F	D	C	>	C	B	F	>	F	B	F	>	F	F
			Delay	436	36	>	312	37	32	>	34	17	359	>	337	17	383	>	361	300
			V/C	1.88	0.82	>		0.79	0.76	>		0.34	1.74	>		0.33	1.79	>		
			Q	292	20	>		15	14	>		1	490	>		1	501	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-252	-	>		5	-	>		89	-	>		49	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					D	F		F		C	A	C	F
			Delay	27		26	27					40	189		184		28	4	25	112
			V/C	0.40		0.27						0.41	1.39				0.96	0.13		
			Q	5		3						5	456				45	1		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						25	-				-	59		
	Victoria Road & Decorso Drive	TWSC	LOS	F		D	F					B	A		A		A	>	A	
			Delay	6212		29	4710					12	0		0		0	>	0	
			V/C	13.54		0.28						0.04	0.00				0.00	>		
			Q	174		8						1	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-154		-						29	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 3.13: 2036 PM BACKGROUND TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	B	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	10	0	>	2	<	331	>	331	<	81	>	81	
			V/C	0.00	0.00	>		0.16	0.00	>		<	1.49	>		<	0.31	>		
			Q	0	0	>		4	0	>		<	89	>		<	8	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		56	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	D	>	D	
			Delay	9	0	>	1	9	0	>	0	<	57	>	57	<	27	>	27	
			V/C	0.06	0.00	>		0.01	0.00	>		<	0.28	>		<	0.20	>		
			Q	2	0	>		0	0	>		<	8	>		<	5	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	9	0	>	1	<	316	>	316	<	231	>	231	
			V/C	0.03	0.00	>		0.10	0.00	>		<	1.50	>		<	1.16	>		
			Q	1	0	>		2	0	>		<	111	>		<	54	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	49	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	D	>	D	E	B	>	D	
			Delay	10	0	>	0	<	9	>	0	<	30	>	30	48	15	>	30	
			V/C	0.01	0.00	>		<	0.00	>		<	0.04	>		0.09	0.03	>		
			Q	0	0	>		<	0	>		<	1	>		2	1	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	25	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	D	>	F	C	D	>	D	B	F	>	F	B	F	>	F	F
			Delay	169	36	>	106	24	46	>	39	20	488	>	447	19	603	>	562	379
			V/C	1.26	0.79	>		0.60	0.89	>		0.50	2.02	>		0.45	2.27	>		
			Q	96	26	>		7	34	>		2	631	>		2	783	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-56	-	>		13	-	>		88	-	>		48	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					D	F		F		F	A	F	F
			Delay	29		28	29					40	99		98		97	3	94	94
			V/C	0.27		0.14						0.21	1.18				1.17	0.04		
			Q	3		2						2	240				240	0		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						28	-				-	60		
	Victoria Road & Decorso Drive	TWSC	LOS	F		E	F					C	A		A		A	>	A	
			Delay	5958		48	4203					17	0		1		0	>	0	
			V/C	12.23		0.33						0.19	0.00				0.00	>		
			Q	104		10						5	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-84		-						25	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

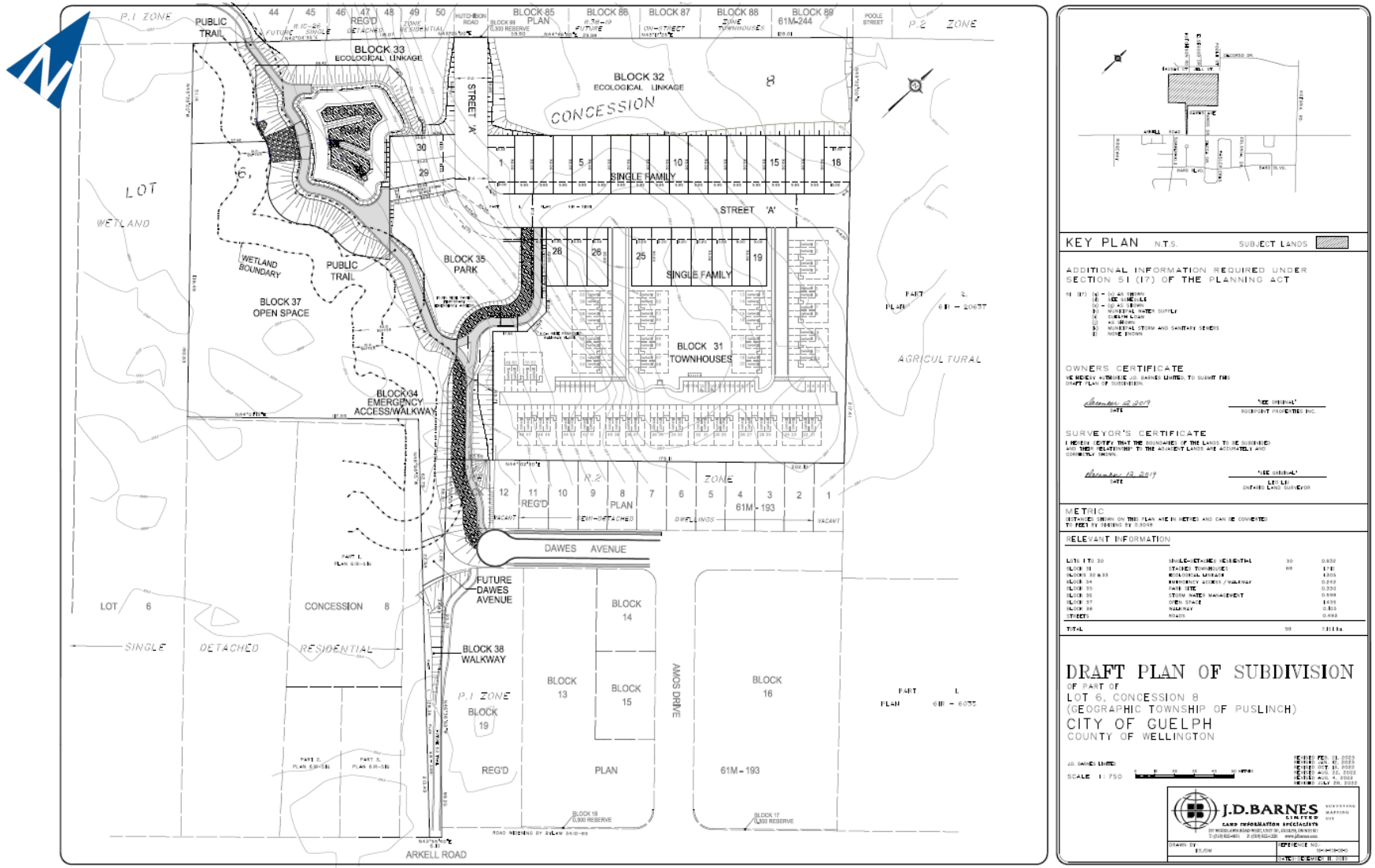
4 Development Concept

4.1 Development Description

The proposed development is located at 220 Arkell Road in Guelph, Ontario. The development will include 30 single-family homes and 68 cluster townhouse dwellings for a total of 98 units.

The subject site does not have direct road access to Arkell Road; therefore, access will be provided via neighbouring developments (Victoria Park Village to the north and future developments to the south/east). Temporary emergency access will be provided through Block 20 on Dawes Avenue. The development is expected to begin construction in 2024 and be completed and fully occupied by 2026.

Figure 4.1 illustrates the Draft Plan of Subdivision for the proposed development.



paradigm TRANSPORTATION SOLUTIONS LIMITED

Draft Plan of Subdivision

220 Arkell Road Transportation Impact Study
230080 / 180099

Figure 4.1

4.2 Development Trip Generation

Trip generation information is used to forecast the anticipated level of traffic activity to occur as a result of the development of the site.

The Institute of Transportation Engineers (ITE) Trip Generation Manual[10] rates and equations were used to estimate the peak hour traffic volumes generated by the subject development based on the following ITE Land Use Codes (LUC):

- **LUC 210 – Single-Family Detached Housing:** Includes all single-family detached homes on individual lots.
- **LUC 215 – Single-Family Attached Housing:** Includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space.

The regression equations were utilized for the development as all criteria for their use was met.

Table 4.1 summarizes the resulting base trip generation and indicates that the site will generate a total of 55 AM peak hour trips and 69 PM peak hour trips upon full build-out.

[10] Institute of Transportation Engineers, *Trip Generation Manual,* 11th ed., (Washington, DC: ITE, 2021). It is noted that the trip generation in the 2019 TIS was based on the 10th Edition that was in use at that time.

TABLE 4.1: TRIP GENERATION

Land Use Code	Units	AM Peak Hour				PM Peak Hour			
		Rate	In	Out	Total	Rate	In	Out	Total
210: Single-Family Detached Housing	30 Units	Eq	6	19	**25**	Eq	20	12	**32**
215: Single-Family Attached Housing	68 Units	Eq	8	22	**30**	Eq	22	15	**37**
Total Trip Generation			**14**	**41**	**55**		**42**	**27**	**69**

LUC 210 | **AM:** Ln(T) = 0.91 Ln(X) + 0.12 | **PM:** Ln(T) = 0.94 Ln(X) + 0.27
LUC 215 | **AM:** T = 0.52(X) - 5.70 | **PM:** T = 0.60(X) - 3.93

4.3 Development Trip Distribution and Assignment

The estimated site generated trips were assigned to the roadway network based on the existing distribution of traffic within the study area. As the subject site does not have direct road access to Arkell Road, it is anticipated vehicles will exit the development via Dawes Avenue/Amos Drive to Arkell Road or Decorso Drive to Victoria Road based on their destination.

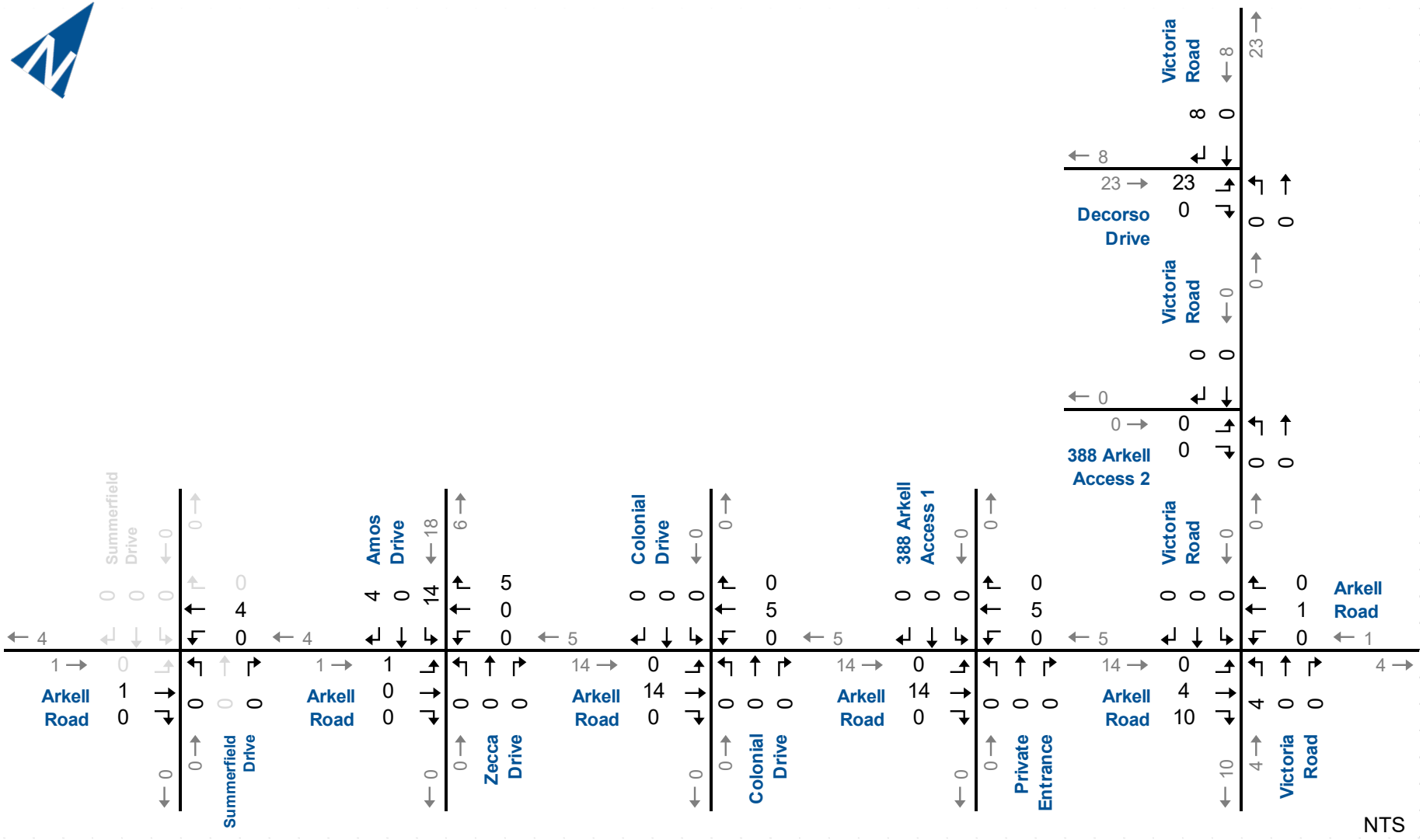
Table 4.2 details the estimated trip distribution for the development.

TABLE 4.2: TRIP DISTRIBUTION

Origin/Destination	AM/PM Peak Hour
East via Arkell Road	10%
West via Arkell Road	10%
North via Victoria Road	55%
South via Victoria Road	25%
Total	**100%**

Using the trip generation and trip distribution estimates, the site traffic was assigned to the road network. **Figure 4.2** and **Figure 4.3** illustrate the trip assignment for the development during the AM and PM peak hours, respectively.

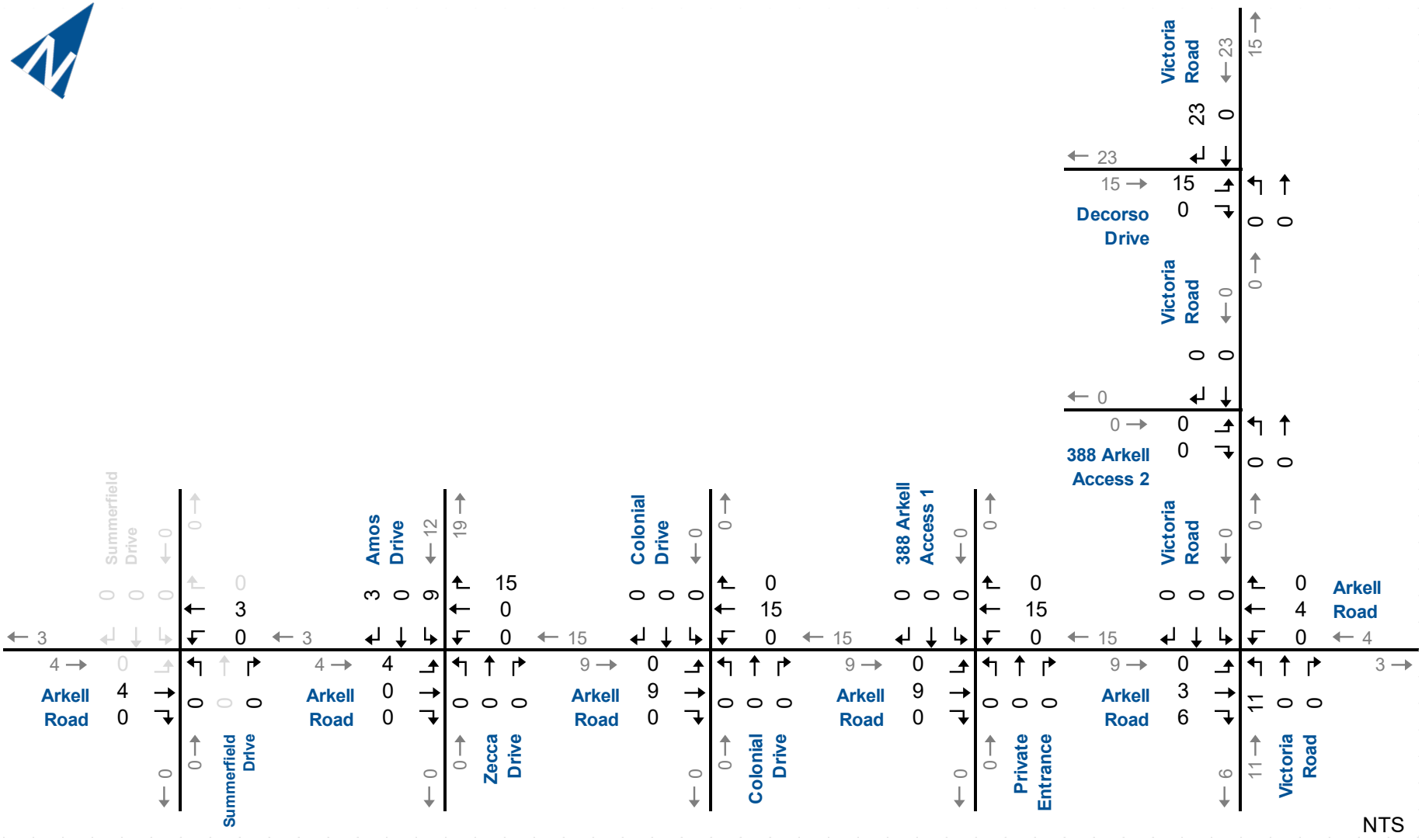
In future, it is anticipated Dawes Avenue will be extended to meet Arkell Road at Summerfield Drive. As the anticipated number of trips using this intersection during the peak hours (less than 10 trips) is well within daily volume variation, this scenario was not assessed. The analyses presented in **Section 5** indicate that the Summerfield Drive and Arkell Road intersection is forecast to operate within acceptable levels of service for all peak hours to 2036.



AM Development Traffic Forecasts

220 Arkell Road Transportation Impact Study
230080 / 180099

Figure 4.2



PM Development Traffic Forecasts

220 Arkell Road Transportation Impact Study
230080 / 180099

Figure 4.3

5 Evaluation of Future Total Traffic Conditions

The assessment of future total traffic conditions contained in this section includes estimates of future total traffic volumes and analysis for the 2026, 2031, and 2036 horizons. The future total traffic volumes include increased non-site traffic volumes (generalized background road traffic), traffic generated by other developments in the area, and the traffic generated by the proposed development.

5.1 2026 Horizon

5.1.1 2026 Future Total Traffic Volumes

Figure 5.1 and **Figure 5.2** illustrate the forecast 2026 total traffic (background + site) volumes, for the AM and PM peak hours, respectively.

5.1.2 2026 Future Total Traffic Operations

The operations of the study area intersection under 2026 total traffic volumes were analyzed using Synchro 11 procedures. No changes to the existing signal timings were made in this analysis.

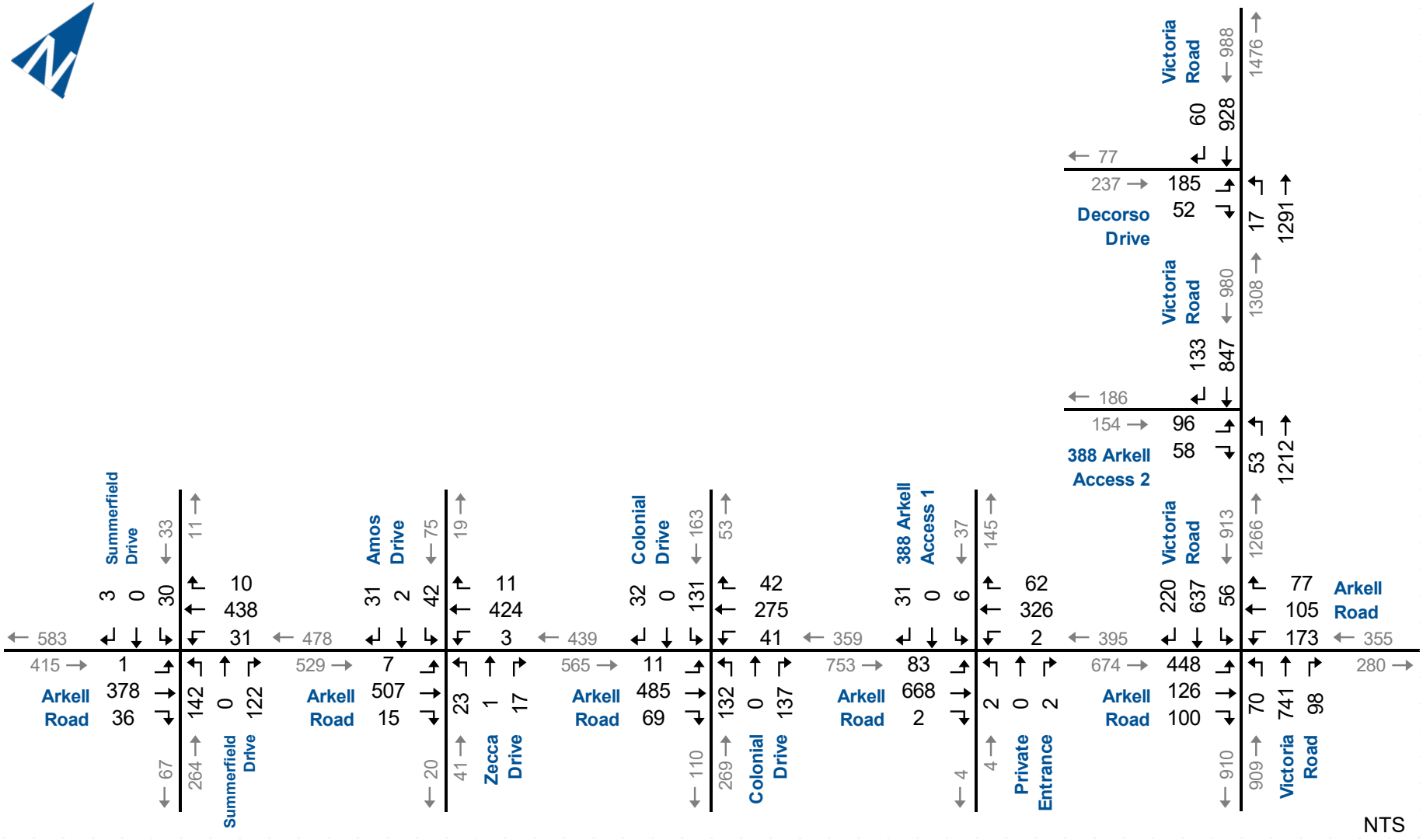
Table 5.1 and **Table 5.2** summarize the 2026 future total traffic operations for the AM and PM peak hours, respectively. Based on the analyses, it is concluded that the intersections are forecast to operate similar to the 2026 background conditions. The following critical movements are noted:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – LOS E, v/c ratio 0.81 during the AM peak hour and LOS F, v/c ratio 0.64 during the PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.07 during the AM peak hour and LOS E, v/c ratio 0.74 during the PM peak hour; and
  - Southbound left-through-right movement – LOS F, v/c ratio 1.12 during the AM peak hour and LOS F, v/c ratio 0.68 during the PM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – LOS F, v/c ratio 1.37 and 95th percentile queues exceeding available storage of 40 metres during the AM peak hour and LOS E, v/c ratio 0.94 during the PM peak hour;

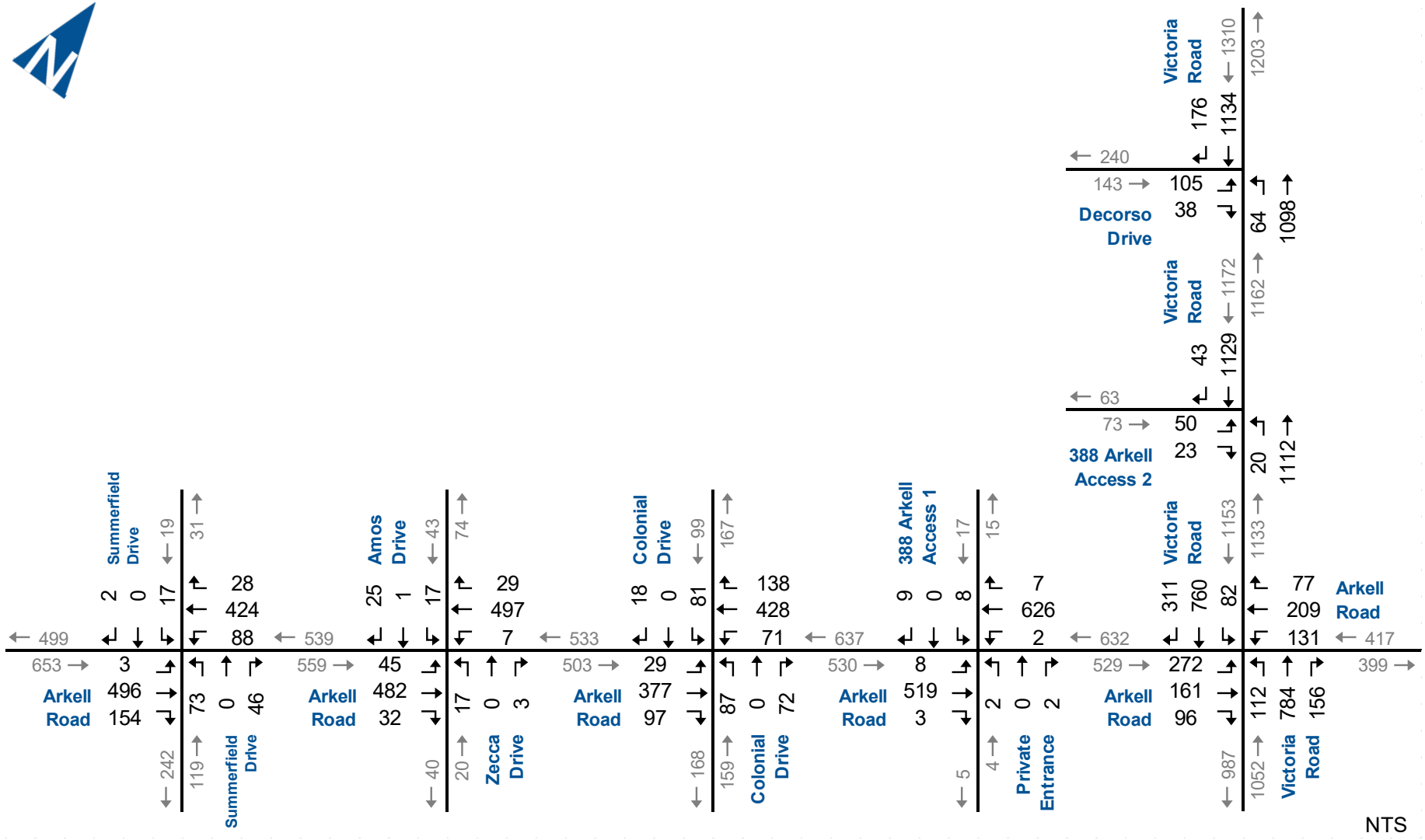
- Northbound through-right movement – LOS F, v/c ratio 1.30 during the AM peak hour and LOS F, v/c ratio 1.48 during the PM peak hour;
- Southbound through-right movement – LOS F, v/c ratio 1.41 during the AM peak hour and LOS F, v/c ratio 1.72 during the PM peak hour; and
- Overall intersection – LOS F during the AM and PM peak hours.

- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – LOS E, v/c ratio 1.08 during the AM peak hour and LOS C, v/c ratio 0.93 during the PM peak hour.
  - Southbound through movement – LOS C, v/c ratio 0.92 during the PM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – LOS F, v/c ratio 6.28 during the AM peak hour and LOS F, v/c ratio 5.43 during the PM peak hour.

Appendix H provides the detailed supporting Synchro reports.



2026 AM Total Traffic Forecasts



2026 PM Total Traffic Forecasts

TABLE 5.1: 2026 AM TOTAL TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	E	>	E	<	D	>	D	
			Delay	8	0	>	0	8	0	>	0	<	49	>	49	<	28	>	28	
			V/C	0.00	0.00	>		0.03	0.00	>		<	0.81	>		<	0.19	>		
			Q	0	0	>		1	0	>		<	52	>		<	5	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		59	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	C	>	C	<	C	>	C	
			Delay	8	0	>	0	9	0	>	0	<	21	>	21	<	22	>	22	
			V/C	0.01	0.00	>		0.00	0.00	>		<	0.16	>		<	0.27	>		
			Q	0	0	>		0	0	>		<	4	>		<	8	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	8	0	>	0	9	0	>	1	<	116	>	116	<	166	>	166	
			V/C	0.01	0.00	>		0.05	0.00	>		<	1.07	>		<	1.12	>		
			Q	0	0	>		1	0	>		<	88	>		<	70	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	50	-	>		59	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	C	>	C	D	B	>	B	
			Delay	8	0	>	1	<	9	>	0	<	24	>	24	34	11	>	14	
			V/C	0.08	0.00	>		<	0.00	>		<	0.02	>		0.05	0.05	>		
			Q	2	0	>		<	0	>		<	1	>		2	2	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	23	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	C	>	F	C	C	>	C	B	F	>	F	B	F	>	F	F
			Delay	211	33	>	151	24	29	>	27	17	168	>	157	17	217	>	205	155
			V/C	1.37	0.79	>		0.58	0.64	>		0.32	1.30	>		0.28	1.41	>		
			Q	150	16	>		7	10	>		1	222	>		0	278	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-110	-	>		13	-	>		89	-	>		50	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					B	E		E		B	A	B	D
			Delay	27		26	27					18	59		58		12	4	11	36
			V/C	0.40		0.27						0.20	1.08				0.76	0.13		
			Q	5		3						2	124				12	1		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						28	-				-	59		
	Victoria Road & Decorso Drive	TWSC	LOS	F		C	F					B	A		A		A	>	A	
			Delay	2622		21	2052					11	0		0		0	>	0	
			V/C	6.28		0.20						0.03	0.00				0.00	>		
			Q	182		5						1	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-162		-						29	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 5.2: 2026 PM TOTAL TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	E	>	E	
			Delay	8	0	>	0	9	0	>	2	<	52	>	52	<	37	>	37	
			V/C	0.00	0.00	>		0.10	0.00	>		<	0.64	>		<	0.16	>		
			Q	0	0	>		2	0	>		<	28	>		<	4	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		58	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	D	>	D	<	C	>	C	
			Delay	9	0	>	1	8	0	>	0	<	31	>	31	<	21	>	21	
			V/C	0.05	0.00	>		0.01	0.00	>		<	0.13	>		<	0.17	>		
			Q	1	0	>		0	0	>		<	3	>		<	4	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	9	0	>	1	<	57	>	57	<	68	>	68	
			V/C	0.03	0.00	>		0.07	0.00	>		<	0.74	>		<	0.68	>		
			Q	1	0	>		2	0	>		<	38	>		<	29	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	49	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	C	>	C	D	B	>	C	
			Delay	9	0	>	0	<	9	>	0	<	22	>	22	32	13	>	22	
			V/C	0.01	0.00	>		<	0.00	>		<	0.02	>		0.06	0.02	>		
			Q	0	0	>		<	0	>		<	1	>		2	1	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	25	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	E	C	>	D	C	D	>	C	B	F	>	F	B	F	>	F	F
			Delay	61	32	>	47	22	38	>	33	18	249	>	224	18	355	>	331	209
			V/C	0.94	0.74	>		0.44	0.84	>		0.47	1.48	>		0.36	1.72	>		
			Q	39	24	>		8	28	>		3	351	>		2	491	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	1	-	>		12	-	>		87	-	>		48	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					C	C		C		C	A	B	C
			Delay	29		28	29					27	22		22		20	3	20	21
			V/C	0.27		0.14						0.13	0.93				0.92	0.04		
			Q	4		2						2	36				34	0		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						28	-				-	60		
	Victoria Road & Decorso Drive	TWSC	LOS	F		D	F					B	A		A		A	>	A	
			Delay	2364		29	1743					14	0		1		0	>	0	
			V/C	5.43		0.22						0.14	0.00				0.00	>		
			Q	110		6						4	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-90		-						26	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

5.2 2031 Horizon

5.2.1 2031 Future Total Traffic Volumes

Figure 5.3 and **Figure 5.4** illustrate the forecast 2031 total traffic (background + site) volumes, for the AM and PM peak hours, respectively.

5.2.2 2031 Future Total Traffic Operations

The operations of the study area intersections under 2031 total traffic volumes were analyzed using Synchro 11. No changes to the existing signal timings were made in this analysis.

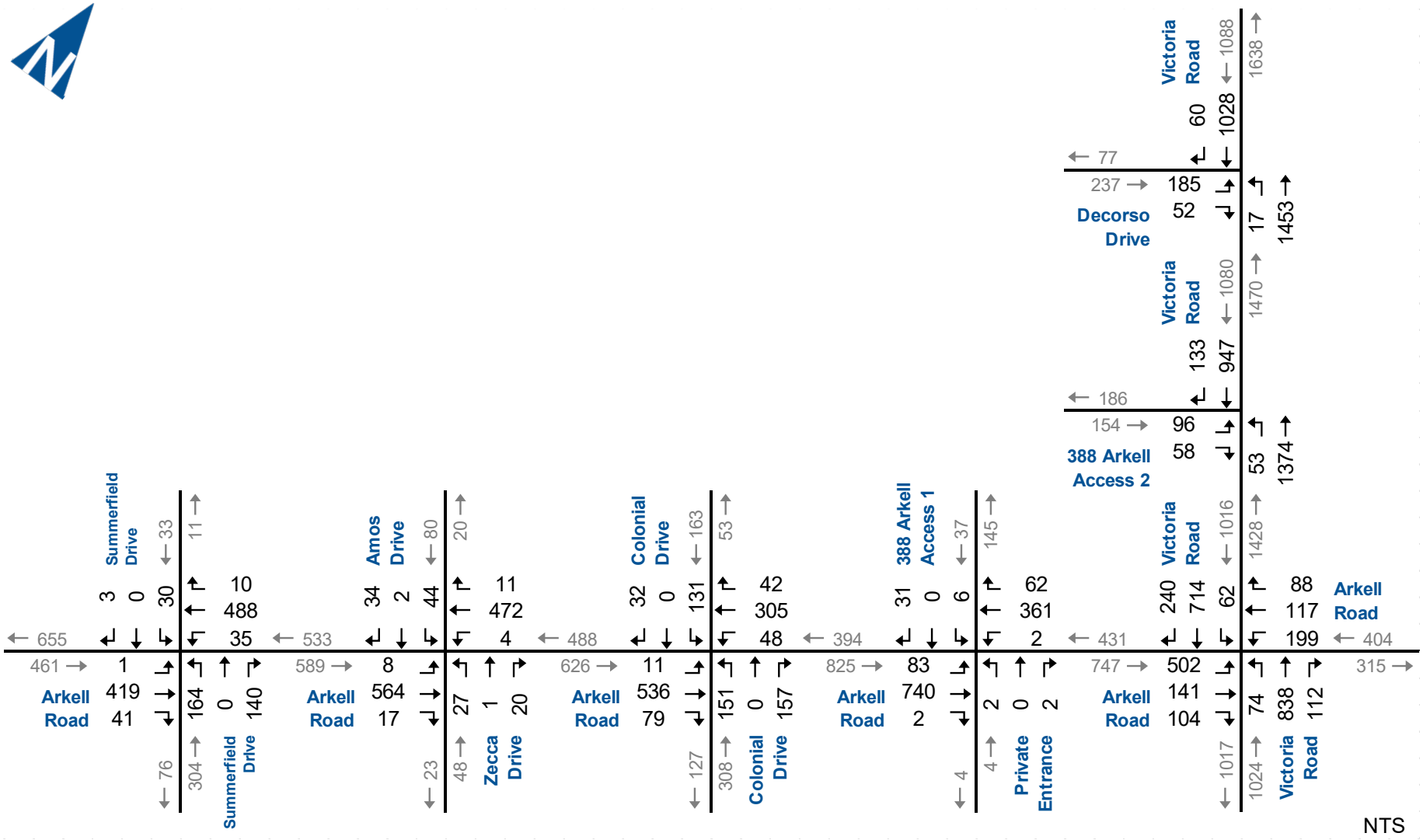
Table 5.3 and **Table 5.4** summarize the 2031 total traffic operations for the AM and PM peak hours, respectively. Based on the analyses, it is concluded that the intersections are forecast to operate similar to the 2031 background conditions. The following critical movements are noted:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.08 during the AM peak hour and LOS F, v/c ratio 0.95 during the PM peak hour; and
  - Southbound left-through-right movement – LOS E, v/c ratio 0.24 during the AM peak hour and LOS F, v/c ratio 0.21 during the PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – LOS E, v/c ratio 0.20 during the PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.43 during the AM peak hour and LOS F, v/c ratio 1.06 during the PM peak hour; and
  - Southbound left-through-right movement – LOS F, v/c ratio 1.50 during the AM peak hour and LOS F, v/c ratio 0.88 during the PM peak hour.
- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – LOS E, v/c ratio 0.06 during the AM peak hour and LOS E, v/c ratio 0.08 during the PM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – LOS F, v/c ratio 1.59 and 95th percentile queues exceeding available storage of 40 metres during the AM peak hour and LOS F, v/c ratio 1.08 and 95th percentile queues exceeding available storage by 40 metres during the PM peak hour;

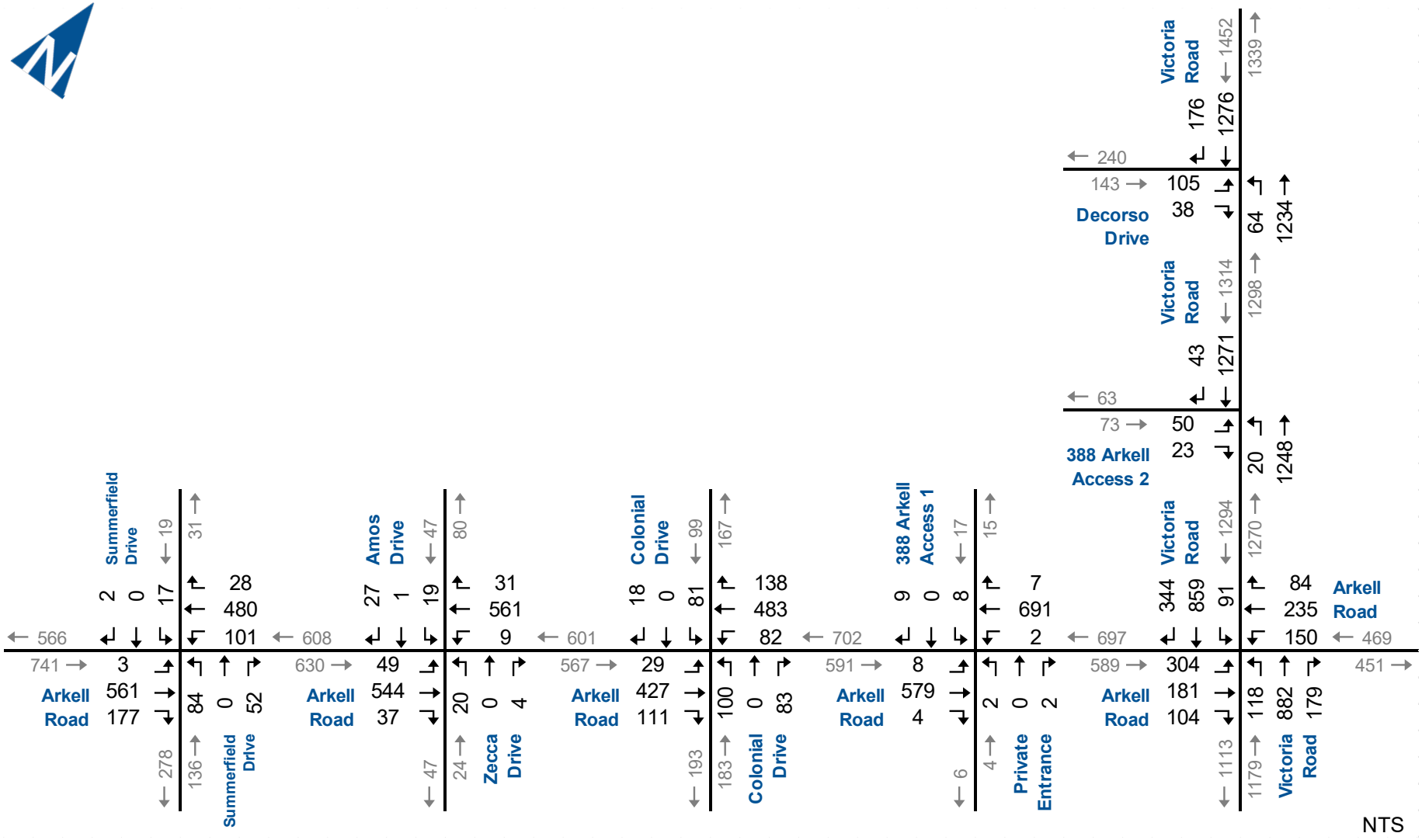
- Westbound through-right movement – LOS D, v/c ratio 0.86 during the PM peak hour;
- Northbound through-right movement – LOS F, v/c ratio 1.51 during the AM peak hour and LOS F, v/c 1.72 ratio during the PM peak hour;
- Southbound through-right movement – LOS F, v/c ratio 1.60 during the AM peak hour and LOS F, v/c ratio 1.98 during the PM peak hour; and
- Overall intersection – LOS F during the AM and PM peak hours.

- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – LOS F, v/c ratio 1.22 during the AM peak hour and LOS D, v/c ratio 1.05 during the PM peak hour; and
  - Southbound through movement – LOS D, v/c ratio 1.04 during the PM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – LOS F, v/c ratio 10.05 during the AM peak hour and LOS F v/c ratio 8.78 during the PM peak hour.

Appendix I provides the detailed supporting Synchro reports.



2031 AM Total Traffic Forecasts



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2031 PM Total Traffic Forecasts

TABLE 5.3: 2031 AM TOTAL TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	E	>	E	
			Delay	8	0	>	0	9	0	>	1	<	115	>	115	<	36	>	36	
			V/C	0.00	0.00	>		0.03	0.00	>		<	1.08	>		<	0.24	>		
			Q	0	0	>		1	0	>		<	92	>		<	7	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		59	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	D	>	D	<	D	>	D	
			Delay	8	0	>	0	9	0	>	0	<	26	>	26	<	27	>	27	
			V/C	0.01	0.00	>		0.00	0.00	>		<	0.22	>		<	0.34	>		
			Q	0	0	>		0	0	>		<	6	>		<	10	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	8	0	>	0	9	0	>	1	<	256	>	256	<	331	>	331	
			V/C	0.01	0.00	>		0.06	0.00	>		<	1.43	>		<	1.50	>		
			Q	0	0	>		2	0	>		<	144	>		<	94	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	50	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	D	>	D	E	B	>	C	
			Delay	8	0	>	1	<	9	>	0	<	28	>	28	40	11	>	16	
			V/C	0.08	0.00	>		<	0.00	>		<	0.03	>		0.06	0.05	>		
			Q	2	0	>		<	0	>		<	1	>		2	2	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	23	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	C	>	F	C	C	>	C	B	F	>	F	B	F	>	F	F
			Delay	304	35	>	216	28	30	>	29	17	257	>	240	17	299	>	282	221
			V/C	1.59	0.81	>		0.68	0.68	>		0.34	1.51	>		0.30	1.60	>		
			Q	213	19	>		10	11	>		1	348	>		0	387	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-173	-	>		10	-	>		89	-	>		50	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					C	F		F		B	A	B	E
			Delay	27		26	27					25	117		114		16	4	15	68
			V/C	0.40		0.27						0.26	1.22				0.85	0.13		
			Q	5		3						3	271				20	1		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						27	-				-	59		
	Victoria Road & Decorso Drive	TWSC	LOS	F		C	F					B	A		A		A	>	A	
			Delay	4450		24	3479					11	0		0		0	>	0	
			V/C	10.05		0.23						0.03	0.00				0.00	>		
			Q	192		7						1	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-172		-						29	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 5.4: 2031 PM TOTAL TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	8	0	>	0	10	0	>	2	<	120	>	120	<	52	>	52	
			V/C	0.00	0.00	>		0.12	0.00	>		<	0.95	>		<	0.21	>		
			Q	0	0	>		3	0	>		<	51	>		<	6	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		57	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	E	>	E	<	D	>	D	
			Delay	9	0	>	1	9	0	>	0	<	41	>	41	<	26	>	26	
			V/C	0.05	0.00	>		0.01	0.00	>		<	0.20	>		<	0.23	>		
			Q	2	0	>		0	0	>		<	5	>		<	7	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	9	0	>	1	<	137	>	137	<	123	>	123	
			V/C	0.03	0.00	>		0.09	0.00	>		<	1.06	>		<	0.88	>		
			Q	1	0	>		2	0	>		<	68	>		<	40	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	49	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	D	>	D	E	B	>	D	
			Delay	9	0	>	0	<	9	>	0	<	25	>	25	39	14	>	26	
			V/C	0.01	0.00	>		<	0.00	>		<	0.02	>		0.08	0.02	>		
			Q	0	0	>		<	0	>		<	1	>		2	1	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	25	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	D	>	E	C	D	>	D	B	F	>	F	B	F	>	F	F
			Delay	102	35	>	70	23	42	>	36	19	356	>	322	18	470	>	438	284
			V/C	1.08	0.79	>		0.51	0.86	>		0.51	1.72	>		0.41	1.98	>		
			Q	65	29	>		9	35	>		4	489	>		3	638	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-25	-	>		11	-	>		86	-	>		47	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					D	D		D		D	A	D	D
			Delay	29		28	29					40	48		48		46	3	44	46
			V/C	0.27		0.14						0.21	1.05				1.04	0.04		
			Q	4		2						3	103				99	0		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						27	-				-	60		
	Victoria Road & Decorso Drive	TWSC	LOS	F		E	F					C	A		A		A	>	A	
			Delay	4071		36	2999					15	0		1		0	>	0	
			V/C	8.78		0.27						0.16	0.00				0.00	>		
			Q	116		8						4	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-96		-						26	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

5.3 2036 Horizon

5.3.1 2036 Future Total Traffic Volumes

Figure 5.5 and **Figure 5.6** illustrate the forecast 2036 total traffic (background + site) volumes, for the AM and PM peak hours, respectively.

5.3.2 2036 Future Total Traffic Operations

The operations of the study area intersections under 2036 total traffic volumes were analyzed using Synchro 11. No changes to the existing signal timings were made in this analysis.

Table 5.5 and **Table 5.6** summarize the forecast operational results for the AM and PM peak hours, respectively. Based on the analyses, it is concluded that the intersections are forecast to operate similar to the 2036 background conditions. The following critical movements are noted:

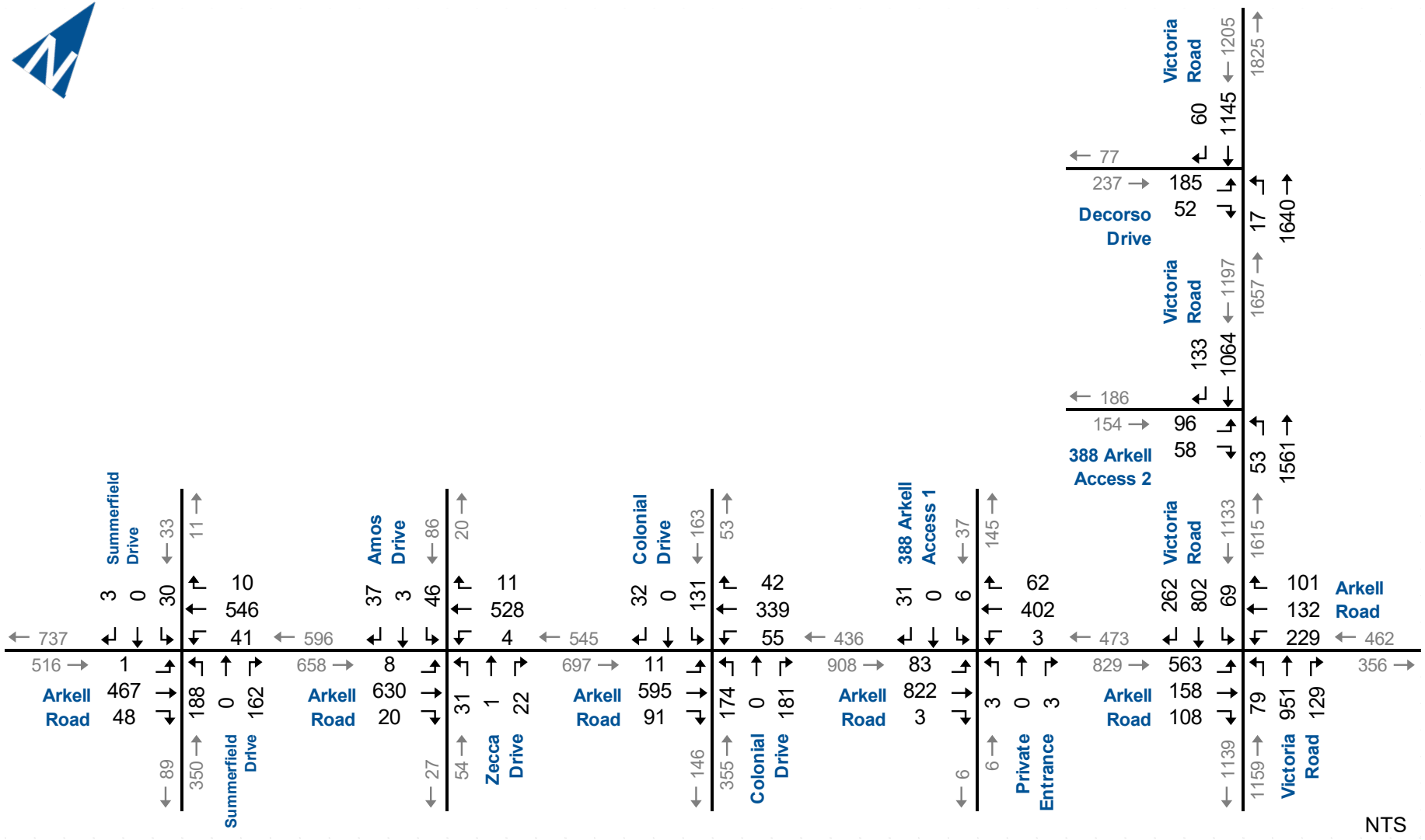
- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.48 during the AM peak hour and LOS F, v/c ratio 1.51 during the PM peak hour; and
  - Southbound left-through-right movements – LOS F, v/c ratio 0.32 during the AM peak hour and LOS F, v/c ratio 0.31 during the PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 0.30 during the PM peak hour; and
  - Southbound left-through-right movement – LOS E, v/c ratio 0.43 during the AM peak hour and LOS E, v/c ratio 0.32 during the PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – LOS F, v/c ratio 1.98 during the AM peak hour and LOS F, v/c 1.57 during the PM peak hour;
  - Southbound left-through-right movement – LOS F, v/c ratio 2.19 during the AM peak hour and LOS F, v/c ratio 1.21 during the PM peak hour.
- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – LOS F, v/c ratio 0.08 during the AM peak hour and LOS E, v/c ratio 0.10 during the PM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – LOS F, v/c ratio 1.85 and 95th percentile queues exceeding available storage of 40 metres during the AM peak hour and LOS F, v/c ratio 1.27 and 95th

percentile queues exceeding available storage of 40 metres during the PM peak hour;

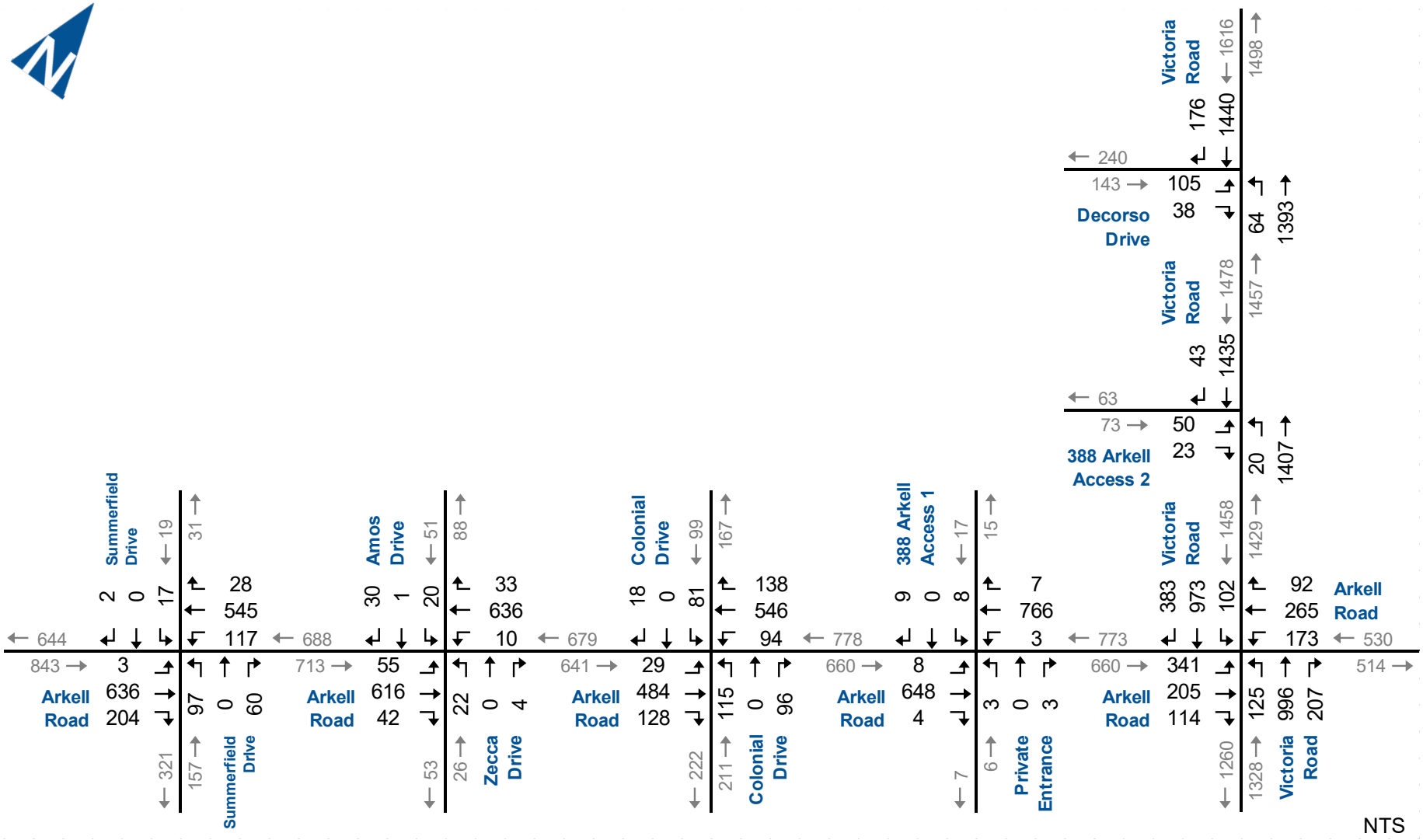
- Westbound through-right movement – LOS D, v/c ratio 0.89 during the PM peak hour;
- Northbound through-right movement – LOS F, v/c ratio 1.75 during the AM peak hour and LOS F, v/c ratio 2.02 during the PM peak hour;
- Southbound through-right movement – LOS F, v/c ratio 1.81 during the AM peak hour and LOS F, v/c ratio 2.28 during the PM peak hour; and
- Overall intersection – LOS F during the AM and PM peak hours.

- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – LOS F, v/c ratio 1.39 during the AM peak hour and LOS F, v/c ratio 1.18 during the PM peak hour;
  - Southbound through movement – LOS C, v/c ratio 0.96 during the AM peak hour and LOS F, v/c ratio 1.17 during the PM peak hour; and
  - Overall intersection – LOS F during the AM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – LOS F, v/c ratio 15.47 during the AM peak hour and LOS F, v/c ratio 14.27 during the PM peak hour; and
  - Eastbound right-turn movement – LOS E, v/c ratio 0.34 during the PM peak hour.

Appendix J provides the detailed supporting Synchro reports.



2036 AM Total Traffic Forecasts



2036 PM Total Traffic Forecasts

TABLE 5.5: 2036 AM TOTAL TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
AM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	9	0	>	1	<	273	>	273	<	51	>	51	
			V/C	0.00	0.00	>		0.04	0.00	>		<	1.48	>		<	0.32	>		
			Q	0	0	>		1	0	>		<	156	>		<	9	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		59	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	D	>	D	<	E	>	E	
			Delay	8	0	>	0	9	0	>	0	<	34	>	34	<	36	>	36	
			V/C	0.01	0.00	>		0.01	0.00	>		<	0.31	>		<	0.43	>		
			Q	0	0	>		0	0	>		<	10	>		<	15	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	8	0	>	0	10	0	>	1	<	498	>	498	<	656	>	656	
			V/C	0.01	0.00	>		0.07	0.00	>		<	1.98	>		<	2.19	>		
			Q	0	0	>		2	0	>		<	217	>		<	121	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	50	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	D	>	D	F	B	>	C	
			Delay	9	0	>	1	<	10	>	0	<	34	>	34	50	11	>	18	
			V/C	0.08	0.00	>		<	0.00	>		<	0.05	>		0.08	0.06	>		
			Q	2	0	>		<	0	>		<	2	>		2	2	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	23	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	D	>	F	D	C	>	C	B	F	>	F	B	F	>	F	F
			Delay	419	37	>	297	38	31	>	35	18	366	>	343	18	394	>	371	301
			V/C	1.85	0.83	>		0.80	0.73	>		0.36	1.75	>		0.33	1.81	>		
			Q	286	22	>		16	14	>		1	497	>		1	511	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-246	-	>		4	-	>		89	-	>		49	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					D	F		F		C	A	C	F
			Delay	27		26	27					40	189		184		28	4	25	112
			V/C	0.40		0.27						0.41	1.39				0.96	0.13		
			Q	5		3						5	456				45	1		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						25	-				-	59		
	Victoria Road & Decorso Drive	TWSC	LOS	F		D	F					B	A		A		A	>	A	
			Delay	7076		29	5530					12	0		0		0	>	0	
			V/C	15.47		0.28						0.04	0.00				0.00	>		
			Q	198		8						1	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-178		-						29	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

TABLE 5.6: 2036 PM TOTAL TRAFFIC OPERATIONS SUMMARY

Analysis Period	Intersection	Control Type	MOE	Direction/Movement/Approach																	
				Eastbound				Westbound				Northbound				Southbound				Overall
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	
PM Peak Hour	Summerfield Drive & Arkell Road	TWSC	LOS	A	A	>	A	B	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	10	0	>	2	<	344	>	344	<	83	>	83	
			V/C	0.00	0.00	>		0.16	0.00	>		<	1.51	>		<	0.31	>		
			Q	0	0	>		4	0	>		<	90	>		<	8	>		
			Stor.	15	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	15	-	>		56	-	>		<	-	>		<	-	>		
	Zecca Drive/Amos Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	E	>	E	
			Delay	9	0	>	1	9	0	>	0	<	60	>	60	<	36	>	36	
			V/C	0.06	0.00	>		0.01	0.00	>		<	0.30	>		<	0.32	>		
			Q	2	0	>		0	0	>		<	8	>		<	10	>		
	Colonial Drive & Arkell Road	TWSC	LOS	A	A	>	A	A	A	>	A	<	F	>	F	<	F	>	F	
			Delay	9	0	>	0	9	0	>	1	<	345	>	345	<	255	>	255	
			V/C	0.03	0.00	>		0.10	0.00	>		<	1.57	>		<	1.21	>		
			Q	1	0	>		2	0	>		<	115	>		<	56	>		
			Stor.	50	-	>		60	-	>		<	-	>		<	-	>		
			Avail.	49	-	>		58	-	>		<	-	>		<	-	>		
	Residential Entrance/Access 1 & Arkell Road	TWSC	LOS	A	A	>	A	<	A	>	A	<	D	>	D	E	B	>	D	
			Delay	10	0	>	0	<	9	>	0	<	31	>	31	50	15	>	31	
			V/C	0.01	0.00	>		<	0.00	>		<	0.04	>		0.10	0.03	>		
			Q	0	0	>		<	0	>		<	1	>		2	1	>		
			Stor.	25	-	>		<	-	>		<	-	>		-	-	>		
			Avail.	25	-	>		<	-	>		<	-	>		-	-	>		
	Victoria Road & Arkell Road	TCS	LOS	F	D	>	F	C	D	>	D	C	F	>	F	B	F	>	F	F
			Delay	172	38	>	108	25	47	>	40	20	488	>	444	19	607	>	566	379
			V/C	1.27	0.81	>		0.61	0.89	>		0.54	2.02	>		0.46	2.28	>		
			Q	104	36	>		11	45	>		4	651	>		4	806	>		
			Stor.	40	-	>		20	-	>		90	-	>		50	-	>		
			Avail.	-64	-	>		9	-	>		86	-	>		46	-	>		
	Victoria Road & Access 2	TCS	LOS	C		C	C					D	F		F		F	A	F	F
			Delay	29		28	29					40	99		98		97	3	94	94
			V/C	0.27		0.14						0.21	1.18				1.17	0.04		
			Q	4		2						3	240				240	0		
			Stor.	-		-						30	-				-	60		
			Avail.	-		-						27	-				-	60		
	Victoria Road & Decorso Drive	TWSC	LOS	F		E	F					C	A		A		A	>	A	
			Delay	6875		49	5061					17	0		1		0	>	0	
			V/C	14.27		0.34						0.19	0.00				0.00	>		
			Q	119		10						5	0				0	>		
			Stor.	20		-						30	-				-	>		
			Avail.	-99		-						25	-				-	>		

MOE - Measure of Effectiveness
LOS - Level of Service
Delay - Average Delay per Vehicle in Seconds
V/C - Volume to Capacity Ratio
Q - 95th Percentile Queue Length (m)
Stor. - Existing Storage (m)
Avail. - Available Storage (m)
TCS - Traffic Control Signal
TWSC - Two-Way Stop Control
< / > - Shared with through movement

5.4 Study Area Development Impacts

The study area traffic is comprised of the existing traffic + background growth, background developments and the subject site traffic. **Table 5.7** and **Table 5.8** summarize the breakdown of the traffic entering and exiting the study area during all horizon years for the AM and PM peak hours, respectively.

The tables indicate the site generated traffic accounts for a maximum of 1.4% and 1.7% of all study area traffic, during the AM and PM peak hours, respectively.

TABLE 5.7: STUDY AREA AM PEAK HOUR TRAFFIC BREAKDOWN

Component	2023		2026		2031		2036	
Existing + Growth	5087	100%	5398	68.5%	6205	71.4%	7147	74.2%
Background Developments	-	0%	2377	30.1%	2377	27.3%	2377	24.7%
Site	-	0%	110	1.4%	110	1.3%	110	1.1%
Total	**5087**	**100%**	**7885**	**100%**	**8692**	**100%**	**9634**	**100%**

TABLE 5.8: STUDY AREA PM PEAK HOUR TRAFFIC BREAKDOWN

Component	2023		2026		2031		2036	
Existing + Growth	5763	100%	6117	74.0%	7031	76.6%	8098	79.1%
Background Developments	-	0%	2006	24.3%	2006	21.9%	2006	19.6%
Site	-	0%	138	1.7%	138	1.5%	138	1.3%
Total	**5763**	**100%**	**8261**	**100%**	**9175**	**100%**	**10242**	**100%**

As shown in **Table 5.7** and **Table 5.8**, the subject development is not a significant contributor to future traffic in the study area road network and does not create any specific capacity problems in addition those identified under future background traffic conditions including other-area development traffic.

It is acknowledged that, modifications and improvements, including the implementation of traffic signal controls at currently unsignalized intersections, are to be determined upon the full buildout of developments in the study area.

5.5 Potential Traffic Infiltration

While the proposed development does not have direct access to Arkell Road and traffic must travel through the neighbouring developments (Victoria Park Village, Northwest Arkell and Victoria), it would not be considered infiltration into the neighbourhood.

Once the entire neighbourhood is built-out, there will be an additional connection between Arkell Road and Victoria Road through the neighbourhood. This connection is not a direct route and will likely have reduced speed limits. The potential for traffic infiltration is low, and traffic calming measures are not required.

6 Conclusions and Recommendations

6.1 Conclusions

Based on the investigations carried out, it is concluded that:

Existing Traffic Operations

Currently, all intersections within the study area operate at acceptable levels of service during the AM and PM peak hours, with no individual problem movements, except:

- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM peak hour;
  - Northbound through-right movement – AM and PM peak hours; and
  - Southbound through-right movement – PM peak hour.

Background Growth & Other Planned Developments

A growth rate of 2.0% per year for 2017 to 2026, and a rate of 3.0% per year beyond 2026 was used for traffic in the study area, as requested by the City of Guelph.

The City requested that the traffic generated by other “approved but not yet built” developments in the study area be included in the background traffic forecasts, including: Kortright East, Victoria Park Village, Westminister Woods, Northwest Arkell Road and Victoria Road, 388 Arkell Road Secondary School, and 190-216 Arkell Road.

2026 Background Traffic Operations

Under 2026 background traffic conditions all intersections within the study area are forecast to operate at acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Victoria Road and Arkell Road:

- Eastbound left-turn movement – AM and PM peak hours;
- Northbound through-right movement – AM and PM peak hours;
- Southbound through-right movement – AM and PM peak hours; and
- Overall intersection – AM and PM peak hours.

- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours; and
  - Southbound through movement – PM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours; and

2031 Background Traffic Operations

Under 2031 background traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and
  - Southbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – AM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Westbound through movement – PM peak hour;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection –AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:

- Northbound through movement – AM and PM peak hours; and
- Southbound through movement – PM peak hour.

- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours.

2036 Background Traffic Operations

Under 2036 background traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and
  - Southbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – AM and PM peak hours.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Westbound through-right movement – PM peak hour;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours;
  - Southbound through movement – PM peak hours; and
  - Overall intersection – AM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours; and
  - Eastbound right-turn movement – PM peak hour.

Development Trip Generation

The development is forecast to generate 55 and 69 new trips during the AM and PM peak hours, respectively at full build-out.

The site generated traffic accounts for a maximum of 1.4% and 1.7% of all study area traffic, during the AM and PM peak hours, respectively.

2026 Total Traffic Operations

Under 2026 total traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and
  - Southbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours;
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours.

2031 Total Traffic Operations

Under 2031 total traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and

- Southbound left-through-right movement – AM peak hour and PM peak hour.

- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – PM peak hour.
- Arkell Road and Colonial Drive:
  - Northbound left-through-right movement – AM and PM peak hours; and
  - Southbound left-through-right movement – AM and PM peak hours.
- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – AM and PM peak hours.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Westbound left-turn movement – PM peak hour;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours; and
  - Southbound through movement – PM peak hour.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours.

2036 Total Traffic Operations

Under 2036 total traffic conditions all intersections within the study area are forecast to operate at overall acceptable levels of service with the exception of the following critical movements:

- Arkell Road and Summerfield Drive:
  - Northbound left-through-right movement – AM peak hour and PM peak hour; and
  - Southbound left-through-right movement – AM peak hour and PM peak hour.
- Arkell Road and Zecca Drive / Amos Drive:
  - Northbound left-through-right movement – PM peak hour.
- Arkell Road and Colonial Drive:

- Northbound left-through-right movement – AM and PM peak hours; and
- Southbound left-through-right movement – AM and PM peak hours.

- Arkell Road and 388 Arkell Road Access 1:
  - Southbound left-turn movement – AM and PM peak hour.
- Victoria Road and Arkell Road:
  - Eastbound left-turn movement – AM and PM peak hours;
  - Westbound through-right movement – PM peak hour;
  - Northbound through-right movement – AM and PM peak hours;
  - Southbound through-right movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and 388 Arkell Road Access 2:
  - Northbound through movement – AM and PM peak hours;
  - Southbound through movement – AM and PM peak hours; and
  - Overall intersection – AM and PM peak hours.
- Victoria Road and Decorso Drive:
  - Eastbound left-turn movement – AM and PM peak hours; and
  - Eastbound right-turn movement – PM peak hour.

Study Area Development Impacts

The subject development is not a significant contributor to future traffic in the study area road network and does not create any specific capacity problems in addition to those identified under future background traffic conditions including other-area development traffic.

It is acknowledged that modifications and improvements, including the implementation of traffic signal controls at currently unsignalized intersections, are to be determined upon the full buildout of developments in the study area.

Potential Traffic Infiltration

While the proposed development does not have direct access to Arkell Road and traffic must travel through the neighbouring developments (Victoria Park Village, Northwest Arkell and Victoria), it would not be considered infiltration into the neighbourhood.

Once the entire neighbourhood is built-out, there will be an additional connection between Arkell Road and Victoria Road through the neighbourhood. This connection is not a direct route and will likely have

reduced speed limits. The potential for traffic infiltration is low, and traffic calming measures are not required.

6.2 Recommendations

Based on the findings of this study, the subject development does not require offsite road improvements specific to the development. It is recommended that the development be considered for approval as proposed.

Appendix A

Pre-Study Consultation Documentation

22 King Street South, Suite 300
Waterloo, ON N2J 1N8
p: 519.896.3163
905.381.2229
f: 1.855.764.7349

www.ptsl.com

13 April 2018
Project: 180099

Gwen Zhang
Engineering Services
City of Guelph
1 Carden Street
Guelph ON N1H 3A1

Dear Ms. Zhang:

RE: 220 ARKELL ROAD, GUELPH, ON – PROPOSED RESIDENTIAL DEVELOPMENT TRAFFIC IMPACT AND TDM OPTIONS STUDY

Paradigm Transportation Solutions Limited (Paradigm) was retained on behalf of **Carson Reid Homes Ltd.** (the Client) to prepare a Transportation Impact Study (TIS) and Transportation Demand Management (TDM) Options Report for a proposed development in the City of Guelph. The subject lands are located on the north side of Arkell Road, east of Summerfield Drive and west of Victoria Road South.

The following details our understanding of the assignment, and proposed work plan to complete the study.

Project Understanding

The development seeks to develop 34 single-family homes and 60 cluster townhouse dwellings for a total of 94 units. Vehicular access to the site will be provided via Amos Avenue. The development is expected to begin construction in 2019 and be completed and fully occupied by 2021.

Consultation with City of Guelph staff (the review agency) has identified that they require two (2) reports:

- Transportation Impact Study (TIS); and
- Transportation Demand Management (TDM) Options Report (to be included as part of the TIS).

For previous applications, staff has agreed that these reports can be combined into a single document. The TIS/TDM Options Study will evaluate the effects of the proposed development on the transportation system, and recommended improvements, if necessary, to address potential impacts.

In assessing the transportation impacts, subject to City of Guelph concurrence, we intend to analyze the operation of the intersections of:

- Victoria Road South and Victoria Park Village Road (unsignalized);
- Arkell Road and Victoria Road (signalized);
- Arkell Road and Colonial Drive (unsignalized);
- Arkell Road and Amos Drive/Zecca Drive (unsignalized); and
- Arkell Road and Summerfield Drive (unsignalized).

We will complete the TIS in accordance with the *City of Guelph Traffic Impact Study Guidelines (dated April 2016)* posted on the City's website and any further direction provided by City staff during pre-consultation.

Work Plan

The following outlines our proposed work plan to carry out of this assignment:

- **Task 1 – Pre-Study Consultation:** We will contact the review agency by telephone/e-mail to confirm and refine the study scope and assumptions prior to undertaking the TIS.

- **Task 2 – Data Collection:** Through pre-study consultation with the review agencies, we will request available traffic counts, traffic signal timings, background growth rates, transit routes/ridership, relevant background reports, and any other information about the study area pertinent to the assessment (e.g., other development applications in the vicinity). If the review agency does not have traffic counts collected within the past two (2) years, we will arrange for an eight-hour weekday turning movement count at the study area intersections.

  While the traffic data is being collected, we will conduct a site visit to view and assess current road and transportation conditions in the study area during the typical peak periods for commuter traffic flow (weekday morning (AM) and afternoon (PM) peak hours).

- **Task 3 – Traffic Forecasting:** We will request confirmation of the opening year and site plan statistics for the proposed development. According to the agency TIS guidelines, we have assumed that we will be requested to develop traffic forecasts for the weekday AM and PM peak hours for two (2) future horizon years: opening of the development (2021) and five (5) years (2026) from full occupancy. The components of the traffic forecasts are:

  - Existing (Base Year) – We will develop Existing (2018) vehicle traffic volumes for the AM and PM peak hours from available counts for the study intersections and the proposed site driveway. Counts collected prior to 2018 will be factored to the base year using a growth rate, preferably approved by the review agencies.

  - Future (Horizon Year) Background – We will estimate Future Background (2021 and 2026) vehicle traffic volumes for the AM and PM peak hours by applying a growth rate to the Existing volumes and adding anticipated trips from nearby approved developments.
  - Future (Horizon Year) Total – We will forecast the AM and PM peak hour vehicle traffic volumes generated by the proposed development based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition) as appropriate. The site vehicle trips will be distributed to the adjacent road network based on existing traffic patterns, and added to the Future Background estimates to produce Future Total traffic volumes for each horizon year.

- City staff has noted that since the road network within the study area has not been finalized, the study will include the following two scenarios:
    - With two north-south connections to Arkell Road via Colonial Drive and Amos Drive; and
    - With three north-south connections to Arkell Road via Colonial Drive, Amos Drive and Summerfield Drive northerly extension.

- **Task 4 – Operational Analyses**: We will evaluate the operation of the identified intersections for the Existing, Future Background and Future Total AM and PM peak hour traffic conditions for each horizon year. The operational analyses will assess volume-to-capacity (v/c) ratios, Level of Service (LOS) and queuing conditions. Based on the analysis results, we will identify any existing deficiencies, as well as the net impact of the proposed development on the study area road network. The need for road improvements (e.g., provision of auxiliary turn lanes) and/or modifications to traffic control devices (e.g., addition of traffic control signals) to address any deficiencies will be determined. An assessment of whether these measures are required due to non-site traffic (i.e. Existing or Future Background) or the increase in traffic resulting from the proposed development will be completed. In addition, a qualitative assessment of the potential impact on transit services and active transportation facilities (i.e. walking and cycling modes) will be provided.
- **Task 5 – Site Access**: The proposed site access locations will be evaluated in terms of capacity, safety and adequacy of queue storage capacity, pedestrian safety. The access points will be checked for conflicts, with utilities, other driveway locations (including those of other sites), bus stop locations, on-street weaving problems, pedestrian/bicycle safety, etc. On-site parking/circulation systems will be evaluated to demonstrate a high degree of safety with respect to the possibility of queues backing onto municipal roads, the need for vehicles to back onto roads, etc. Sight-lines for roads and access points will be evaluated to ensure safe conditions in accordance with accepted standards where these are affected by the site design. Service vehicle/truck loading facilities and access to these facilities will be evaluated to ensure that they are adequately sized, designed, and provided with suitable access so that they will not adversely affect traffic operations on municipal roads. Any required turning or other restrictions will be identified. Adequate access for emergency vehicles will be assessed.
- **Task 6 – TDM Options**: We will prepare a TDM Options section within the overall TIS report to identify potential TDM measures that can be implemented during both the pre-occupancy and post-occupancy periods of the development. The City's TDM policy provides several TDM options that can be implemented during both the pre-construction period and post-construction that are feasible given the developments site and situation characteristics. We will assess the potential benefits for the proposed plan and its support for non-auto initiatives available including public transit, walkability, and the potential for other TDM initiatives identified by the City of Guelph:
    - Measure to encourage active transportation to/from the site (e.g. enhanced bicycle storage);
    - Measures to support public transit ridership to/from the site;
    - Discussion of how parking and site layout can enhance pedestrian connectivity to municipal street and trails; and

- Measures to support the reduction of single-occupancy vehicle ownership and use (e.g. unbundle parking, designate carpool parking, provision of community carshare).

- **Task 7 – Report and Recommendations:** We will prepare a final report documenting the study findings and conclusions, and providing recommendations regarding the proposed development from a transportation perspective. The final report will include appendices containing relevant traffic data as well as the detailed output generated by the operational analysis software.

We trust the foregoing work plan is acceptable. If you have any questions related to this project please contact Heather Goodman at (416)-479-9684 x502 or by email at hgoodman@ptsl.com

Yours very truly,

PARADIGM TRANSPORTATION SOLUTIONS LIMITED

Jim Mallett
M.A.Sc., P.Eng., PTOE
President

Heather Goodman

From: Gwen.Zhang@guelph.ca
Sent: April 26, 2018 11:23 AM
To: Heather Goodman
Cc: Rajan Philips; Julie.Tot@guelph.ca; Jennifer.Juste@guelph.ca
Subject: RE: 180099 (220 Arkell Road TIS & TDM) - Scope of Work

Hi Heather,
We'd suggest using the same growth rate as in the 388 Arkell study (a rate of 2% to 2026 and 3% afterwards).
Thanks,
Gwen

From: Heather Goodman [mailto:hgoodman@ptsl.com]
Sent: April 20, 2018 9:25 AM
To: Gwen Zhang
Cc: Rajan Philips; Julie Tot; Jennifer Juste
Subject: RE: 180099 (220 Arkell Road TIS & TDM) - Scope of Work

Hi Gwen,

Thank you for your comments, please see the attached site plan.

As for the growth rate, in the 388 Arkell study, we had a rate of 2% to 2026 and 3% afterwards. Are these rates applicable to this study, or do you want the rate to stay at 2% for all horizons?

Thanks,

Heather Goodman, B.Eng., EIT, MITE
Transportation Consultant

Paradigm Transportation Solutions Limited
p: 416.479.9684 x502
m: 905.506.0454

From: Gwen.Zhang@guelph.ca [mailto:Gwen.Zhang@guelph.ca]
Sent: April 19, 2018 10:03 AM
To: Heather Goodman <hgoodman@ptsl.com>
Cc: Rajan Philips <rphilips@ptsl.com>; Julie.Tot@guelph.ca; Jennifer.Juste@guelph.ca
Subject: RE: 180099 (220 Arkell Road TIS & TDM) - Scope of Work

Hi Heather,

We have reviewed the proposed Scope of Work. In addition to the listed tasks, the study should also cover the following work:

- Provide a site concept plan. If the concept plan shows more than one access to the subject site (not just on Amos Drive alone), the study area should cover all the access intersections;
- Add two intersections in the study area for the proposed new high school with one access on Arkell Road and another one on Victoria Road. Use a diagram to show the trips to/from the high school;
- Refer to the study "388 Arkell Road Transportation Impact Study," prepared by Paradigm in August 2017, for other developments including all the developments listed under Section "5.1.2 Other Planned Developments";
- Add one more future horizon year, i.e., 10 years after the build-out;
- Provide signal warrant analysis for currently unsignalized intersections on Arkell Road and Victoria Road;
- Provide a detailed functional plan for any mitigating measures identified in the analysis;
- Provide recommendations on traffic calming measures to address potential traffic infiltration; and
- Include cyclist volumes in any new traffic counts.

We suggest the general background traffic would grow at a rate of 2% per annum.

Regards,

Gwen Zhang, M.Sc., P.Eng | Transportation Planning Engineer
Engineering and Capital Infrastructure Services | **Infrastructure, Development & Enterprise**
T 519-822-1260 x 2638
E gwen.zhang@guelph.ca

From: Heather Goodman [mailto:hgoodman@ptsl.com]
Sent: April 18, 2018 11:11 AM
To: Gwen Zhang
Cc: Rajan Philips
Subject: 180099 (220 Arkell Road TIS & TDM) - Scope of Work

Hi Gwen,

Paradigm would like to inform the City that we will be undertaking a Transportation Impact Study and TDM Options Study for the proposed residential development of lands located at 220 Arkell Road, detailed in the enclosed project overview and work plan. We ask that you please review the work plan to ensure the scope of the study is acceptable and provide comments if necessary.

In addition, we request the following information from the City for our study:

- The following intersections will be included in the study, please confirm that this is acceptable. Paradigm previously collection TMCs at all intersections except Victoria Park Village Road (currently under construction). The counts are from November 2016, please confirm these are acceptable:
    - Victoria Road South and Victoria Park Village Road (unsignalized);
    - Arkell Road and Victoria Road (signalized);
    - Arkell Road and Colonial Drive (unsignalized);
    - Arkell Road and Amos Drive/Zecca Drive (unsignalized); and
    - Arkell Road and Summerfield Drive (unsignalized).
- The transportation impact study will assess two (2) future horizons year representing opening of the development (2021) and 5 years from full occupancy (2026). Please confirm that this is acceptable.
- The study will conform to City Guidelines. Please confirm this is acceptable.
- Any in-stream or recently approved developments to included in the background forecasts. We assume the following developments will need to be included in the background growth, please add any additional developments:
    - Arkell Road High School
    - Victoria Park Village
- The growth rate to use for the study.

Due to the time sensitive nature of the project, we ask that you please provide comments at your earliest convenience. Please do not hesitate to contact me if you have questions relating to this project.

Regards,

Heather Goodman, B.Eng., EIT, MITE
Transportation Consultant

Paradigm Transportation Solutions Limited
5000 Yonge Street, Suite 1901, Toronto ON M2N 7E9
p: 416.479.9684 x502
m: 905.506.0454
e: hgoodman@ptsl.com
w: www.ptsl.com

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Appendix B

Detailed Turning Movement Count Data & Signal Timings

Arkell Rd @ Summerfield Dr

Morning Peak Diagram

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

One Hour Peak
From: 7:45:00
To: 8:45:00

Municipality: Guelph
Site #: 0000000006
Intersection: Arkell Rd & Summerfield Dr
TFR File #: 3
Count date: 5-Oct-2016

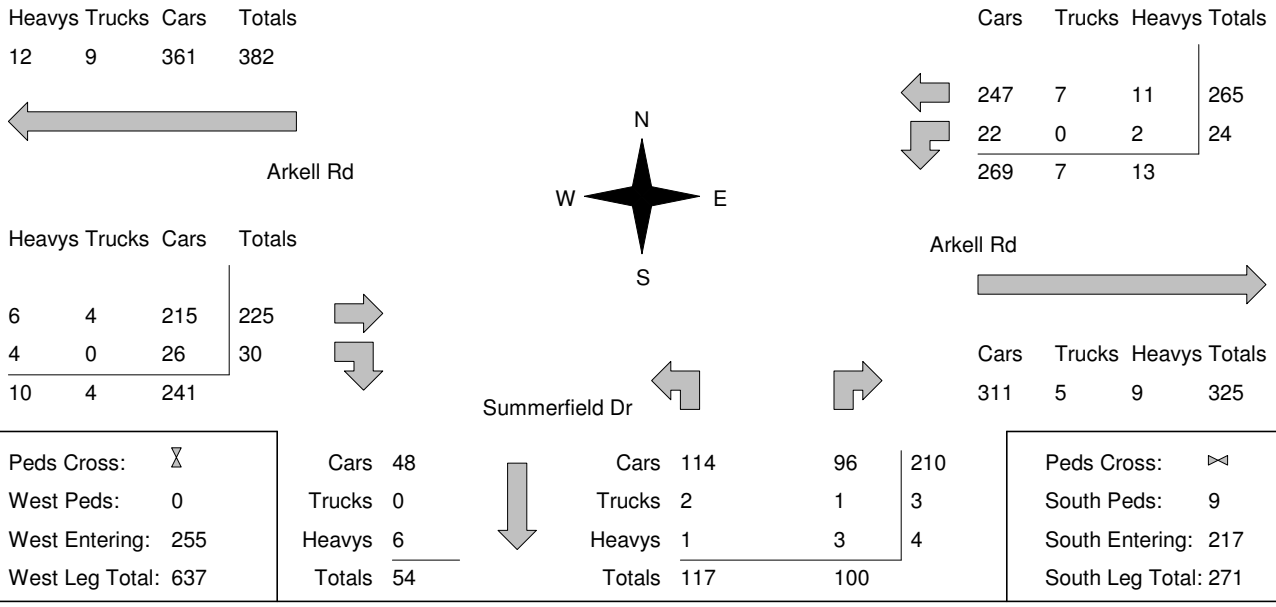
Weather conditions:
Clear/Dry

Person(s) who counted:
Linda

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

Major Road: Arkell Rd runs W/E

East Leg Total: 614
East Entering: 289
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 255
West Leg Total: 637

Cars 48
Trucks 0
Heavys 6
Totals 54

Cars 114 96 210
Trucks 2 1 3
Heavys 1 3 4
Totals 117 100

Peds Cross:
South Peds: 9
South Entering: 217
South Leg Total: 271

Comments

Arkell Rd @ Summerfield Dr

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

Municipality: Guelph
Site #: 0000000006
Intersection: Arkell Rd & Summerfield Dr
TFR File #: 3
Count date: 5-Oct-2016

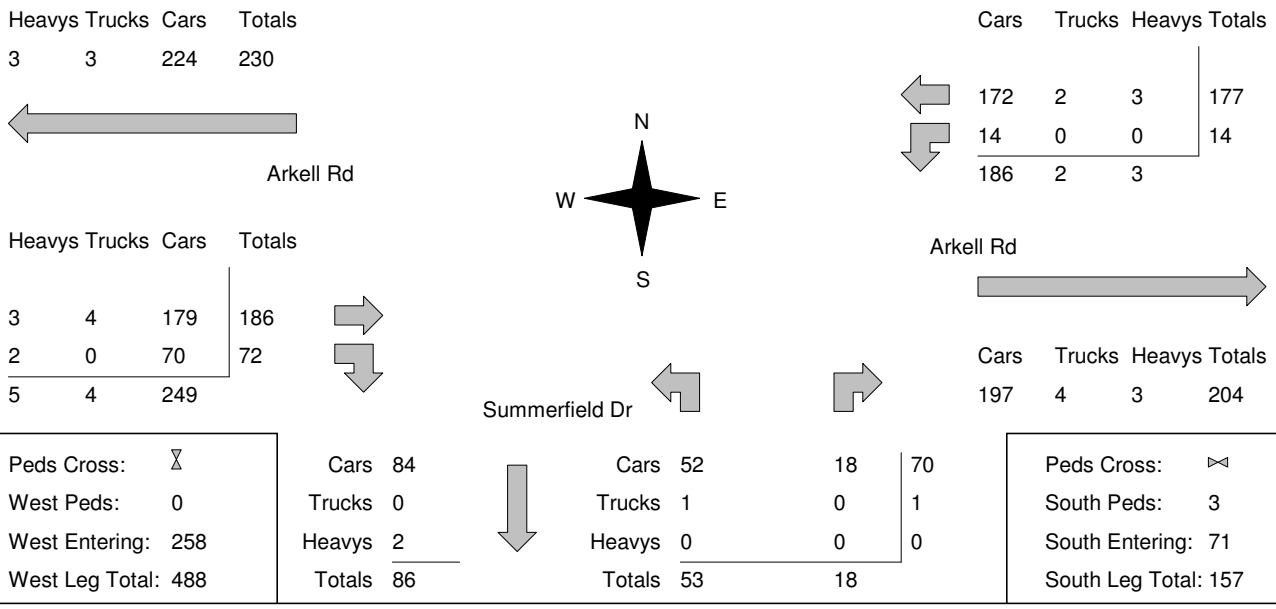
Weather conditions:
Clear/Dry

Person(s) who counted:
Linda

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

Major Road: Arkell Rd runs W/E

East Leg Total: 395
East Entering: 191
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 258
West Leg Total: 488

Cars 84
Trucks 0
Heavys 2
Totals 86

Cars 52 18 70
Trucks 1 0 1
Heavys 0 0 0
Totals 53 18

Peds Cross:
South Peds: 3
South Entering: 71
South Leg Total: 157

Comments

Arkell Rd @ Summerfield Dr

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Guelph
Site #: 0000000006
Intersection: Arkell Rd & Summerfield Dr
TFR File #: 3
Count date: 5-Oct-2016

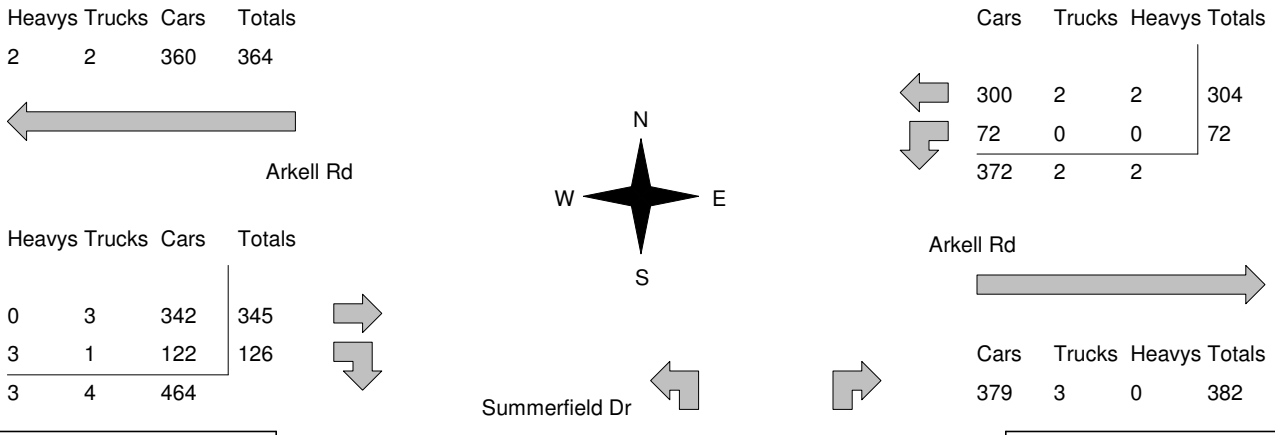
Weather conditions:
Clear/Dry

Person(s) who counted:
Linda

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

Major Road: Arkell Rd runs W/E

East Leg Total: 758
East Entering: 376
East Peds: 1
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 471
West Leg Total: 835

Cars 194
Trucks 1
Heavys 3
Totals 198

Cars 60 37 97
Trucks 0 0 0
Heavys 0 0 0
Totals 60 37

Peds Cross:
South Peds: 3
South Entering: 97
South Leg Total: 295

Comments

Arkell Rd @ Summerfield Dr

Total Count Diagram

Municipality: Guelph
Site #: 0000000006
Intersection: Arkell Rd & Summerfield Dr
TFR File #: 3
Count date: 5-Oct-2016

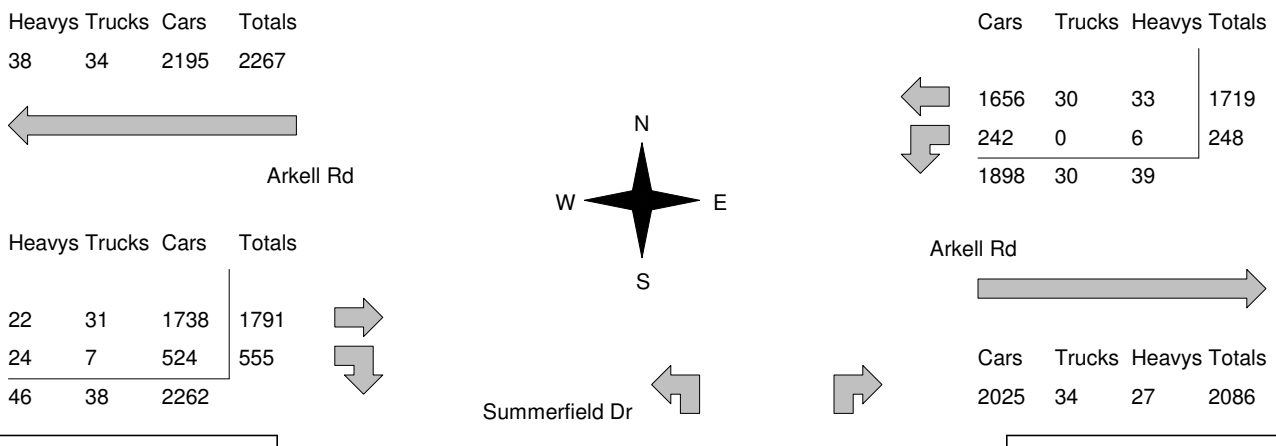
Weather conditions:
Clear/Dry

Person(s) who counted:
Linda

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

Major Road: Arkell Rd runs W/E

East Leg Total: 4053
East Entering: 1967
East Peds: 2
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 2346
West Leg Total: 4613

Cars 766
Trucks 7
Heavys 30
Totals 803

Cars 539 287 826
Trucks 4 3 7
Heavys 5 5 10
Totals 548 295

Peds Cross:
South Peds: 44
South Entering: 843
South Leg Total: 1646

Comments

Arkell Rd @ Zecca Dr / Amos Dr

Morning Peak Diagram

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

One Hour Peak
From: 7:45:00
To: 8:45:00

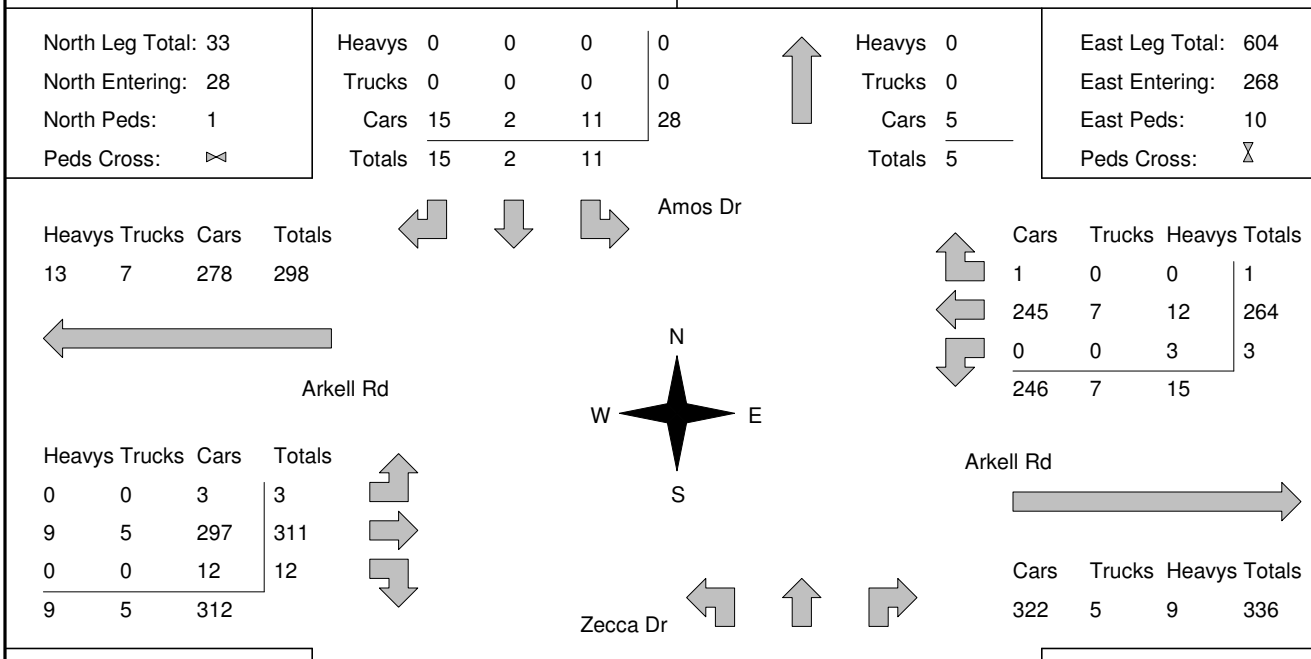
Municipality: Guelph
Site #: 0000000005
Intersection: Arkell Rd & Zecca Dr
TFR File #: 3
Count date: 5-Oct-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Matt

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

Major Road: Arkell Rd runs W/E



Comments

Arkell Rd @ Zecca Dr / Amos Dr

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:15:00
To: 13:15:00

Municipality: Guelph
Site #: 0000000005
Intersection: Arkell Rd & Zecca Dr
TFR File #: 3
Count date: 5-Oct-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Matt

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

Major Road: Arkell Rd runs W/E

North Leg Total: 28
North Entering: 12
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	10	0	2	12
Totals	10	0	2	

Heavys	0
Trucks	0
Cars	16
Totals	16

East Leg Total: 386
East Entering: 194
East Peds: 0
Peds Cross: ⧖

Amos Dr

Heavys	Trucks	Cars	Totals
2	2	200	204

Cars	Trucks	Heavys	Totals
6	0	0	6
178	2	2	182
6	0	0	6
190	2	2	

Arkell Rd

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Heavys	Trucks	Cars	Totals
0	0	9	9
3	3	180	186
0	1	14	15
3	4	203	

Arkell Rd

Cars	Trucks	Heavys	Totals
186	3	3	192

Zecca Dr

Peds Cross: ⧖
West Peds: 1
West Entering: 210
West Leg Total: 414

Cars	20
Trucks	1
Heavys	0
Totals	21

Cars	12	1	4	17
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	12	1	4	

Peds Cross: ⋈
South Peds: 4
South Entering: 17
South Leg Total: 38

Comments

Arkell Rd @ Zecca Dr / Amos Dr

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:45:00
To: 17:45:00

Municipality: Guelph
Site #: 0000000005
Intersection: Arkell Rd & Zecca Dr
TFR File #: 3
Count date: 5-Oct-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Matt

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

Major Road: Arkell Rd runs W/E

North Leg Total: 57
North Entering: 21
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0	0
Trucks	0	0	0	0
Cars	13	1	7	21
Totals	13	1	7	

Heavys	0
Trucks	0
Cars	36
Totals	36

East Leg Total: 706
East Entering: 370
East Peds: 7
Peds Cross: ⧖

Amos Dr

Heavys	Trucks	Cars	Totals
2	2	376	380

	Cars	Trucks	Heavys	Totals
	11	0	0	11
	349	2	2	353
	6	0	0	6
	366	2	2	

Arkell Rd

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W E
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Heavys	Trucks	Cars	Totals
0	0	25	25
0	3	323	326
0	0	26	26
0	3	374	

Arkell Rd

	Cars	Trucks	Heavys	Totals
	333	3	0	336

Zecca Dr

Peds Cross: ⧖
West Peds: 7
West Entering: 377
West Leg Total: 757

Cars	33
Trucks	0
Heavys	0
Totals	33

Cars	14	0	3	17
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	14	0	3	

Peds Cross: ⋈
South Peds: 9
South Entering: 17
South Leg Total: 50

Comments

Arkell Rd @ Zecca Dr / Amos Dr

Total Count Diagram

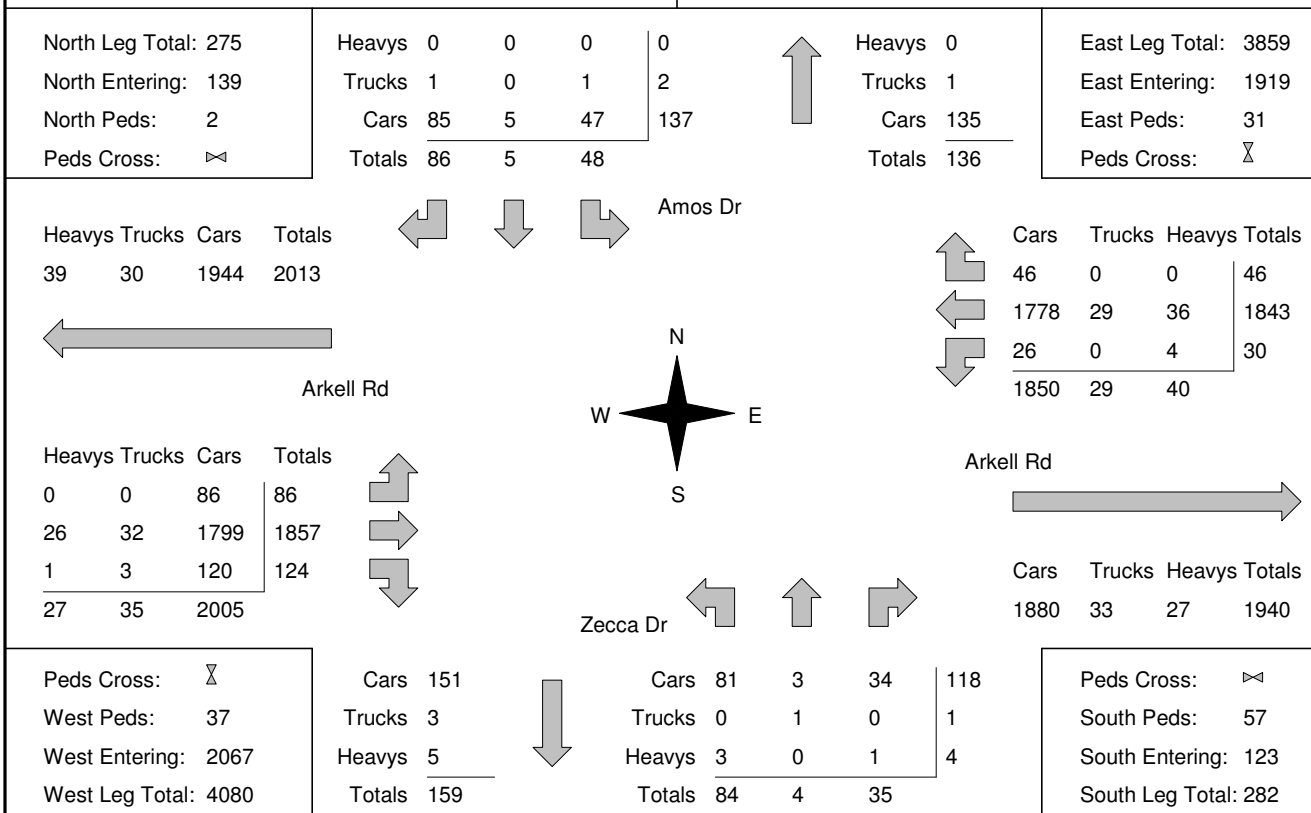
Municipality: Guelph
Site #: 0000000005
Intersection: Arkell Rd & Zecca Dr
TFR File #: 3
Count date: 5-Oct-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Matt

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

Major Road: Arkell Rd runs W/E



Comments

Arkell Rd @ Colonial Dr

Morning Peak Diagram

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

One Hour Peak
From: 8:00:00
To: 9:00:00

Municipality: Guelph
Site #: 0000000007
Intersection: Arkell Rd & Colonial Dr
TFR File #: 4
Count date: 6-Oct-2016

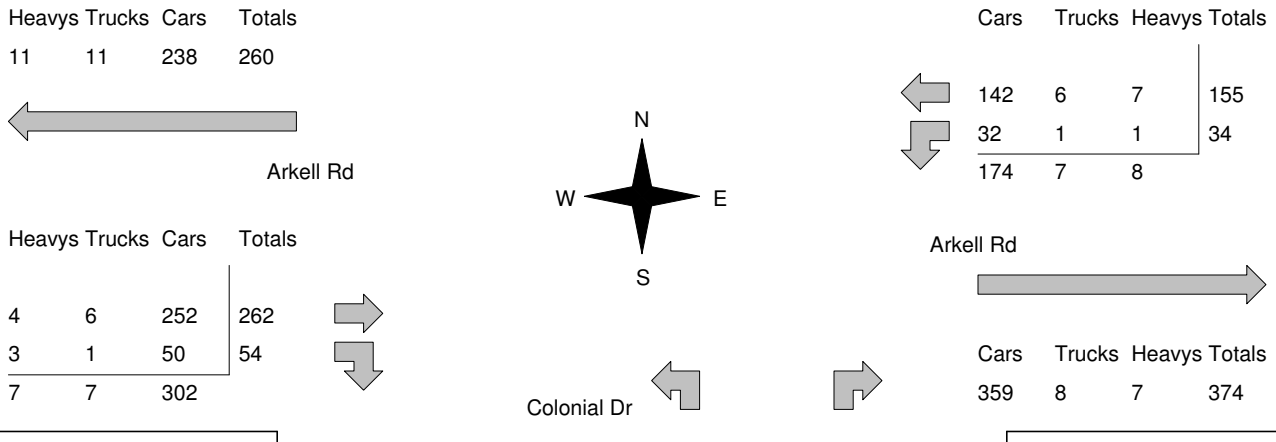
Weather conditions:
Clear/Dry

Person(s) who counted:
Rick

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

Major Road: Arkell Rd runs W/E

East Leg Total: 563
East Entering: 189
East Peds: 1
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 316
West Leg Total: 576

Cars 82
Trucks 2
Heavys 4
Totals 88

Cars 96 107 203
Trucks 5 2 7
Heavys 4 3 7
Totals 105 112

Peds Cross: ⋈
South Peds: 11
South Entering: 217
South Leg Total: 305

Comments

Arkell Rd @ Colonial Dr

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

Municipality: Guelph
Site #: 0000000007
Intersection: Arkell Rd & Colonial Dr
TFR File #: 4
Count date: 6-Oct-2016

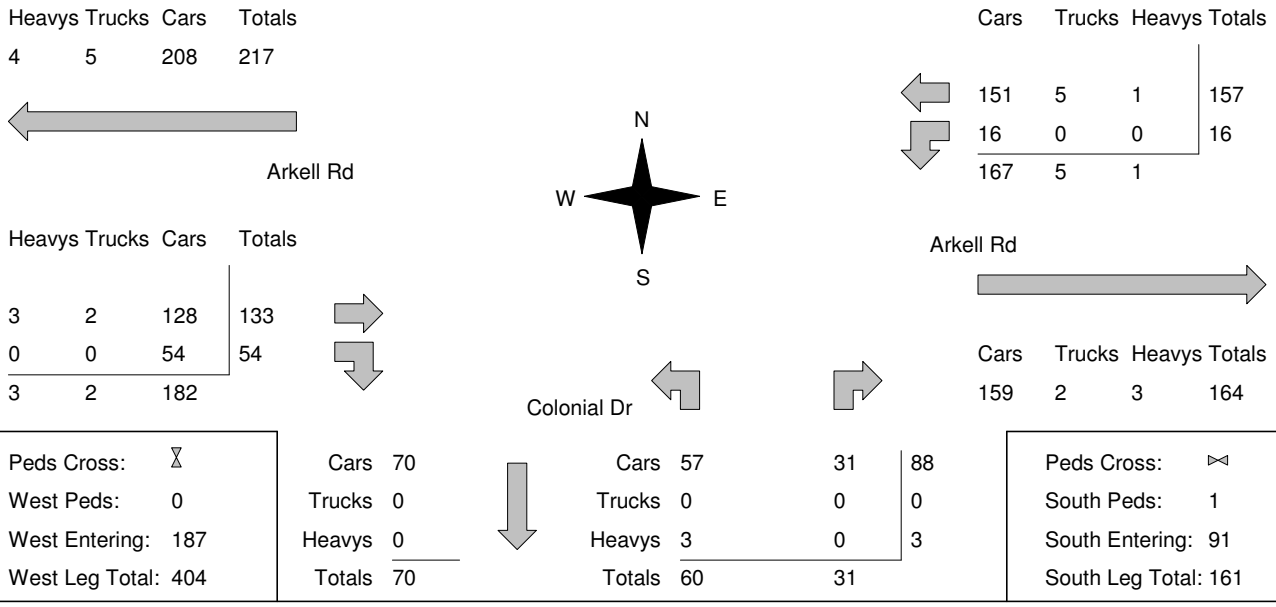
Weather conditions:
Clear/Dry

Person(s) who counted:
Rick

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

Major Road: Arkell Rd runs W/E

East Leg Total: 337
East Entering: 173
East Peds: 0
Peds Cross:



Peds Cross:
West Peds: 0
West Entering: 187
West Leg Total: 404

Cars 70
Trucks 0
Heavys 0
Totals 70

Cars 57 31 88
Trucks 0 0 0
Heavys 3 0 3
Totals 60 31

Peds Cross:
South Peds: 1
South Entering: 91
South Leg Total: 161

Comments

Arkell Rd @ Colonial Dr

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

Municipality: Guelph
Site #: 0000000007
Intersection: Arkell Rd & Colonial Dr
TFR File #: 4
Count date: 6-Oct-2016

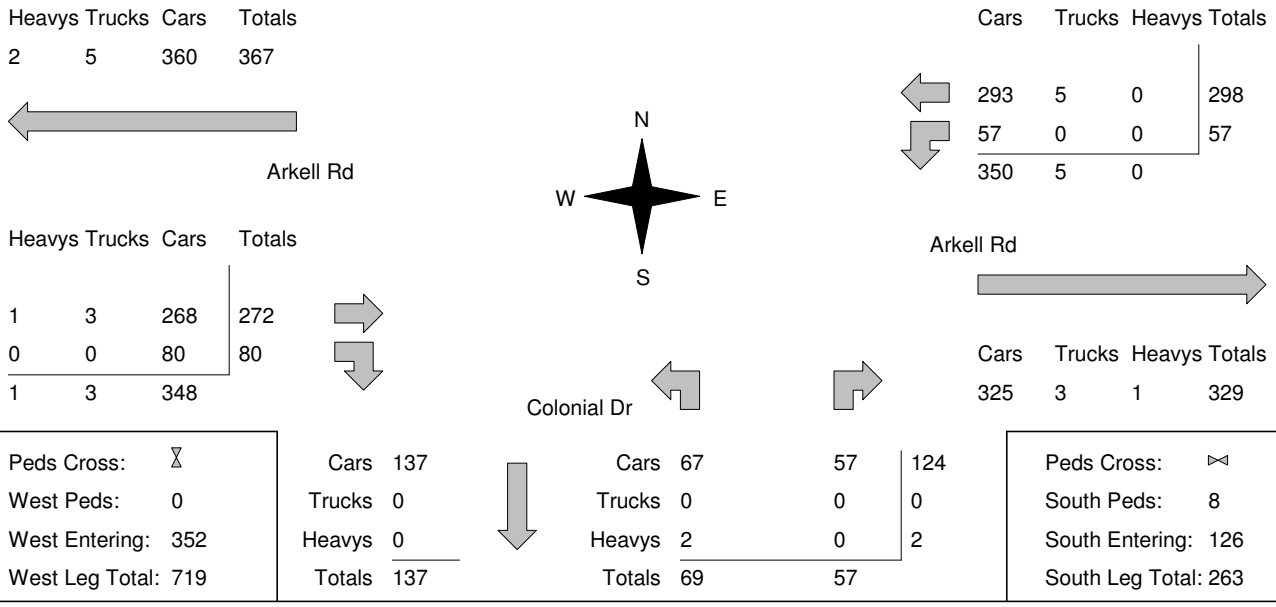
Weather conditions:
Clear/Dry

Person(s) who counted:
Rick

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

Major Road: Arkell Rd runs W/E

East Leg Total: 684
East Entering: 355
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 352
West Leg Total: 719

Cars 137
Trucks 0
Heavys 0
Totals 137

Cars 67 57 124
Trucks 0 0 0
Heavys 2 0 2
Totals 69 57

Peds Cross: ⋈
South Peds: 8
South Entering: 126
South Leg Total: 263

Comments

Arkell Rd @ Colonial Dr

Total Count Diagram

Municipality: Guelph
Site #: 0000000007
Intersection: Arkell Rd & Colonial Dr
TFR File #: 4
Count date: 6-Oct-2016

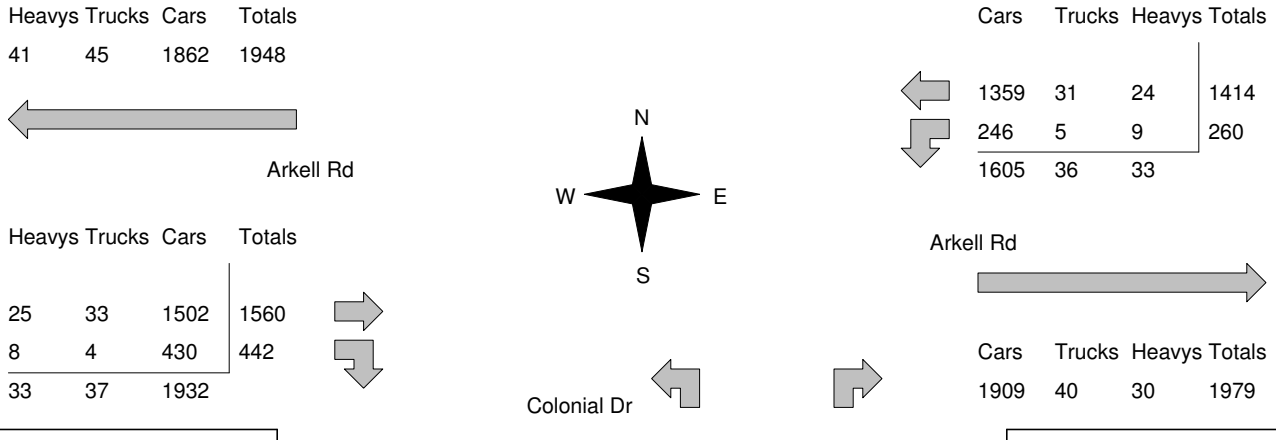
Weather conditions:
Clear/Dry

Person(s) who counted:
Rick

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

Major Road: Arkell Rd runs W/E

East Leg Total: 3653
East Entering: 1674
East Peds: 3
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 2002
West Leg Total: 3950

Cars 676
Trucks 9
Heavys 17
Totals 702

Cars 503 407 910
Trucks 14 7 21
Heavys 17 5 22
Totals 534 419

Peds Cross: ⋈
South Peds: 52
South Entering: 953
South Leg Total: 1655

Comments

Victoria Rd @ Arkell Rd

Morning Peak Diagram

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

One Hour Peak
From: 8:00:00
To: 9:00:00

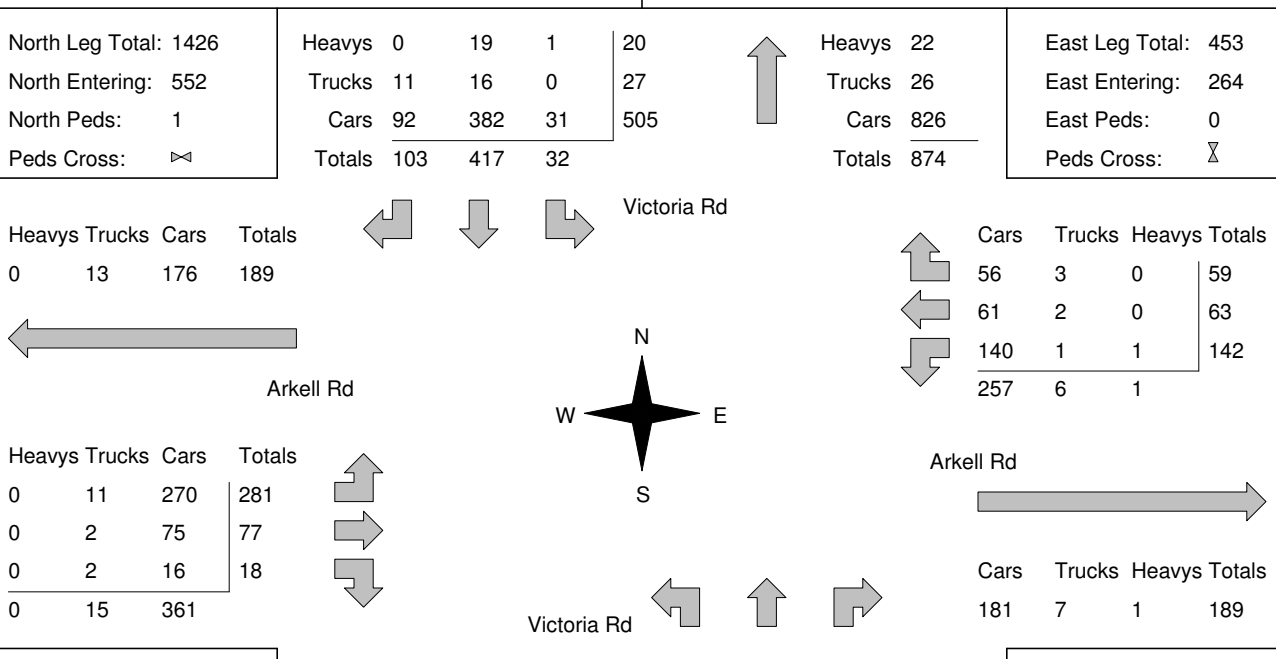
Municipality: Guelph
Site #: 0000000002
Intersection: Victoria Rd & Arkell Rd
TFR File #: 4
Count date: 6-Oct-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Diane

**** Signalized Intersection ****

Major Road: Victoria Rd runs N/S



Comments

Victoria Rd @ Arkell Rd

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:45:00
To: 13:45:00

Municipality: Guelph
Site #: 0000000002
Intersection: Victoria Rd & Arkell Rd
TFR File #: 4
Count date: 6-Oct-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Diane

**** Signalized Intersection ****

Major Road: Victoria Rd runs N/S

North Leg Total: 797
North Entering: 416
North Peds: 0
Peds Cross: ⋈

Heavys	2	20	1	23
Trucks	2	11	2	15
Cars	84	264	30	378
Totals	88	295	33	

Heavys	16
Trucks	14
Cars	351
Totals	381

East Leg Total: 312
East Entering: 143
East Peds: 0
Peds Cross: ⧖

Victoria Rd

Heavys	Trucks	Cars	Totals
2	4	156	162

Arkell Rd

Cars	Trucks	Heavys	Totals
29	2	0	31
48	2	0	50
60	1	1	62
137	5	1	

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Heavys	Trucks	Cars	Totals
1	0	64	65
0	1	65	66
0	0	25	25
1	1	154	

Arkell Rd

Cars	Trucks	Heavys	Totals
159	8	2	169

Victoria Rd

Peds Cross: ⧖
West Peds: 3
West Entering: 156
West Leg Total: 318

Cars	349
Trucks	12
Heavys	21
Totals	382

Cars	24	258	64	346
Trucks	0	12	5	17
Heavys	0	15	1	16
Totals	24	285	70	

Peds Cross: ⋈
South Peds: 0
South Entering: 379
South Leg Total: 761

Comments

Victoria Rd @ Arkell Rd

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

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

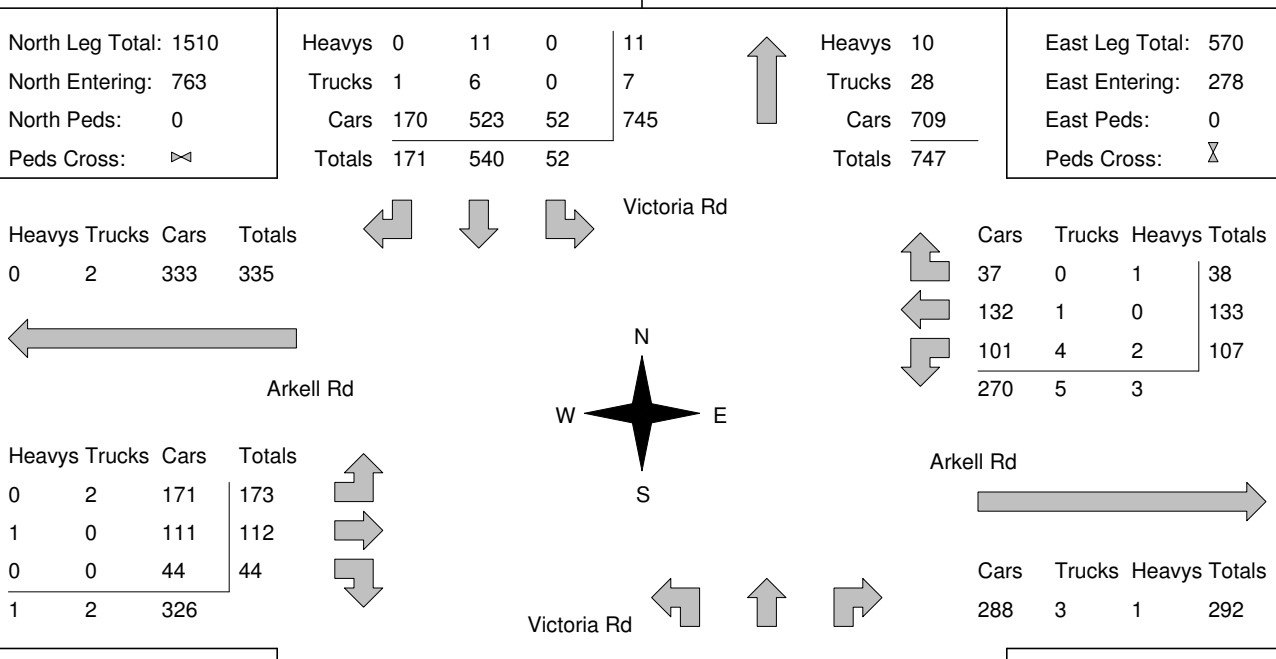
Municipality: Guelph
Site #: 0000000002
Intersection: Victoria Rd & Arkell Rd
TFR File #: 4
Count date: 6-Oct-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Diane

**** Signalized Intersection ****

Major Road: Victoria Rd runs N/S



Comments

Victoria Rd @ Arkell Rd

Total Count Diagram

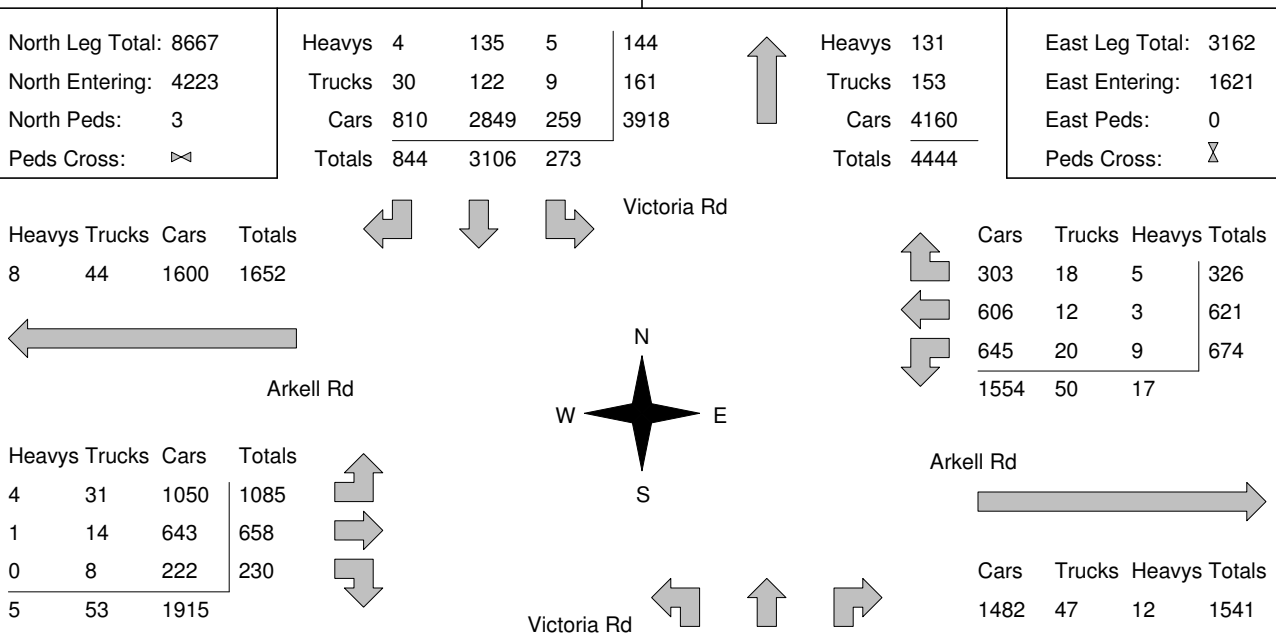
Municipality: Guelph
Site #: 0000000002
Intersection: Victoria Rd & Arkell Rd
TFR File #: 4
Count date: 6-Oct-2016

Weather conditions:
Clear/Dry

Person(s) who counted:
Diane

**** Signalized Intersection ****

Major Road: Victoria Rd runs N/S



Comments

CITY OF GUELPH

Traffic Signal Timing Parameters

Database Date	From Field		Prepared Date:	March. 13, 2018
			Completed By:	Sh.H
			Checked By:	

Location:	Arkell Road and Victoria Rd S						GREEN TIME PERIOD (sec.)			
Phase #	Direction	Vehicle Minimum (sec.)	Pedestrian Minimum (sec.) WALK	Pedestrian Minimum (sec.) FDWALK	Amber (sec.)	All Red (sec.)	Day MAX	Night MAX		
1	SBLT	7.0			3.0		7.0			
2	NB	10.0	13.0	15.0	4.0	2.0	28.0			
3	EBLT	7.0			3.0		7.0			
4	WB	10.0	7.0	13.0	4.0	2.0	20.0			
5	NBLT	7.0			3.0		7.0			
6	SB	10.0	13.0	15.0	4.0	2.0	28.0			
7	SBLT	7.0			3.0		7.0			
8	EB	10.0	7.0	13.0	4.0	2.0	20.0			

System Control	No
Local Control	Yes
Fully-Actuated Mode	Yes

TIME (M-F)	PEAK	CYCLE LENGTH (sec.)	OFFSET (sec.)
7:00 - 21:00	Day	Free	
21:00- 7:00	Night	Free	

Note: P+P = Protected Permissive Phase
Prot. = Fully Protected Phase

Appendix C

Base Year (2023) Traffic Operations Reports

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	260	34	29	314	134	115
Future Volume (vph)	260	34	29	314	134	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	60.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.984				0.938	
Flt Protected			0.950		0.974	
Satd. Flow (prot)	1780	0	1671	1776	1678	0
Flt Permitted			0.950		0.974	
Satd. Flow (perm)	1780	0	1671	1776	1678	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	290.6			206.6	213.5	
Travel Time (s)	20.9			14.9	15.4	
Confl. Peds. (#/hr)		9	9			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	13%	8%	7%	3%	4%
Adj. Flow (vph)	265	35	30	320	137	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	300	0	30	320	254	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	260	34	29	314	134	115
Future Vol, veh/h	260	34	29	314	134	115
Conflicting Peds, #/hr	0	9	9	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	13	8	7	3	4
Mvmt Flow	265	35	30	320	137	117

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	309	0	672	292
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	380	-
Critical Hdwy	-	-	4.18	-	6.43	6.24
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.272	-	3.527	3.336
Pot Cap-1 Maneuver	-	-	1218	-	420	743
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	689	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1209	-	406	737
Mov Cap-2 Maneuver	-	-	-	-	508	-
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	672	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	593	-	-	1209	-
HCM Lane V/C Ratio	0.428	-	-	0.024	-
HCM Control Delay (s)	15.5	-	-	8.1	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	2.1	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	357	14	3	303	1	22	1	16	13	2	17
Future Volume (vph)	3	357	14	3	303	1	22	1	16	13	2	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.946			0.926	
Flt Protected								0.972			0.981	
Satd. Flow (prot)	0	1804	0	0	1776	0	0	1698	0	0	1726	0
Flt Permitted								0.972			0.981	
Satd. Flow (perm)	0	1804	0	0	1776	0	0	1698	0	0	1726	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)	1		8	8		1	13		10	10		13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	0%	5%	7%	0%	5%	0%	0%	0%	0%	0%
Adj. Flow (vph)	3	368	14	3	312	1	23	1	16	13	2	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	385	0	0	316	0	0	40	0	0	33	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 35.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	357	14	3	303	1	22	1	16	13	2	17
Future Vol, veh/h	3	357	14	3	303	1	22	1	16	13	2	17
Conflicting Peds, #/hr	1	0	8	8	0	1	13	0	10	10	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	5	0	5	7	0	5	0	0	0	0	0
Mvmt Flow	3	368	14	3	312	1	23	1	16	13	2	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	314	0	0	390	0	0	731	709	393	720	716	327
Stage 1	-	-	-	-	-	-	389	389	-	320	320	-
Stage 2	-	-	-	-	-	-	342	320	-	400	396	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.15	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.545	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1258	-	-	1152	-	-	334	362	660	346	358	719
Stage 1	-	-	-	-	-	-	629	612	-	696	656	-
Stage 2	-	-	-	-	-	-	667	656	-	630	607	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1257	-	-	1144	-	-	317	357	650	332	353	710
Mov Cap-2 Maneuver	-	-	-	-	-	-	317	357	-	332	353	-
Stage 1	-	-	-	-	-	-	623	606	-	693	653	-
Stage 2	-	-	-	-	-	-	639	653	-	606	601	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	14.9	13.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	403	1257	-	-	1144	-	-	465
HCM Lane V/C Ratio	0.1	0.002	-	-	0.003	-	-	0.071
HCM Control Delay (s)	14.9	7.9	0	-	8.2	0	-	13.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	320	65	39	184	0	124	0	129	0	0	0
Future Volume (vph)	0	320	65	39	184	0	124	0	129	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.975						0.931				
Flt Protected				0.950				0.976				
Satd. Flow (prot)	1863	1773	0	1703	1759	0	0	1622	0	0	1863	0
Flt Permitted				0.950				0.976				
Satd. Flow (perm)	1863	1773	0	1703	1759	0	0	1622	0	0	1863	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			11	11					1			
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
Heavy Vehicles (%)	2%	4%	7%	6%	8%	2%	9%	2%	4%	2%	2%	2%
Adj. Flow (vph)	0	348	71	42	200	0	135	0	140	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	419	0	42	200	0	0	275	0	0	0	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	320	65	39	184	0	124	0	129	0	0	0
Future Vol, veh/h	0	320	65	39	184	0	124	0	129	0	0	0
Conflicting Peds, #/hr	0	0	11	11	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	7	6	8	2	9	2	4	2	2	2
Mvmt Flow	0	348	71	42	200	0	135	0	140	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	200	0	0	430	0	0	679	679	396	739	714	200
Stage 1	-	-	-	-	-	-	395	395	-	284	284	-
Stage 2	-	-	-	-	-	-	284	284	-	455	430	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.19	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.581	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1372	-	-	1108	-	-	356	374	649	333	357	841
Stage 1	-	-	-	-	-	-	616	605	-	723	676	-
Stage 2	-	-	-	-	-	-	708	676	-	585	583	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1372	-	-	1098	-	-	342	356	642	252	340	841
Mov Cap-2 Maneuver	-	-	-	-	-	-	342	356	-	252	340	-
Stage 1	-	-	-	-	-	-	610	600	-	723	650	-
Stage 2	-	-	-	-	-	-	681	650	-	457	578	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	24.9	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	449	1372	-	-	1098	-	-	-
HCM Lane V/C Ratio	0.612	-	-	-	0.039	-	-	-
HCM Control Delay (s)	24.9	0	-	-	8.4	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	4	0	-	-	0.1	-	-	-

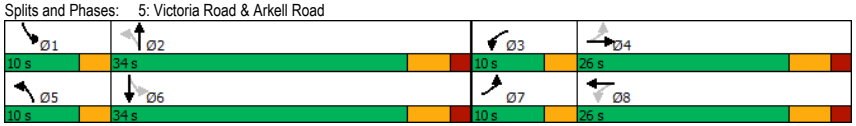
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	334	93	21	163	78	68	28	613	92	37	479	122
Future Volume (vph)	334	93	21	163	78	68	28	613	92	37	479	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		1.00				1.00	
Frt		0.972			0.930			0.980			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1768	0	1787	1683	0	1805	1757	0	1752	1689	0
Flt Permitted	0.578			0.677			0.189			0.132		
Satd. Flow (perm)	1054	1768	0	1274	1683	0	359	1757	0	243	1689	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			52			10			18	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)	1					1	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	11%	1%	3%	5%	0%	6%	6%	3%	8%	11%
Adj. Flow (vph)	367	102	23	179	86	75	31	674	101	41	526	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	125	0	179	161	0	31	775	0	41	660	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	22.1	13.6		21.5	11.4		35.2	28.2		35.8	30.2	
Actuated g/C Ratio	0.33	0.20		0.32	0.17		0.52	0.42		0.53	0.45	
v/c Ratio	0.88	0.34		0.39	0.49		0.09	1.04		0.14	0.86	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	46.0	26.1		19.3	23.9		7.9	69.5		8.5	33.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	46.0	26.1		19.3	23.9		7.9	69.5		8.5	33.0	
LOS	D	C		B	C		A	E		A	C	
Approach Delay		41.0			21.5			67.1			31.6	
Approach LOS		D			C			E			C	
Queue Length 50th (m)	42.5	14.2		18.1	14.0		1.6	~123.1		2.2	60.6	
Queue Length 95th (m)	#92.3	29.1		32.6	31.2		5.6	#208.1		6.8	#170.0	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	417	539		459	540		339	742		286	765	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.88	0.23		0.39	0.30		0.09	1.04		0.14	0.86	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 67.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 44.3 Intersection LOS: D
Intersection Capacity Utilization 78.3% ICU Level of Service D
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	334	93	21	163	78	68	28	613	92	37	479	122
Future Volume (veh/h)	334	93	21	163	78	68	28	613	92	37	479	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1856	1737	1885	1856	1826	1900	1811	1811	1856	1781	1737
Adj Flow Rate, veh/h	367	102	23	179	86	75	31	674	101	41	526	134
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
Percent Heavy Veh, %	4	3	11	1	3	5	0	6	6	3	8	11
Cap, veh/h	368	223	50	408	139	121	247	644	96	206	586	149
Arrive On Green	0.10	0.15	0.15	0.10	0.15	0.15	0.05	0.42	0.42	0.06	0.43	0.43
Sat Flow, veh/h	1753	1465	330	1795	913	796	1810	1538	230	1767	1369	349
Grp Volume(v), veh/h	367	0	125	179	0	161	31	0	775	41	0	660
Grp Sat Flow(s),veh/h/ln	1753	0	1795	1795	0	1709	1810	0	1769	1767	0	1717
Q Serve(g_s), s	7.0	0.0	4.2	5.5	0.0	5.9	0.6	0.0	28.0	0.8	0.0	23.9
Cycle Q Clear(g_c), s	7.0	0.0	4.2	5.5	0.0	5.9	0.6	0.0	28.0	0.8	0.0	23.9
Prop In Lane	1.00		0.18	1.00		0.47	1.00		0.13	1.00		0.20
Lane Grp Cap(c), veh/h	368	0	273	408	0	260	247	0	740	206	0	736
V/C Ratio(X)	1.00	0.00	0.46	0.44	0.00	0.62	0.13	0.00	1.05	0.20	0.00	0.90
Avail Cap(c_a), veh/h	368	0	536	408	0	511	353	0	740	292	0	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	25.8	20.7	0.0	26.5	14.0	0.0	19.5	15.3	0.0	17.8
Incr Delay (d2), s/veh	46.1	0.0	1.2	0.7	0.0	2.4	0.2	0.0	46.1	0.5	0.0	13.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	0.8	0.6	0.0	1.0	0.0	0.0	9.5	0.0	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.3	0.0	27.0	21.4	0.0	28.9	14.2	0.0	65.6	15.8	0.0	31.6
LnGrp LOS	E	A	C	C	A	C	B	A	F	B	A	C
Approach Vol, veh/h		492			340			806			701	
Approach Delay, s/veh		60.8			25.0			63.6			30.6	
Approach LOS		E			C			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	34.0	10.0	16.2	6.1	34.7	10.0	16.2
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	2.8	30.0	7.5	6.2	2.6	25.9	9.0	7.9
Green Ext Time (p_c), s	0.0	0.0	0.0	0.6	0.0	1.0	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	407	145	83	354	69	43
Future Volume (vph)	407	145	83	354	69	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)		0.0	60.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			7.5		7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.965				0.948	
Flt Protected			0.950		0.970	
Satd. Flow (prot)	1806	0	1805	1881	1747	0
Flt Permitted			0.950		0.970	
Satd. Flow (perm)	1806	0	1805	1881	1747	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	290.6			206.6	213.5	
Travel Time (s)	20.9			14.9	15.4	
Confl. Peds. (#/hr)		3	3			1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	3%	0%	1%	0%	0%
Adj. Flow (vph)	424	151	86	369	72	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	575	0	86	369	117	0
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	407	145	83	354	69	43
Future Vol, veh/h	407	145	83	354	69	43
Conflicting Peds, #/hr	0	3	3	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	60	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	3	0	1	0	0
Mvmt Flow	424	151	86	369	72	45

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	578	0	1044	504
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	541	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1006	-	256	572
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	588	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1003	-	233	570
Mov Cap-2 Maneuver	-	-	-	-	366	-
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	424	-	-	1003	-
HCM Lane V/C Ratio	0.275	-	-	0.086	-
HCM Control Delay (s)	16.7	-	-	8.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0.3	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	391	30	7	405	13	16	0	3	8	1	15
Future Volume (vph)	29	391	30	7	405	13	16	0	3	8	1	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.991			0.996			0.980			0.914	
Flt Protected		0.997			0.999			0.959			0.984	
Satd. Flow (prot)	0	1861	0	0	1873	0	0	1786	0	0	1709	0
Flt Permitted		0.997			0.999			0.959			0.984	
Satd. Flow (perm)	0	1861	0	0	1873	0	0	1786	0	0	1709	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)			9	9			7		7	7		7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	31	412	32	7	426	14	17	0	3	8	1	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	475	0	0	447	0	0	20	0	0	25	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	391	30	7	405	13	16	0	3	8	1	15
Future Vol, veh/h	29	391	30	7	405	13	16	0	3	8	1	15
Conflicting Peds, #/hr	0	0	9	9	0	0	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	31	412	32	7	426	14	17	0	3	8	1	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	440	0	0	453	0	0	962	953	444	946	962	440
Stage 1	-	-	-	-	-	-	499	499	-	447	447	-
Stage 2	-	-	-	-	-	-	463	454	-	499	515	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1131	-	-	1118	-	-	237	261	618	243	258	621
Stage 1	-	-	-	-	-	-	557	547	-	595	577	-
Stage 2	-	-	-	-	-	-	583	573	-	557	538	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1131	-	-	1109	-	-	219	247	610	232	245	617
Mov Cap-2 Maneuver	-	-	-	-	-	-	219	247	-	232	245	-
Stage 1	-	-	-	-	-	-	532	522	-	573	572	-
Stage 2	-	-	-	-	-	-	559	568	-	530	514	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	21.1	15.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	244	1131	-	-	1109	-	-	382
HCM Lane V/C Ratio	0.082	0.027	-	-	0.007	-	-	0.066
HCM Control Delay (s)	21.1	8.3	0	-	8.3	0	-	15.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	311	91	67	343	0	82	0	68	0	0	0
Future Volume (vph)	0	311	91	67	343	0	82	0	68	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.966						0.939				
Flt Protected				0.950				0.973				
Satd. Flow (prot)	1900	1821	0	1805	1863	0	0	1708	0	0	1900	0
Flt Permitted				0.950				0.973				
Satd. Flow (perm)	1900	1821	0	1805	1863	0	0	1708	0	0	1900	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	324	95	70	357	0	85	0	71	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	419	0	70	357	0	0	156	0	0	0	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	311	91	67	343	0	82	0	68	0	0	0
Future Vol, veh/h	0	311	91	67	343	0	82	0	68	0	0	0
Conflicting Peds, #/hr	0	0	8	8	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	1	0	0	2	0	3	0	0	0	0	0
Mvmt Flow	0	324	95	70	357	0	85	0	71	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	357	0	0	427	0	0	877	877	380	904	924	357
Stage 1	-	-	-	-	-	-	380	380	-	497	497	-
Stage 2	-	-	-	-	-	-	497	497	-	407	427	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.13	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.527	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1213	-	-	1143	-	-	268	289	671	260	271	692
Stage 1	-	-	-	-	-	-	640	617	-	559	548	-
Stage 2	-	-	-	-	-	-	553	548	-	625	589	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1213	-	-	1135	-	-	254	269	666	222	252	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	254	269	-	222	252	-
Stage 1	-	-	-	-	-	-	636	613	-	559	514	-
Stage 2	-	-	-	-	-	-	519	514	-	559	585	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.4	23.1	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	353	1213	-	-	1135	-	-	-
HCM Lane V/C Ratio	0.443	-	-	-	0.061	-	-	-
HCM Control Delay (s)	23.1	0	-	-	8.4	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	2.2	0	-	-	0.2	-	-	-

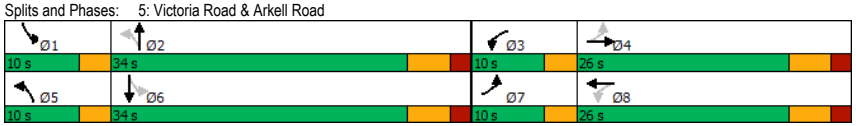
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	199	129	51	123	163	44	38	616	147	60	620	209
Future Volume (vph)	199	129	51	123	163	44	38	616	147	60	620	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00				0.99	
Frt		0.958			0.968			0.971			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1807	0	1703	1813	0	1805	1753	0	1805	1771	0
Flt Permitted	0.483			0.637			0.141			0.141		
Satd. Flow (perm)	909	1807	0	1142	1813	0	268	1753	0	268	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			16			16			23	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)							6					6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	6%	1%	3%	0%	6%	2%	0%	3%	1%
Adj. Flow (vph)	212	137	54	131	173	47	40	655	156	64	660	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	191	0	131	220	0	40	811	0	64	882	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.7	16.2		24.0	13.8		35.3	28.4		35.3	28.4	
Actuated g/C Ratio	0.35	0.23		0.34	0.20		0.50	0.41		0.50	0.41	
v/c Ratio	0.52	0.44		0.29	0.59		0.14	1.13		0.22	1.21	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	21.4	25.6		17.2	31.4		9.8	99.1		10.7	129.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.4	25.6		17.2	31.4		9.8	99.1		10.7	129.8	
LOS	C	C		B	C		A	F		B	F	
Approach Delay		23.4			26.1			94.9			121.8	
Approach LOS		C			C			F			F	
Queue Length 50th (m)	21.9	22.1		12.9	27.6		2.4	~145.5		3.9	~165.5	
Queue Length 95th (m)	37.8	41.1		24.5	48.7		7.6	#236.7		10.8	#260.6	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	409	540		447	536		290	719		290	731	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.52	0.35		0.29	0.41		0.14	1.13		0.22	1.21	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 70		
Natural Cycle: 100		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.21		
Intersection Signal Delay: 84.1		Intersection LOS: F
Intersection Capacity Utilization 85.5%		ICU Level of Service E
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



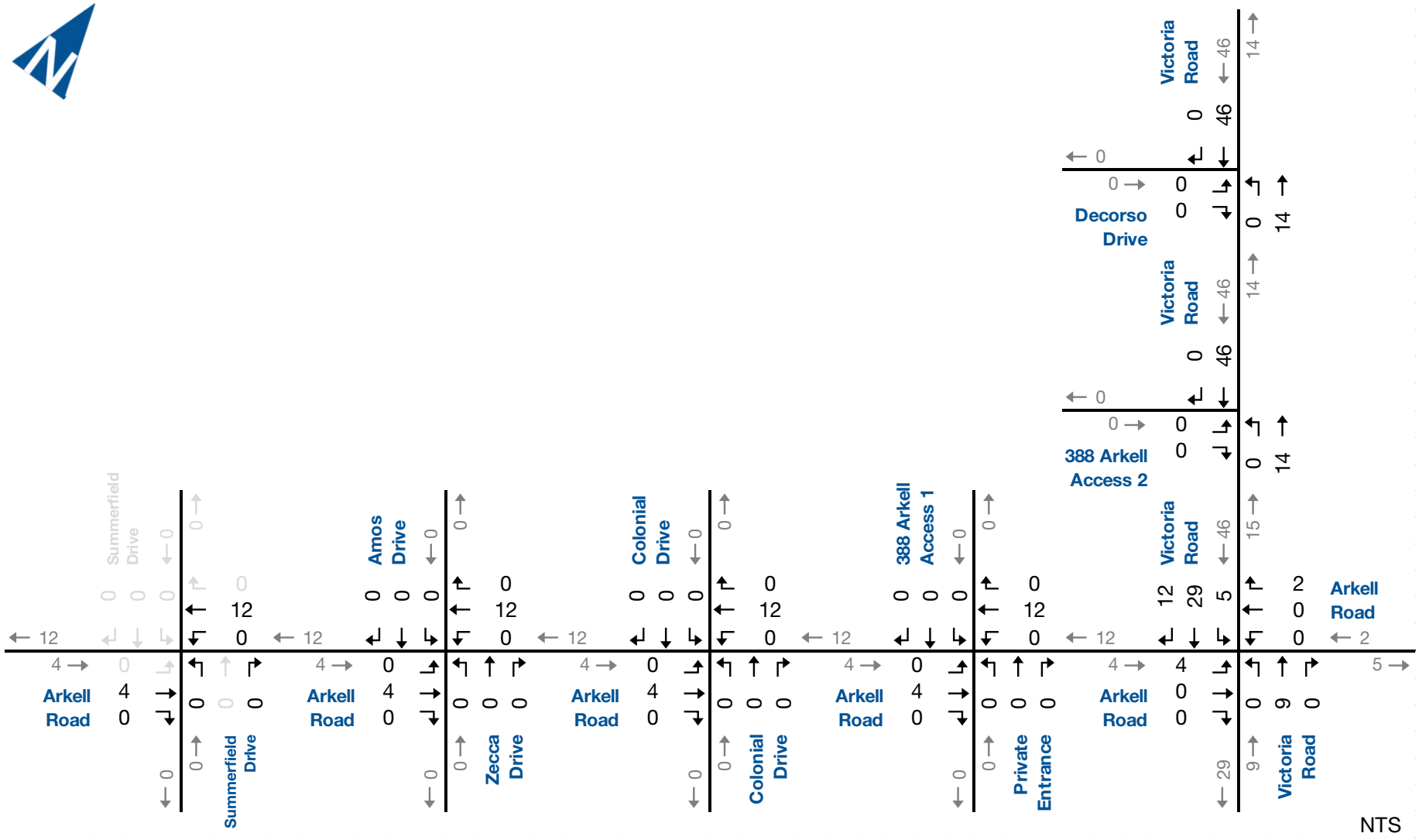
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	129	51	123	163	44	38	616	147	60	620	209
Future Volume (veh/h)	199	129	51	123	163	44	38	616	147	60	620	209
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1811	1885	1856	1900	1811	1870	1900	1856	1885
Adj Flow Rate, veh/h	212	137	54	131	173	47	40	655	156	64	660	222
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	6	1	3	0	6	2	0	3	1
Cap, veh/h	337	215	85	344	226	62	203	574	137	234	562	189
Arrive On Green	0.10	0.17	0.17	0.09	0.16	0.16	0.05	0.41	0.41	0.07	0.42	0.42
Sat Flow, veh/h	1795	1287	507	1725	1428	388	1810	1411	336	1810	1326	446
Grp Volume(v), veh/h	212	0	191	131	0	220	40	0	811	64	0	882
Grp Sat Flow(s),veh/h/ln	1795	0	1794	1725	0	1815	1810	0	1748	1810	0	1772
Q Serve(g_s), s	6.8	0.0	6.8	4.2	0.0	8.0	0.8	0.0	28.0	1.3	0.0	29.2
Cycle Q Clear(g_c), s	6.8	0.0	6.8	4.2	0.0	8.0	0.8	0.0	28.0	1.3	0.0	29.2
Prop In Lane	1.00		0.28	1.00		0.21	1.00		0.19	1.00		0.25
Lane Grp Cap(c), veh/h	337	0	299	344	0	288	203	0	711	234	0	751
V/C Ratio(X)	0.63	0.00	0.64	0.38	0.00	0.76	0.20	0.00	1.14	0.27	0.00	1.17
Avail Cap(c_a), veh/h	337	0	521	358	0	527	288	0	711	288	0	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	26.7	21.2	0.0	27.7	15.9	0.0	20.4	15.4	0.0	19.8
Incr Delay (d2), s/veh	3.7	0.0	2.3	0.7	0.0	4.2	0.5	0.0	79.9	0.6	0.0	92.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.3	0.5	0.0	1.5	0.0	0.0	15.8	0.0	0.0	19.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	0.0	29.0	21.9	0.0	31.9	16.4	0.0	100.3	16.0	0.0	112.0
LnGrp LOS	C	A	C	C	A	C	B	A	F	B	A	F
Approach Vol, veh/h		403			351			851			946	
Approach Delay, s/veh		27.2			28.2			96.4			105.5	
Approach LOS		C			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	34.0	9.4	17.5	6.7	35.2	10.0	16.9
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	3.3	30.0	6.2	8.8	2.8	31.2	8.8	10.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	79.4
HCM 6th LOS	E

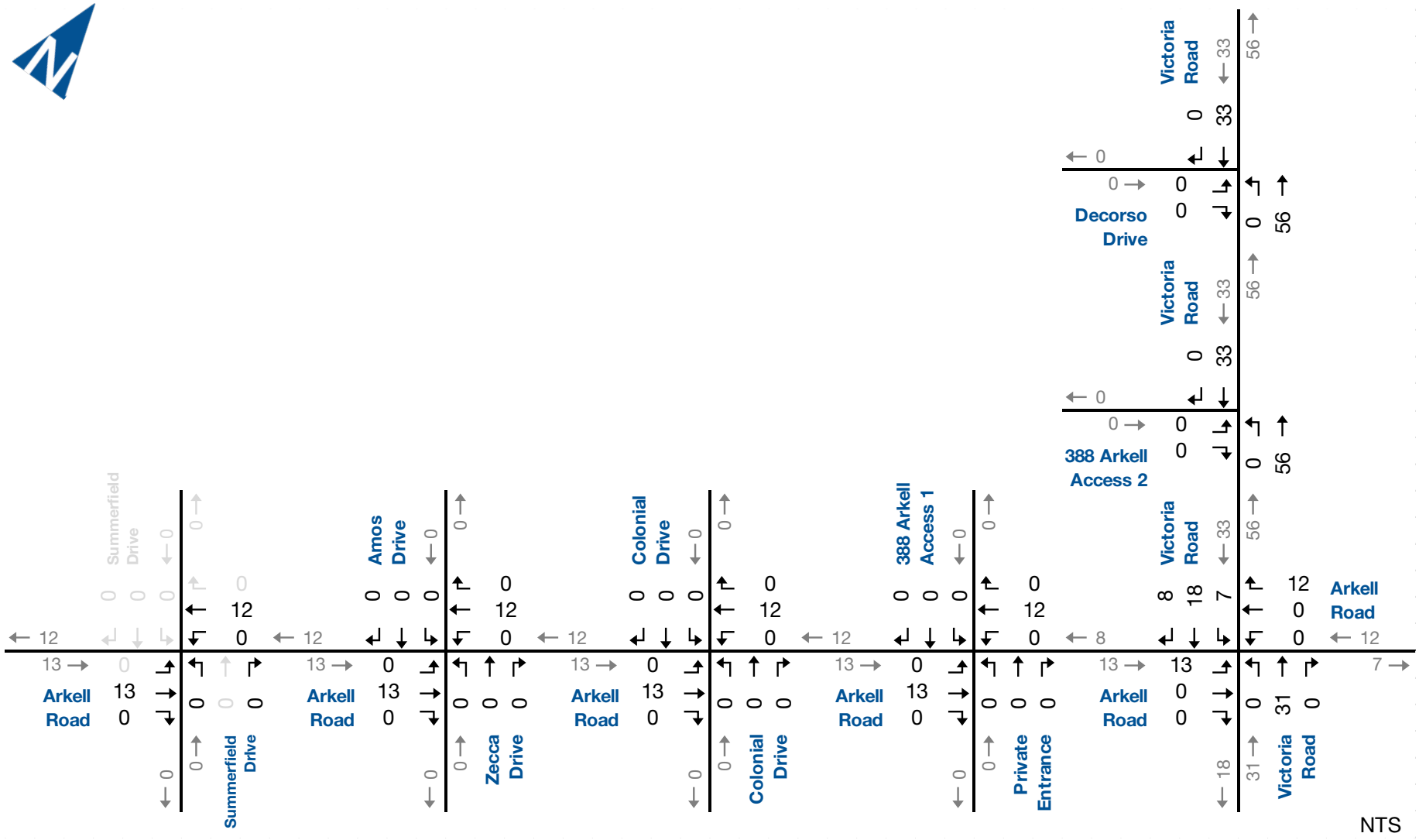
Appendix D

Other Planned Developments Trip Assignment



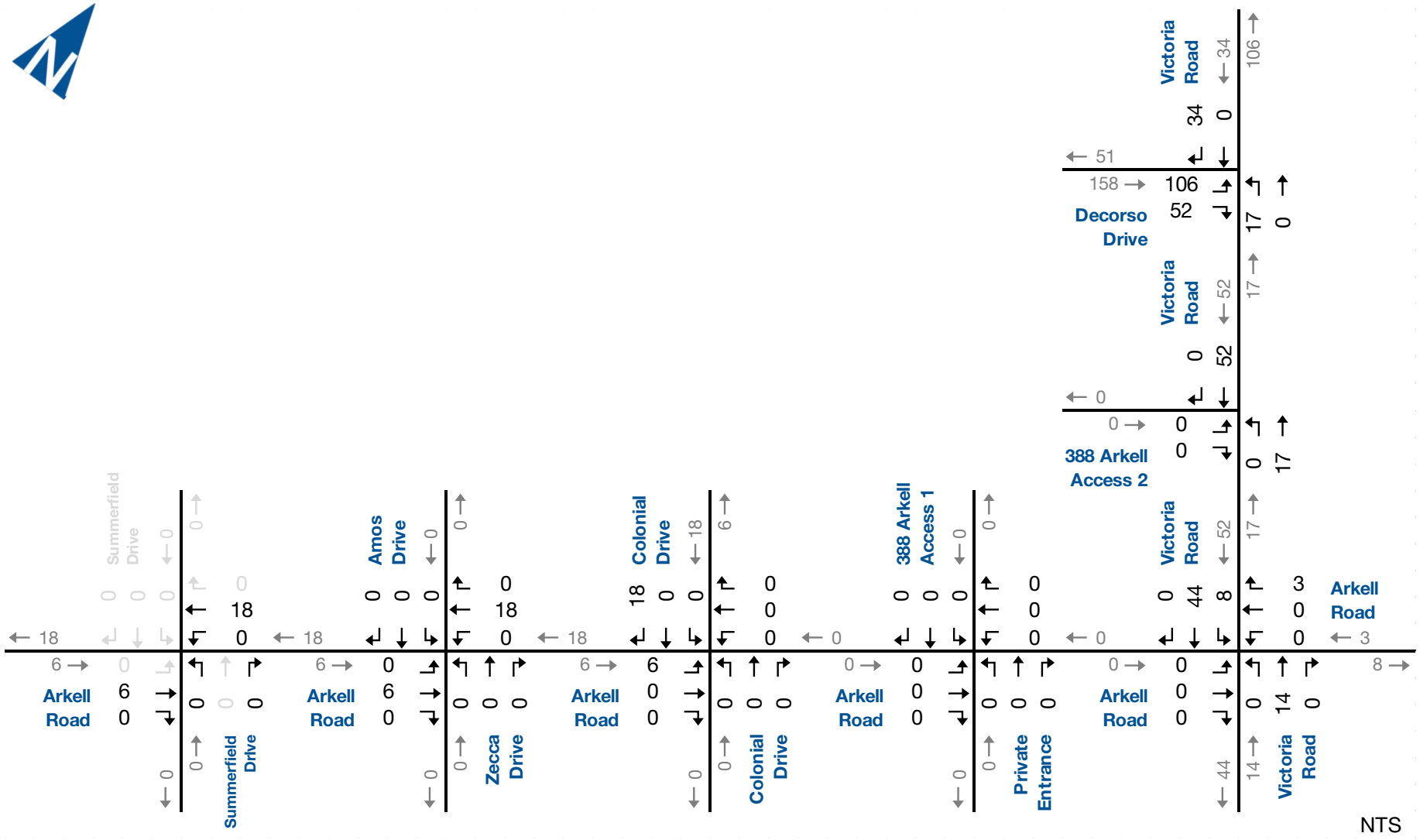
Kortright East AM Trip Assignment

Figure D.1

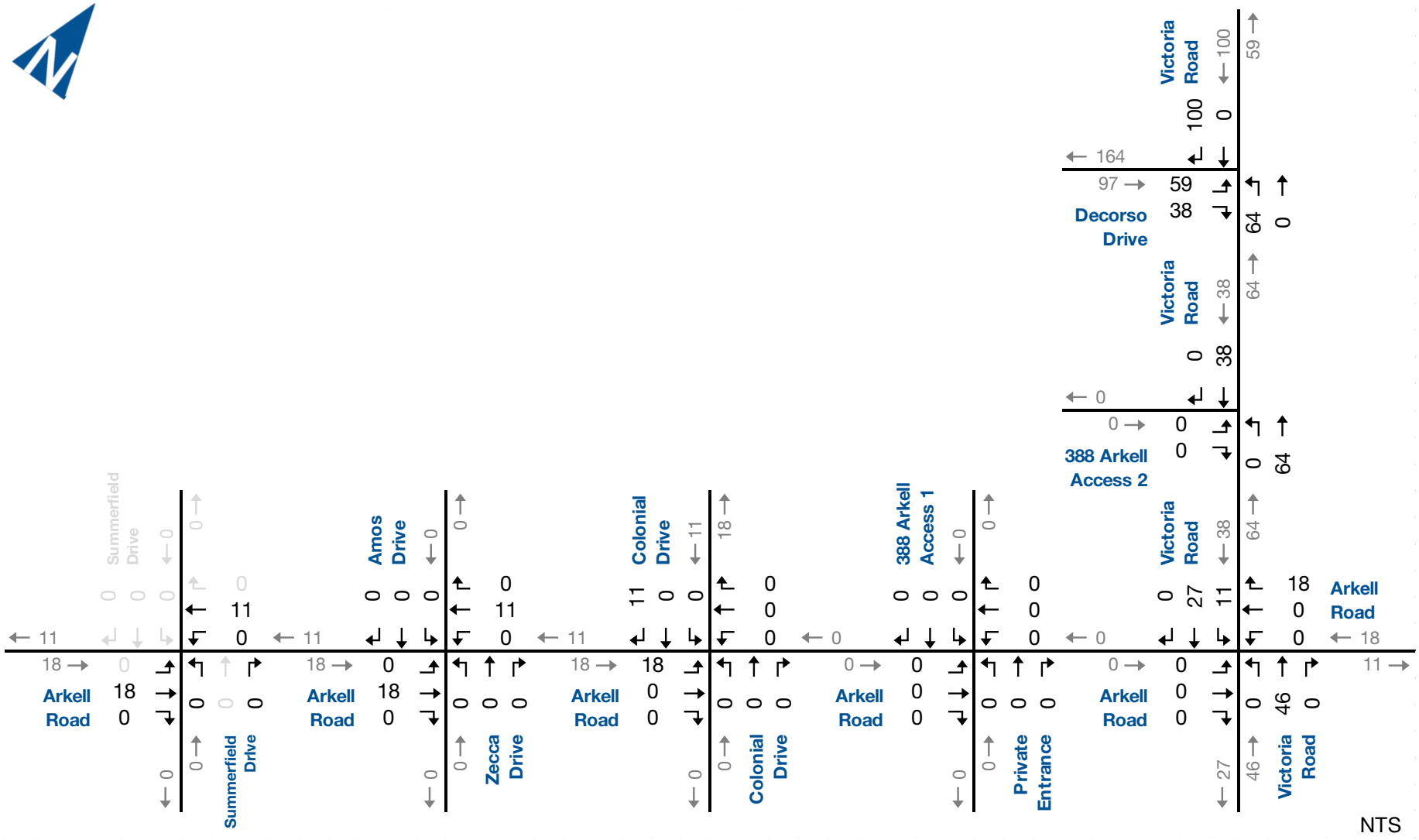


Kortright East PM Trip Assignment

Figure D.2

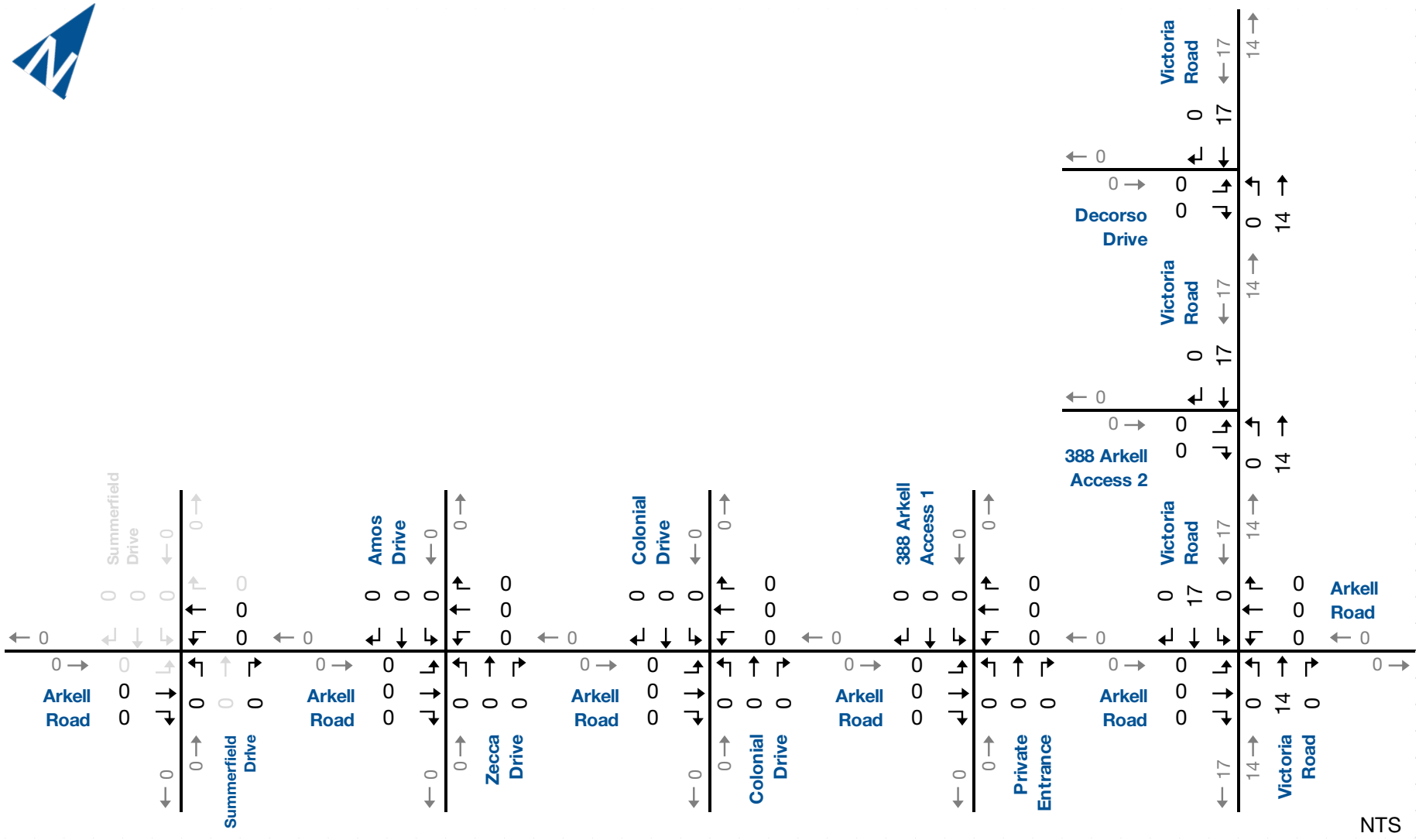


Victoria Park Village AM Trip Assignment

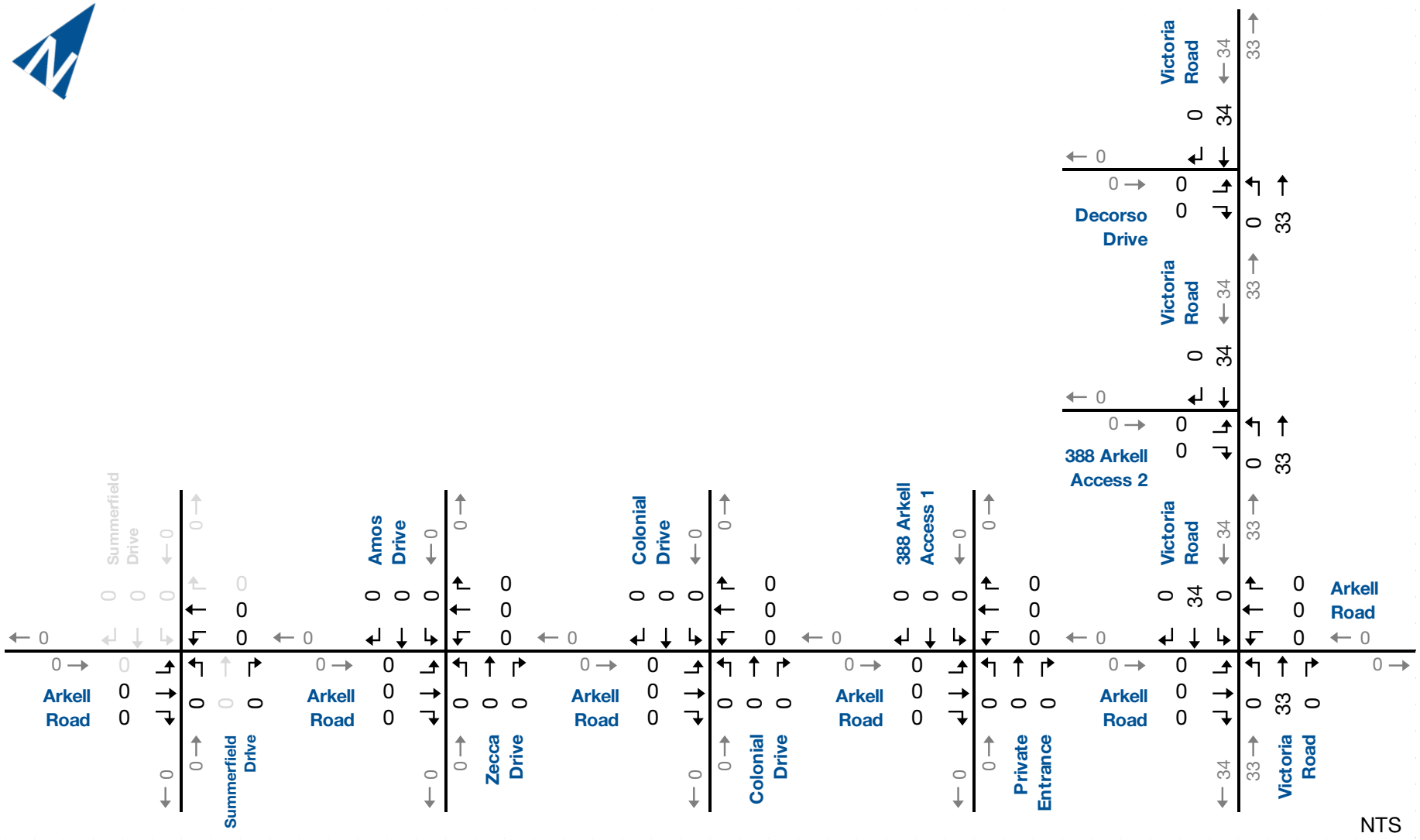


Victoria Park Village PM Trip Assignment

Figure D.4

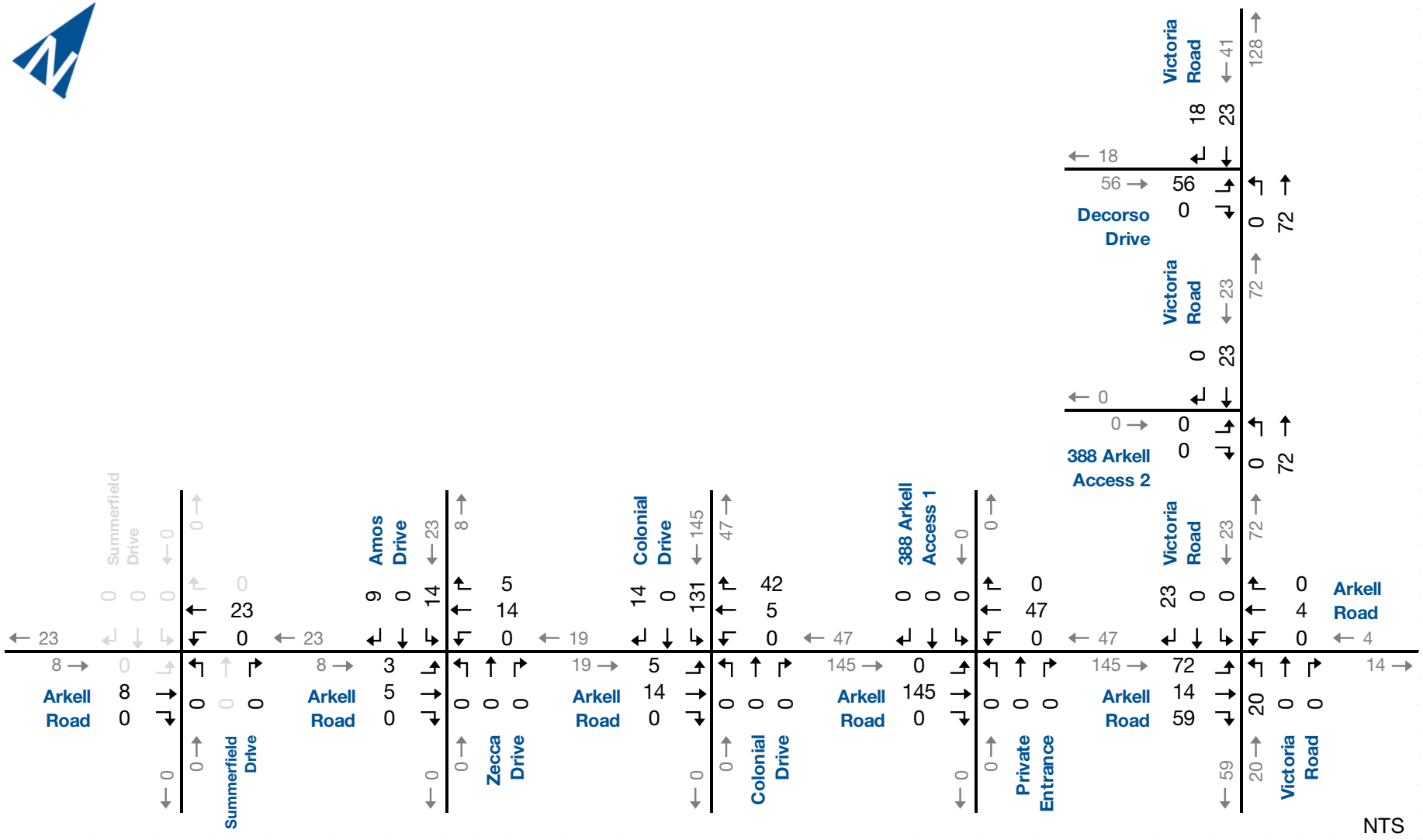


Westminister Woods AM Trip Assignment



Westminister Woods PM Trip Assignment

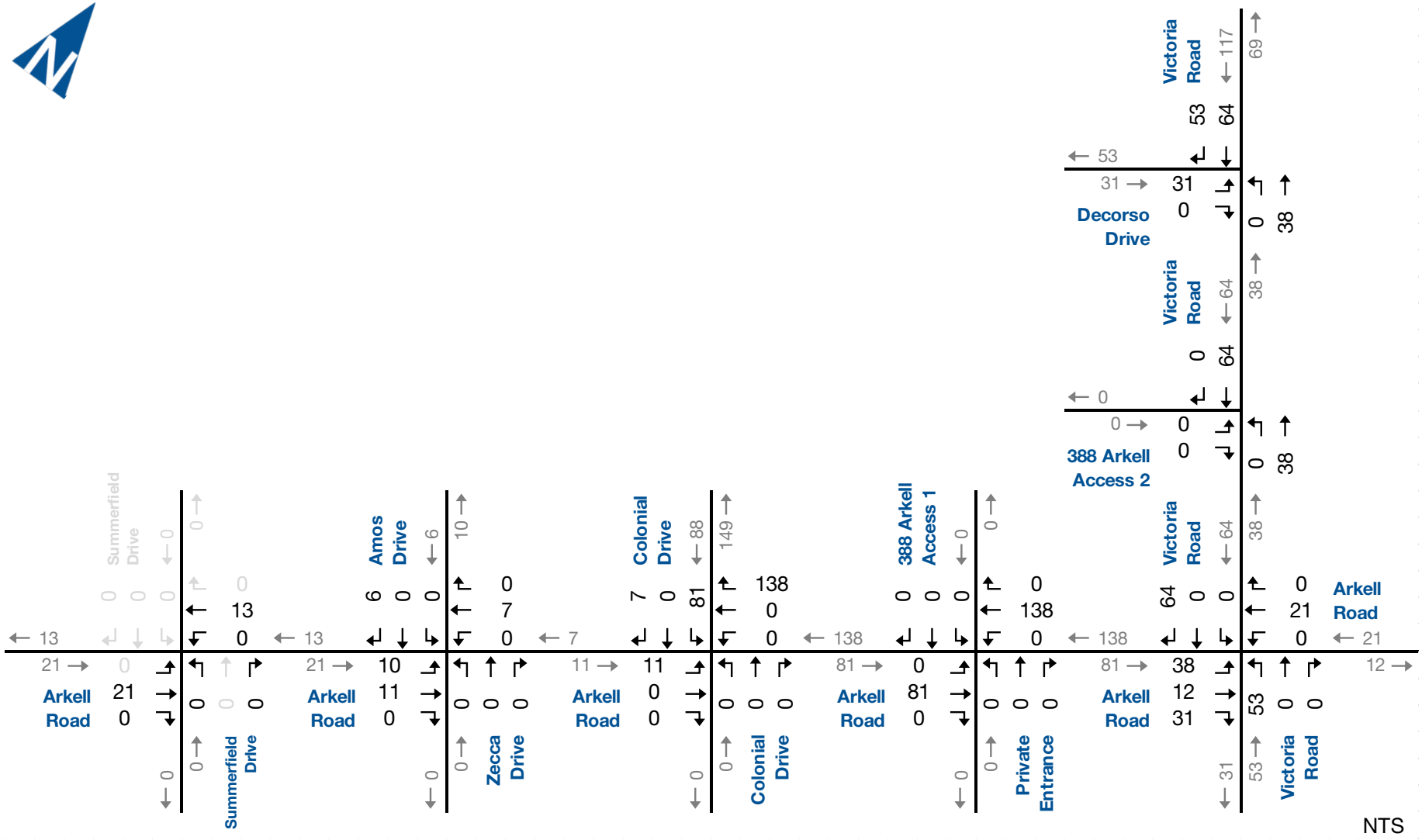
Figure D.6



Northwest Arkell and Victoria AM Trip Assignment

220 Arkell Road Transportation Impact Study
230080 / 180099

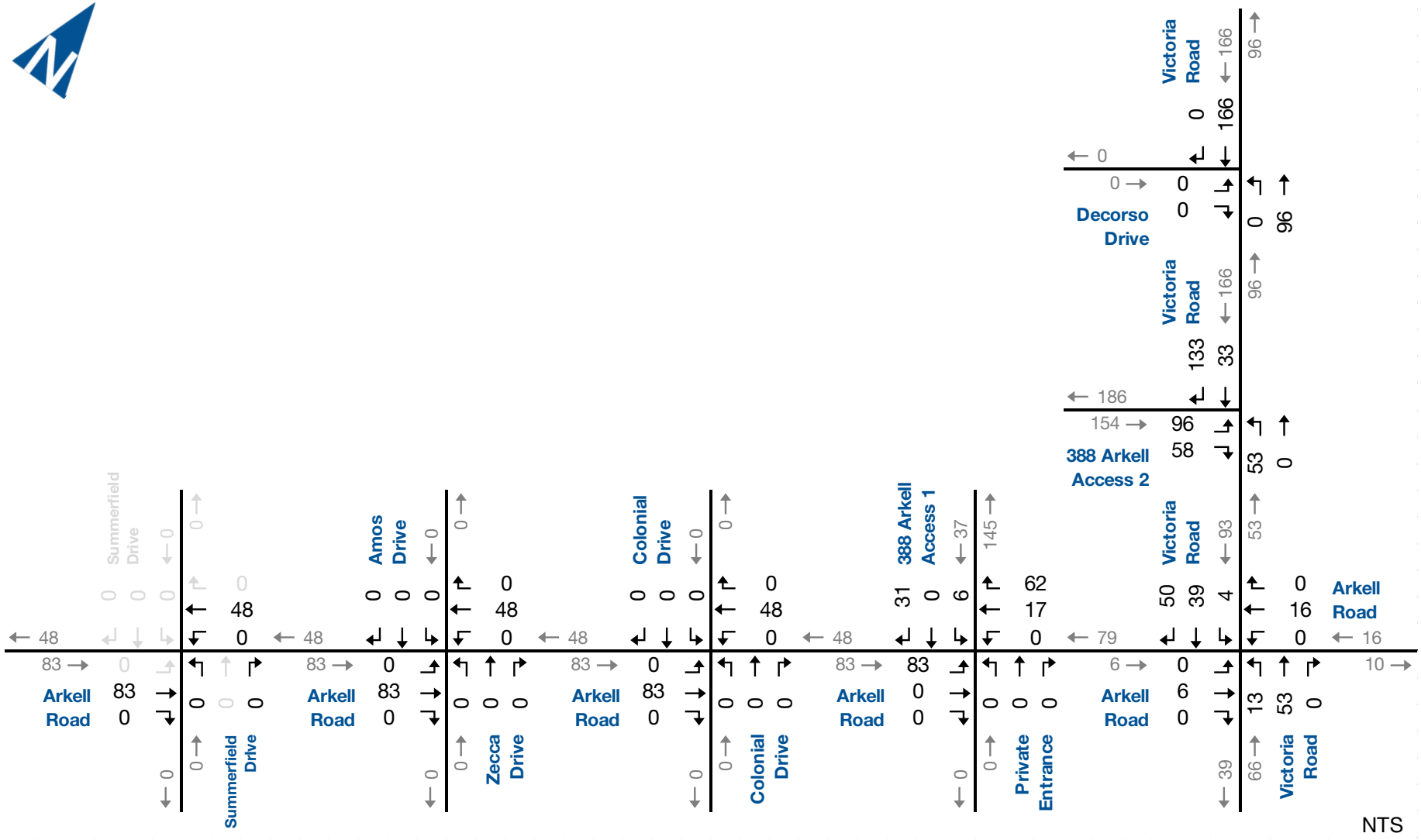
Figure D.7



Northwest Arkell and Victoria PM Trip Assignment

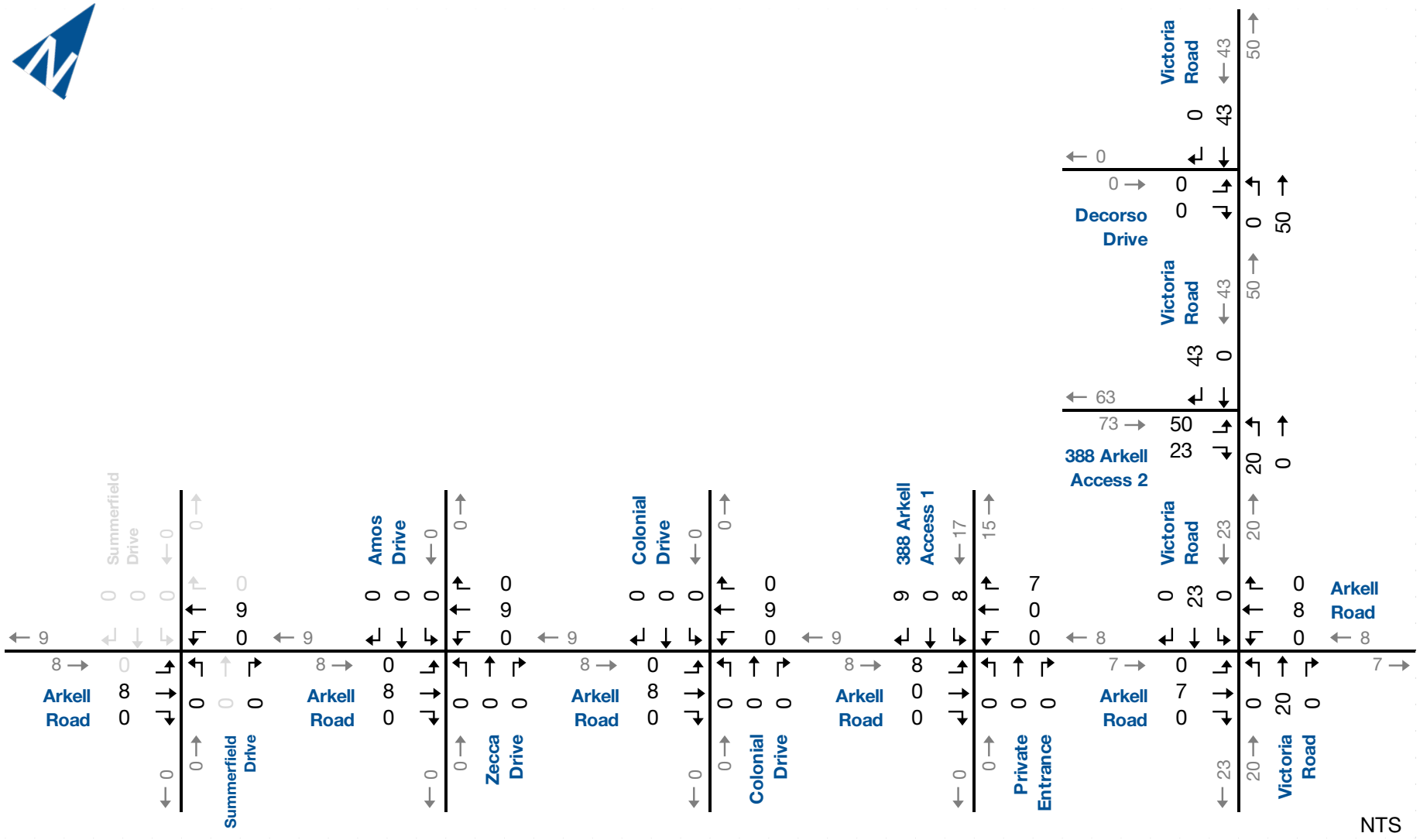
220 Arkell Road Transportation Impact Study
230080 / 180099

Figure D.8



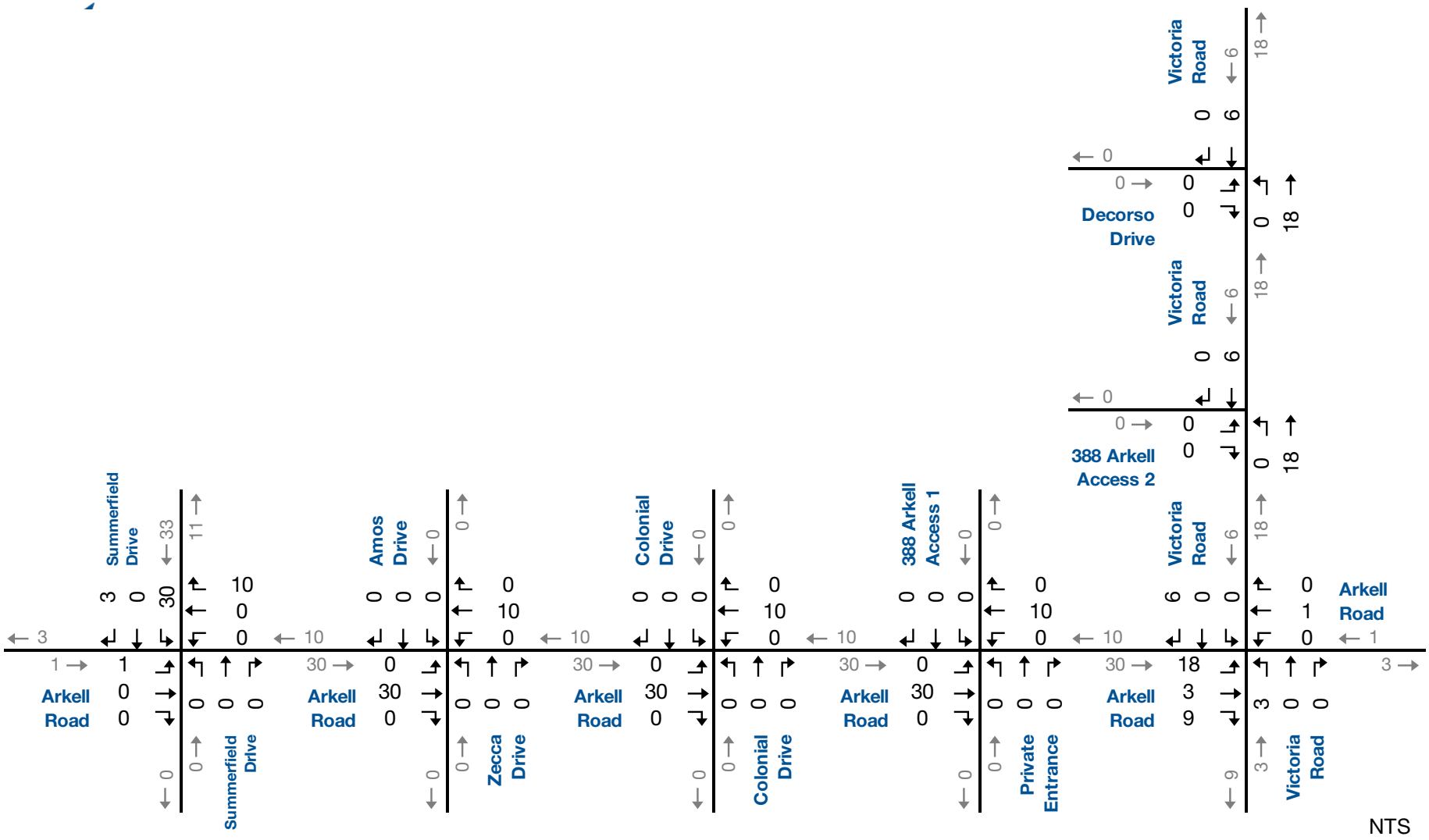
388 Arkell Road Secondary School
AM Trip Assignment

Figure D.9



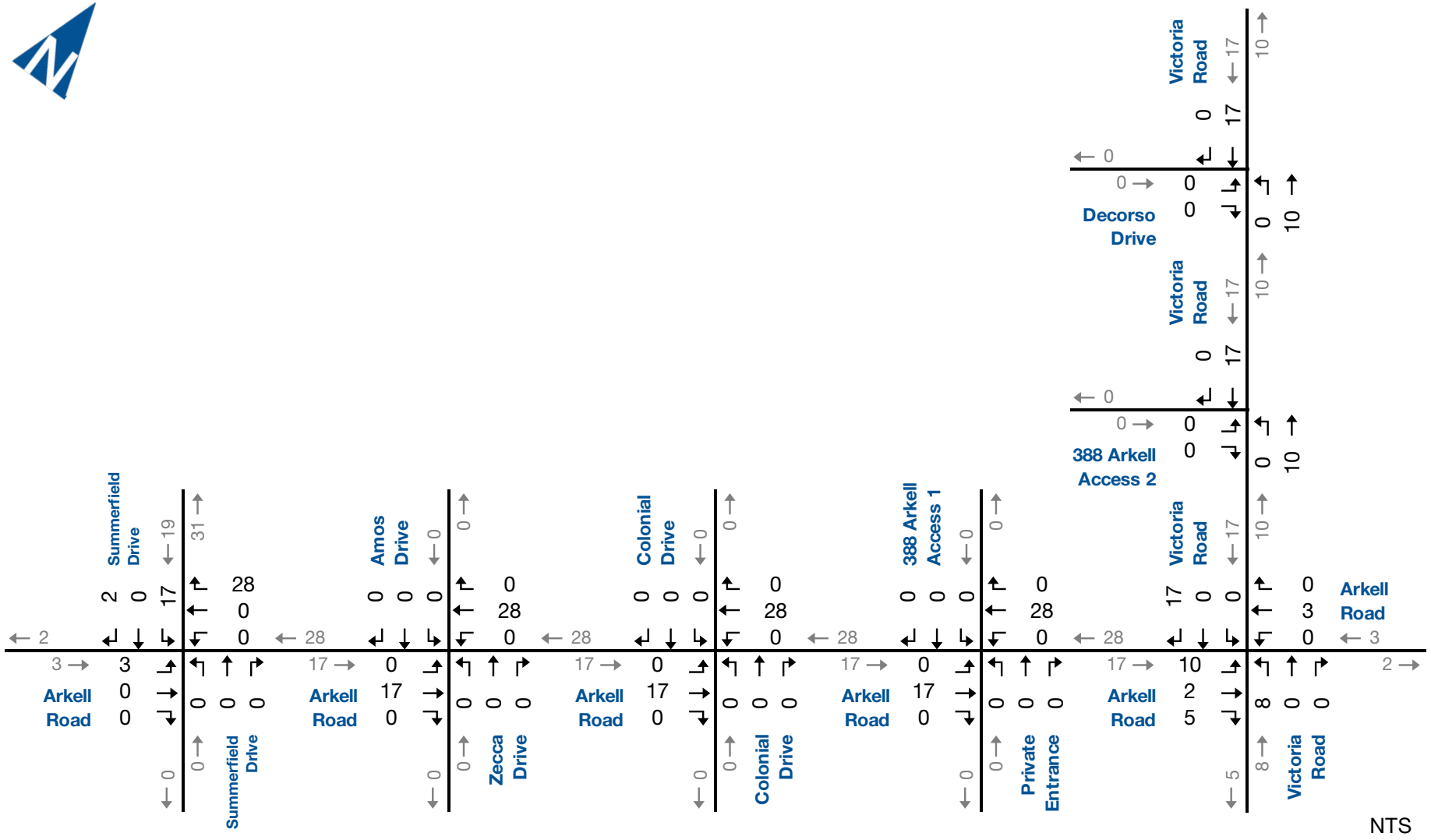
388 Arkell Road Secondary School
PM Trip Assignment

Figure D.10



190-216 Arkell Road
AM Trip Assignment

Figure D.11



190-216 Arkell Road
PM Trip Assignment

Figure D.12

Appendix E

2026 Background Traffic Operations Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	377	36	31	434	10	142	0	122	30	0	3
Future Volume (vph)	1	377	36	31	434	10	142	0	122	30	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.996			0.938			0.989	
Flt Protected	0.950			0.950				0.974			0.956	
Satd. Flow (prot)	1770	1790	0	1671	1771	0	0	1678	0	0	1761	0
Flt Permitted	0.950			0.950				0.974			0.956	
Satd. Flow (perm)	1770	1790	0	1671	1771	0	0	1678	0	0	1761	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			180.9	
Travel Time (s)		20.9			14.9			15.4			13.0	
Confl. Peds. (#/hr)			9	9								
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	13%	8%	7%	2%	3%	2%	4%	2%	2%	2%
Adj. Flow (vph)	1	385	37	32	443	11	145	0	124	33	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	422	0	32	454	0	0	269	0	0	36	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	11.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	377	36	31	434	10	142	0	122	30	0	3
Future Vol, veh/h	1	377	36	31	434	10	142	0	122	30	0	3
Conflicting Peds, #/hr	0	0	9	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	4	13	8	7	2	3	2	4	2	2	2
Mvmt Flow	1	385	37	32	443	11	145	0	124	33	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	454	0	0	431	0	0	929	933	413	981	946	449
Stage 1	-	-	-	-	-	-	415	415	-	513	513	-
Stage 2	-	-	-	-	-	-	514	518	-	468	433	-
Critical Hdwy	4.12	-	-	4.18	-	-	7.13	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.272	-	-	3.527	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1107	-	-	1097	-	-	247	266	635	229	262	610
Stage 1	-	-	-	-	-	-	613	592	-	544	536	-
Stage 2	-	-	-	-	-	-	541	533	-	575	582	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1107	-	-	1089	-	-	238	256	630	180	252	610
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	256	-	180	252	-
Stage 1	-	-	-	-	-	-	607	587	-	543	520	-
Stage 2	-	-	-	-	-	-	522	518	-	461	577	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	48.5	28
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	334	1107	-	-	1089	-	-	192
HCM Lane V/C Ratio	0.807	0.001	-	-	0.029	-	-	0.187
HCM Control Delay (s)	48.5	8.3	-	-	8.4	-	-	28
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	6.8	0	-	-	0.1	-	-	0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	507	15	3	424	6	23	1	17	28	2	27
Future Volume (vph)	6	507	15	3	424	6	23	1	17	28	2	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.998			0.943			0.936	
Flt Protected		0.999						0.973			0.976	
Satd. Flow (prot)	0	1804	0	0	1774	0	0	1696	0	0	1736	0
Flt Permitted		0.999						0.973			0.976	
Satd. Flow (perm)	0	1804	0	0	1774	0	0	1696	0	0	1736	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)	1		8	8		1	13		10	10		13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	0%	5%	7%	0%	5%	0%	0%	0%	0%	0%
Adj. Flow (vph)	6	523	15	3	437	6	24	1	18	29	2	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	544	0	0	446	0	0	43	0	0	59	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	507	15	3	424	6	23	1	17	28	2	27
Future Vol, veh/h	6	507	15	3	424	6	23	1	17	28	2	27
Conflicting Peds, #/hr	1	0	8	8	0	1	13	0	10	10	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	5	0	5	7	0	5	0	0	0	0	0
Mvmt Flow	6	523	15	3	437	6	24	1	18	29	2	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	444	0	0	546	0	0	1025	1001	549	1009	1005	454
Stage 1	-	-	-	-	-	-	551	551	-	447	447	-
Stage 2	-	-	-	-	-	-	474	450	-	562	558	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.15	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.545	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1127	-	-	1008	-	-	211	245	539	221	243	610
Stage 1	-	-	-	-	-	-	513	519	-	595	577	-
Stage 2	-	-	-	-	-	-	566	575	-	515	515	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1126	-	-	1001	-	-	195	240	531	209	238	603
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	240	-	209	238	-
Stage 1	-	-	-	-	-	-	505	511	-	590	574	-
Stage 2	-	-	-	-	-	-	530	572	-	489	507	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	21.1	19.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	266	1126	-	-	1001	-	-	305
HCM Lane V/C Ratio	0.159	0.005	-	-	0.003	-	-	0.193
HCM Control Delay (s)	21.1	8.2	0	-	8.6	0	-	19.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	471	69	41	270	42	132	0	137	131	0	32
Future Volume (vph)	11	471	69	41	270	42	132	0	137	131	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.980			0.931			0.973	
Flt Protected	0.950			0.950				0.976			0.961	
Satd. Flow (prot)	1770	1786	0	1703	1737	0	0	1622	0	0	1742	0
Flt Permitted	0.950			0.950				0.976			0.961	
Satd. Flow (perm)	1770	1786	0	1703	1737	0	0	1622	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			11	11					1			
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
Heavy Vehicles (%)	2%	4%	7%	6%	8%	2%	9%	2%	4%	2%	2%	2%
Adj. Flow (vph)	12	512	75	45	293	46	143	0	149	142	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	587	0	45	339	0	0	292	0	0	177	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	39.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	471	69	41	270	42	132	0	137	131	0	32
Future Vol, veh/h	11	471	69	41	270	42	132	0	137	131	0	32
Conflicting Peds, #/hr	0	0	11	11	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	7	6	8	2	9	2	4	2	2	2
Mvmt Flow	12	512	75	45	293	46	143	0	149	142	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	339	0	0	598	0	0	1009	1014	562	1055	1028	316
Stage 1	-	-	-	-	-	-	585	585	-	406	406	-
Stage 2	-	-	-	-	-	-	424	429	-	649	622	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.19	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.581	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1220	-	-	959	-	-	212	239	523	204	234	724
Stage 1	-	-	-	-	-	-	485	498	-	622	598	-
Stage 2	-	-	-	-	-	-	594	584	-	458	479	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1220	-	-	950	-	-	191	223	518	~ 139	219	724
Mov Cap-2 Maneuver	-	-	-	-	-	-	191	223	-	~ 139	219	-
Stage 1	-	-	-	-	-	-	476	489	-	616	570	-
Stage 2	-	-	-	-	-	-	539	557	-	323	470	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1	103.7	147.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	282	1220	-	-	950	-	-	165
HCM Lane V/C Ratio	1.037	0.01	-	-	0.047	-	-	1.074
HCM Control Delay (s)	103.7	8	-	-	9	-	-	147.4
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	11.1	0	-	-	0.1	-	-	8.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	654	2	2	321	62	2	0	2	6	0	31
Future Volume (vph)	83	654	2	2	321	62	2	0	2	6	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.978			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1827	0	0	1742	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1827	0	0	1742	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	90	711	2	2	349	67	2	0	2	7	0	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	713	0	0	418	0	0	4	0	7	0	34
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.6%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	654	2	2	321	62	2	0	2	6	0	31
Future Vol, veh/h	83	654	2	2	321	62	2	0	2	6	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	90	711	2	2	349	67	2	0	2	7	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	416	0	0	713	0	0	1296	1312	712	1280	-	383
Stage 1	-	-	-	-	-	-	892	892	-	387	-	-
Stage 2	-	-	-	-	-	-	404	420	-	893	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	1154	-	-	896	-	-	140	160	436	144	0	669
Stage 1	-	-	-	-	-	-	339	363	-	641	0	-
Stage 2	-	-	-	-	-	-	627	593	-	339	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1154	-	-	896	-	-	125	147	436	134	-	669
Mov Cap-2 Maneuver	-	-	-	-	-	-	125	147	-	134	-	-
Stage 1	-	-	-	-	-	-	313	335	-	591	-	-
Stage 2	-	-	-	-	-	-	594	591	-	311	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	24	14.3
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	194	1154	-	-	896	-	-	134	669
HCM Lane V/C Ratio	0.022	0.078	-	-	0.002	-	-	0.049	0.05
HCM Control Delay (s)	24	8.4	-	-	9	0	-	33.2	10.7
HCM Lane LOS	C	A	-	-	A	A	-	D	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	0.2	0.2

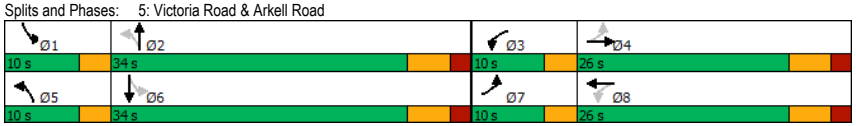
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	448	122	90	173	104	77	66	741	98	56	637	220
Future Volume (vph)	448	122	90	173	104	77	66	741	98	56	637	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		1.00				0.99	
Frt		0.936			0.936			0.982			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1671	0	1787	1696	0	1805	1760	0	1752	1668	0
Flt Permitted	0.571			0.490			0.132			0.138		
Satd. Flow (perm)	1042	1671	0	922	1696	0	251	1760	0	255	1668	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			45			9			24	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)	1					1	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	11%	1%	3%	5%	0%	6%	6%	3%	8%	11%
Adj. Flow (vph)	492	134	99	190	114	85	73	814	108	62	700	242
Shared Lane Traffic (%)												
Lane Group Flow (vph)	492	233	0	190	199	0	73	922	0	62	942	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.1	14.1		24.1	14.1		37.3	30.3		36.7	28.3	
Actuated g/C Ratio	0.33	0.20		0.33	0.20		0.52	0.42		0.51	0.39	
v/c Ratio	1.18	0.65		0.48	0.54		0.26	1.24		0.23	1.41	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	129.2	30.9		21.1	26.3		11.2	144.0		10.8	217.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	129.2	30.9		21.1	26.3		11.2	144.0		10.8	217.9	
LOS	F	C		C	C		B	F		B	F	
Approach Delay		97.6			23.8			134.2			205.1	
Approach LOS		F			C			F			F	
Queue Length 50th (m)	~80.8	25.7		19.4	20.3		4.5	~182.6		3.8	~191.6	
Queue Length 95th (m)	#147.8	47.9		33.9	39.9		12.0	#280.6		10.7	#290.5	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	416	498		392	506		281	743		275	667	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.18	0.47		0.48	0.39		0.26	1.24		0.23	1.41	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 72.2		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.41		
Intersection Signal Delay: 134.8		Intersection LOS: F
Intersection Capacity Utilization 103.4%		ICU Level of Service G
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	448	122	90	173	104	77	66	741	98	56	637	220
Future Volume (veh/h)	448	122	90	173	104	77	66	741	98	56	637	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1856	1737	1885	1856	1826	1900	1811	1811	1856	1781	1737
Adj Flow Rate, veh/h	492	134	99	190	114	85	73	814	108	62	700	242
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
Percent Heavy Veh, %	4	3	11	1	3	5	0	6	6	3	8	11
Cap, veh/h	352	172	127	331	171	128	239	630	84	225	501	173
Arrive On Green	0.10	0.17	0.17	0.10	0.17	0.17	0.08	0.40	0.40	0.07	0.40	0.40
Sat Flow, veh/h	1753	990	731	1795	986	735	1810	1565	208	1767	1264	437
Grp Volume(v), veh/h	492	0	233	190	0	199	73	0	922	62	0	942
Grp Sat Flow(s),veh/h/ln	1753	0	1721	1795	0	1721	1810	0	1773	1767	0	1701
Q Serve(g_s), s	7.0	0.0	9.1	6.1	0.0	7.6	1.6	0.0	28.4	1.4	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	9.1	6.1	0.0	7.6	1.6	0.0	28.4	1.4	0.0	28.0
Prop In Lane	1.00		0.42	1.00		0.43	1.00		0.12	1.00		0.26
Lane Grp Cap(c), veh/h	352	0	299	331	0	299	239	0	713	225	0	675
V/C Ratio(X)	1.40	0.00	0.78	0.57	0.00	0.67	0.31	0.00	1.29	0.28	0.00	1.40
Avail Cap(c_a), veh/h	352	0	488	331	0	488	281	0	713	277	0	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	27.9	21.6	0.0	27.2	15.8	0.0	21.1	16.0	0.0	21.3
Incr Delay (d2), s/veh	195.0	0.0	4.4	2.4	0.0	2.5	0.7	0.0	142.0	0.7	0.0	187.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.7	0.0	1.9	0.8	0.0	1.3	0.0	0.0	28.7	0.0	0.0	35.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	222.0	0.0	32.3	24.0	0.0	29.8	16.5	0.0	163.1	16.6	0.0	208.6
LnGrp LOS	F	A	C	C	A	C	B	A	F	B	A	F
Approach Vol, veh/h		725			389			995			1004	
Approach Delay, s/veh		161.0			26.9			152.4			196.8	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	34.4	10.0	18.3	8.3	34.0	10.0	18.3
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	3.4	30.4	8.1	11.1	3.6	30.0	9.0	9.6
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.1	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	153.0
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	58	53	1212	847	133
Future Volume (vph)	96	58	53	1212	847	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1759	1615
Flt Permitted	0.950		0.225			
Satd. Flow (perm)	1805	1615	428	1792	1759	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		63				145
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	8%	0%
Adj. Flow (vph)	104	63	58	1317	921	145
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	63	58	1317	921	145
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	51.0	51.0	51.0	51.0
Total Split (%)	32.0%	32.0%	68.0%	68.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	45.0	45.0	45.0	45.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.7	10.7	52.0	52.0	52.0	52.0
Actuated g/C Ratio	0.15	0.15	0.74	0.74	0.74	0.74
v/c Ratio	0.38	0.21	0.18	0.99	0.71	0.12
Control Delay	30.8	9.3	6.4	38.2	11.7	1.2
Queue Delay	0.0	0.0	0.0	18.1	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	30.8	9.3	6.4	56.2	11.7	1.2
LOS	C	A	A	E	B	A
Approach Delay	22.7			54.1	10.2	
Approach LOS	C			D	B	
Queue Length 50th (m)	12.9	0.0	2.4	~203.7	68.9	0.0
Queue Length 95th (m)	26.0	9.3	8.0	#290.0	#145.0	5.1
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	465	463	317	1330	1305	1236
Starvation Cap Reductn	0	0	0	76	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.14	0.18	1.05	0.71	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 70.1			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 34.2		Intersection LOS: C	
Intersection Capacity Utilization 82.1%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	58	53	1212	847	133
Future Volume (veh/h)	96	58	53	1212	847	133
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1781	1900
Adj Flow Rate, veh/h	104	63	58	1317	921	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	8	0
Cap, veh/h	260	231	285	1225	1205	1089
Arrive On Green	0.14	0.14	0.68	0.68	0.68	0.68
Sat Flow, veh/h	1810	1610	538	1811	1781	1610
Grp Volume(v), veh/h	104	63	58	1317	921	145
Grp Sat Flow(s),veh/h/ln	1810	1610	538	1811	1781	1610
Q Serve(g_s), s	3.5	2.3	5.4	45.0	23.1	2.1
Cycle Q Clear(g_c), s	3.5	2.3	28.5	45.0	23.1	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	260	231	285	1225	1205	1089
V/C Ratio(X)	0.40	0.27	0.20	1.08	0.76	0.13
Avail Cap(c_a), veh/h	489	436	285	1225	1205	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.4	16.8	10.8	7.2	3.8
Incr Delay (d2), s/veh	1.0	0.6	1.6	48.5	4.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.4	0.2	16.5	1.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	26.0	18.4	59.3	11.9	4.1
LnGrp LOS	C	C	B	F	B	A
Approach Vol, veh/h	167			1375	1066	
Approach Delay, s/veh	26.6			57.6	10.8	
Approach LOS	C			E	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		51.0		15.5		51.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		45.0		18.0		45.0
Max Q Clear Time (g_c+I1), s		47.0		5.5		25.1
Green Ext Time (p_c), s		0.0		0.5		8.9

Intersection Summary		
HCM 6th Ctrl Delay	36.5	
HCM 6th LOS	D	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	162	52	17	1291	928	52
Future Volume (vph)	162	52	17	1291	928	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.993	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1850	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1850	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	57	18	1403	1009	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	57	18	1403	1066	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 83.6%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	147.7

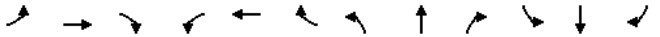
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	162	52	17	1291	928	52
Future Vol, veh/h	162	52	17	1291	928	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	176	57	18	1403	1009	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2477	1038	1066	0	-	0
Stage 1	1038	-	-	-	-	-
Stage 2	1439	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 33	280	654	-	-	-
Stage 1	341	-	-	-	-	-
Stage 2	218	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 32	280	654	-	-	-
Mov Cap-2 Maneuver	~ 32	-	-	-	-	-
Stage 1	331	-	-	-	-	-
Stage 2	218	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	1725.8	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	654	-	32	280	-	-
HCM Lane V/C Ratio	0.028	-	5.503	0.202	-	-
HCM Control Delay (s)	10.7	-	$ 2273	21.1	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	21.1	0.7	-	-

Notes				
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	492	154	88	421	28	73	0	46	17	0	2
Future Volume (vph)	3	492	154	88	421	28	73	0	46	17	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.964			0.990			0.948			0.986	
Flt Protected	0.950			0.950				0.970			0.957	
Satd. Flow (prot)	1770	1805	0	1805	1861	0	0	1747	0	0	1758	0
Flt Permitted	0.950			0.950				0.970			0.957	
Satd. Flow (perm)	1770	1805	0	1805	1861	0	0	1747	0	0	1758	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			138.6	
Travel Time (s)		20.9			14.9			15.4			10.0	
Confl. Peds. (#/hr)			3	3					1			
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	3%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	3	513	160	92	439	30	76	0	48	18	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	673	0	92	469	0	0	124	0	0	20	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	492	154	88	421	28	73	0	46	17	0	2
Future Vol, veh/h	3	492	154	88	421	28	73	0	46	17	0	2
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	96	96	96	92	96	92	96	92	92	92
Heavy Vehicles, %	2	1	3	0	1	2	0	2	0	2	2	2
Mvmt Flow	3	513	160	92	439	30	76	0	48	18	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	469	0	0	676	0	0	1241	1255	597	1262	1320	454
Stage 1	-	-	-	-	-	-	602	602	-	638	638	-
Stage 2	-	-	-	-	-	-	639	653	-	624	682	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1093	-	-	925	-	-	153	172	507	147	157	606
Stage 1	-	-	-	-	-	-	490	489	-	465	471	-
Stage 2	-	-	-	-	-	-	468	464	-	473	450	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1093	-	-	923	-	-	140	154	505	123	141	606
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	154	-	123	141	-
Stage 1	-	-	-	-	-	-	488	486	-	464	424	-
Stage 2	-	-	-	-	-	-	420	418	-	427	447	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	51.6	36.7
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	194	1093	-	-	923	-	-	134
HCM Lane V/C Ratio	0.639	0.003	-	-	0.099	-	-	0.154
HCM Control Delay (s)	51.6	8.3	-	-	9.3	-	-	36.7
HCM Lane LOS	F	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	3.7	0	-	-	0.3	-	-	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	482	32	7	497	14	17	0	3	8	1	22
Future Volume (vph)	41	482	32	7	497	14	17	0	3	8	1	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.996			0.981			0.903	
Flt Protected		0.996			0.999			0.959			0.988	
Satd. Flow (prot)	0	1861	0	0	1873	0	0	1787	0	0	1695	0
Flt Permitted		0.996			0.999			0.959			0.988	
Satd. Flow (perm)	0	1861	0	0	1873	0	0	1787	0	0	1695	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)			9	9			7		7	7		7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	43	507	34	7	523	15	18	0	3	8	1	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	584	0	0	545	0	0	21	0	0	32	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	482	32	7	497	14	17	0	3	8	1	22
Future Vol, veh/h	41	482	32	7	497	14	17	0	3	8	1	22
Conflicting Peds, #/hr	0	0	9	9	0	0	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	43	507	34	7	523	15	18	0	3	8	1	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	538	0	0	550	0	0	1183	1171	540	1164	1181	538
Stage 1	-	-	-	-	-	-	619	619	-	545	545	-
Stage 2	-	-	-	-	-	-	564	552	-	619	636	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1040	-	-	1030	-	-	168	194	546	173	192	547
Stage 1	-	-	-	-	-	-	480	483	-	526	522	-
Stage 2	-	-	-	-	-	-	514	518	-	480	475	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1040	-	-	1022	-	-	150	179	539	162	177	544
Mov Cap-2 Maneuver	-	-	-	-	-	-	150	179	-	162	177	-
Stage 1	-	-	-	-	-	-	448	451	-	495	517	-
Stage 2	-	-	-	-	-	-	483	513	-	446	443	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	29.5	17.3
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	168	1040	-	-	1022	-	-	325
HCM Lane V/C Ratio	0.125	0.041	-	-	0.007	-	-	0.1
HCM Control Delay (s)	29.5	8.6	0	-	8.5	0	-	17.3
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	368	97	71	413	138	87	0	72	81	0	18
Future Volume (vph)	29	368	97	71	413	138	87	0	72	81	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.969			0.962			0.939			0.975	
Flt Protected	0.950			0.950				0.973			0.961	
Satd. Flow (prot)	1805	1827	0	1805	1801	0	0	1708	0	0	1780	0
Flt Permitted	0.950			0.950				0.973			0.961	
Satd. Flow (perm)	1805	1827	0	1805	1801	0	0	1708	0	0	1780	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	383	101	74	430	144	91	0	75	84	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	484	0	74	574	0	0	166	0	0	103	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	11.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	368	97	71	413	138	87	0	72	81	0	18
Future Vol, veh/h	29	368	97	71	413	138	87	0	72	81	0	18
Conflicting Peds, #/hr	0	0	8	8	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	1	0	0	2	0	3	0	0	0	0	0
Mvmt Flow	30	383	101	74	430	144	91	0	75	84	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	574	0	0	492	0	0	1162	1224	442	1181	1202	502
Stage 1	-	-	-	-	-	-	502	502	-	650	650	-
Stage 2	-	-	-	-	-	-	660	722	-	531	552	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.13	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.527	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1009	-	-	1082	-	-	171	181	620	168	186	573
Stage 1	-	-	-	-	-	-	550	545	-	461	468	-
Stage 2	-	-	-	-	-	-	450	434	-	536	518	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1009	-	-	1075	-	-	152	162	616	137	167	573
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	162	-	137	167	-
Stage 1	-	-	-	-	-	-	530	525	-	447	436	-
Stage 2	-	-	-	-	-	-	405	404	-	457	499	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1	52.2	62
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	231	1009	-	-	1075	-	-	159
HCM Lane V/C Ratio	0.717	0.03	-	-	0.069	-	-	0.649
HCM Control Delay (s)	52.2	8.7	-	-	8.6	-	-	62
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	4.8	0.1	-	-	0.2	-	-	3.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	510	3	2	611	7	2	0	2	8	0	9
Future Volume (vph)	8	510	3	2	611	7	2	0	2	8	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.998			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1825	0	0	1758	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1825	0	0	1758	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	9	554	3	2	664	8	2	0	2	9	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	557	0	0	674	0	0	4	0	9	0	10
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	510	3	2	611	7	2	0	2	8	0	9
Future Vol, veh/h	8	510	3	2	611	7	2	0	2	8	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	9	554	3	2	664	8	2	0	2	9	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	672	0	0	557	0	0	1251	1250	556	1247	-	668
Stage 1	-	-	-	-	-	-	574	574	-	672	-	-
Stage 2	-	-	-	-	-	-	677	676	-	575	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	928	-	-	1024	-	-	151	174	534	152	0	462
Stage 1	-	-	-	-	-	-	507	506	-	449	0	-
Stage 2	-	-	-	-	-	-	446	456	-	507	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	928	-	-	1024	-	-	146	172	534	150	-	462
Mov Cap-2 Maneuver	-	-	-	-	-	-	146	172	-	150	-	-
Stage 1	-	-	-	-	-	-	502	501	-	445	-	-
Stage 2	-	-	-	-	-	-	435	455	-	500	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	21	21.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	229	928	-	-	1024	-	-	150	462
HCM Lane V/C Ratio	0.019	0.009	-	-	0.002	-	-	0.058	0.021
HCM Control Delay (s)	21	8.9	-	-	8.5	0	-	30.5	13
HCM Lane LOS	C	A	-	-	A	A	-	D	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2	0.1

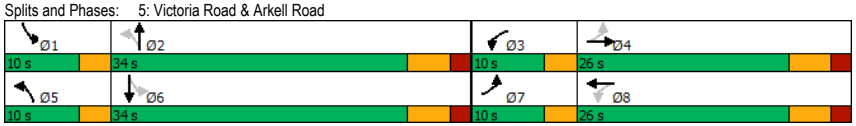
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	158	90	131	205	77	101	784	156	82	760	311
Future Volume (vph)	272	158	90	131	205	77	101	784	156	82	760	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00				0.99	
Frt		0.945			0.959			0.975			0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1784	0	1703	1794	0	1805	1759	0	1805	1759	0
Flt Permitted	0.342			0.526			0.141			0.141		
Satd. Flow (perm)	643	1784	0	943	1794	0	268	1759	0	268	1759	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			23			14			28	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)							6					6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	6%	1%	3%	0%	6%	2%	0%	3%	1%
Adj. Flow (vph)	289	168	96	139	218	82	107	834	166	87	809	331
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	264	0	139	300	0	107	1000	0	87	1140	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	26.8	18.5		26.1	16.0		36.7	28.3		36.7	28.3	
Actuated g/C Ratio	0.36	0.25		0.35	0.22		0.49	0.38		0.49	0.38	
v/c Ratio	0.85	0.56		0.34	0.74		0.38	1.47		0.31	1.66	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	43.6	28.0		18.1	37.4		13.9	244.1		12.7	324.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	43.6	28.0		18.1	37.4		13.9	244.1		12.7	324.3	
LOS	D	C		B	D		B	F		B	F	
Approach Delay		36.1			31.3			221.9			302.2	
Approach LOS		D			C			F			F	
Queue Length 50th (m)	31.5	31.9		13.8	39.6		7.6	~220.9		6.1	~264.6	
Queue Length 95th (m)	#69.5	55.9		25.7	66.3		16.4	#308.3		13.9	#356.4	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	341	511		404	505		278	679		278	688	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.85	0.52		0.34	0.59		0.38	1.47		0.31	1.66	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 74.2			
Natural Cycle: 140			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.66			
Intersection Signal Delay: 195.5		Intersection LOS: F	
Intersection Capacity Utilization 112.2%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	158	90	131	205	77	101	784	156	82	760	311
Future Volume (veh/h)	272	158	90	131	205	77	101	784	156	82	760	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1811	1885	1856	1900	1811	1870	1900	1856	1885
Adj Flow Rate, veh/h	289	168	96	139	218	82	107	834	166	87	809	331
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	6	1	3	0	6	2	0	3	1
Cap, veh/h	311	232	133	323	262	99	249	561	112	240	472	193
Arrive On Green	0.09	0.21	0.21	0.09	0.20	0.20	0.08	0.38	0.38	0.08	0.38	0.38
Sat Flow, veh/h	1795	1126	643	1725	1306	491	1810	1464	291	1810	1248	511
Grp Volume(v), veh/h	289	0	264	139	0	300	107	0	1000	87	0	1140
Grp Sat Flow(s),veh/h/ln	1795	0	1769	1725	0	1797	1810	0	1756	1810	0	1759
Q Serve(g_s), s	7.0	0.0	10.3	4.6	0.0	11.9	2.5	0.0	28.4	2.0	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	10.3	4.6	0.0	11.9	2.5	0.0	28.4	2.0	0.0	28.0
Prop In Lane	1.00		0.36	1.00		0.27	1.00		0.17	1.00		0.29
Lane Grp Cap(c), veh/h	311	0	364	323	0	360	249	0	673	240	0	665
V/C Ratio(X)	0.93	0.00	0.72	0.43	0.00	0.83	0.43	0.00	1.49	0.36	0.00	1.71
Avail Cap(c_a), veh/h	311	0	478	332	0	485	268	0	673	268	0	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	27.5	21.1	0.0	28.4	16.7	0.0	22.8	16.8	0.0	23.0
Incr Delay (d2), s/veh	33.3	0.0	3.8	0.9	0.0	8.9	1.2	0.0	226.6	0.9	0.0	328.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	2.2	0.6	0.0	2.8	0.1	0.0	43.9	0.1	0.0	62.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.4	0.0	31.2	22.0	0.0	37.3	17.9	0.0	249.4	17.7	0.0	351.2
LnGrp LOS	E	A	C	C	A	D	B	A	F	B	A	F
Approach Vol, veh/h		553			439			1107			1227	
Approach Delay, s/veh		45.9			32.5			227.0			327.5	
Approach LOS		D			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	34.4	9.6	21.3	9.2	34.0	10.0	20.9
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	4.0	30.4	6.6	12.3	4.5	30.0	9.0	13.9
Green Ext Time (p_c), s	0.1	0.0	0.0	1.0	0.1	0.0	0.0	1.0

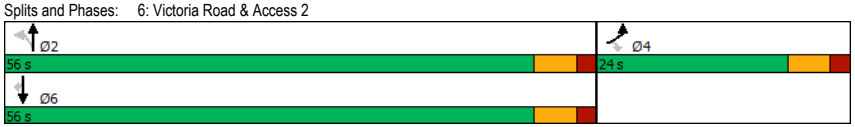
Intersection Summary	
HCM 6th Ctrl Delay	208.3
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	23	20	1112	1129	43
Future Volume (vph)	50	23	20	1112	1129	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1845	1615
Flt Permitted	0.950		0.115			
Satd. Flow (perm)	1805	1615	218	1792	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				39
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	54	25	22	1209	1227	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	25	22	1209	1227	47
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.1	10.1	63.4	63.4	63.4	63.4
Actuated g/C Ratio	0.13	0.13	0.83	0.83	0.83	0.83
v/c Ratio	0.23	0.11	0.12	0.81	0.80	0.03
Control Delay	32.7	13.3	5.3	14.4	13.5	1.5
Queue Delay	0.0	0.0	0.0	2.4	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	32.7	13.3	5.3	16.8	13.5	1.5
LOS	C	B	A	B	B	A
Approach Delay	26.6			16.6	13.1	
Approach LOS	C			B	B	
Queue Length 50th (m)	8.8	0.0	0.9	132.6	130.5	0.3
Queue Length 95th (m)	16.8	6.5	3.5	#251.7	#251.9	2.8
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	429	403	181	1492	1536	1351
Starvation Cap Reductn	0	0	0	169	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.06	0.12	0.91	0.80	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.1			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 6: Victoria Road & Access 2



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	23	20	1112	1129	43
Future Volume (veh/h)	50	23	20	1112	1129	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1856	1900
Adj Flow Rate, veh/h	54	25	22	1209	1227	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	3	0
Cap, veh/h	203	181	174	1297	1328	1153
Arrive On Green	0.11	0.11	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1810	1610	441	1811	1856	1610
Grp Volume(v), veh/h	54	25	22	1209	1227	47
Grp Sat Flow(s),veh/h/ln	1810	1610	441	1811	1856	1610
Q Serve(g_s), s	1.9	1.0	3.1	39.8	38.7	0.6
Cycle Q Clear(g_c), s	1.9	1.0	41.8	39.8	38.7	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	203	181	174	1297	1328	1153
V/C Ratio(X)	0.27	0.14	0.13	0.93	0.92	0.04
Avail Cap(c_a), veh/h	466	415	174	1297	1328	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	28.0	25.8	8.5	8.3	2.9
Incr Delay (d2), s/veh	0.7	0.3	1.5	13.3	12.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	0.2	4.8	4.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.1	28.3	27.3	21.8	20.4	3.0
LnGrp LOS	C	C	C	C	C	A
Approach Vol, veh/h	79			1231	1274	
Approach Delay, s/veh	28.8			21.9	19.8	
Approach LOS	C			C	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		56.0		13.8		56.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		18.0		50.0
Max Q Clear Time (g_c+I1), s		43.8		3.9		40.7
Green Ext Time (p_c), s		4.9		0.2		7.0

Intersection Summary		
HCM 6th Ctrl Delay	21.1	
HCM 6th LOS	C	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	38	64	1098	1134	153
Future Volume (vph)	90	38	64	1098	1134	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.984	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1821	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1792	1821	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	98	41	70	1193	1233	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	41	70	1193	1399	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 80.6%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	67.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	38	64	1098	1134	153
Future Vol, veh/h	90	38	64	1098	1134	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	3	0
Mvmt Flow	98	41	70	1193	1233	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2649	1316	1399	0	-	0
Stage 1	1316	-	-	-	-	-
Stage 2	1333	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 26	195	495	-	-	-
Stage 1	253	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 22	195	495	-	-	-
Mov Cap-2 Maneuver	~ 22	-	-	-	-	-
Stage 1	217	-	-	-	-	-
Stage 2	248	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	1349.9	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	495	-	22	195	-	-
HCM Lane V/C Ratio	0.141	-	4.447	0.212	-	-
HCM Control Delay (s)	13.5	-	$ 1907.9	28.4	-	-
HCM Lane LOS	B	-	F	D	-	-
HCM 95th %tile Q(veh)	0.5	-	12.4	0.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix F

2031 Background Traffic Operations Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	418	41	35	484	10	164	0	140	30	0	3
Future Volume (vph)	1	418	41	35	484	10	164	0	140	30	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.997			0.938			0.989	
Flt Protected	0.950			0.950				0.974			0.956	
Satd. Flow (prot)	1770	1789	0	1671	1772	0	0	1678	0	0	1761	0
Flt Permitted	0.950			0.950				0.974			0.956	
Satd. Flow (perm)	1770	1789	0	1671	1772	0	0	1678	0	0	1761	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			180.9	
Travel Time (s)		20.9			14.9			15.4			13.0	
Confl. Peds. (#/hr)			9	9								
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	13%	8%	7%	2%	3%	2%	4%	2%	2%	2%
Adj. Flow (vph)	1	427	42	36	494	11	167	0	143	33	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	469	0	36	505	0	0	310	0	0	36	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	26.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	418	41	35	484	10	164	0	140	30	0	3
Future Vol, veh/h	1	418	41	35	484	10	164	0	140	30	0	3
Conflicting Peds, #/hr	0	0	9	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	4	13	8	7	2	3	2	4	2	2	2
Mvmt Flow	1	427	42	36	494	11	167	0	143	33	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	505	0	0	478	0	0	1032	1036	457	1094	1052	500
Stage 1	-	-	-	-	-	-	459	459	-	572	572	-
Stage 2	-	-	-	-	-	-	573	577	-	522	480	-
Critical Hdwy	4.12	-	-	4.18	-	-	7.13	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.272	-	-	3.527	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1060	-	-	1054	-	-	210	232	599	191	227	571
Stage 1	-	-	-	-	-	-	580	566	-	505	504	-
Stage 2	-	-	-	-	-	-	503	502	-	538	554	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1060	-	-	1046	-	-	202	222	594	141	217	571
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	222	-	141	217	-
Stage 1	-	-	-	-	-	-	575	561	-	504	487	-
Stage 2	-	-	-	-	-	-	483	485	-	408	549	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	112	36.1
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	290	1060	-	-	1046	-	-	151
HCM Lane V/C Ratio	1.07	0.001	-	-	0.034	-	-	0.238
HCM Control Delay (s)	112	8.4	-	-	8.6	-	-	36.1
HCM Lane LOS	F	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	12.1	0	-	-	0.1	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	564	17	4	472	6	27	1	20	30	2	30
Future Volume (vph)	7	564	17	4	472	6	27	1	20	30	2	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.998			0.943			0.935	
Flt Protected		0.999						0.973			0.976	
Satd. Flow (prot)	0	1804	0	0	1774	0	0	1696	0	0	1734	0
Flt Permitted		0.999						0.973			0.976	
Satd. Flow (perm)	0	1804	0	0	1774	0	0	1696	0	0	1734	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)	1		8	8		1	13		10	10		13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	0%	5%	7%	0%	5%	0%	0%	0%	0%	0%
Adj. Flow (vph)	7	581	18	4	487	6	28	1	21	31	2	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	606	0	0	497	0	0	50	0	0	64	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	564	17	4	472	6	27	1	20	30	2	30
Future Vol, veh/h	7	564	17	4	472	6	27	1	20	30	2	30
Conflicting Peds, #/hr	1	0	8	8	0	1	13	0	10	10	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	5	0	5	7	0	5	0	0	0	0	0
Mvmt Flow	7	581	18	4	487	6	28	1	21	31	2	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	494	0	0	607	0	0	1140	1114	608	1124	1120	504
Stage 1	-	-	-	-	-	-	612	612	-	499	499	-
Stage 2	-	-	-	-	-	-	528	502	-	625	621	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.15	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.545	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1080	-	-	957	-	-	176	210	499	184	208	572
Stage 1	-	-	-	-	-	-	475	487	-	557	547	-
Stage 2	-	-	-	-	-	-	528	545	-	476	482	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1079	-	-	951	-	-	160	205	491	172	203	565
Mov Cap-2 Maneuver	-	-	-	-	-	-	160	205	-	172	203	-
Stage 1	-	-	-	-	-	-	467	479	-	551	543	-
Stage 2	-	-	-	-	-	-	489	541	-	447	474	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	25.6	23.2
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	224	1079	-	-	951	-	-	261
HCM Lane V/C Ratio	0.221	0.007	-	-	0.004	-	-	0.245
HCM Control Delay (s)	25.6	8.4	0	-	8.8	0	-	23.2
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	522	79	48	300	42	151	0	157	131	0	32
Future Volume (vph)	11	522	79	48	300	42	151	0	157	131	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980			0.981			0.931			0.973	
Flt Protected	0.950			0.950				0.976			0.961	
Satd. Flow (prot)	1770	1784	0	1703	1738	0	0	1622	0	0	1742	0
Flt Permitted	0.950			0.950				0.976			0.961	
Satd. Flow (perm)	1770	1784	0	1703	1738	0	0	1622	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			11	11					1			
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
Heavy Vehicles (%)	2%	4%	7%	6%	8%	2%	9%	2%	4%	2%	2%	2%
Adj. Flow (vph)	12	567	86	52	326	46	164	0	171	142	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	653	0	52	372	0	0	335	0	0	177	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	82.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	522	79	48	300	42	151	0	157	131	0	32
Future Vol, veh/h	11	522	79	48	300	42	151	0	157	131	0	32
Conflicting Peds, #/hr	0	0	11	11	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	7	6	8	2	9	2	4	2	2	2
Mvmt Flow	12	567	86	52	326	46	164	0	171	142	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	372	0	0	664	0	0	1116	1121	622	1174	1141	349
Stage 1	-	-	-	-	-	-	645	645	-	453	453	-
Stage 2	-	-	-	-	-	-	471	476	-	721	688	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.19	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.581	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1186	-	-	906	-	-	179	206	483	169	201	694
Stage 1	-	-	-	-	-	-	449	467	-	586	570	-
Stage 2	-	-	-	-	-	-	560	557	-	419	447	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1186	-	-	898	-	-	~ 160	190	478	~ 103	186	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 160	190	-	~ 103	186	-
Stage 1	-	-	-	-	-	-	440	458	-	580	537	-
Stage 2	-	-	-	-	-	-	501	525	-	266	439	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	235.4	297.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	1186	-	-	898	-	-	124
HCM Lane V/C Ratio	1.383	0.01	-	-	0.058	-	-	1.429
HCM Control Delay (s)	235.4	8.1	-	-	9.3	-	-	297.8
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	18.4	0	-	-	0.2	-	-	12.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	726	2	2	356	62	2	0	2	6	0	31
Future Volume (vph)	83	726	2	2	356	62	2	0	2	6	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.980			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1827	0	0	1744	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1827	0	0	1744	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	90	789	2	2	387	67	2	0	2	7	0	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	791	0	0	456	0	0	4	0	7	0	34
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.3%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	726	2	2	356	62	2	0	2	6	0	31
Future Vol, veh/h	83	726	2	2	356	62	2	0	2	6	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	90	789	2	2	387	67	2	0	2	7	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	454	0	0	791	0	0	1412	1428	790	1396	-	421
Stage 1	-	-	-	-	-	-	970	970	-	425	-	-
Stage 2	-	-	-	-	-	-	442	458	-	971	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	1117	-	-	838	-	-	117	136	393	120	0	637
Stage 1	-	-	-	-	-	-	307	334	-	611	0	-
Stage 2	-	-	-	-	-	-	598	570	-	307	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1117	-	-	838	-	-	104	125	393	112	-	637
Mov Cap-2 Maneuver	-	-	-	-	-	-	104	125	-	112	-	-
Stage 1	-	-	-	-	-	-	282	307	-	562	-	-
Stage 2	-	-	-	-	-	-	565	568	-	281	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	27.5	15.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	164	1117	-	-	838	-	-	112	637
HCM Lane V/C Ratio	0.027	0.081	-	-	0.003	-	-	0.058	0.053
HCM Control Delay (s)	27.5	8.5	-	-	9.3	0	-	39.1	11
HCM Lane LOS	D	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	0.2	0.2

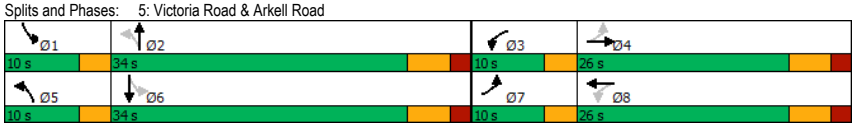
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	502	137	94	199	116	88	70	838	112	62	714	240
Future Volume (vph)	502	137	94	199	116	88	70	838	112	62	714	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		1.00				0.99	
Frt		0.939			0.935			0.982			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1679	0	1787	1694	0	1805	1760	0	1752	1670	0
Flt Permitted	0.519			0.452			0.141			0.141		
Satd. Flow (perm)	947	1679	0	850	1694	0	268	1760	0	260	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			46			9			23	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)	1					1	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	11%	1%	3%	5%	0%	6%	6%	3%	8%	11%
Adj. Flow (vph)	552	151	103	219	127	97	77	921	123	68	785	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	552	254	0	219	224	0	77	1044	0	68	1049	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.8	14.7		24.8	14.7		36.7	28.3		36.7	28.3	
Actuated g/C Ratio	0.34	0.20		0.34	0.20		0.50	0.39		0.50	0.39	
v/c Ratio	1.39	0.68		0.58	0.59		0.27	1.52		0.25	1.59	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	212.0	32.9		23.7	28.0		11.6	263.7		11.4	293.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	212.0	32.9		23.7	28.0		11.6	263.7		11.4	293.4	
LOS	F	C		C	C		B	F		B	F	
Approach Delay		155.5			25.9			246.4			276.3	
Approach LOS		F			C			F			F	
Queue Length 50th (m)	~112.8	29.5		22.8	23.9		5.0	~226.5		4.4	~230.8	
Queue Length 95th (m)	#175.1	53.2		38.9	45.3		12.6	#325.7		11.4	#329.5	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	398	494		380	502		283	688		275	661	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.39	0.51		0.58	0.45		0.27	1.52		0.25	1.59	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 72.9		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.59		
Intersection Signal Delay: 206.9		Intersection LOS: F
Intersection Capacity Utilization 111.0%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	502	137	94	199	116	88	70	838	112	62	714	240
Future Volume (veh/h)	502	137	94	199	116	88	70	838	112	62	714	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1856	1737	1885	1856	1826	1900	1811	1811	1856	1781	1737
Adj Flow Rate, veh/h	552	151	103	219	127	97	77	921	123	68	785	264
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
Percent Heavy Veh, %	4	3	11	1	3	5	0	6	6	3	8	11
Cap, veh/h	342	189	129	325	180	137	239	617	82	228	497	167
Arrive On Green	0.10	0.18	0.18	0.10	0.18	0.18	0.08	0.39	0.39	0.07	0.39	0.39
Sat Flow, veh/h	1753	1027	700	1795	975	744	1810	1564	209	1767	1274	428
Grp Volume(v), veh/h	552	0	254	219	0	224	77	0	1044	68	0	1049
Grp Sat Flow(s),veh/h/ln	1753	0	1727	1795	0	1719	1810	0	1773	1767	0	1702
Q Serve(g_s), s	7.0	0.0	10.1	7.0	0.0	8.8	1.7	0.0	28.3	1.5	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	10.1	7.0	0.0	8.8	1.7	0.0	28.3	1.5	0.0	28.0
Prop In Lane	1.00		0.41	1.00		0.43	1.00		0.12	1.00		0.25
Lane Grp Cap(c), veh/h	342	0	319	325	0	317	239	0	699	228	0	665
V/C Ratio(X)	1.61	0.00	0.80	0.67	0.00	0.71	0.32	0.00	1.49	0.30	0.00	1.58
Avail Cap(c_a), veh/h	342	0	482	325	0	479	277	0	699	273	0	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	28.0	22.1	0.0	27.4	16.1	0.0	21.7	16.2	0.0	21.9
Incr Delay (d2), s/veh	288.8	0.0	5.4	5.4	0.0	2.9	0.8	0.0	229.3	0.7	0.0	267.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.0	0.0	2.2	1.2	0.0	1.5	0.1	0.0	45.4	0.0	0.0	50.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	315.9	0.0	33.4	27.5	0.0	30.3	16.9	0.0	251.1	16.9	0.0	289.3
LnGrp LOS	F	A	C	C	A	C	B	A	F	B	A	F
Approach Vol, veh/h		806			443			1121			1117	
Approach Delay, s/veh		226.8			28.9			235.0			272.8	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	34.3	10.0	19.2	8.5	34.0	10.0	19.2
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	3.5	30.3	9.0	12.1	3.7	30.0	9.0	10.8
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.1	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	219.0
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	58	53	1374	947	133
Future Volume (vph)	96	58	53	1374	947	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1759	1615
Flt Permitted	0.950		0.169			
Satd. Flow (perm)	1805	1615	321	1792	1759	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		63				144
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	8%	0%
Adj. Flow (vph)	104	63	58	1493	1029	145
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	63	58	1493	1029	145
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	51.0	51.0	51.0	51.0
Total Split (%)	32.0%	32.0%	68.0%	68.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	45.0	45.0	45.0	45.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.7	10.7	52.0	52.0	52.0	52.0
Actuated g/C Ratio	0.15	0.15	0.74	0.74	0.74	0.74
v/c Ratio	0.38	0.21	0.24	1.12	0.79	0.12
Control Delay	30.8	9.3	8.1	82.8	15.1	1.2
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	30.8	9.3	8.1	83.0	15.1	1.2
LOS	C	A	A	F	B	A
Approach Delay	22.7			80.2	13.4	
Approach LOS	C			F	B	
Queue Length 50th (m)	12.9	0.0	2.5	~254.4	88.4	0.0
Queue Length 95th (m)	26.0	9.3	9.5	#343.8	#204.3	5.1
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	465	463	238	1330	1305	1235
Starvation Cap Reductn	0	0	0	42	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.14	0.24	1.16	0.79	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 70.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 49.7		Intersection LOS: D	
Intersection Capacity Utilization 90.6%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	58	53	1374	947	133
Future Volume (veh/h)	96	58	53	1374	947	133
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1781	1900
Adj Flow Rate, veh/h	104	63	58	1493	1029	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	8	0
Cap, veh/h	260	231	222	1225	1205	1089
Arrive On Green	0.14	0.14	0.68	0.68	0.68	0.68
Sat Flow, veh/h	1810	1610	485	1811	1781	1610
Grp Volume(v), veh/h	104	63	58	1493	1029	145
Grp Sat Flow(s),veh/h/ln	1810	1610	485	1811	1781	1610
Q Serve(g_s), s	3.5	2.3	6.9	45.0	29.5	2.1
Cycle Q Clear(g_c), s	3.5	2.3	36.4	45.0	29.5	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	260	231	222	1225	1205	1089
V/C Ratio(X)	0.40	0.27	0.26	1.22	0.85	0.13
Avail Cap(c_a), veh/h	489	436	222	1225	1205	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.4	22.2	10.8	8.3	3.8
Incr Delay (d2), s/veh	1.0	0.6	2.9	106.2	7.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.4	0.4	36.1	2.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	26.0	25.1	116.9	16.1	4.1
LnGrp LOS	C	C	C	F	B	A
Approach Vol, veh/h	167			1551	1174	
Approach Delay, s/veh	26.6			113.5	14.6	
Approach LOS	C			F	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		51.0		15.5		51.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		45.0		18.0		45.0
Max Q Clear Time (g_c+I1), s		47.0		5.5		31.5
Green Ext Time (p_c), s		0.0		0.5		8.0

Intersection Summary			
HCM 6th Ctrl Delay		68.3	
HCM 6th LOS		E	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	162	52	17	1453	1028	52
Future Volume (vph)	162	52	17	1453	1028	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.993	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1850	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1850	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	57	18	1579	1117	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	57	18	1579	1174	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 92.1%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	216.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	162	52	17	1453	1028	52
Future Vol, veh/h	162	52	17	1453	1028	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	176	57	18	1579	1117	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2761	1146	1174	0	-	0
Stage 1	1146	-	-	-	-	-
Stage 2	1615	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 22	243	595	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 21	243	595	-	-	-
Mov Cap-2 Maneuver	~ 21	-	-	-	-	-
Stage 1	294	-	-	-	-	-
Stage 2	179	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	2794.8	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	595	-	21	243	-	-
HCM Lane V/C Ratio	0.031	-	8.385	0.233	-	-
HCM Control Delay (s)	11.2	-	$ 3684.1	24.2	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	22.3	0.9	-	-

Notes				
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	557	177	101	477	28	84	0	52	17	0	2
Future Volume (vph)	3	557	177	101	477	28	84	0	52	17	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.964			0.991			0.949			0.986	
Flt Protected	0.950			0.950				0.970			0.957	
Satd. Flow (prot)	1770	1805	0	1805	1863	0	0	1749	0	0	1758	0
Flt Permitted	0.950			0.950				0.970			0.957	
Satd. Flow (perm)	1770	1805	0	1805	1863	0	0	1749	0	0	1758	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			138.6	
Travel Time (s)		20.9			14.9			15.4			10.0	
Confl. Peds. (#/hr)			3	3					1			
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	3%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	3	580	184	105	497	30	88	0	54	18	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	764	0	105	527	0	0	142	0	0	20	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	12

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	557	177	101	477	28	84	0	52	17	0	2
Future Vol, veh/h	3	557	177	101	477	28	84	0	52	17	0	2
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	96	96	96	92	96	92	96	92	92	92
Heavy Vehicles, %	2	1	3	0	1	2	0	2	0	2	2	2
Mvmt Flow	3	580	184	105	497	30	88	0	54	18	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	527	0	0	767	0	0	1404	1418	676	1428	1495	512
Stage 1	-	-	-	-	-	-	681	681	-	722	722	-
Stage 2	-	-	-	-	-	-	723	737	-	706	773	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1040	-	-	856	-	-	118	137	457	113	123	562
Stage 1	-	-	-	-	-	-	444	450	-	418	431	-
Stage 2	-	-	-	-	-	-	421	425	-	427	409	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1040	-	-	854	-	-	106	119	455	90	107	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	106	119	-	90	107	-
Stage 1	-	-	-	-	-	-	442	447	-	417	378	-
Stage 2	-	-	-	-	-	-	368	373	-	375	407	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	118.3	50.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	150	1040	-	-	854	-	-	99
HCM Lane V/C Ratio	0.944	0.003	-	-	0.123	-	-	0.209
HCM Control Delay (s)	118.3	8.5	-	-	9.8	-	-	50.7
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	6.8	0	-	-	0.4	-	-	0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	544	37	9	561	16	20	0	4	10	1	24
Future Volume (vph)	45	544	37	9	561	16	20	0	4	10	1	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.996			0.978			0.909	
Flt Protected		0.996			0.999			0.960			0.985	
Satd. Flow (prot)	0	1861	0	0	1873	0	0	1784	0	0	1701	0
Flt Permitted		0.996			0.999			0.960			0.985	
Satd. Flow (perm)	0	1861	0	0	1873	0	0	1784	0	0	1701	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)			9	9			7		7	7		7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	47	573	39	9	591	17	21	0	4	11	1	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	659	0	0	617	0	0	25	0	0	37	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.3%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	544	37	9	561	16	20	0	4	10	1	24
Future Vol, veh/h	45	544	37	9	561	16	20	0	4	10	1	24
Conflicting Peds, #/hr	0	0	9	9	0	0	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	47	573	39	9	591	17	21	0	4	11	1	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	608	0	0	621	0	0	1334	1322	609	1314	1333	607
Stage 1	-	-	-	-	-	-	696	696	-	618	618	-
Stage 2	-	-	-	-	-	-	638	626	-	696	715	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	980	-	-	969	-	-	132	158	499	136	155	500
Stage 1	-	-	-	-	-	-	435	446	-	480	484	-
Stage 2	-	-	-	-	-	-	468	480	-	435	438	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	980	-	-	962	-	-	115	143	492	125	141	497
Mov Cap-2 Maneuver	-	-	-	-	-	-	115	143	-	125	141	-
Stage 1	-	-	-	-	-	-	400	410	-	445	477	-
Stage 2	-	-	-	-	-	-	434	473	-	397	403	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	38.6	21.2
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	132	980	-	-	962	-	-	259
HCM Lane V/C Ratio	0.191	0.048	-	-	0.01	-	-	0.142
HCM Control Delay (s)	38.6	8.9	0	-	8.8	0	-	21.2
HCM Lane LOS	E	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0	-	-	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	418	111	82	468	138	100	0	83	81	0	18
Future Volume (vph)	29	418	111	82	468	138	100	0	83	81	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.968			0.966			0.939			0.975	
Flt Protected	0.950			0.950				0.973			0.961	
Satd. Flow (prot)	1805	1825	0	1805	1807	0	0	1708	0	0	1780	0
Flt Permitted	0.950			0.950				0.973			0.961	
Satd. Flow (perm)	1805	1825	0	1805	1807	0	0	1708	0	0	1780	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	435	116	85	488	144	104	0	86	84	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	551	0	85	632	0	0	190	0	0	103	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	22.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	418	111	82	468	138	100	0	83	81	0	18
Future Vol, veh/h	29	418	111	82	468	138	100	0	83	81	0	18
Conflicting Peds, #/hr	0	0	8	8	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	1	0	0	2	0	3	0	0	0	0	0
Mvmt Flow	30	435	116	85	488	144	104	0	86	84	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	632	0	0	559	0	0	1301	1363	501	1326	1349	560
Stage 1	-	-	-	-	-	-	561	561	-	730	730	-
Stage 2	-	-	-	-	-	-	740	802	-	596	619	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.13	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.527	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	960	-	-	1022	-	-	137	149	574	134	152	532
Stage 1	-	-	-	-	-	-	510	513	-	417	431	-
Stage 2	-	-	-	-	-	-	407	399	-	494	483	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	960	-	-	1015	-	-	120	131	570	104	134	532
Mov Cap-2 Maneuver	-	-	-	-	-	-	120	131	-	104	134	-
Stage 1	-	-	-	-	-	-	491	494	-	404	395	-
Stage 2	-	-	-	-	-	-	360	365	-	406	465	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.1	122.7	111.2
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	187	960	-	-	1015	-	-	122
HCM Lane V/C Ratio	1.019	0.031	-	-	0.084	-	-	0.845
HCM Control Delay (s)	122.7	8.9	-	-	8.9	-	-	111.2
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	8.7	0.1	-	-	0.3	-	-	5.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	570	4	2	676	7	2	0	2	8	0	9
Future Volume (vph)	8	570	4	2	676	7	2	0	2	8	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.999			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1826	0	0	1759	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1826	0	0	1759	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	9	620	4	2	735	8	2	0	2	9	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	624	0	0	745	0	0	4	0	9	0	10
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	570	4	2	676	7	2	0	2	8	0	9
Future Vol, veh/h	8	570	4	2	676	7	2	0	2	8	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	9	620	4	2	735	8	2	0	2	9	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	743	0	0	624	0	0	1388	1387	622	1384	-	739
Stage 1	-	-	-	-	-	-	640	640	-	743	-	-
Stage 2	-	-	-	-	-	-	748	747	-	641	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	873	-	-	967	-	-	121	144	490	122	0	421
Stage 1	-	-	-	-	-	-	467	473	-	410	0	-
Stage 2	-	-	-	-	-	-	408	423	-	466	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	873	-	-	967	-	-	117	142	490	120	-	421
Mov Cap-2 Maneuver	-	-	-	-	-	-	117	142	-	120	-	-
Stage 1	-	-	-	-	-	-	462	468	-	406	-	-
Stage 2	-	-	-	-	-	-	397	421	-	459	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	24.5	24.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	189	873	-	-	967	-	-	120	421
HCM Lane V/C Ratio	0.023	0.01	-	-	0.002	-	-	0.072	0.023
HCM Control Delay (s)	24.5	9.2	-	-	8.7	0	-	37.3	13.8
HCM Lane LOS	C	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2	0.1

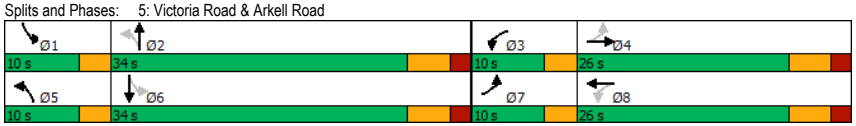
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	304	178	98	150	231	84	107	882	179	91	859	344
Future Volume (vph)	304	178	98	150	231	84	107	882	179	91	859	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00				0.99	
Frt		0.947			0.960			0.975			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1788	0	1703	1796	0	1805	1759	0	1805	1761	0
Flt Permitted	0.315			0.396			0.141			0.141		
Satd. Flow (perm)	593	1788	0	710	1796	0	268	1759	0	268	1761	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			22			14			28	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)							6					6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	6%	1%	3%	0%	6%	2%	0%	3%	1%
Adj. Flow (vph)	323	189	104	160	246	89	114	938	190	97	914	366
Shared Lane Traffic (%)												
Lane Group Flow (vph)	323	293	0	160	335	0	114	1128	0	97	1280	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	27.1	17.0		27.1	17.0		36.7	28.3		36.7	28.3	
Actuated g/C Ratio	0.36	0.23		0.36	0.23		0.49	0.38		0.49	0.38	
v/c Ratio	0.99	0.68		0.46	0.79		0.41	1.68		0.35	1.88	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	72.0	32.7		20.3	40.8		14.8	336.3		13.7	423.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	72.0	32.7		20.3	40.8		14.8	336.3		13.7	423.8	
LOS	E	C		C	D		B	F		B	F	
Approach Delay		53.4			34.2			306.8			394.9	
Approach LOS		D			C			F			F	
Queue Length 50th (m)	36.0	36.8		16.1	45.8		8.7	~274.5		7.4	~323.4	
Queue Length 95th (m)	#87.9	63.0		29.3	#81.8		17.3	#355.1		15.1	#406.9	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	326	504		349	498		275	670		275	680	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.99	0.58		0.46	0.67		0.41	1.68		0.35	1.88	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 75.2		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.88		
Intersection Signal Delay: 261.3		Intersection LOS: F
Intersection Capacity Utilization 123.0%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	304	178	98	150	231	84	107	882	179	91	859	344
Future Volume (veh/h)	304	178	98	150	231	84	107	882	179	91	859	344
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1811	1885	1856	1900	1811	1870	1900	1856	1885
Adj Flow Rate, veh/h	323	189	104	160	246	89	114	938	190	97	914	366
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	6	1	3	0	6	2	0	3	1
Cap, veh/h	301	248	137	319	287	104	247	544	110	240	464	186
Arrive On Green	0.09	0.22	0.22	0.09	0.22	0.22	0.08	0.37	0.37	0.08	0.37	0.37
Sat Flow, veh/h	1795	1143	629	1725	1321	478	1810	1459	296	1810	1257	503
Grp Volume(v), veh/h	323	0	293	160	0	335	114	0	1128	97	0	1280
Grp Sat Flow(s),veh/h/ln	1795	0	1772	1725	0	1799	1810	0	1755	1810	0	1760
Q Serve(g_s), s	7.0	0.0	11.8	5.4	0.0	13.6	2.8	0.0	28.3	2.4	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	11.8	5.4	0.0	13.6	2.8	0.0	28.3	2.4	0.0	28.0
Prop In Lane	1.00		0.35	1.00		0.27	1.00		0.17	1.00		0.29
Lane Grp Cap(c), veh/h	301	0	385	319	0	391	247	0	654	240	0	650
V/C Ratio(X)	1.07	0.00	0.76	0.50	0.00	0.86	0.46	0.00	1.72	0.40	0.00	1.97
Avail Cap(c_a), veh/h	301	0	467	319	0	475	262	0	654	262	0	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.7	0.0	27.8	21.0	0.0	28.6	17.3	0.0	23.8	17.3	0.0	23.9
Incr Delay (d2), s/veh	73.0	0.0	5.9	1.2	0.0	12.5	1.3	0.0	332.1	1.1	0.0	441.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	2.7	0.7	0.0	3.5	0.1	0.0	62.4	0.1	0.0	81.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.8	0.0	33.7	22.2	0.0	41.1	18.6	0.0	355.9	18.4	0.0	465.7
LnGrp LOS	F	A	C	C	A	D	B	A	F	B	A	F
Approach Vol, veh/h		616			495			1242			1377	
Approach Delay, s/veh		68.3			35.0			324.9			434.2	
Approach LOS		E			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	34.3	10.0	22.5	9.4	34.0	10.0	22.5
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	4.4	30.3	7.4	13.8	4.8	30.0	9.0	15.6
Green Ext Time (p_c), s	0.1	0.0	0.0	1.0	0.1	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	284.4
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	23	20	1248	1271	43
Future Volume (vph)	50	23	20	1248	1271	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1845	1615
Flt Permitted	0.950		0.066			
Satd. Flow (perm)	1805	1615	125	1792	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				35
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	54	25	22	1357	1382	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	25	22	1357	1382	47
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.1	10.1	63.4	63.4	63.4	63.4
Actuated g/C Ratio	0.13	0.13	0.83	0.83	0.83	0.83
v/c Ratio	0.23	0.11	0.21	0.91	0.90	0.03
Control Delay	32.7	13.3	9.9	21.9	20.5	1.7
Queue Delay	0.0	0.0	0.0	7.4	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	32.7	13.3	9.9	29.3	20.5	1.7
LOS	C	B	A	C	C	A
Approach Delay	26.6			28.9	19.9	
Approach LOS	C			C	B	
Queue Length 50th (m)	8.8	0.0	1.0	~210.7	~198.5	0.4
Queue Length 95th (m)	16.8	6.5	5.3	#298.8	#301.1	3.0
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	429	403	104	1492	1536	1351
Starvation Cap Reductn	0	0	0	118	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.06	0.21	0.99	0.90	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.1			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 24.4		Intersection LOS: C	
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	23	20	1248	1271	43
Future Volume (veh/h)	50	23	20	1248	1271	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1856	1900
Adj Flow Rate, veh/h	54	25	22	1357	1382	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	3	0
Cap, veh/h	203	181	103	1297	1328	1153
Arrive On Green	0.11	0.11	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1810	1610	381	1811	1856	1610
Grp Volume(v), veh/h	54	25	22	1357	1382	47
Grp Sat Flow(s),veh/h/ln	1810	1610	381	1811	1856	1610
Q Serve(g_s), s	1.9	1.0	0.0	50.0	50.0	0.6
Cycle Q Clear(g_c), s	1.9	1.0	50.0	50.0	50.0	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	203	181	103	1297	1328	1153
V/C Ratio(X)	0.27	0.14	0.21	1.05	1.04	0.04
Avail Cap(c_a), veh/h	466	415	103	1297	1328	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	28.0	34.9	9.9	9.9	2.9
Incr Delay (d2), s/veh	0.7	0.3	4.7	38.1	35.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	0.3	13.7	13.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.1	28.3	39.6	48.0	45.8	3.0
LnGrp LOS	C	C	D	F	F	A
Approach Vol, veh/h	79			1379	1429	
Approach Delay, s/veh	28.8			47.9	44.4	
Approach LOS	C			D	D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		56.0		13.8		56.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		18.0		50.0
Max Q Clear Time (g_c+I1), s		52.0		3.9		52.0
Green Ext Time (p_c), s		0.0		0.2		0.0

Intersection Summary			
HCM 6th Ctrl Delay		45.6	
HCM 6th LOS		D	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	38	64	1234	1276	153
Future Volume (vph)	90	38	64	1234	1276	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.986	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1825	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1792	1825	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	98	41	70	1341	1387	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	41	70	1341	1553	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 88.1%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	111.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	38	64	1234	1276	153
Future Vol, veh/h	90	38	64	1234	1276	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	3	0
Mvmt Flow	98	41	70	1341	1387	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2951	1470	1553	0	-	0
Stage 1	1470	-	-	-	-	-
Stage 2	1481	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 16	158	432	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 13	158	432	-	-	-
Mov Cap-2 Maneuver	~ 13	-	-	-	-	-
Stage 1	178	-	-	-	-	-
Stage 2	210	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	2477.7	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	432	-	13	158	-	-
HCM Lane V/C Ratio	0.161	-	7.525	0.261	-	-
HCM Control Delay (s)	14.9	-	$ 3508.8	35.7	-	-
HCM Lane LOS	B	-	F	E	-	-
HCM 95th %tile Q(veh)	0.6	-	13.4	1	-	-

Notes				
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	

Appendix G

2036 Background Traffic Operations Reports

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	466	48	41	542	10	188	0	162	30	0	3
Future Volume (vph)	1	466	48	41	542	10	188	0	162	30	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.986			0.997			0.938			0.989	
Flt Protected	0.950			0.950				0.974			0.956	
Satd. Flow (prot)	1770	1787	0	1671	1772	0	0	1678	0	0	1761	0
Flt Permitted	0.950			0.950				0.974			0.956	
Satd. Flow (perm)	1770	1787	0	1671	1772	0	0	1678	0	0	1761	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			180.9	
Travel Time (s)		20.9			14.9			15.4			13.0	
Confl. Peds. (#/hr)			9	9								
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	13%	8%	7%	2%	3%	2%	4%	2%	2%	2%
Adj. Flow (vph)	1	476	49	42	553	11	192	0	165	33	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	525	0	42	564	0	0	357	0	0	36	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	63.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	466	48	41	542	10	188	0	162	30	0	3
Future Vol, veh/h	1	466	48	41	542	10	188	0	162	30	0	3
Conflicting Peds, #/hr	0	0	9	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	4	13	8	7	2	3	2	4	2	2	2
Mvmt Flow	1	476	49	42	553	11	192	0	165	33	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	564	0	0	534	0	0	1156	1160	510	1228	1179	559
Stage 1	-	-	-	-	-	-	512	512	-	643	643	-
Stage 2	-	-	-	-	-	-	644	648	-	585	536	-
Critical Hdwy	4.12	-	-	4.18	-	-	7.13	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.272	-	-	3.527	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1008	-	-	1004	-	-	~ 173	195	559	155	190	529
Stage 1	-	-	-	-	-	-	543	536	-	462	468	-
Stage 2	-	-	-	-	-	-	460	466	-	497	523	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1008	-	-	996	-	-	~ 165	185	555	105	180	529
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 165	185	-	105	180	-
Stage 1	-	-	-	-	-	-	538	531	-	462	448	-
Stage 2	-	-	-	-	-	-	438	446	-	349	518	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	265	51
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	1008	-	-	996	-	-	113
HCM Lane V/C Ratio	1.458	0.001	-	-	0.042	-	-	0.317
HCM Control Delay (s)	265	8.6	-	-	8.8	-	-	51
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	20.5	0	-	-	0.1	-	-	1.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	630	20	4	528	6	31	1	22	32	3	33
Future Volume (vph)	7	630	20	4	528	6	31	1	22	32	3	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.999			0.945			0.934	
Flt Protected		0.999						0.972			0.977	
Satd. Flow (prot)	0	1804	0	0	1775	0	0	1697	0	0	1734	0
Flt Permitted		0.999						0.972			0.977	
Satd. Flow (perm)	0	1804	0	0	1775	0	0	1697	0	0	1734	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)	1		8	8		1	13		10	10		13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	0%	5%	7%	0%	5%	0%	0%	0%	0%	0%
Adj. Flow (vph)	7	649	21	4	544	6	32	1	23	33	3	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	677	0	0	554	0	0	56	0	0	70	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	630	20	4	528	6	31	1	22	32	3	33
Future Vol, veh/h	7	630	20	4	528	6	31	1	22	32	3	33
Conflicting Peds, #/hr	1	0	8	8	0	1	13	0	10	10	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	5	0	5	7	0	5	0	0	0	0	0
Mvmt Flow	7	649	21	4	544	6	32	1	23	33	3	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	551	0	0	678	0	0	1269	1241	678	1252	1248	561
Stage 1	-	-	-	-	-	-	682	682	-	556	556	-
Stage 2	-	-	-	-	-	-	587	559	-	696	692	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.15	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.545	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1029	-	-	900	-	-	143	176	456	151	175	531
Stage 1	-	-	-	-	-	-	435	453	-	519	516	-
Stage 2	-	-	-	-	-	-	491	514	-	435	448	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1028	-	-	894	-	-	128	172	449	140	171	525
Mov Cap-2 Maneuver	-	-	-	-	-	-	128	172	-	140	171	-
Stage 1	-	-	-	-	-	-	427	445	-	513	512	-
Stage 2	-	-	-	-	-	-	449	510	-	404	440	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	33.3	28.8
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	182	1028	-	-	894	-	-	220
HCM Lane V/C Ratio	0.306	0.007	-	-	0.005	-	-	0.319
HCM Control Delay (s)	33.3	8.5	0	-	9	0	-	28.8
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1.2	0	-	-	0	-	-	1.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	581	91	55	334	42	174	0	181	131	0	32
Future Volume (vph)	11	581	91	55	334	42	174	0	181	131	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980			0.983			0.931			0.973	
Flt Protected	0.950			0.950				0.976			0.961	
Satd. Flow (prot)	1770	1783	0	1703	1740	0	0	1622	0	0	1742	0
Flt Permitted	0.950			0.950				0.976			0.961	
Satd. Flow (perm)	1770	1783	0	1703	1740	0	0	1622	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			11	11					1			
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
Heavy Vehicles (%)	2%	4%	7%	6%	8%	2%	9%	2%	4%	2%	2%	2%
Adj. Flow (vph)	12	632	99	60	363	46	189	0	197	142	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	731	0	60	409	0	0	386	0	0	177	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.0%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	163.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	581	91	55	334	42	174	0	181	131	0	32
Future Vol, veh/h	11	581	91	55	334	42	174	0	181	131	0	32
Conflicting Peds, #/hr	0	0	11	11	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	7	6	8	2	9	2	4	2	2	2
Mvmt Flow	12	632	99	60	363	46	189	0	197	142	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	409	0	0	742	0	0	1241	1246	694	1311	1272	386
Stage 1	-	-	-	-	-	-	717	717	-	506	506	-
Stage 2	-	-	-	-	-	-	524	529	-	805	766	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.19	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.581	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1150	-	-	847	-	-	~ 147	174	439	~ 136	168	662
Stage 1	-	-	-	-	-	-	410	434	-	549	540	-
Stage 2	-	-	-	-	-	-	524	527	-	376	412	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1150	-	-	839	-	-	~ 129	158	435	~ 70	153	662
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 129	158	-	~ 70	153	-
Stage 1	-	-	-	-	-	-	402	426	-	544	501	-
Stage 2	-	-	-	-	-	-	461	489	-	204	404	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.2	$ 471.3	$ 606.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	201	1150	-	-	839	-	-	85
HCM Lane V/C Ratio	1.92	0.01	-	-	0.071	-	-	2.084
HCM Control Delay (s)	$ 471.3	8.2	-	-	9.6	-	-	$ 606.4
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	28.2	0	-	-	0.2	-	-	15.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	808	3	3	397	62	3	0	3	6	0	31
Future Volume (vph)	83	808	3	3	397	62	3	0	3	6	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.982			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1825	0	0	1746	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1825	0	0	1746	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	90	878	3	3	432	67	3	0	3	7	0	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	881	0	0	502	0	0	6	0	7	0	34
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.9%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	808	3	3	397	62	3	0	3	6	0	31
Future Vol, veh/h	83	808	3	3	397	62	3	0	3	6	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	90	878	3	3	432	67	3	0	3	7	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	499	0	0	881	0	0	1549	1565	880	1533	-	466
Stage 1	-	-	-	-	-	-	1060	1060	-	472	-	-
Stage 2	-	-	-	-	-	-	489	505	-	1061	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	1075	-	-	776	-	-	94	113	349	96	0	601
Stage 1	-	-	-	-	-	-	273	303	-	576	0	-
Stage 2	-	-	-	-	-	-	564	544	-	273	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1075	-	-	776	-	-	83	103	349	89	-	601
Mov Cap-2 Maneuver	-	-	-	-	-	-	83	103	-	89	-	-
Stage 1	-	-	-	-	-	-	250	278	-	528	-	-
Stage 2	-	-	-	-	-	-	530	541	-	248	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.1	33.2	17.3
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	134	1075	-	-	776	-	-	89	601
HCM Lane V/C Ratio	0.049	0.084	-	-	0.004	-	-	0.073	0.056
HCM Control Delay (s)	33.2	8.7	-	-	9.7	0	-	48.6	11.3
HCM Lane LOS	D	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0	-	-	0.2	0.2

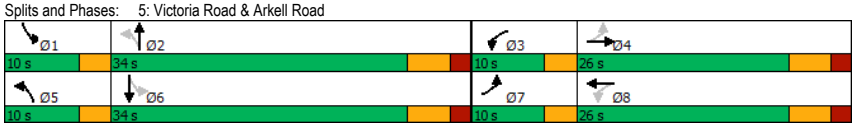
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	563	154	98	229	131	101	75	951	129	69	802	262
Future Volume (vph)	563	154	98	229	131	101	75	951	129	69	802	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		1.00				0.99	
Frt		0.942			0.935			0.982			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1687	0	1787	1694	0	1805	1760	0	1752	1673	0
Flt Permitted	0.458			0.411			0.141			0.141		
Satd. Flow (perm)	836	1687	0	773	1694	0	268	1760	0	260	1673	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			46			9			23	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)	1					1	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	11%	1%	3%	5%	0%	6%	6%	3%	8%	11%
Adj. Flow (vph)	619	169	108	252	144	111	82	1045	142	76	881	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	619	277	0	252	255	0	82	1187	0	76	1169	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	25.6	15.5		25.6	15.5		36.7	28.3		36.7	28.3	
Actuated g/C Ratio	0.35	0.21		0.35	0.21		0.50	0.38		0.50	0.38	
v/c Ratio	1.65	0.72		0.69	0.65		0.29	1.74		0.28	1.78	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	324.3	35.1		28.9	30.5		12.2	361.6		12.1	378.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	324.3	35.1		28.9	30.5		12.2	361.6		12.1	378.6	
LOS	F	D		C	C		B	F		B	F	
Approach Delay		234.9			29.7			339.0			356.2	
Approach LOS		F			C			F			F	
Queue Length 50th (m)	~139.2	33.7		26.7	28.9		5.5	~279.1		5.1	~275.6	
Queue Length 95th (m)	#205.8	59.4		#45.7	52.5		13.2	#377.4		12.5	#373.0	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	376	490		365	498		281	682		273	657	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.65	0.57		0.69	0.51		0.29	1.74		0.28	1.78	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 73.7		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.78		
Intersection Signal Delay: 280.6		Intersection LOS: F
Intersection Capacity Utilization 120.1%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	563	154	98	229	131	101	75	951	129	69	802	262
Future Volume (veh/h)	563	154	98	229	131	101	75	951	129	69	802	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1856	1737	1885	1856	1826	1900	1811	1811	1856	1781	1737
Adj Flow Rate, veh/h	619	169	108	252	144	111	82	1045	142	76	881	288
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
Percent Heavy Veh, %	4	3	11	1	3	5	0	6	6	3	8	11
Cap, veh/h	329	207	132	319	190	147	239	602	82	232	493	161
Arrive On Green	0.10	0.20	0.20	0.10	0.20	0.20	0.08	0.39	0.39	0.08	0.38	0.38
Sat Flow, veh/h	1753	1057	675	1795	971	748	1810	1560	212	1767	1284	420
Grp Volume(v), veh/h	619	0	277	252	0	255	82	0	1187	76	0	1169
Grp Sat Flow(s),veh/h/ln	1753	0	1732	1795	0	1719	1810	0	1772	1767	0	1704
Q Serve(g_s), s	7.0	0.0	11.2	7.0	0.0	10.2	1.9	0.0	28.2	1.8	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	11.2	7.0	0.0	10.2	1.9	0.0	28.2	1.8	0.0	28.0
Prop In Lane	1.00		0.39	1.00		0.44	1.00		0.12	1.00		0.25
Lane Grp Cap(c), veh/h	329	0	339	319	0	337	239	0	684	232	0	654
V/C Ratio(X)	1.88	0.00	0.82	0.79	0.00	0.76	0.34	0.00	1.74	0.33	0.00	1.79
Avail Cap(c_a), veh/h	329	0	475	319	0	471	272	0	684	268	0	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.0	0.0	28.1	24.0	0.0	27.7	16.5	0.0	22.4	16.5	0.0	22.5
Incr Delay (d2), s/veh	409.0	0.0	7.5	12.7	0.0	4.5	0.8	0.0	336.9	0.8	0.0	360.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.9	0.0	2.6	2.0	0.0	1.9	0.1	0.0	65.3	0.1	0.0	66.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	436.0	0.0	35.6	36.7	0.0	32.2	17.3	0.0	359.3	17.3	0.0	383.2
LnGrp LOS	F	A	D	D	A	C	B	A	F	B	A	F
Approach Vol, veh/h		896			507			1269			1245	
Approach Delay, s/veh		312.2			34.4			337.2			360.9	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	34.2	10.0	20.3	8.7	34.0	10.0	20.3
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	3.8	30.2	9.0	13.2	3.9	30.0	9.0	12.2
Green Ext Time (p_c), s	0.1	0.0	0.0	1.0	0.1	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	299.8
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	58	53	1561	1064	133
Future Volume (vph)	96	58	53	1561	1064	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1759	1615
Flt Permitted	0.950		0.101			
Satd. Flow (perm)	1805	1615	192	1792	1759	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		63				128
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	8%	0%
Adj. Flow (vph)	104	63	58	1697	1157	145
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	63	58	1697	1157	145
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	51.0	51.0	51.0	51.0
Total Split (%)	32.0%	32.0%	68.0%	68.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	45.0	45.0	45.0	45.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.7	10.7	52.0	52.0	52.0	52.0
Actuated g/C Ratio	0.15	0.15	0.74	0.74	0.74	0.74
v/c Ratio	0.38	0.21	0.41	1.28	0.89	0.12
Control Delay	30.8	9.3	17.7	148.2	21.9	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	30.8	9.3	17.7	148.2	21.9	1.5
LOS	C	A	B	F	C	A
Approach Delay	22.7			143.9	19.6	
Approach LOS	C			F	B	
Queue Length 50th (m)	12.9	0.0	3.0	~313.1	120.5	0.6
Queue Length 95th (m)	26.0	9.3	#20.8	#405.5	#244.1	5.9
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	465	463	142	1330	1305	1231
Starvation Cap Reductn	0	0	0	13	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.14	0.41	1.29	0.89	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 70.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 87.4		Intersection LOS: F	
Intersection Capacity Utilization 100.5%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	58	53	1561	1064	133
Future Volume (veh/h)	96	58	53	1561	1064	133
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1781	1900
Adj Flow Rate, veh/h	104	63	58	1697	1157	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	8	0
Cap, veh/h	260	231	141	1225	1205	1089
Arrive On Green	0.14	0.14	0.68	0.68	0.68	0.68
Sat Flow, veh/h	1810	1610	430	1811	1781	1610
Grp Volume(v), veh/h	104	63	58	1697	1157	145
Grp Sat Flow(s),veh/h/ln	1810	1610	430	1811	1781	1610
Q Serve(g_s), s	3.5	2.3	5.1	45.0	39.9	2.1
Cycle Q Clear(g_c), s	3.5	2.3	45.0	45.0	39.9	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	260	231	141	1225	1205	1089
V/C Ratio(X)	0.40	0.27	0.41	1.39	0.96	0.13
Avail Cap(c_a), veh/h	489	436	141	1225	1205	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.4	31.8	10.8	9.9	3.8
Incr Delay (d2), s/veh	1.0	0.6	8.6	178.6	18.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.4	0.7	60.8	6.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	26.0	40.5	189.4	28.0	4.1
LnGrp LOS	C	C	D	F	C	A
Approach Vol, veh/h	167			1755	1302	
Approach Delay, s/veh	26.6			184.5	25.3	
Approach LOS	C			F	C	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		51.0		15.5		51.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		45.0		18.0		45.0
Max Q Clear Time (g_c+I1), s		47.0		5.5		41.9
Green Ext Time (p_c), s		0.0		0.5		2.5

Intersection Summary		
HCM 6th Ctrl Delay	112.0	
HCM 6th LOS	F	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	162	52	17	1640	1145	52
Future Volume (vph)	162	52	17	1640	1145	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.994	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1852	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1852	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	176	57	18	1783	1245	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	57	18	1783	1302	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 102.0%		ICU Level of Service G	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	328.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	162	52	17	1640	1145	52
Future Vol, veh/h	162	52	17	1640	1145	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	176	57	18	1783	1245	57

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3093	1274	1302	0	-	0
Stage 1	1274	-	-	-	-	-
Stage 2	1819	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 13	204	532	-	-	-
Stage 1	263	-	-	-	-	-
Stage 2	~ 142	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 13	204	532	-	-	-
Mov Cap-2 Maneuver	~ 13	-	-	-	-	-
Stage 1	254	-	-	-	-	-
Stage 2	~ 142	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	4709.6	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	532	-	13	204	-	-
HCM Lane V/C Ratio	0.035	-	13.545	0.277	-	-
HCM Control Delay (s)	12	-	$ 6211.9	29.3	-	-
HCM Lane LOS	B	-	F	D	-	-
HCM 95th %tile Q(veh)	0.1	-	23.2	1.1	-	-

Notes				
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	632	204	117	542	28	97	0	60	17	0	2
Future Volume (vph)	3	632	204	117	542	28	97	0	60	17	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.963			0.992			0.948			0.986	
Flt Protected	0.950			0.950				0.970			0.957	
Satd. Flow (prot)	1770	1803	0	1805	1865	0	0	1747	0	0	1758	0
Flt Permitted	0.950			0.950				0.970			0.957	
Satd. Flow (perm)	1770	1803	0	1805	1865	0	0	1747	0	0	1758	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			138.6	
Travel Time (s)		20.9			14.9			15.4			10.0	
Confl. Peds. (#/hr)			3	3					1			
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	3%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	3	658	213	122	565	30	101	0	63	18	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	871	0	122	595	0	0	164	0	0	20	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	32.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	632	204	117	542	28	97	0	60	17	0	2
Future Vol, veh/h	3	632	204	117	542	28	97	0	60	17	0	2
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	96	96	96	92	96	92	96	92	92	92
Heavy Vehicles, %	2	1	3	0	1	2	0	2	0	2	2	2
Mvmt Flow	3	658	213	122	565	30	101	0	63	18	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	595	0	0	874	0	0	1599	1613	769	1627	1704	580
Stage 1	-	-	-	-	-	-	774	774	-	824	824	-
Stage 2	-	-	-	-	-	-	825	839	-	803	880	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	981	-	-	781	-	-	~ 87	104	404	82	91	514
Stage 1	-	-	-	-	-	-	394	408	-	367	387	-
Stage 2	-	-	-	-	-	-	370	381	-	377	365	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	981	-	-	779	-	-	~ 76	87	403	61	76	514
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 76	87	-	61	76	-
Stage 1	-	-	-	-	-	-	392	406	-	366	326	-
Stage 2	-	-	-	-	-	-	311	321	-	317	363	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.8	$ 331.3	81.1
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	110	981	-	-	779	-	-	67
HCM Lane V/C Ratio	1.487	0.003	-	-	0.156	-	-	0.308
HCM Control Delay (s)	$ 331.3	8.7	-	-	10.5	-	-	81.1
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	11.9	0	-	-	0.6	-	-	1.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	616	42	10	636	18	22	0	4	11	1	27
Future Volume (vph)	51	616	42	10	636	18	22	0	4	11	1	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.996			0.980			0.908	
Flt Protected		0.996			0.999			0.959			0.986	
Satd. Flow (prot)	0	1861	0	0	1873	0	0	1786	0	0	1701	0
Flt Permitted		0.996			0.999			0.959			0.986	
Satd. Flow (perm)	0	1861	0	0	1873	0	0	1786	0	0	1701	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)			9	9			7		7	7		7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	54	648	44	11	669	19	23	0	4	12	1	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	746	0	0	699	0	0	27	0	0	41	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 77.3%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	616	42	10	636	18	22	0	4	11	1	27
Future Vol, veh/h	51	616	42	10	636	18	22	0	4	11	1	27
Conflicting Peds, #/hr	0	0	9	9	0	0	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	54	648	44	11	669	19	23	0	4	12	1	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	688	0	0	701	0	0	1509	1497	686	1488	1510	686
Stage 1	-	-	-	-	-	-	787	787	-	701	701	-
Stage 2	-	-	-	-	-	-	722	710	-	787	809	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	916	-	-	905	-	-	100	124	451	103	122	451
Stage 1	-	-	-	-	-	-	388	406	-	433	444	-
Stage 2	-	-	-	-	-	-	421	440	-	388	396	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	916	-	-	898	-	-	84	109	445	92	107	448
Mov Cap-2 Maneuver	-	-	-	-	-	-	84	109	-	92	107	-
Stage 1	-	-	-	-	-	-	348	364	-	391	435	-
Stage 2	-	-	-	-	-	-	383	431	-	345	355	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	56.8	26.8
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	96	916	-	-	898	-	-	206
HCM Lane V/C Ratio	0.285	0.059	-	-	0.012	-	-	0.199
HCM Control Delay (s)	56.8	9.2	0	-	9.1	0	-	26.8
HCM Lane LOS	F	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	1.1	0.2	-	-	0	-	-	0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	475	128	94	531	138	115	0	96	81	0	18
Future Volume (vph)	29	475	128	94	531	138	115	0	96	81	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.968			0.969			0.939			0.975	
Flt Protected	0.950			0.950				0.973			0.961	
Satd. Flow (prot)	1805	1825	0	1805	1812	0	0	1708	0	0	1780	0
Flt Permitted	0.950			0.950				0.973			0.961	
Satd. Flow (perm)	1805	1825	0	1805	1812	0	0	1708	0	0	1780	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	495	133	98	553	144	120	0	100	84	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	628	0	98	697	0	0	220	0	0	103	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.7%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	53.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	475	128	94	531	138	115	0	96	81	0	18
Future Vol, veh/h	29	475	128	94	531	138	115	0	96	81	0	18
Conflicting Peds, #/hr	0	0	8	8	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	1	0	0	2	0	3	0	0	0	0	0
Mvmt Flow	30	495	133	98	553	144	120	0	100	84	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	697	0	0	636	0	0	1461	1523	570	1493	1517	625
Stage 1	-	-	-	-	-	-	630	630	-	821	821	-
Stage 2	-	-	-	-	-	-	831	893	-	672	696	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.13	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.527	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	909	-	-	957	-	-	~ 106	119	525	103	120	488
Stage 1	-	-	-	-	-	-	468	478	-	371	391	-
Stage 2	-	-	-	-	-	-	362	363	-	449	446	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	909	-	-	951	-	-	~ 91	102	521	~ 75	103	488
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 91	102	-	~ 75	103	-
Stage 1	-	-	-	-	-	-	449	459	-	359	351	-
Stage 2	-	-	-	-	-	-	312	326	-	351	428	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.1	$ 315.5	230.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	146	909	-	-	951	-	-	89
HCM Lane V/C Ratio	1.505	0.033	-	-	0.103	-	-	1.159
HCM Control Delay (s)	$ 315.5	9.1	-	-	9.2	-	-	230.7
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	14.8	0.1	-	-	0.3	-	-	7.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	639	4	3	751	7	3	0	3	8	0	9
Future Volume (vph)	8	639	4	3	751	7	3	0	3	8	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.999			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1825	0	0	1759	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1825	0	0	1759	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	9	695	4	3	816	8	3	0	3	9	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	699	0	0	827	0	0	6	0	9	0	10
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	639	4	3	751	7	3	0	3	8	0	9
Future Vol, veh/h	8	639	4	3	751	7	3	0	3	8	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	9	695	4	3	816	8	3	0	3	9	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	824	0	0	699	0	0	1546	1545	697	1543	-	820
Stage 1	-	-	-	-	-	-	715	715	-	826	-	-
Stage 2	-	-	-	-	-	-	831	830	-	717	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	815	-	-	907	-	-	94	116	444	95	0	378
Stage 1	-	-	-	-	-	-	425	438	-	369	0	-
Stage 2	-	-	-	-	-	-	367	388	-	424	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	815	-	-	907	-	-	90	114	444	93	-	378
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	114	-	93	-	-
Stage 1	-	-	-	-	-	-	420	433	-	365	-	-
Stage 2	-	-	-	-	-	-	355	386	-	416	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	30.1	30.3
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	150	815	-	-	907	-	-	93	378
HCM Lane V/C Ratio	0.043	0.011	-	-	0.004	-	-	0.094	0.026
HCM Control Delay (s)	30.1	9.5	-	-	9	0	-	47.7	14.8
HCM Lane LOS	D	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3	0.1

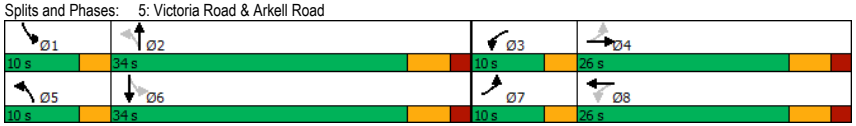
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	341	202	108	173	261	92	114	996	207	102	973	383
Future Volume (vph)	341	202	108	173	261	92	114	996	207	102	973	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00				0.99	
Frt		0.948			0.961			0.974			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1790	0	1703	1799	0	1805	1757	0	1805	1763	0
Flt Permitted	0.255			0.338			0.141			0.141		
Satd. Flow (perm)	480	1790	0	606	1799	0	268	1757	0	268	1763	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			21			14			27	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)							6					6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	6%	1%	3%	0%	6%	2%	0%	3%	1%
Adj. Flow (vph)	363	215	115	184	278	98	121	1060	220	109	1035	407
Shared Lane Traffic (%)												
Lane Group Flow (vph)	363	330	0	184	376	0	121	1280	0	109	1442	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	28.2	18.1		28.2	18.1		36.6	28.3		36.6	28.3	
Actuated g/C Ratio	0.37	0.24		0.37	0.24		0.48	0.37		0.48	0.37	
v/c Ratio	1.22	0.73		0.57	0.85		0.45	1.94		0.40	2.15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	147.7	35.5		23.5	46.1		15.7	449.4		14.8	543.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	147.7	35.5		23.5	46.1		15.7	449.4		14.8	543.0	
LOS	F	D		C	D		B	F		B	F	
Approach Delay		94.3			38.7			411.9			505.9	
Approach LOS		F			D			F			F	
Queue Length 50th (m)	~48.4	43.4		18.8	53.5		9.5	~331.3		8.5	~384.1	
Queue Length 95th (m)	#102.1	#73.6		33.3	#98.6		18.2	#410.4		16.7	#464.9	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	298	497		325	491		271	660		271	670	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.22	0.66		0.57	0.77		0.45	1.94		0.40	2.15	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 76.2		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 2.15		
Intersection Signal Delay: 344.5		Intersection LOS: F
Intersection Capacity Utilization 135.9%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	202	108	173	261	92	114	996	207	102	973	383
Future Volume (veh/h)	341	202	108	173	261	92	114	996	207	102	973	383
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1811	1885	1856	1900	1811	1870	1900	1856	1885
Adj Flow Rate, veh/h	363	215	115	184	278	98	121	1060	220	109	1035	407
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	6	1	3	0	6	2	0	3	1
Cap, veh/h	288	272	145	309	313	110	244	526	109	240	455	179
Arrive On Green	0.09	0.24	0.24	0.09	0.24	0.24	0.08	0.36	0.36	0.08	0.36	0.36
Sat Flow, veh/h	1795	1156	618	1725	1331	469	1810	1452	301	1810	1264	497
Grp Volume(v), veh/h	363	0	330	184	0	376	121	0	1280	109	0	1442
Grp Sat Flow(s),veh/h/ln	1795	0	1774	1725	0	1801	1810	0	1754	1810	0	1761
Q Serve(g_s), s	7.0	0.0	13.6	6.3	0.0	15.7	3.1	0.0	28.2	2.8	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	13.6	6.3	0.0	15.7	3.1	0.0	28.2	2.8	0.0	28.0
Prop In Lane	1.00		0.35	1.00		0.26	1.00		0.17	1.00		0.28
Lane Grp Cap(c), veh/h	288	0	417	309	0	423	244	0	635	240	0	634
V/C Ratio(X)	1.26	0.00	0.79	0.60	0.00	0.89	0.50	0.00	2.02	0.45	0.00	2.27
Avail Cap(c_a), veh/h	288	0	456	309	0	463	255	0	635	255	0	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	28.0	21.3	0.0	28.8	17.9	0.0	24.8	17.9	0.0	24.9
Incr Delay (d2), s/veh	142.4	0.0	8.5	3.1	0.0	17.7	1.6	0.0	462.8	1.3	0.0	578.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	0.0	3.4	0.9	0.0	4.6	0.2	0.0	84.1	0.2	0.0	104.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	169.0	0.0	36.5	24.4	0.0	46.4	19.5	0.0	487.6	19.3	0.0	603.2
LnGrp LOS	F	A	D	C	A	D	B	A	F	B	A	F
Approach Vol, veh/h		693			560			1401			1551	
Approach Delay, s/veh		105.9			39.2			447.1			562.2	
Approach LOS		F			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	34.2	10.0	24.3	9.5	34.0	10.0	24.3
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	4.8	30.2	8.3	15.6	5.1	30.0	9.0	17.7
Green Ext Time (p_c), s	0.1	0.0	0.0	0.9	0.1	0.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	379.0
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	23	20	1407	1435	43
Future Volume (vph)	50	23	20	1407	1435	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1845	1615
Flt Permitted	0.950		0.066			
Satd. Flow (perm)	1805	1615	125	1792	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				31
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	54	25	22	1529	1560	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	25	22	1529	1560	47
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.1	10.1	63.4	63.4	63.4	63.4
Actuated g/C Ratio	0.13	0.13	0.83	0.83	0.83	0.83
v/c Ratio	0.23	0.11	0.21	1.02	1.02	0.03
Control Delay	32.7	13.3	9.9	44.5	41.4	1.8
Queue Delay	0.0	0.0	0.0	17.7	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	32.7	13.3	9.9	62.2	41.4	1.8
LOS	C	B	A	E	D	A
Approach Delay	26.6			61.5	40.2	
Approach LOS	C			E	D	
Queue Length 50th (m)	8.8	0.0	1.0	~317.3	~321.4	0.6
Queue Length 95th (m)	16.8	6.5	5.3	#352.9	#356.7	3.1
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	429	403	104	1492	1536	1350
Starvation Cap Reductn	0	0	0	66	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.06	0.21	1.07	1.02	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 50.1		Intersection LOS: D	
Intersection Capacity Utilization 93.9%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	23	20	1407	1435	43
Future Volume (veh/h)	50	23	20	1407	1435	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1856	1900
Adj Flow Rate, veh/h	54	25	22	1529	1560	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	3	0
Cap, veh/h	203	181	103	1297	1328	1153
Arrive On Green	0.11	0.11	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1810	1610	321	1811	1856	1610
Grp Volume(v), veh/h	54	25	22	1529	1560	47
Grp Sat Flow(s),veh/h/ln	1810	1610	321	1811	1856	1610
Q Serve(g_s), s	1.9	1.0	0.0	50.0	50.0	0.6
Cycle Q Clear(g_c), s	1.9	1.0	50.0	50.0	50.0	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	203	181	103	1297	1328	1153
V/C Ratio(X)	0.27	0.14	0.21	1.18	1.17	0.04
Avail Cap(c_a), veh/h	466	415	103	1297	1328	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	28.0	34.9	9.9	9.9	2.9
Incr Delay (d2), s/veh	0.7	0.3	4.7	88.9	86.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	0.3	32.0	32.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.1	28.3	39.6	98.9	96.6	3.0
LnGrp LOS	C	C	D	F	F	A
Approach Vol, veh/h	79			1551	1607	
Approach Delay, s/veh	28.8			98.0	93.9	
Approach LOS	C			F	F	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		56.0		13.8		56.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		18.0		50.0
Max Q Clear Time (g_c+I1), s		52.0		3.9		52.0
Green Ext Time (p_c), s		0.0		0.2		0.0

Intersection Summary		
HCM 6th Ctrl Delay	94.3	
HCM 6th LOS	F	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	90	38	64	1393	1440	153
Future Volume (vph)	90	38	64	1393	1440	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.987	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1826	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1792	1826	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	98	41	70	1514	1565	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	98	41	70	1514	1731	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 96.7%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	169.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	38	64	1393	1440	153
Future Vol, veh/h	90	38	64	1393	1440	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	3	0
Mvmt Flow	98	41	70	1514	1565	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3302	1648	1731	0	-	0
Stage 1	1648	-	-	-	-	-
Stage 2	1654	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 10	124	369	-	-	-
Stage 1	174	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 8	124	369	-	-	-
Mov Cap-2 Maneuver	~ 8	-	-	-	-	-
Stage 1	141	-	-	-	-	-
Stage 2	173	-	-	-	-	-

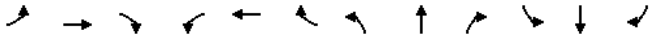
Approach	EB	NB	SB
HCM Control Delay, $	4203.2	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	369	-	8	124	-	-
HCM Lane V/C Ratio	0.189	-	12.228	0.333	-	-
HCM Control Delay (s)	17	-	$ 5957.7	47.9	-	-
HCM Lane LOS	C	-	F	E	-	-
HCM 95th %tile Q(veh)	0.7	-	13.9	1.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix H

2026 Total Traffic Operations Reports



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	378	36	31	438	10	142	0	122	30	0	3
Future Volume (vph)	1	378	36	31	438	10	142	0	122	30	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.996			0.938			0.989	
Flt Protected	0.950			0.950				0.974			0.956	
Satd. Flow (prot)	1770	1790	0	1671	1771	0	0	1678	0	0	1761	0
Flt Permitted	0.950			0.950				0.974			0.956	
Satd. Flow (perm)	1770	1790	0	1671	1771	0	0	1678	0	0	1761	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			173.3	
Travel Time (s)		20.9			14.9			15.4			12.5	
Confl. Peds. (#/hr)			9	9								
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	13%	8%	7%	2%	3%	2%	4%	2%	2%	2%
Adj. Flow (vph)	1	386	37	32	447	11	145	0	124	33	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	423	0	32	458	0	0	269	0	0	36	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	11.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	378	36	31	438	10	142	0	122	30	0	3
Future Vol, veh/h	1	378	36	31	438	10	142	0	122	30	0	3
Conflicting Peds, #/hr	0	0	9	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	4	13	8	7	2	3	2	4	2	2	2
Mvmt Flow	1	386	37	32	447	11	145	0	124	33	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	458	0	0	432	0	0	934	938	414	986	951	453
Stage 1	-	-	-	-	-	-	416	416	-	517	517	-
Stage 2	-	-	-	-	-	-	518	522	-	469	434	-
Critical Hdwy	4.12	-	-	4.18	-	-	7.13	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.272	-	-	3.527	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1103	-	-	1096	-	-	245	264	634	227	260	607
Stage 1	-	-	-	-	-	-	612	592	-	541	534	-
Stage 2	-	-	-	-	-	-	539	531	-	575	581	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1103	-	-	1088	-	-	236	254	629	178	250	607
Mov Cap-2 Maneuver	-	-	-	-	-	-	236	254	-	178	250	-
Stage 1	-	-	-	-	-	-	606	587	-	540	519	-
Stage 2	-	-	-	-	-	-	520	516	-	461	576	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.5	49.3	28.3
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	332	1103	-	-	1088	-	-	190
HCM Lane V/C Ratio	0.811	0.001	-	-	0.029	-	-	0.189
HCM Control Delay (s)	49.3	8.3	-	-	8.4	-	-	28.3
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	6.9	0	-	-	0.1	-	-	0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	507	15	3	424	11	23	1	17	42	2	31
Future Volume (vph)	7	507	15	3	424	11	23	1	17	42	2	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.997			0.943			0.944	
Flt Protected		0.999						0.973			0.973	
Satd. Flow (prot)	0	1804	0	0	1773	0	0	1696	0	0	1745	0
Flt Permitted		0.999						0.973			0.973	
Satd. Flow (perm)	0	1804	0	0	1773	0	0	1696	0	0	1745	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)	1		8	8		1	13		10	10		13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	0%	5%	7%	0%	5%	0%	0%	0%	0%	0%
Adj. Flow (vph)	7	523	15	3	437	11	24	1	18	43	2	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	545	0	0	451	0	0	43	0	0	77	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	507	15	3	424	11	23	1	17	42	2	31
Future Vol, veh/h	7	507	15	3	424	11	23	1	17	42	2	31
Conflicting Peds, #/hr	1	0	8	8	0	1	13	0	10	10	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	5	0	5	7	0	5	0	0	0	0	0
Mvmt Flow	7	523	15	3	437	11	24	1	18	43	2	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	449	0	0	546	0	0	1032	1008	549	1014	1010	457
Stage 1	-	-	-	-	-	-	553	553	-	450	450	-
Stage 2	-	-	-	-	-	-	479	455	-	564	560	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.15	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.545	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1122	-	-	1008	-	-	208	242	539	219	242	608
Stage 1	-	-	-	-	-	-	512	518	-	592	575	-
Stage 2	-	-	-	-	-	-	562	572	-	514	514	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1121	-	-	1001	-	-	190	237	531	207	237	601
Mov Cap-2 Maneuver	-	-	-	-	-	-	190	237	-	207	237	-
Stage 1	-	-	-	-	-	-	504	510	-	586	572	-
Stage 2	-	-	-	-	-	-	522	569	-	487	506	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	21.4	22.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	261	1121	-	-	1001	-	-	285
HCM Lane V/C Ratio	0.162	0.006	-	-	0.003	-	-	0.271
HCM Control Delay (s)	21.4	8.2	0	-	8.6	0	-	22.3
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	1.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	485	69	41	275	42	132	0	137	131	0	32
Future Volume (vph)	11	485	69	41	275	42	132	0	137	131	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.980			0.931			0.973	
Flt Protected	0.950			0.950				0.976			0.961	
Satd. Flow (prot)	1770	1786	0	1703	1737	0	0	1622	0	0	1742	0
Flt Permitted	0.950			0.950				0.976			0.961	
Satd. Flow (perm)	1770	1786	0	1703	1737	0	0	1622	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			11	11					1			
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
Heavy Vehicles (%)	2%	4%	7%	6%	8%	2%	9%	2%	4%	2%	2%	2%
Adj. Flow (vph)	12	527	75	45	299	46	143	0	149	142	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	602	0	45	345	0	0	292	0	0	177	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	43.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	485	69	41	275	42	132	0	137	131	0	32
Future Vol, veh/h	11	485	69	41	275	42	132	0	137	131	0	32
Conflicting Peds, #/hr	0	0	11	11	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	7	6	8	2	9	2	4	2	2	2
Mvmt Flow	12	527	75	45	299	46	143	0	149	142	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	345	0	0	613	0	0	1030	1035	577	1076	1049	322
Stage 1	-	-	-	-	-	-	600	600	-	412	412	-
Stage 2	-	-	-	-	-	-	430	435	-	664	637	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.19	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.581	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1214	-	-	947	-	-	205	232	512	197	227	719
Stage 1	-	-	-	-	-	-	476	490	-	617	594	-
Stage 2	-	-	-	-	-	-	590	580	-	450	471	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1214	-	-	938	-	-	185	217	507	~ 133	212	719
Mov Cap-2 Maneuver	-	-	-	-	-	-	185	217	-	~ 133	212	-
Stage 1	-	-	-	-	-	-	467	481	-	611	565	-
Stage 2	-	-	-	-	-	-	535	552	-	314	462	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1	115.5	165.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	273	1214	-	-	938	-	-	158
HCM Lane V/C Ratio	1.071	0.01	-	-	0.048	-	-	1.121
HCM Control Delay (s)	115.5	8	-	-	9	-	-	165.7
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	11.8	0	-	-	0.1	-	-	9.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	668	2	2	326	62	2	0	2	6	0	31
Future Volume (vph)	83	668	2	2	326	62	2	0	2	6	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.979			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1827	0	0	1743	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1827	0	0	1743	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	90	726	2	2	354	67	2	0	2	7	0	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	728	0	0	423	0	0	4	0	7	0	34
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.6%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	668	2	2	326	62	2	0	2	6	0	31
Future Vol, veh/h	83	668	2	2	326	62	2	0	2	6	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	90	726	2	2	354	67	2	0	2	7	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	421	0	0	728	0	0	1316	1332	727	1300	-	388
Stage 1	-	-	-	-	-	-	907	907	-	392	-	-
Stage 2	-	-	-	-	-	-	409	425	-	908	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	1149	-	-	885	-	-	136	156	427	140	0	665
Stage 1	-	-	-	-	-	-	333	357	-	637	0	-
Stage 2	-	-	-	-	-	-	623	590	-	332	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1149	-	-	885	-	-	121	143	427	131	-	665
Mov Cap-2 Maneuver	-	-	-	-	-	-	121	143	-	131	-	-
Stage 1	-	-	-	-	-	-	307	329	-	587	-	-
Stage 2	-	-	-	-	-	-	590	588	-	304	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	24.5	14.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	189	1149	-	-	885	-	-	131	665
HCM Lane V/C Ratio	0.023	0.079	-	-	0.002	-	-	0.05	0.051
HCM Control Delay (s)	24.5	8.4	-	-	9.1	0	-	33.9	10.7
HCM Lane LOS	C	A	-	-	A	A	-	D	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	0.2	0.2

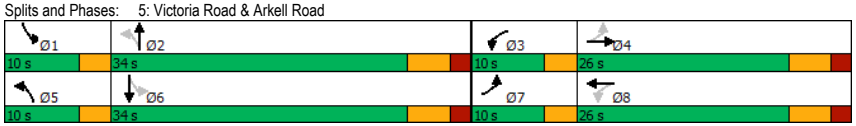
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	448	126	100	173	105	77	70	741	98	56	637	220
Future Volume (vph)	448	126	100	173	105	77	70	741	98	56	637	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		1.00				0.99	
Frt		0.933			0.936			0.982			0.961	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1664	0	1787	1696	0	1805	1760	0	1752	1668	0
Flt Permitted	0.570			0.458			0.132			0.138		
Satd. Flow (perm)	1040	1664	0	862	1696	0	251	1760	0	255	1668	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			44			9			24	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)	1					1	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	11%	1%	3%	5%	0%	6%	6%	3%	8%	11%
Adj. Flow (vph)	492	138	110	190	115	85	77	814	108	62	700	242
Shared Lane Traffic (%)												
Lane Group Flow (vph)	492	248	0	190	200	0	77	922	0	62	942	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	24.5	14.4		24.5	14.4		37.3	30.3		36.7	28.3	
Actuated g/C Ratio	0.34	0.20		0.34	0.20		0.51	0.42		0.51	0.39	
v/c Ratio	1.18	0.67		0.50	0.54		0.28	1.25		0.23	1.42	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	126.2	31.5		21.5	26.2		11.6	146.6		11.0	221.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	126.2	31.5		21.5	26.2		11.6	146.6		11.0	221.0	
LOS	F	C		C	C		B	F		B	F	
Approach Delay		94.5			23.9			136.2			208.0	
Approach LOS		F			C			F			F	
Queue Length 50th (m)	~80.0	27.5		19.4	20.6		4.9	~185.0		3.9	~194.1	
Queue Length 95th (m)	#147.9	50.9		33.9	40.1		12.6	#280.6		10.7	#290.5	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	418	497		381	503		280	739		274	664	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.18	0.50		0.50	0.40		0.28	1.25		0.23	1.42	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 72.6		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.42		
Intersection Signal Delay: 135.4	Intersection LOS: F	
Intersection Capacity Utilization 104.8%	ICU Level of Service G	
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	448	126	100	173	105	77	70	741	98	56	637	220
Future Volume (veh/h)	448	126	100	173	105	77	70	741	98	56	637	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1856	1737	1885	1856	1826	1900	1811	1811	1856	1781	1737
Adj Flow Rate, veh/h	492	138	110	190	115	85	77	814	108	62	700	242
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
Percent Heavy Veh, %	4	3	11	1	3	5	0	6	6	3	8	11
Cap, veh/h	359	174	139	327	180	133	239	624	83	223	495	171
Arrive On Green	0.10	0.18	0.18	0.10	0.18	0.18	0.08	0.40	0.40	0.07	0.39	0.39
Sat Flow, veh/h	1753	955	761	1795	990	732	1810	1565	208	1767	1264	437
Grp Volume(v), veh/h	492	0	248	190	0	200	77	0	922	62	0	942
Grp Sat Flow(s),veh/h/ln	1753	0	1716	1795	0	1721	1810	0	1773	1767	0	1701
Q Serve(g_s), s	7.0	0.0	9.9	6.1	0.0	7.7	1.7	0.0	28.5	1.4	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	9.9	6.1	0.0	7.7	1.7	0.0	28.5	1.4	0.0	28.0
Prop In Lane	1.00		0.44	1.00		0.43	1.00		0.12	1.00		0.26
Lane Grp Cap(c), veh/h	359	0	313	327	0	314	239	0	707	223	0	666
V/C Ratio(X)	1.37	0.00	0.79	0.58	0.00	0.64	0.32	0.00	1.30	0.28	0.00	1.41
Avail Cap(c_a), veh/h	359	0	480	327	0	481	278	0	707	274	0	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	28.0	21.5	0.0	27.1	16.0	0.0	21.5	16.3	0.0	21.8
Incr Delay (d2), s/veh	183.6	0.0	5.1	2.6	0.0	2.2	0.8	0.0	146.8	0.7	0.0	195.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.0	0.0	2.1	0.9	0.0	1.3	0.1	0.0	29.6	0.0	0.0	37.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	210.8	0.0	33.0	24.2	0.0	29.2	16.8	0.0	168.3	16.9	0.0	217.0
LnGrp LOS	F	A	C	C	A	C	B	A	F	B	A	F
Approach Vol, veh/h		740			390			999			1004	
Approach Delay, s/veh		151.2			26.7			156.6			204.7	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	34.5	10.0	19.0	8.5	34.0	10.0	19.0
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	3.4	30.5	8.1	11.9	3.7	30.0	9.0	9.7
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.1	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	154.6
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	58	53	1212	847	133
Future Volume (vph)	96	58	53	1212	847	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1759	1615
Flt Permitted	0.950		0.225			
Satd. Flow (perm)	1805	1615	428	1792	1759	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		63				145
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	8%	0%
Adj. Flow (vph)	104	63	58	1317	921	145
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	63	58	1317	921	145
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	51.0	51.0	51.0	51.0
Total Split (%)	32.0%	32.0%	68.0%	68.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	45.0	45.0	45.0	45.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.7	10.7	52.0	52.0	52.0	52.0
Actuated g/C Ratio	0.15	0.15	0.74	0.74	0.74	0.74
v/c Ratio	0.38	0.21	0.18	0.99	0.71	0.12
Control Delay	30.8	9.3	6.4	38.2	11.7	1.2
Queue Delay	0.0	0.0	0.0	18.1	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	30.8	9.3	6.4	56.2	11.7	1.2
LOS	C	A	A	E	B	A
Approach Delay	22.7			54.1	10.2	
Approach LOS	C			D	B	
Queue Length 50th (m)	12.9	0.0	2.4	~203.7	68.9	0.0
Queue Length 95th (m)	26.0	9.3	8.0	#290.0	#145.0	5.1
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	465	463	317	1330	1305	1236
Starvation Cap Reductn	0	0	0	76	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.14	0.18	1.05	0.71	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 70.1			
Natural Cycle: 100			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 34.2		Intersection LOS: C	
Intersection Capacity Utilization 82.1%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	58	53	1212	847	133
Future Volume (veh/h)	96	58	53	1212	847	133
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1781	1900
Adj Flow Rate, veh/h	104	63	58	1317	921	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	8	0
Cap, veh/h	260	231	285	1225	1205	1089
Arrive On Green	0.14	0.14	0.68	0.68	0.68	0.68
Sat Flow, veh/h	1810	1610	538	1811	1781	1610
Grp Volume(v), veh/h	104	63	58	1317	921	145
Grp Sat Flow(s),veh/h/ln	1810	1610	538	1811	1781	1610
Q Serve(g_s), s	3.5	2.3	5.4	45.0	23.1	2.1
Cycle Q Clear(g_c), s	3.5	2.3	28.5	45.0	23.1	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	260	231	285	1225	1205	1089
V/C Ratio(X)	0.40	0.27	0.20	1.08	0.76	0.13
Avail Cap(c_a), veh/h	489	436	285	1225	1205	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.4	16.8	10.8	7.2	3.8
Incr Delay (d2), s/veh	1.0	0.6	1.6	48.5	4.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.4	0.2	16.5	1.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	26.0	18.4	59.3	11.9	4.1
LnGrp LOS	C	C	B	F	B	A
Approach Vol, veh/h	167			1375	1066	
Approach Delay, s/veh	26.6			57.6	10.8	
Approach LOS	C			E	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		51.0		15.5		51.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		45.0		18.0		45.0
Max Q Clear Time (g_c+I1), s		47.0		5.5		25.1
Green Ext Time (p_c), s		0.0		0.5		8.9

Intersection Summary			
HCM 6th Ctrl Delay		36.5	
HCM 6th LOS		D	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	185	52	17	1291	928	60
Future Volume (vph)	185	52	17	1291	928	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.992	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1848	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1848	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	57	18	1403	1009	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	201	57	18	1403	1074	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 84.9%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	192

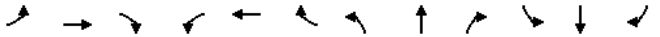
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	185	52	17	1291	928	60
Future Vol, veh/h	185	52	17	1291	928	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	201	57	18	1403	1009	65

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2481	1042	1074	0	-	0
Stage 1	1042	-	-	-	-	-
Stage 2	1439	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 33	279	649	-	-	-
Stage 1	340	-	-	-	-	-
Stage 2	218	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 32	279	649	-	-	-
Mov Cap-2 Maneuver	~ 32	-	-	-	-	-
Stage 1	330	-	-	-	-	-
Stage 2	218	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	2051.6	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	649	-	32	279	-	-
HCM Lane V/C Ratio	0.028	-	6.284	0.203	-	-
HCM Control Delay (s)	10.7	-	$ 2622.3	21.2	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	24.2	0.7	-	-

Notes				
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	496	154	88	424	28	73	0	46	17	0	2
Future Volume (vph)	3	496	154	88	424	28	73	0	46	17	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.965			0.990			0.948			0.986	
Flt Protected	0.950			0.950				0.970			0.957	
Satd. Flow (prot)	1770	1807	0	1805	1861	0	0	1747	0	0	1758	0
Flt Permitted	0.950			0.950				0.970			0.957	
Satd. Flow (perm)	1770	1807	0	1805	1861	0	0	1747	0	0	1758	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			136.6	
Travel Time (s)		20.9			14.9			15.4			9.8	
Confl. Peds. (#/hr)			3	3					1			
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	3%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	3	517	160	92	442	30	76	0	48	18	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	677	0	92	472	0	0	124	0	0	20	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	496	154	88	424	28	73	0	46	17	0	2
Future Vol, veh/h	3	496	154	88	424	28	73	0	46	17	0	2
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	96	96	96	92	96	92	96	92	92	92
Heavy Vehicles, %	2	1	3	0	1	2	0	2	0	2	2	2
Mvmt Flow	3	517	160	92	442	30	76	0	48	18	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	472	0	0	680	0	0	1248	1262	601	1269	1327	457
Stage 1	-	-	-	-	-	-	606	606	-	641	641	-
Stage 2	-	-	-	-	-	-	642	656	-	628	686	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1090	-	-	922	-	-	152	170	504	145	155	604
Stage 1	-	-	-	-	-	-	487	487	-	463	469	-
Stage 2	-	-	-	-	-	-	466	462	-	471	448	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1090	-	-	920	-	-	139	152	502	121	139	604
Mov Cap-2 Maneuver	-	-	-	-	-	-	139	152	-	121	139	-
Stage 1	-	-	-	-	-	-	485	484	-	462	422	-
Stage 2	-	-	-	-	-	-	418	416	-	425	445	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.5	52.1	37.3
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	193	1090	-	-	920	-	-	132
HCM Lane V/C Ratio	0.642	0.003	-	-	0.1	-	-	0.156
HCM Control Delay (s)	52.1	8.3	-	-	9.3	-	-	37.3
HCM Lane LOS	F	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	3.8	0	-	-	0.3	-	-	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	482	32	7	497	29	17	0	3	17	1	25
Future Volume (vph)	45	482	32	7	497	29	17	0	3	17	1	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.993			0.981			0.922	
Flt Protected		0.996			0.999			0.959			0.980	
Satd. Flow (prot)	0	1861	0	0	1867	0	0	1787	0	0	1717	0
Flt Permitted		0.996			0.999			0.959			0.980	
Satd. Flow (perm)	0	1861	0	0	1867	0	0	1787	0	0	1717	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)			9	9			7		7	7		7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	47	507	34	7	523	31	18	0	3	18	1	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	588	0	0	561	0	0	21	0	0	45	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.0%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	482	32	7	497	29	17	0	3	17	1	25
Future Vol, veh/h	45	482	32	7	497	29	17	0	3	17	1	25
Conflicting Peds, #/hr	0	0	9	9	0	0	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	47	507	34	7	523	31	18	0	3	18	1	26

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	554	0	0	550	0	0	1200	1195	540	1180	1197	546
Stage 1	-	-	-	-	-	-	627	627	-	553	553	-
Stage 2	-	-	-	-	-	-	573	568	-	627	644	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1026	-	-	1030	-	-	163	188	546	169	187	541
Stage 1	-	-	-	-	-	-	475	479	-	521	518	-
Stage 2	-	-	-	-	-	-	508	510	-	475	471	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1026	-	-	1022	-	-	143	172	539	157	171	538
Mov Cap-2 Maneuver	-	-	-	-	-	-	143	172	-	157	171	-
Stage 1	-	-	-	-	-	-	440	444	-	487	513	-
Stage 2	-	-	-	-	-	-	475	505	-	438	437	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	30.7	21.1
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	161	1026	-	-	1022	-	-	268
HCM Lane V/C Ratio	0.131	0.046	-	-	0.007	-	-	0.169
HCM Control Delay (s)	30.7	8.7	0	-	8.5	0	-	21.1
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	377	97	71	428	138	87	0	72	81	0	18
Future Volume (vph)	29	377	97	71	428	138	87	0	72	81	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.969			0.963			0.939			0.975	
Flt Protected	0.950			0.950				0.973			0.961	
Satd. Flow (prot)	1805	1827	0	1805	1802	0	0	1708	0	0	1780	0
Flt Permitted	0.950			0.950				0.973			0.961	
Satd. Flow (perm)	1805	1827	0	1805	1802	0	0	1708	0	0	1780	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	393	101	74	446	144	91	0	75	84	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	494	0	74	590	0	0	166	0	0	103	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	11.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	377	97	71	428	138	87	0	72	81	0	18
Future Vol, veh/h	29	377	97	71	428	138	87	0	72	81	0	18
Conflicting Peds, #/hr	0	0	8	8	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	1	0	0	2	0	3	0	0	0	0	0
Mvmt Flow	30	393	101	74	446	144	91	0	75	84	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	590	0	0	502	0	0	1188	1250	452	1207	1228	518
Stage 1	-	-	-	-	-	-	512	512	-	666	666	-
Stage 2	-	-	-	-	-	-	676	738	-	541	562	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.13	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.527	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	995	-	-	1073	-	-	164	174	612	162	180	562
Stage 1	-	-	-	-	-	-	543	540	-	452	460	-
Stage 2	-	-	-	-	-	-	441	427	-	529	513	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	995	-	-	1066	-	-	146	156	608	131	161	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	146	156	-	131	161	-
Stage 1	-	-	-	-	-	-	523	520	-	438	428	-
Stage 2	-	-	-	-	-	-	397	398	-	450	494	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1	56.8	68
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	223	995	-	-	1066	-	-	152
HCM Lane V/C Ratio	0.743	0.03	-	-	0.069	-	-	0.678
HCM Control Delay (s)	56.8	8.7	-	-	8.6	-	-	68
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	5.1	0.1	-	-	0.2	-	-	3.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	519	3	2	626	7	2	0	2	8	0	9
Future Volume (vph)	8	519	3	2	626	7	2	0	2	8	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.998			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1825	0	0	1758	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1825	0	0	1758	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	9	564	3	2	680	8	2	0	2	9	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	567	0	0	690	0	0	4	0	9	0	10
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	519	3	2	626	7	2	0	2	8	0	9
Future Vol, veh/h	8	519	3	2	626	7	2	0	2	8	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	9	564	3	2	680	8	2	0	2	9	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	688	0	0	567	0	0	1277	1276	566	1273	-	684
Stage 1	-	-	-	-	-	-	584	584	-	688	-	-
Stage 2	-	-	-	-	-	-	693	692	-	585	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	916	-	-	1015	-	-	145	168	528	146	0	452
Stage 1	-	-	-	-	-	-	501	501	-	440	0	-
Stage 2	-	-	-	-	-	-	437	448	-	501	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	916	-	-	1015	-	-	141	166	528	144	-	452
Mov Cap-2 Maneuver	-	-	-	-	-	-	141	166	-	144	-	-
Stage 1	-	-	-	-	-	-	496	496	-	436	-	-
Stage 2	-	-	-	-	-	-	426	447	-	494	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	21.5	21.8
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	223	916	-	-	1015	-	-	144	452
HCM Lane V/C Ratio	0.019	0.009	-	-	0.002	-	-	0.06	0.022
HCM Control Delay (s)	21.5	9	-	-	8.6	0	-	31.6	13.1
HCM Lane LOS	C	A	-	-	A	A	-	D	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2	0.1

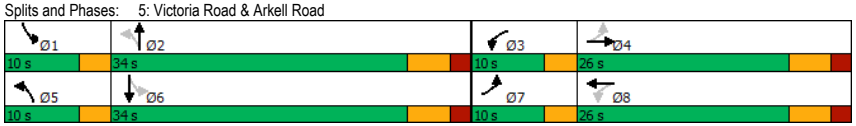
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	272	161	96	131	209	77	112	784	156	82	760	311
Future Volume (vph)	272	161	96	131	209	77	112	784	156	82	760	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00				0.99	
Frt		0.944			0.960			0.975			0.956	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1782	0	1703	1796	0	1805	1759	0	1805	1759	0
Flt Permitted	0.336			0.508			0.141			0.141		
Satd. Flow (perm)	632	1782	0	911	1796	0	268	1759	0	268	1759	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			22			14			28	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)							6					6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	6%	1%	3%	0%	6%	2%	0%	3%	1%
Adj. Flow (vph)	289	171	102	139	222	82	119	834	166	87	809	331
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	273	0	139	304	0	119	1000	0	87	1140	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	26.9	18.6		26.2	16.1		36.7	28.3		36.7	28.3	
Actuated g/C Ratio	0.36	0.25		0.35	0.22		0.49	0.38		0.49	0.38	
v/c Ratio	0.85	0.58		0.35	0.75		0.43	1.47		0.31	1.66	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	44.5	28.2		18.2	37.8		14.8	244.9		12.8	325.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	44.5	28.2		18.2	37.8		14.8	244.9		12.8	325.2	
LOS	D	C		B	D		B	F		B	F	
Approach Delay		36.6			31.7			220.4			303.1	
Approach LOS		D			C			F			F	
Queue Length 50th (m)	31.5	33.0		13.8	40.4		8.6	~222.3		6.2	~266.1	
Queue Length 95th (m)	#70.2	57.7		25.7	67.3		17.9	#308.3		13.9	#356.4	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	339	511		396	504		278	679		278	687	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.85	0.53		0.35	0.60		0.43	1.47		0.31	1.66	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 74.3		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.66		
Intersection Signal Delay: 194.9		Intersection LOS: F
Intersection Capacity Utilization 112.7%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	272	161	96	131	209	77	112	784	156	82	760	311
Future Volume (veh/h)	272	161	96	131	209	77	112	784	156	82	760	311
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1811	1885	1856	1900	1811	1870	1900	1856	1885
Adj Flow Rate, veh/h	289	171	102	139	222	82	119	834	166	87	809	331
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	6	1	3	0	6	2	0	3	1
Cap, veh/h	309	230	137	317	266	98	252	562	112	239	469	192
Arrive On Green	0.09	0.21	0.21	0.09	0.20	0.20	0.09	0.38	0.38	0.08	0.38	0.38
Sat Flow, veh/h	1795	1106	660	1725	1313	485	1810	1464	291	1810	1248	511
Grp Volume(v), veh/h	289	0	273	139	0	304	119	0	1000	87	0	1140
Grp Sat Flow(s),veh/h/ln	1795	0	1766	1725	0	1798	1810	0	1756	1810	0	1759
Q Serve(g_s), s	7.0	0.0	10.8	4.6	0.0	12.1	2.8	0.0	28.6	2.1	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	10.8	4.6	0.0	12.1	2.8	0.0	28.6	2.1	0.0	28.0
Prop In Lane	1.00		0.37	1.00		0.27	1.00		0.17	1.00		0.29
Lane Grp Cap(c), veh/h	309	0	367	317	0	364	252	0	673	239	0	661
V/C Ratio(X)	0.94	0.00	0.74	0.44	0.00	0.84	0.47	0.00	1.48	0.36	0.00	1.72
Avail Cap(c_a), veh/h	309	0	474	326	0	483	267	0	673	267	0	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	27.7	21.2	0.0	28.5	16.8	0.0	23.0	16.9	0.0	23.2
Incr Delay (d2), s/veh	34.7	0.0	4.6	1.0	0.0	9.4	1.4	0.0	226.1	0.9	0.0	332.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	3.2	1.0	0.0	3.8	0.4	0.0	46.8	0.3	0.0	65.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.9	0.0	32.2	22.1	0.0	37.9	18.2	0.0	249.1	17.8	0.0	355.3
LnGrp LOS	E	A	C	C	A	D	B	A	F	B	A	F
Approach Vol, veh/h		562			443			1119			1227	
Approach Delay, s/veh		47.0			32.9			224.5			331.4	
Approach LOS		D			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	34.6	9.6	21.5	9.4	34.0	10.0	21.1
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	4.1	30.6	6.6	12.8	4.8	30.0	9.0	14.1
Green Ext Time (p_c), s	0.1	0.0	0.0	1.0	0.1	0.0	0.0	1.0

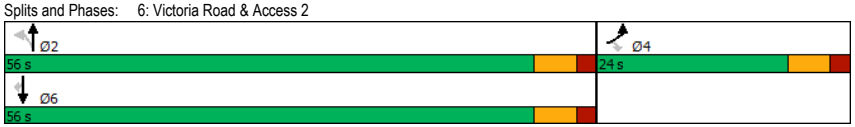
Intersection Summary	
HCM 6th Ctrl Delay	208.6
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	23	20	1112	1129	43
Future Volume (vph)	50	23	20	1112	1129	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1845	1615
Flt Permitted	0.950		0.115			
Satd. Flow (perm)	1805	1615	218	1792	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				39
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	54	25	22	1209	1227	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	25	22	1209	1227	47
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.1	10.1	63.4	63.4	63.4	63.4
Actuated g/C Ratio	0.13	0.13	0.83	0.83	0.83	0.83
v/c Ratio	0.23	0.11	0.12	0.81	0.80	0.03
Control Delay	32.7	13.3	5.3	14.4	13.5	1.5
Queue Delay	0.0	0.0	0.0	2.4	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	32.7	13.3	5.3	16.8	13.5	1.5
LOS	C	B	A	B	B	A
Approach Delay	26.6			16.6	13.1	
Approach LOS	C			B	B	
Queue Length 50th (m)	8.8	0.0	0.9	132.6	130.5	0.3
Queue Length 95th (m)	16.8	6.5	3.5	#251.7	#251.9	2.8
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	429	403	181	1492	1536	1351
Starvation Cap Reductn	0	0	0	169	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.06	0.12	0.91	0.80	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.1			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 77.8%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 6: Victoria Road & Access 2



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	23	20	1112	1129	43
Future Volume (veh/h)	50	23	20	1112	1129	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1856	1900
Adj Flow Rate, veh/h	54	25	22	1209	1227	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	3	0
Cap, veh/h	203	181	174	1297	1328	1153
Arrive On Green	0.11	0.11	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1810	1610	441	1811	1856	1610
Grp Volume(v), veh/h	54	25	22	1209	1227	47
Grp Sat Flow(s),veh/h/ln	1810	1610	441	1811	1856	1610
Q Serve(g_s), s	1.9	1.0	3.1	39.8	38.7	0.6
Cycle Q Clear(g_c), s	1.9	1.0	41.8	39.8	38.7	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	203	181	174	1297	1328	1153
V/C Ratio(X)	0.27	0.14	0.13	0.93	0.92	0.04
Avail Cap(c_a), veh/h	466	415	174	1297	1328	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	28.0	25.8	8.5	8.3	2.9
Incr Delay (d2), s/veh	0.7	0.3	1.5	13.3	12.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.3	0.2	4.8	4.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.1	28.3	27.3	21.8	20.4	3.0
LnGrp LOS	C	C	C	C	C	A
Approach Vol, veh/h	79			1231	1274	
Approach Delay, s/veh	28.8			21.9	19.8	
Approach LOS	C			C	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		56.0		13.8		56.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		18.0		50.0
Max Q Clear Time (g_c+I1), s		43.8		3.9		40.7
Green Ext Time (p_c), s		4.9		0.2		7.0

Intersection Summary		
HCM 6th Ctrl Delay	21.1	
HCM 6th LOS	C	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	105	38	64	1098	1134	176
Future Volume (vph)	105	38	64	1098	1134	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.982	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1819	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1792	1819	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	114	41	70	1193	1233	191
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	41	70	1193	1424	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 82.8%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	95.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	105	38	64	1098	1134	176
Future Vol, veh/h	105	38	64	1098	1134	176
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	3	0
Mvmt Flow	114	41	70	1193	1233	191

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2662	1329	1424	0	-	0
Stage 1	1329	-	-	-	-	-
Stage 2	1333	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 25	191	484	-	-	-
Stage 1	250	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 21	191	484	-	-	-
Mov Cap-2 Maneuver	~ 21	-	-	-	-	-
Stage 1	214	-	-	-	-	-
Stage 2	248	-	-	-	-	-

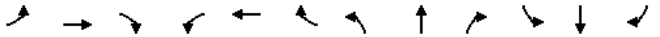
Approach	EB	NB	SB
HCM Control Delay, $	1743.4	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	484	-	21	191	-	-
HCM Lane V/C Ratio	0.144	-	5.435	0.216	-	-
HCM Control Delay (s)	13.7	-	$ 2363.8	29	-	-
HCM Lane LOS	B	-	F	D	-	-
HCM 95th %tile Q(veh)	0.5	-	14.6	0.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Appendix I

2031 Total Traffic Operations Reports



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	419	41	35	488	10	164	0	140	30	0	3
Future Volume (vph)	1	419	41	35	488	10	164	0	140	30	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.987			0.997			0.938			0.989	
Flt Protected	0.950			0.950				0.974			0.956	
Satd. Flow (prot)	1770	1789	0	1671	1772	0	0	1678	0	0	1761	0
Flt Permitted	0.950			0.950				0.974			0.956	
Satd. Flow (perm)	1770	1789	0	1671	1772	0	0	1678	0	0	1761	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			173.3	
Travel Time (s)		20.9			14.9			15.4			12.5	
Confl. Peds. (#/hr)			9	9								
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	13%	8%	7%	2%	3%	2%	4%	2%	2%	2%
Adj. Flow (vph)	1	428	42	36	498	11	167	0	143	33	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	470	0	36	509	0	0	310	0	0	36	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	27.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	419	41	35	488	10	164	0	140	30	0	3
Future Vol, veh/h	1	419	41	35	488	10	164	0	140	30	0	3
Conflicting Peds, #/hr	0	0	9	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	4	13	8	7	2	3	2	4	2	2	2
Mvmt Flow	1	428	42	36	498	11	167	0	143	33	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	509	0	0	479	0	0	1037	1041	458	1099	1057	504
Stage 1	-	-	-	-	-	-	460	460	-	576	576	-
Stage 2	-	-	-	-	-	-	577	581	-	523	481	-
Critical Hdwy	4.12	-	-	4.18	-	-	7.13	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.272	-	-	3.527	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1056	-	-	1053	-	-	208	230	599	190	225	568
Stage 1	-	-	-	-	-	-	579	566	-	503	502	-
Stage 2	-	-	-	-	-	-	500	500	-	537	554	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1056	-	-	1045	-	-	200	220	594	140	215	568
Mov Cap-2 Maneuver	-	-	-	-	-	-	200	220	-	140	215	-
Stage 1	-	-	-	-	-	-	574	561	-	502	485	-
Stage 2	-	-	-	-	-	-	480	483	-	407	549	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	114.6	36.4
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	288	1056	-	-	1045	-	-	150
HCM Lane V/C Ratio	1.077	0.001	-	-	0.034	-	-	0.239
HCM Control Delay (s)	114.6	8.4	-	-	8.6	-	-	36.4
HCM Lane LOS	F	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	12.3	0	-	-	0.1	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	564	17	4	472	11	27	1	20	44	2	34
Future Volume (vph)	8	564	17	4	472	11	27	1	20	44	2	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.997			0.943			0.942	
Flt Protected		0.999						0.973			0.973	
Satd. Flow (prot)	0	1804	0	0	1773	0	0	1696	0	0	1741	0
Flt Permitted		0.999						0.973			0.973	
Satd. Flow (perm)	0	1804	0	0	1773	0	0	1696	0	0	1741	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)	1		8	8		1	13		10	10		13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	0%	5%	7%	0%	5%	0%	0%	0%	0%	0%
Adj. Flow (vph)	8	581	18	4	487	11	28	1	21	45	2	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	607	0	0	502	0	0	50	0	0	82	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	564	17	4	472	11	27	1	20	44	2	34
Future Vol, veh/h	8	564	17	4	472	11	27	1	20	44	2	34
Conflicting Peds, #/hr	1	0	8	8	0	1	13	0	10	10	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	5	0	5	7	0	5	0	0	0	0	0
Mvmt Flow	8	581	18	4	487	11	28	1	21	45	2	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	499	0	0	607	0	0	1146	1121	608	1129	1125	507
Stage 1	-	-	-	-	-	-	614	614	-	502	502	-
Stage 2	-	-	-	-	-	-	532	507	-	627	623	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.15	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.545	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1075	-	-	957	-	-	174	208	499	183	207	570
Stage 1	-	-	-	-	-	-	474	486	-	555	545	-
Stage 2	-	-	-	-	-	-	526	543	-	475	481	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1074	-	-	951	-	-	157	203	491	171	202	563
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	203	-	171	202	-
Stage 1	-	-	-	-	-	-	465	477	-	548	541	-
Stage 2	-	-	-	-	-	-	483	539	-	445	472	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	25.9	27.1
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	221	1074	-	-	951	-	-	244
HCM Lane V/C Ratio	0.224	0.008	-	-	0.004	-	-	0.338
HCM Control Delay (s)	25.9	8.4	0	-	8.8	0	-	27.1
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	1.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	536	79	48	305	42	151	0	157	131	0	32
Future Volume (vph)	11	536	79	48	305	42	151	0	157	131	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.981			0.982			0.931			0.973	
Flt Protected	0.950			0.950				0.976			0.961	
Satd. Flow (prot)	1770	1786	0	1703	1739	0	0	1622	0	0	1742	0
Flt Permitted	0.950			0.950				0.976			0.961	
Satd. Flow (perm)	1770	1786	0	1703	1739	0	0	1622	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			11	11					1			
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
Heavy Vehicles (%)	2%	4%	7%	6%	8%	2%	9%	2%	4%	2%	2%	2%
Adj. Flow (vph)	12	583	86	52	332	46	164	0	171	142	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	669	0	52	378	0	0	335	0	0	177	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	89.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	536	79	48	305	42	151	0	157	131	0	32
Future Vol, veh/h	11	536	79	48	305	42	151	0	157	131	0	32
Conflicting Peds, #/hr	0	0	11	11	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	7	6	8	2	9	2	4	2	2	2
Mvmt Flow	12	583	86	52	332	46	164	0	171	142	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	378	0	0	680	0	0	1138	1143	638	1196	1163	355
Stage 1	-	-	-	-	-	-	661	661	-	459	459	-
Stage 2	-	-	-	-	-	-	477	482	-	737	704	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.19	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.581	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1180	-	-	894	-	-	173	200	473	163	195	689
Stage 1	-	-	-	-	-	-	440	460	-	582	566	-
Stage 2	-	-	-	-	-	-	556	553	-	410	440	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1180	-	-	886	-	-	~ 154	185	468	~ 98	180	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 154	185	-	~ 98	180	-
Stage 1	-	-	-	-	-	-	432	451	-	576	533	-
Stage 2	-	-	-	-	-	-	497	520	-	258	432	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.1	256.2	$ 330.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	234	1180	-	-	886	-	-	118
HCM Lane V/C Ratio	1.431	0.01	-	-	0.059	-	-	1.501
HCM Control Delay (s)	256.2	8.1	-	-	9.3	-	-	$ 330.9
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	19.2	0	-	-	0.2	-	-	12.6

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	740	2	2	361	62	2	0	2	6	0	31
Future Volume (vph)	83	740	2	2	361	62	2	0	2	6	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.980			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1827	0	0	1743	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1827	0	0	1743	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	90	804	2	2	392	67	2	0	2	7	0	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	806	0	0	461	0	0	4	0	7	0	34
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 74.4%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	740	2	2	361	62	2	0	2	6	0	31
Future Vol, veh/h	83	740	2	2	361	62	2	0	2	6	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	90	804	2	2	392	67	2	0	2	7	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	459	0	0	806	0	0	1432	1448	805	1416	-	426
Stage 1	-	-	-	-	-	-	985	985	-	430	-	-
Stage 2	-	-	-	-	-	-	447	463	-	986	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	1113	-	-	828	-	-	113	133	386	116	0	633
Stage 1	-	-	-	-	-	-	301	329	-	607	0	-
Stage 2	-	-	-	-	-	-	595	568	-	301	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1113	-	-	828	-	-	100	122	386	108	-	633
Mov Cap-2 Maneuver	-	-	-	-	-	-	100	122	-	108	-	-
Stage 1	-	-	-	-	-	-	277	302	-	558	-	-
Stage 2	-	-	-	-	-	-	562	566	-	275	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	28.3	15.8
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	159	1113	-	-	828	-	-	108	633
HCM Lane V/C Ratio	0.027	0.081	-	-	0.003	-	-	0.06	0.053
HCM Control Delay (s)	28.3	8.5	-	-	9.4	0	-	40.5	11
HCM Lane LOS	D	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.1	0.3	-	-	0	-	-	0.2	0.2

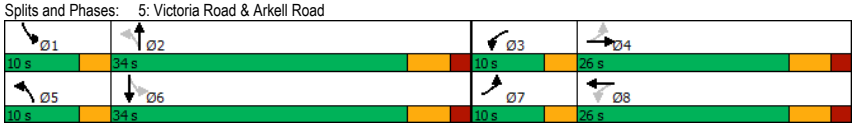
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	502	141	104	199	117	88	74	838	112	62	714	240
Future Volume (vph)	502	141	104	199	117	88	74	838	112	62	714	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		1.00				0.99	
Frt		0.936			0.936			0.982			0.962	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1672	0	1787	1696	0	1805	1760	0	1752	1670	0
Flt Permitted	0.518			0.423			0.141			0.141		
Satd. Flow (perm)	945	1672	0	796	1696	0	268	1760	0	260	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			45			9			23	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)	1					1	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	11%	1%	3%	5%	0%	6%	6%	3%	8%	11%
Adj. Flow (vph)	552	155	114	219	129	97	81	921	123	68	785	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	552	269	0	219	226	0	81	1044	0	68	1049	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	25.2	15.1		25.2	15.1		36.7	28.3		36.7	28.3	
Actuated g/C Ratio	0.34	0.21		0.34	0.21		0.50	0.39		0.50	0.39	
v/c Ratio	1.38	0.71		0.59	0.59		0.29	1.53		0.25	1.59	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	207.8	33.8		24.3	27.8		12.0	267.3		11.6	297.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	207.8	33.8		24.3	27.8		12.0	267.3		11.6	297.1	
LOS	F	C		C	C		B	F		B	F	
Approach Delay		150.8			26.1			248.9			279.7	
Approach LOS		F			C			F			F	
Queue Length 50th (m)	~113.1	31.5		22.8	24.4		5.4	~229.8		4.5	~234.0	
Queue Length 95th (m)	#175.2	56.4		38.9	45.9		13.1	#325.7		11.4	#329.5	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	401	492		369	500		282	684		274	658	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.38	0.55		0.59	0.45		0.29	1.53		0.25	1.59	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 73.3		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.59		
Intersection Signal Delay: 207.5		Intersection LOS: F
Intersection Capacity Utilization 114.3%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	502	141	104	199	117	88	74	838	112	62	714	240
Future Volume (veh/h)	502	141	104	199	117	88	74	838	112	62	714	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1856	1737	1885	1856	1826	1900	1811	1811	1856	1781	1737
Adj Flow Rate, veh/h	552	155	114	219	129	97	81	921	123	68	785	264
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
Percent Heavy Veh, %	4	3	11	1	3	5	0	6	6	3	8	11
Cap, veh/h	348	191	141	320	189	142	240	612	82	226	491	165
Arrive On Green	0.10	0.19	0.19	0.10	0.19	0.19	0.08	0.39	0.39	0.07	0.39	0.39
Sat Flow, veh/h	1753	992	730	1795	982	738	1810	1564	209	1767	1274	428
Grp Volume(v), veh/h	552	0	269	219	0	226	81	0	1044	68	0	1049
Grp Sat Flow(s),veh/h/ln	1753	0	1722	1795	0	1720	1810	0	1773	1767	0	1702
Q Serve(g_s), s	7.0	0.0	10.9	7.0	0.0	8.9	1.8	0.0	28.4	1.6	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	10.9	7.0	0.0	8.9	1.8	0.0	28.4	1.6	0.0	28.0
Prop In Lane	1.00		0.42	1.00		0.43	1.00		0.12	1.00		0.25
Lane Grp Cap(c), veh/h	348	0	332	320	0	331	240	0	693	226	0	656
V/C Ratio(X)	1.59	0.00	0.81	0.68	0.00	0.68	0.34	0.00	1.51	0.30	0.00	1.60
Avail Cap(c_a), veh/h	348	0	474	320	0	474	274	0	693	269	0	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	28.1	22.1	0.0	27.2	16.4	0.0	22.1	16.5	0.0	22.3
Incr Delay (d2), s/veh	276.8	0.0	6.9	5.9	0.0	2.5	0.8	0.0	235.0	0.7	0.0	276.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.4	0.0	2.5	1.3	0.0	1.5	0.1	0.0	46.4	0.0	0.0	51.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	304.0	0.0	35.0	28.0	0.0	29.7	17.2	0.0	257.1	17.2	0.0	298.7
LnGrp LOS	F	A	C	C	A	C	B	A	F	B	A	F
Approach Vol, veh/h		821			445			1125			1117	
Approach Delay, s/veh		215.9			28.9			239.9			281.5	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	34.4	10.0	20.0	8.6	34.0	10.0	20.0
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	3.6	30.4	9.0	12.9	3.8	30.0	9.0	10.9
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.1	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	220.7
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	58	53	1374	947	133
Future Volume (vph)	96	58	53	1374	947	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1759	1615
Flt Permitted	0.950		0.169			
Satd. Flow (perm)	1805	1615	321	1792	1759	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		63				144
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	8%	0%
Adj. Flow (vph)	104	63	58	1493	1029	145
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	63	58	1493	1029	145
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	51.0	51.0	51.0	51.0
Total Split (%)	32.0%	32.0%	68.0%	68.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	45.0	45.0	45.0	45.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.7	10.7	52.0	52.0	52.0	52.0
Actuated g/C Ratio	0.15	0.15	0.74	0.74	0.74	0.74
v/c Ratio	0.38	0.21	0.24	1.12	0.79	0.12
Control Delay	30.8	9.3	8.1	82.8	15.1	1.2
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	30.8	9.3	8.1	83.0	15.1	1.2
LOS	C	A	A	F	B	A
Approach Delay	22.7			80.2	13.4	
Approach LOS	C			F	B	
Queue Length 50th (m)	12.9	0.0	2.5	~254.4	88.4	0.0
Queue Length 95th (m)	26.0	9.3	9.5	#343.8	#204.3	5.1
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	465	463	238	1330	1305	1235
Starvation Cap Reductn	0	0	0	42	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.14	0.24	1.16	0.79	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 70.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.12			
Intersection Signal Delay: 49.7		Intersection LOS: D	
Intersection Capacity Utilization 90.6%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	58	53	1374	947	133
Future Volume (veh/h)	96	58	53	1374	947	133
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1781	1900
Adj Flow Rate, veh/h	104	63	58	1493	1029	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	8	0
Cap, veh/h	260	231	222	1225	1205	1089
Arrive On Green	0.14	0.14	0.68	0.68	0.68	0.68
Sat Flow, veh/h	1810	1610	485	1811	1781	1610
Grp Volume(v), veh/h	104	63	58	1493	1029	145
Grp Sat Flow(s),veh/h/ln	1810	1610	485	1811	1781	1610
Q Serve(g_s), s	3.5	2.3	6.9	45.0	29.5	2.1
Cycle Q Clear(g_c), s	3.5	2.3	36.4	45.0	29.5	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	260	231	222	1225	1205	1089
V/C Ratio(X)	0.40	0.27	0.26	1.22	0.85	0.13
Avail Cap(c_a), veh/h	489	436	222	1225	1205	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.4	22.2	10.8	8.3	3.8
Incr Delay (d2), s/veh	1.0	0.6	2.9	106.2	7.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.4	0.4	36.1	2.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	26.0	25.1	116.9	16.1	4.1
LnGrp LOS	C	C	C	F	B	A
Approach Vol, veh/h	167			1551	1174	
Approach Delay, s/veh	26.6			113.5	14.6	
Approach LOS	C			F	B	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		51.0		15.5		51.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		45.0		18.0		45.0
Max Q Clear Time (g_c+I1), s		47.0		5.5		31.5
Green Ext Time (p_c), s		0.0		0.5		8.0

Intersection Summary			
HCM 6th Ctrl Delay		68.3	
HCM 6th LOS		E	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	185	52	17	1453	1028	60
Future Volume (vph)	185	52	17	1453	1028	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.993	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1850	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1850	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	57	18	1579	1117	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	201	57	18	1579	1182	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 93.4%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	295.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	185	52	17	1453	1028	60
Future Vol, veh/h	185	52	17	1453	1028	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	201	57	18	1579	1117	65

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2765	1150	1182	0	-	0
Stage 1	1150	-	-	-	-	-
Stage 2	1615	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 21	241	591	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	~ 179	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 20	241	591	-	-	-
Mov Cap-2 Maneuver	~ 20	-	-	-	-	-
Stage 1	293	-	-	-	-	-
Stage 2	~ 179	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	3479.3	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	591	-	20	241	-	-
HCM Lane V/C Ratio	0.031	-	10.054	0.235	-	-
HCM Control Delay (s)	11.3	-	$ 4450.4	24.5	-	-
HCM Lane LOS	B	-	F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	25.6	0.9	-	-

Notes				
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	561	177	101	480	28	84	0	52	17	0	2
Future Volume (vph)	3	561	177	101	480	28	84	0	52	17	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.964			0.992			0.949			0.986	
Flt Protected	0.950			0.950				0.970			0.957	
Satd. Flow (prot)	1770	1805	0	1805	1865	0	0	1749	0	0	1758	0
Flt Permitted	0.950			0.950				0.970			0.957	
Satd. Flow (perm)	1770	1805	0	1805	1865	0	0	1749	0	0	1758	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			136.6	
Travel Time (s)		20.9			14.9			15.4			9.8	
Confl. Peds. (#/hr)			3	3					1			
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	3%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	3	584	184	105	500	30	88	0	54	18	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	768	0	105	530	0	0	142	0	0	20	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	12.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	561	177	101	480	28	84	0	52	17	0	2
Future Vol, veh/h	3	561	177	101	480	28	84	0	52	17	0	2
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	96	96	96	92	96	92	96	92	92	92
Heavy Vehicles, %	2	1	3	0	1	2	0	2	0	2	2	2
Mvmt Flow	3	584	184	105	500	30	88	0	54	18	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	530	0	0	771	0	0	1411	1425	680	1435	1502	515
Stage 1	-	-	-	-	-	-	685	685	-	725	725	-
Stage 2	-	-	-	-	-	-	726	740	-	710	777	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1037	-	-	853	-	-	117	136	454	111	122	560
Stage 1	-	-	-	-	-	-	441	448	-	416	430	-
Stage 2	-	-	-	-	-	-	419	423	-	424	407	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1037	-	-	851	-	-	105	119	452	88	106	560
Mov Cap-2 Maneuver	-	-	-	-	-	-	105	119	-	88	106	-
Stage 1	-	-	-	-	-	-	439	445	-	415	377	-
Stage 2	-	-	-	-	-	-	366	371	-	372	405	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.6	120.4	51.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	149	1037	-	-	851	-	-	97
HCM Lane V/C Ratio	0.951	0.003	-	-	0.124	-	-	0.213
HCM Control Delay (s)	120.4	8.5	-	-	9.8	-	-	51.9
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	6.8	0	-	-	0.4	-	-	0.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	544	37	9	561	31	20	0	4	19	1	27
Future Volume (vph)	49	544	37	9	561	31	20	0	4	19	1	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.993			0.978			0.923	
Flt Protected		0.996			0.999			0.960			0.980	
Satd. Flow (prot)	0	1861	0	0	1867	0	0	1784	0	0	1719	0
Flt Permitted		0.996			0.999			0.960			0.980	
Satd. Flow (perm)	0	1861	0	0	1867	0	0	1784	0	0	1719	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)			9	9			7		7	7		7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	52	573	39	9	591	33	21	0	4	20	1	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	664	0	0	633	0	0	25	0	0	49	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	49	544	37	9	561	31	20	0	4	19	1	27
Future Vol, veh/h	49	544	37	9	561	31	20	0	4	19	1	27
Conflicting Peds, #/hr	0	0	9	9	0	0	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	52	573	39	9	591	33	21	0	4	20	1	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	624	0	0	621	0	0	1353	1348	609	1332	1351	615
Stage 1	-	-	-	-	-	-	706	706	-	626	626	-
Stage 2	-	-	-	-	-	-	647	642	-	706	725	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	967	-	-	969	-	-	128	152	499	133	152	495
Stage 1	-	-	-	-	-	-	430	442	-	475	480	-
Stage 2	-	-	-	-	-	-	463	472	-	430	433	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	967	-	-	962	-	-	110	136	492	122	136	492
Mov Cap-2 Maneuver	-	-	-	-	-	-	110	136	-	122	136	-
Stage 1	-	-	-	-	-	-	392	403	-	436	473	-
Stage 2	-	-	-	-	-	-	427	465	-	389	394	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	40.6	26.5
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	126	967	-	-	962	-	-	216
HCM Lane V/C Ratio	0.201	0.053	-	-	0.01	-	-	0.229
HCM Control Delay (s)	40.6	8.9	0	-	8.8	0	-	26.5
HCM Lane LOS	E	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0	-	-	0.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	427	111	82	483	138	100	0	83	81	0	18
Future Volume (vph)	29	427	111	82	483	138	100	0	83	81	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.969			0.967			0.939			0.975	
Flt Protected	0.950			0.950				0.973			0.961	
Satd. Flow (prot)	1805	1827	0	1805	1809	0	0	1708	0	0	1780	0
Flt Permitted	0.950			0.950				0.973			0.961	
Satd. Flow (perm)	1805	1827	0	1805	1809	0	0	1708	0	0	1780	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	445	116	85	503	144	104	0	86	84	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	561	0	85	647	0	0	190	0	0	103	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.6%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	24.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	427	111	82	483	138	100	0	83	81	0	18
Future Vol, veh/h	29	427	111	82	483	138	100	0	83	81	0	18
Conflicting Peds, #/hr	0	0	8	8	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	1	0	0	2	0	3	0	0	0	0	0
Mvmt Flow	30	445	116	85	503	144	104	0	86	84	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	647	0	0	569	0	0	1326	1388	511	1351	1374	575
Stage 1	-	-	-	-	-	-	571	571	-	745	745	-
Stage 2	-	-	-	-	-	-	755	817	-	606	629	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.13	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.527	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	948	-	-	1013	-	-	132	144	567	129	147	521
Stage 1	-	-	-	-	-	-	504	508	-	409	424	-
Stage 2	-	-	-	-	-	-	399	393	-	487	478	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	948	-	-	1006	-	-	115	127	563	100	129	521
Mov Cap-2 Maneuver	-	-	-	-	-	-	115	127	-	100	129	-
Stage 1	-	-	-	-	-	-	485	488	-	396	388	-
Stage 2	-	-	-	-	-	-	352	360	-	399	459	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1	136.8	122.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	180	948	-	-	1006	-	-	117
HCM Lane V/C Ratio	1.059	0.032	-	-	0.085	-	-	0.881
HCM Control Delay (s)	136.8	8.9	-	-	8.9	-	-	122.7
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	9.1	0.1	-	-	0.3	-	-	5.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	579	4	2	691	7	2	0	2	8	0	9
Future Volume (vph)	8	579	4	2	691	7	2	0	2	8	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.999			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1826	0	0	1759	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1826	0	0	1759	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	9	629	4	2	751	8	2	0	2	9	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	633	0	0	761	0	0	4	0	9	0	10
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	579	4	2	691	7	2	0	2	8	0	9
Future Vol, veh/h	8	579	4	2	691	7	2	0	2	8	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	9	629	4	2	751	8	2	0	2	9	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	759	0	0	633	0	0	1413	1412	631	1409	-	755
Stage 1	-	-	-	-	-	-	649	649	-	759	-	-
Stage 2	-	-	-	-	-	-	764	763	-	650	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	862	-	-	960	-	-	117	139	485	117	0	412
Stage 1	-	-	-	-	-	-	462	469	-	402	0	-
Stage 2	-	-	-	-	-	-	399	416	-	461	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	862	-	-	960	-	-	113	137	485	115	-	412
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	137	-	115	-	-
Stage 1	-	-	-	-	-	-	457	464	-	398	-	-
Stage 2	-	-	-	-	-	-	388	414	-	454	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	25.2	25.7
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	183	862	-	-	960	-	-	115	412
HCM Lane V/C Ratio	0.024	0.01	-	-	0.002	-	-	0.076	0.024
HCM Control Delay (s)	25.2	9.2	-	-	8.8	0	-	38.8	14
HCM Lane LOS	D	A	-	-	A	A	-	E	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2	0.1

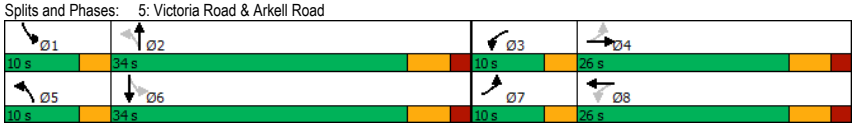
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	304	181	104	150	235	84	118	882	179	91	859	344
Future Volume (vph)	304	181	104	150	235	84	118	882	179	91	859	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00				0.99	
Frt		0.945			0.961			0.975			0.957	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1784	0	1703	1798	0	1805	1759	0	1805	1761	0
Flt Permitted	0.310			0.377			0.141			0.141		
Satd. Flow (perm)	583	1784	0	676	1798	0	268	1759	0	268	1761	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			21			14			28	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)							6					6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	6%	1%	3%	0%	6%	2%	0%	3%	1%
Adj. Flow (vph)	323	193	111	160	250	89	126	938	190	97	914	366
Shared Lane Traffic (%)												
Lane Group Flow (vph)	323	304	0	160	339	0	126	1128	0	97	1280	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	27.2	17.1		27.2	17.1		36.7	28.3		36.7	28.3	
Actuated g/C Ratio	0.36	0.23		0.36	0.23		0.49	0.38		0.49	0.38	
v/c Ratio	1.00	0.70		0.47	0.80		0.46	1.69		0.35	1.89	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	74.0	33.5		20.6	41.3		15.8	337.6		13.7	425.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	74.0	33.5		20.6	41.3		15.8	337.6		13.7	425.5	
LOS	E	C		C	D		B	F		B	F	
Approach Delay		54.4			34.7			305.3			396.5	
Approach LOS		D			C			F			F	
Queue Length 50th (m)	~36.1	38.4		16.1	46.7		9.8	~276.0		7.4	~325.1	
Queue Length 95th (m)	#88.6	65.2		29.3	#83.7		18.9	#355.1		15.1	#406.9	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	323	504		341	498		274	669		274	679	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.00	0.60		0.47	0.68		0.46	1.69		0.35	1.89	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 75.3		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.89		
Intersection Signal Delay: 260.9		Intersection LOS: F
Intersection Capacity Utilization 123.9%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	304	181	104	150	235	84	118	882	179	91	859	344
Future Volume (veh/h)	304	181	104	150	235	84	118	882	179	91	859	344
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1811	1885	1856	1900	1811	1870	1900	1856	1885
Adj Flow Rate, veh/h	323	193	111	160	250	89	126	938	190	97	914	366
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	6	1	3	0	6	2	0	3	1
Cap, veh/h	299	246	141	312	290	103	249	544	110	239	462	185
Arrive On Green	0.09	0.22	0.22	0.09	0.22	0.22	0.09	0.37	0.37	0.08	0.37	0.37
Sat Flow, veh/h	1795	1123	646	1725	1328	473	1810	1459	296	1810	1257	503
Grp Volume(v), veh/h	323	0	304	160	0	339	126	0	1128	97	0	1280
Grp Sat Flow(s),veh/h/ln	1795	0	1769	1725	0	1800	1810	0	1755	1810	0	1760
Q Serve(g_s), s	7.0	0.0	12.4	5.4	0.0	13.8	3.1	0.0	28.4	2.4	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	12.4	5.4	0.0	13.8	3.1	0.0	28.4	2.4	0.0	28.0
Prop In Lane	1.00		0.37	1.00		0.26	1.00		0.17	1.00		0.29
Lane Grp Cap(c), veh/h	299	0	387	312	0	394	249	0	655	239	0	647
V/C Ratio(X)	1.08	0.00	0.79	0.51	0.00	0.86	0.51	0.00	1.72	0.41	0.00	1.98
Avail Cap(c_a), veh/h	299	0	464	312	0	473	261	0	655	261	0	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.8	0.0	28.1	21.1	0.0	28.6	17.4	0.0	23.9	17.4	0.0	24.1
Incr Delay (d2), s/veh	75.3	0.0	7.3	1.4	0.0	13.0	1.6	0.0	331.8	1.1	0.0	445.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	3.9	1.2	0.0	4.7	0.5	0.0	65.2	0.4	0.0	85.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.1	0.0	35.3	22.6	0.0	41.7	19.0	0.0	355.7	18.5	0.0	470.0
LnGrp LOS	F	A	D	C	A	D	B	A	F	B	A	F
Approach Vol, veh/h		627			499			1254			1377	
Approach Delay, s/veh		69.7			35.6			321.9			438.2	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	34.4	10.0	22.7	9.5	34.0	10.0	22.7
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	4.4	30.4	7.4	14.4	5.1	30.0	9.0	15.8
Green Ext Time (p_c), s	0.1	0.0	0.0	1.0	0.1	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	284.4
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	23	20	1248	1271	43
Future Volume (vph)	50	23	20	1248	1271	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1845	1615
Flt Permitted	0.950		0.066			
Satd. Flow (perm)	1805	1615	125	1792	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				35
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	54	25	22	1357	1382	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	25	22	1357	1382	47
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.1	10.1	63.4	63.4	63.4	63.4
Actuated g/C Ratio	0.13	0.13	0.83	0.83	0.83	0.83
v/c Ratio	0.23	0.11	0.21	0.91	0.90	0.03
Control Delay	32.7	13.3	9.9	21.9	20.5	1.7
Queue Delay	0.0	0.0	0.0	7.4	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	32.7	13.3	9.9	29.3	20.5	1.7
LOS	C	B	A	C	C	A
Approach Delay	26.6			28.9	19.9	
Approach LOS	C			C	B	
Queue Length 50th (m)	8.8	0.0	1.0	~210.7	~198.5	0.4
Queue Length 95th (m)	16.8	6.5	5.3	#298.8	#301.1	3.0
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	429	403	104	1492	1536	1351
Starvation Cap Reductn	0	0	0	118	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.06	0.21	0.99	0.90	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.1			
Natural Cycle: 120			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 24.4		Intersection LOS: C	
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	23	20	1248	1271	43
Future Volume (veh/h)	50	23	20	1248	1271	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1856	1900
Adj Flow Rate, veh/h	54	25	22	1357	1382	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	3	0
Cap, veh/h	203	181	103	1297	1328	1153
Arrive On Green	0.11	0.11	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1810	1610	381	1811	1856	1610
Grp Volume(v), veh/h	54	25	22	1357	1382	47
Grp Sat Flow(s),veh/h/ln	1810	1610	381	1811	1856	1610
Q Serve(g_s), s	1.9	1.0	0.0	50.0	50.0	0.6
Cycle Q Clear(g_c), s	1.9	1.0	50.0	50.0	50.0	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	203	181	103	1297	1328	1153
V/C Ratio(X)	0.27	0.14	0.21	1.05	1.04	0.04
Avail Cap(c_a), veh/h	466	415	103	1297	1328	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	28.0	34.9	9.9	9.9	2.9
Incr Delay (d2), s/veh	0.7	0.3	4.7	38.1	35.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.3	0.4	13.7	13.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.1	28.3	39.6	48.0	45.8	3.0
LnGrp LOS	C	C	D	F	F	A
Approach Vol, veh/h	79			1379	1429	
Approach Delay, s/veh	28.8			47.9	44.4	
Approach LOS	C			D	D	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		56.0		13.8		56.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		18.0		50.0
Max Q Clear Time (g_c+I1), s		52.0		3.9		52.0
Green Ext Time (p_c), s		0.0		0.2		0.0

Intersection Summary		
HCM 6th Ctrl Delay	45.6	
HCM 6th LOS	D	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	105	38	64	1234	1276	176
Future Volume (vph)	105	38	64	1234	1276	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.984	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1822	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1792	1822	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	114	41	70	1341	1387	191
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	41	70	1341	1578	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 90.3%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	148.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	105	38	64	1234	1276	176
Future Vol, veh/h	105	38	64	1234	1276	176
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	3	0
Mvmt Flow	114	41	70	1341	1387	191

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2964	1483	1578	0	-	0
Stage 1	1483	-	-	-	-	-
Stage 2	1481	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 16	155	423	-	-	-
Stage 1	210	-	-	-	-	-
Stage 2	210	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 13	155	423	-	-	-
Mov Cap-2 Maneuver	~ 13	-	-	-	-	-
Stage 1	175	-	-	-	-	-
Stage 2	210	-	-	-	-	-

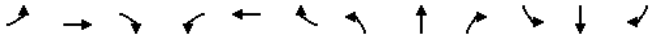
Approach	EB	NB	SB
HCM Control Delay, $	2999.1	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	423	-	13	155	-	-
HCM Lane V/C Ratio	0.164	-	8.779	0.266	-	-
HCM Control Delay (s)	15.2	-	$ 4071.3	36.5	-	-
HCM Lane LOS	C	-	F	E	-	-
HCM 95th %tile Q(veh)	0.6	-	15.4	1	-	-

Notes				
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	

Appendix J

2036 Total Traffic Operations Reports



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	467	48	41	546	10	188	0	162	30	0	3
Future Volume (vph)	1	467	48	41	546	10	188	0	162	30	0	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.986			0.997			0.938			0.989	
Flt Protected	0.950			0.950				0.974			0.956	
Satd. Flow (prot)	1770	1787	0	1671	1772	0	0	1678	0	0	1761	0
Flt Permitted	0.950			0.950				0.974			0.956	
Satd. Flow (perm)	1770	1787	0	1671	1772	0	0	1678	0	0	1761	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			173.3	
Travel Time (s)		20.9			14.9			15.4			12.5	
Confl. Peds. (#/hr)			9	9								
Peak Hour Factor	0.92	0.98	0.98	0.98	0.98	0.92	0.98	0.92	0.98	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	13%	8%	7%	2%	3%	2%	4%	2%	2%	2%
Adj. Flow (vph)	1	477	49	42	557	11	192	0	165	33	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	526	0	42	568	0	0	357	0	0	36	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.7%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	65.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	467	48	41	546	10	188	0	162	30	0	3
Future Vol, veh/h	1	467	48	41	546	10	188	0	162	30	0	3
Conflicting Peds, #/hr	0	0	9	9	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	98	98	98	98	92	98	92	98	92	92	92
Heavy Vehicles, %	2	4	13	8	7	2	3	2	4	2	2	2
Mvmt Flow	1	477	49	42	557	11	192	0	165	33	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	568	0	0	535	0	0	1161	1165	511	1233	1184	563
Stage 1	-	-	-	-	-	-	513	513	-	647	647	-
Stage 2	-	-	-	-	-	-	648	652	-	586	537	-
Critical Hdwy	4.12	-	-	4.18	-	-	7.13	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.272	-	-	3.527	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1004	-	-	1003	-	-	~ 171	194	559	154	189	526
Stage 1	-	-	-	-	-	-	542	536	-	460	467	-
Stage 2	-	-	-	-	-	-	457	464	-	496	523	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1004	-	-	995	-	-	~ 163	184	555	105	179	526
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 163	184	-	105	179	-
Stage 1	-	-	-	-	-	-	537	531	-	460	447	-
Stage 2	-	-	-	-	-	-	435	445	-	348	518	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.6	273	51
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	242	1004	-	-	995	-	-	113
HCM Lane V/C Ratio	1.476	0.001	-	-	0.042	-	-	0.317
HCM Control Delay (s)	273	8.6	-	-	8.8	-	-	51
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	20.8	0	-	-	0.1	-	-	1.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	630	20	4	528	11	31	1	22	46	3	37
Future Volume (vph)	8	630	20	4	528	11	31	1	22	46	3	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.997			0.945			0.942	
Flt Protected		0.999						0.972			0.974	
Satd. Flow (prot)	0	1804	0	0	1773	0	0	1697	0	0	1743	0
Flt Permitted		0.999						0.972			0.974	
Satd. Flow (perm)	0	1804	0	0	1773	0	0	1697	0	0	1743	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)	1		8	8		1	13		10	10		13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	0%	5%	7%	0%	5%	0%	0%	0%	0%	0%
Adj. Flow (vph)	8	649	21	4	544	11	32	1	23	47	3	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	678	0	0	559	0	0	56	0	0	88	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	630	20	4	528	11	31	1	22	46	3	37
Future Vol, veh/h	8	630	20	4	528	11	31	1	22	46	3	37
Conflicting Peds, #/hr	1	0	8	8	0	1	13	0	10	10	0	13
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	5	0	5	7	0	5	0	0	0	0	0
Mvmt Flow	8	649	21	4	544	11	32	1	23	47	3	38

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	556	0	0	678	0	0	1275	1248	678	1257	1253	564
Stage 1	-	-	-	-	-	-	684	684	-	559	559	-
Stage 2	-	-	-	-	-	-	591	564	-	698	694	-
Critical Hdwy	4.1	-	-	4.15	-	-	7.15	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.15	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.245	-	-	3.545	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1025	-	-	900	-	-	142	175	456	149	174	529
Stage 1	-	-	-	-	-	-	434	452	-	517	514	-
Stage 2	-	-	-	-	-	-	488	512	-	434	447	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1024	-	-	894	-	-	126	170	449	138	169	523
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	170	-	138	169	-
Stage 1	-	-	-	-	-	-	426	443	-	510	510	-
Stage 2	-	-	-	-	-	-	442	508	-	403	439	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	33.9	35.6
HCM LOS			D	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	179	1024	-	-	894	-	-	204
HCM Lane V/C Ratio	0.311	0.008	-	-	0.005	-	-	0.435
HCM Control Delay (s)	33.9	8.5	0	-	9	0	-	35.6
HCM Lane LOS	D	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	1.3	0	-	-	0	-	-	2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	595	91	55	339	42	174	0	181	131	0	32
Future Volume (vph)	11	595	91	55	339	42	174	0	181	131	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.980			0.983			0.931			0.973	
Flt Protected	0.950			0.950				0.976			0.961	
Satd. Flow (prot)	1770	1784	0	1703	1740	0	0	1622	0	0	1742	0
Flt Permitted	0.950			0.950				0.976			0.961	
Satd. Flow (perm)	1770	1784	0	1703	1740	0	0	1622	0	0	1742	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			11	11					1			
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
Heavy Vehicles (%)	2%	4%	7%	6%	8%	2%	9%	2%	4%	2%	2%	2%
Adj. Flow (vph)	12	647	99	60	368	46	189	0	197	142	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	746	0	60	414	0	0	386	0	0	177	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.7%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	172.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	595	91	55	339	42	174	0	181	131	0	32
Future Vol, veh/h	11	595	91	55	339	42	174	0	181	131	0	32
Conflicting Peds, #/hr	0	0	11	11	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	7	6	8	2	9	2	4	2	2	2
Mvmt Flow	12	647	99	60	368	46	189	0	197	142	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	414	0	0	757	0	0	1261	1266	709	1331	1292	391
Stage 1	-	-	-	-	-	-	732	732	-	511	511	-
Stage 2	-	-	-	-	-	-	529	534	-	820	781	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.19	6.52	6.24	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.19	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.581	4.018	3.336	3.518	4.018	3.318
Pot Cap-1 Maneuver	1145	-	-	836	-	-	~ 142	169	431	~ 132	163	658
Stage 1	-	-	-	-	-	-	402	427	-	545	537	-
Stage 2	-	-	-	-	-	-	521	524	-	369	405	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1145	-	-	828	-	-	~ 125	154	427	~ 67	148	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 125	154	-	~ 67	148	-
Stage 1	-	-	-	-	-	-	394	419	-	540	498	-
Stage 2	-	-	-	-	-	-	458	486	-	197	397	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.2	$ 498.5	$ 655.9
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	195	1145	-	-	828	-	-	81
HCM Lane V/C Ratio	1.979	0.01	-	-	0.072	-	-	2.187
HCM Control Delay (s)	$ 498.5	8.2	-	-	9.7	-	-	$ 655.9
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	28.9	0	-	-	0.2	-	-	16.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	822	3	3	402	62	3	0	3	6	0	31
Future Volume (vph)	83	822	3	3	402	62	3	0	3	6	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.982			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1825	0	0	1745	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1825	0	0	1745	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	90	893	3	3	437	67	3	0	3	7	0	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	896	0	0	507	0	0	6	0	7	0	34
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 72.9%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	822	3	3	402	62	3	0	3	6	0	31
Future Vol, veh/h	83	822	3	3	402	62	3	0	3	6	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	90	893	3	3	437	67	3	0	3	7	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	504	0	0	896	0	0	1569	1585	895	1553	-	471
Stage 1	-	-	-	-	-	-	1075	1075	-	477	-	-
Stage 2	-	-	-	-	-	-	494	510	-	1076	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	1071	-	-	766	-	-	91	109	342	93	0	597
Stage 1	-	-	-	-	-	-	268	298	-	573	0	-
Stage 2	-	-	-	-	-	-	561	541	-	268	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1071	-	-	766	-	-	80	99	342	86	-	597
Mov Cap-2 Maneuver	-	-	-	-	-	-	80	99	-	86	-	-
Stage 1	-	-	-	-	-	-	245	273	-	525	-	-
Stage 2	-	-	-	-	-	-	527	538	-	243	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.1	34.2	17.7
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	130	1071	-	-	766	-	-	86	597
HCM Lane V/C Ratio	0.05	0.084	-	-	0.004	-	-	0.076	0.056
HCM Control Delay (s)	34.2	8.7	-	-	9.7	0	-	50.3	11.4
HCM Lane LOS	D	A	-	-	A	A	-	F	B
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0	-	-	0.2	0.2

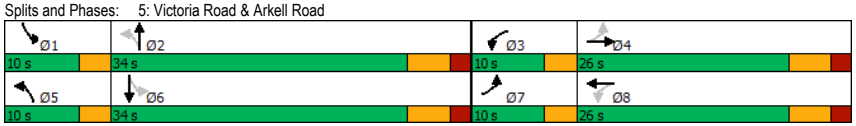
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	563	158	108	229	132	101	79	951	129	69	802	262
Future Volume (vph)	563	158	108	229	132	101	79	951	129	69	802	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				0.99		1.00				0.99	
Frt		0.939			0.935			0.982			0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	1679	0	1787	1694	0	1805	1760	0	1752	1673	0
Flt Permitted	0.459			0.382			0.141			0.141		
Satd. Flow (perm)	837	1679	0	719	1694	0	268	1760	0	260	1673	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			46			9			23	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)	1					1	3					3
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	11%	1%	3%	5%	0%	6%	6%	3%	8%	11%
Adj. Flow (vph)	619	174	119	252	145	111	87	1045	142	76	881	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	619	293	0	252	256	0	87	1187	0	76	1169	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	26.0	15.9		26.0	15.9		36.7	28.3		36.7	28.3	
Actuated g/C Ratio	0.35	0.21		0.35	0.21		0.50	0.38		0.50	0.38	
v/c Ratio	1.63	0.75		0.71	0.64		0.31	1.75		0.28	1.79	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	318.6	36.3		30.5	29.9		12.7	366.0		12.3	383.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	318.6	36.3		30.5	29.9		12.7	366.0		12.3	383.0	
LOS	F	D		C	C		B	F		B	F	
Approach Delay		227.9			30.2			341.9			360.4	
Approach LOS		F			C			F			F	
Queue Length 50th (m)	~139.9	36.1		26.7	28.9		6.1	~283.3		5.3	~279.7	
Queue Length 95th (m)	#205.8	62.9		#48.8	52.8		13.9	#377.4		12.5	#373.0	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	379	488		354	496		279	678		271	653	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.63	0.60		0.71	0.52		0.31	1.75		0.28	1.79	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 74.1		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.79		
Intersection Signal Delay: 281.1		Intersection LOS: F
Intersection Capacity Utilization 123.5%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	563	158	108	229	132	101	79	951	129	69	802	262
Future Volume (veh/h)	563	158	108	229	132	101	79	951	129	69	802	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1856	1737	1885	1856	1826	1900	1811	1811	1856	1781	1737
Adj Flow Rate, veh/h	619	174	119	252	145	111	87	1045	142	76	881	288
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
Percent Heavy Veh, %	4	3	11	1	3	5	0	6	6	3	8	11
Cap, veh/h	335	210	143	313	199	152	240	597	81	230	486	159
Arrive On Green	0.09	0.20	0.20	0.09	0.20	0.20	0.08	0.38	0.38	0.07	0.38	0.38
Sat Flow, veh/h	1753	1026	702	1795	974	745	1810	1560	212	1767	1284	420
Grp Volume(v), veh/h	619	0	293	252	0	256	87	0	1187	76	0	1169
Grp Sat Flow(s),veh/h/ln	1753	0	1727	1795	0	1719	1810	0	1772	1767	0	1704
Q Serve(g_s), s	7.0	0.0	12.0	7.0	0.0	10.3	2.0	0.0	28.3	1.8	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	12.0	7.0	0.0	10.3	2.0	0.0	28.3	1.8	0.0	28.0
Prop In Lane	1.00		0.41	1.00		0.43	1.00		0.12	1.00		0.25
Lane Grp Cap(c), veh/h	335	0	353	313	0	351	240	0	678	230	0	645
V/C Ratio(X)	1.85	0.00	0.83	0.80	0.00	0.73	0.36	0.00	1.75	0.33	0.00	1.81
Avail Cap(c_a), veh/h	335	0	467	313	0	465	269	0	678	265	0	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	28.2	24.1	0.0	27.5	16.7	0.0	22.8	16.8	0.0	23.0
Incr Delay (d2), s/veh	392.2	0.0	9.2	14.2	0.0	3.9	0.9	0.0	343.7	0.8	0.0	371.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.1	0.0	2.9	2.1	0.0	1.9	0.1	0.0	66.3	0.1	0.0	68.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	419.4	0.0	37.4	38.3	0.0	31.4	17.6	0.0	366.5	17.7	0.0	394.3
LnGrp LOS	F	A	D	D	A	C	B	A	F	B	A	F
Approach Vol, veh/h		912			508			1274			1245	
Approach Delay, s/veh		296.7			34.9			342.7			371.3	
Approach LOS		F			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	34.3	10.0	21.1	8.8	34.0	10.0	21.1
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	3.8	30.3	9.0	14.0	4.0	30.0	9.0	12.3
Green Ext Time (p_c), s	0.1	0.0	0.0	1.0	0.1	0.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	301.4
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	96	58	53	1561	1064	133
Future Volume (vph)	96	58	53	1561	1064	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1759	1615
Flt Permitted	0.950		0.101			
Satd. Flow (perm)	1805	1615	192	1792	1759	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		63				128
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	8%	0%
Adj. Flow (vph)	104	63	58	1697	1157	145
Shared Lane Traffic (%)						
Lane Group Flow (vph)	104	63	58	1697	1157	145
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	51.0	51.0	51.0	51.0
Total Split (%)	32.0%	32.0%	68.0%	68.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	45.0	45.0	45.0	45.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.7	10.7	52.0	52.0	52.0	52.0
Actuated g/C Ratio	0.15	0.15	0.74	0.74	0.74	0.74
v/c Ratio	0.38	0.21	0.41	1.28	0.89	0.12
Control Delay	30.8	9.3	17.7	148.2	21.9	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	30.8	9.3	17.7	148.2	21.9	1.5
LOS	C	A	B	F	C	A
Approach Delay	22.7			143.9	19.6	
Approach LOS	C			F	B	
Queue Length 50th (m)	12.9	0.0	3.0	~313.1	120.5	0.6
Queue Length 95th (m)	26.0	9.3	#20.8	#405.5	#244.1	5.9
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	465	463	142	1330	1305	1231
Starvation Cap Reductn	0	0	0	13	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.14	0.41	1.29	0.89	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 70.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 87.4		Intersection LOS: F	
Intersection Capacity Utilization 100.5%		ICU Level of Service G	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	96	58	53	1561	1064	133
Future Volume (veh/h)	96	58	53	1561	1064	133
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1781	1900
Adj Flow Rate, veh/h	104	63	58	1697	1157	145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	8	0
Cap, veh/h	260	231	141	1225	1205	1089
Arrive On Green	0.14	0.14	0.68	0.68	0.68	0.68
Sat Flow, veh/h	1810	1610	430	1811	1781	1610
Grp Volume(v), veh/h	104	63	58	1697	1157	145
Grp Sat Flow(s),veh/h/ln	1810	1610	430	1811	1781	1610
Q Serve(g_s), s	3.5	2.3	5.1	45.0	39.9	2.1
Cycle Q Clear(g_c), s	3.5	2.3	45.0	45.0	39.9	2.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	260	231	141	1225	1205	1089
V/C Ratio(X)	0.40	0.27	0.41	1.39	0.96	0.13
Avail Cap(c_a), veh/h	489	436	141	1225	1205	1089
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.9	25.4	31.8	10.8	9.9	3.8
Incr Delay (d2), s/veh	1.0	0.6	8.6	178.6	18.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.4	0.7	60.8	6.0	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.9	26.0	40.5	189.4	28.0	4.1
LnGrp LOS	C	C	D	F	C	A
Approach Vol, veh/h	167			1755	1302	
Approach Delay, s/veh	26.6			184.5	25.3	
Approach LOS	C			F	C	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		51.0		15.5		51.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		45.0		18.0		45.0
Max Q Clear Time (g_c+I1), s		47.0		5.5		41.9
Green Ext Time (p_c), s		0.0		0.5		2.5

Intersection Summary		
HCM 6th Ctrl Delay	112.0	
HCM 6th LOS	F	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	185	52	17	1640	1145	60
Future Volume (vph)	185	52	17	1640	1145	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.993	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1850	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1770	1583	1770	1863	1850	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	201	57	18	1783	1245	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	201	57	18	1783	1310	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 103.2%		ICU Level of Service G	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	423

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	185	52	17	1640	1145	60
Future Vol, veh/h	185	52	17	1640	1145	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	201	57	18	1783	1245	65

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3097	1278	1310	0	-	0
Stage 1	1278	-	-	-	-	-
Stage 2	1819	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	~ 13	203	528	-	-	-
Stage 1	262	-	-	-	-	-
Stage 2	~ 142	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 13	203	528	-	-	-
Mov Cap-2 Maneuver	~ 13	-	-	-	-	-
Stage 1	253	-	-	-	-	-
Stage 2	~ 142	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	5530.1	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	528	-	13	203	-	-
HCM Lane V/C Ratio	0.035	-	15.468	0.278	-	-
HCM Control Delay (s)	12.1	-	$ 7076.3	29.4	-	-
HCM Lane LOS	B	-	F	D	-	-
HCM 95th %tile Q(veh)	0.1	-	26.4	1.1	-	-

Notes				
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	636	204	117	545	28	97	0	60	17	0	2
Future Volume (vph)	3	636	204	117	545	28	97	0	60	17	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	15.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.964			0.992			0.948			0.986	
Flt Protected	0.950			0.950				0.970			0.957	
Satd. Flow (prot)	1770	1805	0	1805	1865	0	0	1747	0	0	1758	0
Flt Permitted	0.950			0.950				0.970			0.957	
Satd. Flow (perm)	1770	1805	0	1805	1865	0	0	1747	0	0	1758	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		290.6			206.6			213.5			136.6	
Travel Time (s)		20.9			14.9			15.4			9.8	
Confl. Peds. (#/hr)			3	3					1			
Peak Hour Factor	0.92	0.96	0.96	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Heavy Vehicles (%)	2%	1%	3%	0%	1%	2%	0%	2%	0%	2%	2%	2%
Adj. Flow (vph)	3	663	213	122	568	30	101	0	63	18	0	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	876	0	122	598	0	0	164	0	0	20	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	33.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	636	204	117	545	28	97	0	60	17	0	2
Future Vol, veh/h	3	636	204	117	545	28	97	0	60	17	0	2
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	1	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	15	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	96	96	96	96	92	96	92	96	92	92	92
Heavy Vehicles, %	2	1	3	0	1	2	0	2	0	2	2	2
Mvmt Flow	3	663	213	122	568	30	101	0	63	18	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	598	0	0	879	0	0	1607	1621	774	1635	1712	583
Stage 1	-	-	-	-	-	-	779	779	-	827	827	-
Stage 2	-	-	-	-	-	-	828	842	-	808	885	-
Critical Hdwy	4.12	-	-	4.1	-	-	7.1	6.52	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.2	-	-	3.5	4.018	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	979	-	-	777	-	-	~ 85	103	402	81	90	512
Stage 1	-	-	-	-	-	-	392	406	-	366	386	-
Stage 2	-	-	-	-	-	-	368	380	-	375	363	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	979	-	-	775	-	-	~ 74	86	401	60	75	512
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 74	86	-	60	75	-
Stage 1	-	-	-	-	-	-	390	404	-	365	325	-
Stage 2	-	-	-	-	-	-	309	320	-	315	361	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.8	$ 344.1	82.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	108	979	-	-	775	-	-	66
HCM Lane V/C Ratio	1.514	0.003	-	-	0.157	-	-	0.313
HCM Control Delay (s)	$ 344.1	8.7	-	-	10.5	-	-	82.7
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	12	0	-	-	0.6	-	-	1.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	616	42	10	636	33	22	0	4	20	1	30
Future Volume (vph)	55	616	42	10	636	33	22	0	4	20	1	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.993			0.980			0.920	
Flt Protected		0.996			0.999			0.959			0.981	
Satd. Flow (prot)	0	1861	0	0	1867	0	0	1786	0	0	1715	0
Flt Permitted		0.996			0.999			0.959			0.981	
Satd. Flow (perm)	0	1861	0	0	1867	0	0	1786	0	0	1715	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		206.6			261.6			219.2			154.5	
Travel Time (s)		14.9			18.8			15.8			11.1	
Confl. Peds. (#/hr)			9	9			7		7	7		7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	58	648	44	11	669	35	23	0	4	21	1	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	750	0	0	715	0	0	27	0	0	54	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 79.6%		ICU Level of Service D	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	616	42	10	636	33	22	0	4	20	1	30
Future Vol, veh/h	55	616	42	10	636	33	22	0	4	20	1	30
Conflicting Peds, #/hr	0	0	9	9	0	0	7	0	7	7	0	7
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	58	648	44	11	669	35	23	0	4	21	1	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	704	0	0	701	0	0	1527	1521	686	1504	1526	694
Stage 1	-	-	-	-	-	-	795	795	-	709	709	-
Stage 2	-	-	-	-	-	-	732	726	-	795	817	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	903	-	-	905	-	-	97	120	451	101	119	446
Stage 1	-	-	-	-	-	-	384	402	-	428	440	-
Stage 2	-	-	-	-	-	-	416	433	-	384	393	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	903	-	-	898	-	-	80	104	445	90	104	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	80	104	-	90	104	-
Stage 1	-	-	-	-	-	-	341	357	-	383	431	-
Stage 2	-	-	-	-	-	-	375	424	-	338	349	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	59.9	35.7
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	92	903	-	-	898	-	-	170
HCM Lane V/C Ratio	0.297	0.064	-	-	0.012	-	-	0.316
HCM Control Delay (s)	59.9	9.3	0	-	9.1	0	-	35.7
HCM Lane LOS	F	A	A	-	A	A	-	E
HCM 95th %tile Q(veh)	1.1	0.2	-	-	0	-	-	1.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	484	128	94	546	138	115	0	96	81	0	18
Future Volume (vph)	29	484	128	94	546	138	115	0	96	81	0	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	60.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.969			0.970			0.939			0.975	
Flt Protected	0.950			0.950				0.973			0.961	
Satd. Flow (prot)	1805	1827	0	1805	1814	0	0	1708	0	0	1780	0
Flt Permitted	0.950			0.950				0.973			0.961	
Satd. Flow (perm)	1805	1827	0	1805	1814	0	0	1708	0	0	1780	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		261.6			193.8			209.6			91.7	
Travel Time (s)		18.8			14.0			15.1			6.6	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	2%	0%	3%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	504	133	98	569	144	120	0	100	84	0	19
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	637	0	98	713	0	0	220	0	0	103	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	57.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	484	128	94	546	138	115	0	96	81	0	18
Future Vol, veh/h	29	484	128	94	546	138	115	0	96	81	0	18
Conflicting Peds, #/hr	0	0	8	8	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	1	0	0	2	0	3	0	0	0	0	0
Mvmt Flow	30	504	133	98	569	144	120	0	100	84	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	713	0	0	645	0	0	1486	1548	579	1518	1542	641
Stage 1	-	-	-	-	-	-	639	639	-	837	837	-
Stage 2	-	-	-	-	-	-	847	909	-	681	705	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.13	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.527	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	896	-	-	950	-	-	~ 102	115	519	99	116	478
Stage 1	-	-	-	-	-	-	463	474	-	364	385	-
Stage 2	-	-	-	-	-	-	355	357	-	444	442	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	896	-	-	944	-	-	~ 87	99	515	~ 72	100	478
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 87	99	-	~ 72	100	-
Stage 1	-	-	-	-	-	-	444	455	-	352	345	-
Stage 2	-	-	-	-	-	-	306	320	-	346	424	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1.1	$ 345	254.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	140	896	-	-	944	-	-	85
HCM Lane V/C Ratio	1.57	0.034	-	-	0.104	-	-	1.213
HCM Control Delay (s)	$ 345	9.2	-	-	9.3	-	-	254.8
HCM Lane LOS	F	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	15.3	0.1	-	-	0.3	-	-	7.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	648	4	3	766	7	3	0	3	8	0	9
Future Volume (vph)	8	648	4	3	766	7	3	0	3	8	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	25.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.999			0.932				0.850
Flt Protected	0.950							0.976		0.950		
Satd. Flow (prot)	1805	1825	0	0	1759	0	0	1728	0	1805	0	1615
Flt Permitted	0.950							0.976		0.950		
Satd. Flow (perm)	1805	1825	0	0	1759	0	0	1728	0	1805	0	1615
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		193.8			144.3			68.0			96.7	
Travel Time (s)		14.0			10.4			4.9			7.0	
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
Heavy Vehicles (%)	0%	4%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	9	704	4	3	833	8	3	0	3	9	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	708	0	0	844	0	0	6	0	9	0	10
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.6%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	648	4	3	766	7	3	0	3	8	0	9
Future Vol, veh/h	8	648	4	3	766	7	3	0	3	8	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	25	-	-	-	-	-	-	-	-	0	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	0	0	8	0	0	0	0	0	0	0
Mvmt Flow	9	704	4	3	833	8	3	0	3	9	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	841	0	0	708	0	0	1572	1571	706	1569	-	837
Stage 1	-	-	-	-	-	-	724	724	-	843	-	-
Stage 2	-	-	-	-	-	-	848	847	-	726	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	-	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	-	3.3
Pot Cap-1 Maneuver	803	-	-	900	-	-	90	112	439	91	0	370
Stage 1	-	-	-	-	-	-	420	433	-	361	0	-
Stage 2	-	-	-	-	-	-	359	381	-	419	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	803	-	-	900	-	-	86	110	439	89	-	370
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	110	-	89	-	-
Stage 1	-	-	-	-	-	-	415	428	-	357	-	-
Stage 2	-	-	-	-	-	-	347	379	-	411	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	31.2	31.4
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	144	803	-	-	900	-	-	89	370
HCM Lane V/C Ratio	0.045	0.011	-	-	0.004	-	-	0.098	0.026
HCM Control Delay (s)	31.2	9.5	-	-	9	0	-	49.8	15
HCM Lane LOS	D	A	-	-	A	A	-	E	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3	0.1

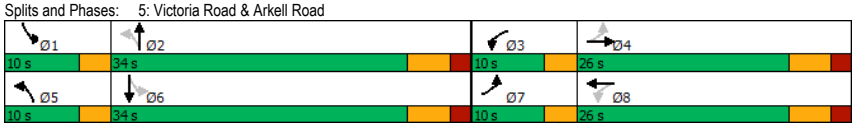
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	341	205	114	173	265	92	125	996	207	102	973	383
Future Volume (vph)	341	205	114	173	265	92	125	996	207	102	973	383
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	20.0		0.0	90.0		0.0	50.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00				0.99	
Frt		0.946			0.961			0.974			0.958	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1786	0	1703	1799	0	1805	1757	0	1805	1763	0
Flt Permitted	0.255			0.327			0.142			0.142		
Satd. Flow (perm)	480	1786	0	586	1799	0	270	1757	0	270	1763	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			21			14			27	
Link Speed (k/h)		50			60			70			70	
Link Distance (m)		144.3			357.4			823.5			155.4	
Travel Time (s)		10.4			21.4			42.4			8.0	
Confl. Peds. (#/hr)							6					6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	0%	6%	1%	3%	0%	6%	2%	0%	3%	1%
Adj. Flow (vph)	363	218	121	184	282	98	133	1060	220	109	1035	407
Shared Lane Traffic (%)												
Lane Group Flow (vph)	363	339	0	184	380	0	133	1280	0	109	1442	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0		7.0	10.0		7.0	10.0		7.0	10.0	
Minimum Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (s)	10.0	26.0		10.0	26.0		10.0	34.0		10.0	34.0	
Total Split (%)	12.5%	32.5%		12.5%	32.5%		12.5%	42.5%		12.5%	42.5%	
Maximum Green (s)	7.0	20.0		7.0	20.0		7.0	28.0		7.0	28.0	
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.0		3.0	4.0	
All-Red Time (s)	0.0	2.0		0.0	2.0		0.0	2.0		0.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	3.0	6.0		3.0	6.0		3.0	6.0		3.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)		7.0			7.0			13.0			13.0	
Flash Dont Walk (s)		13.0			13.0			15.0			15.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	28.6	18.5		28.6	18.5		36.6	28.2		36.6	28.2	
Actuated g/C Ratio	0.37	0.24		0.37	0.24		0.48	0.37		0.48	0.37	
v/c Ratio	1.21	0.74		0.57	0.84		0.49	1.95		0.40	2.17	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	146.1	35.9		23.8	45.3		16.9	454.7		14.8	549.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	146.1	35.9		23.8	45.3		16.9	454.7		14.8	549.1	
LOS	F	D		C	D		B	F		B	F	
Approach Delay		92.9			38.3			413.5			511.5	
Approach LOS		F			D			F			F	
Queue Length 50th (m)	~48.4	44.8		18.8	54.3		10.6	~331.3		8.5	~384.1	
Queue Length 95th (m)	#102.1	#81.1		33.3	#100.3		19.7	#410.4		16.7	#464.9	
Internal Link Dist (m)		120.3			333.4			799.5			131.4	
Turn Bay Length (m)	40.0			20.0			90.0			50.0		
Base Capacity (vph)	299	494		321	488		270	656		270	666	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	1.21	0.69		0.57	0.78		0.49	1.95		0.40	2.17	

Intersection Summary		
Area Type:	Other	
Cycle Length: 80		
Actuated Cycle Length: 76.6		
Natural Cycle: 150		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 2.17		
Intersection Signal Delay: 346.2		Intersection LOS: F
Intersection Capacity Utilization 136.7%		ICU Level of Service H
Analysis Period (min) 15		

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Victoria Road & Arkell Road



HCM 6th Signalized Intersection Summary
5: Victoria Road & Arkell Road

2036 PM Total
220 Arkell Road TIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	341	205	114	173	265	92	125	996	207	102	973	383
Future Volume (veh/h)	341	205	114	173	265	92	125	996	207	102	973	383
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1900	1811	1885	1856	1900	1811	1870	1900	1856	1885
Adj Flow Rate, veh/h	363	218	121	184	282	98	133	1060	220	109	1035	407
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	0	6	1	3	0	6	2	0	3	1
Cap, veh/h	286	269	150	303	316	110	245	526	109	239	453	178
Arrive On Green	0.09	0.24	0.24	0.09	0.24	0.24	0.08	0.36	0.36	0.08	0.36	0.36
Sat Flow, veh/h	1795	1139	632	1725	1337	465	1810	1452	301	1810	1264	497
Grp Volume(v), veh/h	363	0	339	184	0	380	133	0	1280	109	0	1442
Grp Sat Flow(s),veh/h/ln	1795	0	1771	1725	0	1802	1810	0	1754	1810	0	1761
Q Serve(g_s), s	7.0	0.0	14.1	6.3	0.0	15.9	3.4	0.0	28.3	2.8	0.0	28.0
Cycle Q Clear(g_c), s	7.0	0.0	14.1	6.3	0.0	15.9	3.4	0.0	28.3	2.8	0.0	28.0
Prop In Lane	1.00		0.36	1.00		0.26	1.00		0.17	1.00		0.28
Lane Grp Cap(c), veh/h	286	0	419	303	0	426	245	0	635	239	0	632
V/C Ratio(X)	1.27	0.00	0.81	0.61	0.00	0.89	0.54	0.00	2.02	0.46	0.00	2.28
Avail Cap(c_a), veh/h	286	0	454	303	0	462	254	0	635	254	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	28.1	21.4	0.0	28.8	18.1	0.0	24.9	18.1	0.0	25.0
Incr Delay (d2), s/veh	145.9	0.0	9.9	3.5	0.0	18.3	2.2	0.0	462.6	1.4	0.0	582.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	0.0	4.8	1.5	0.0	6.0	0.6	0.0	86.8	0.5	0.0	107.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	172.4	0.0	38.0	24.9	0.0	47.1	20.2	0.0	487.5	19.4	0.0	607.4
LnGrp LOS	F	A	D	C	A	D	C	A	F	B	A	F
Approach Vol, veh/h		702			564			1413			1551	
Approach Delay, s/veh		107.5			39.9			443.6			566.1	
Approach LOS		F			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	34.3	10.0	24.5	9.6	34.0	10.0	24.5
Change Period (Y+Rc), s	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Max Green Setting (Gmax), s	7.0	28.0	7.0	20.0	7.0	28.0	7.0	20.0
Max Q Clear Time (g_c+I1), s	4.8	30.3	8.3	16.1	5.4	30.0	9.0	17.9
Green Ext Time (p_c), s	0.1	0.0	0.0	0.8	0.1	0.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	378.9
HCM 6th LOS	F

Lanes, Volumes, Timings
6: Victoria Road & Access 2

2036 PM Total
220 Arkell Road TIS

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	23	20	1407	1435	43
Future Volume (vph)	50	23	20	1407	1435	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	0.0	30.0			60.0
Storage Lanes	1	1	1			1
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1845	1615
Flt Permitted	0.950		0.066			
Satd. Flow (perm)	1805	1615	125	1792	1845	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				31
Link Speed (k/h)	50			70	70	
Link Distance (m)	97.9			155.4	308.2	
Travel Time (s)	7.0			8.0	15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	54	25	22	1529	1560	47
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	25	22	1529	1560	47
Turn Type	Prot	Perm	Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	24.0	24.0	56.0	56.0	56.0	56.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	18.0	18.0	50.0	50.0	50.0	50.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	Max	Max
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0
Act Effct Green (s)	10.1	10.1	63.4	63.4	63.4	63.4
Actuated g/C Ratio	0.13	0.13	0.83	0.83	0.83	0.83
v/c Ratio	0.23	0.11	0.21	1.02	1.02	0.03
Control Delay	32.7	13.3	9.9	44.5	41.4	1.8
Queue Delay	0.0	0.0	0.0	17.7	0.0	0.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Total Delay	32.7	13.3	9.9	62.2	41.4	1.8
LOS	C	B	A	E	D	A
Approach Delay	26.6			61.5	40.2	
Approach LOS	C			E	D	
Queue Length 50th (m)	8.8	0.0	1.0	~317.3	~321.4	0.6
Queue Length 95th (m)	16.8	6.5	5.3	#352.9	#356.7	3.1
Internal Link Dist (m)	73.9			131.4	284.2	
Turn Bay Length (m)			30.0			60.0
Base Capacity (vph)	429	403	104	1492	1536	1350
Starvation Cap Reductn	0	0	0	66	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.06	0.21	1.07	1.02	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 76.1			
Natural Cycle: 150			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.02			
Intersection Signal Delay: 50.1		Intersection LOS: D	
Intersection Capacity Utilization 93.9%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Victoria Road & Access 2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	23	20	1407	1435	43
Future Volume (veh/h)	50	23	20	1407	1435	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1811	1856	1900
Adj Flow Rate, veh/h	54	25	22	1529	1560	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	6	3	0
Cap, veh/h	203	181	103	1297	1328	1153
Arrive On Green	0.11	0.11	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1810	1610	321	1811	1856	1610
Grp Volume(v), veh/h	54	25	22	1529	1560	47
Grp Sat Flow(s),veh/h/ln	1810	1610	321	1811	1856	1610
Q Serve(g_s), s	1.9	1.0	0.0	50.0	50.0	0.6
Cycle Q Clear(g_c), s	1.9	1.0	50.0	50.0	50.0	0.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	203	181	103	1297	1328	1153
V/C Ratio(X)	0.27	0.14	0.21	1.18	1.17	0.04
Avail Cap(c_a), veh/h	466	415	103	1297	1328	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	28.0	34.9	9.9	9.9	2.9
Incr Delay (d2), s/veh	0.7	0.3	4.7	88.9	86.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.3	0.4	32.0	32.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.1	28.3	39.6	98.9	96.6	3.0
LnGrp LOS	C	C	D	F	F	A
Approach Vol, veh/h	79			1551	1607	
Approach Delay, s/veh	28.8			98.0	93.9	
Approach LOS	C			F	F	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		56.0		13.8		56.0
Change Period (Y+Rc), s		6.0		6.0		6.0
Max Green Setting (Gmax), s		50.0		18.0		50.0
Max Q Clear Time (g_c+I1), s		52.0		3.9		52.0
Green Ext Time (p_c), s		0.0		0.2		0.0

Intersection Summary		
HCM 6th Ctrl Delay	94.3	
HCM 6th LOS	F	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	105	38	64	1393	1440	176
Future Volume (vph)	105	38	64	1393	1440	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	20.0	0.0	30.0			0.0
Storage Lanes	1	1	1			0
Taper Length (m)	7.5		7.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.985	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1792	1823	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1792	1823	0
Link Speed (k/h)	50			50	70	
Link Distance (m)	325.8			308.2	342.0	
Travel Time (s)	23.5			22.2	17.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	6%	3%	0%
Adj. Flow (vph)	114	41	70	1514	1565	191
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	41	70	1514	1756	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 98.9%		ICU Level of Service F	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	225.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	105	38	64	1393	1440	176
Future Vol, veh/h	105	38	64	1393	1440	176
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	20	0	30	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	6	3	0
Mvmt Flow	114	41	70	1514	1565	191

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3315	1661	1756	0	-	0
Stage 1	1661	-	-	-	-	-
Stage 2	1654	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	~ 10	122	361	-	-	-
Stage 1	172	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 8	122	361	-	-	-
Mov Cap-2 Maneuver	~ 8	-	-	-	-	-
Stage 1	139	-	-	-	-	-
Stage 2	173	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	5060.9	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	361	-	8	122	-	-
HCM Lane V/C Ratio	0.193	-	14.266	0.339	-	-
HCM Control Delay (s)	17.3	-	$ 6874.8	48.9	-	-
HCM Lane LOS	C	-	F	E	-	-
HCM 95th %tile Q(veh)	0.7	-	15.9	1.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon