



Tribal Development Management Services Inc.

TRANSPORTATION IMPACT STUDY

Milton Link,
Town of Milton

June 2026
24276



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June 17, 2026

Reference Number: 24276

To whom this may concern,

RE: Transportation Impact Study
Proposed Industrial Development
Town of Milton

LEA Consulting Ltd. is pleased to present the findings of our Transportation Impact Study for the proposed industrial (referred to as the "Milton Link") development generally located south of Britannia Road, east of Tremaine Road, west of Regional Road 25, and north of No. 2 Side Road in the Town of Milton. This Transportation Impact Study has been prepared for Tribal Development Management Services Inc. (doing business as "Matthews").

The Proponent, Tribal Development Management Services Inc. (doing business as "Matthews"), is advancing the development of lands located adjacent to the CN Logistics Hub in the Town of Milton. Official Plan and Zoning By-law Amendments are being pursued to designate the subject lands as Industrial Area to be included within the Sustainable Halton Plan (SHP) Urban Area Boundary. The site will seek the entitlements associated with the Employment Zone, with site-specific provisions to support the intended development. This report concludes that the traffic associated with the proposed development maintains acceptable conditions for the road network in the surrounding area.

Please do not hesitate to contact the undersigned should you have any additional questions or concerns.

Yours truly,

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Encl. Transportation Impact Study – Milton Link, Town of Milton (June 2026)

Disclaimer

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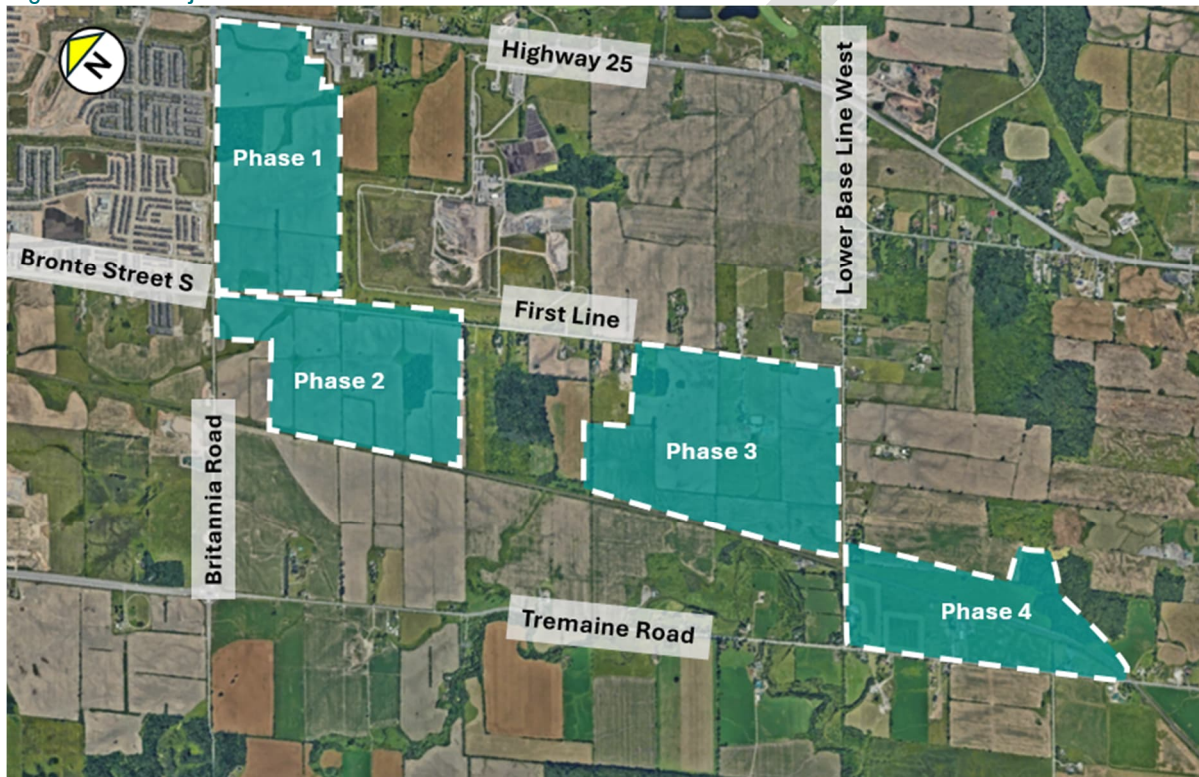
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1 INTRODUCTION

LEA Consulting Ltd. (LEA) was retained by Tribal Development Management Services Inc. (doing business as "Matthews") to undertake a Transportation Impact Study (TIS) for the proposed Milton Link development in the Town of Milton (herein referred to as the "subject lands").

The subject lands are generally located south of Britannia Road, east of Tremaine Road, west of Regional Road 25, and north of No. 2 Side Road.. The lands are situated adjacent to the CN Logistics Hub in the Town of Milton. The subject lands are currently zoned as agricultural lands. The subject land's location is illustrated in Figure 1-1.

Figure 1-1: Subject Lands Location



Source: Google Maps, accessed July 2024

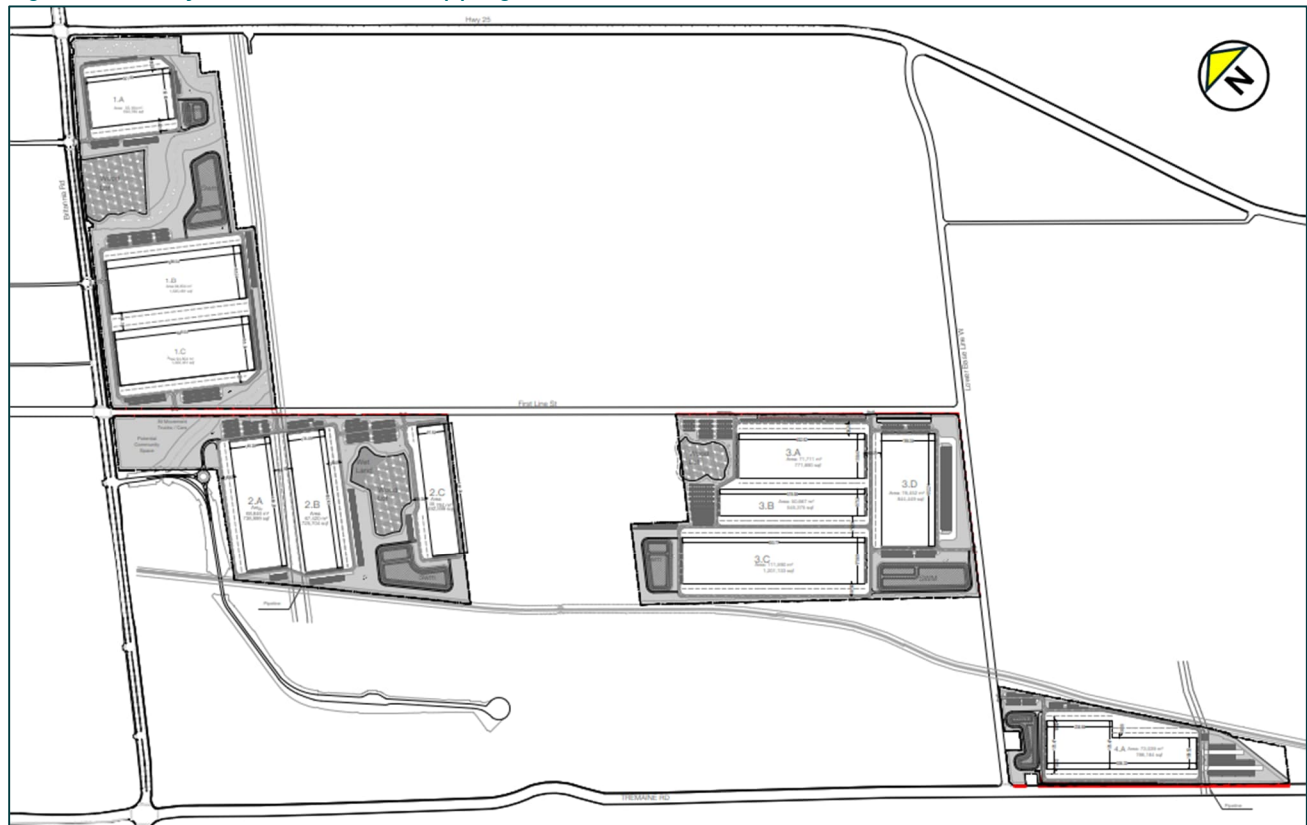
The Proponent, Tribal Development Management Services Inc. (doing business as "Matthews"), is advancing the development of lands located adjacent to the CN Logistics Hub in the Town of Milton. Official Plan and Zoning By-law Amendments are being pursued to designate the subject lands as Industrial Area to be included within the Sustainable Halton Plan (SHP) Urban Area Boundary. The site will seek the entitlements associated with the Employment Zone, with site-specific provisions to support the intended development.

The purpose of this assessment is to review the existing transportation infrastructure in the surrounding area, including the road network, transit network and active transportation network, and assess the traffic impact of the proposed development on the network in support of the Official Plan Amendment and Zoning By-law Amendment applications being sought. As the proposed development is scheduled to be completed in four (4) phases (to be market dependent) within 10 years, this TIS will assess three (3) horizon years; a five-year

horizon to the year 2031 (Phases 1 & 2), a 10-year horizon to the year 2036 (Phases 3 & 4) and a 15-year horizon to the year 2041 (Full Build Out + 5 years).

The conceptual plan consists of 11 buildings, which are subdivided into four (4) phases. It is understood that the subject lands are planned for predominantly industrial uses. Figure 1-2 illustrates the current breakdown of development blocks and a breakdown of the proposed GFA by building is summarized in Table 1-1.

Figure 1-2: Subject Land's Parcel Mapping



Source: WW+P Architects & Planners Inc., 2026

Table 1-1: Proposed GFAA

Phase	Building	GFA		Anticipated Completion Year
		ft ²	m ²	
Phase 1	1A	593,985 ft ²	55,183 m ²	Year 2031
	1B	1,020,461 ft ²	94,804 m ²	
	1C	1,020,461 ft ²	94,804 m ²	
Phase 2	2A	738,899 ft ²	68,646 m ²	
	2B	725,704 ft ²	67,420 m ²	
	2C	492,599 ft ²	45,764 m ²	
Phase 3	3A	771,890 ft ²	71,711 m ²	Year 2036
	3B	545,375 ft ²	50,667 m ²	
	3C	1,201,133 ft ²	111,589 m ²	
	3D	844,449 ft ²	78,452 m ²	
Phase 4	4A	787,282 ft ²	73,141 m ²	

2 EXISTING TRANSPORTATION CONDITIONS

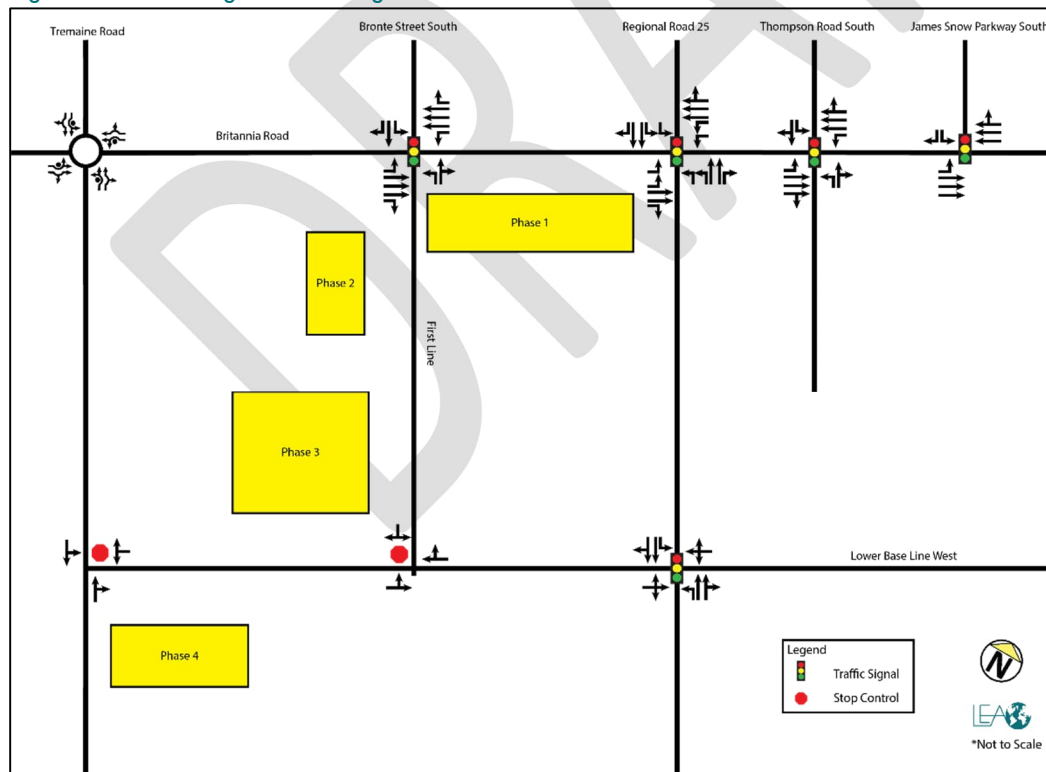
This section identifies the existing transportation conditions present in the study area, including the road, transit, cyclist and pedestrian networks. The study area was determined by assessing the size of the proposed development and its anticipated transportation impact. The study area includes the following intersections:

- ▶ Britannia Road West and Tremaine Road (Signalized);
- ▶ Britannia Road West and Bronte Street South/First Line (Signalized);
- ▶ Britannia Road West and Regional Road 25 (Signalized);
- ▶ Lower Base Line West and Tremaine Road (Unsignalized);
- ▶ Lower Base Line West and First Line (Unsignalized);
- ▶ Lower Base Line West and Regional Road 25 (Signalized);
- ▶ Britannia Road West and Thompson Road South (Signalized); and
- ▶ Britannia Road West and James Snow Parkway (Signalized).

2.1 EXISTING ROAD NETWORK

This section will describe the road network with the above-mentioned study area. The existing intersection controls and lane configuration are illustrated in Figure 2-1.

Figure 2-1: Existing Lane Configuration



Britannia Road is an east-west major arterial roadway with a six-lane cross-section (three lanes per direction) in the vicinity of the subject site. Under the Town of Milton's jurisdiction, the roadway extends from Bell School Line in the west to the 407 in the east. The roadway operates with a posted speed limit of 70 km/h in the study area.

Tremaine Road is a north-south major arterial roadway with a two-lane cross-section (one lane per direction) in the vicinity of the subject site. Under the Town of Milton's jurisdiction, the roadway extends from Burnhamthorpe Road West in the south to Campbellville Road in the north. The roadway operates with a posted speed limit of 60 km/h in the study area.

Regional Road 25 is a north-south major arterial road with a four-lane cross-section (two lanes per direction) in the vicinity of the subject site. Under the Town of Milton's jurisdiction, the roadway extends from Burnhamthorpe Road West in the south to Derry Road West in the north, where it continues as Ontario Street South. The roadway operates with a posted speed limit of 80 km/h in the study area.

James Snow Parkway South is a north-south major arterial road with a two-lane cross-section (one lane per direction) in the vicinity of the subject site. Under the Town of Milton's jurisdiction, the roadway extends from Britannia Road in the south to Campbellville Road in the north. The roadway operates with a posted speed limit of 70 km/h in the study area.

Bronte Street South is a north-south minor arterial road with a two-lane cross-section (one lane per direction) in the vicinity of the subject site. Under the Town of Milton's jurisdiction, the roadway extends from Britannia Road in the south to Steeles Avenue East in the north. The roadway operates with a posted speed limit of 60 km/h in the study area.

Thompson Road South is a north-south minor arterial road that operates with a two-lane cross-section (one lane per direction) in the vicinity of the subject site. Under the Town of Milton's jurisdiction, the roadway extends from Britannia Road in the south to Steeles Avenue East in the north. The roadway operates with a posted speed limit of 60 km/h in the study area.

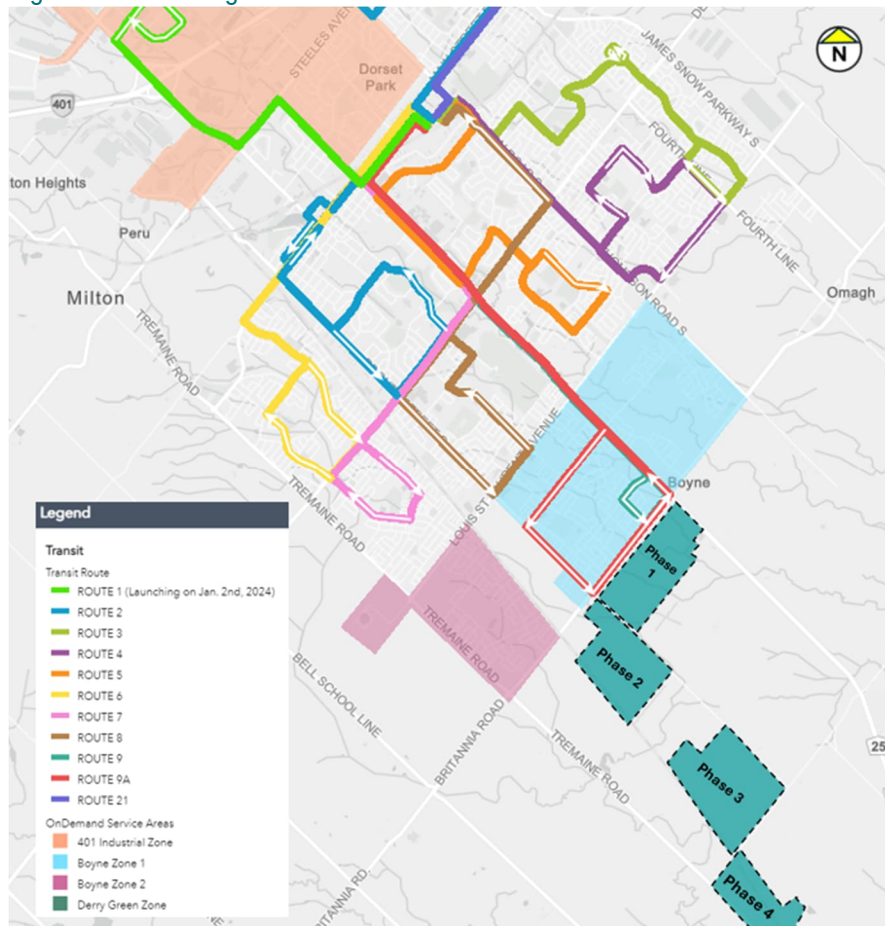
First Line is a north-south local road that operates with a two-lane cross-section (one lane per direction) in the vicinity of the subject site. Under the Town of Milton's jurisdiction, the roadway extends from Lower Base Line West in the south to Britannia Road in the north. The roadway operates with a posted speed limit of 70 km/h in the study area.

Lower Base Line West is an east-west local road that operates with a two-lane cross-section (one lane per direction) in the vicinity of the subject site. Under the Town of Milton's jurisdiction, the roadway operates from Tremaine Road in the west and terminates east of Fourth Line in the east. The roadway operates with a posted speed limit of 70 km/h in the study area.

2.2 EXISTING TRANSIT NETWORK

There are two transit services that operate in the vicinity of the subject lands. The Milton transit routes servicing the area are shown in Figure 2-2.

Figure 2-2: Existing Transit Service - Milton Transit



Source: Milton Transit, accessed May 2024

Milton Transit Route 9/9A – Ontario South is a local bus route that operates generally in a north-south direction between Milton GO Station and Britannia Road and Regional Road 25. The route operates Monday to Saturday, with headways of approximately 30-minutes during peak hours on weekdays. On Saturday the route operates with headways of approximately 60-minutes.

Access Location: Route 9/9A is accessible near the subject lands is at the intersection of Britannia Road West and Farmstead Drive.

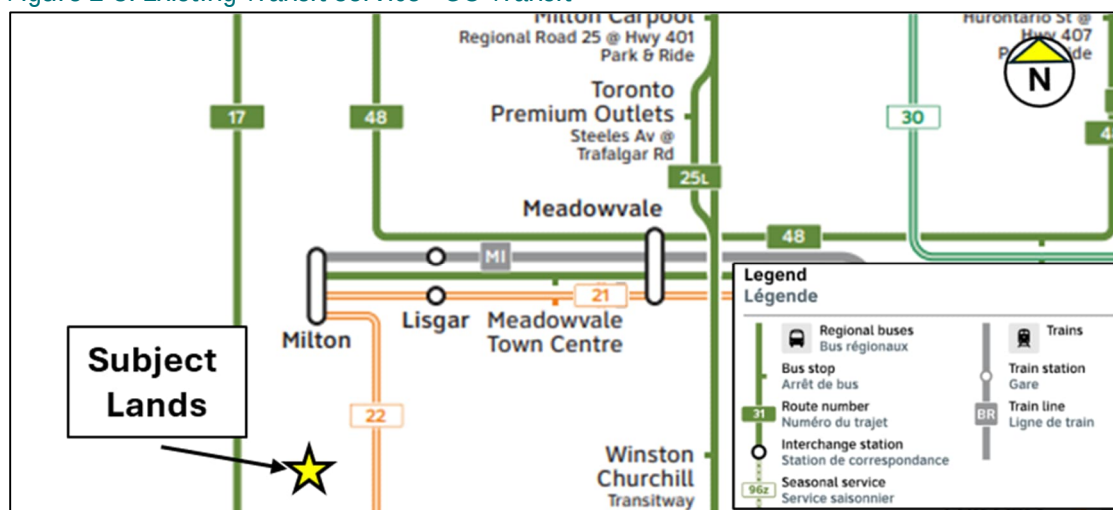
Milton Transit OnDemand – Boyne Zone 1 is an on-demand service that provides transit without following a fixed route or schedule. Boyne Zone 1 provides transfer points near Milton District Hospital, the intersection of Commercial Street and Derry Road, the Milton Sports Centre and Kennedy Circle and Bennett Road. The service operates Monday to Saturday and connects with Milton Transit routes 2, 4, 7 and 8.

Access Location: Boyne Zone 1 is accessible near the subject lands at the intersection of Britannia Road West and Bronte Street South

Milton Transit OnDemand – Boyne Zone 2 is an on-demand service that provides transit without following a fixed route or schedule. Boyne Zone 2 provides transfer points near Milton District Hospital and provides connections to Milton Transit Routes 2, 7 and 8. The service operates Monday to Saturday.

Access Location: Boyne Zone 2 is accessible near the subject lands, east of the intersection of Britannia Road West and Tremaine Road.

Figure 2-3: Existing Transit Service - GO Transit



Source: GO Transit, accessed May 2024

GO Transit Route 21 – Milton is a transit route that offers both rail and bus service in a general east-west direction from Union Station to Milton GO Station. The rail service operates during peak-hours only, Monday to Friday, with 30-minute headways. The bus service operates all-day, every day, with headways of approximately 30-minutes on weekdays, and 1-hour during weekends.

Access Location: GO Route 21 is accessible at the Milton GO Station, which is accessible via all local Milton Transit routes.

GO Transit Route 22 – Milton/Oakville is a bus route that offers service in a general north-south direction from Milton GO Station to Oakville GO Station. The bus route operates during peak hours only, Monday to Friday, with headways of approximately 1 hour.

Access Location: GO Route 22 is accessible at the Milton GO Station, which is accessible via all local Milton Transit routes.

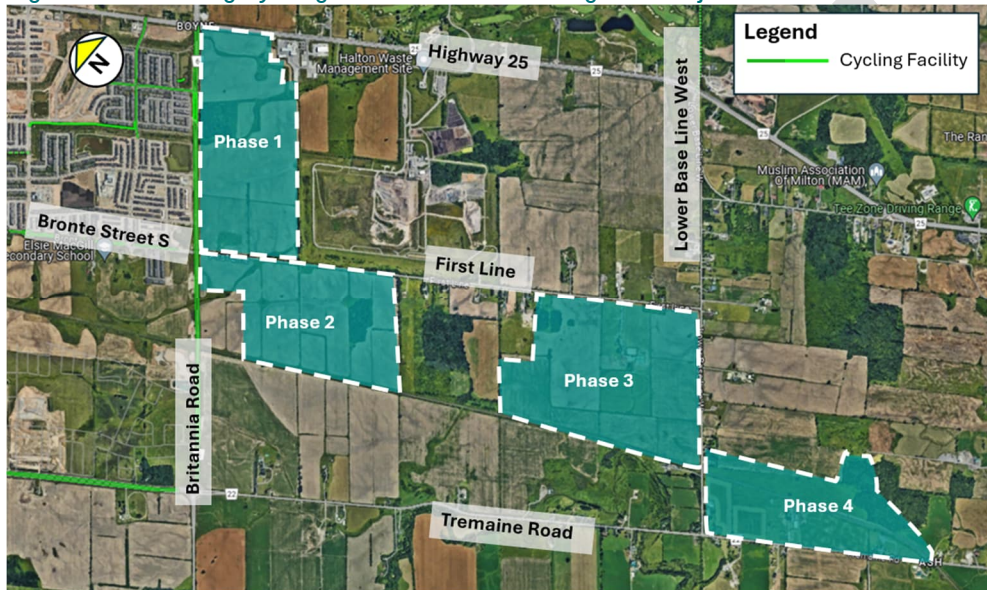
GO Transit Route 27 – Milton/North York is a bus route that offers service in a general east-west direction from Milton GO Station to the Finch Bus Terminal in Toronto. During weekdays, between Milton GO and Meadowvale GO, the route operates during peak-hours only, with headways of approximately 30-minutes. On the weekends, service is only offered between Meadowvale GO and Finch Bus Terminal.

Access Location: GO Route 27 is accessible at the Milton GO Station, which is accessible via all local Milton Transit routes.

2.3 EXISTING ACTIVE TRANSIT NETWORK

The existing active transportation network surrounding the subject lands is limited. Sidewalks are currently only present along Britannia Road, Bronte Street South and Tremaine Road north of Britannia Road West. With regards to cycling opportunities, there is a dedicated cycling lane provided along Britannia Road West, Bronte Street South and Tremaine Road, north of Britannia Road West. Lower Base Line West is classified as a bicycle friendly road, east of Regional Road 25. The available cycling facilities surrounding the subject lands are shown in Figure 2-4.

Figure 2-4: Existing Cycling Facilities Surrounding the Subject Lands



Source: Google Maps, accessed July 2024

2.4 TRAFFIC DATA COLLECTION

Turning movement counts (TMCs) were used as the source of traffic data in the intersection capacity analysis. Traffic counts were obtained by LEA Consulting Ltd. in 2024 for the AM and PM peak hours respectively. Signal timing plans (STPs) at the signalized intersections were obtained from the Halton Region. Table 2-1 summarizes the TMC data that was collected for this study. Full details are provided in Appendix A.

Table 2-1: Data Collection Locations

Intersection	TMC Date	Source
Britannia Road & Tremaine Road	27 February 2024 (Tuesday) 7:30 – 9:30 am 4:00 – 6:00 pm	LEA
Britannia Road & First Line / Bronte Road		
Britannia Road & Regional Road 25		
Britannia Road & Thompson Road		
Britannia Road & James Snow Parkway		
Lower Base Line W & Tremaine Road		
Lower Base Line W & First Line		
Lower Base Line W & Regional Road 25		

2.5 EXISTING TRAFFIC VOLUMES

During the TMC counts, the section of Lower Base Line W between Tremaine Road and First Line was temporarily closed off except for local traffic.

Transportation improvements have been implemented along the Britannia Road Corridor, including widening the roadway to a six-lane cross-section. The improvements, which began in June 2021 and ended December 2025, were implemented in three Phases: Phase 1 between Tremaine Road and Regional Road 25 (complete February 2022); Phase 2 between James Snow Parkway and Highway 407 ETR (completed December 2025) and Phase 3 between Regional Road 25 and James Snow Parkway (completed December 2025). Phase 1 and Phase 3, i.e. the section of Britannia Road between Tremaine Road and James Snow Parkway, are within the scope of this study.

During the TMC data collection in 2024, Phase 1 had been completed, with 3 traffic lanes operating for each direction; while Phase 3 was under construction, with only 1 traffic lane operating for each direction temporarily.

As the transportation improvements on Britannia Road Corridor were completed by December 2025, the historical data as listed in Table 2-2 were reviewed against the collected TMC data in order to evaluate for a 2024 Baseline condition with all the major traffic links in full operation.

Table 2-2: Historical Data

Intersection	TMC Date	Source
Britannia Road & First Line / Bronte Road	10 November 2022	Halton Region
Britannia Road & Thompson Road		
Britannia Road & James Snow Parkway		
Lower Base Line W & Regional Road 25		
Britannia Road & Regional Road 25	9 December 2019	

To account for temporary closure of section of Lower Base Line W (between Tremaine Road and First Line):

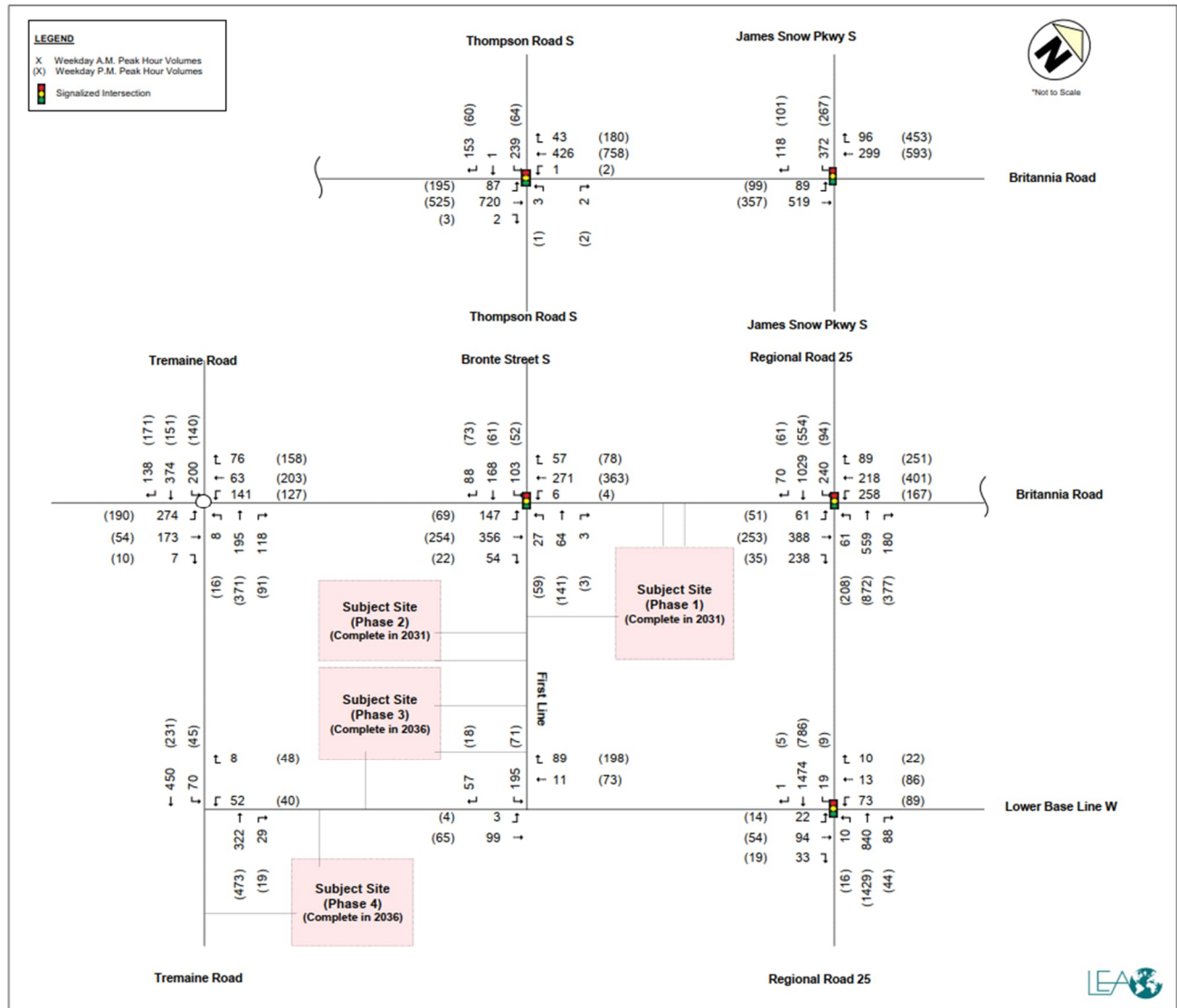
- For the EB and WB approaches at the intersection of Lower Base Line W & Regional Road 25, the maximum traffic volume, comparing between historical and 2024 traffic data, was adopted to speculate the traffic volume under full operation.
- The additional EB/ WB volumes were assigned along Lower Base Line W, with a 70% (North) :30% (South) distribution at the intersection of Tremaine Road & Lower Base Line W. The traffic to/from the north is also assigned to the NBT and SBT movements at intersection of Tremaine Road and Britannia Road.
- At the intersection of Lower Base Line W & First Line, 20% of the SBL movement was diverted to SBR movement; and subsequently assigned to WBL movement at the intersection of Tremaine Road & Lower Base Line.

Regarding the impact of Britannia Road construction during the TMC collection process:

- Based on evaluation on historical traffic, the turning movements at the intersection of Britannia & RR25 and Britannia & JSP showed more significant change of more than 100 trips/hr. The difference in traffic volume could be resulted from the construction of Britannia Road and/or the change of traffic patterns over the years. Nevertheless, the higher traffic volume among historical and 2024 traffic counts was adopted for the turning movements for a conservative approach. The traffic is also assigned along Britannia Road in EBT/ WBT movements towards Hwy 407.

Based on the abovementioned adjustments, the 2024 Baseline Traffic Volumes for AM and PM peak hours are established and illustrated in Figure 2-5.

Figure 2-5: 2024 Baseline Traffic Volume



3 FUTURE BACKGROUND TRANSPORTATION CONDITIONS

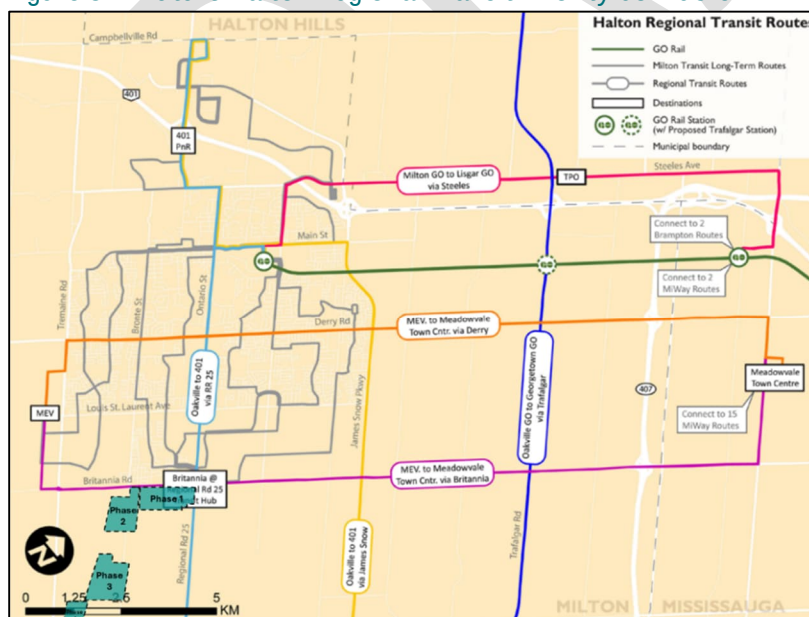
For the analysis of future background traffic conditions, this study considers 3 horizon years (2031, 2036 and 2041). Future background conditions include traffic added to the network from adjacent future developments, corridor growth and considers overall improvements to the transportation network. The future background conditions will be used as the baseline for evaluating the impact of the proposed development on subject lands.

The *Halton Region Integrated Master Plan (2051)* (hereafter referred to as the Halton IMP), is a long-term plan prioritizing water, wastewater and transportation systems in the Halton Region to support Local Municipal growth priorities to 2051. Under the proposed transportation improvements, the Halton IMP focuses on improvements along the regional road network. It integrates various relevant provincial, regional and local plans, such as the *Provincial Planning Statement (2024)*, *Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe (2022)*, *The Metrolinx 2041 Regional Transportation Plan (2018)*, the *Transportation Master Plan to 2031 – The Road to Change (2011)*, the *Active Transportation Master Plan (2015)*, the *Mobility Management Strategy (2017)*, the *Defining Major Transit Requirements in Halton Region (2019)* study, as well as the *Transportation Master Plan (2024)*, *Transit Master Plan Update (2024)*, and *Milton Transit Services Review and Master Plan (2019)* for the Town of Milton. The Halton IMP was placed on public record from March 27, 2026 to April 27, 2026.

3.1 FUTURE TRANSIT IMPROVEMENTS

It is anticipated that future local transit service will be provided near the subject lands as the area develops, either through extensions of existing routes or through the creation of new routes. The roads adjacent to the subject lands, including Britannia Road and Regional Road 25, have been proposed to provide regional transit routes. In addition, a transit hub has been proposed at the intersection of Britannia Road and Regional Road 25. The long-term (beyond 2024) transit network proposed in the Milton Transit Services Review & Master Plan Update (2019) is shown in Figure 3-1.

Figure 3-1: Future Halton Regional Transit Priority Corridors



As of April 2026, the Halton IMP has described preferred regional transit route upgrades proposed by 2051 and breaks them down into both Bus Rapid Transit (BRT) corridors and Priority Bus Corridors. Near or within the subject site study area, Regional Road 25 is proposed to be upgraded to a BRT corridor with Transit Signal Priority infrastructure (between 2037 and 2046), such as upgraded signals and BRT lanes. Additionally, Britannia Road is proposed to be upgraded to a Priority Bus Corridor (between 2042 and 2051) with upgraded signals and HOV lanes. Finally, Tremaine Road north of Britannia Road is proposed to be upgraded to a Priority Bus Corridor (between 2042 and 2051) with priority at intersections within mixed traffic. The Halton IMP noted a phased approach to transit priority implementation and that timing will require ongoing coordination between the Region and Local Municipalities. A summary of the transit improvements can be found in Figure 3-2.

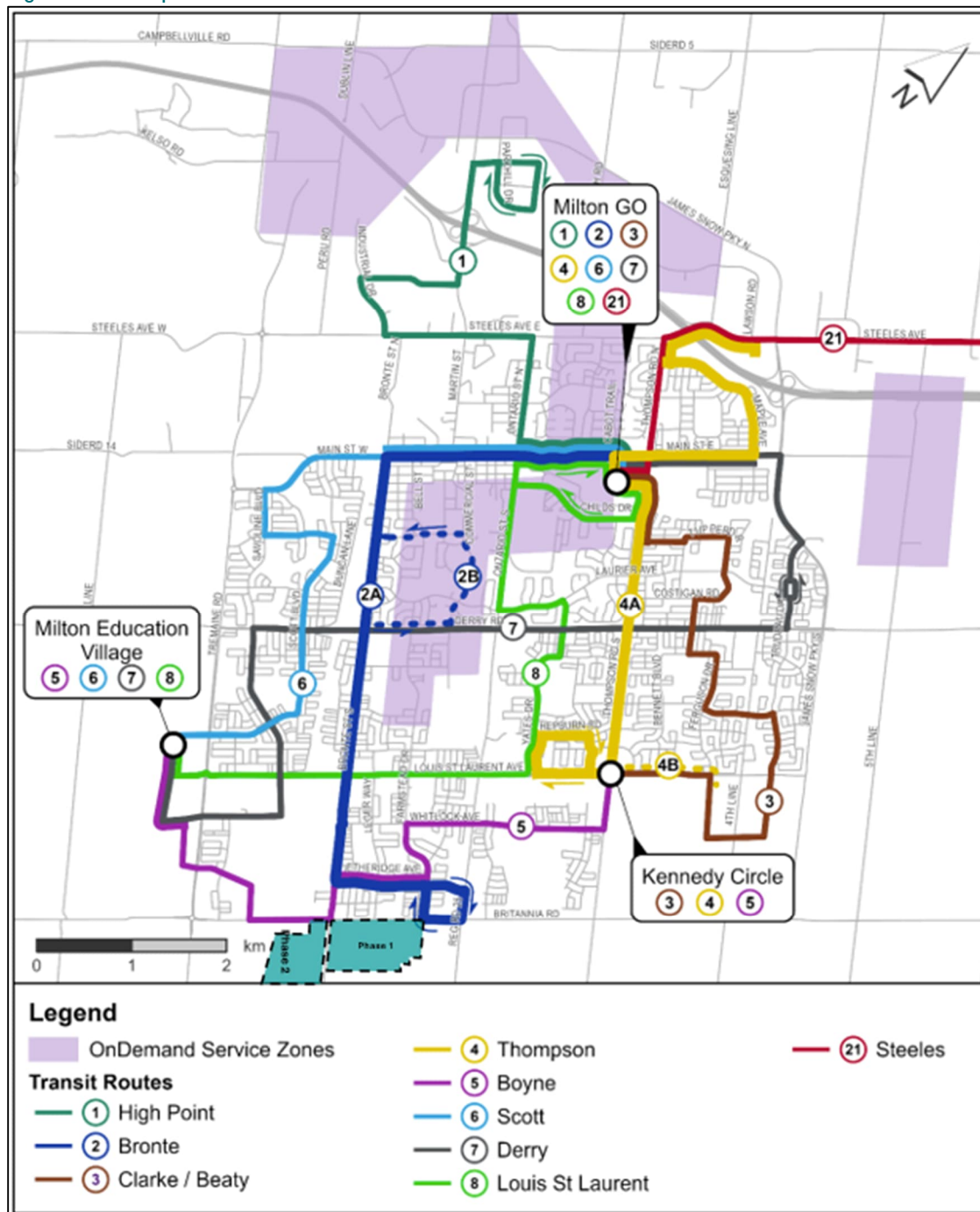
Figure 3-2: 2051 Halton Region Proposed Transit Priority Corridor Network



Halton Region, retrieved 2026

In addition, within the Town of Milton, the June 2024 Milton Transit Five-Year Service Plan and Transit Master Plan Update provides updated transit network plans to be implemented as of 2029 as shown in Figure 3-3.

Figure 3-3: Proposed 2029 Milton Transit Network



City of Milton & Arcadis, retrieved 2026

3.2 FUTURE ROAD NETWORK

To accommodate the proposed future transit improvements as described in the previous section, as well as forecasted future population growth and road network usage, the Halton IMP describes proposed regional road improvements. Most of these improvements have already been described in the Halton Region *Transportation Master Plan to 2031 - The Road to Change* (hereafter referred to as Halton TMP), developed in 2011. A variety of MCEA studies are in-progress or completed that are assessing the road network improvements.

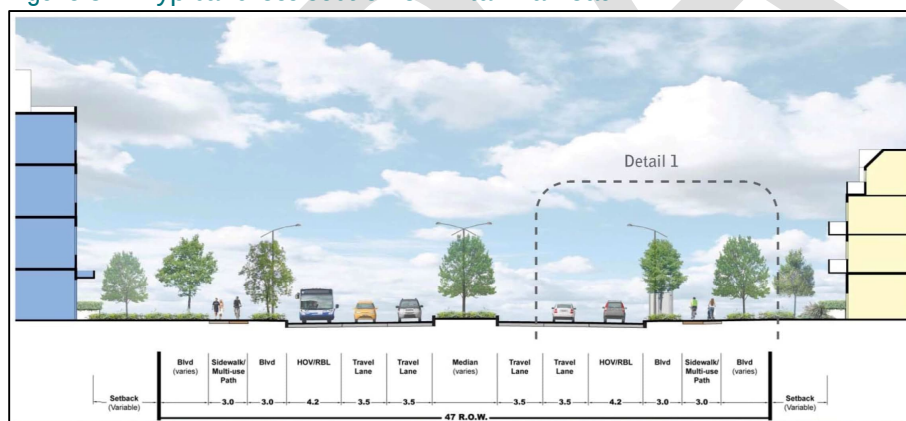
Britannia Road (Regional Road 6) Corridor Improvements

Under the Halton IMP and Halton TMP, the section of Britannia Road between Tremaine Road and Highway 407 was proposed to widen from 4 to 6 lanes in order to address capacity constraints. The Halton TMP proposed a cross section with 6 travel lanes (including 2 HOV lanes), median, bike lanes, as well as protection for multi-use paths and boulevards as the ultimate configuration required by 2031, as illustrated in Figure 3-4.

Subsequently, the *Environmental Study Report for Britannia Road Corridor Improvements, Halton Region* (hereafter referred to as Britannia Road EA Report) conducted detailed design on the improvements, which forms the basis of the future road layout in this study. The ultimate design drawings extracted from the Britannia Road EA Report is appended in Appendix B.

As mentioned in Section 2.5, the improvements, which began in June 2021 and ended December 2025, were implemented in three Phases: Phase 1 between Tremaine Road and Regional Road 25 (complete February 2022); Phase 2 between James Snow Parkway and Highway 407 ETR (completed December 2025) and Phase 3 between Regional Road 25 and James Snow Parkway (completed December 2025).

Figure 3-4: Typical Cross Section of Britannia Road



Britannia Road EA Report, retrieved 2024

Regional Road 25 (Highway 25) Corridor Improvements

Under the Halton IMP and Halton TMP, the section of Regional Road 25/Highway 25, from Speers Road to Derry Road (Regional Road 7) in the Towns of Milton and Oakville, is being considered for improvement. The section of Highway 25 between Wyecroft Road to Derry Road is proposed to widen from 4 to 6 lanes to accommodate active transportation, transit improvements and traffic operations.

As of early June 2026, the MCEA (titled *Regional Road 25 Corridor Study – Speers Road to Derry Road (Regional Road 7)*) has still not been publicly released, nor have the finalized roadway designs been shared. As such, the road widening will be considered in future analysis in consultation with the municipality.

Tremaine Road (Regional Road 22) Corridor Improvements

Under the Halton IMP and Halton TMP, several portions of Tremaine Road are or have already been slated for improvements. North of Britannia Road, road improvements are underway and/or have been completed. There is a proposed widening of the roadway from 2 to 4 lanes from Dundas Street to Britannia Road as described in the Halton TMP. However, there is no mention of timelines for any studies or construction as of June 2026. As such, the road improvements will be considered in future analysis in consultation with the municipality.

James Snow Parkway (Regional Road 4) Corridor Improvements

Under the Halton IMP, the section of James Snow Parkway between Britannia Road and Highway 401 is proposed to be widened from 2 or 4 lanes to 6 lanes to accommodate active transportation, transit improvements and traffic operations. As of early June 2026, the MCEA (titled *North Halton Coordinated Municipal Class Environmental Assessment Study*) has still not been publicly released, nor have the finalized roadway designs been shared. As such, the road improvements will be considered in future analysis in consultation with the municipality.

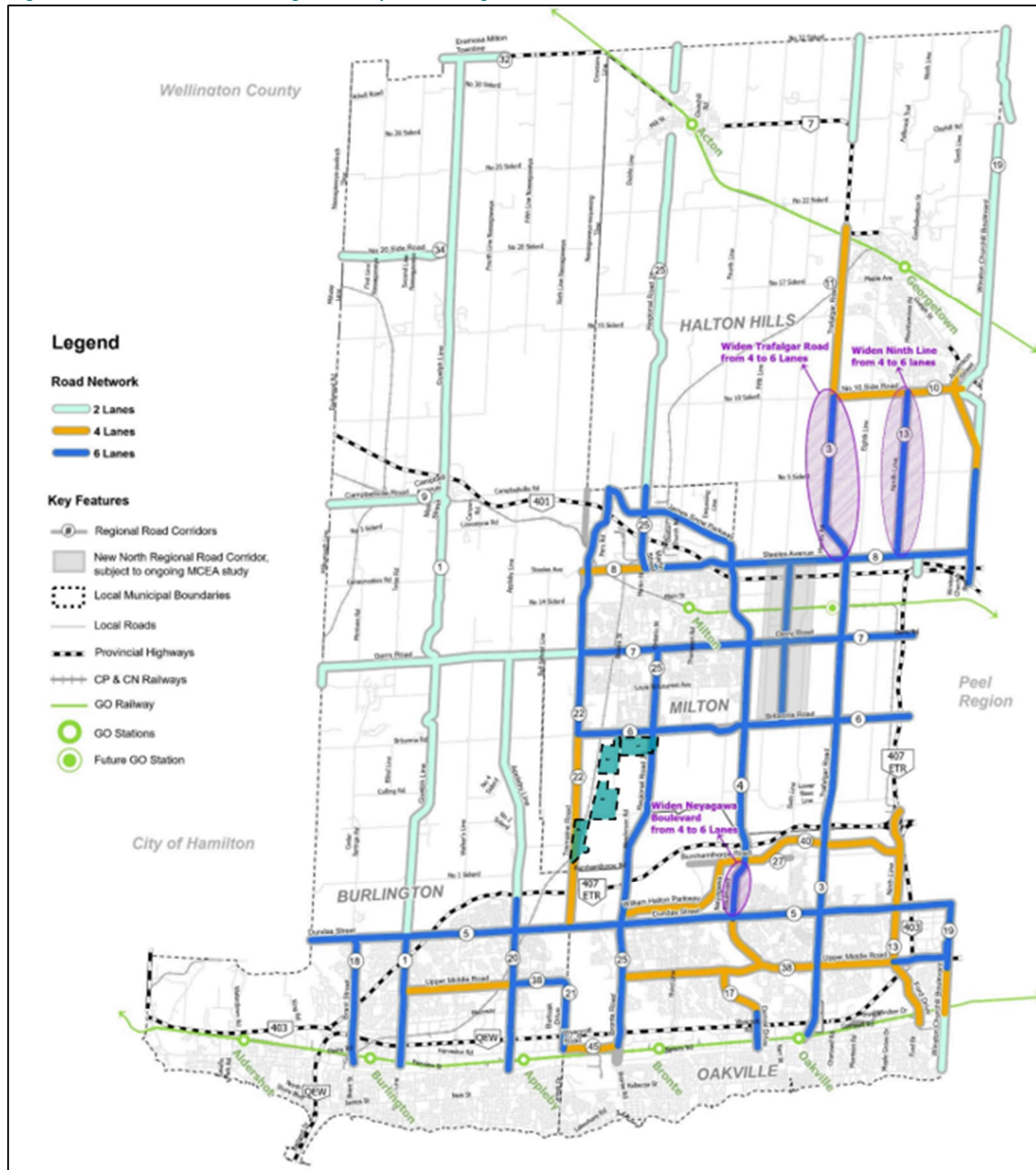
In addition, south of Britannia Road, there are plans to construct a 6 lane roadway that will connect James Snow Parkway with Highway 407. As of early June 2026, the MCEA (titled James Snow Parkway Extension Municipal Class Environmental Assessment Addendum) has still not been publicly released, nor have the finalized roadway designs been shared. As such, the road improvements will be considered in future analysis in consultation with the municipality.

A summary of the regional road improvements is detailed in Table 3-1. A summary map developed for the Halton IMP can be found in Figure 3-5.

Table 3-1: Summary of Regional Road Network Improvements as of June 2026

Regional Road	From	To	Improvement	Status
Britannia Road	Tremaine Road	Highway 407	Widening from 4 to 6 lanes	MCEA complete, construction complete
Regional Road 25 (Highway 25)	Speers Road	Derry Road	4 lanes maintained from Speers Road to Wyecroft Road Widening from 4 to 6 lanes from Wyecroft Road to Derry Road	MCEA in progress
Tremaine Road	Dundas Street	Derry Road	Widening from 2 to 4 lanes from Dundas Street to Britannia Road.	No mention of timelines as of June 2026
James Snow Parkway	Britannia Road	Highway 401	Widening from 2 or 4 lanes to 6 lanes from Britannia Road to the north.	MCEA in progress
	Britannia Road	Highway 407	Construction of 6 lanes from Britannia Road to the south.	MCEA in progress

Figure 3-5: 2051 Halton Region Proposed Regional Road Network



Halton Region, retrieved 2026

First Line & Lower Base Line Corridor Improvements

As per the Town of Milton's Transportation Master Plan (TMP) Update (February 2025), town roads in or around the subject site are not generally slated for improvements, such as First Line or Lower Base Line. Figure 3-6 illustrates the proposed road improvements for the Town of Milton.

Figure 3-6: Town of Milton Proposed Road Improvements.



Town of Milton, retrieved 2026

3.3 CORRIDOR GROWTH RATES

The changes in future road network and the population & employment growth are the major factors in determining the traffic growth rate for the study.

Road Network Change

During preparation of this report, the upgrading works of Britannia Road were completed (the project website mentions December 2025, but for the purposes of this assessment the majority of the upgrades would be complete by 2024). Upon completion, Britannia Road was transformed into a regional arterial road according to the 2011 TMP network.

Reference has been made to the forecasted traffic volume in the Environmental Study Report of Britannia Road Corridor Improvements, Halton Region (April 2014) (hereafter referred as *Britannia Road EA Report*). The transportation model under the study took into consideration the future road network, future population and employment growth, future land use, trip rates and travel patterns etc.

Based on the traffic forecast for horizon years 2021 and 2031 according to the *Britannia Road EA Report*, the corridor traffic volume was expected to increase by 4.99% and 2.65% annually during AM and PM peak respectively upon completion of the upgrading works of Britannia Road. These growth rates are adopted to project the corridor traffic growth on Britannia Road from Year 2024 to Year 2031.

Population & Employment Projection

Based on the region's population and employment projections under Halton's Regional Official Plan (November 2022), as presented in Table 3-2, an annual growth rate of 1.95% is identified for Year 2021 to 2051.

Table 3-2: Population and Employment Projection for Year 2021 - 2051

Projection	Year	
	2021	2051
Population	620,990	1,098,070
Employment	279,220	507,240
Population & Employment	900,210	1,605,310
Annual Growth (2021 – 2051)	1.95%	

Based on the above, corridor growth rates are proposed to incorporate both factors in the traffic forecast. The adopted growth rates are summarized in Table 3-3.

Table 3-3: Adopted Corridor Growth Rates

Corridor	Corridor Annual Growth Rates Adopted	
	Year 2024 - 2031	Year 2031 - 2041
Britannia Road (East-West Corridor)	AM Peak: 4.99% PM Peak: 2.65%	AM and PM Peak: 1.95%
Tremaine Road and Regional Road 25 (North-South Corridor)	AM and PM Peak: 1.95%	

3.4 BACKGROUND DEVELOPMENTS

In the vicinity of the Subject Site, a CN Logistics Hub located in the southeast quadrant of Britannia Road and Tremaine Road was proposed by CN. The TIS reports for the project ("CN Terminal Report") prepared by BA group was referenced to and considered in this study. If available, additional information on background developments in consultation with the municipality will be incorporated into future analysis.

According to the CN Terminal Report, the CN Logistics Hub is expected to generate approximately 78 trucks and 89 trucks during AM and PM peak respectively. For employee traffic of the CN Logistics Hub, the expected volumes are 20 vehicular trips during both AM and PM peaks.

Table 3-4: Background Development Trip Generation

Background Development – The CN Logistics Hub		Weekday AM Peak Hour			Weekday PM Peak Hour			Source
		In	Out	Total	In	Out	Total	
Heavy Truck Volumes	(Truck Trips/ hour)	38	40	78	43	46	89	Table 1 of CN Terminal Report
Employee Traffic Volumes	(Vehicular Trips/ hour)	5	15	20	5	15	20	Table 9 of CN Terminal Report – Terminal Road Access Study

The distribution of the background development trips is presented in Figure 3-7.

Figure 3-7: Background Development Traffic – Heavy Truck Volumes

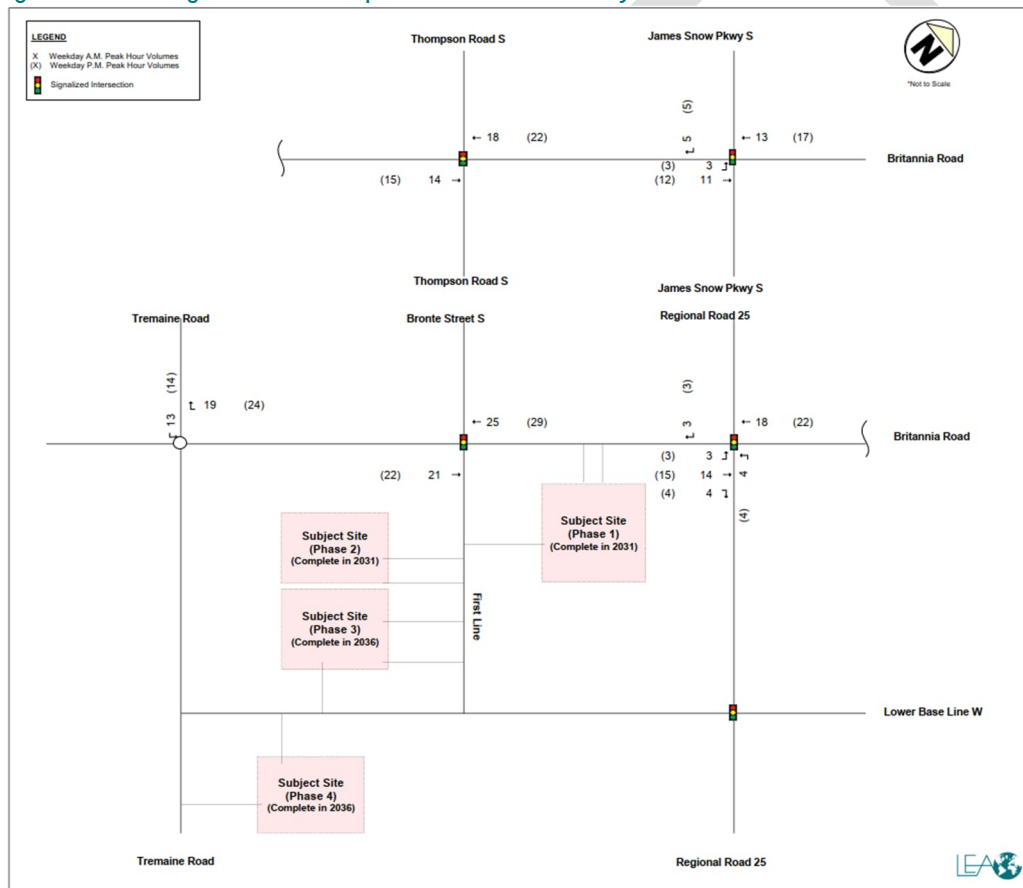


Figure 3-8 Background Development Traffic – Employee Traffic Volume

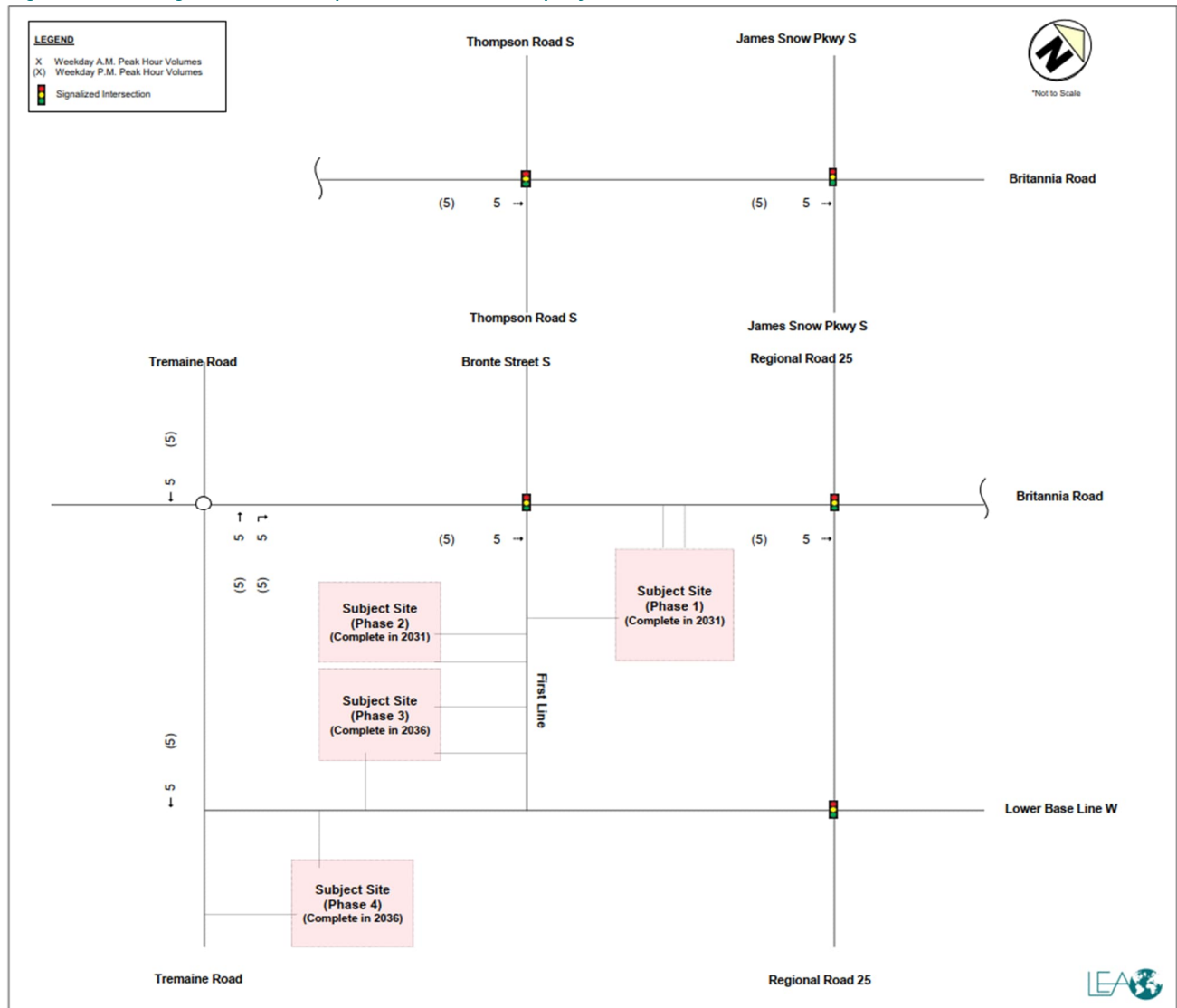
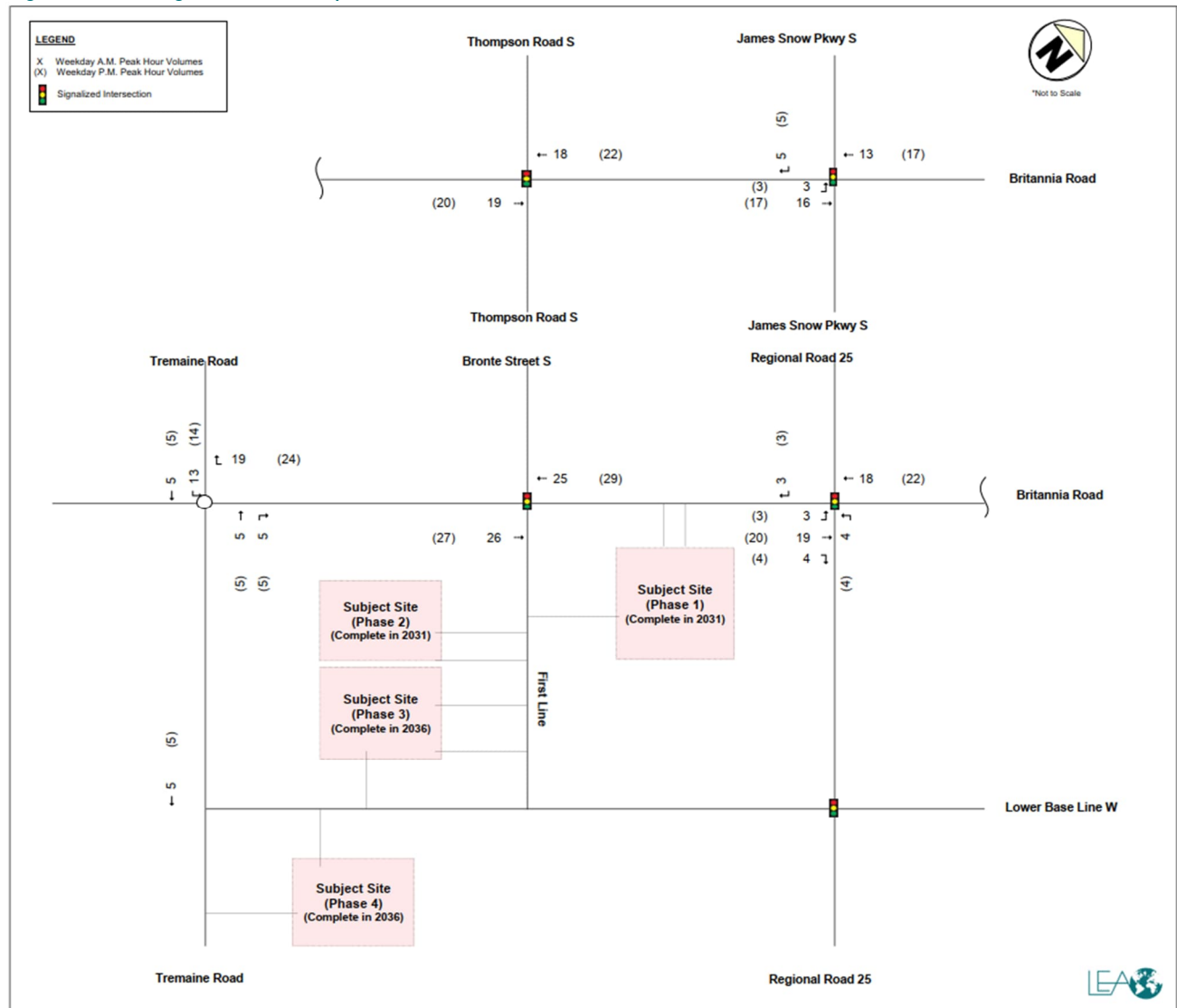


Figure 3-9 Background Development Traffic – Total



3.5 FUTURE BACKGROUND TRAFFIC VOLUMES

The future background traffic volumes for the weekday AM and PM peak hours under each years are illustrated in Figure 3-10 to Figure 3-12.

Figure 3-10: 2031 Future Background Traffic

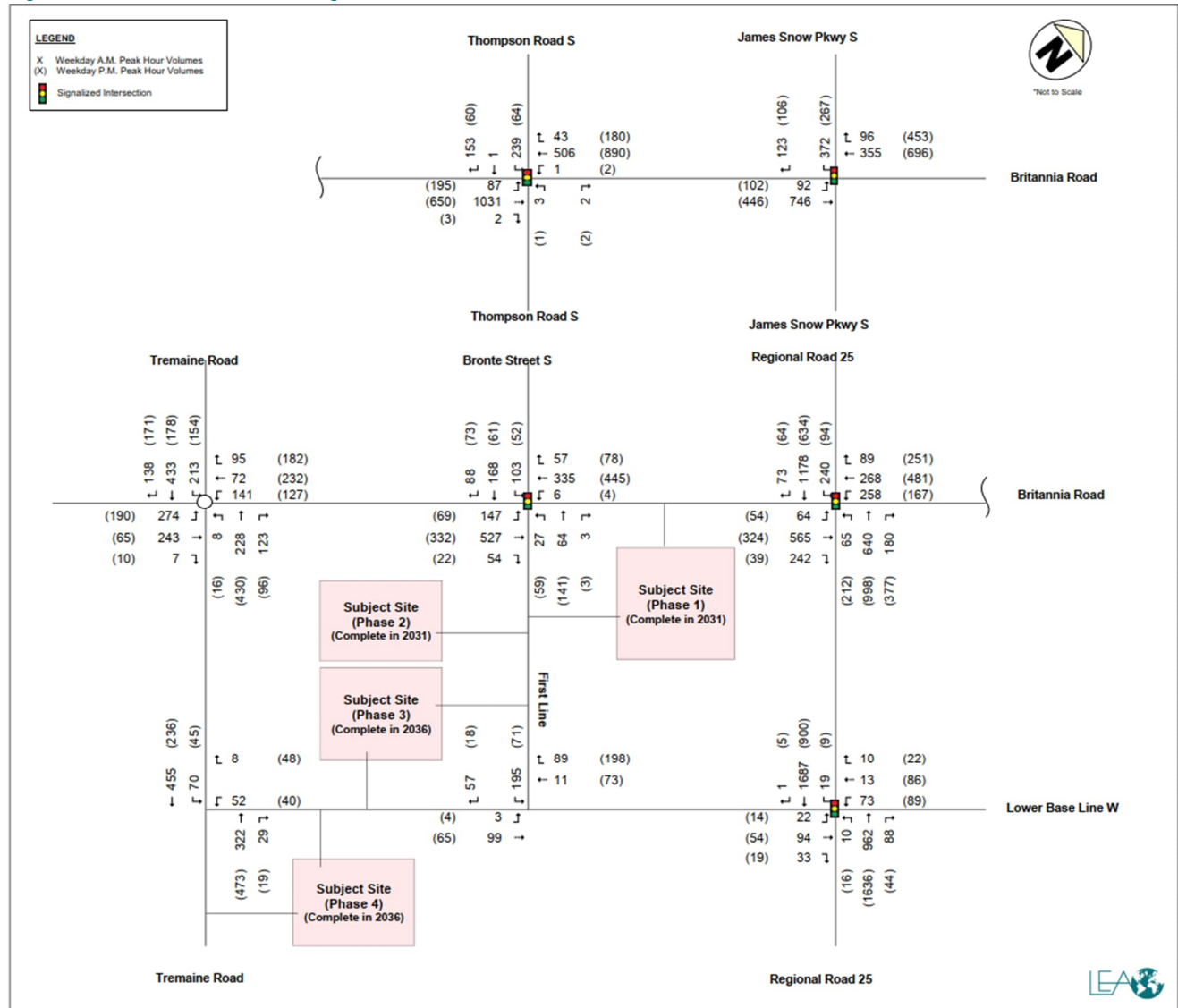


Figure 3-11: 2036 Future Background Traffic

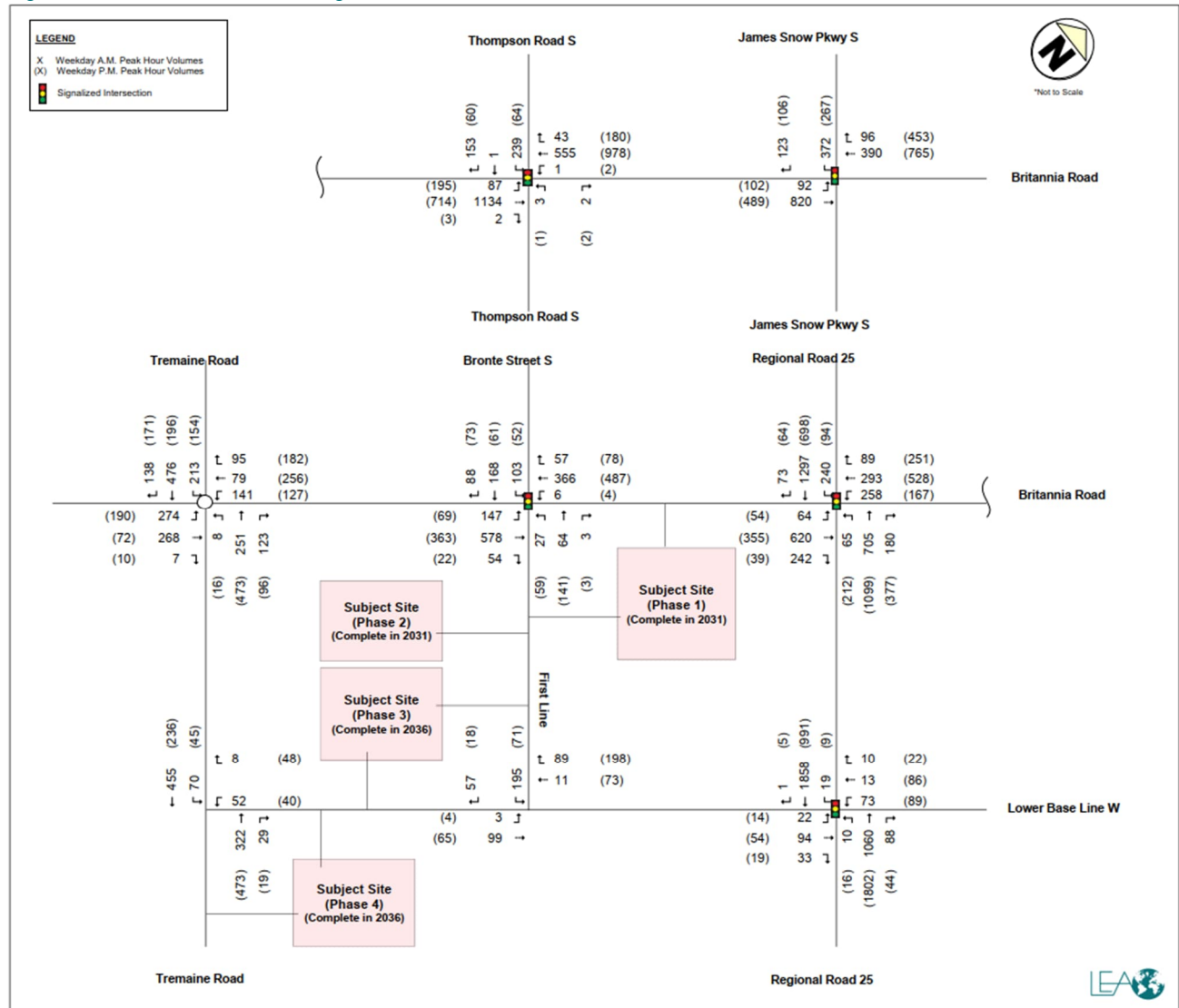
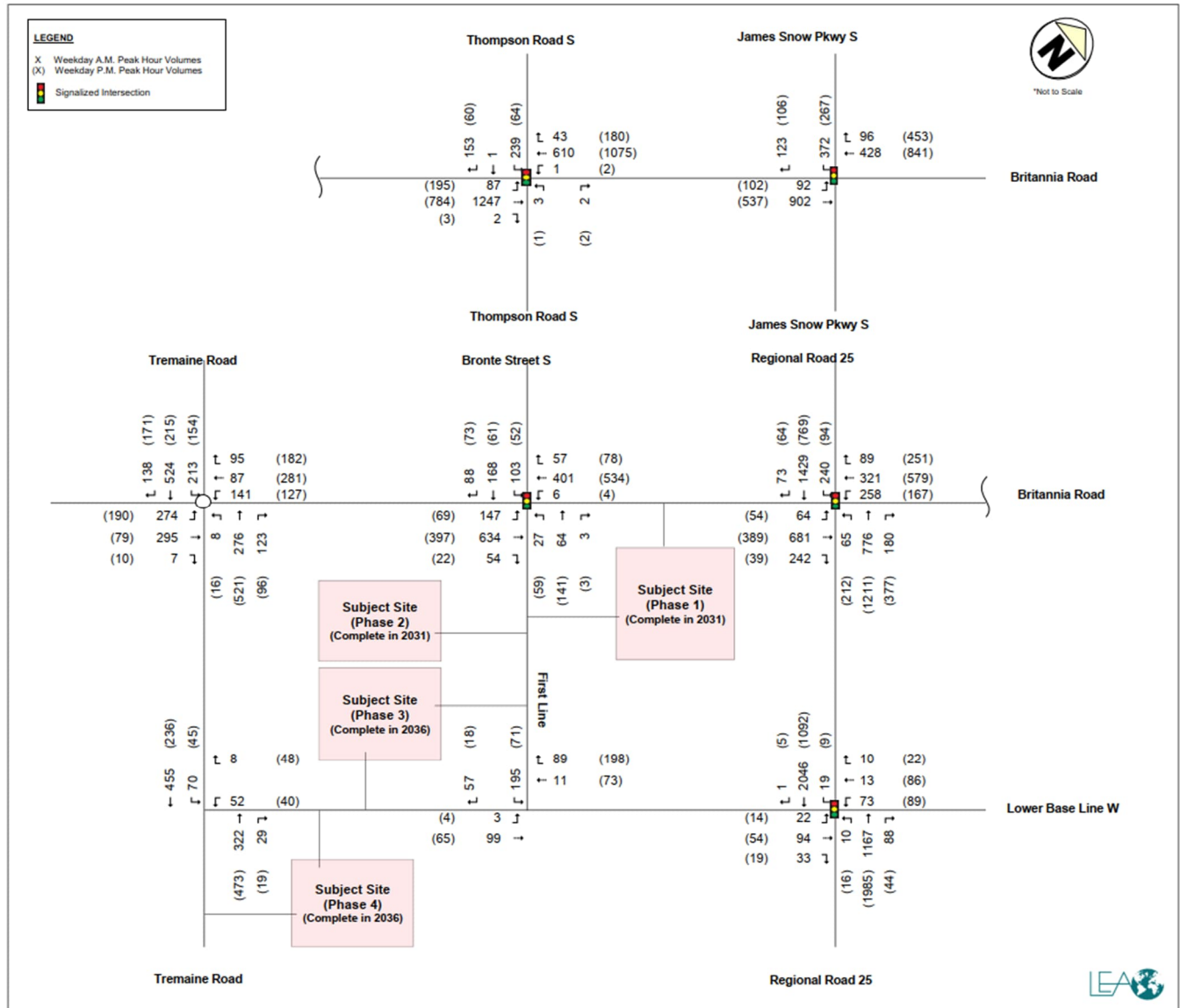


Figure 3-12: 2041 Future Background Traffic



4 SITE GENERATED TRAFFIC

4.1 TRIP GENERATION

The subject lands are planned for commercial and industrial use and subdivided into 4 phases with phased completion years from Year 2031 to 2036.

Trip generation for the development was based on the ITE Trip Generation Manual 12th Edition as summarized in Table 4-1. Given the proposed uses, LUC 154 High-Cube Transload and Short-Term Storage Warehouse was used, for which vehicular trips for employment and truck trips for the warehouse operation are considered. The gross floor area of each phase is rounded up to 1,000 square feet for conservative purposes.

Table 4-1: Site Trip Generation

		Vehicle Trips						Truck Trips					
		Weekday AM Peak Hour			Weekday PM Peak Hour			Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
ITE Distribution		77%	23%	100%	28%	72%	100%	49%	51%	100%	47%	53%	100%
ITE Trip Rates (Vehicles / Trucks)		0.06	0.02	0.08	0.03	0.07	0.10	0.01	0.01	0.02	0.00	0.01	0.01
LUC 154 High-Cube Transload and Short-term Storage Warehouse	Phase 1 (2,635,000 sq. ft.)	162	48	211	74	190	264	26	27	53	12	14	26
	Phase 2 (1,958,000 sq. ft.)	121	36	157	55	141	196	19	20	39	9	10	20
	Phase 3 (3,363,000 sq. ft.)	207	62	269	94	242	336	33	34	67	16	18	34
	Phase 4 (788,000 sq. ft.)	49	14	63	22	57	79	8	8	16	4	4	8
Total Trip Generation (By Scenario)													
Horizon Year 2031	Phase 1-2	283	84	368	129	331	460	45	47	92	21	24	46
Horizon Year 2036 & Horizon Year 2041	Phase 1-4	539	160	700	245	630	875	86	89	175	41	46	88

Upon full build-out, the Subject Lands is anticipated to generate 700 two-way vehicular trips and 175 two-way truck trips during AM peak hour, and 875 two-way vehicular trips and 88 two-way truck trips during PM peak hour respectively.

4.2 MULTI-MODAL TRIP GENERATION

Considering that the transit network will be further developed in the future, the non-auto modal split is anticipated to gradually increase in the future. With reference to the *Halton TMP*, the forecasted 2031 transportation mode split for Halton region is provided in Table 4-2. The multimodal trip generation of the subject site for the employment trips are derived in Table 4-3 based on the forecasted mode split. The truck trips projected in Table 4-1 corresponds to the warehouse operation and is therefore considered a standalone trip generation from the multimodal trip generation.

Table 4-2: Transportation Mode Split Extracted from TMP of Halton Region

Mode	Percentage
Auto Trips	72%
Auto-passenger	3%
Transit	20%
Active Transportation (cycling, walking)	5%

Table 4-3: Multimodal Trip Generation

Mode	Percentage	Person Trips					
		Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Phase 1 - Total	100%	225	67	293	103	264	367
Auto Trips	72%	162	48	211	74	190	264
Auto-passenger	3%	7	3	9	3	8	12
Transit	20%	45	13	58	21	53	73
Active Transportation (cycling, walking)	5%	11	3	15	5	13	18
Phase 2 - Total	100%	168	50	218	76	196	272
Auto Trips	72%	121	36	157	55	141	196
Auto-passenger	3%	5	2	7	2	6	8
Transit	20%	34	10	43	15	39	54
Active Transportation (cycling, walking)	5%	8	2	11	4	10	14
Phase 3 - Total	100%	288	86	374	131	336	467
Auto Trips	72%	207	62	269	94	242	336
Auto-passenger	3%	9	3	11	4	10	15
Transit	20%	58	17	75	26	67	93
Active Transportation (cycling, walking)	5%	14	4	19	7	17	23
Phase 4 - Total	100%	68	19	88	31	79	110
Auto Trips	72%	49	14	63	22	57	79
Auto-passenger	3%	2	1	3	1	2	3
Transit	20%	14	3	18	6	16	22
Active Transportation (cycling, walking)	5%	3	1	4	2	4	6
Phase 1 - 4 - Total	100%	749	222	972	340	875	1215
Auto Trips	72%	539	160	700	245	630	875
Auto-passenger	3%	23	7	29	10	26	36
Transit	20%	150	44	194	68	175	243
Active Transportation (cycling, walking)	5%	37	11	49	17	44	61

4.3 TRIP DISTRIBUTION AND ASSIGNMENT

Heavy-truck Trips

The Subject Site is anticipated to function as a short-term storage and/ or consolidation of manufactured goods prior to the distribution to retail locations or other warehouses. As such, heavy truck trips are anticipated to orient via highway network to/from other municipalities.

The heavy-truck trips of the Subject Site are assigned to the road network with reference to the distribution adopted under the CN Terminal Report. The relevant information is appended in Appendix C. The overall directional split is summarized in Table 4-4.

Table 4-4: Trip Distribution for Truck Traffic

Direction	Inbound	Outbound
North	56%	63%
South	10%	9%
East	34%	28%
West	0%	0%
Total	100%	100%

Vehicular Trips

Directional trip distribution of vehicular site traffic was derived using Transportation Tomorrow Survey (TTS) 2016 data for trip purpose of work for inbound traffic during AM peak and outbound traffic during PM Peak hours respectively in the traffic zones 4100,2101,4102,4104, 4106, 4107 and 4109. The adopted directional split are summarized in Table 4-5. The relevant TTS data are also appended in Appendix C.

Table 4-5: Trip Distribution for Vehicular Traffic

Direction	Inbound	Outbound
North	53%	51%
South	35%	34%
East	6%	8%
West	6%	7%
Total	100%	100%

4.4 ACCESS ARRANGEMENTS

Based on the site plan, multiple site accesses are proposed along Britannia Road W, First Line, Lower Base Line W and Tremaine Road respectively. The locations, types and number of accesses are defined through the detailed site plan. Some accesses can support heavy truck traffic, while other accesses cannot. The access assumptions are summarized in Table 4-6.

Currently, a weight restriction of 5 tonnes per axle is applied on Tremaine Road. With reference to the 2022 Transportation Development Charges Technical Report of Halton Region, as well as the Halton IMP and Halton TMP, the section of Tremaine Road (between Dundas Street to Britannia Road) is planned to widen from 2 to 4 lanes. Upon completion, the weight restriction is anticipated to be lifted in the future, and so that section of Tremaine Road would be able to serve heavy truck traffic of the Subject Site for the site access of Phase 4.

Apart from that, truck traffic is currently prohibited from entering Lower Base Line W. The prohibition is assumed to remain in future scenarios. Hence, the site access at Lower Base Line W for Phases 3 and 4 are assumed to serve vehicular traffic only.

Table 4-6: Access Arrangements and Assumptions

Phase	Access	Building Served	Operation	Access by Heavy Trucks	Note
Phase 1	Britannia Road W	A1	Full Moves	Yes	The vehicular access is aligned with existing minor intersection on Britannia Road W/Farmstead Dr to allow all turning movements.
	Britannia Road W	A2	Full Moves	No	The vehicular access is aligned with existing minor intersection on Britannia Road W/Leger Wy to allow all turning movements.
	First Line	A3	Full Moves	Yes	Assume First Line will be capable of serving heavy trucks.
Phase 2	First Line	B1, B2	Full Moves	Yes	
	First Line	B3	Full Moves	Yes	
Phase 3	First Line	C1 – C4	Full Moves	No	Assume existing restrictions on trucks at Lower Base Line will be maintained.
	First Line	C1 – C4	Full Moves	Yes	
	Lower Base Line W	C1 – C4	Full Moves	No	
Phase 4	Lower Base Line W	D	Full Moves	No	Assume existing weight restrictions at Tremaine Road will be lifted in future scenarios.
	Tremaine Road	D	Full Moves	Yes	

4.5 SITE TRIPS

Based on the above, the total site trips are assigned to the road network as illustrated in Figure 4-1 to Figure 4-4. The detailed site trips for respective vehicular trips and heavy-truck trips are appended in Appendix D.

Figure 4-1: Total Site Trips (Phase 1)

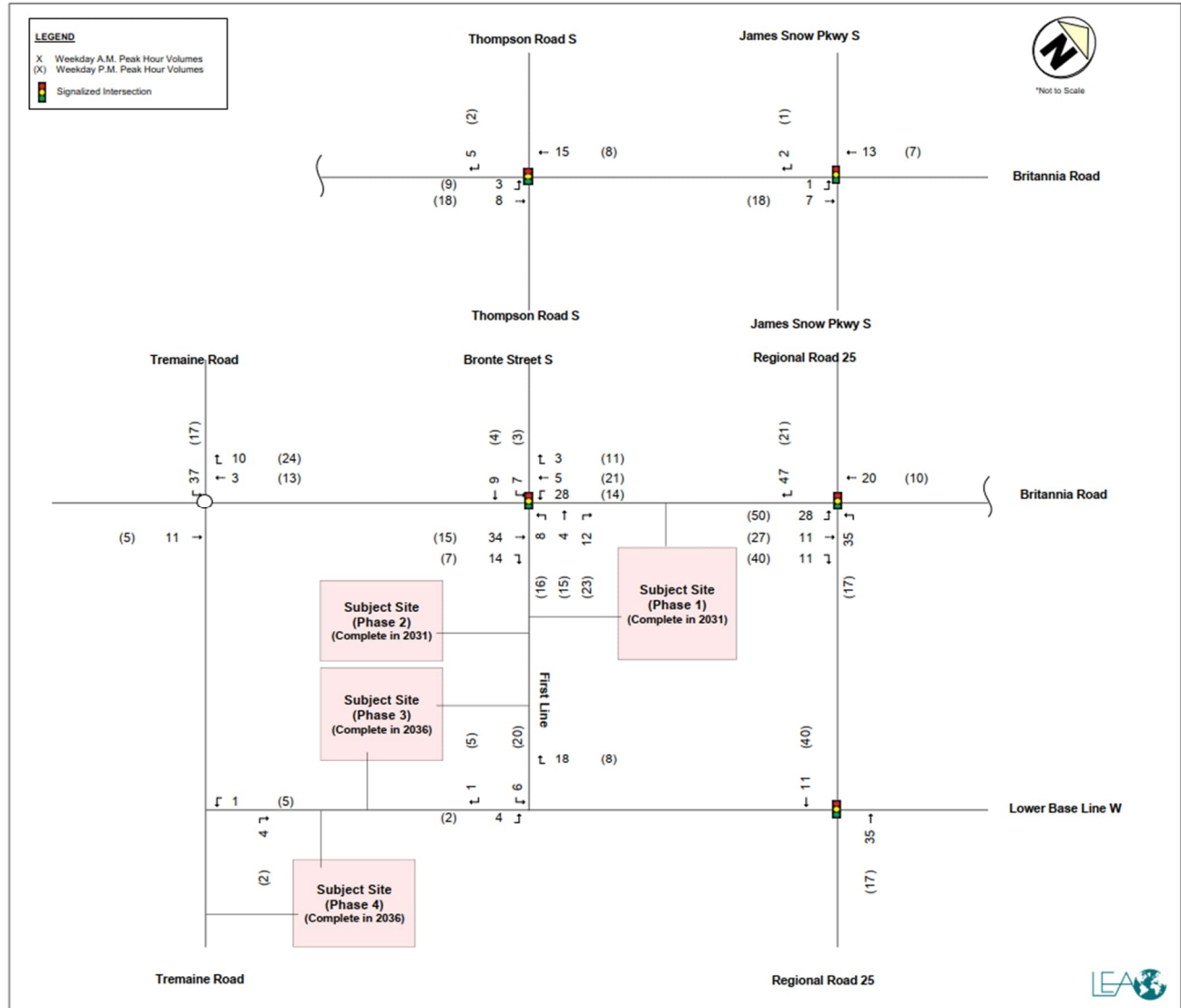


Figure 4-2: Total Site Trips (Phase 2)

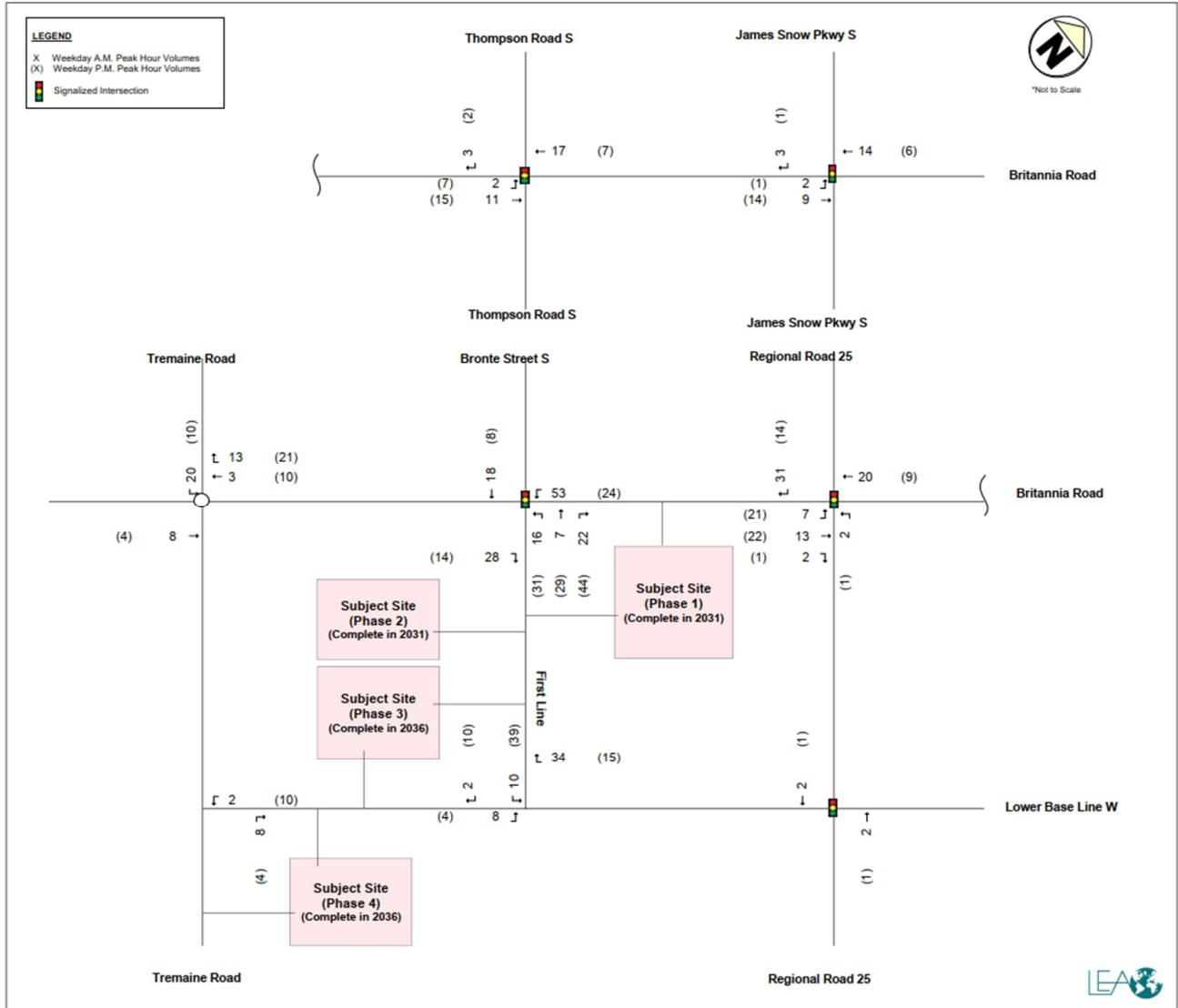


Figure 4-3: Total Site Trips (Phase 3)

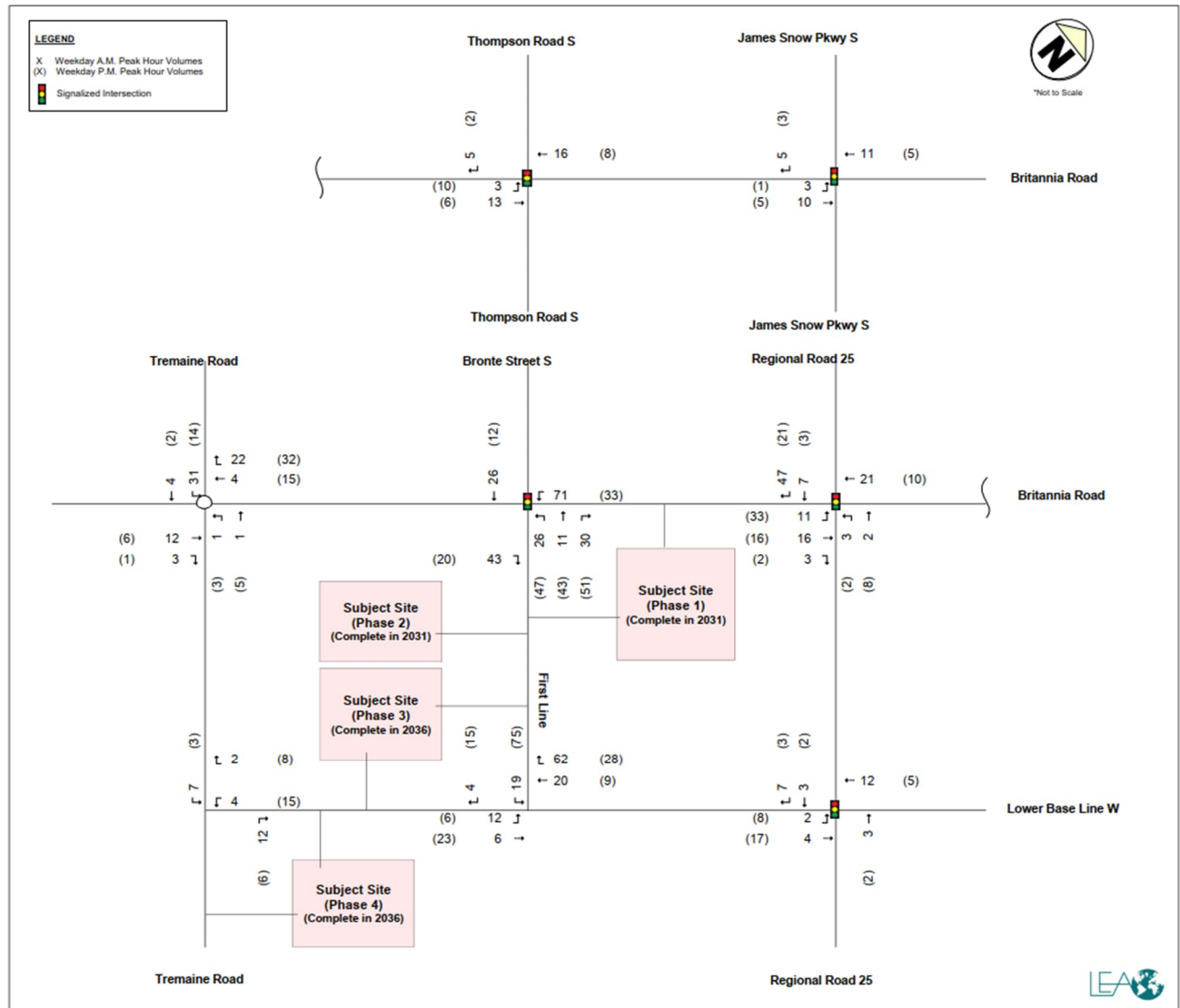
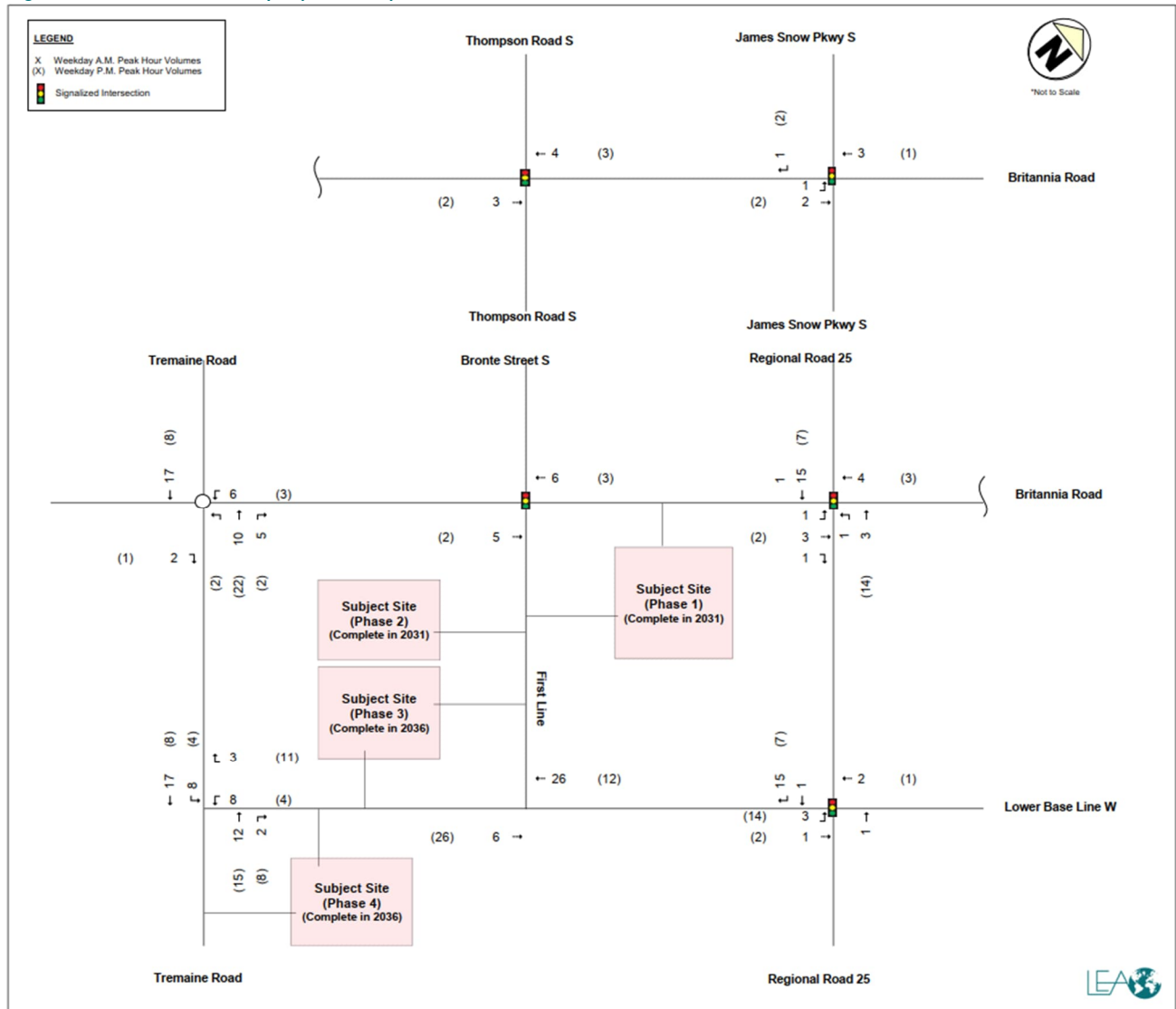


Figure 4-4: Total Site Trips (Phase 4)



5 FUTURE TOTAL TRANSPORTATION CONDITIONS

Future total traffic conditions include the addition of site trips to the future background volumes. Referring to the 2022 Transportation Development Charges Technical Report of Halton Region, the forecasted year of construction financing is in Year 2027. Considering the uncertainty of construction schedule for this improvement works, the analysis was conducted based on the baseline road network.

5.1 FUTURE TOTAL TRAFFIC VOLUMES

The future total traffic volumes for the weekday AM and PM peak hours under each year are illustrated in Figure 5-1 to Figure 5-3.

Figure 5-1: 2031 Future Total Traffic Volume

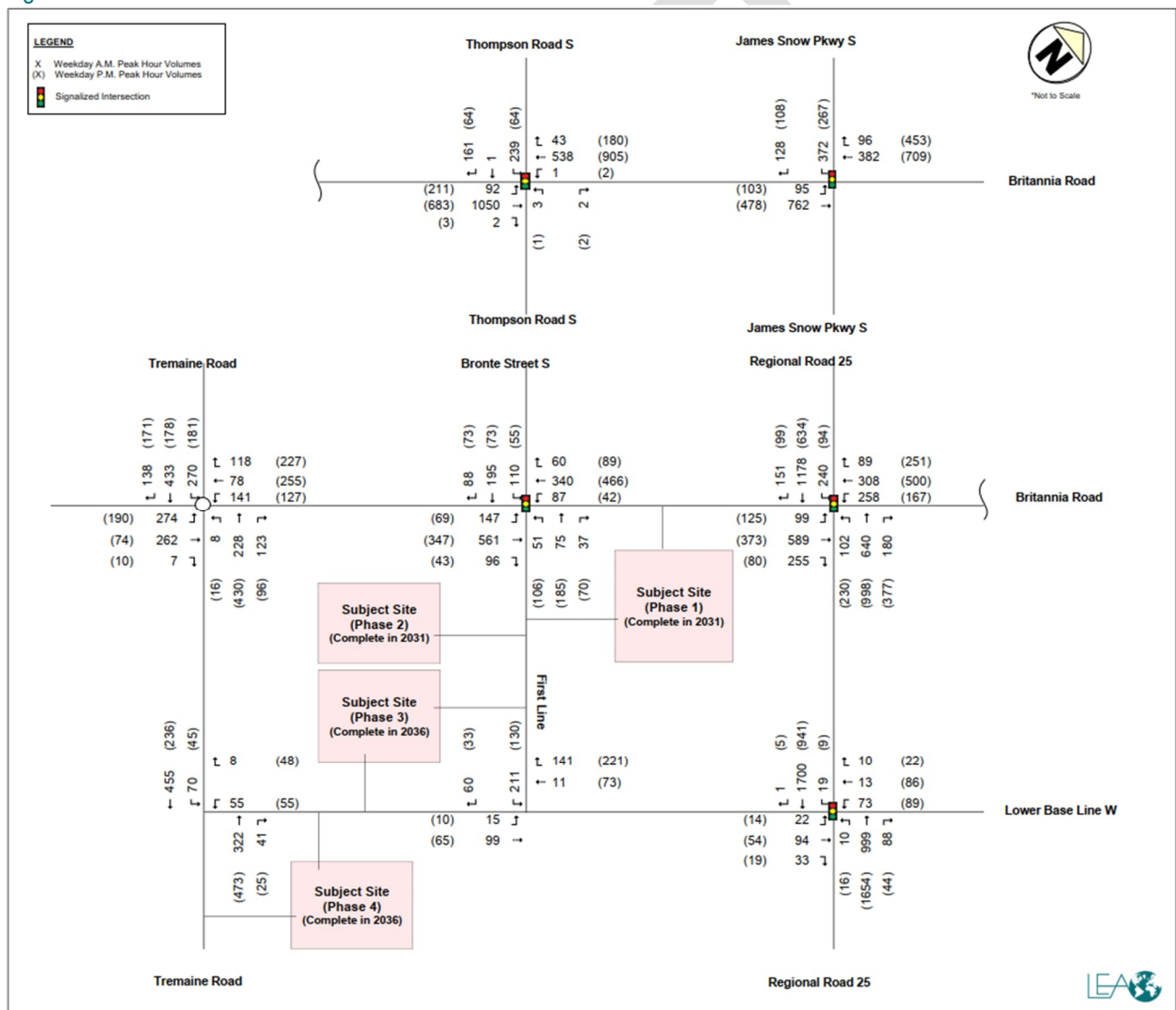


Figure 5-2: 2036 Future Total Traffic Volume

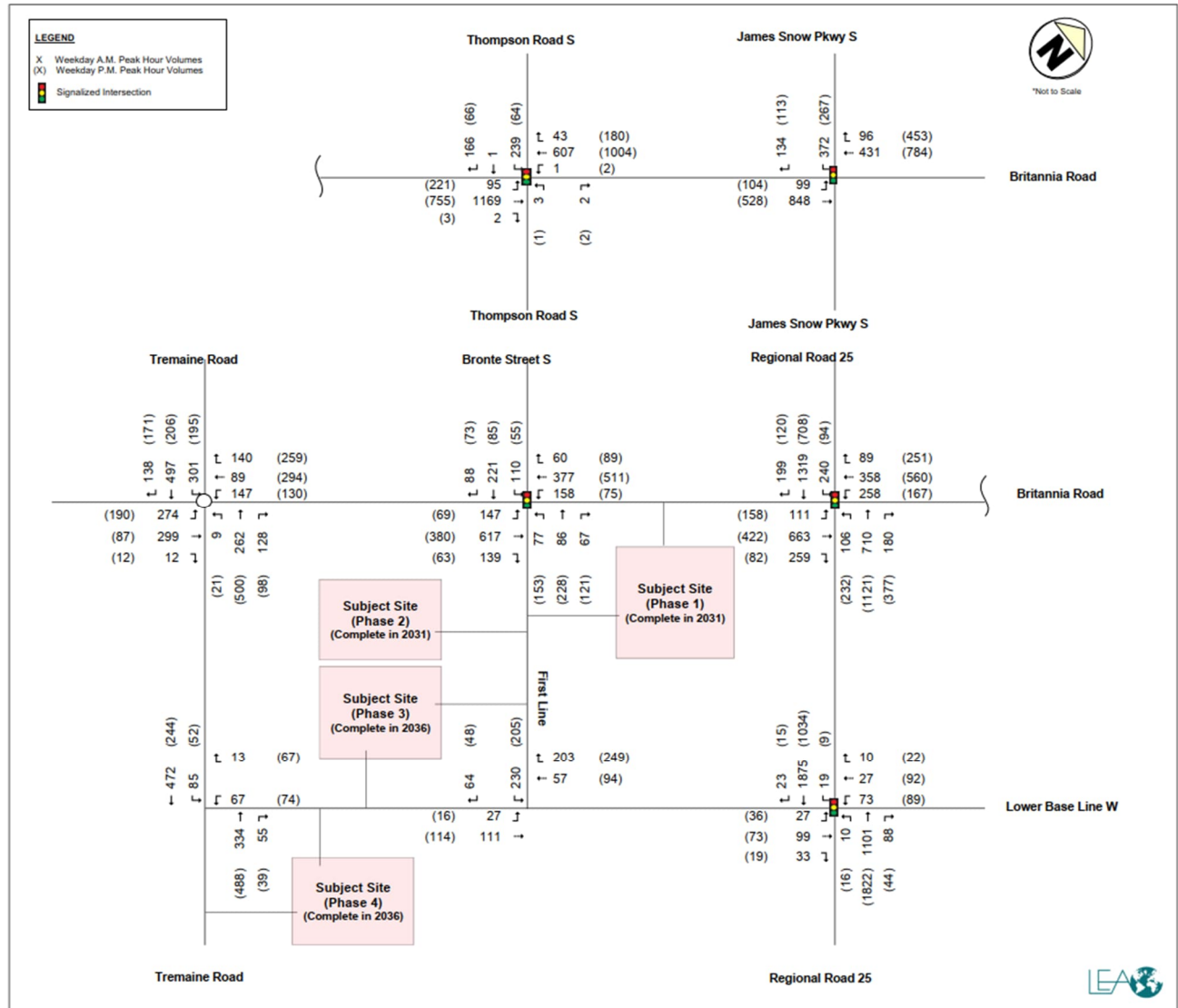
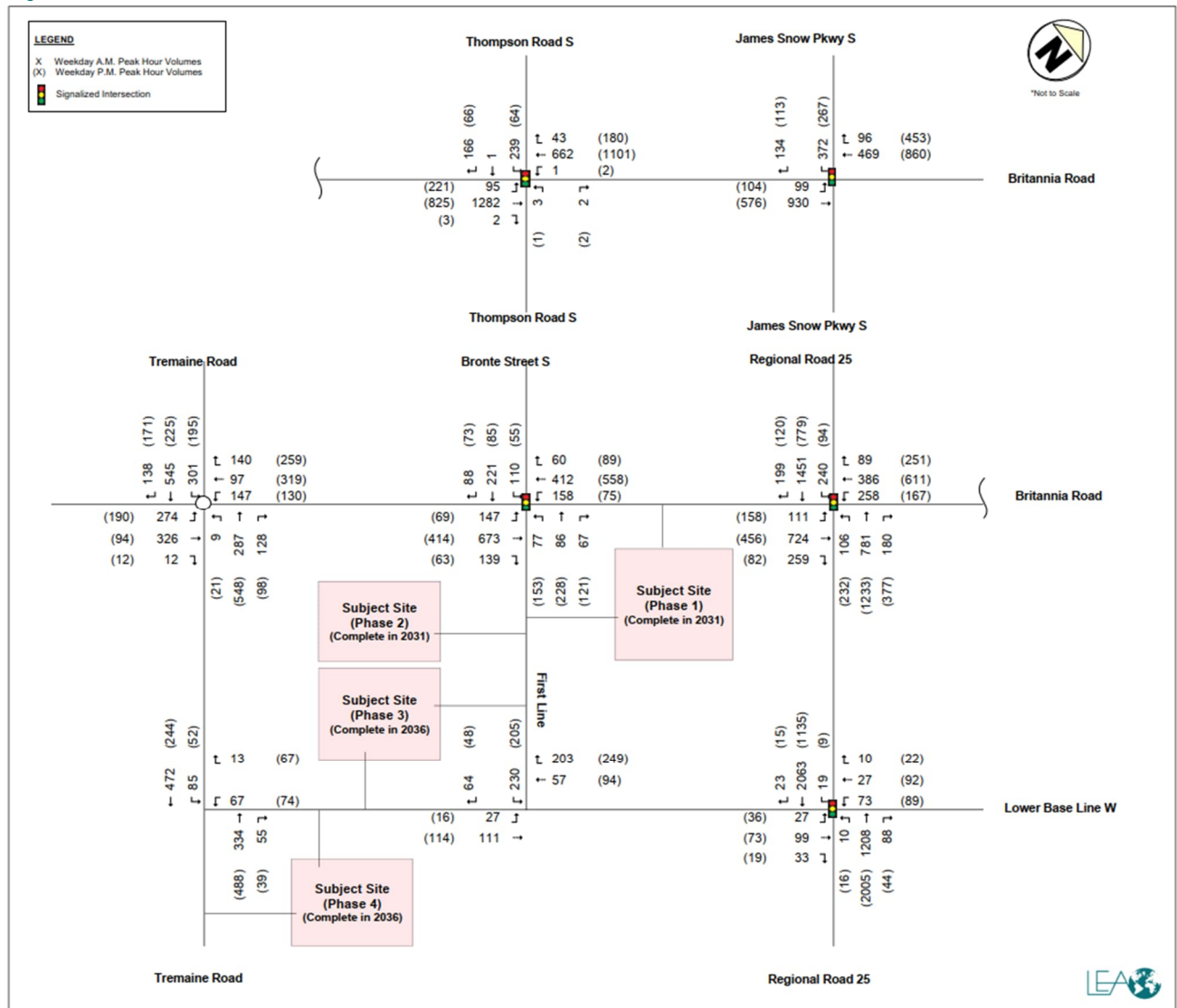


Figure 5-3: 2041 Future Total Traffic Volume



6 INTERSECTION CAPACITY ANALYSIS

The intersection capacity analysis was undertaken using Synchro 12.0, which is based on the Highway Capacity Manual 6th Edition methodology and adheres to the Halton Region's Transportation Impact Study Guidelines (January 2015). For the roundabout at Britannia Road & Tremaine Road, the analysis was undertaken using Junctions 8 (ARCADY 8 Lite). Critical movements are defined as movements with volume-to-capacity (v/c) ratio greater than 0.85 for through or shared through/ turning movements and v/c greater than 0.95 for exclusive movements; and movements with Level of Service (LOS) "D" or worse for unsignalized intersections.

The sections below presented the capacity analysis results for the studied intersections during AM and PM peak hours under baseline condition, future background and future total conditions in each horizon year respectively. Detailed capacity analysis results are provided in the following appendices:

- ▶ Appendix E: 2024 Baseline Intersection Capacity Analysis
- ▶ Appendix F: 2031 Future Background and Future Total Intersection Capacity Analysis
- ▶ Appendix G: 2036 Future Background and Future Total Intersection Capacity Analysis
- ▶ Appendix H: 2041 Future Background and Future Total Intersection Capacity Analysis

6.1 SYNCHRO MODEL INPUTS AND ASSUMPTIONS

As mentioned in Section 2.5, 2024 Baseline traffic volume was established to evaluate the traffic operations upon completion of Britannia Road Improvement. The 2024 traffic operations were assessed to provide a baseline for future traffic operations.

The baseline analysis incorporates the most recent signal timing plans for the study intersections. As mentioned in Section 2.5, the Phase 3 widening works at Britannia Road Corridor (section between Regional Road 25 and James Snow Parkway) is underway during the preparation of the report. Upon completion of the improvement works, pedestrian crossings will be provided. The Signal Timing Plans for the intersections Britannia Road & Thompson Road and Britannia Road & James Snow Parkway are modified to include pedestrian phases in the analysis.

The applied Peak Hour Factor (PHF) has been calculated for each intersection based on the surveyed traffic counts.

Referring to the *Britannia Road EA Report*, the widened Britannia Road Corridor is planned to provide High Occupancy Vehicles (HOV) lanes. A Lane Utilization Factors (LUFs) of 0.80 is adopted at the relevant intersections for the east-west corridor for the assumption that 20% is assumed as the HOV lane usage, in accordance with the *Transportation Impact Study (TIS) Guidelines* by Halton Region.

Input parameters from the baseline conditions were maintained with the future background and future total volumes.

Based on the truck trips assigned to the road network by the subject lands, the heavy vehicle percentage (HV%) is adjusted accordingly for each horizon year.

6.2 2024 BASELINE SCENARIO

Figure 6-1: 2024 Baseline Scenario – AM Peak

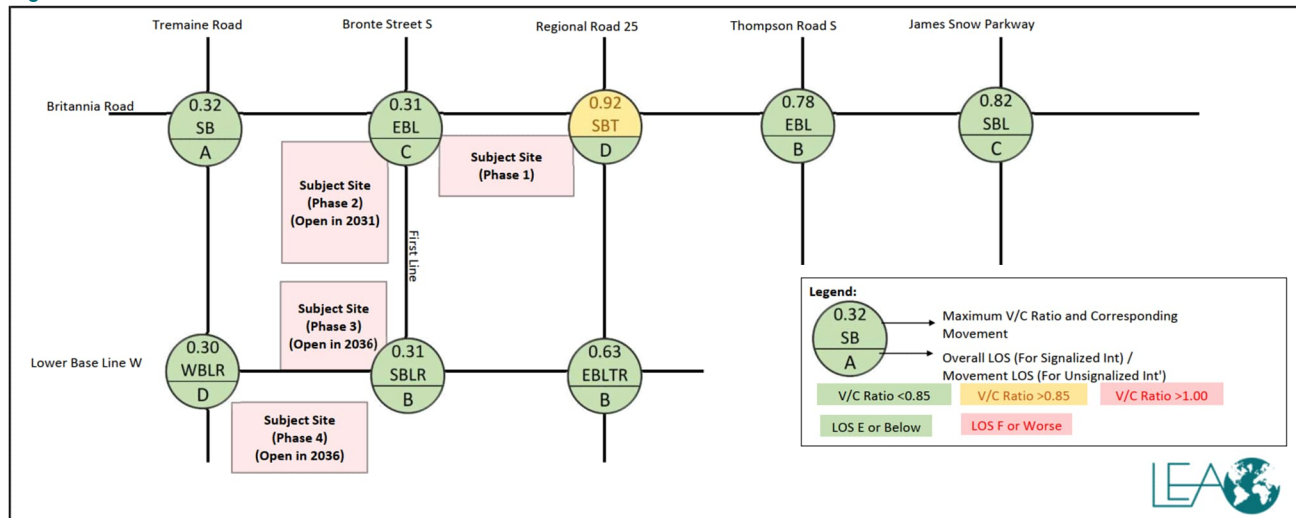
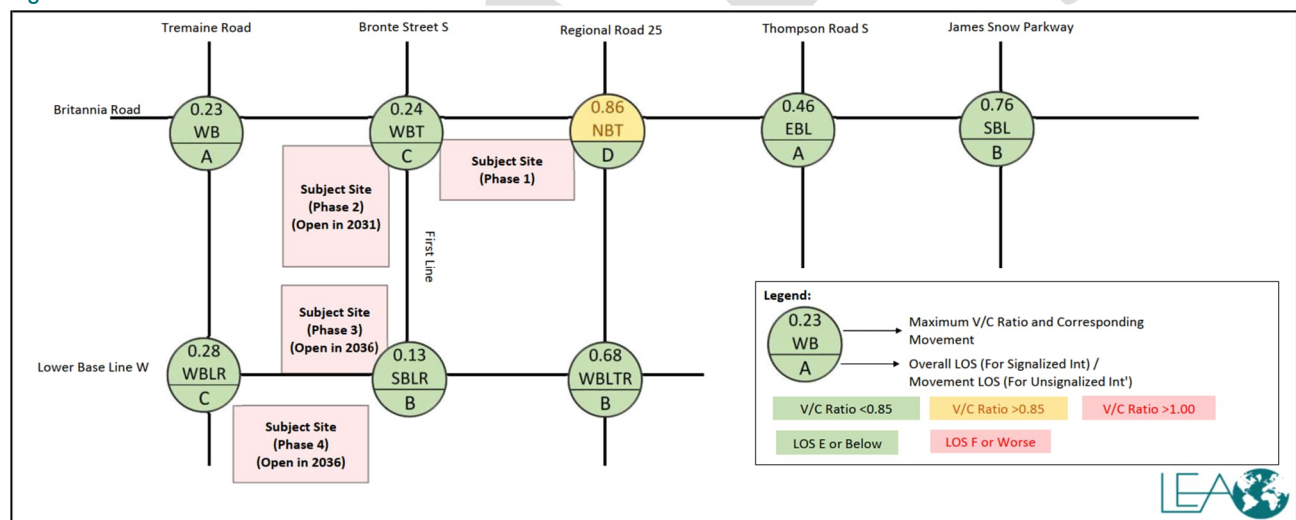


Figure 6-2: 2024 Baseline Scenario – PM Peak



The analysis shows that the intersections would be operating within capacity with no constraints upon the completion of the Britannia Road Construction works in Year 2024. During the AM Peak, the signalized intersection at Britannia Road & Regional Road 25 will operate close to capacity for critical movement SBT. During the PM Peak, the signalized intersection at Britannia Road & Regional Road 25 will operate close to capacity for critical movement NBT.

During the Baseline scenario, generally all queues can be accommodated within the storage capacity of the turning lanes. However, the storage for the SBL movement at the Thompson Rd S & Britannia Road intersection during the AM Peak is exceeded. This should not pose an issue in future scenarios as those were assumed to have only a single shared left-through-right lane. Should the SBL lane be built in the future, it is suggested to accommodate at least a 65-meter queue.

6.3 FUTURE SCENARIO – HORIZON YEAR 2031

In horizon year 2031, the intersection of Britannia Road & Regional Road 25 will be overloaded, and optimization of the signal timing plan would be required to accommodate future traffic volumes. The proposed modifications are illustrated below:

Table 6-1: STP Optimization at Intersection of Britannia Road & Regional Road 25 (2031)

Signalized Intersection of Britannia Road & Regional Road 25	
AM Peak	
Existing	Splits and Phases: 3: Regional Road 25 & Britannia Road
Proposed Optimization	Splits and Phases: 3: Regional Road 25 & Britannia Road
PM Peak	
Existing	Splits and Phases: 3: Regional Road 25 & Britannia Road
Proposed Optimization	Splits and Phases: 3: Regional Road 25 & Britannia Road

Figure 6-3: 2031 Future Background – AM Peak

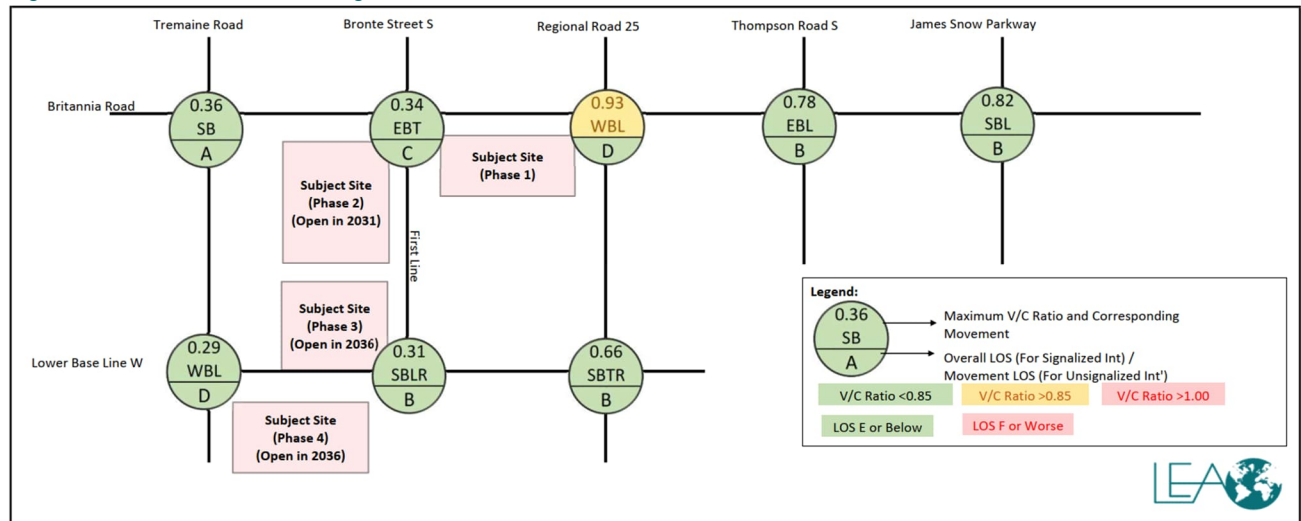
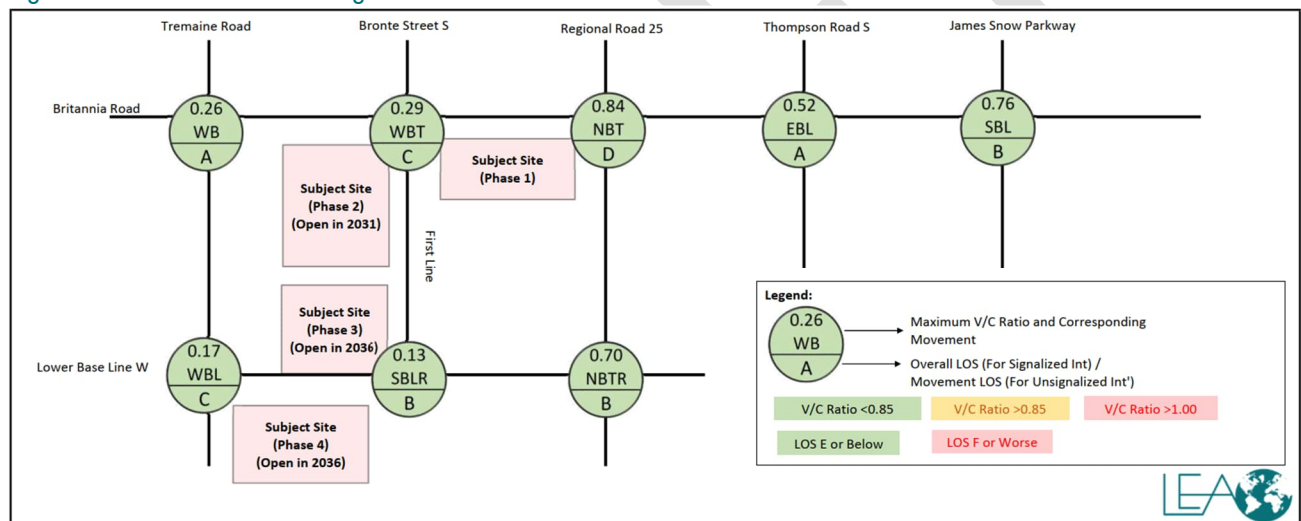


Figure 6-4: 2031 Future Background – PM Peak



The analysis shows that the road network will operate within capacity in horizon year 2031 with minimal constraints for the 2031 Future Background scenario. During the AM peak, the signalized intersection of Britannia Road & Regional Road 25 will operate close to capacity at critical movement WBL. As optimization was done for the SBT traffic, there are slightly higher delays of about 98 seconds on the WBL movement. However, all queues can be accommodated for the WBL movement.

During the FB 2031 scenario, all queues can be accommodated within the storage capacity of the turning lanes.

Figure 6-5: 2031 Future Total – AM Peak

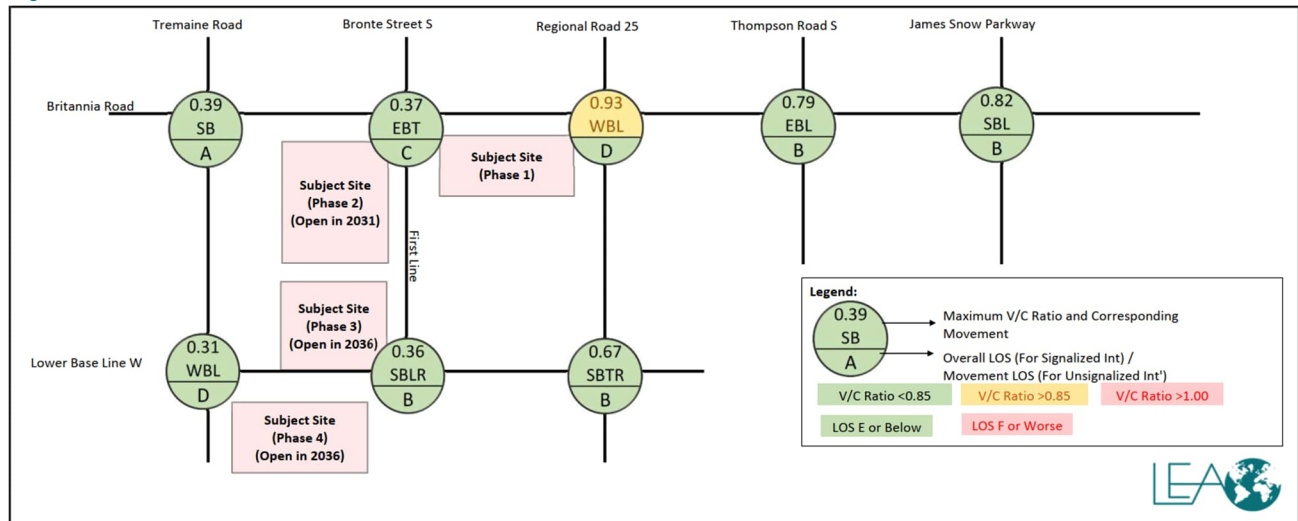
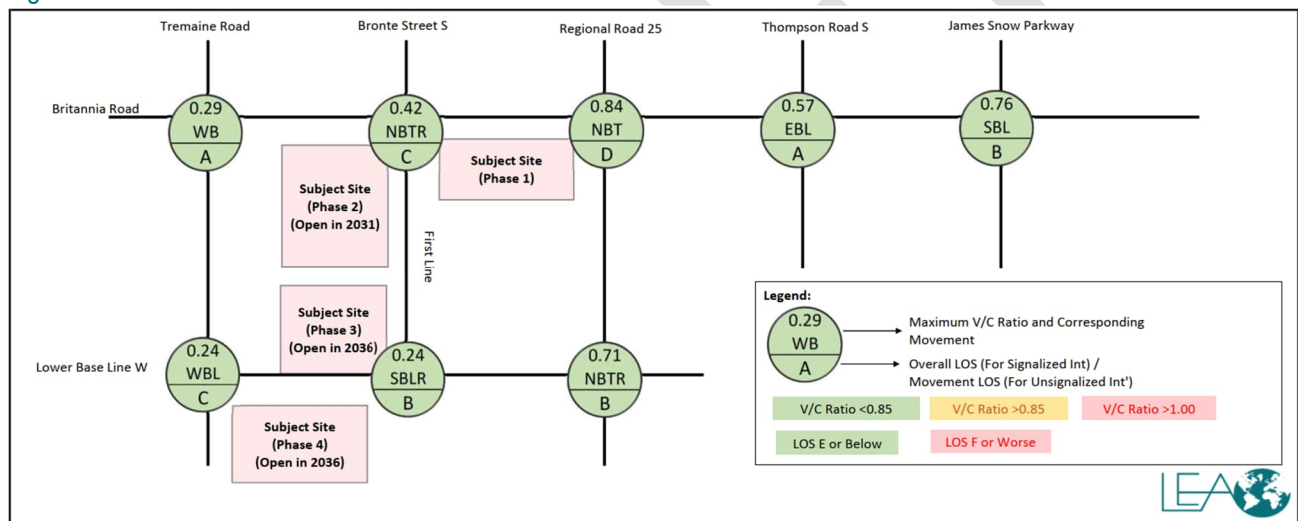


Figure 6-6: 2031 Future Total – PM Peak



The analysis shows that the road network will operate within capacity in horizon year 2031 with minimal constraints for the 2031 Future Total scenario. During the AM peak, the signalized intersection of Britannia Road & Regional Road 25 will operate close to capacity at critical movement WBL. As optimization was done for the SBT traffic, there are slightly higher delays of about 98 seconds on the WBL movement. However, all queues can be accommodated for the WBL movement.

During the FT 2031 scenario, generally all queues can be accommodated within the storage capacity of the turning lanes. However, the storage for the NBL movement at the First Line/Bronte St. S & Britannia Road intersection during the PM Peak is exceeded by about 5 m based on the 95th percentile queue results. This is considered minor.

6.4 FUTURE SCENARIO – HORIZON YEAR 2036

Figure 6-7: 2036 Future Background – AM Peak

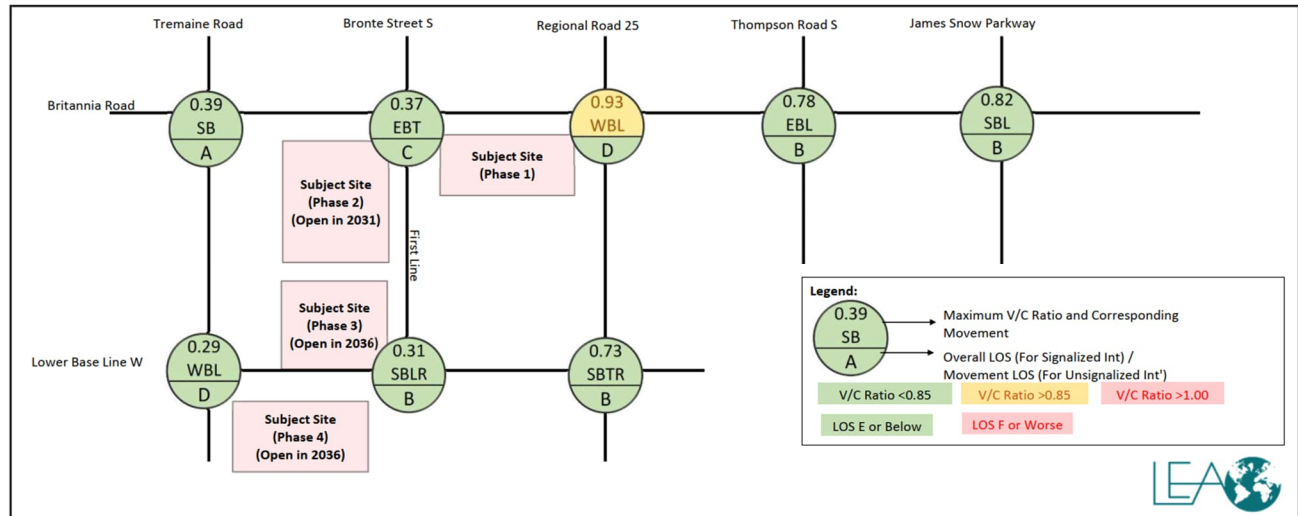
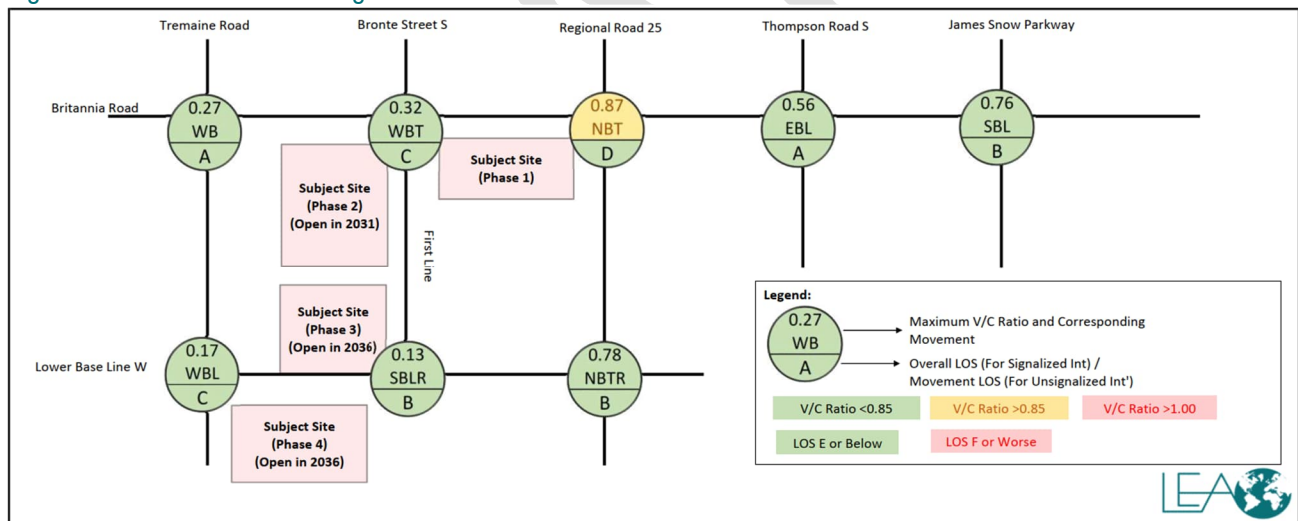


Figure 6-8: 2036 Future Background – PM Peak



The analysis shows that the road network will operate within capacity in horizon year 2036 with minimal constraints for the 2036 Future Background scenario. During the AM peak, the signalized intersection of Britannia Road & Regional Road 25 will operate close to capacity at critical movement WBL. As optimization was done for the SBT traffic, there are slightly higher delays of about 98 seconds on the WBL movement. However, all queues can be accommodated for the WBL movement. During the PM peak, the signalized intersection of Britannia Road & Regional Road 25 will operate close to capacity at critical movement NBT.

During the FB 2036 scenario, all queues can be accommodated within the storage capacity of the turning lanes.

Figure 6-9: 2036 Future Total – AM Peak

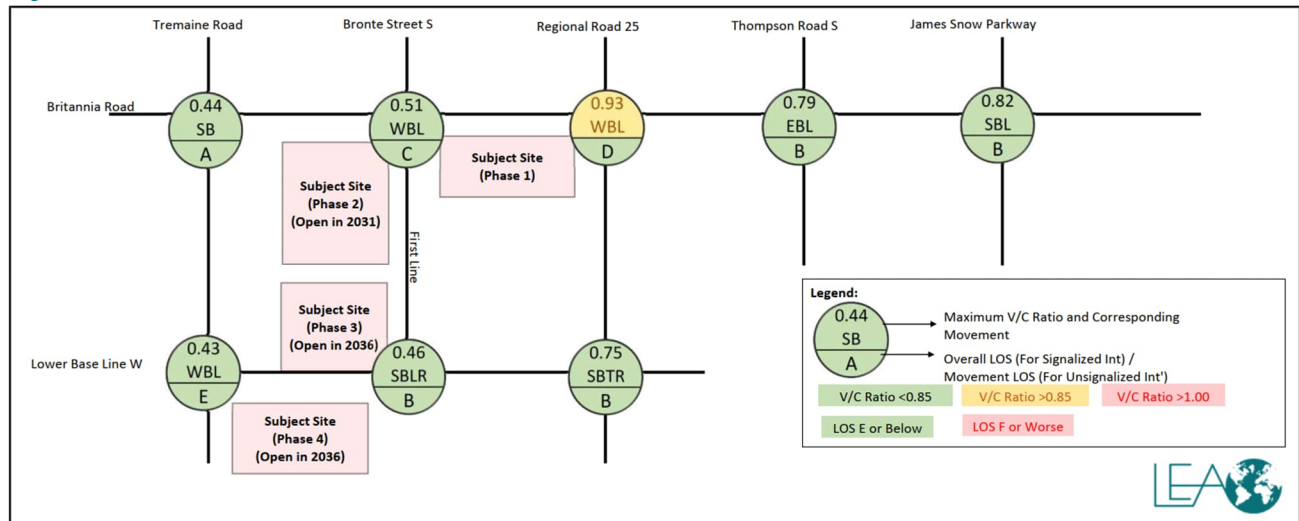
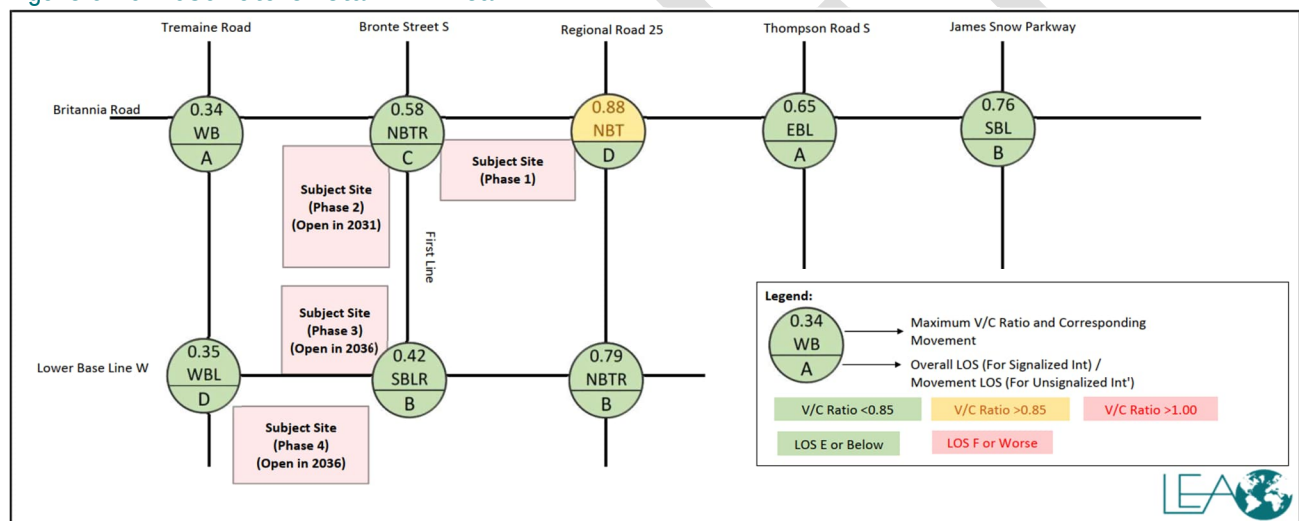


Figure 6-10: 2036 Future Total – PM Peak



The analysis shows that the road network will operate within capacity in horizon year 2036 with minimal constraints for the 2036 Future Total scenario. During the AM peak, the signalized intersection of Britannia Road & Regional Road 25 will operate close to capacity at critical movement WBL. As optimization was done for the SBT traffic, there are slightly higher delays of about 98 seconds on the WBL movement. However, all queues can be accommodated for the WBL movement.

During the FT 2036 scenario, generally all queues can be accommodated within the storage capacity of the turning lanes. However, the storage for the NBL movement at the Britannia Road & Regional Road 25 intersection during the PM Peak is exceeded. To accommodate the volumes, the turning lane should be extended to approximately 55 meters. Also, the NBL movement at the First Line/Bronte St. S & Britannia Road intersection during the PM Peak is exceeded to approximately 55 meters based on the 95th percentile queue results.

6.5 FUTURE SCENARIO – HORIZON YEAR 2041

Figure 6-11: 2041 Future Background – AM Peak

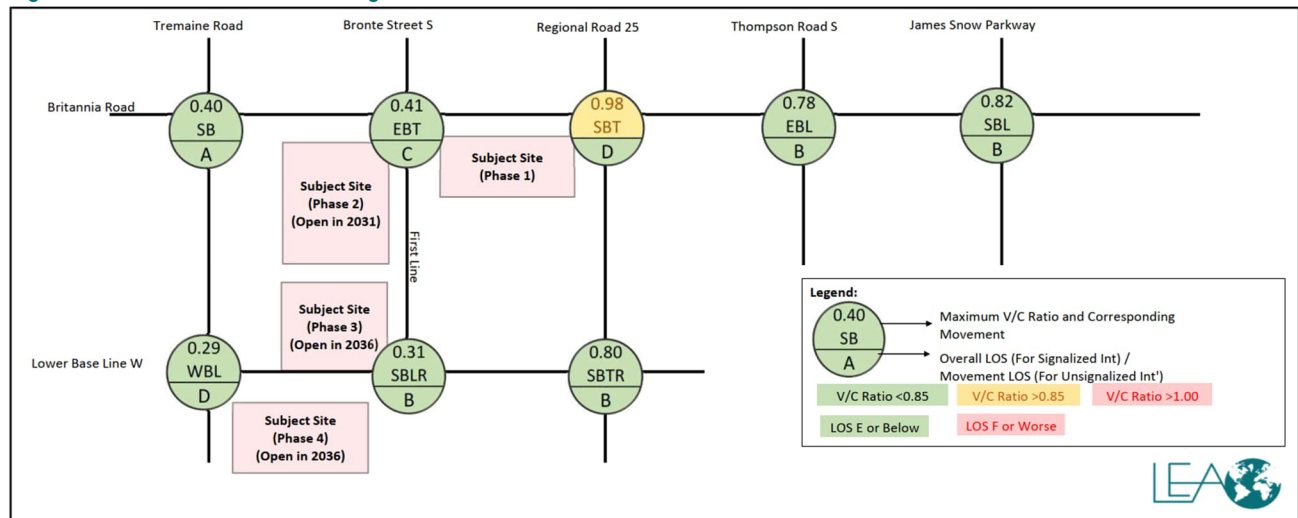
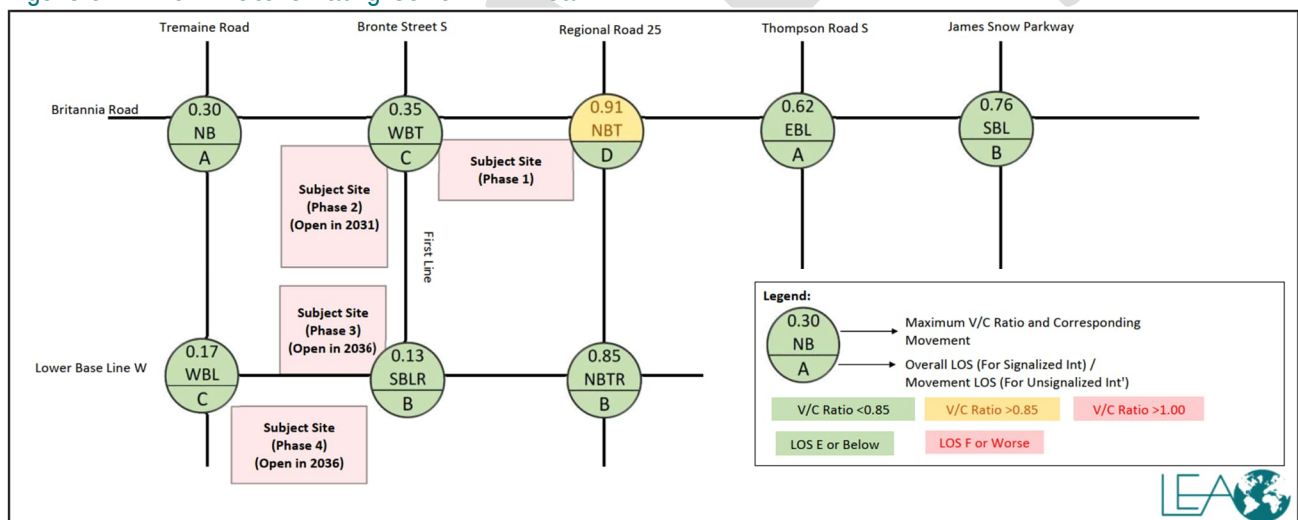


Figure 6-12: 2041 Future Background – PM Peak



The analysis shows that the road network will operate within capacity in horizon year 2041 with minimal constraints for the 2041 Future Background scenario. During the AM peak, the signalized intersection of Britannia Road & Regional Road 25 will operate close to capacity at critical movement SBT. However, all queues can be accommodated for the SBT movement. During the PM peak, the signalized intersection of Britannia Road & Regional Road 25 will operate close to capacity at critical movement NBT.

During the FB 2041 scenario, generally all queues can be accommodated within the storage capacity of the turning lanes. However, the storage for the NBR movement at the Britannia Road & Regional Road 25 intersection during the PM Peak is exceeded by about 4 m.

Figure 6-13: 2041 Future Total – AM Peak

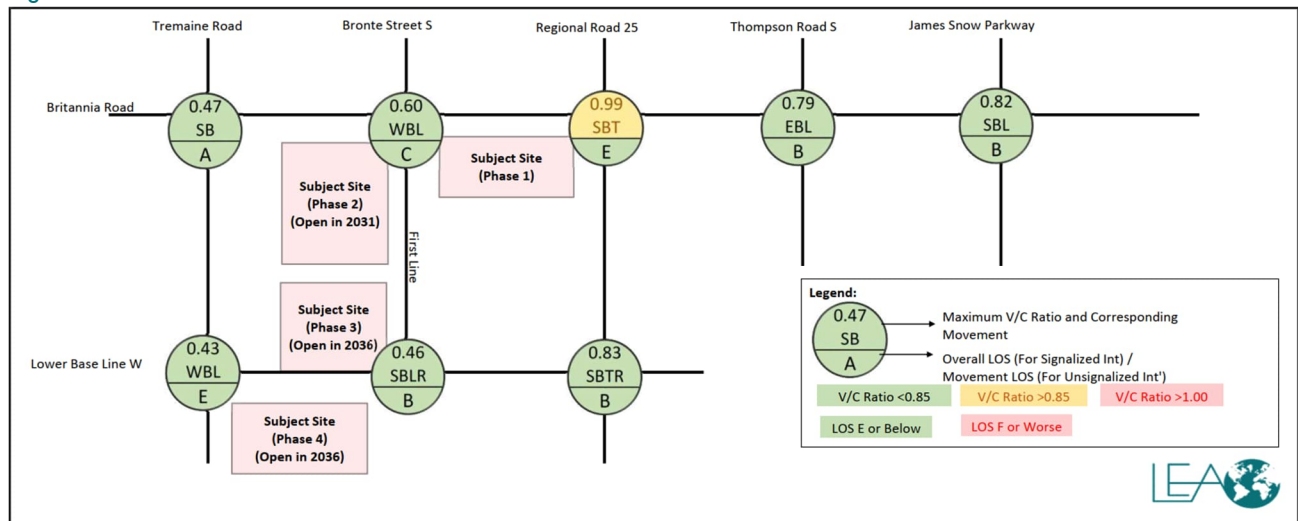
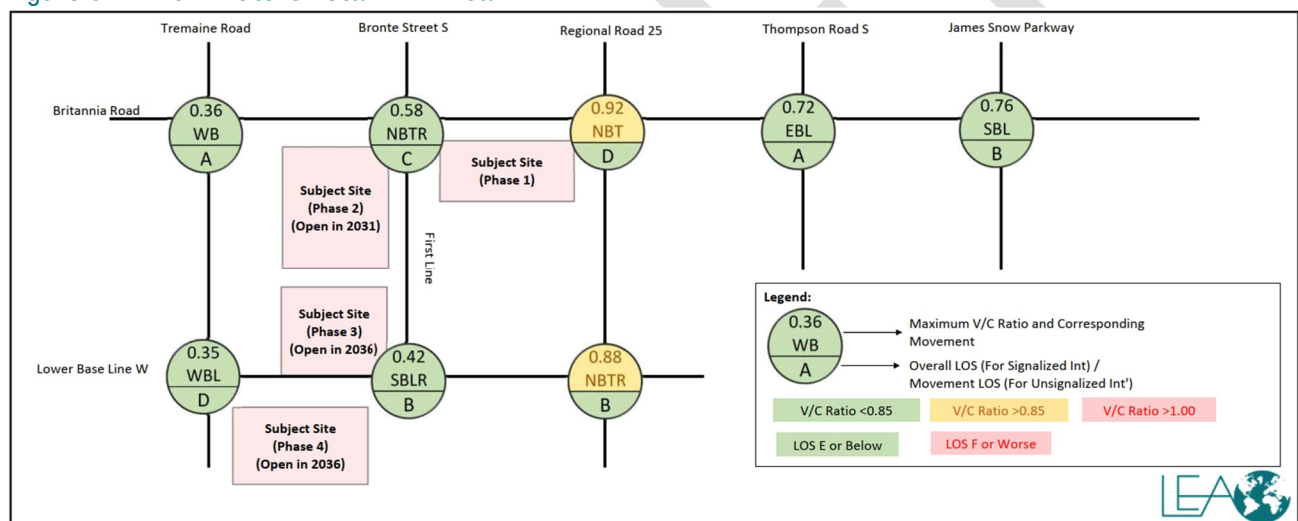


Figure 6-14: 2041 Future Total – PM Peak



The analysis shows that the road network will operate within capacity in horizon year 2041 with some constraints for the 2041 Future Total scenario. During the AM peak, the signalized intersection of Britannia Road & Regional Road 25 will operate close to capacity at critical movement SBT. However, all queues can be accommodated for the SBT movement. During the PM peak, the signalized intersection of Regional Road 25 & Lower Base Line W will operate close to capacity at critical movement NBTR.

During the FT 2041 scenario, most queues can be accommodated within the storage capacity of the turning lanes. However, the storage for the following roads and movements are exceeded:

1. First Line/Bronte St. S & Britannia Road:
 - a. NBL for AM Peak (Storage/95th queue (m) = 30/33)
 - b. NBL for PM Peak (Storage/95th queue (m) = 30/65)
2. Regional Road 25 & Britannia Road:

- a. WBR for PM Peak (Storage/95th queue (m) = 50/55)
- b. NBR for PM Peak (Storage/95th queue (m) = 60/65)

Most queues are generally minor, except for the NBL queue on First Line/Bronte St. S & Britannia Road.

Summary to Intersection Capacity Analysis

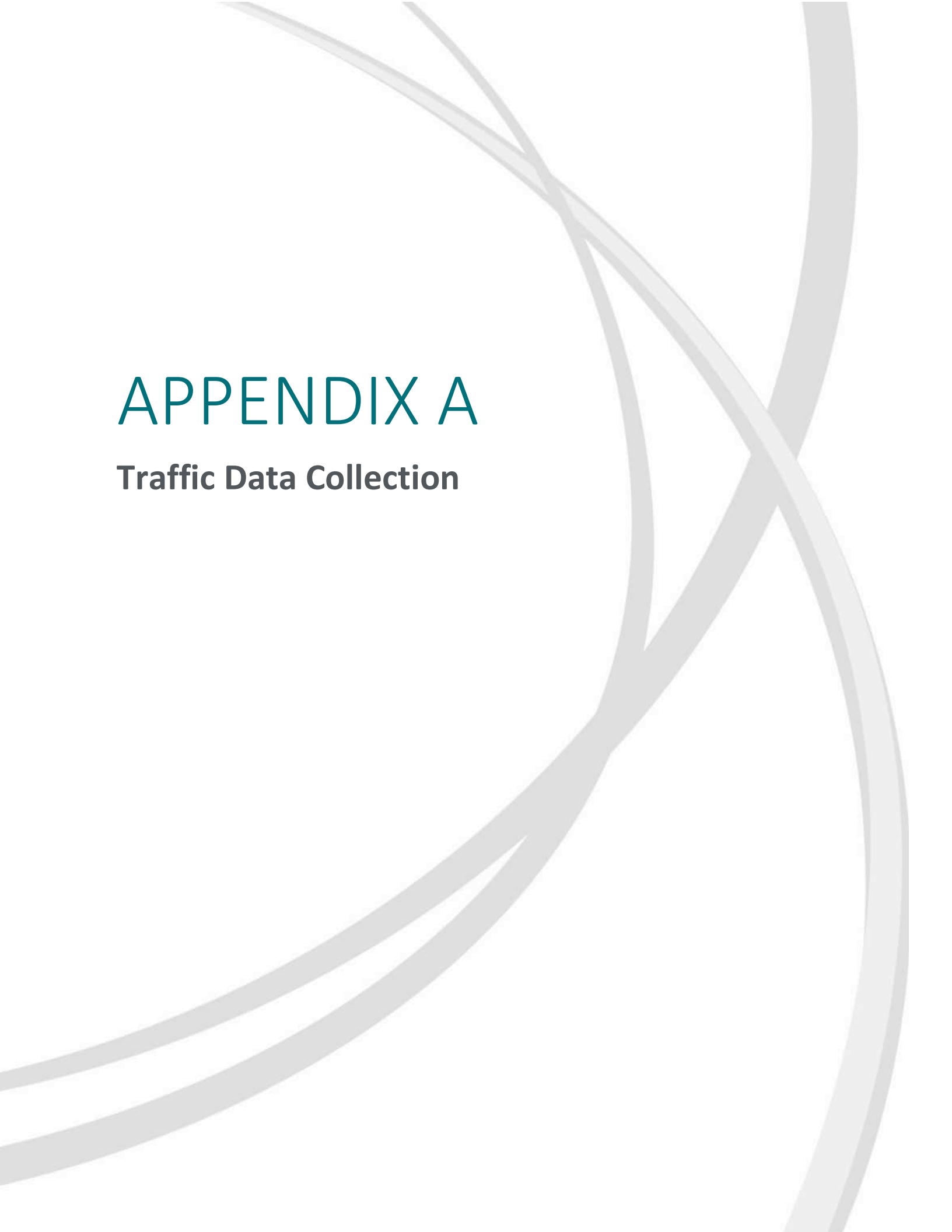
To summarize, all intersections will operate within capacity throughout the horizon years except for the intersection at Britannia Road & Regional Road 25 as well as Regional Road 25 & Lower Base Line W. For the Britannia Road & Regional Road 25 critical intersection, modifications to signal timing plan would be required in horizon year 2031 in order to accommodate future traffic volumes.

7 CONCLUSIONS AND RECOMMENDATIONS

The subject lands are a proposed industrial development of the Milton Link in the Town of Milton. The proposed development is subdivided into four (4) phases with phased construction schedule.

The following is a summary of the conclusions of the study:

- As the proposed development is scheduled to be constructed in 4 phases (to be market dependent) within 10 years, this TIS will assess three (3) horizon years; a five-year horizon to the year 2031 (Phase 1 & 2), a 10-year horizon to the year 2036 (Phase 3 & 4) and a 15-year horizon to the year 2041 (Full Built Out + 5 years).
- Upon full build-out, the Subject Lands is anticipated to generate 700 two-way vehicular trips and 175 two-way truck trips during AM peak hour, and 875 two-way vehicular trips and 88 two-way truck trips during PM peak hour respectively.
- The intersection capacity analysis shows that all intersections will operate within capacity throughout the horizon years except for the intersection at Britannia Road & Regional Road 25 as well as Regional Road 25 & Lower Base Line W. For the Britannia Road & Regional Road 25 critical intersection, modifications to signal timing plan would be required in horizon year 2031 in order to accommodate future traffic volumes.

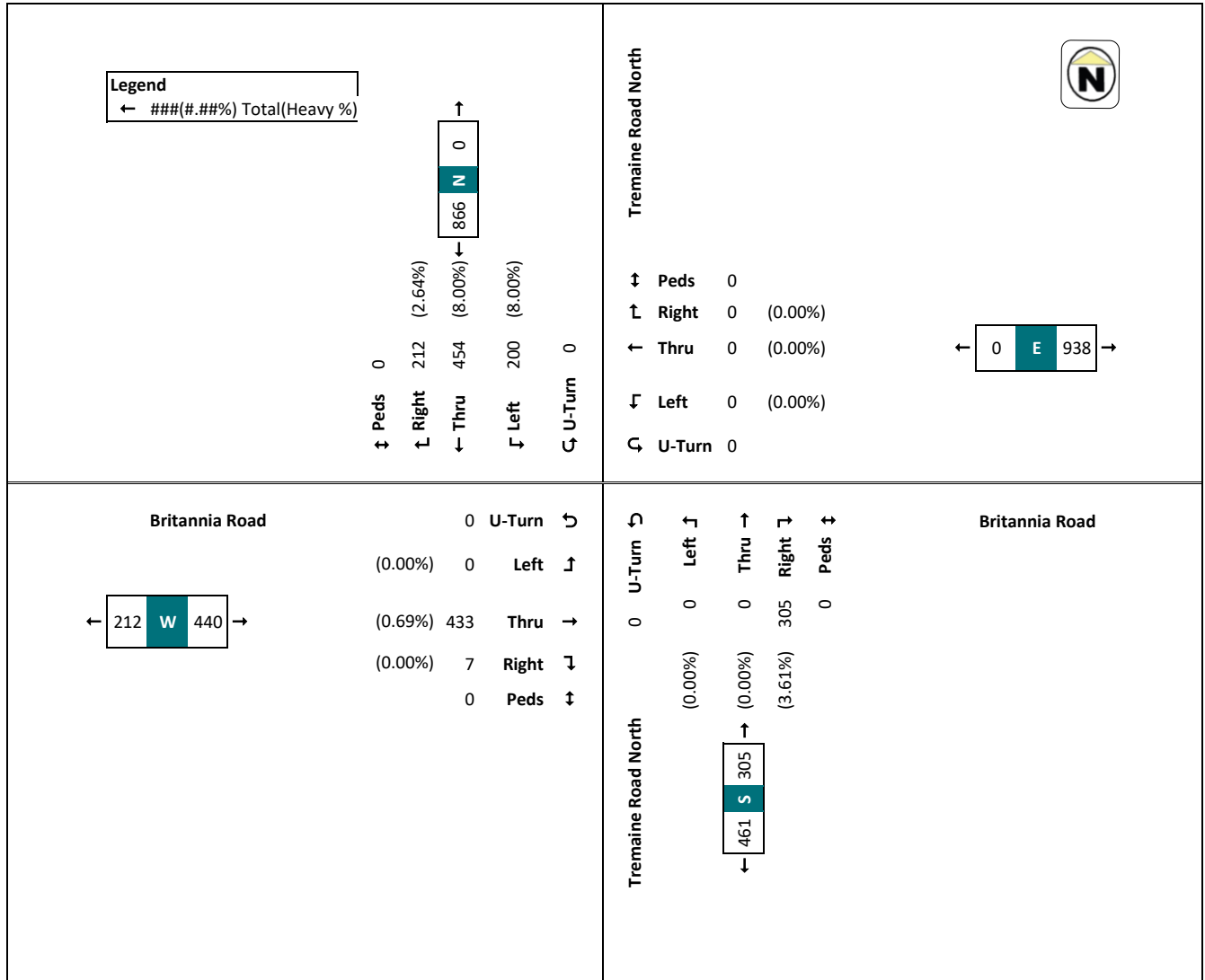


APPENDIX A

Traffic Data Collection

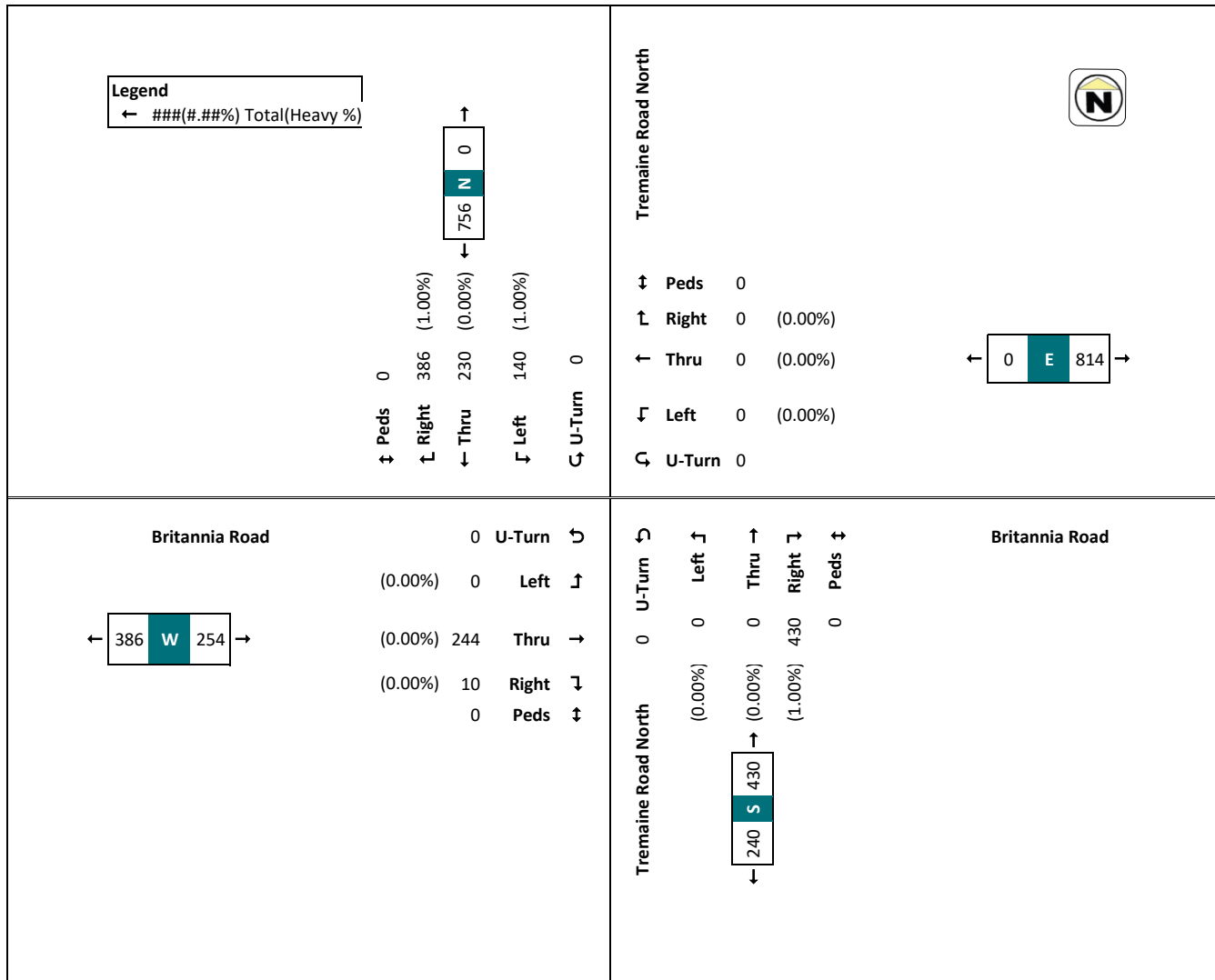
AM Peak Hour - Tremaine Road North & Britannia Road(West Leg)

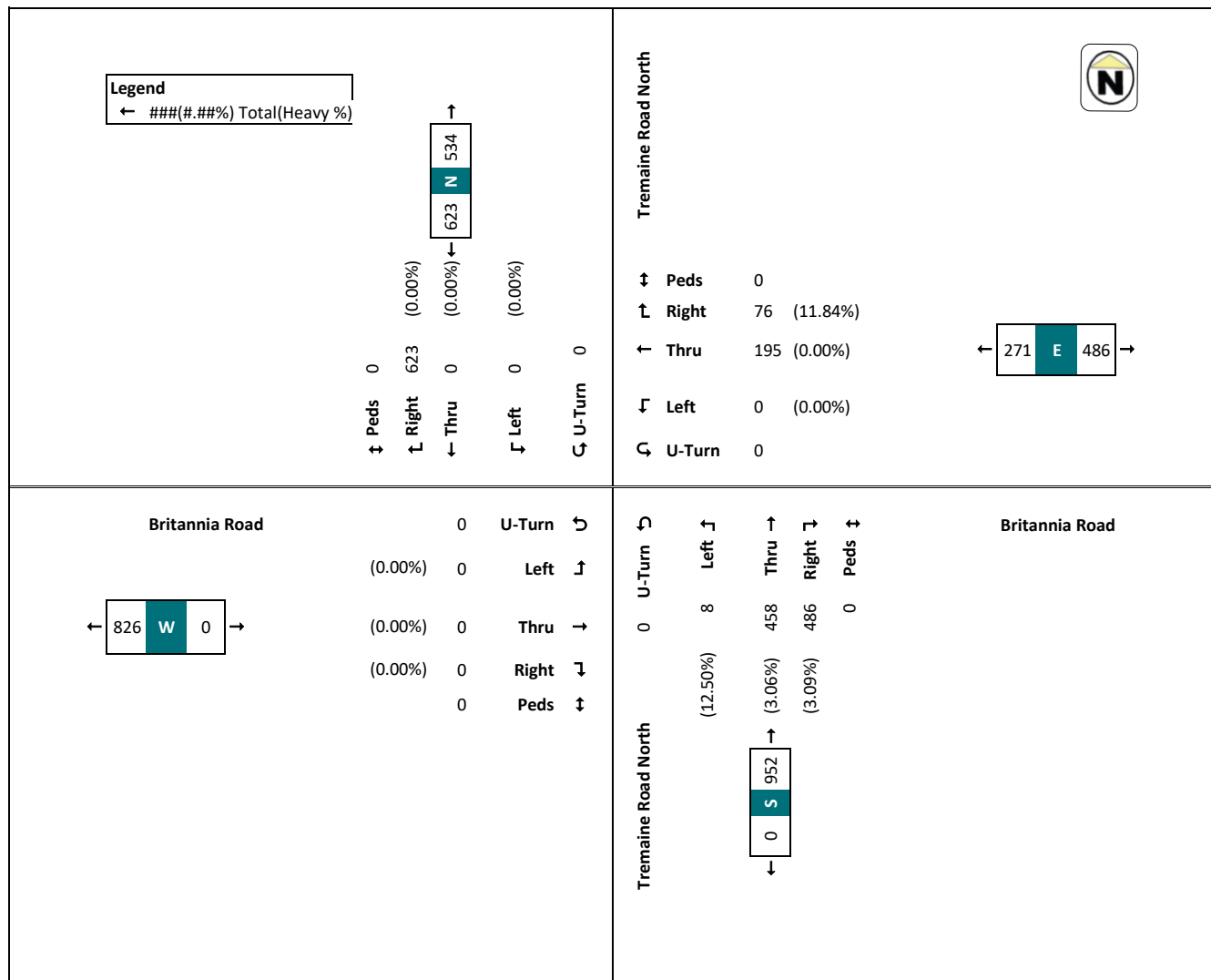
	Tremaine Road North						Britannia Road						Tremaine Road North						Britannia Road						
	Southbound						Westbound						Northbound						Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
7:30	0	52	121	40	0	213	0	0	0	0	0	0	0	0	0	71	0	71	0	0	106	0	0	106	390
7:45	0	48	118	50	0	216	0	0	0	0	0	0	0	0	0	70	0	70	0	0	121	4	0	125	411
8:00	0	38	121	59	0	218	0	0	0	0	0	0	0	0	0	83	0	83	0	0	120	3	0	123	424
8:15	0	62	94	63	0	219	0	0	0	0	0	0	0	0	0	81	0	81	0	0	86	0	0	86	386
Hourly Total	0	200	454	212	0	866	0	0	0	0	0	0	0	0	0	305	0	305	0	0	433	7	0	440	1611
Approach %	0.0%	23.1%	52.4%	24.5%	-	-	-	-	-	-	-	-	0.0%	0.0%	0.0%	100.0%	-	-	0.0%	0.0%	98.4%	1.6%	-	-	-
Total %	0.0%	12.4%	28.2%	13.2%	-	33.8%	0.0%	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	18.9%	-	18.9%	0.0%	0.0%	26.9%	0.4%	-	27.3%	-	
PWT	0	0.81	0.94	0.94	-	0.99	0	0	0	0	-	0	0	0	0.92	-	0.92	0	0	0.89	0.44	-	0.88	0.95	
Lights	0	184	442	211	-	837	0	0	0	0	-	0	0	0	294	-	294	0	0	430	7	-	437	1568	
% Lights	-	92.0%	97.4%	99.5%	-	96.7%	-	-	-	-	-	-	-	-	96.4%	-	96.4%	-	-	99.3%	100.0%	-	99.3%	97.3%	
Busess	-	4	2	0	-	6	-	0	0	0	-	0	-	0	1	-	1	-	0	2	0	-	2	9	
% Buses	-	2.0%	0.4%	0.0%	-	0.7%	-	0	0	0	-	0	-	0	0.3%	-	0.3%	-	0	0.5%	0.0%	-	0.5%	0.6%	
Trucks	-	12	10	1	-	23	-	0	0	0	-	0	-	0	10	-	10	-	0	1	0	-	1	34	
% Trucks	-	6.0%	2.2%	0.5%	-	2.7%	-	-	-	-	-	-	-	3.3%	-	3.3%	-	0.2%	-	0.2%	0.0%	-	0.2%	2.1%	
Bicycles	-	-	-	-	0	0	-	-	-	-	-	0	-	-	0	-	0	-	-	-	0	-	0	0	
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	0	



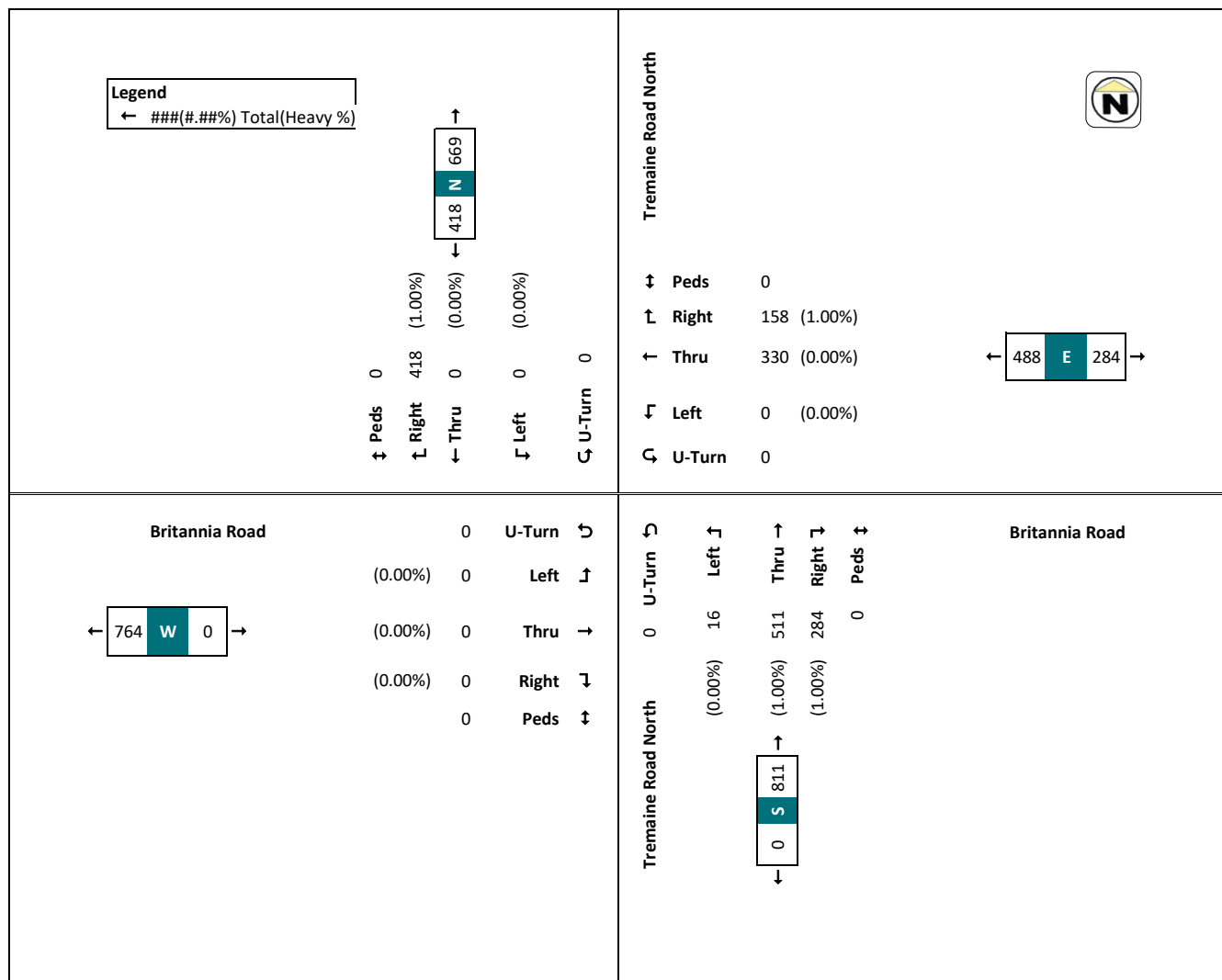
PM Peak Hour - Tremaine Road North & Britannia Road(West Leg)

	Tremaine Road North						Britannia Road North						Tremaine Road North						Britannia Road North						
	Southbound						Westbound						Northbound						Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
16:30	0	42	64	104	0	210	0	0	0	0	0	0	0	0	0	110	0	110	0	0	58	3	0	61	381
16:45	0	25	46	102	0	173	0	0	0	0	0	0	0	0	0	99	0	99	0	0	62	1	0	63	335
17:00	0	37	54	109	0	200	0	37	54	109	0	190	0	54	0	109	0	109	0	37	70	4	0	81	375
17:15	0	41	66	71	0	178	0	0	0	0	0	0	0	0	0	112	0	112	0	0	54	2	0	56	346
Hourly Total	0	140	230	386	0	756	0	0	0	0	0	0	0	0	0	430	0	430	0	0	244	10	0	254	1440
Approach %	0.0%	18.5%	30.4%	51.1%	-	-	-	-	-	-	-	-	0.0%	0.0%	0.0%	100.0%	-	-	0.0%	0.0%	96.1%	3.9%	-	-	-
Total %	0.0%	9.7%	16.0%	26.8%	-	52.5%	0.0%	0.0%	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	26.7%	-	29.9%	0.0%	0.0%	15.1%	0.6%	-	17.6%	-
PHF	0	0.83	0.87	0.89	-	0.9	0	0	0	0	0	0	0	0	0	0	0	0.87	0.63	-	0.87	0.63	-	0.86	0.98
Lights	0	139	229	0	0	368	0	0	0	0	0	0	0	0	0	244	0	244	0	0	142	10	0	254	99.33
% Lights	99.33%	99.6%	98.7%	98.7%	-	99.1%	0	0	0	0	0	0	0	0	0	99.1%	-	99.1%	-	100.0%	100.0%	-	-	100.0%	99.33%
Buses	1	2	0	0	-	3	1	0	0	0	-	-	0	0	1	1	-	1	-	0	0	0	-	0	4
% Buses	0.7%	0.9%	0.0%	-	-	0.4%	-	-	-	-	-	-	-	-	-	0.2%	-	0.2%	-	-	0.0%	0.0%	-	0.0%	0.3%
Trucks	0	1	4	-	-	5	-	-	0	0	-	-	0	0	0	3	-	3	-	0	0	0	-	0	8
% Trucks	0.0%	0.4%	1.0%	-	-	0.7%	-	-	0.0%	0.0%	-	-	0.0%	0.0%	0.0%	0.7%	-	0.7%	-	0.0%	0.0%	0.0%	-	0.0%	0.6%
Bicycles	-	-	0	-	-	0	-	-	-	-	-	-	0	0	-	-	-	0	-	-	-	-	-	-	0
Pedestrians	-	-	0	-	-	0	-	-	-	-	-	-	0	0	-	-	-	0	-	-	-	-	-	-	0



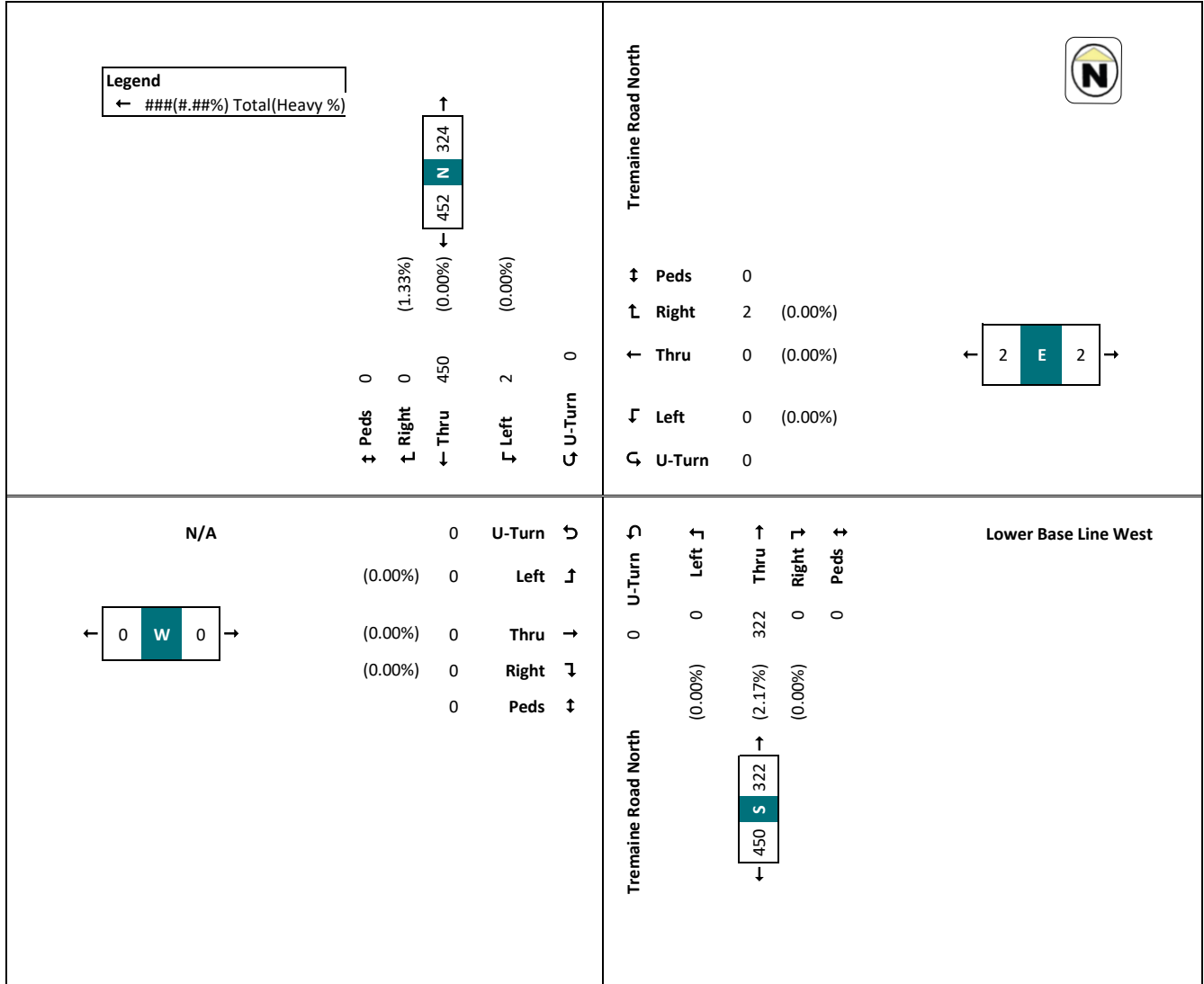
[illegible]

	Tremaine Road North Southbound						Britannia Road Westbound						Tremaine Road North Northbound						Britannia Road Eastbound							
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total	
16:15	0	0	0	0	106	0	106	0	0	85	35	0	120	0	3	118	64	0	185	0	0	0	0	0	0	411
16:30	0	0	0	0	113	0	113	0	0	90	47	0	137	0	4	140	78	0	222	0	0	0	0	0	0	472
16:45	0	0	0	0	95	0	95	0	0	64	33	0	97	0	6	122	69	0	197	0	0	0	0	0	0	399
17:00	0	0	0	0	105	0	104	0	0	91	43	0	134	0	3	133	72	0	207	0	0	0	0	0	0	440
Hourly Total	0	0	0	0	418	0	418	0	0	330	158	0	488	0	16	511	284	0	811	0	0	0	0	0	0	1717
Approach %	0.0%	0.0%	0.0%	0.0%	100.0%	-	0.0%	0.0%	67.6%	32.4%	-	-	0.0%	0.0%	2.0%	63.0%	35.0%	-	-	-	-	-	-	-	-	-
Total %	0.0%	0.0%	0.0%	0.0%	24.3%	-	24.3%	0.0%	0.0%	17.9%	9.2%	-	28.4%	0.0%	0.9%	27.7%	15.4%	-	47.2%	0.0%	0.0%	0.0%	0.0%	-	0.0%	-
PHF	0	0	0	0	0.92	-	0.92	0	0	0.91	0.84	-	0.89	0	0.15	0.91	0.91	-	0.91	0	0	0	0	0	0	0.91
Light %	0	0	0	0	412	-	412	0	0	329	255	-	488	0	16	507	284	-	811	0	0	0	0	0	0	1700
% Lights	-	-	-	-	98.6%	-	98.6%	-	-	99.7%	96.1%	-	100.0%	-	100.0%	99.2%	98.6%	-	99.1%	-	-	-	-	-	-	99.6%
% Buses	-	-	0	0	6	-	6	-	0	0	2	-	0	-	0	2	2	-	0	-	0	0	0	0	0	12
% Buses	-	-	-	-	1.4%	-	1.4%	-	-	0.0%	1.3%	-	0.4%	-	0.0%	0.4%	0.7%	-	0.5%	-	-	-	-	-	-	0.7%
Trucks	-	-	0	0	5	-	5	-	0	1	1	-	2	-	0	2	1	-	3	-	0	0	0	0	0	10
% Trucks	-	-	-	-	1.2%	-	1.2%	-	-	0.3%	0.6%	-	0.4%	-	0.0%	0.4%	0.4%	-	0.4%	-	-	-	-	-	-	0.6%
% Bicycles	-	-	-	-	0	-	0	-	-	0	0	-	0	-	0	0	0	-	0	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	0	-	0	-	-	0	0	-	0	-	0	0	0	-	0	-	-	-	-	-	-	0



AM Peak Hour - Tremaine Road North & Lower Base Line West

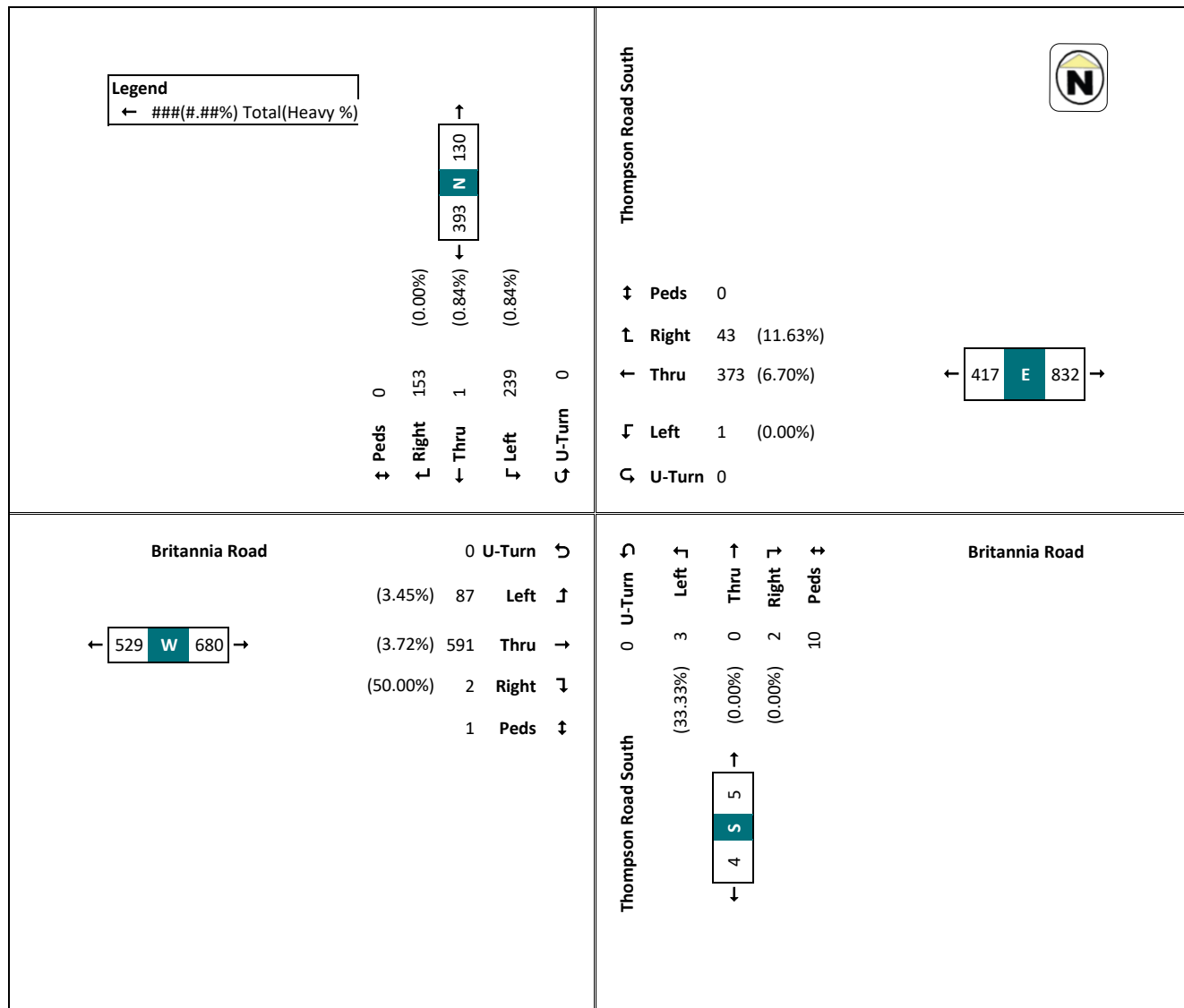
	Tremaine Road North Southbound						Lower Base Line West Westbound						Tremaine Road North Northbound						N/A Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
7:30	0	0	109	0	0	109	0	0	0	0	0	0	0	0	72	0	0	72	0	0	0	0	0	0	181
7:45	0	1	113	0	0	114	0	0	0	0	0	0	0	0	71	0	0	71	0	0	0	0	0	0	185
8:00	0	1	125	0	0	126	0	0	0	0	0	0	0	0	101	0	0	101	0	0	0	0	0	0	226
8:15	0	0	103	0	0	103	0	0	0	1	0	1	0	0	78	0	0	78	0	0	0	0	0	0	182
Hourly Total	0	2	450	0	0	452	0	0	0	2	0	2	0	0	322	0	0	322	0	0	0	0	0	0	776
Approach %	0.0%	0.4%	99.6%	0.0%	-	-	0.0%	0.0%	0.0%	100.0%	-	-	0.0%	0.0%	100.0%	0.0%	-	-	-	-	-	-	-	-	-
Total %	0.0%	0.3%	58.0%	0.0%	-	58.2%	0.0%	0.0%	0.0%	0.3%	-	0.3%	0.0%	0.0%	41.5%	0.0%	-	41.5%	0.0%	0.0%	0.0%	-	-	0.0%	0.85
PHF	0	0.5	0.9	0	-	0.9	0	0	0	0.5	-	0.5	0	0	0.8	0	-	0.8	0	0	0	-	-	0	0.85
Lights	0	2	444	0	-	446	0	0	0	2	-	2	0	0	315	0	-	315	0	0	0	-	-	0	763
% Lights	100.0%	98.7%	98.7%	-	-	98.7%	-	-	-	100.0%	-	100.0%	-	-	97.8%	-	-	97.8%	-	-	-	-	-	-	98.3%
Buses	0	2	0	-	-	2	-	0	0	0	-	0	0	2	0	-	2	-	0	0	0	-	-	0	4
% Buses	0.0%	0.4%	-	-	-	0.4%	-	-	-	0.0%	-	0.0%	-	-	0.6%	-	-	0.6%	-	-	0	0	-	-	0.5%
Trucks	0	4	0	-	-	4	-	0	0	0	-	0	-	5	0	-	5	-	0	0	0	-	-	0	9
% Trucks	0.0%	0.9%	-	-	-	0.9%	-	-	-	0.0%	-	0.0%	-	-	1.6%	-	-	1.6%	-	-	0	0	-	-	1.2%
Bicycles	-	-	-	0	-	0	-	-	-	0	-	0	-	-	-	-	-	-	-	-	0	0	-	-	0
Pedestrians	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0



3

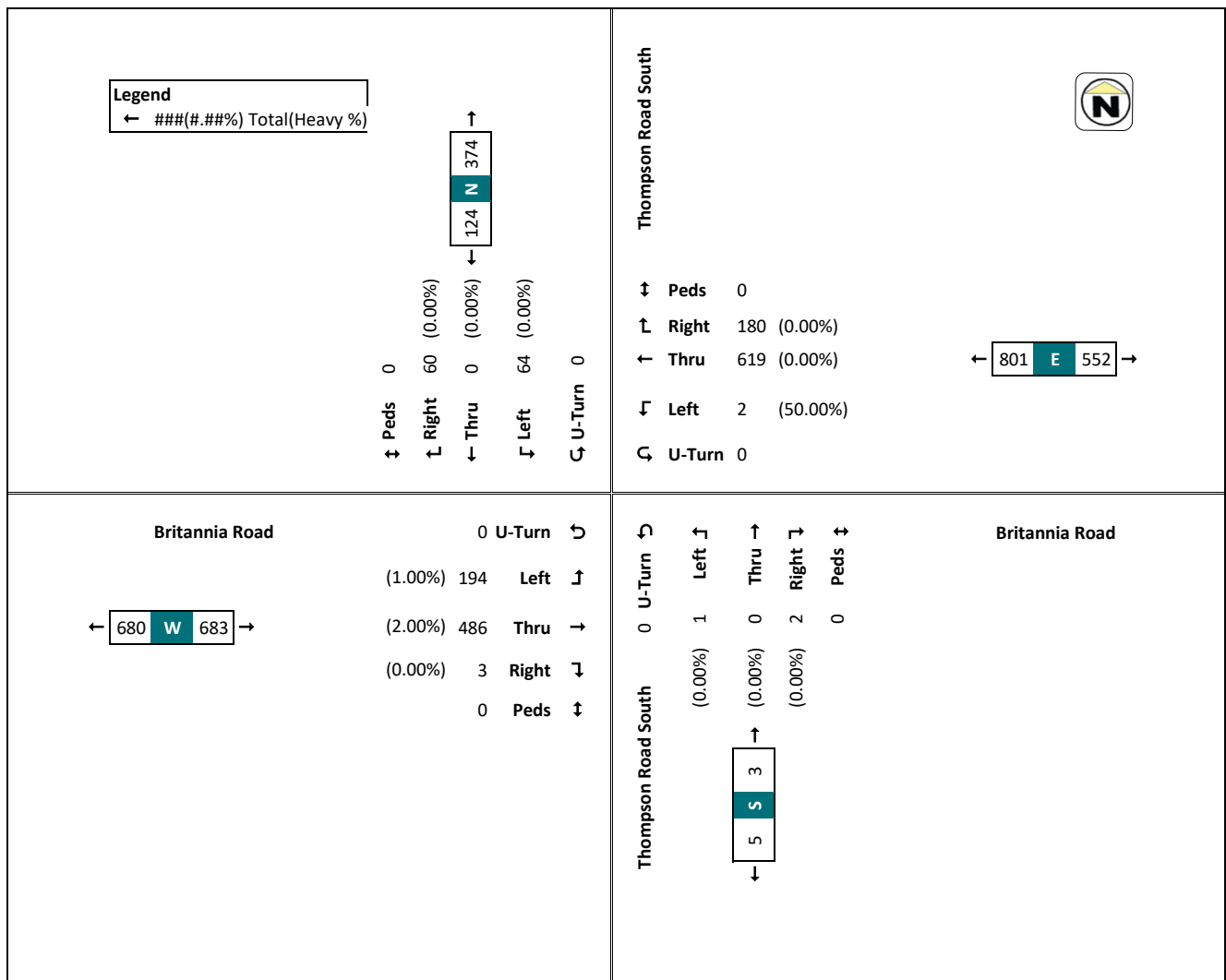
AM Peak Hour - Thompson Road South & Britannia Road

	Thompson Road South Southbound						Britannia Road Northbound						Thompson Road South Northbound						Britannia Road Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
7:45	0	57	0	37	0	94	0	0	105	7	0	112	0	0	0	1	3	0	189	396					
8:00	0	81	0	28	0	109	0	0	92	10	0	102	0	0	0	1	2	1	133	345					
8:15	0	50	1	54	0	105	0	0	98	13	0	111	0	1	0	0	2	1	189	406					
8:30	0	51	0	34	0	85	0	1	52	3	0	55	0	0	0	3	2	0	169	349					
Hourly Total	0	239	1	153	0	393	0	1	373	43	0	417	0	3	0	2	10	5	87	591	0	1	1	680	1495
Approach %	0.0%	60.8%	0.3%	38.9%	-	-	0.0%	0.2%	89.4%	10.3%	-	-	0.0%	60.0%	0.0%	40.0%	-	-	0.0%	12.8%	86.9%	0.3%	-	-	-
Total %	0.0%	16.0%	0.1%	10.2%	-	26.3%	0.0%	0.1%	24.9%	2.9%	-	27.9%	0.0%	0.2%	0.2%	0.0%	0.1%	-	0.3%	0.0%	5.8%	39.5%	0.1%	-	45.5%
PHF	0	0.74	0.25	0.71	-	0.9	0	0.25	0.89	0.83	-	0.93	0	0.38	0	0.5	-	0.63	0	0.7	0.86	0.5	-	0.9	0.92
Lights	0	237	1	146	-	384	0	348	38	4	-	387	0	2	-	0	2	-	84	569	1	-	-	654	1429
% Buses	-	99.2%	100.0%	95.4%	-	97.7%	-	100.0%	93.3%	88.4%	-	92.8%	-	66.7%	-	80.0%	-	80.0%	-	96.6%	98.3%	50.0%	-	5	95.0%
% Trucks	-	1	0	4	-	5	-	0	2	3	-	5	-	1	0	0	3	-	1	14	1	-	-	14	95.0%
% Buses	-	1.4%	0.0%	2.6%	-	1.3%	-	0.0%	0.3%	4.7%	-	0.7%	-	33.3%	-	0.0%	-	20.0%	-	1.1%	0.5%	50.0%	-	0.7%	9.5%
Trucks	-	1	0	3	-	4	-	0	24	3	-	27	-	0	0	0	-	0	-	2	19	0	-	21	5.2%
% Trucks	-	0.4%	0.0%	2.0%	-	1.0%	-	0.0%	6.4%	7.0%	-	6.5%	-	0.0%	-	0.0%	-	0.0%	-	2.3%	3.2%	0.0%	-	3.1%	3.5%
Bicycles	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	0	0	0	0



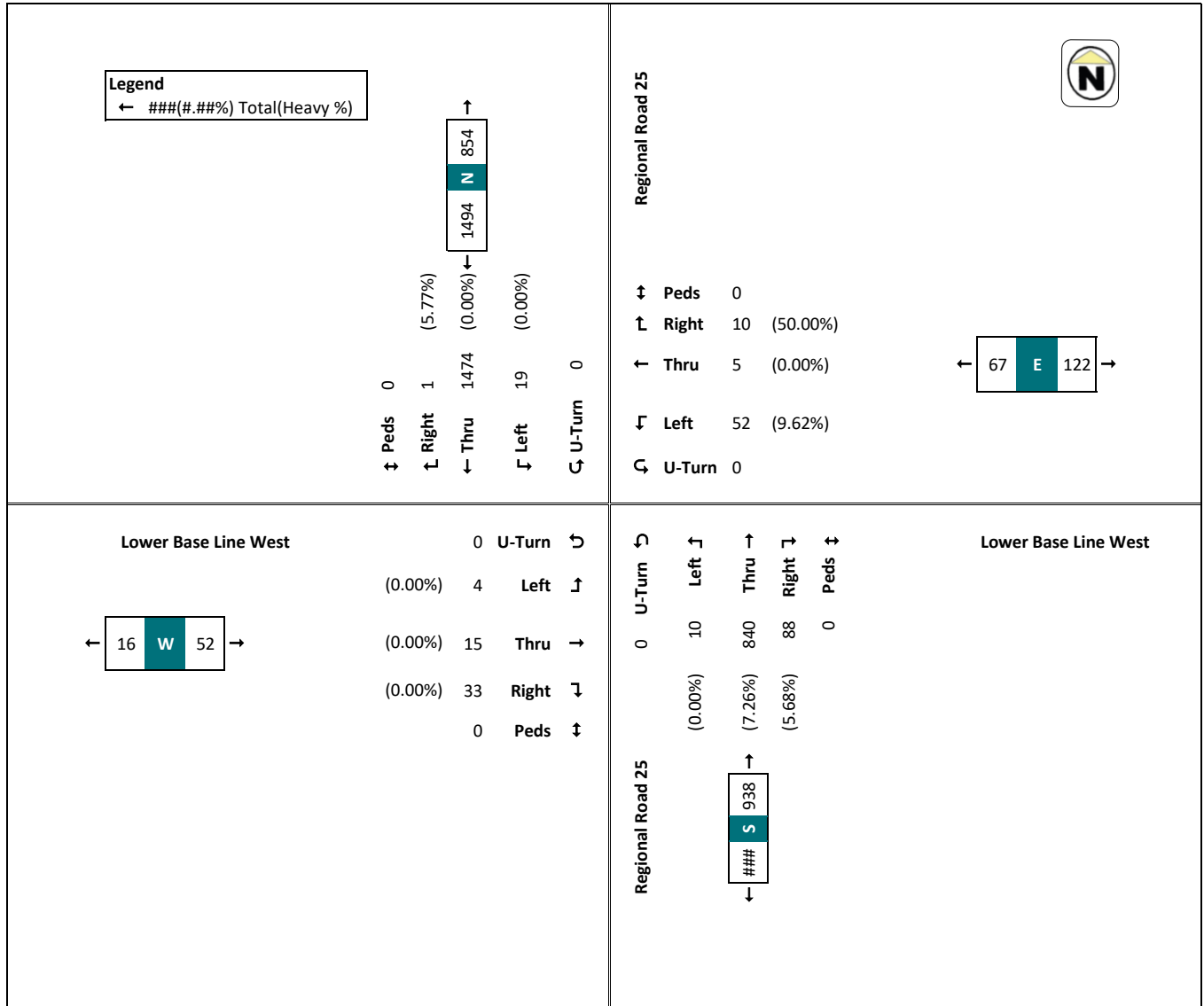
PM Peak Hour - Thompson Road South & Britannia Road

	Thompson Road South Southbound						Britannia Road Westbound						Thompson Road South Northbound						Britannia Road Eastbound							
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total	
16:45	0	18	0	20	0	38	0	1	164	41	0	206	0	0	0	1	0	1	0	0	41	127	0	0	168	413
17:00	0	19	0	8	0	27	0	0	154	51	0	205	0	0	0	0	0	0	0	0	51	120	2	0	173	405
17:15	0	12	0	13	0	25	0	1	142	44	0	187	0	1	0	0	0	1	0	55	116	0	0	171	384	
17:30	0	15	0	19	0	34	0	0	159	44	0	203	0	0	0	1	0	1	0	48	134	1	0	183	421	
Hourly Total	0	64	0	60	0	124	0	2	619	180	0	801	0	1	0	2	0	3	0	195	497	3	0	695	1623	
Approach %	0.0%	51.6%	0.0%	48.4%	-	-	0.0%	0.2%	77.3%	22.5%	-	-	0.0%	33.3%	0.0%	66.7%	-	-	0.0%	28.1%	71.5%	0.4%	-	-	-	-
Total %	0.0%	3.9%	0.0%	3.7%	-	7.6%	0.0%	0.1%	41.4%	11.1%	-	49.4%	0.0%	0.1%	0.0%	0.1%	-	0.2%	0.0%	13.0%	33.2%	0.2%	-	42.8%	-	
PHF	0	0.84	0	0.75	-	0.82	0	0.5	0.94	0.88	-	0.97	0	0.25	0	0.5	-	0.75	0	0.89	0.93	0.38	-	0.95	0.96	
% Lights	0	64	0	60	-	124	0	2	613	180	-	795	0	1	0	2	-	3	0	194	486	3	-	683	1605	
% Trucks	100.0%	-	100.0%	-	-	100.0%	100.0%	99.0%	100.0%	-	99.3%	100.0%	-	100.0%	-	100.0%	-	99.5%	97.8%	100.0%	-	98.3%	-	98.9%	-	
% Buses	0	0	4	-	4	-	0	2	0	-	2	-	0	0	0	0	-	0	-	1	0	0	-	1	7	
% Buses	0.0%	-	6.7%	-	3.2%	-	0.0%	0.3%	0.0%	-	0.2%	-	0.0%	-	0.0%	-	0.0%	-	0.5%	0.0%	0.0%	-	0.1%	0.4%		
% Trucks	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	11	0	0	-	11	35	
% Trucks	0.0%	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.5%	0.0%	-	0.0%	-	0.0%	-	0.0%	2.2%	0.0%	-	1.6%	0.9%		
Bicycles	-	-	-	-	0	0	-	-	-	-	0	-	-	-	-	-	-	0	-	0	0	-	0	0	0	
Pedestrians	-	-	-	-	0	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	0	

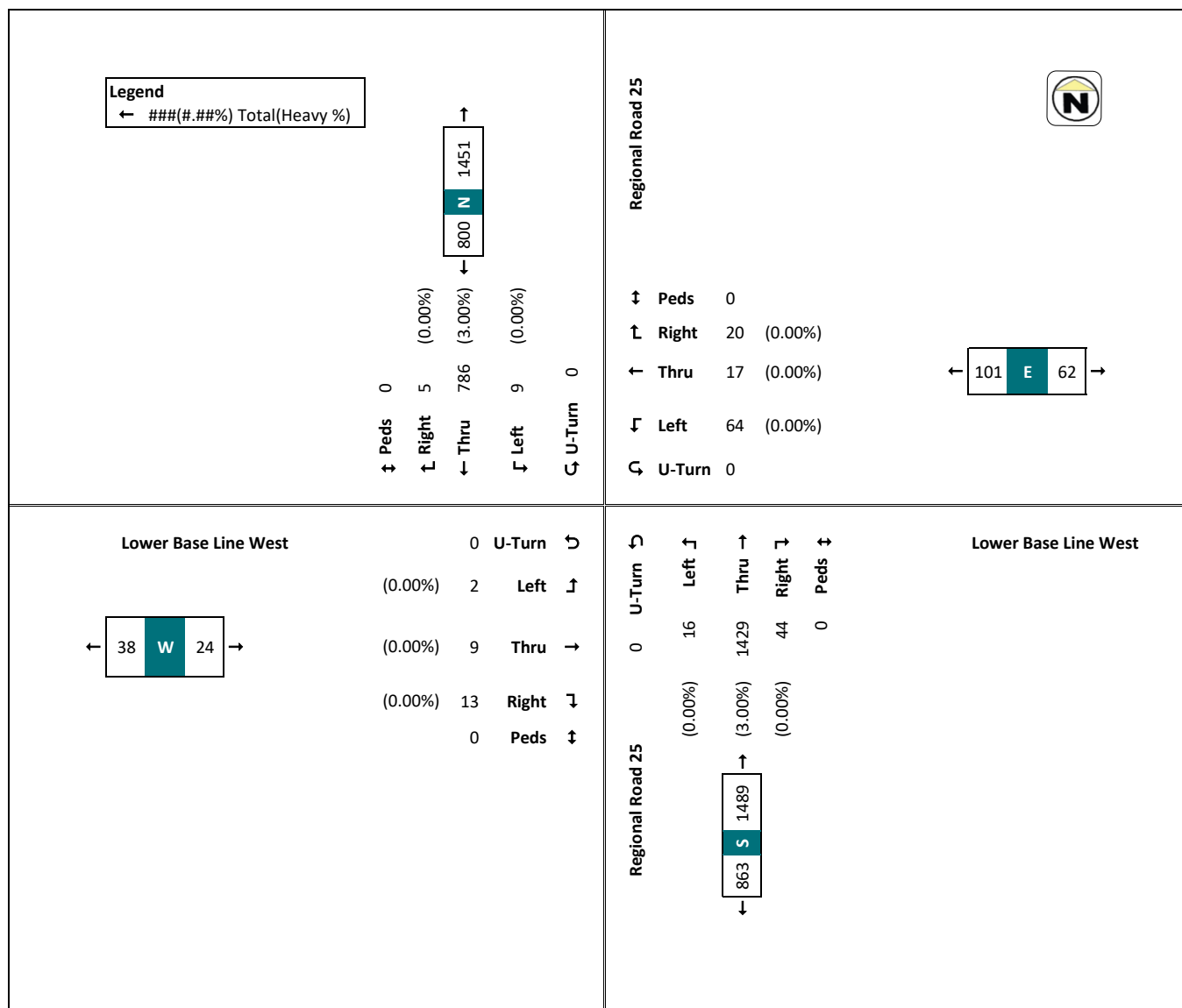


AM Peak Hour - Regional Road 25 & Lower Base Line West

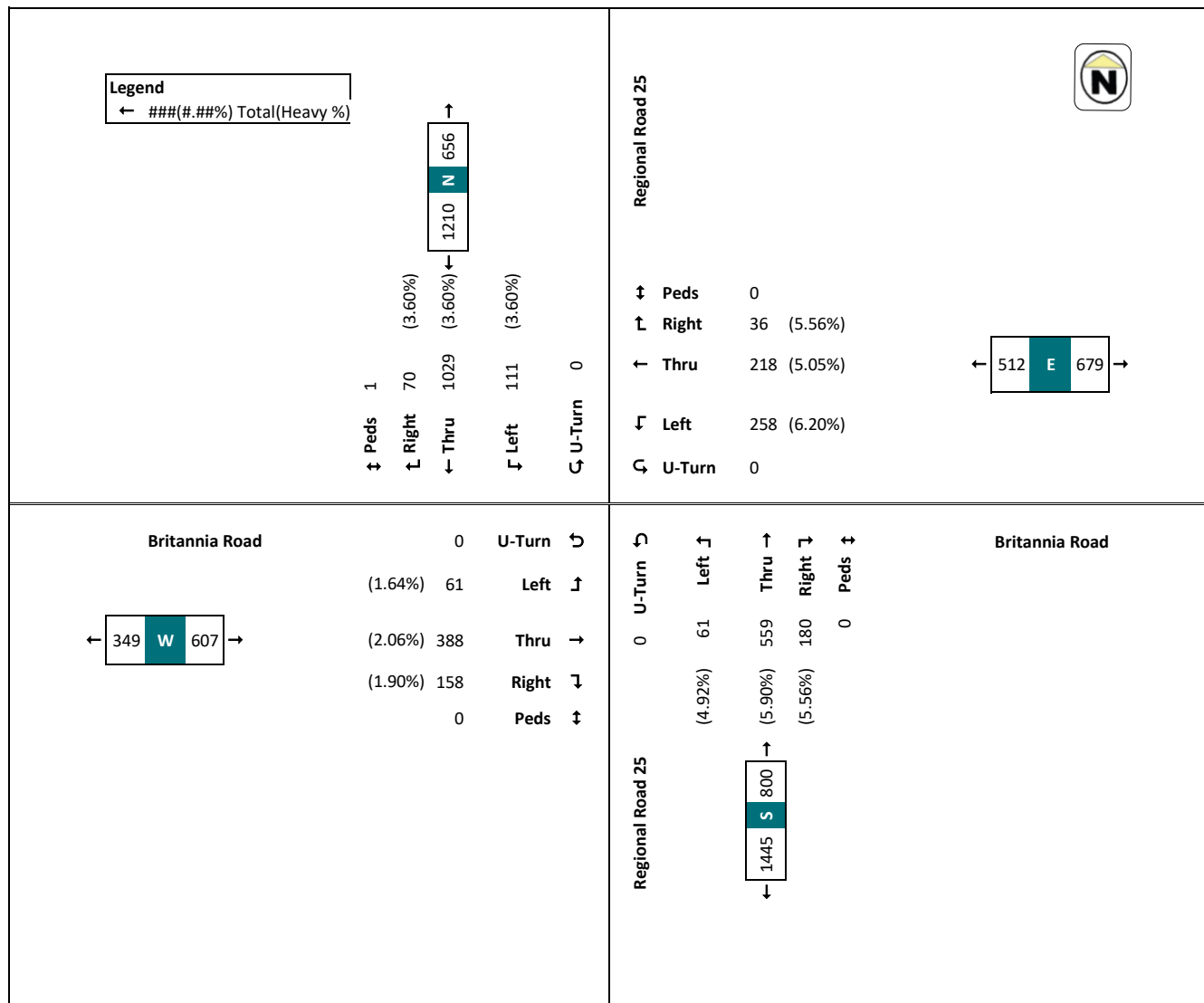
	Regional Road 25					Lower Base Line West										Regional Road 25					Lower Base Line West												
	Southbound					Westbound										Northbound					Eastbound												
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Grand Total
7:30	0	4	362	0	0	366	0	4	0	5	0	9	0	1	215	26	0	242	0	1	5	7	0	13	630	0	0	0	0	0	0	630	
7:45	0	9	366	0	0	375	0	10	2	3	0	15	0	5	214	26	0	246	0	0	7	8	0	15	630	0	0	0	0	0	0	630	
8:00	0	1	362	0	0	363	0	21	2	2	0	25	0	12	217	25	0	237	0	1	1	0	0	1	12	610	0	0	0	0	0	610	
8:15	0	5	362	0	0	367	0	21	0	0	0	22	0	2	214	21	0	237	0	2	5	9	0	16	642	0	0	0	0	0	0	642	
Hourly Total	0	19	1474	1	0	1494	0	52	5	10	0	67	0	10	840	88	0	938	0	4	15	33	0	52	2551	0	0	0	0	0	0	2551	
Approach %	0.0%	1.3%	98.7%	0.1%	-	-	0.0%	77.6%	7.5%	14.9%	-	-	0.0%	1.1%	89.6%	9.4%	-	0.0%	0.7%	48.3%	63.5%	-	-	-	-	-	-	-	-	-	-	-	
Total %	0.0%	0.7%	57.8%	0.0%	58.6%	0.0%	2.0%	0.2%	0.4%	-	-	0.6%	0.0%	0.4%	32.9%	3.4%	36.8%	0.0%	0.2%	0.6%	1.3%	-	2.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Lights	0	0.53	0.95	0.25	0	0.94	0	0.62	0.68	0.5	0	0.74	0	0.38	0.64	0.88	0	0.35	0.73	0.92	0	0.81	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Lights	0	19	1389	1	0	1409	0	47	5	5	0	57	0	13	92	83	0	106	0	4	15	33	0	52	2395	0	0	0	0	0	0	2395	
% Lights	-	100.0%	94.2%	100.0%	-	94.3%	-	90.4%	100.0%	50.0%	-	85.1%	-	100.0%	97.7%	94.3%	-	93.0%	-	100.0%	100.0%	100.0%	-	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Buses	0	14	0	0	0	14	0	2	0	0	0	2	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	22	
% Buses	-	0.0%	0.9%	0.0%	0.9%	0.9%	-	3.8%	0.0%	0.0%	0.0%	3.0%	-	0.0%	0.7%	0.0%	-	0.0%	-	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%		
Trucks	0	0	71	0	0	71	0	5	0	0	0	5	0	0	55	0	0	60	0	0	0	0	0	0	0	0	0	0	0	0	0	139	
% Trucks	-	0.0%	4.8%	0.0%	4.8%	4.8%	-	5.8%	0.0%	0.0%	0.0%	6.5%	-	0.0%	6.1%	0.4%	6.4%	6.5%	-	0.0%	0.0%	0.0%	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



	Regional Road 25 Southbound						Lower Base Line West Westbound						Regional Road 25 Northbound						Lower Base Line West Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
16:45	0	1	189	1	0	191	0	16	6	2	0	24	0	8	349	12	0	369	0	0	1	0	0	1	585
17:00	0	5	187	1	0	193	0	15	7	6	0	28	0	2	360	11	0	373	0	0	3	8	0	11	605
17:15	0	2	236	1	0	239	0	20	3	8	0	31	0	5	360	7	0	373	0	0	2	3	0	5	647
17:30	0	17	174	2	0	193	0	13	1	1	0	15	0	1	360	14	0	375	0	0	3	6	0	2	777
Hourly Total	0	9	786	5	0	800	0	64	17	19	0	101	0	16	1429	44	0	1489	0	2	9	13	0	24	2414
Approach %	0.0%	1.1%	98.3%	0.0%	-	0.0%	63.4%	16.8%	19.8%	-	-	0.0%	1.1%	96.0%	3.0%	-	-	0.0%	8.3%	37.5%	54.2%	-	-	-	-
Total %	0.0%	0.4%	32.6%	0.2%	-	33.1%	0.0%	2.5%	0.7%	0.8%	-	4.2%	0.0%	0.6%	56.0%	1.7%	-	61.7%	0.0%	0.1%	0.4%	0.5%	-	1.0%	-
PHF	0	0.45	0.83	0.63	-	0.84	0	0.8	0.61	0.63	-	0.81	0	0.5	0.99	0.79	-	0.99	0	0.25	0.75	0.41	-	0.55	0.93
Lights	0	2	762	5	-	776	0	64	17	20	-	101	0	16	1383	44	-	1443	0	2	9	13	-	24	2384
% Lights	-	100.0%	96.9%	100.0%	-	97.6%	-	100.0%	100.0%	100.0%	-	100.0%	-	100.0%	94.0%	100.0%	-	100.0%	100.0%	100.0%	100.0%	100.0%	-	30.0%	97.1%
% Buses	0	14	0	0	-	14	0	0	0	0	-	0	0	2	0	0	-	0	0	0	0	0	-	0	0
% Buses	-	0.0%	1.8%	0.0%	-	1.8%	-	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	0.1%	0.0%	-	0.1%	-	0.0%	0.0%	0.0%	-	0.0%	0.7%
Trucks	-	0	23	0	-	23	-	0	0	0	-	0	-	0	44	0	-	44	-	0	0	0	-	0	67
% Trucks	-	0.0%	2.9%	0.0%	-	2.9%	-	0.0%	0.0%	0.0%	-	0.0%	-	0.0%	3.1%	0.0%	-	3.0%	-	0.0%	0.0%	0.0%	-	0.0%	2.8%
BSYCVet	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	-	0	0	-	-	-	0	0	0
BSYCVet	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	-	0	0	-	-	-	0	0	0

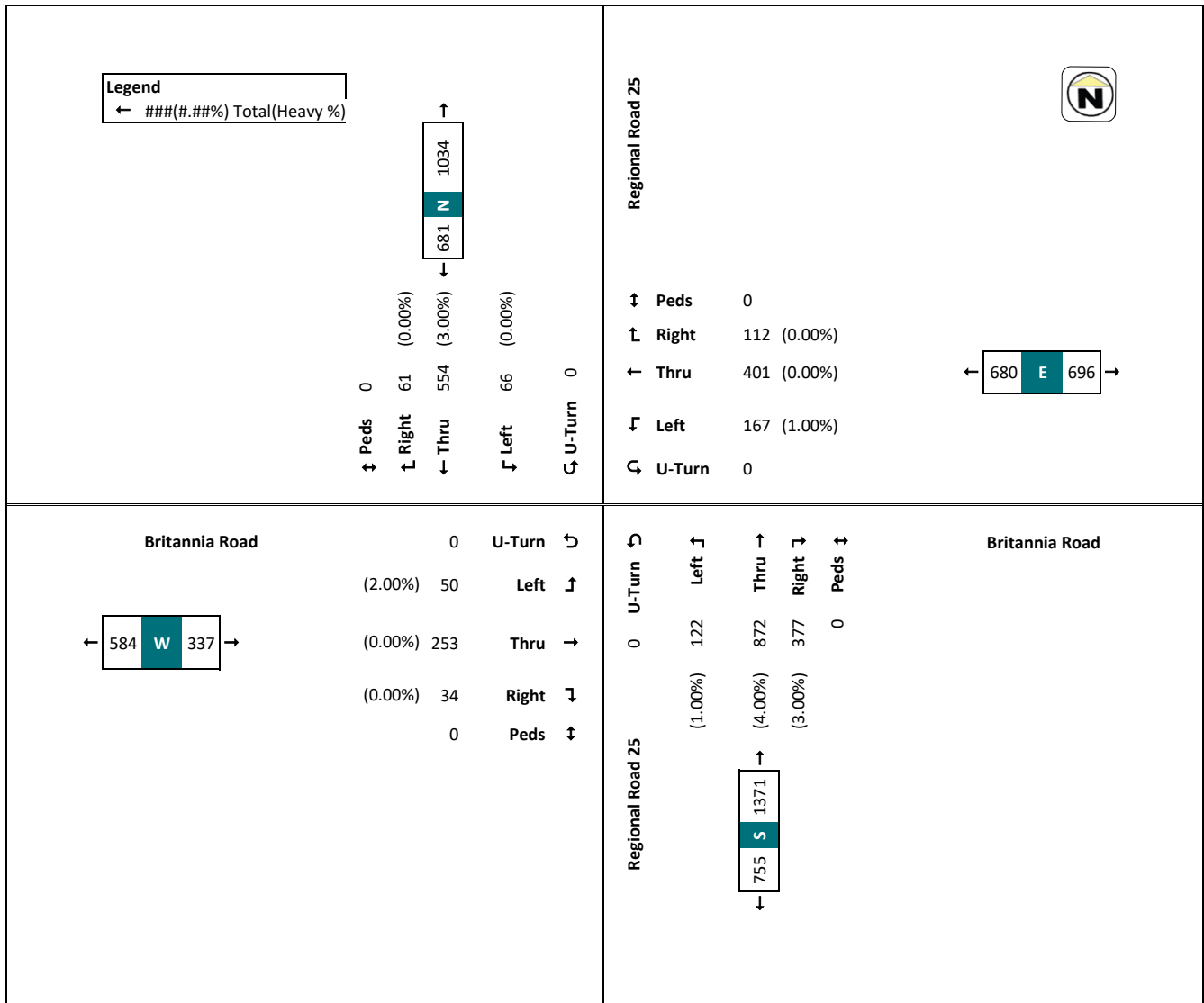


	Regional Road 25 Southbound						Britannia Road Westbound						Regional Road 25 Northbound						Britannia Road Eastbound						
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total
7:45	0	27	262	9	1	298	0	76	48	7	0	131	0	15	143	43	0	201	0	9	119	51	0	179	809
8:00	0	19	282	18	0	319	0	48	55	11	0	114	0	20	139	40	0	199	0	18	70	35	0	123	755
8:15	0	36	254	14	0	304	0	79	59	7	0	144	0	15	136	46	0	197	0	14	98	43	0	155	801
8:30	0	29	291	21	0	289	0	101	21	0	289	0	55	11	141	20	0	176	0	21	51	55	0	150	761
Hourly Total	0	111	1029	70	1	1210	0	258	218	36	0	512	0	61	559	150	0	800	0	61	388	158	0	607	3129
Approach %	0.0%	9.2%	85.0%	5.8%	-	-	0.0%	50.4%	42.6%	7.0%	-	-	0.0%	7.6%	69.9%	22.5%	-	-	0.0%	10.0%	63.9%	26.0%	-	-	-
Total %	0.0%	3.5%	31.2%	2.2%	0.0%	38.7%	0.0%	8.2%	7.0%	1.2%	-	16.4%	0.0%	1.9%	17.9%	5.8%	-	25.6%	0.0%	1.9%	12.4%	5.0%	-	-	19.4%
PHF	0	0.77	0.91	0.6	-	0.95	0	0.82	0.92	0.87	-	0.88	0	0.76	0.98	0.88	-	0.99	0	0.76	0.82	0.77	-	-	0.85
Lights	0	107	992	68	0	1167	0	242	207	34	0	483	0	58	526	170	0	754	0	60	380	155	-	595	2999
% Lights	-	96.4%	96.4%	97.1%	-	96.4%	-	94.8%	95.0%	94.4%	-	94.8%	-	94.1%	94.1%	94.1%	-	94.1%	-	94.1%	87.9%	94.1%	-	-	94.1%
Buses	5	0	0	2	0	7	0	1	0	0	0	6	0	1	0	0	0	0	0	1	0	0	1	0	23
% Buses	-	2.7%	0.5%	2.9%	0.0%	0.8%	-	0.4%	1.8%	2.8%	-	1.2%	-	0.0%	0.7%	0.6%	-	0.6%	-	0.0%	0.3%	0.6%	-	-	0.7%
Trucks	1	32	0	0	0	33	-	15	7	1	-	23	-	3	29	9	-	41	-	1	7	2	-	-	10
% Trucks	-	0.9%	3.1%	0.0%	0.0%	2.7%	-	5.8%	3.2%	2.8%	-	4.5%	-	4.9%	5.2%	5.0%	-	5.1%	-	1.6%	1.8%	1.3%	-	-	3.4%
Bicycles	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	1
Pedestrians	-	-	-	-	1	1	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	0	0	1



PM Peak Hour - Regional Road 25 & Britannia Road

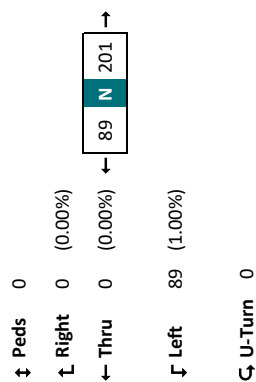
Start Time	Regional Road 25 Southbound						Britannia Road Westbound						Regional Road 25 Northbound						Britannia Road Eastbound						Grand Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
16:45	0	19	124	20	0	163	0	44	91	31	0	166	0	19	224	105	0	348	0	17	33	4	0	54	731
17:00	0	14	131	18	0	163	0	43	123	25	0	191	0	25	193	90	0	318	0	15	98	11	0	124	796
17:15	0	16	183	15	0	214	0	38	76	27	0	141	0	33	238	91	0	362	0	9	56	13	0	78	795
17:30	0	17	116	8	0	141	0	42	111	29	0	182	0	35	217	91	0	343	0	10	66	6	0	82	748
Hourly Total	0	66	554	61	0	681	0	167	401	112	0	680	0	122	872	377	0	1371	0	51	253	34	0	338	3070
Approach %	0.0%	9.7%	81.4%	9.0%	-	0.0%	0.0%	24.6%	59.0%	16.5%	-	0.0%	0.0%	8.9%	63.6%	27.5%	-	0.0%	0.0%	15.1%	74.9%	10.1%	-	-	-
Total %	0.0%	2.1%	18.0%	2.0%	-	22.2%	0.0%	5.3%	12.8%	3.6%	-	22.1%	0.0%	3.9%	27.9%	10.0%	-	44.7%	0.0%	1.6%	8.1%	1.1%	-	11.0%	-
Pct	0	0.87	0.76	0.76	-	0.8	0	0.95	0.82	0.9	-	0.89	0	0.87	0.92	0.9	-	0.95	0	0.75	0.65	0.65	-	0.68	0.96
Lights	0	66	535	61	-	662	0	163	399	112	-	674	0	121	835	364	-	1320	0	50	253	34	-	337	2993
% Lights	-	100.0%	96.6%	100.0%	-	97.2%	-	97.6%	99.5%	100.0%	-	99.1%	-	99.2%	95.8%	96.6%	-	96.3%	-	98.0%	100.0%	100.0%	-	99.7%	97.5%
Busies	0	5	2	7	-	14	0	2	2	0	-	4	0	2	1	3	-	3	-	0	0	0	-	3	13
% Buses	0.0%	0.9%	3.3%	1.0%	-	0.0%	0.5%	0.5%	0.0%	0.0%	-	0.3%	0.0%	0.2%	0.2%	0.3%	-	0.2%	-	2.0%	0.0%	0.0%	-	0.3%	0.4%
Trucks	0	18	0	-	-	18	0	4	0	0	-	4	0	1	35	12	-	48	-	0	0	0	-	0	20
% Trucks	-	0.0%	3.2%	0.0%	-	2.6%	-	2.4%	0.0%	0.0%	-	0.6%	-	0.8%	4.0%	3.2%	-	3.5%	-	0.0%	0.0%	0.0%	-	0.0%	2.3%
Bicycles	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	-	0	-	-	-	-	0	0	0
Pedestrians	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	-	0	-	-	-	-	0	0	0



2

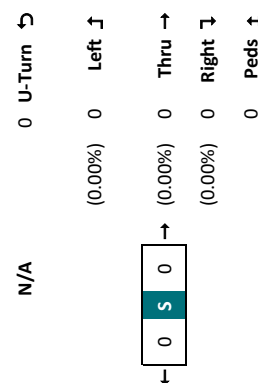
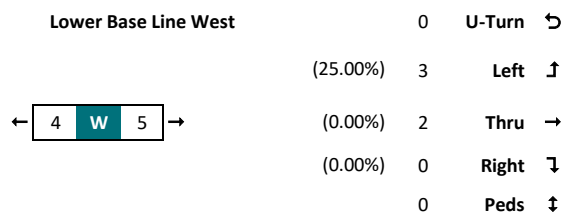
Legend

← ###(#.##%) Total(Heavy %)



First Line

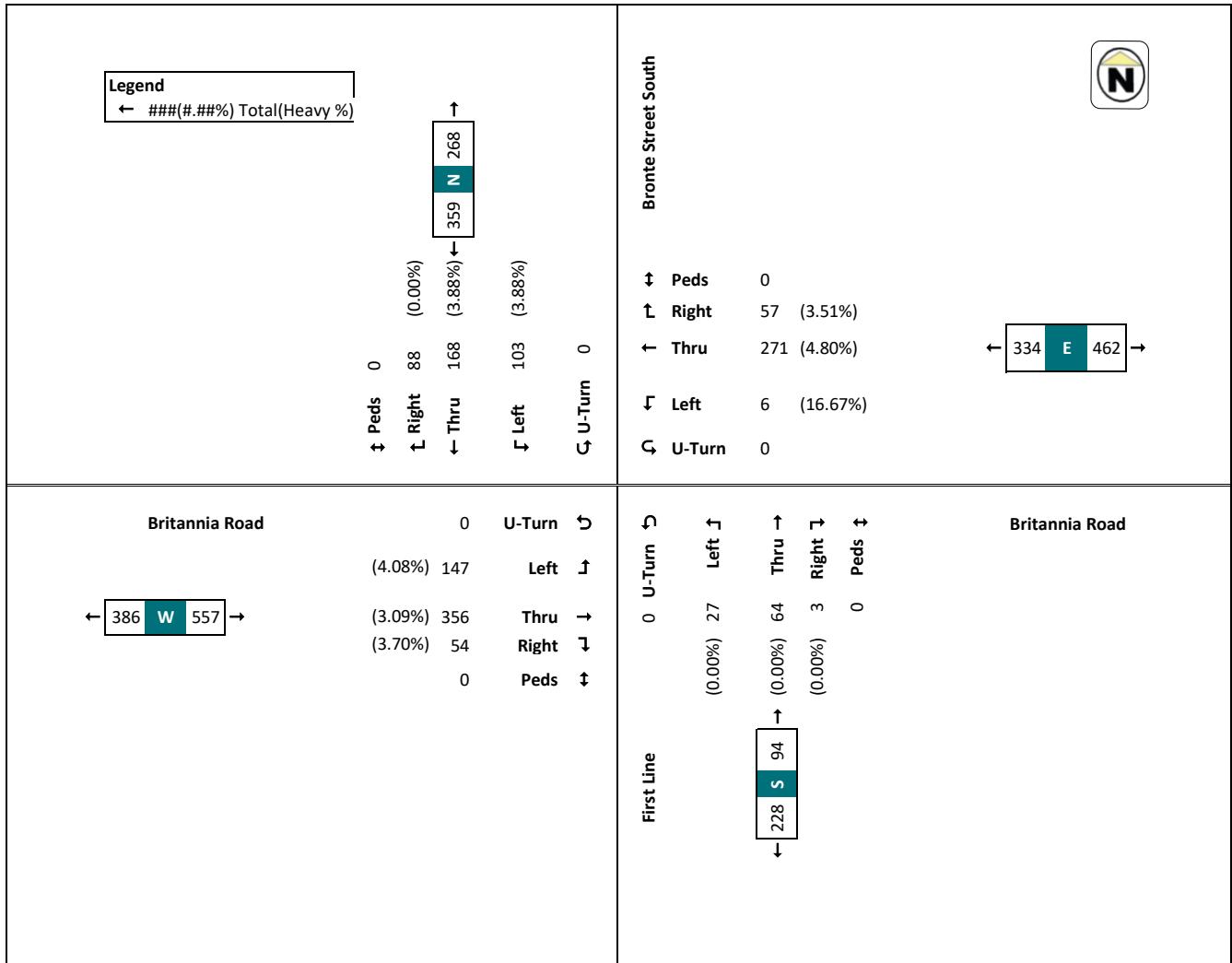
↕	Peds	0	
↗	Right	198	(1.00%)
←	Thru	4	(0.00%)
↘	Left	0	(0.00%)
↻	U-Turn	0	



Lower Base Line West

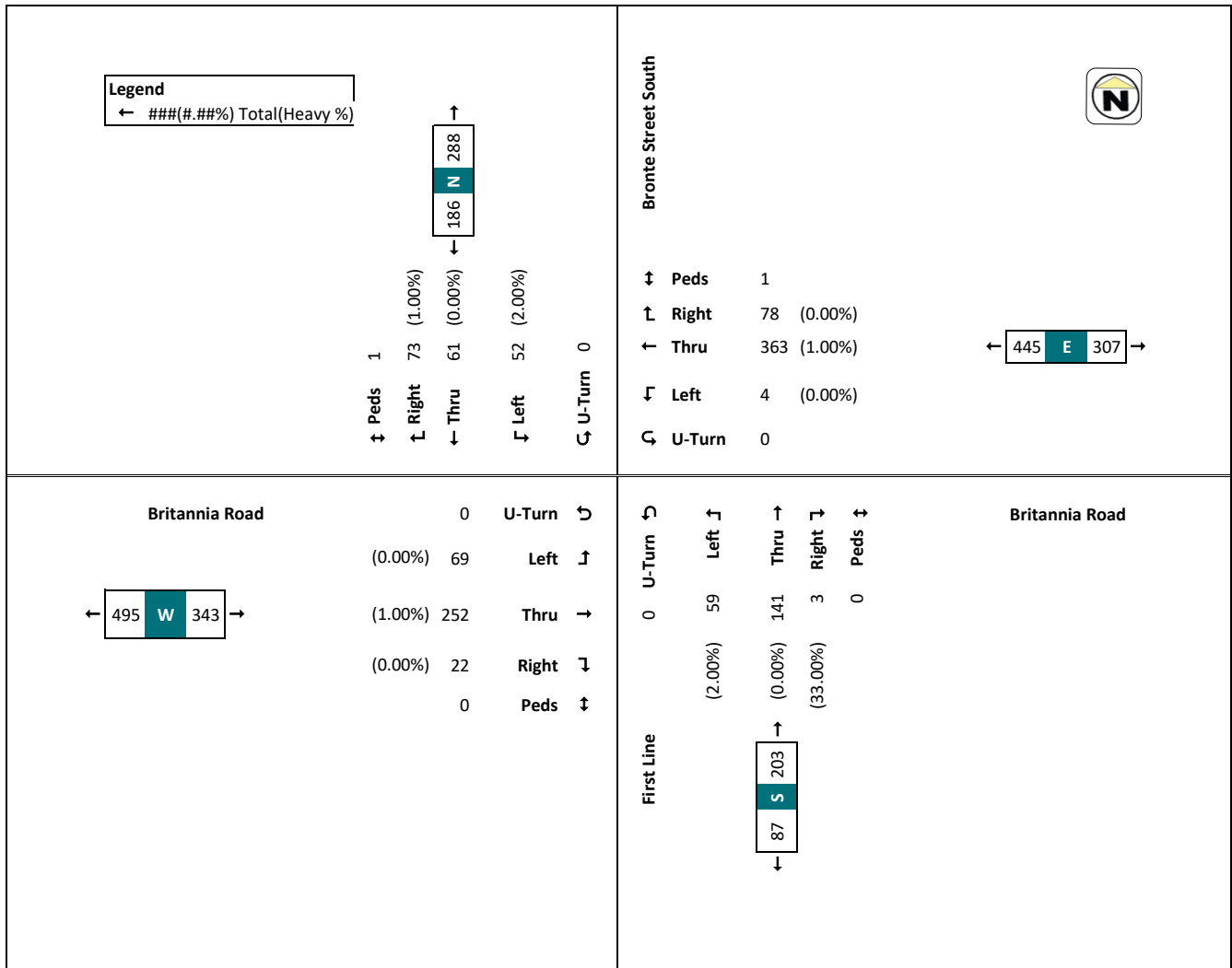
AM Peak Hour - First Line & Britannia Road

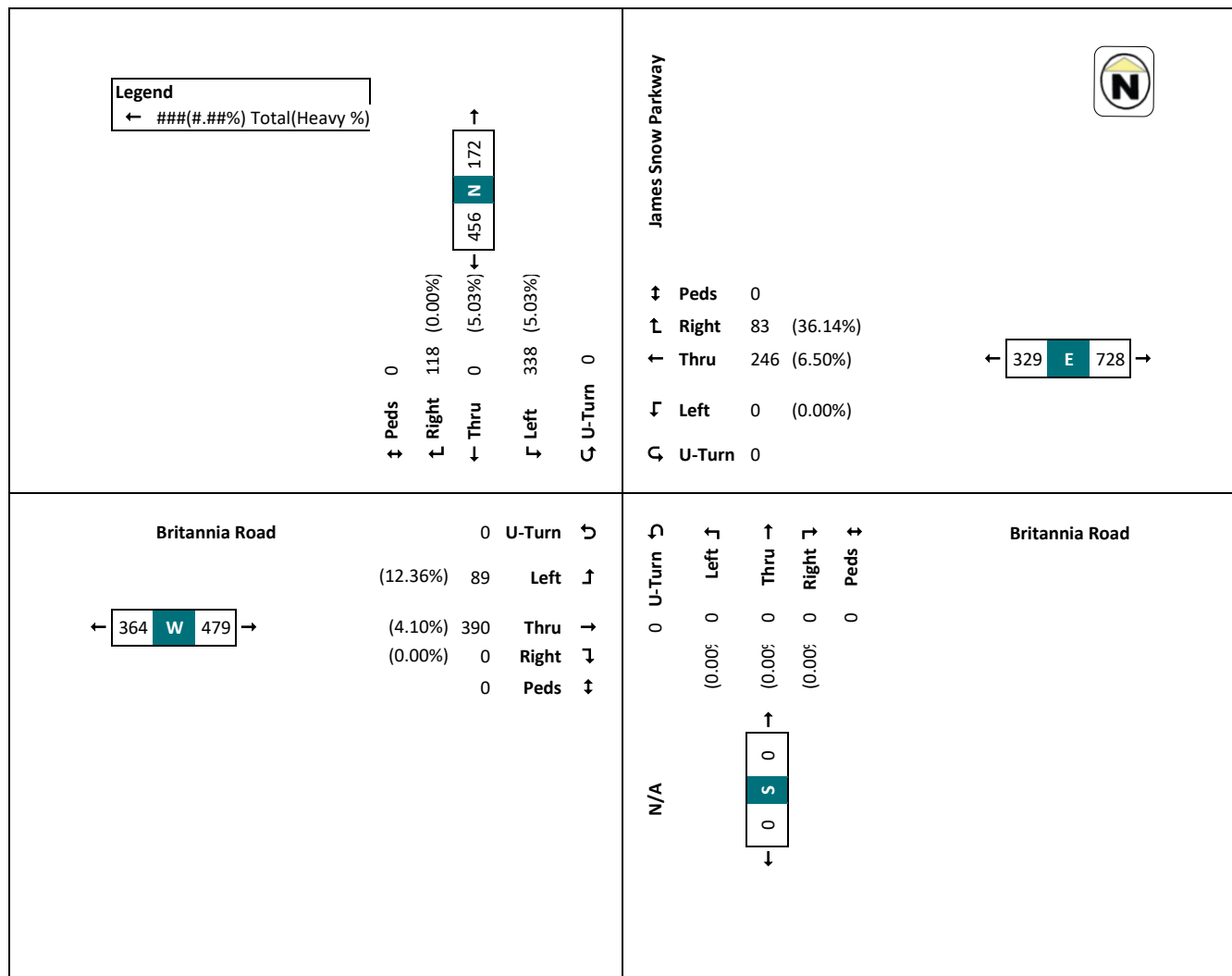
	Bronte Street South Southbound					Britannia Road Westbound					First Line Northbound					Britannia Road Eastbound										
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total	
7:45	0	21	40	10	0	71	0	0	56	7	0	63	0	9	9	0	0	18	0	26	91	15	0	132	284	
8:00	0	22	50	20	0	92	0	6	57	16	0	74	0	6	19	0	0	25	0	40	79	12	0	135	331	
8:15	0	22	44	22	0	88	0	0	72	18	0	90	0	10	18	1	0	29	0	46	40	14	0	124	359	
8:30	0	32	34	36	0	102	0	0	86	16	0	102	0	8	16	2	0	26	0	31	96	13	0	140	370	
Hourly Total	0	103	168	88	0	359	0	6	271	57	0	334	0	27	64	3	0	94	0	147	356	54	0	557	1344	
Approach %	0.0%	28.7%	46.8%	24.5%	-	26.7%	0.0%	1.8%	81.1%	17.1%	-	28.7%	0.0%	28.7%	68.1%	3.2%	-	0.0%	26.4%	63.9%	9.7%	-	-	-	41.4%	
Total %	0.0%	7.7%	12.5%	6.5%	-	25.0%	0.0%	0.4%	20.2%	4.2%	-	24.9%	0.0%	2.0%	4.8%	0.2%	-	7.0%	0.0%	10.9%	26.5%	4.0%	-	-	41.4%	
Other	0	0	0.84	0.61	0	0.00	0	0.25	0.73	0.79	-	0.00	0	0.75	0.81	0.38	0	0.00	0.93	0.93	0.9	0	0	0	0.93	
Lights	0	99	168	84	0	351	0	5	258	55	0	318	0	27	55	64	3	0	141	345	52	0	0	0	538	
% Lights	0	96.1%	100.0%	95.5%	0	97.8%	0	83.3%	95.2%	96.5%	0	95.2%	0	100.0%	100.0%	100.0%	0	100.0%	95.9%	96.9%	96.3%	-	0	0	96.8%	
Busess	2	0	4	0	0	6	1	1	4	1	0	6	0	0	0	0	0	0	6	2	1	1	0	0	9	21
% Buses	1.9%	0.0%	4.5%	0	0	1.7%	0	16.7%	1.5%	1.8%	0	1.8%	0	0.0%	0.0%	0.0%	0.0%	0.0%	4.1%	0.6%	1.9%	0	0	0	1.6%	
Trucks	2	0	0	0	0	2	0	0	9	1	0	10	0	0	0	0	0	0	0	9	1	0	10	0	22	
% Trucks	1.9%	0.0%	0.0%	0	0	0.6%	0	0.0%	3.3%	1.8%	0	3.0%	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	1.9%	0	1.8%	1.8%	1.6%	
Bicycles	-	-	-	-	1	1	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	
Pedestrians	-	-	-	-	0	0	-	-	-	-	0	0	-	-	-	-	-	-	0	0	0	0	0	0	0	

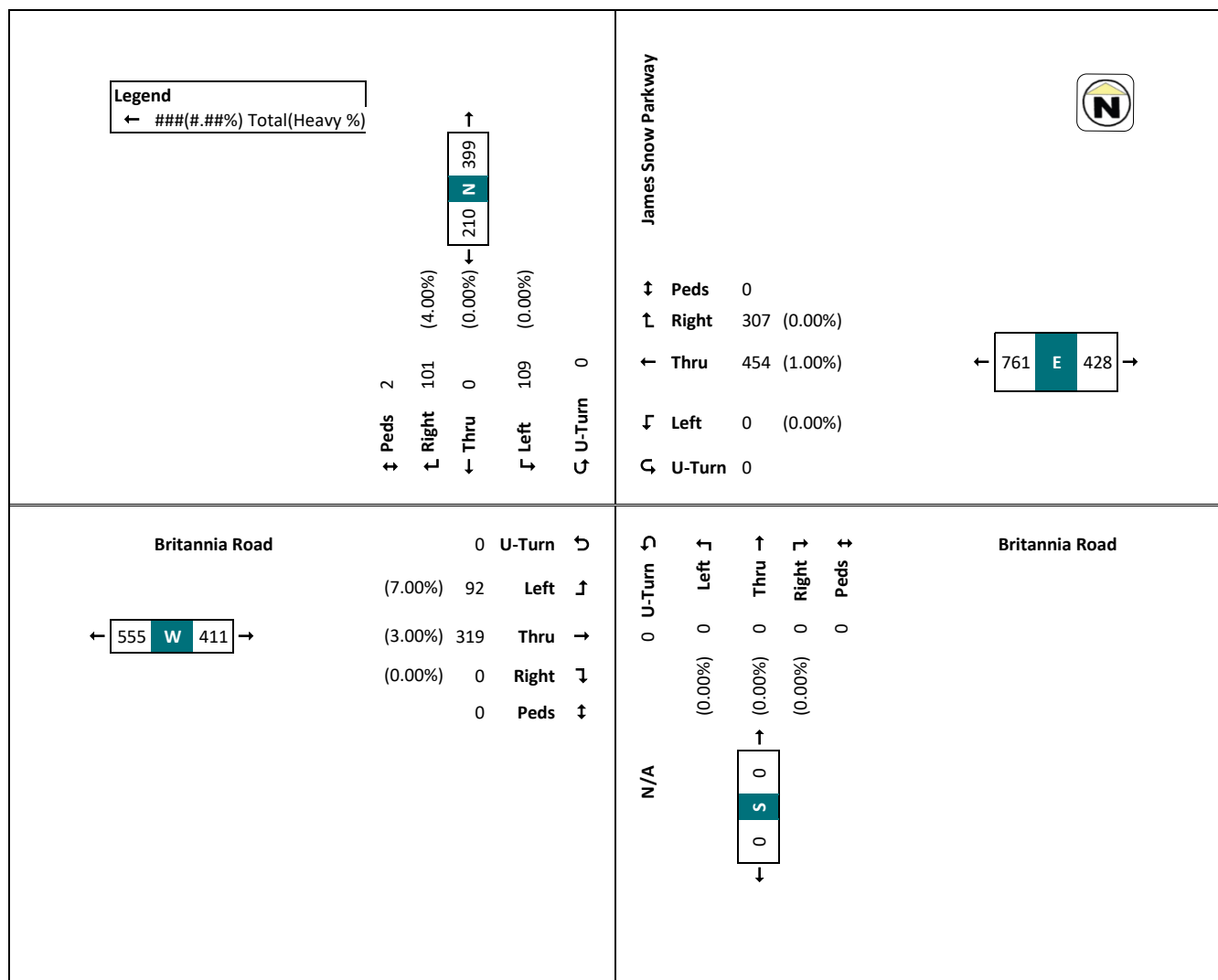


PM Peak Hour - First Line & Britannia Road

	Bronte Street South Southbound						Brittania Road Northbound						First Line Northbound						Brittania Road Eastbound							
Start Time	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	Grand Total	
16:15	-	0	13	10	22	0	45	0	2	94	17	21	1	113	0	34	20	0	53	0	17	63	6	0	86	297
16:30	-	0	17	15	21	0	53	0	0	84	20	0	104	0	19	20	0	0	39	0	14	52	5	0	71	280
16:45	-	0	4	14	14	1	33	0	1	88	21	0	110	0	14	15	0	0	51	0	21	61	6	0	88	285
17:00	-	0	18	22	16	1	56	0	1	97	19	0	117	0	11	32	1	0	44	0	17	78	5	0	100	317
Hourly Total	0	52	61	73	1	186	0	4	363	78	1	445	0	59	141	3	0	203	0	69	254	22	0	345	1179	
Approach %	-0.0%	28.0%	32.8%	39.2%	-	15.8%	0.0%	0.9%	81.6%	17.5%	-	37.7%	0.0%	29.1%	69.5%	1.5%	-	0.0%	20.0%	73.6%	6.4%	-	-	-	29.3%	
Total %	0.0%	4.4%	5.2%	6.2%	-	45.8%	0.0%	0.3%	27.0%	6.6%	-	37.7%	0.0%	4.4%	10.5%	0.2%	-	0.12%	0.8%	18.9%	1.6%	-	-	-	29.3%	
Light %	-	0	0.7	0.8	0.83	0	0.8	0	0.5	0.94	0.93	-	0.72	0	0.8	0.98	0	0.09	0.82	0.93	0	0.32	-	0	0.93	
Light %	-	0	51	61	22	1	148	0	4	359	76	1	439	0	69	141	2	0	201	69	252	22	0	343	1176	
% Lights	-	98.1%	100.0%	98.6%	-	98.9%	-	100.0%	98.9%	97.4%	-	98.7%	-	98.3%	100.0%	66.7%	-	99.0%	100.0%	99.2%	100.0%	-	-	-	99.4%	99.0%
% Buses	-	0	0	4	-	4	-	0	2	0	-	2	-	1	0	0	-	1	0	1	0	-	-	-	1	8
% Buses	-	0.0%	0.0%	5.5%	-	2.2%	-	0.0%	0.6%	0.0%	-	0.4%	-	1.7%	0.0%	0.0%	-	0.5%	-	0.0%	0.4%	0.0%	-	-	0.3%	0.7%
Trucks	-	1	0	1	-	2	-	0	2	2	-	4	-	0	0	1	-	1	-	1	0	-	-	-	1	8
% Trucks	-	1.9%	0.0%	1.4%	-	1.1%	-	0.0%	0.6%	2.6%	-	0.9%	-	0.0%	0.0%	33.3%	-	0.5%	-	0.0%	0.4%	0.0%	-	-	0.3%	0.7%
% Bicycles	-	-	-	0	-	0	-	-	0	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	0
Pedestrians	-	-	-	1	0	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	1



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Regional Rd 25 @ Lower Base Line

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Halton Region

Site #: 1027720100

Intersection: Regional Rd 25 & Lower Base Line

TFR File #: 9

Count date: 10-Nov-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Regional Rd 25 runs N/S

North Leg Total: 2247

North Entering: 1392

North Peds: 0

Peds Cross: $\times$

Heavys	1	90	1	92
Trucks	1	10	0	11
Cars	1	1259	29	1289
Totals	3	1359	30	

Heavys 76

Trucks 11

Cars 768

Totals 855

East Leg Total: 313

East Entering: 92

East Peds: 0

Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
2	1	22	25

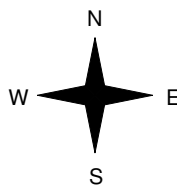


Lower Base Line

Heavys	Trucks	Cars	Totals
2	0	20	22
0	3	91	94
0	0	29	29
2	3	140	



Regional Rd 25



Cars	Trucks	Heavys	Totals
4	0	2	6
13	0	0	13
69	2	2	73
86	2	4	

Lower Base Line



Cars	Trucks	Heavys	Totals
213	4	4	221

Peds Cross: $\times$

West Peds: 0

West Entering: 145

West Leg Total: 170

Cars	1357	Cars	8	744	93	845
Trucks	12	Trucks	0	11	1	12
Heavys	92	Heavys	1	72	3	76
Totals	1461	Totals	9	827	97	

Peds Cross: $\times$

South Peds: 0

South Entering: 933

South Leg Total: 2394

Comments

Regional Rd 25 @ Lower Base Line

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: Halton Region

Site #: 1027720100

Intersection: Regional Rd 25 & Lower Base Line

TFR File #: 9

Count date: 10-Nov-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Regional Rd 25 runs N/S

North Leg Total: 2222

North Entering: 786

North Peds: 0

Peds Cross: $\nlessgtr$

Heavys	0	15	0	15
Trucks	0	4	0	4
Cars	9	743	15	767
Totals	9	762	15	

Heavys	33
Trucks	7
Cars	1396
Totals	1436

East Leg Total: 341

East Entering: 197

East Peds: 0

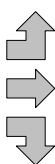
Peds Cross: $\nlessgtr$

Heavys	Trucks	Cars	Totals
0	1	108	109

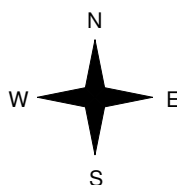


Lower Base Line

Heavys	Trucks	Cars	Totals
0	0	14	14
0	0	54	54
0	0	19	19
0	0	87	



Regional Rd 25



Cars	Trucks	Heavys	Totals
22	0	0	22
85	1	0	86
88	0	1	89
195	1	1	

Lower Base Line



Cars	Trucks	Heavys	Totals
144	0	0	144

Peds Cross: $\nlessgtr$

West Peds: 0

West Entering: 87

West Leg Total: 196

Cars	850	Cars	14	1360	75	1449
Trucks	4	Trucks	0	7	0	7
Heavys	16	Heavys	0	33	0	33
Totals	870	Totals	14	1400	75	



Peds Cross: $\nlessgtr$

South Peds: 0

South Entering: 1489

South Leg Total: 2359

Comments

Britannia Rd @ James Snow Pkwy

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: Halton Region

Site #: 1001880100

Intersection: Britannia Rd & James Snow Pkwy

TFR File #: 7

Count date: 10-Nov-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Britannia Rd runs W/E

North Leg Total: 588

North Entering: 428

North Peds: 0

Peds Cross: $\times$

Heavys	9	3	12
Trucks	2	1	3
Cars	45	368	413
Totals	56	372	

Heavys	17
Trucks	0
Cars	143
Totals	160

East Leg Total: 1135

East Entering: 344

East Peds: 0

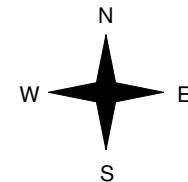
Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
21	6	277	304



Britannia Rd

Heavys	Trucks	Cars	Totals
12	0	52	64
7	0	412	419
19	0	464	



James Snow Pkwy

Cars	Trucks	Heavys	Totals
91	0	5	96
232	4	12	248
323	4	17	

Britannia Rd



Cars	Trucks	Heavys	Totals
780	1	10	791

Peds Cross: $\times$

West Peds: 0

West Entering: 483

West Leg Total: 787

Comments

Britannia Rd @ James Snow Pkwy

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: Halton Region

Site #: 1001880100

Intersection: Britannia Rd & James Snow Pkwy

TFR File #: 7

Count date: 10-Nov-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Britannia Rd runs W/E

North Leg Total: 856

North Entering: 332

North Peds: 0

Peds Cross: $\times$

	Heavys	Trucks	Cars	Totals
West	2	0	63	65
East	6	0	261	267
North	8	0	324	332



Heavys 7

Trucks 0

Cars 517

Totals 524

East Leg Total: 1676

East Entering: 945

East Peds: 0

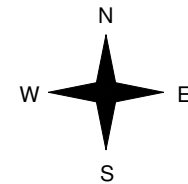
Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
5	0	552	557



Britannia Rd

Heavys	Trucks	Cars	Totals
2	0	69	71
9	3	452	464
11	3	521	534



James Snow Pkwy



Cars	Trucks	Heavys	Totals
448	0	5	453
489	0	3	492
937	0	8	945

Britannia Rd



Cars	Trucks	Heavys	Totals
713	3	15	731

Peds Cross: $\times$

West Peds: 0

West Entering: 535

West Leg Total: 1092

Comments

Britannia Rd @ Thompson Rd S

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Halton Region

Site #: 1001810100

Intersection: Britannia Rd & Thompson Rd S

TFR File #: 5

Count date: 10-Nov-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Britannia Rd runs W/E

North Leg Total: 482

North Entering: 344

North Peds: 0

Peds Cross: $\times$

Heavys	13	0	4	17
Trucks	0	0	1	1
Cars	113	1	212	326
Totals	126	1	217	



Heavys 8

Trucks 2

Cars 128

Totals 138

East Leg Total: 1100

East Entering: 366

East Peds: 0

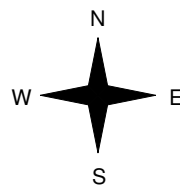
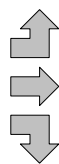
Peds Cross: $\times$

Heavys	Trucks	Cars	Totals
48	8	377	433



Britannia Rd

Heavys	Trucks	Cars	Totals
7	0	70	77
33	5	476	514
0	0	2	2
40	5	548	



Thompson Rd S

Thompson Rd S

Cars	Trucks	Heavys	Totals
57	2	1	60
263	8	35	306
0	0	0	0
320	10	36	

Britannia Rd



Cars	Trucks	Heavys	Totals
691	6	37	734

Peds Cross: $\times$

West Peds: 1

West Entering: 593

West Leg Total: 1026

Cars	3
Trucks	0
Heavys	0
Totals	3



Cars	1	1	3	5
Trucks	0	0	0	0
Heavys	0	0	0	0
Totals	1	1	3	

Peds Cross: $\times$

South Peds: 1

South Entering: 5

South Leg Total: 8

Comments

Britannia Rd @ Thompson Rd S

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: Halton Region

Site #: 1001810100

Intersection: Britannia Rd & Thompson Rd S

TFR File #: 5

Count date: 10-Nov-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Britannia Rd runs W/E

North Leg Total: 428

North Entering: 165

North Peds: 0

Peds Cross: $\nlessgtr$

Heavys	2	0	1	3
Trucks	0	1	0	1
Cars	79	2	80	161
Totals	81	3	81	

Heavys 3

Trucks 0

Cars 260

Totals 263

East Leg Total: 1344

East Entering: 739

East Peds: 0

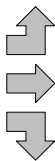
Peds Cross: $\nlessgtr$

Heavys	Trucks	Cars	Totals
10	0	674	684



Britannia Rd

Heavys	Trucks	Cars	Totals
2	0	124	126
12	2	510	524
0	0	1	1
14	2	635	



Thompson Rd S

Cars	Trucks	Heavys	Totals
135	0	0	135
595	0	8	603
1	0	0	1
731	0	8	

Britannia Rd



Cars	Trucks	Heavys	Totals
590	2	13	605

Peds Cross: $\nlessgtr$

West Peds: 0

West Entering: 651

West Leg Total: 1335

Cars	4
Trucks	1
Heavys	0
Totals	5



Cars	0	1	0	1
Trucks	0	0	0	0
Heavys	0	1	0	1
Totals	0	2	0	

Peds Cross: $\nlessgtr$

South Peds: 0

South Entering: 2

South Leg Total: 7

Comments

Britannia Rd @ Regional Rd 25

Morning Peak Diagram

Specified Period

From: 7:00:00

To: 9:00:00

One Hour Peak

From: 7:30:00

To: 8:30:00

Municipality: Halton Region

Site #: 0000003408

Intersection: Regional Rd 25 & Britannia Rd

TFR File #: 17

Count date: 9-Dec-2019

Weather conditions:

Overcast/Wet

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Regional Rd 25 runs N/S

North Leg Total: 2279

North Entering: 1475

North Peds: 0

Peds Cross: $\nlessgtr$

Heavys	3	48	0	51
Trucks	0	8	1	9
Cars	8	1168	239	1415
Totals	11	1224	240	

Heavys 23

Trucks 18

Cars 763

Totals 804

East Leg Total: 1258

East Entering: 514

East Peds: 0

Peds Cross: $\nlessgtr$

Heavys	Trucks	Cars	Totals
5	1	188	194

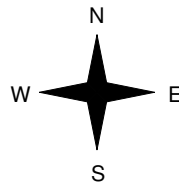


Britannia Rd

Heavys	Trucks	Cars	Totals
3	0	51	54
2	1	334	337
2	1	235	238
7	2	620	



Regional Rd 25



Cars	Trucks	Heavys	Totals
87	2	0	89
135	0	1	136
270	5	14	289
492	7	15	

Britannia Rd



Cars	Trucks	Heavys	Totals
733	4	7	744

Peds Cross: $\nlessgtr$

West Peds: 0

West Entering: 629

West Leg Total: 823

Cars 1673

Trucks 14

Heavys 64

Totals 1751



Cars	45	625	160	830
Trucks	1	16	2	19
Heavys	1	20	5	26
Totals	47	661	167	

Peds Cross: $\nlessgtr$

South Peds: 0

South Entering: 875

South Leg Total: 2626

Comments

Britannia Rd @ Regional Rd 25

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: Halton Region

Site #: 0000003408

Intersection: Regional Rd 25 & Britannia Rd

TFR File #: 17

Count date: 9-Dec-2019

Weather conditions:

Overcast/Wet

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Regional Rd 25 runs N/S

North Leg Total: 2040

North Entering: 698

North Peds: 0

Peds Cross: $\nlessgtr$

Heavys	0	12	0	12
Trucks	0	8	1	9
Cars	42	542	93	677
Totals	42	562	94	



Heavys 27

Trucks 5

Cars 1310

Totals 1342

East Leg Total: 1403

East Entering: 857

East Peds: 0

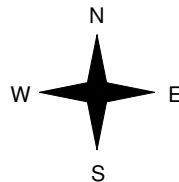
Peds Cross: $\nlessgtr$

Heavys	Trucks	Cars	Totals
2	1	643	646



Britannia Rd

Heavys	Trucks	Cars	Totals
2	0	30	32
0	0	138	138
0	0	35	35
2	0	203	



Regional Rd 25

Regional Rd 25

Cars	Trucks	Heavys	Totals
249	1	1	251
394	1	1	396
206	2	2	210
849	4	4	

Britannia Rd



Cars	Trucks	Heavys	Totals
538	3	5	546

Peds Cross: $\nlessgtr$

West Peds: 0

West Entering: 205

West Leg Total: 851

Cars	783	Cars	207	1031	307	1545
Trucks	10	Trucks	0	4	2	6
Heavys	14	Heavys	1	24	5	30
Totals	807	Totals	208	1059	314	



Peds Cross: $\nlessgtr$

South Peds: 0

South Entering: 1581

South Leg Total: 2388

Comments

Britannia Rd @ First Line

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: Halton Region
Site #: 1001720100
Intersection: Britannia Rd & First Line
TFR File #: 2
Count date: 10-Nov-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Britannia Rd runs W/E

North Leg Total: 562

North Entering: 317

North Peds: 2

Peds Cross: $\bowtie$

Heavys	3	0	2	5
Trucks	0	2	0	2
Cars	61	157	92	310
Totals	64	159	94	



Heavys	2
Trucks	0
Cars	243
Totals	245

East Leg Total: 671

East Entering: 271

East Peds: 0

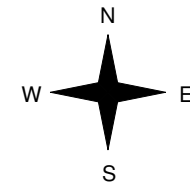
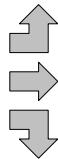
Peds Cross: $\bowtie$

Heavys	Trucks	Cars	Totals
21	3	273	297



Britannia Rd

Heavys	Trucks	Cars	Totals
0	0	109	109
13	1	281	295
0	0	39	39
13	1	429	



First Line

Cars	Trucks	Heavys	Totals
46	0	1	47
195	3	18	216
8	0	0	8
249	3	19	

Britannia Rd



Cars	Trucks	Heavys	Totals
383	2	15	400

Peds Cross: $\bowtie$

West Peds: 0

West Entering: 443

West Leg Total: 740

Cars	204
Trucks	2
Heavys	0
Totals	206



Cars	17	88	10	115
Trucks	0	0	1	1
Heavys	0	1	0	1
Totals	17	89	11	

Peds Cross: $\bowtie$

South Peds: 0

South Entering: 117

South Leg Total: 323

Comments

Britannia Rd @ First Line

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: Halton Region

Site #: 1001720100

Intersection: Britannia Rd & First Line

TFR File #: 2

Count date: 10-Nov-2022

Weather conditions:

Clear/Dry

Person(s) who counted:

Cam

** Signalized Intersection **

Major Road: Britannia Rd runs W/E

North Leg Total: 494

North Entering: 209

North Peds: 2

Peds Cross: $\nlessgtr$

Heavys	0	0	0	0
Trucks	0	0	2	2
Cars	62	85	60	207
Totals	62	85	62	



Heavys 2

Trucks 0

Cars 283

Totals 285

East Leg Total: 811

East Entering: 467

East Peds: 2

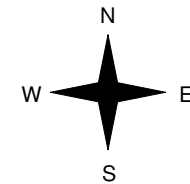
Peds Cross: $\nlessgtr$

Heavys	Trucks	Cars	Totals
3	0	462	465



Britannia Rd

Heavys	Trucks	Cars	Totals
1	0	66	67
1	0	276	277
0	0	16	16
2	0	358	



First Line

Cars	Trucks	Heavys	Totals
91	0	0	91
369	0	3	372
4	0	0	4
464	0	3	



Britannia Rd



Cars	Trucks	Heavys	Totals
341	2	1	344

Peds Cross: $\nlessgtr$

West Peds: 0

West Entering: 360

West Leg Total: 825

Cars	105	Cars	31	126	5	162
Trucks	0	Trucks	0	0	0	0
Heavys	0	Heavys	0	1	0	1
Totals	105	Totals	31	127	5	



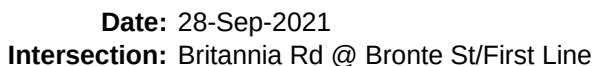
Peds Cross: $\nlessgtr$

South Peds: 0

South Entering: 163

South Leg Total: 268

Comments



Intersection: Britannia Rd @ Bronte St/First Line

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use	X	X	X	x	X	x	X	x	X	x	x	x
Direction	WBL	EB	SBL	NB	EBL	WB	NBL	SB				
Min Green	7	20		10	7	20		10				
Veh Ext.		3.0		3.0		3.0		3.0				
Yellow	3	4.2		3.3	3	4.2		3.3				
Red	1	2.6		4.7	1	2.6		4.7				
Walk		7		7		7		7				
Don't Walk		22		32		22		32				
Max 1	11	47		47	11	47		47				
Max 2												
Max 3												
Veh Recall												
Ped Recall												
Notes:	Pedestrian Re-service Active Local Zero Over-ride Active Rest in Don't Walk EB/WB Sync Reference 3:15 Local Zero Override active Sync Reference to 3:15											

Date: #####
Intersection: Regional Road 25 @ Britannia Road

Pattern 1

Time: 6:00
 Cycle Length: 140
 Offset (%): 0%

Direction	SBLT	NB	WBLT	EB
Phase	1	2	3	4
%	14	36	17	33
Direction	NBLT	SB	EBLT	WB
Phase	5	6	7	8
%	12	39	12	37

Pattern 2

Time: 9:30
 Cycle Length: 140
 Offset (%): 0%

Direction	SBLT	NB	WBLT	EB
Phase	1	2	3	4
%	14	37	17	32
Direction	NBLT	SB	EBLT	WB
Phase	5	6	7	8
%	12	40	11	37

Pattern 3

Time: 15:00
 Cycle Length: 140
 Offset (%): 0%

Direction	SBLT	NB	WBLT	EB
Phase	1	2	3	4
%	11	39	18	32
Direction	NBLT	SB	EBLT	WB
Phase	5	6	7	8
%	15	36	11	38

Pattern 4

Time: 20:00
 Cycle Length: 140
 Offset (%): 0%

Direction	SBLT	NB	WBLT	EB
Phase	1	2	3	4
%	14	37	17	32
Direction	NBLT	SB	EBLT	WB
Phase	5	6	7	8
%	12	40	11	37

Pattern 5

Time: 22:00
 Cycle Length: Local
 Offset (%):

Direction	SBLT	NB	WBLT	EB
Phase	1	2	3	4
%				
Direction	NBLT	SB	EBLT	WB
Phase	5	6	7	8
%				

Pattern 6

Time:
 Cycle Length:
 Offset (%):

Direction				
Phase	1	2	3	4
%				
Direction				
Phase	5	6	7	8
%				



Date: 17-Jul-2023

Intersection: Britannia Road & Thompson Rd

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use		X		X	X	X		X				
Direction		EB		SB	EBLT	WB		NB				
Min Green		30		7	7	25		7				
Veh Ext.		5.0		5.0	3.0	5.0		5.0				
Yellow		5		5	3	5		5				
Red		2		2	1	2		2				
Walk												
Don't Walk												
Max 1		60		35	13	47		35				
Max 2		60		35		60		35				
Max 3												
Max 4												
Veh Recall		x				x						
Ped Recall												
Notes:	Max 1 (6:00-10:00, 15:00-21:00)											
	Max 2 (10:00-15:00, 21:00-6:00)											

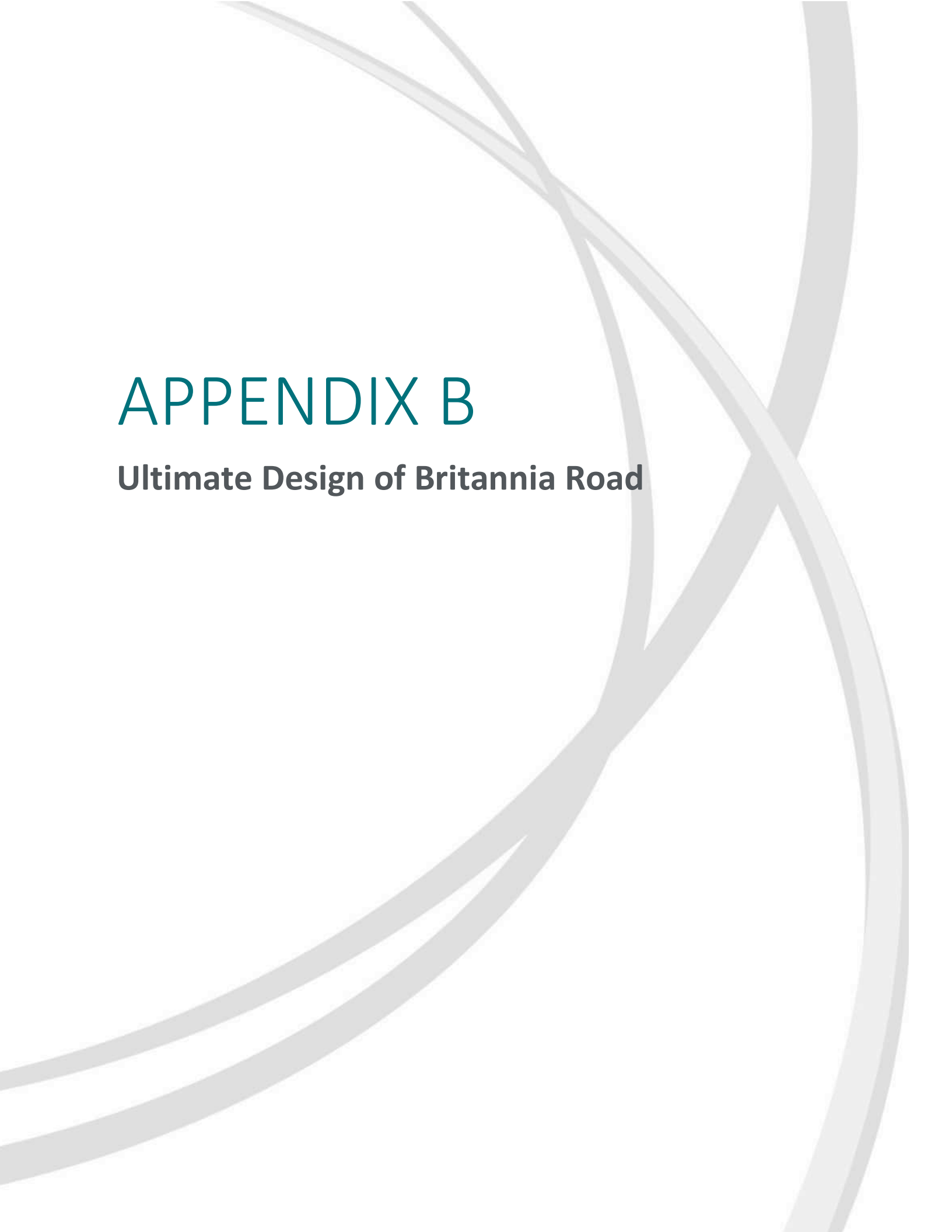


Date: 12-Dec-2023

Intersection: James Snow Pkwy & Britannia Rd

8 Phase Basic Timing Sheet												
	1	2	3	4	5	6	7	8	2 Ped	4 Ped	6 Ped	8 Ped
Phases in use		X		X	X	X				x	x	
Direction		EBT		SB	EBL	WBT						
Min Green		25		15	7	25						
Veh Ext.		5.0		5.0	2.5	5.0						
Yellow		4		5	3	4						
Red		3		2	0	3						
Walk												
Don't Walk												
Max 1		50		40	12	78						
Max 2		60		30		90						
Max 3		50		40		70						
Veh Recall		x				x						
Ped Recall												
Notes:	Sync Reference 3:15 Max 1 6:30-9:30 (Have EBLT Cycle) Max 2 15:00-6:30 Max 3 9:30- 15:00											

Date: 4/31/2020
Intersection: Regional Road 25 @ Lowerbase Line



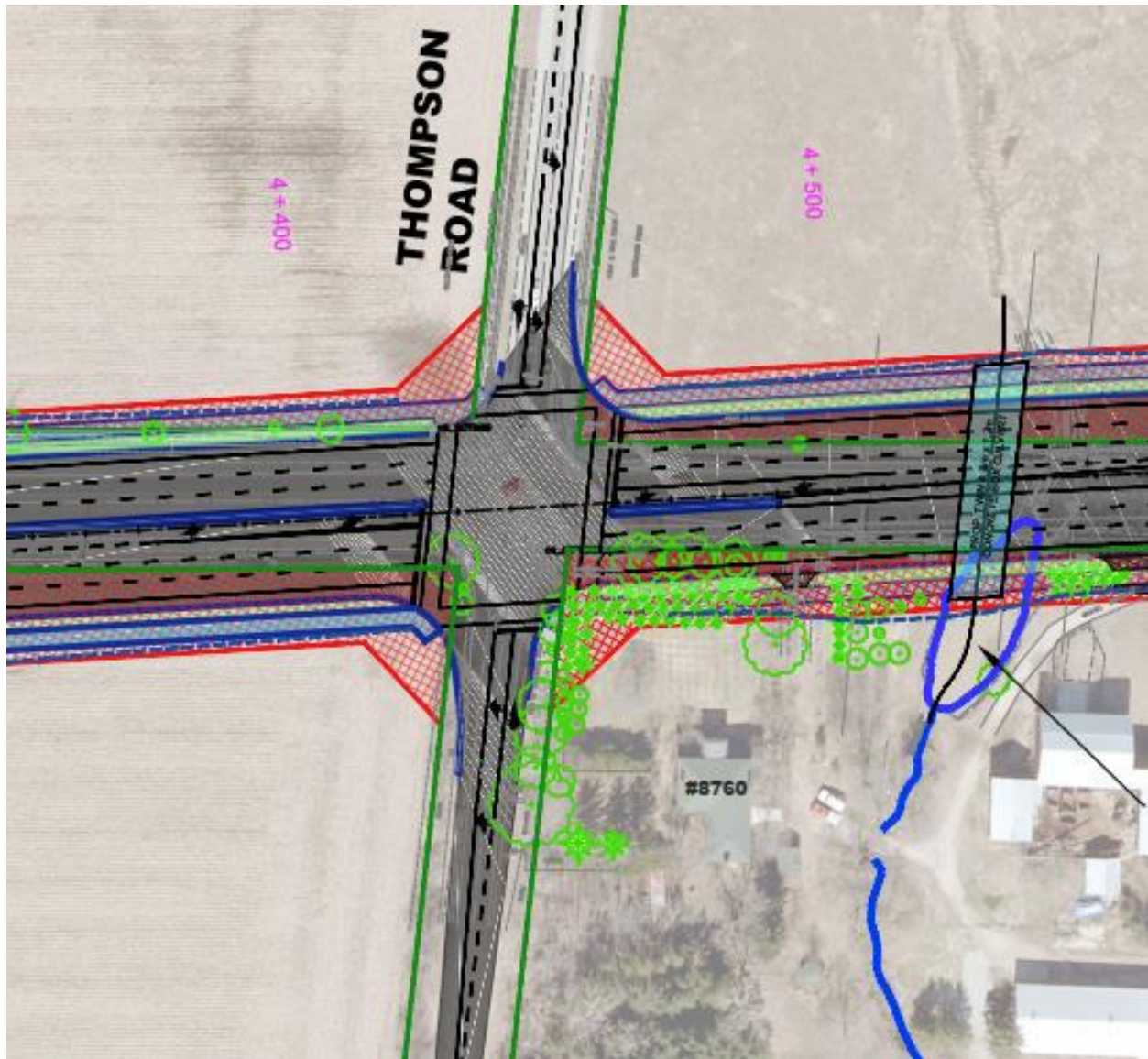
APPENDIX B

Ultimate Design of Britannia Road

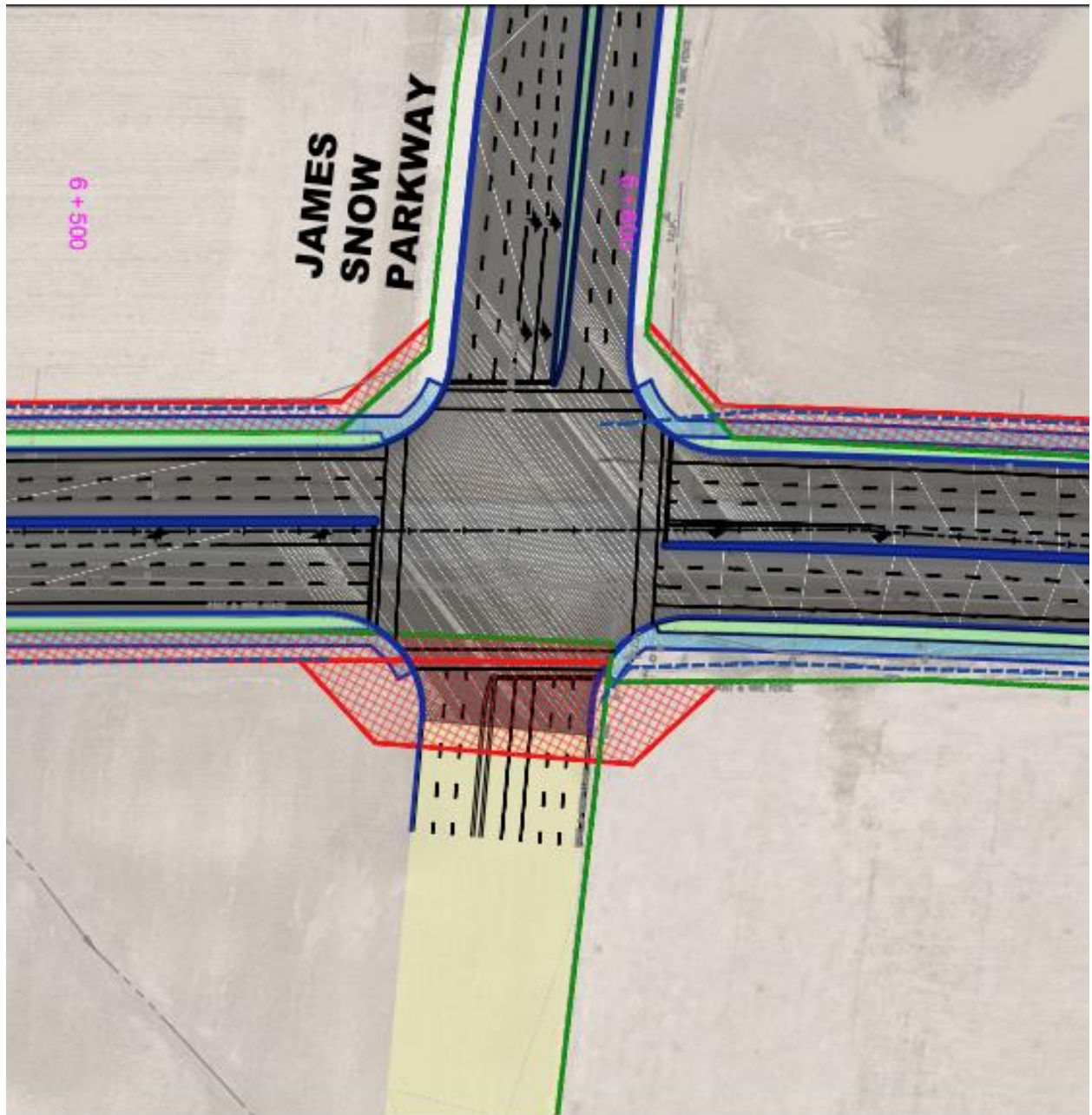
Appendix B – Ultimate Design Drawings for Britannia Road Improvement Works

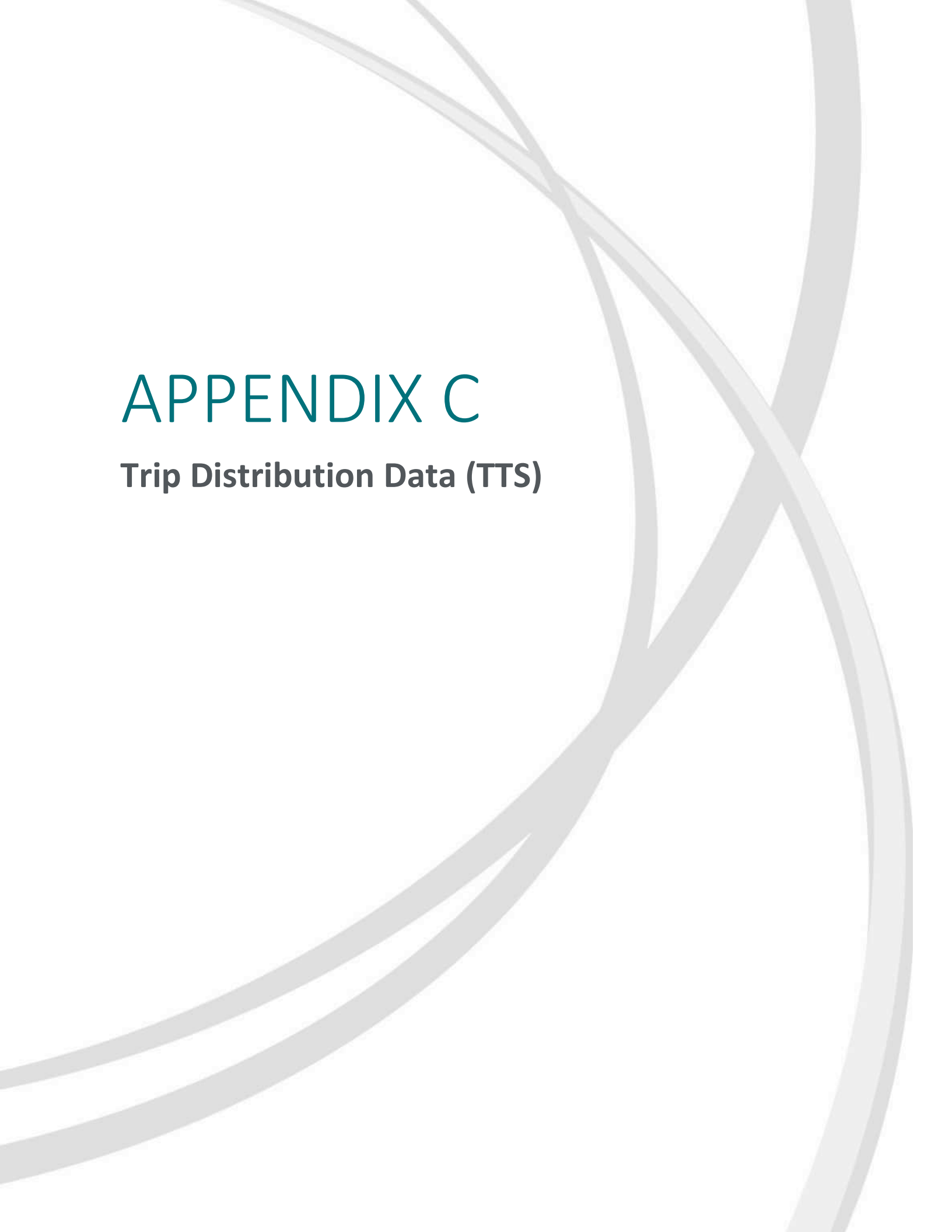
[Source: <https://www.halton.ca/For-Residents/Roads-Construction/Municipal-Class-Environmental-Assessment-Studies/Britannia-Road-Transportation-Corridor-Improvement/Environmental-Study-Report-Ultimate-Design-Brita>]

Britannia Road & Thompson Road



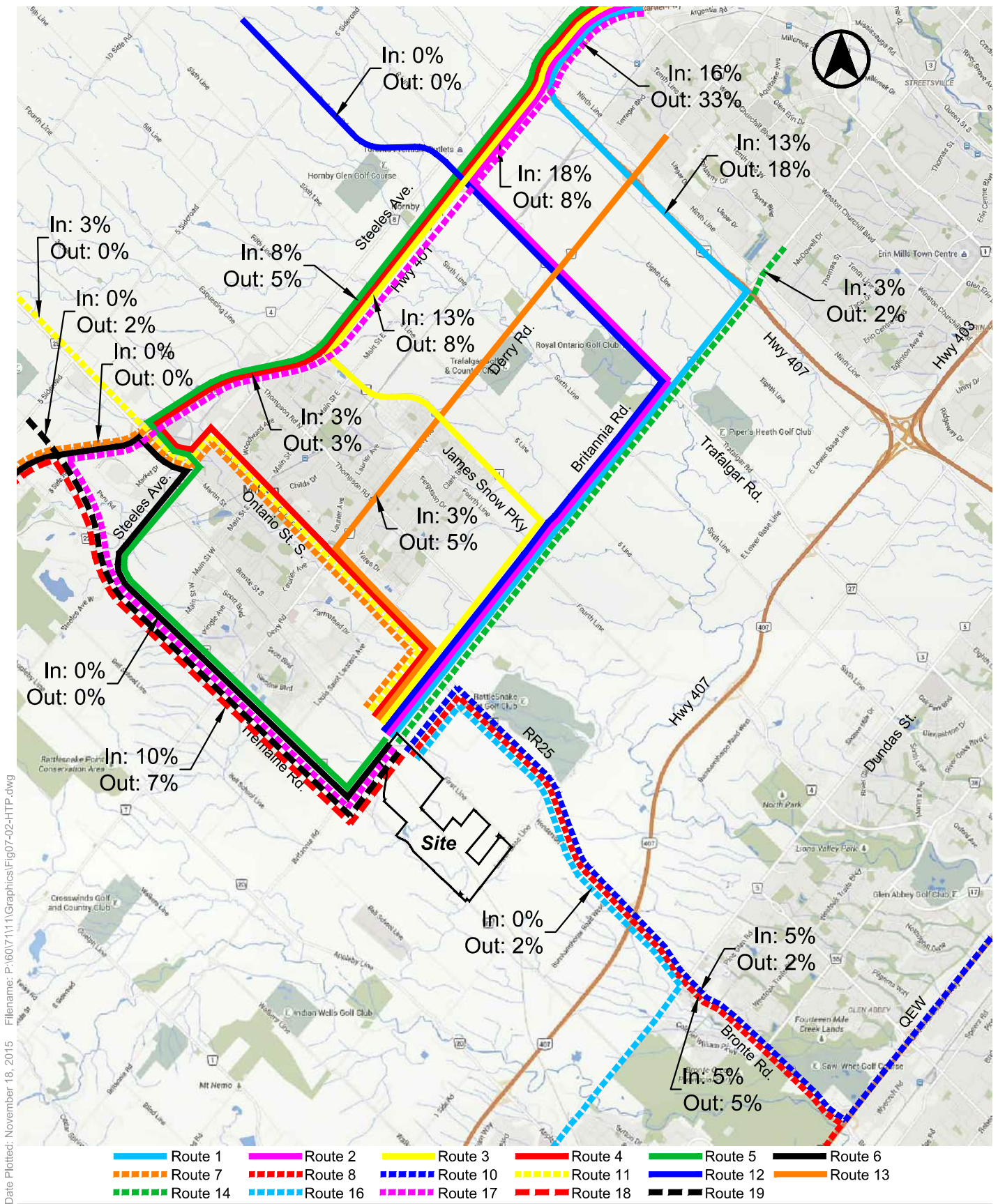
Britannia Road & James Snow Parkway





APPENDIX C

Trip Distribution Data (TTS)



2020 HEAVY TRUCK PERCENTAGES TO/FROM PROJECT With Tremaine Interchange



BA Group

Milton Intermodal Terminal
6071-11 November 2015

Figure 7

TTS - Work
AM Inbound

Tue Apr 16 2024 20:38:10 GMT-0400 (Eastern Daylight Time) - Run Time: 2686ms

Cross Tabulation Query Form - Trip - 2016

Row: Planning district of origin - pd_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
Start time of trip - start_time In 0600-1000
and
Trip purpose of destination - purp_dest In W
and
Primary travel mode of trip - mode_prime In D,M,P,T
and
2006 GTA zone of destination - gta06_dest In 4100,4101,4102,4104,4107, 4109, 4106

Trip 2016				
ROW : pd_orig				
COLUMN : gta06_dest				
pd_orig	gta06_dest	total	Gateway	Direction
1	4101	14	Tremaine S / First Line S / RR25 S	SE
8	4100	19	Tremaine N / Bronte N / RR25 N	E
8	4106	16	Tremaine N / Bronte N / RR25 N	E
35	4106	6	Bronte N	NE
36	4109	49	Lower Base Line E / Britannia E	E
37	4104	20	Tremaine N / Bronte N / RR25 N	N
38	4100	37	Internal	0
38	4104	97	Internal	0
38	4107	25	Internal	0
38	4109	105	Internal	0
39	4104	30	Tremaine S / First Line S / RR25 S	S
39	4106	110	Tremaine S / First Line S / RR25 S	S
40	4109	38	Tremaine S / First Line S / RR25 S	SW
41	4106	52	Britannia W	W
46	4104	40	Tremaine S / First Line S / RR25 S	SW
46	4109	38	Tremaine S / First Line S / RR25 S	SW
64	4106	13	Tremaine N	NW
65	4104	73	Tremaine N	NW
		782		

Tue Apr 16 2024 20:46:21 GMT-0400 (Eastern Daylight Time) - Run Time: 2808ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of origin - gta06_orig
Column: 2006 GTA zone of destination - gta06_dest

Filters:
Start time of trip - start_time In 0600-1000
and
Trip purpose of destination - purp_dest In W
and
Primary travel mode of trip - mode_prime In D,M,P,T
and
2006 GTA zone of destination - gta06_dest In 4100,4101,4102,4104,4107, 4109, 4106
and
Planning district of origin - pd_orig In 38,

Trip 2016				
ROW : gta06_orig				
COLUMN : gta06_dest				
gta06_orig	gta06_dest	total	Gateway	
4105	4104	52	Bronte N	
4108	4100	27	RR25 N	
4108	4104	14	RR25 N	
4110	4100	9	Thompson N	
4110	4109	13	Thompson N	
4119	4109	35	RR25 N / Thompson N	
4120	4104	13	RR25 N / Thompson N	
4121	4104	19	RR25 N / Thompson N	
4125	4107	25	RR25 N	
4125	4109	13	RR25 N	
4126	4109	44	RR25 N	
		264		

TTS - Work
PM Outbound

Wed Apr 17 2024 14:02:59 GMT-0400 (Eastern Daylight Time) - Run Time: 2702ms

Cross Tabulation Query Form - Trip - 2016

Row: Planning district of destination - pd_dest

Column: 2006 GTA zone of origin - gta06_orig

Filters:

Start time of trip - start_time In 1500-1900

and

Trip purpose of origin - purp_orig In W

and

Primary travel mode of trip - mode_prime In D,M,P,T

and

2006 GTA zone of origin - gta06_orig In 4100,4101,4102,4104,4107,4109,4106

Trip 2016

ROW : pd_dest

COLUMN : gta06_orig

pd_dest	gta06_orig	total	Gateway	Direction
1	4101	14	Tremaine S / First Line S / RR25 S	SE
8	4100	19	Tremaine N / Bronte N / RR25 N	E
8	4101	29	Tremaine N / Bronte N / RR25 N	E
8	4106	16	Tremaine N / Bronte N / RR25 N	E
35	4106	6	Bronte N	NE
36	4104	11	Lower Base Line E / Britannia E	E
36	4109	49	Lower Base Line E / Britannia E	E
37	4104	20	Tremaine N / Bronte N / RR25 N	N
38	4100	37	Internal	0
38	4104	88	Internal	0
38	4106	19	Internal	0
38	4107	25	Internal	0
38	4109	35	Internal	0
39	4104	30	Tremaine S / First Line S / RR25 S	S
39	4106	96	Tremaine S / First Line S / RR25 S	S
40	4109	38	Tremaine S / First Line S / RR25 S	SW
41	4106	52	Britannia W	W
46	4104	40	Tremaine S / First Line S / RR25 S	SW
46	4109	38	Tremaine S / First Line S / RR25 S	SW
65	4104	73	Tremaine N	NW
66	4107	12	Tremaine N	NW
		747		

Wed Apr 17 2024 14:18:15 GMT-0400 (Eastern Daylight Time) - Run Time: 2871ms

Cross Tabulation Query Form - Trip - 2016

Row: 2006 GTA zone of destination - gta06_dest

Column: 2006 GTA zone of origin - gta06_orig

Filters:

Start time of trip - start_time In 1500-1900

and

Trip purpose of origin - purp_orig In W

and

Primary travel mode of trip - mode_prime In D,M,P,T

and

2006 GTA zone of origin - gta06_orig In 4100,4101,4102,4104,4107,4109,4106

and

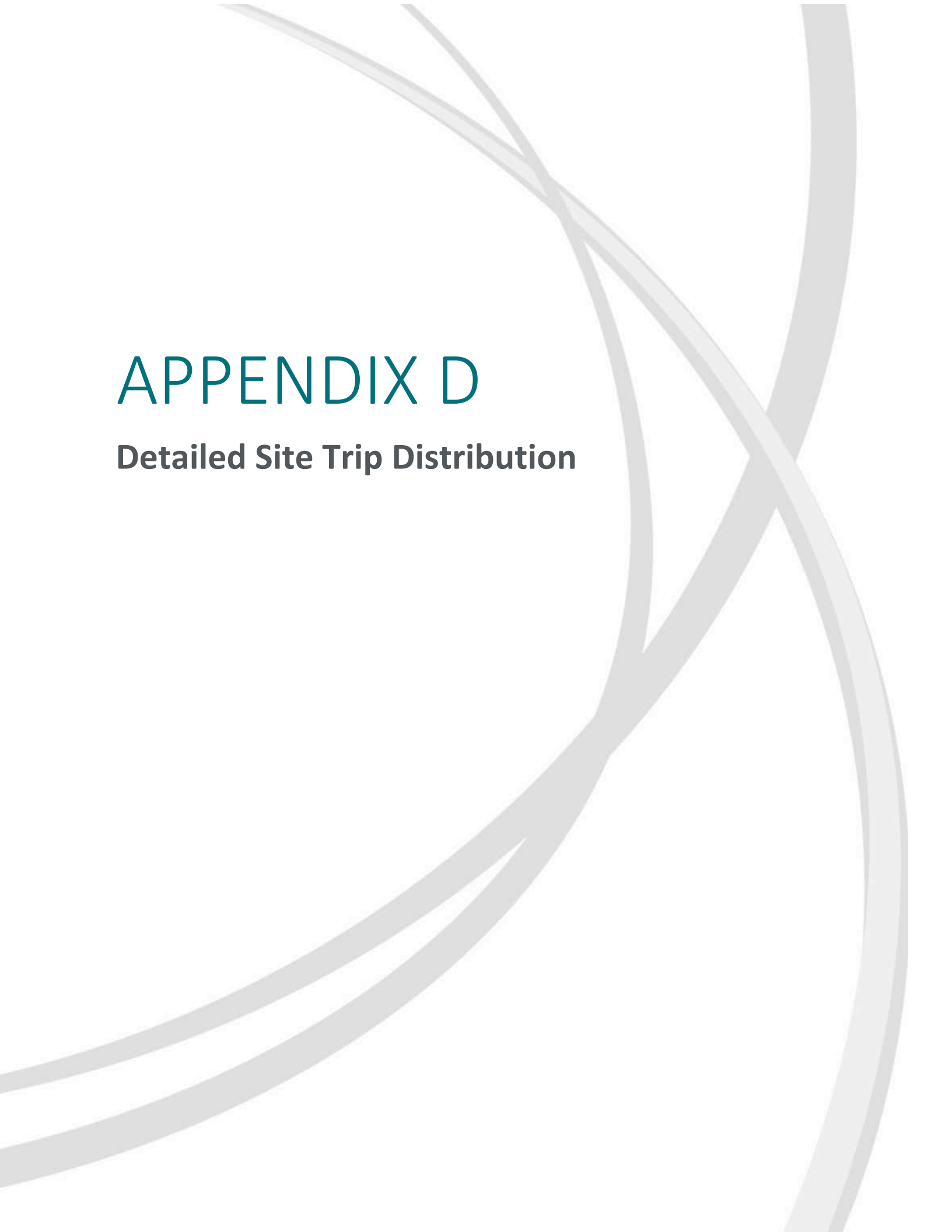
Planning district of destination - pd_dest In 38

Trip 2016

ROW : gta06_dest

COLUMN : gta06_orig

gta06_des	gta06_orig	total	Gateway
4105	4100	9	Bronte N
4105	4104	52	Bronte N
4108	4100	27	RR25 N
4108	4104	14	RR25 N
4119	4109	35	RR25 N / Thompson N
4124	4104	23	RR25 N
4125	4107	25	RR25 N
4126	4106	19	RR25 N
		204	

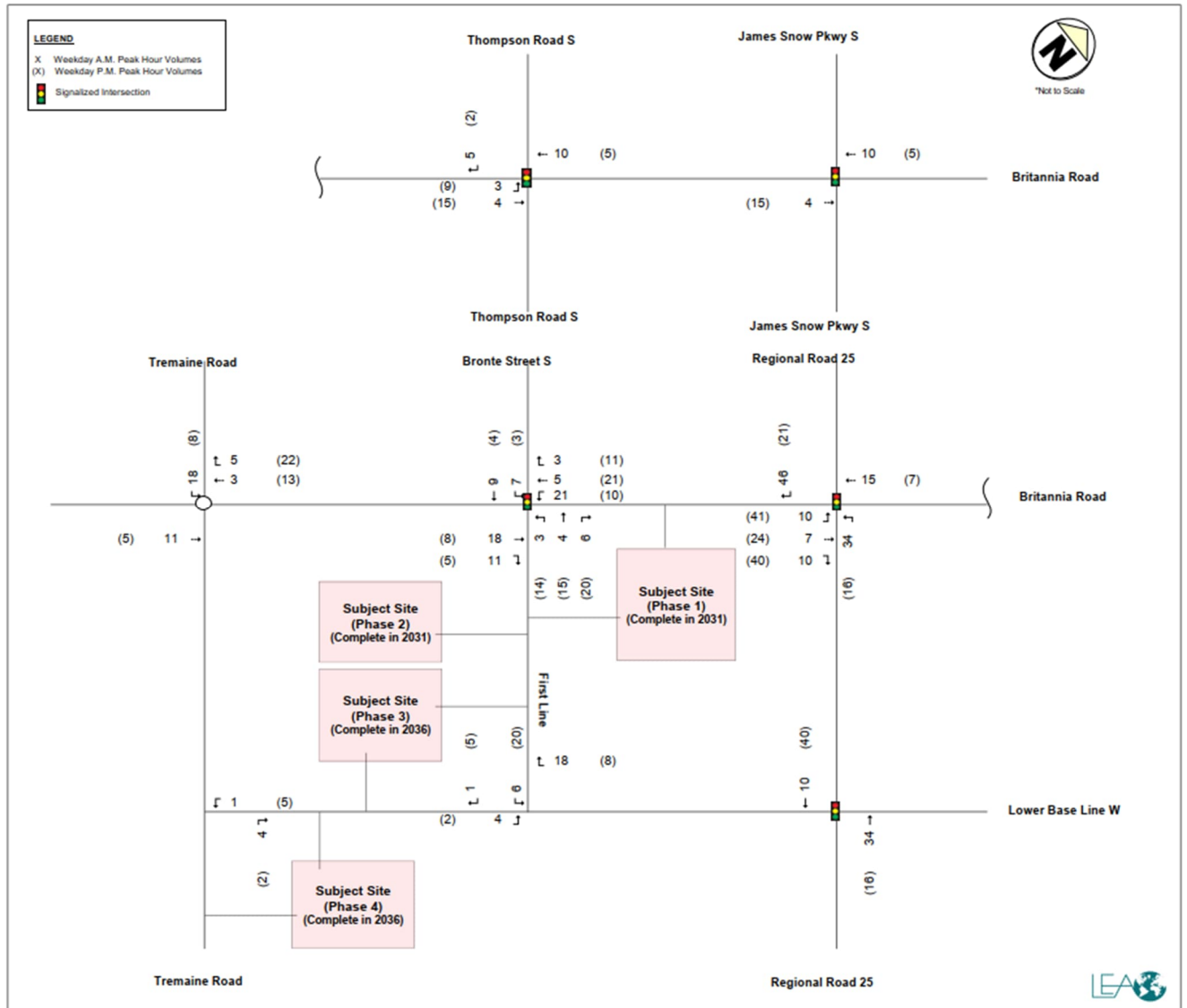


APPENDIX D

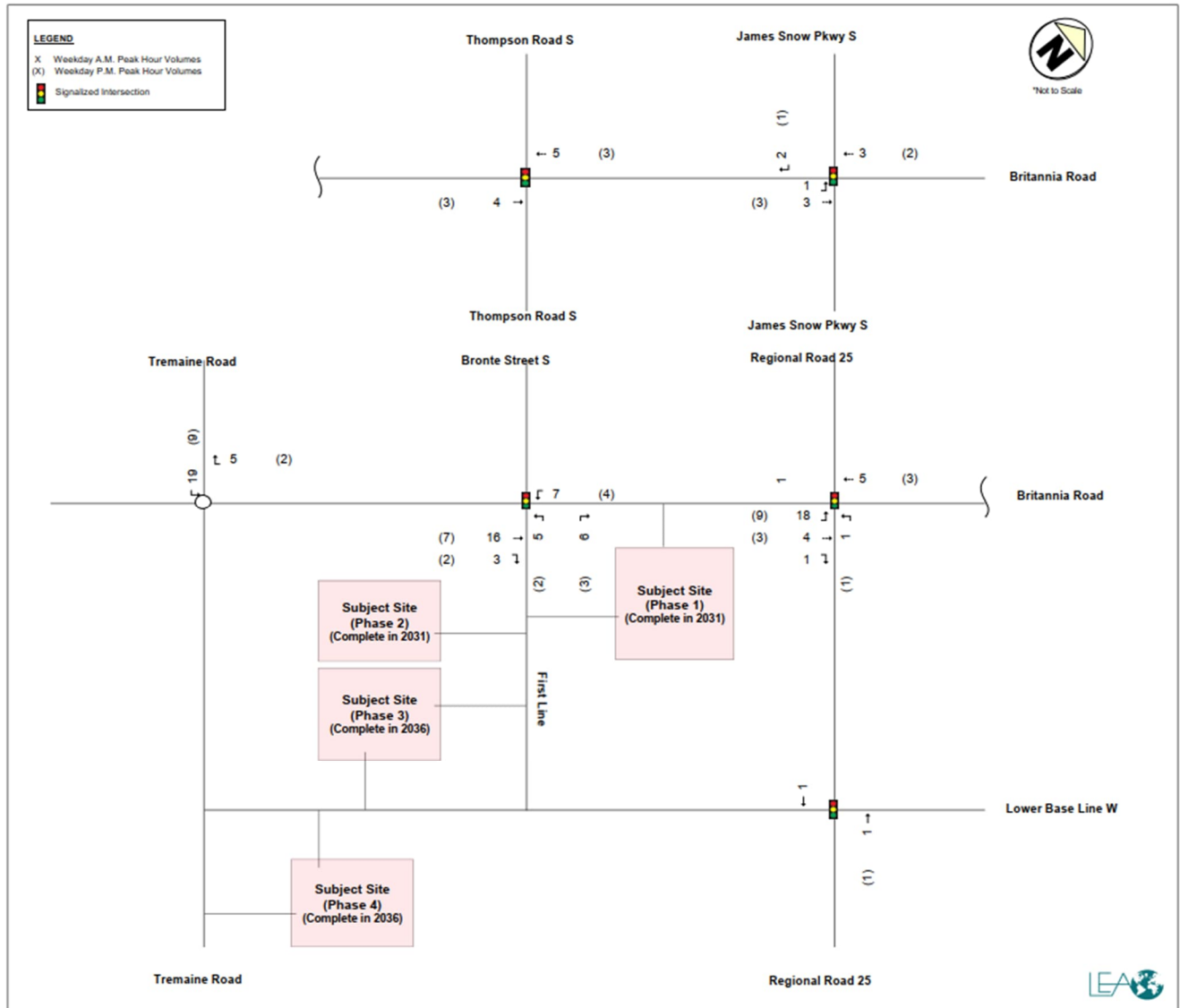
Detailed Site Trip Distribution

Appendix D - Detailed Site Trip Assignments

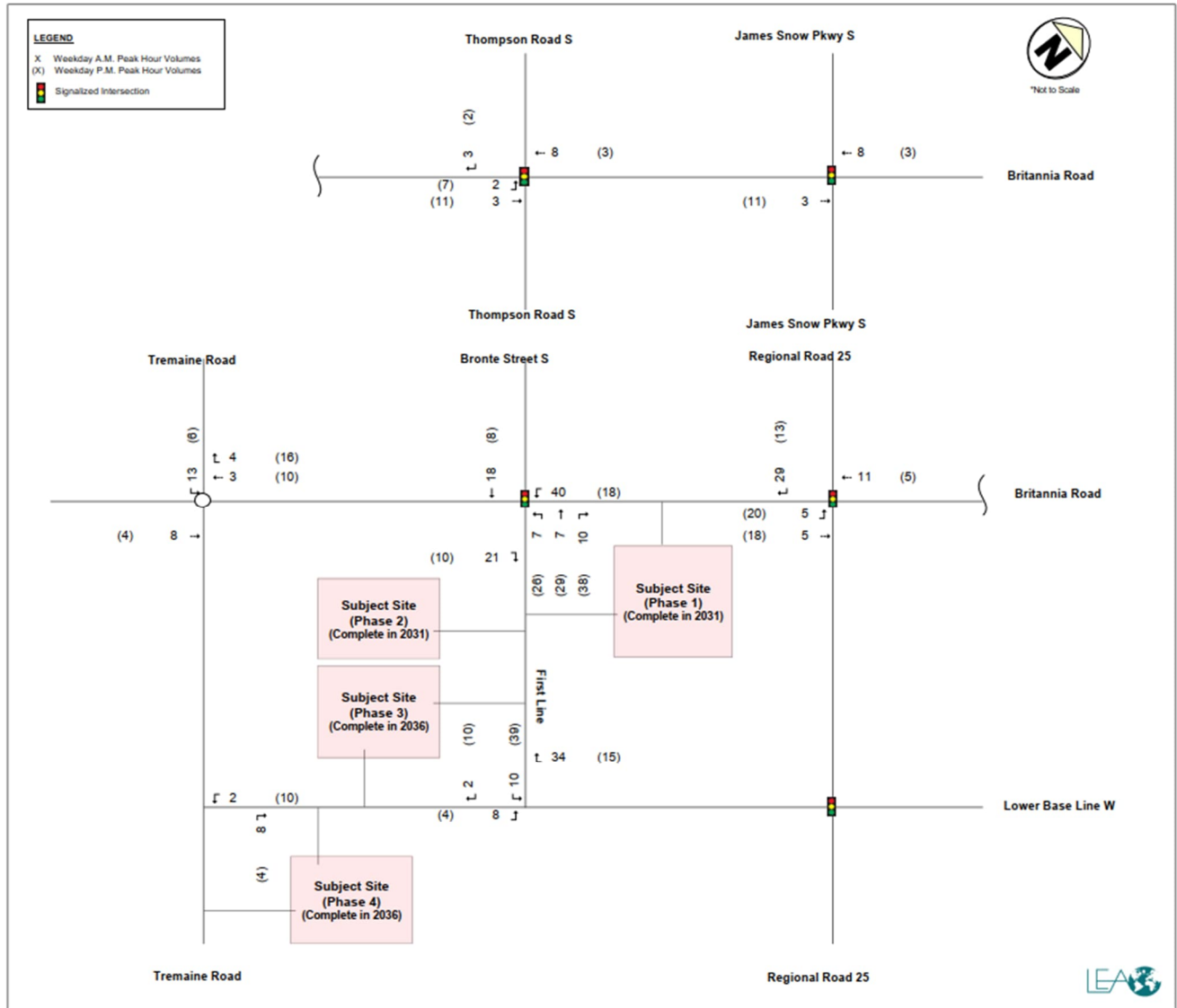
Phase 1 Site Trips – Vehicular Trips



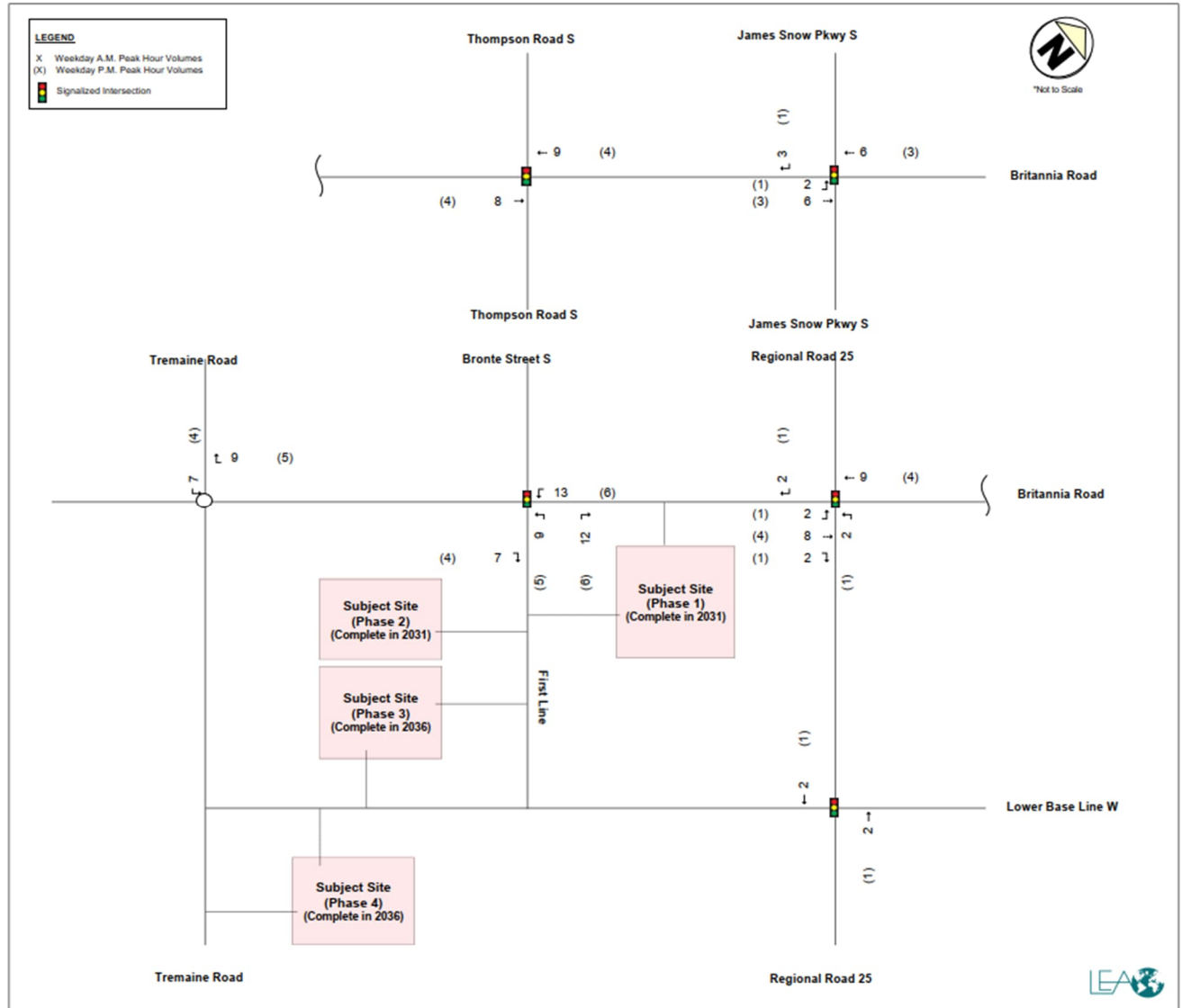
Phase 1 Site Trips – Truck Trips



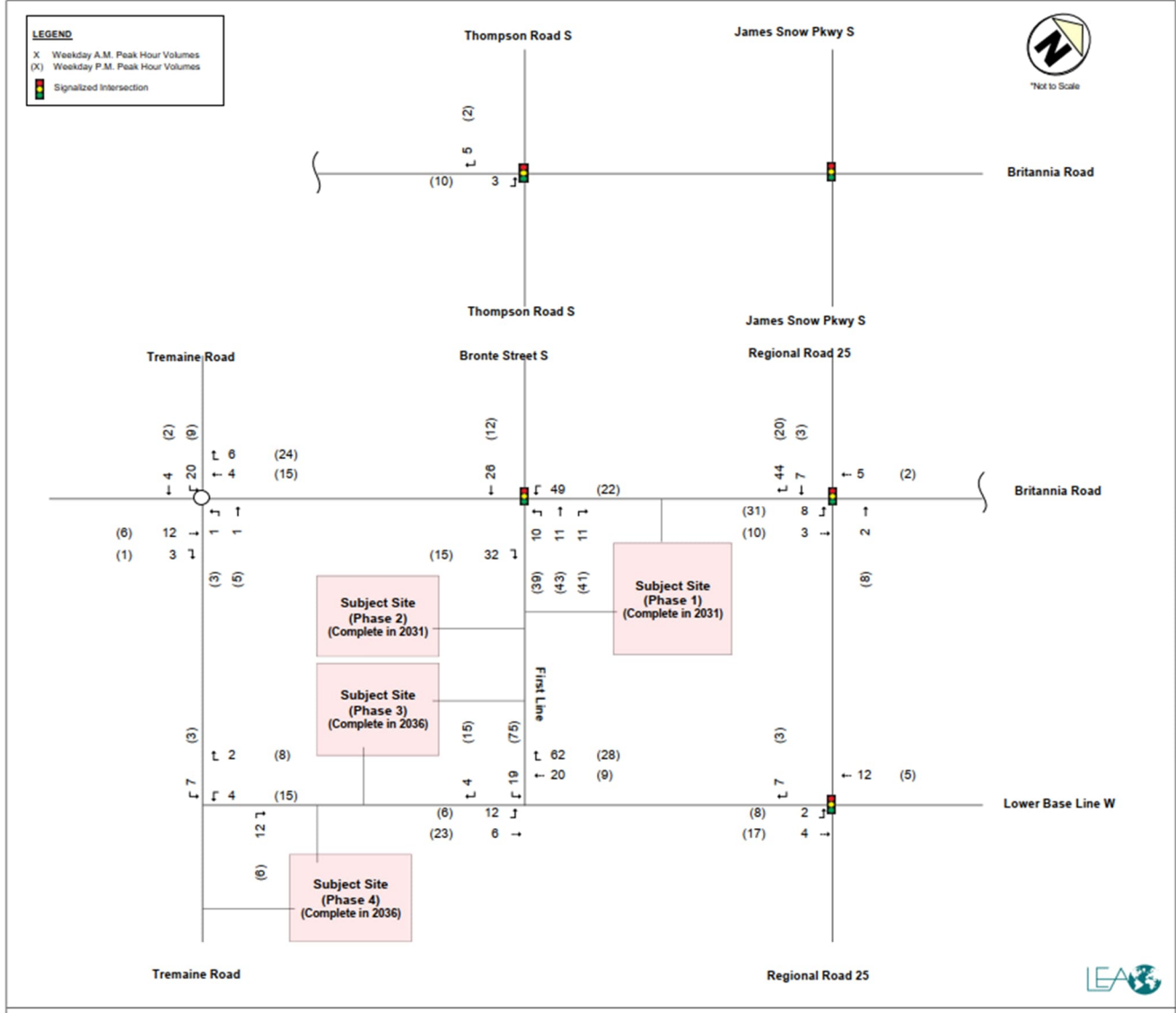
Phase 2 Site Trips – Vehicular Trips



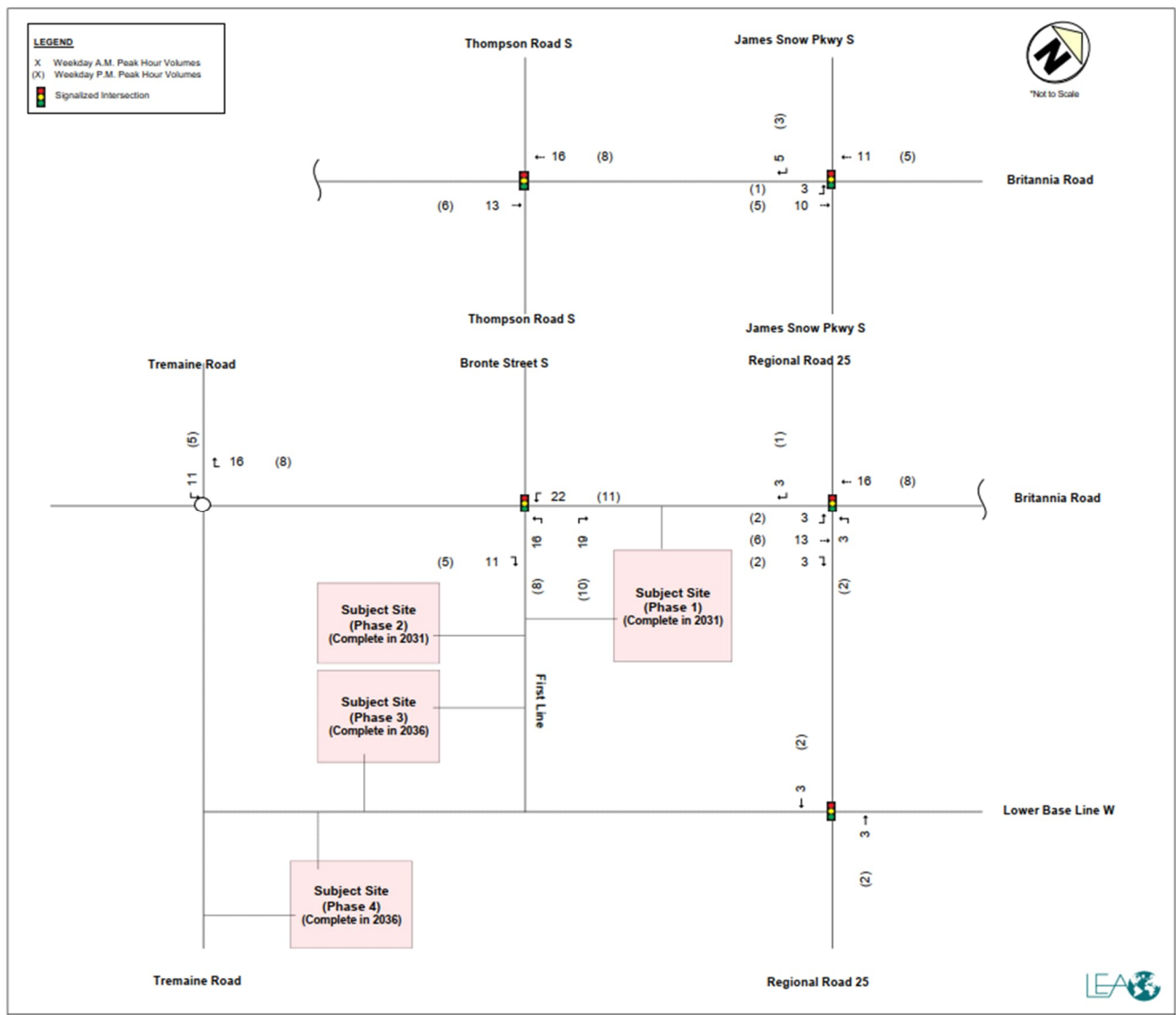
Phase 2 Site Trips – Truck Trips



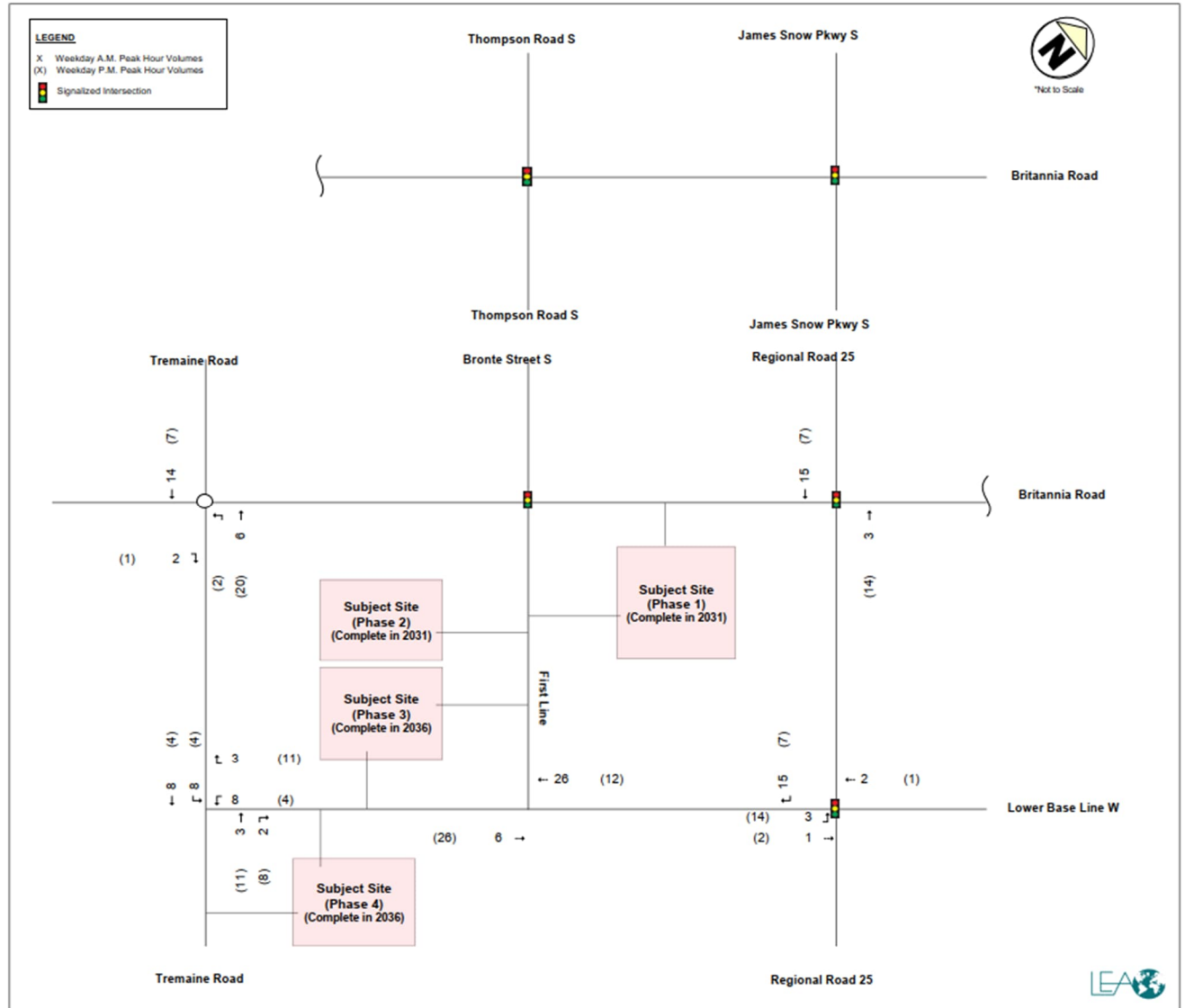
Phase 3 Site Trips – Vehicular Trips



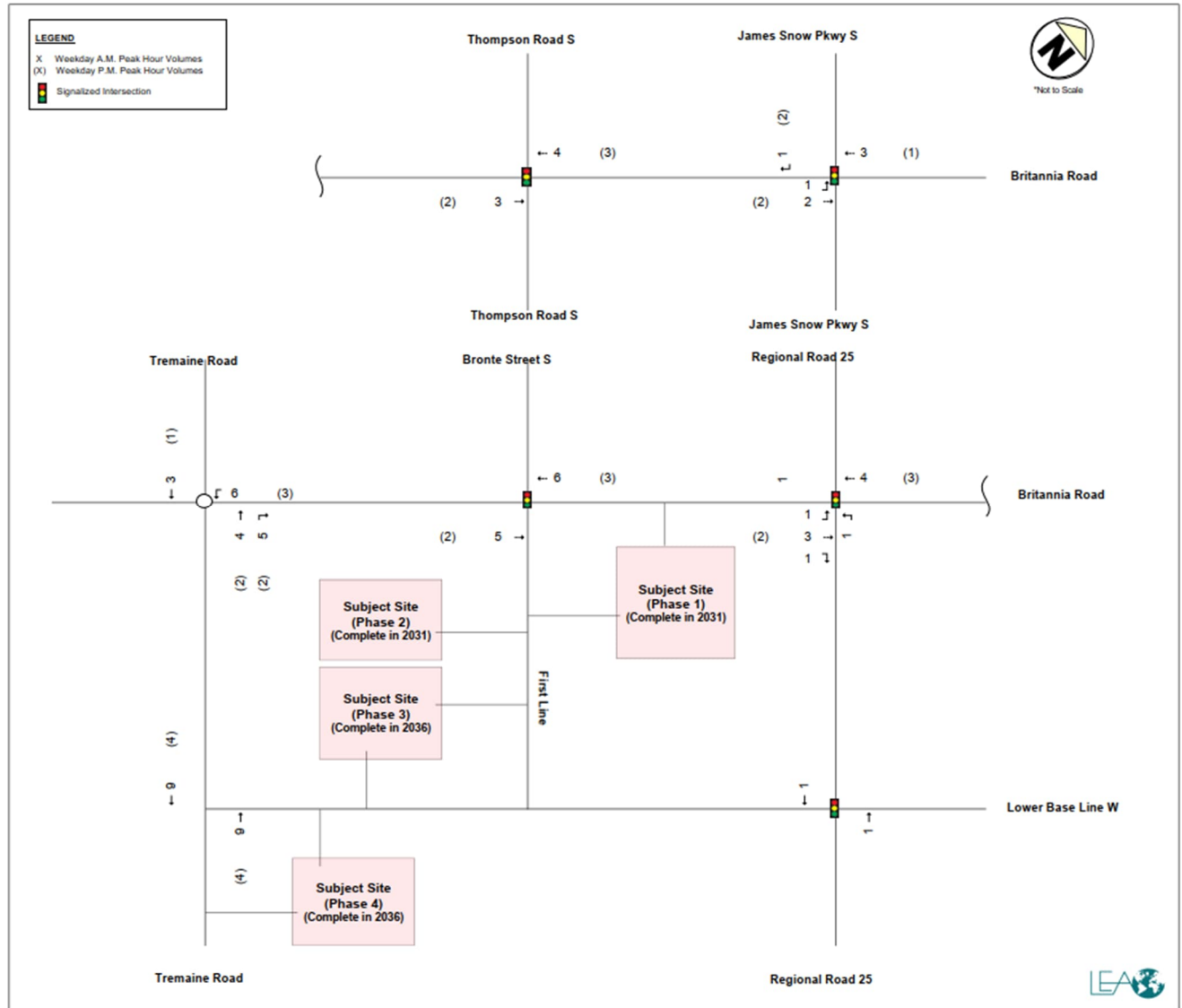
Phase 3 Site Trips – Truck Trips

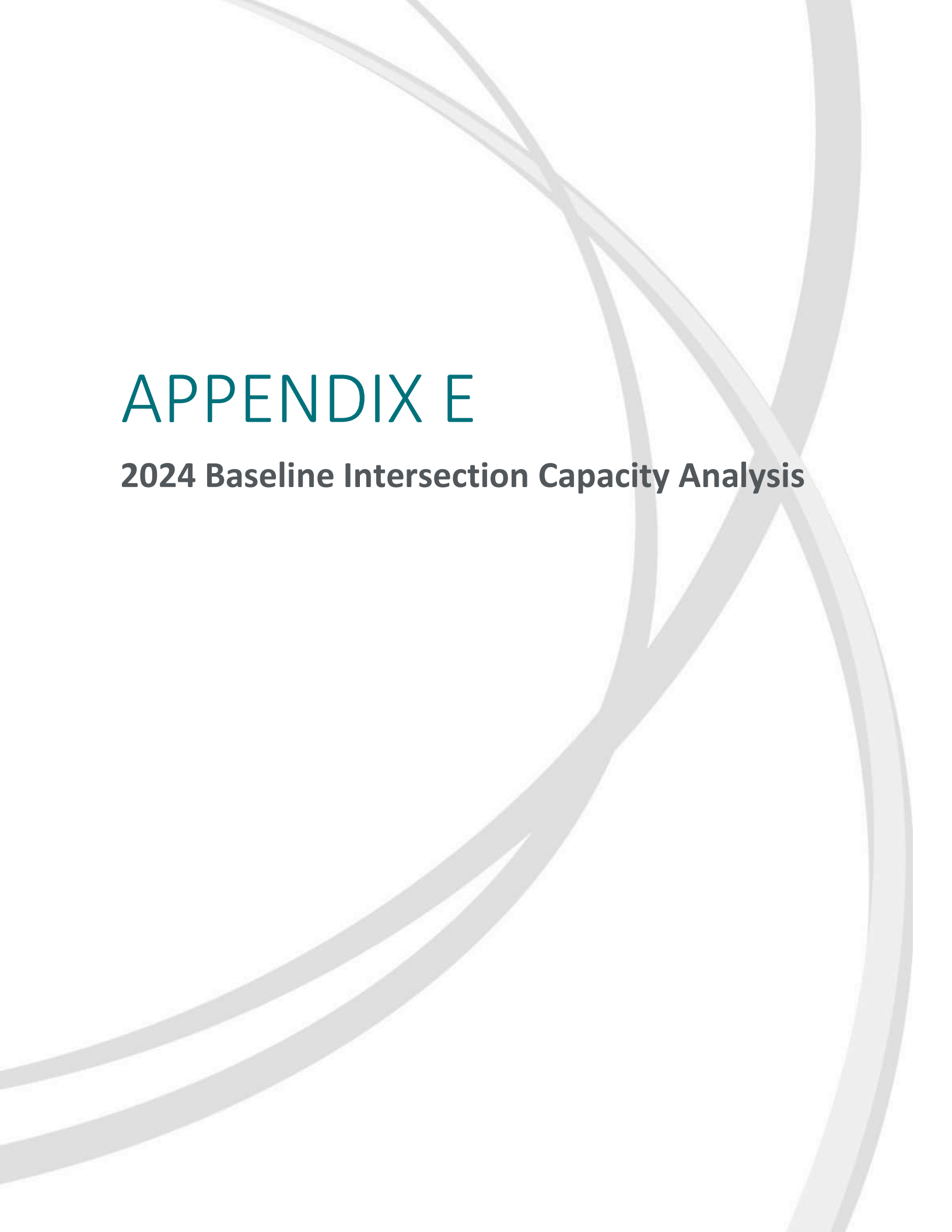


Phase 4 Site Trips – Vehicular Trips



Phase 4 Site Trips – Truck Trips





APPENDIX E

2024 Baseline Intersection Capacity Analysis

Appendix E – 2024 Baseline Intersection Capacity Analysis

Table 1: Roundabout at Tremaine Road & Britannia Road

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Existing - 2024																
Leg 1 WB	0.16	~1	1.81	0.13	A	2.17	A	141 % [Leg 3 EB]	0.30	~1	2.03	0.23	A	1.96	A	175 % [Leg 1 WB]
Leg 2 SB	0.49	1.04	2.23	0.32	A				0.27	~1	1.94	0.21	A			
Leg 3 EB	0.32	~1	2.36	0.24	A				0.14	~1	1.79	0.12	A			
Leg 4 NB	0.21	~1	2.11	0.17	A				0.29	~1	1.99	0.22	A			

Table 2: Signalized Intersection of Britannia Road & First Line/ Bronte St S

2: First Line/Bronte St. S & Britannia Road				
AM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (22)	-/-
EBL	147	0.31	B (19)	18/30
EBT	356	0.23	C (22)	23/31
EBR	54	0.10	C (21)	0/3
WBL	6	0.02	B (16)	1/3
WBT	271	0.18	C (22)	17/25
WBR	57	0.11	C (21)	0/4
NBL	27	0.07	C (27)	4/11
NBTR	67	0.10	C (22)	10/21
SBL	103	0.22	C (26)	16/30
SBT	168	0.26	C (24)	26/42
SBR	88	0.17	C (23)	0/11
2: First Line/Bronte St. S & Britannia Road				
PM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (22)	-/-
EBL	69	0.16	B (18)	8/16
EBT	254	0.16	C (22)	16/23
EBR	22	0.04	C (20)	0/0
WBL	4	0.01	B (16)	0/2
WBT	363	0.24	C (22)	24/33
WBR	78	0.14	C (22)	0/9
NBL	59	0.13	C (24)	11/21
NBTR	144	0.22	C (23)	26/43
SBL	52	0.13	C (27)	8/17
SBT	61	0.09	C (22)	9/18
SBR	73	0.14	C (22)	0/9

Table 3: Signalized Intersection of Britannia Road & Regional Road 25

3: Regional Road 25 & Britannia Road				
AM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (50)	-/-
EBL	61	0.40	E (67)	9/16
EBT	388	0.36	C (33)	56/79
EBR	238	0.42	C (35)	4/26
WBL	258	0.81	E (70)	39/54
WBTR	307	0.17	C (26)	19/29
NBL	61	0.41	E (67)	9/17
NBT	559	0.62	D (46)	76/94
NBR	180	0.45	D (43)	0/18
SBL	240	0.81	E (73)	35/50
SBT	1029	0.92	E (58)	141/168
SBR	70	0.15	C (35)	0/0
3: Regional Road 25 & Britannia Road				
PM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (47)	-/-
EBL	51	0.35	E (66)	8/15
EBT	253	0.22	C (28)	33/51
EBR	35	0.06	C (26)	0/0
WBL	167	0.74	E (69)	25/37
WBTR	652	0.39	C (29)	47/65
NBL	208	0.79	E (70)	31/45
NBT	872	0.86	D (52)	128/150
NBR	377	0.83	E (55)	0/24
SBL	94	0.58	E (68)	14/23
SBT	554	0.60	D (45)	74/91
SBR	61	0.15	D (39)	0/0

Table 4: Signalized Intersection of Lower Base Line W & Regional Road 25

6: Regional Road 25 & Lower Base Line W				
AM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (10)	-/-
EBLTR	149	0.63	D (51)	27/44
WBLTR	96	0.52	D (50)	19/34
NBL	10	0.04	B (10)	1/3

NBTR	928	0.37	A (5)	37/61
SBL	19	0.04	A (6)	1/4
SBTR	1475	0.58	A (7)	77/125
6: Regional Road 25 & Lower Base Line W				
PM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (13)	-/-
EBLTR	87	0.29	D (41)	13/25
WBLTR	197	0.68	D (48)	38/58
NBL	16	0.03	A (7)	1/4
NBTR	1473	0.62	A (10)	98/151
SBL	9	0.04	B (14)	1/3
SBTR	791	0.33	A (6)	37/59

Table 5: Signalized Intersection of Britannia Road & Thompson Road S

7: Thompson Rd S & Britannia Road				
AM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (19)	-/-
EBL	87	0.78	E (59)	17/37
EBTR	722	0.24	A (9)	24/38
WBL	1	0.00	(12)	0/1
WBTR	469	0.20	B (13)	21/32
NBL	3	0.01	C (35)	1/3
NBTR	2	0.01	C (28)	0/0
SBL	239	0.64	D (38)	44/64
SBTR	154	0.44	C (33)	0/13
7: Thompson Rd S & Britannia Road				
PM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	A (7)	-/-
EBL	195	0.46	B (11)	19/73
EBTR	528	0.16	A (3)	12/20
WBL	2	0.00	(3)	0/1
WBTR	938	0.30	A (4)	23/36
NBL	1	0.01	D (43)	0/2
NBTR	2	0.01	D (40)	0/0
SBL	64	0.35	D (44)	12/24
SBTR	60	0.46	D (46)	0/0

Table 6: Signalized Intersection of Britannia Road & James Snow Parkway

8: Britannia Road & James Snow Pkwy				
AM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (20)	-/-
EBL	89	0.19	B (11)	9/17
EBT	519	0.22	B (11)	21/28
WBTR	395	0.22	B (16)	16/23
SBL	372	0.82	D (39)	68/94
SBR	118	0.30	C (25)	0/11
8: Britannia Road & James Snow Pkwy				
PM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (16)	-/-
EBL	99	0.45	C (27)	13/46
EBT	357	0.13	A (7)	11/19
WBTR	1046	0.56	B (13)	31/50
SBL	267	0.76	D (39)	50/65
SBR	101	0.33	C (30)	0/10

Table 7: Unsignalized Intersection of Tremaine Road & Lower Base Line W

4: Tremaine Road & Lower Base Line W				
AM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	322	0.00	(0)	-/0
NBR	29	0.00	(0)	-/0
WBLR	60	0.30	D (26)	-/8
SBL	70	0.07	A (8)	-/1
SBT	450	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
PM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	473	0.00	(0)	-/0
NBR	19	0.00	(0)	-/0
WBLR	88	0.28	C (18)	-/8
SBL	45	0.05	A (9)	-/1

SBT	231	0.00	A (0)	-/0
-----	-----	------	-------	-----

Table 8: Unsignalized Intersection of Lower Base Line W & First Line

5: Lower Base Line W & First Line				
AM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (6)	#VALUE!
EBL	3	0.00	A (7)	-/0
EBT	99	0.00	A (0)	-/0
WBT	11	0.00	(0)	-/0
WBR	89	0.00	(0)	-/0
SBLR	252	0.31	B (11)	-/9
5: Lower Base Line W & First Line				
PM	Baseline Condition			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
EBL	4	0.00	A (8)	-/0
EBT	65	0.00	A (0)	-/0
WBT	73	0.00	(0)	-/0
WBR	198	0.00	(0)	-/0
SBLR	89	0.13	B (11)	-/3

Junctions 8																
ARCADY 8 Lite																
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2026																
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Filename: Existing.arc8

Path: F:\24276\April 2026 TIS Resubmission\Traffic\Roundabout\EX

Report generation date: 2026-06-17 3:24:33 PM

Summary of intersection performance

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Existing - 2024																
Leg 1 WB	0.16	~1	1.81	0.13	A	2.17	A	141 % [Leg 3 EB]	0.30	~1	2.03	0.23	A	1.96	A	175 % [Leg 1 WB]
Leg 2 SB	0.49	1.04	2.23	0.32	A				0.27	~1	1.94	0.21	A			
Leg 3 EB	0.32	~1	2.36	0.24	A				0.14	~1	1.79	0.12	A			
Leg 4 NB	0.21	~1	2.11	0.17	A				0.29	~1	1.99	0.22	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - 2024, AM Peak" model duration: 7:45 AM - 8:45 AM

"D2 - 2024, PM Peak" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2026-06-17 3:24:31 PM

File summary

Title	(untitled)
Date	2024-04-05
Version	
Status	(new file)
Client	
Analyst	anatolek
Description	

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Existing - 2024, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Existing	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2024	AM Peak	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	4.0
2 SB	2 SB	Tremaine Rd	4.0
3 EB	3 EB	Britannia Rd	1.0
4 NB	4 NB	Tremaine Rd	4.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

	To				
From		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	79.000	65.000	146.000
	2 SB	208.000	0.000	144.000	389.000
	3 EB	175.000	277.000	0.000	8.000
	4 NB	123.000	203.000	9.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
290.00	0.93	SecondQuarter
741.00	0.93	SecondQuarter
460.00	0.93	SecondQuarter
335.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.13	1.81	0.16	~1	A
2 SB	0.32	2.23	0.49	1.04	A
3 EB	0.24	2.36	0.32	~1	A
4 NB	0.17	2.11	0.21	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.17	A	141	Leg 3 EB

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	275.45	274.92	463.38	0.00	2421.32	0.114	0.13	1.743	A
2 SB	703.82	702.19	208.55	0.00	2499.54	0.282	0.41	2.081	A

3 EB	436.92	435.86	704.14	0.00	2103.18	0.208	0.26	2.180	A
4 NB	318.19	317.49	625.39	0.00	2195.34	0.145	0.18	1.994	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	311.83	311.73	525.58	0.00	2373.94	0.131	0.16	1.814	A
2 SB	796.77	796.44	236.49	0.00	2478.81	0.321	0.49	2.225	A
3 EB	494.62	494.39	798.60	0.00	2035.00	0.243	0.32	2.360	A
4 NB	360.22	360.08	709.35	0.00	2133.37	0.169	0.21	2.111	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	297.28	297.31	501.36	0.00	2392.39	0.124	0.15	1.788	A
2 SB	759.59	759.72	225.55	0.00	2486.93	0.305	0.46	2.167	A
3 EB	471.54	471.63	761.76	0.00	2061.59	0.229	0.30	2.286	A
4 NB	343.41	343.46	676.68	0.00	2157.48	0.159	0.20	2.065	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	275.45	275.50	464.60	0.00	2420.39	0.114	0.13	1.747	A
2 SB	703.82	704.02	209.00	0.00	2499.20	0.282	0.41	2.087	A
3 EB	436.92	437.06	705.91	0.00	2101.91	0.208	0.27	2.183	A
4 NB	318.19	318.27	627.07	0.00	2194.09	0.145	0.18	1.995	A

Existing - 2024, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Existing	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2024	PM Peak	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	0.0
2 SB	2 SB	Tremaine Rd	1.0
3 EB	3 EB	Britannia Rd	0.0
4 NB	4 NB	Tremaine Rd	1.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

--	--

		To			
		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	158.000	203.000	127.000
	2 SB	142.000	0.000	173.000	153.000
	3 EB	54.000	190.000	0.000	10.000
	4 NB	92.000	375.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
488.00	0.93	SecondQuarter
468.00	0.93	SecondQuarter
254.00	0.93	SecondQuarter
484.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.23	2.03	0.30	~1	A
2 SB	0.21	1.94	0.27	~1	A
3 EB	0.12	1.79	0.14	~1	A
4 NB	0.22	1.99	0.29	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	1.96	A	175	Leg 1 WB

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	463.51	462.53	551.67	0.00	2354.07	0.197	0.24	1.903	A
2 SB	444.52	443.60	328.89	0.00	2410.23	0.184	0.23	1.848	A
3 EB	241.25	240.79	400.00	0.00	2322.72	0.104	0.12	1.728	A
4 NB	459.71	458.75	365.91	0.00	2386.84	0.193	0.24	1.885	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	524.73	524.53	625.60	0.00	2297.76	0.228	0.30	2.030	A
2 SB	503.23	503.06	372.98	0.00	2377.51	0.212	0.27	1.939	A
3 EB	273.12	273.04	453.60	0.00	2284.02	0.120	0.14	1.789	A
4 NB	520.43	520.25	414.93	0.00	2350.67	0.221	0.29	1.986	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	500.24	500.32	596.68	0.00	2319.78	0.216	0.28	1.978	A
2 SB	479.74	479.81	355.76	0.00	2390.29	0.201	0.25	1.902	A
3 EB	260.37	260.40	432.65	0.00	2299.15	0.113	0.13	1.764	A
4 NB	496.14	496.21	395.73	0.00	2364.83	0.210	0.27	1.945	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	463.51	463.63	552.92	0.00	2353.12	0.197	0.25	1.907	A
2 SB	444.52	444.62	329.67	0.00	2409.65	0.184	0.23	1.849	A
3 EB	241.25	241.30	400.92	0.00	2322.05	0.104	0.12	1.732	A
4 NB	459.71	459.82	366.71	0.00	2386.25	0.193	0.24	1.886	A

Queues

2: First Line/Bronte St. S & Britannia Road

Baseline Condition

AM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	147	356	54	6	271	57	27	64	103	168	88
Future Volume (vph)	147	356	54	6	271	57	27	64	103	168	88
Lane Group Flow (vph)	162	391	59	7	298	63	30	73	113	185	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
v/c Ratio	0.32	0.23	0.09	0.02	0.18	0.10	0.07	0.10	0.24	0.26	0.16
Control Delay (s/veh)	16.0	22.4	1.9	12.7	21.8	2.2	24.9	24.3	24.6	24.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.0	22.4	1.9	12.7	21.8	2.2	24.9	24.3	24.6	24.3	5.2
Queue Length 50th (m)	17.6	22.7	0.0	0.8	17.2	0.0	4.3	10.3	16.2	26.0	0.0
Queue Length 95th (m)	29.8	31.4	3.4	3.2	24.9	4.1	11.0	20.5	30.0	42.3	10.6
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	80.0		45.0	100.0		60.0	35.0		65.0		
Base Capacity (vph)	502	1694	646	411	1662	646	437	702	465	705	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.23	0.09	0.02	0.18	0.10	0.07	0.10	0.24	0.26	0.16

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1	#2  Ø2 (R)	#2  Ø4
11 s	47 s	47 s
#2  Ø5	#2  Ø6 (R)	#2  Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

Baseline Condition
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	147	356	54	6	271	57	27	64	3	103	168	88
Future Volume (veh/h)	147	356	54	6	271	57	27	64	3	103	168	88
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		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	1841	1856	1841	1648	1826	1841	1900	1900	1900	1841	1900	1826
Adj Flow Rate, veh/h	162	391	59	7	298	63	30	70	3	113	185	97
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	4	17	5	4	0	0	0	4	0	5
Cap, veh/h	525	1705	597	441	1678	597	407	672	29	521	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4453	1560	1570	4382	1560	1115	1809	78	1306	1900	1528
Grp Volume(v), veh/h	162	391	59	7	298	63	30	0	73	113	185	97
Grp Sat Flow(s),veh/h/ln	1753	1484	1560	1570	1461	1560	1115	0	1886	1306	1900	1528
Q Serve(g_s), s	5.9	6.2	2.5	0.3	4.7	2.7	2.0	0.0	2.7	6.5	7.1	4.5
Cycle Q Clear(g_c), s	5.9	6.2	2.5	0.3	4.7	2.7	9.1	0.0	2.7	9.2	7.1	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	525	1705	597	441	1678	597	407	0	701	521	706	567
V/C Ratio(X)	0.31	0.23	0.10	0.02	0.18	0.11	0.07	0.00	0.10	0.22	0.26	0.17
Avail Cap(c_a), veh/h	525	1705	597	441	1678	597	407	0	701	521	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	21.9	20.8	16.2	21.5	20.8	26.2	0.0	21.6	24.6	23.0	22.1
Incr Delay (d2), s/veh	1.5	0.3	0.3	0.1	0.2	0.4	0.4	0.0	0.3	1.0	0.9	0.7
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	1.1	1.0	0.5	0.0	0.7	0.5	0.3	0.0	0.6	1.1	1.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.2	22.2	21.1	16.2	21.7	21.2	26.5	0.0	21.9	25.5	23.9	22.8
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		612			368			103			395	
Approach Delay, s/veh		21.3			21.5			23.2			24.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	0.0	0.0		11.1	0.0	0.0		11.2				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	0.0		2.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.2									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

Baseline Condition
AM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	61	388	238	258	218	61	559	180	240	1029	70
Future Volume (vph)	61	388	238	258	218	61	559	180	240	1029	70
Lane Group Flow (vph)	63	400	245	266	317	63	576	186	247	1061	72
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	17.0	47.0	47.0	23.0	53.0	17.0	50.0	50.0	20.0	53.0	53.0
Total Split (%)	12.1%	33.6%	33.6%	16.4%	37.9%	12.1%	35.7%	35.7%	14.3%	37.9%	37.9%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.32	0.40	0.36	0.71	0.18	0.33	0.64	0.35	0.72	0.89	0.12
Control Delay (s/veh)	67.0	39.1	7.9	70.1	21.5	67.3	48.3	6.6	72.9	54.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.0	39.1	7.9	70.1	21.5	67.3	48.3	6.6	72.9	54.9	0.4
Queue Length 50th (m)	8.9	56.1	3.7	38.7	18.7	9.1	76.3	0.0	35.4	141.4	0.0
Queue Length 95th (m)	16.4	78.8	25.6	53.5	29.3	16.8	93.7	18.1	50.3	167.6	0.0
Internal Link Dist (m)		1350.0			1377.1		1297.7			993.1	
Turn Bay Length (m)	108.0			101.0		50.0		100.0	50.0		90.0
Base Capacity (vph)	308	1010	680	433	1782	299	1029	585	372	1226	604
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.40	0.36	0.61	0.18	0.21	0.56	0.32	0.66	0.87	0.12

Intersection Summary

Cycle Length: 140

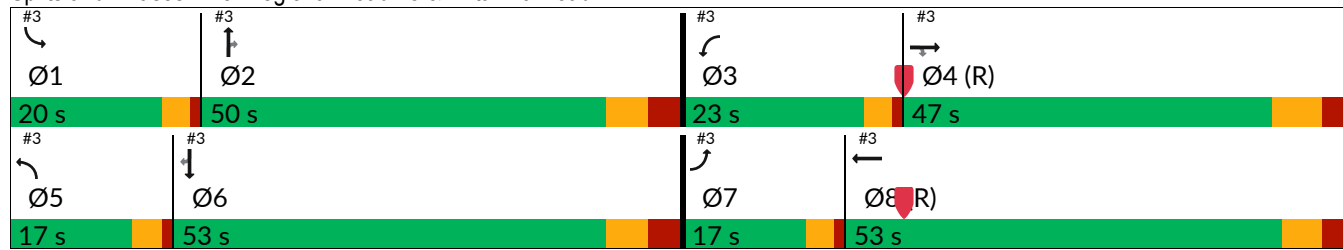
Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Regional Road 25 & Britannia Road



HCM 6th Signalized Intersection Summary 3: Regional Road 25 & Britannia Road

Baseline Condition
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	388	238	258	218	89	61	559	180	240	1029	70
Future Volume (veh/h)	61	388	238	258	218	89	61	559	180	240	1029	70
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		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	1870	1870	1870	1811	1826	1811	1826	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	63	400	245	266	225	92	63	576	186	247	1061	72
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
Percent Heavy Veh, %	2	2	2	6	5	6	5	6	6	4	4	3
Cap, veh/h	158	1110	588	328	1386	528	154	925	413	304	1150	485
Arrive On Green	0.05	0.37	0.37	0.10	0.42	0.42	0.05	0.27	0.27	0.09	0.31	0.31
Sat Flow, veh/h	3456	2993	1584	3346	3274	1248	3374	3441	1535	3401	3681	1553
Grp Volume(v), veh/h	63	400	245	266	199	118	63	576	186	247	1061	72
Grp Sat Flow(s),veh/h/ln	1728	1496	1584	1673	1461	1600	1687	1721	1535	1700	1841	1553
Q Serve(g_s), s	2.5	13.6	16.1	10.9	5.9	6.4	2.5	20.6	14.1	10.0	39.0	4.7
Cycle Q Clear(g_c), s	2.5	13.6	16.1	10.9	5.9	6.4	2.5	20.6	14.1	10.0	39.0	4.7
Prop In Lane	1.00		1.00	1.00		0.78	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	1110	588	328	1237	677	154	925	413	304	1150	485
V/C Ratio(X)	0.40	0.36	0.42	0.81	0.16	0.17	0.41	0.62	0.45	0.81	0.92	0.15
Avail Cap(c_a), veh/h	321	1110	588	454	1237	677	313	1040	464	389	1191	502
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.9	32.0	32.8	61.9	25.0	25.1	65.0	44.9	42.6	62.6	46.5	34.7
Incr Delay (d2), s/veh	1.6	0.9	2.2	7.6	0.3	0.6	1.7	1.0	0.8	9.9	11.6	0.1
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	0.9	3.2	4.2	3.8	1.2	1.5	0.9	6.1	3.7	3.6	13.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.6	32.9	34.9	69.5	25.3	25.7	66.7	45.9	43.4	72.5	58.0	34.8
LnGrp LOS	E	C	C	E	C	C	E	D	D	E	E	C
Approach Vol, veh/h	708				583			825			1380	
Approach Delay, s/veh	36.6				45.5			46.9			59.4	
Approach LOS	D				D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	45.3	17.7	60.4	10.4	51.5	10.4	67.8				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	16.0	42.3	19.0	38.5	13.0	45.3	13.0	* 46				
Max Q Clear Time (g_c+I1), s	12.0	22.6	12.9	15.6	4.5	41.0	4.5	8.4				
Green Ext Time (p_c), s	0.5	5.1	0.8	1.5	0.1	2.8	0.1	2.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	49.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
4: Tremaine Road & Lower Base Line W

Baseline Condition
AM Peak

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	8	322	29	70	450
Future Vol, veh/h	52	8	322	29	70	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	61	9	379	34	82	529
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1089	396	0	0	413	0
Stage 1	396	-	-	-	-	-
Stage 2	693	-	-	-	-	-
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	241	658	-	-	1157	-
Stage 1	684	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	217	658	-	-	1157	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	616	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	26.4	0		1.1		
HCM LOS	D					
Minor Lane/Major Mvmt		NBT	NBRWBLn1	SBL	SBT	
Capacity (veh/h)		-	-	238	1157	-
HCM Lane V/C Ratio		-	-	0.297	0.071	-
HCM Ctrl Dly (s/v)		-	-	26.4	8.4	0
HCM Lane LOS		-	-	D	A	A
HCM 95th %tile Q (veh)		-	-	1.2	0.2	-

HCM 6th TWSC
5: Lower Base Line W & First Line

Baseline Condition
AM Peak

Intersection						
Int Delay, s/veh	6.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	99	11	89	195	57
Future Vol, veh/h	3	99	11	89	195	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	3	105	12	95	207	61
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	107	0	-	0	171	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	111	-
Critical Hdwy	4.1	-	-	-	6.41	6.2
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.2	-	-	-	3.509	3.3
Pot Cap-1 Maneuver	1497	-	-	-	821	1011
Stage 1	-	-	-	-	965	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1497	-	-	-	819	1011
Mov Cap-2 Maneuver	-	-	-	-	819	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	916	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.2	0		11.1		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1497	-	-	-	856	
HCM Lane V/C Ratio	0.002	-	-	-	0.313	
HCM Ctrl Dly (s/v)	7.4	0	-	-	11.1	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0	-	-	-	1.3	

Queues
6: Regional Road 25 & Lower Base Line W

Baseline Condition
AM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	22	94	73	13	10	840	19	1474
Future Volume (vph)	22	94	73	13	10	840	19	1474
Lane Group Flow (vph)	0	157	0	102	11	977	20	1553
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio		0.55		0.68	0.07	0.41	0.06	0.63
Control Delay (s/veh)		43.7		60.9	7.0	6.8	6.1	9.8
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		43.7		60.9	7.0	6.8	6.1	9.8
Queue Length 50th (m)		27.3		18.8	0.6	36.7	1.0	77.1
Queue Length 95th (m)		44.0		34.3	3.0	60.9	4.1	124.9
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		491		260	166	2402	363	2451
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.32		0.39	0.07	0.41	0.06	0.63

Intersection Summary

Cycle Length: 105

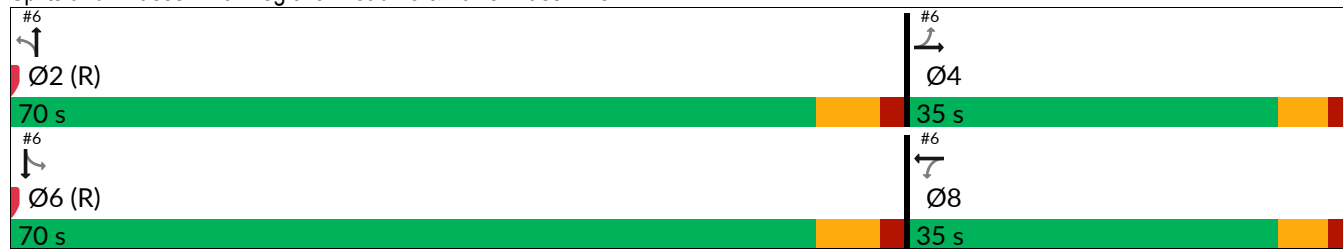
Actuated Cycle Length: 105

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 6: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary 6: Regional Road 25 & Lower Base Line W

Baseline Condition
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	94	33	73	13	10	10	840	88	19	1474	1
Future Volume (veh/h)	22	94	33	73	13	10	10	840	88	19	1474	1
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	23	99	35	77	14	11	11	884	93	20	1552	1
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	59	142	46	155	27	15	263	2374	250	459	2689	2
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.76	0.76	0.76	0.76	0.76	0.76
Sat Flow, veh/h	174	1241	406	828	240	129	338	3116	328	585	3529	2
Grp Volume(v), veh/h	157	0	0	102	0	0	11	484	493	20	757	796
Grp Sat Flow(s),veh/h/ln	1821	0	0	1197	0	0	338	1706	1737	585	1721	1811
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	1.5	9.9	9.9	1.2	19.6	19.6
Cycle Q Clear(g_c), s	8.6	0.0	0.0	9.1	0.0	0.0	21.1	9.9	9.9	11.1	19.6	19.6
Prop In Lane	0.15		0.22	0.75		0.11	1.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	247	0	0	197	0	0	263	1300	1324	459	1311	1380
V/C Ratio(X)	0.63	0.00	0.00	0.52	0.00	0.00	0.04	0.37	0.37	0.04	0.58	0.58
Avail Cap(c_a), veh/h	529	0	0	418	0	0	263	1300	1324	459	1311	1380
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	0.0	45.1	0.0	0.0	9.8	4.2	4.2	6.0	5.3	5.3
Incr Delay (d2), s/veh	5.6	0.0	0.0	4.4	0.0	0.0	0.3	0.8	0.8	0.2	1.9	1.8
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	2.9	0.0	0.0	1.9	0.0	0.0	0.0	0.3	0.3	0.0	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.7	0.0	0.0	49.5	0.0	0.0	10.1	5.0	5.0	6.2	7.2	7.1
LnGrp LOS	D			D			B	A	A	A	A	A
Approach Vol, veh/h		157			102			988			1573	
Approach Delay, s/veh		50.7			49.5			5.0			7.1	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.0		18.0		87.0		18.0				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		10.6		0.0		11.1				
Green Ext Time (p_c), s		0.0		1.4		0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				10.3								
HCM 6th LOS				B								

Queues
7: Thompson Rd S & Britannia Road

Baseline Condition
AM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	87	720	1	426	3	0	239	1
Future Volume (vph)	87	720	1	426	3	0	239	1
Lane Group Flow (vph)	95	785	1	510	3	2	260	167
Turn Type	Prot	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	5	2		6		8		4
Permitted Phases			6		8		4	
Detector Phase	5	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	7.0	30.0	25.0	25.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	37.0	32.0	32.0	39.0	39.0	39.0	39.0
Total Split (s)	13.0	56.0	43.0	43.0	39.0	39.0	39.0	39.0
Total Split (%)	13.7%	58.9%	45.3%	45.3%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	2.0	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	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag				
Lead-Lag Optimize?	Yes		Yes	Yes				
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.56	0.27	0.00	0.23	0.01	0.00	0.73	0.32
Control Delay (s/veh)	53.6	10.5	18.0	16.5	22.3	0.0	43.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.6	10.5	18.0	16.5	22.3	0.0	43.3	5.6
Queue Length 50th (m)	17.0	24.4	0.1	21.3	0.5	0.0	43.7	0.1
Queue Length 95th (m)	#37.3	38.0	1.1	32.3	3.0	0.0	63.9	13.2
Internal Link Dist (m)		1377.1		902.8		298.9		1556.7
Turn Bay Length (m)	100.0		160.0				40.0	
Base Capacity (vph)	178	2949	294	2255	300	637	463	628
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	0.53	0.27	0.00	0.23	0.01	0.00	0.56	0.27

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 22.5 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

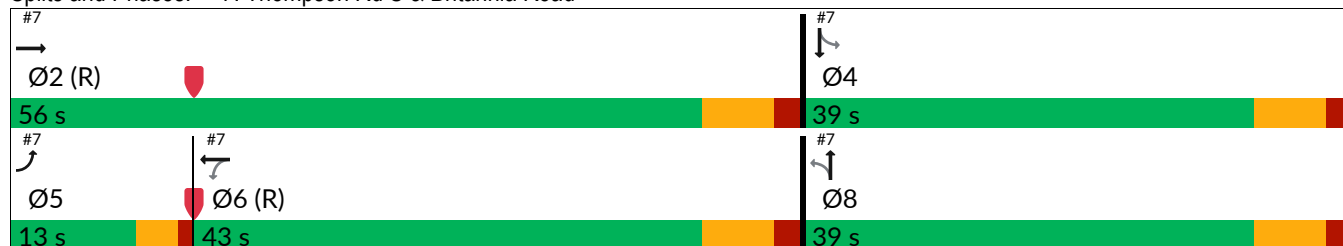
Natural Cycle: 85

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Thompson Rd S & Britannia Road



04/22/2026

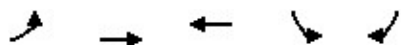
HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

Baseline Condition
AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	87	720	2	1	426	43	3	0	2	239	1	153
Future Volume (veh/h)	87	720	2	1	426	43	3	0	2	239	1	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1826
Adj Flow Rate, veh/h	95	783	2	1	463	47	3	0	2	260	1	166
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	5
Cap, veh/h	121	3197	8	430	2295	230	210	0	378	409	2	376
Arrive On Green	0.07	0.62	0.62	0.51	0.51	0.51	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1767	5175	13	698	4526	453	918	0	1608	1424	10	1600
Grp Volume(v), veh/h	95	507	278	1	333	177	3	0	2	260	0	167
Grp Sat Flow(s),veh/h/ln	1767	1675	1838	698	1635	1709	918	0	1608	1424	0	1610
Q Serve(g_s), s	5.0	6.5	6.5	0.1	5.3	5.4	0.3	0.0	0.1	16.2	0.0	8.4
Cycle Q Clear(g_c), s	5.0	6.5	6.5	0.1	5.3	5.4	8.7	0.0	0.1	16.3	0.0	8.4
Prop In Lane	1.00		0.01	1.00		0.26	1.00		1.00	1.00		0.99
Lane Grp Cap(c), veh/h	121	2069	1135	430	1658	867	210	0	378	409	0	378
V/C Ratio(X)	0.78	0.24	0.24	0.00	0.20	0.20	0.01	0.00	0.01	0.64	0.00	0.44
Avail Cap(c_a), veh/h	167	2069	1135	430	1658	867	304	0	542	554	0	542
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.6	8.2	8.2	11.6	12.9	12.9	34.7	0.0	27.8	34.1	0.0	31.0
Incr Delay (d2), s/veh	15.0	0.3	0.5	0.0	0.3	0.5	0.1	0.0	0.0	3.5	0.0	1.7
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	1.8	0.1	0.2	0.0	0.4	0.5	0.0	0.0	0.0	3.2	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.6	8.5	8.7	11.6	13.1	13.4	34.8	0.0	27.9	37.6	0.0	32.8
LnGrp LOS	E	A	A		B	B	C		C	D		C
Approach Vol, veh/h		880			511			5			427	
Approach Delay, s/veh		13.9			13.2			32.0			35.7	
Approach LOS		B			B			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.7		29.3	10.5	55.2		29.3				
Change Period (Y+Rc), s		7.0		7.0	4.0	7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0	9.0	36.0		32.0				
Max Q Clear Time (g_c+I1), s		8.5		18.3	7.0	7.4		10.7				
Green Ext Time (p_c), s		11.8		3.7	0.1	6.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				18.9								
HCM 6th LOS				B								

Queues
8: Britannia Road & James Snow Pkwy

Baseline Condition
AM Peak



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↱
Traffic Volume (vph)	89	519	299	372	118
Future Volume (vph)	89	519	299	372	118
Lane Group Flow (vph)	102	597	454	428	136
Turn Type	pm+pt	NA	NA	Prot	Perm
Protected Phases	5	2	6	4	
Permitted Phases	2				4
Detector Phase	5	2	6	4	4
Switch Phase					
Minimum Initial (s)	7.0	25.0	25.0	15.0	15.0
Minimum Split (s)	10.0	39.0	39.0	39.0	39.0
Total Split (s)	11.0	50.0	39.0	40.0	40.0
Total Split (%)	12.2%	55.6%	43.3%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	5.0	5.0
All-Red Time (s)	0.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
v/c Ratio	0.21	0.23	0.24	0.80	0.24
Control Delay (s/veh)	11.4	12.6	14.5	39.4	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.4	12.6	14.5	39.4	4.8
Queue Length 50th (m)	8.7	20.8	15.5	67.8	0.0
Queue Length 95th (m)	17.4	28.4	23.3	94.3	10.8
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	120.0			200.0	
Base Capacity (vph)	487	2604	1929	609	623
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.23	0.24	0.70	0.22

Intersection Summary

Cycle Length: 90

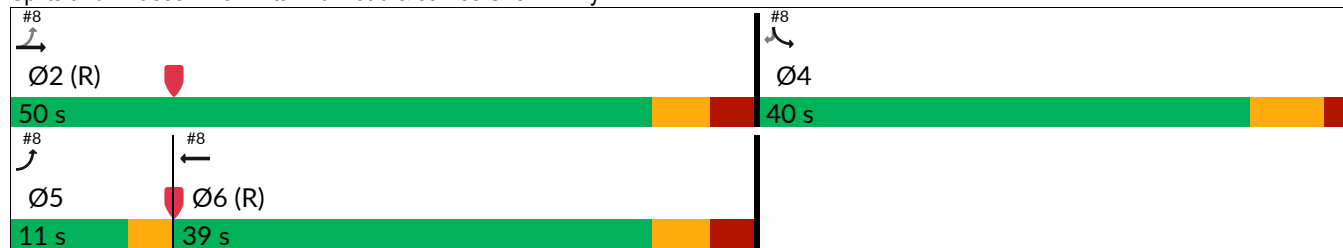
Actuated Cycle Length: 90

Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

Baseline Condition
AM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	89	519	299	96	372	118
Future Volume (veh/h)	89	519	299	96	372	118
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	1722	1841	1796	1366	1826	1767
Adj Flow Rate, veh/h	102	597	344	110	428	136
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	12	4	7	36	5	9
Cap, veh/h	526	2742	1642	500	519	447
Arrive On Green	0.07	0.55	0.44	0.44	0.30	0.30
Sat Flow, veh/h	1640	5191	3888	1135	1739	1497
Grp Volume(v), veh/h	102	597	300	154	428	136
Grp Sat Flow(s),veh/h/ln	1640	1675	1635	1592	1739	1497
Q Serve(g_s), s	2.8	5.5	5.1	5.4	20.6	6.3
Cycle Q Clear(g_c), s	2.8	5.5	5.1	5.4	20.6	6.3
Prop In Lane	1.00			0.71	1.00	1.00
Lane Grp Cap(c), veh/h	526	2742	1441	702	519	447
V/C Ratio(X)	0.19	0.22	0.21	0.22	0.82	0.30
Avail Cap(c_a), veh/h	554	2742	1441	702	638	549
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	10.7	10.5	15.5	15.6	29.4	24.3
Incr Delay (d2), s/veh	0.1	0.2	0.3	0.7	9.4	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.5	0.6	4.9	5.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	10.9	10.7	15.8	16.3	38.7	25.2
LnGrp LOS	B	B	B	B	D	C
Approach Vol, veh/h		699	454		564	
Approach Delay, s/veh		10.7	16.0		35.5	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		56.1		33.9	9.5	46.7
Change Period (Y+Rc), s		7.0		7.0	3.0	7.0
Max Green Setting (Gmax), s		43.0		33.0	8.0	32.0
Max Q Clear Time (g_c+I1), s		7.5		22.6	4.8	7.4
Green Ext Time (p_c), s		8.6		4.3	0.1	5.5
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			20.2			
HCM 6th LOS			C			

Queues

2: First Line/Bronte St. S & Britannia Road

Baseline Condition

PM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	69	254	22	4	363	78	59	141	52	61	73
Future Volume (vph)	69	254	22	4	363	78	59	141	52	61	73
Lane Group Flow (vph)	76	279	24	4	399	86	65	158	57	67	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
v/c Ratio	0.17	0.16	0.04	0.01	0.24	0.13	0.13	0.22	0.13	0.10	0.13
Control Delay (s/veh)	14.0	21.7	0.1	12.5	22.5	4.4	29.9	30.9	23.0	22.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.0	21.7	0.1	12.5	22.5	4.4	29.9	30.9	23.0	22.1	5.4
Queue Length 50th (m)	7.8	15.7	0.0	0.4	23.6	0.0	10.5	25.9	7.9	8.8	0.0
Queue Length 95th (m)	15.5	23.0	0.0	2.3	32.6	8.6	m20.9	42.6	17.0	17.8	9.4
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	80.0		45.0	100.0		60.0	35.0		65.0		
Base Capacity (vph)	459	1694	646	454	1662	646	486	704	430	705	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.16	0.04	0.01	0.24	0.13	0.13	0.22	0.13	0.10	0.13

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2 	#2 	#2 
Ø1	Ø2 (R)	Ø4
11 s	47 s	47 s
#2 	#2 	#2 
Ø5	Ø6 (R)	Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

Baseline Condition
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	69	254	22	4	363	78	59	141	3	52	61	73
Future Volume (veh/h)	69	254	22	4	363	78	59	141	3	52	61	73
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		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	1841	1856	1841	1648	1826	1841	1900	1900	1900	1841	1900	1826
Adj Flow Rate, veh/h	76	279	24	4	399	86	65	155	3	57	67	80
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	4	17	5	4	0	0	0	4	0	5
Cap, veh/h	473	1705	597	497	1678	597	508	690	13	448	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4453	1560	1570	4382	1560	1260	1858	36	1209	1900	1528
Grp Volume(v), veh/h	76	279	24	4	399	86	65	0	158	57	67	80
Grp Sat Flow(s),veh/h/ln	1753	1484	1560	1570	1461	1560	1260	0	1894	1209	1900	1528
Q Serve(g_s), s	2.6	4.3	1.0	0.1	6.5	3.8	3.7	0.0	6.0	3.6	2.4	3.6
Cycle Q Clear(g_c), s	2.6	4.3	1.0	0.1	6.5	3.8	6.1	0.0	6.0	9.6	2.4	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	473	1705	597	497	1678	597	508	0	703	448	706	567
V/C Ratio(X)	0.16	0.16	0.04	0.01	0.24	0.14	0.13	0.00	0.22	0.13	0.09	0.14
Avail Cap(c_a), veh/h	473	1705	597	497	1678	597	508	0	703	448	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	21.3	20.3	16.0	22.0	21.2	23.5	0.0	22.6	25.9	21.5	21.9
Incr Delay (d2), s/veh	0.7	0.2	0.1	0.0	0.3	0.5	0.5	0.0	0.7	0.6	0.3	0.5
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	0.5	0.7	0.2	0.0	1.0	0.7	0.6	0.0	1.4	0.6	0.5	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.6	21.5	20.4	16.1	22.3	21.7	24.0	0.0	23.4	26.5	21.8	22.4
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		379			489			223			204	
Approach Delay, s/veh		20.7			22.2			23.6			23.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	2.1	3.0		8.1	4.6	5.8		11.6				
Green Ext Time (p_c), s	0.0	0.0		1.3	0.1	0.1		1.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.2									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

Baseline Condition
PM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	51	253	35	167	401	208	872	377	94	554	61
Future Volume (vph)	51	253	35	167	401	208	872	377	94	554	61
Lane Group Flow (vph)	53	261	36	172	672	214	899	389	97	571	63
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	15.0	47.0	47.0	23.0	55.0	20.0	55.0	55.0	15.0	50.0	50.0
Total Split (%)	10.7%	33.6%	33.6%	16.4%	39.3%	14.3%	39.3%	39.3%	10.7%	35.7%	35.7%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
v/c Ratio	0.28	0.24	0.05	0.58	0.38	0.66	0.86	0.53	0.45	0.60	0.12
Control Delay (s/veh)	66.7	34.2	0.1	68.7	24.9	70.7	54.4	5.9	69.1	46.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.7	34.2	0.1	68.7	24.9	70.7	54.4	5.9	69.1	46.6	0.4
Queue Length 50th (m)	7.5	32.6	0.0	25.1	46.5	30.9	127.6	0.0	13.9	74.3	0.0
Queue Length 95th (m)	14.5	50.5	0.0	36.8	64.7	44.5	150.0	24.0	23.4	91.0	0.0
Internal Link Dist (m)		1350.0			1377.1		1297.7			993.1	
Turn Bay Length (m)	108.0			101.0		50.0		100.0	50.0		90.0
Base Capacity (vph)	260	1073	666	433	1776	368	1152	767	255	1048	580
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.24	0.05	0.40	0.38	0.58	0.78	0.51	0.38	0.54	0.11

Intersection Summary

Cycle Length: 140

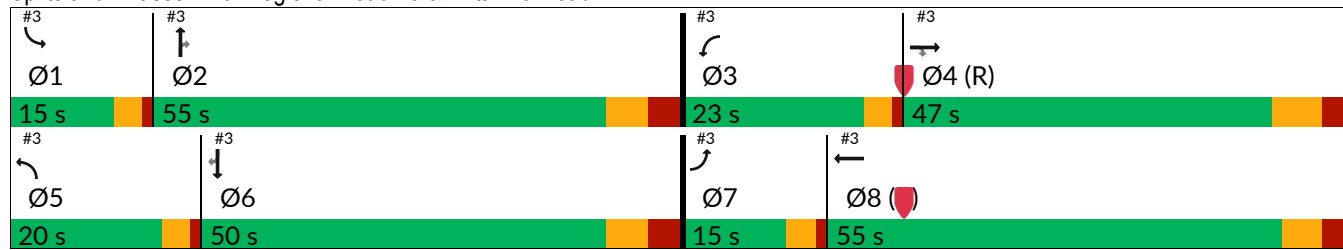
Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Regional Road 25 & Britannia Road



HCM 6th Signalized Intersection Summary 3: Regional Road 25 & Britannia Road

Baseline Condition
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	253	35	167	401	251	208	872	377	94	554	61
Future Volume (veh/h)	51	253	35	167	401	251	208	872	377	94	554	61
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		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	1870	1870	1870	1811	1826	1811	1826	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	53	261	36	172	413	259	214	899	389	97	571	63
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
Percent Heavy Veh, %	2	2	2	6	5	6	5	6	6	4	4	3
Cap, veh/h	151	1208	639	232	1254	664	271	1051	469	166	958	425
Arrive On Green	0.04	0.40	0.40	0.07	0.43	0.43	0.08	0.31	0.31	0.05	0.27	0.27
Sat Flow, veh/h	3456	2993	1584	3346	2921	1546	3374	3441	1535	3401	3497	1552
Grp Volume(v), veh/h	53	261	36	172	413	259	214	899	389	97	571	63
Grp Sat Flow(s),veh/h/ln	1728	1496	1584	1673	1461	1546	1687	1721	1535	1700	1749	1552
Q Serve(g_s), s	2.1	8.0	1.9	7.1	13.2	16.1	8.7	34.4	33.0	3.9	19.8	4.3
Cycle Q Clear(g_c), s	2.1	8.0	1.9	7.1	13.2	16.1	8.7	34.4	33.0	3.9	19.8	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	151	1208	639	232	1254	664	271	1051	469	166	958	425
V/C Ratio(X)	0.35	0.22	0.06	0.74	0.33	0.39	0.79	0.86	0.83	0.58	0.60	0.15
Avail Cap(c_a), veh/h	272	1208	639	454	1254	664	386	1163	519	267	1057	469
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	27.3	25.5	63.9	26.6	27.4	63.2	45.7	45.2	65.2	44.1	38.5
Incr Delay (d2), s/veh	1.4	0.4	0.2	4.6	0.7	1.7	7.0	6.0	10.1	3.2	0.8	0.2
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	0.7	1.8	0.5	2.4	2.7	3.7	3.1	10.5	9.5	1.4	5.9	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.4	27.7	25.6	68.5	27.3	29.1	70.2	51.7	55.3	68.4	44.9	38.6
LnGrp LOS	E	C	C	E	C	C	E	D	E	E	D	D
Approach Vol, veh/h	350				844				1502			
Approach Delay, s/veh	33.3				36.2				55.3			
Approach LOS	C				D				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	50.5	13.7	65.0	15.3	46.0	10.1	68.6				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	11.0	47.3	19.0	38.5	16.0	42.3	11.0	* 48				
Max Q Clear Time (g_c+I1), s	5.9	36.4	9.1	10.0	10.7	21.8	4.1	18.1				
Green Ext Time (p_c), s	0.2	6.4	0.7	1.5	0.5	4.2	0.1	5.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	46.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC
4: Tremaine Road & Lower Base Line W

Baseline Condition
PM Peak

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	48	473	19	45	231
Future Vol, veh/h	40	48	473	19	45	231
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	47	56	556	22	53	272
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	945	567	0	0	578	0
Stage 1	567	-	-	-	-	-
Stage 2	378	-	-	-	-	-
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	293	527	-	-	1006	-
Stage 1	572	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	275	527	-	-	1006	-
Mov Cap-2 Maneuver	275	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	18.4	0		1.4		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	372	1006	-	
HCM Lane V/C Ratio	-	-	0.278	0.053	-	
HCM Ctrl Dly (s/v)	-	-	18.4	8.8	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q (veh)	-	-	1.1	0.2	-	

HCM 6th TWSC
5: Lower Base Line W & First Line

Baseline Condition
PM Peak

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	65	73	198	71	18
Future Vol, veh/h	4	65	73	198	71	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	4	69	78	211	76	19
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	289	0	-	0	261	184
Stage 1	-	-	-	-	184	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	4.1	-	-	-	6.41	6.2
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.2	-	-	-	3.509	3.3
Pot Cap-1 Maneuver	1284	-	-	-	730	864
Stage 1	-	-	-	-	850	-
Stage 2	-	-	-	-	949	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	728	864
Mov Cap-2 Maneuver	-	-	-	-	728	-
Stage 1	-	-	-	-	847	-
Stage 2	-	-	-	-	949	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.5	0		10.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1284	-	-	-	752	
HCM Lane V/C Ratio	0.003	-	-	-	0.126	
HCM Ctrl Dly (s/v)	7.8	0	-	-	10.5	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q (veh)	0	-	-	-	0.4	

Queues
6: Regional Road 25 & Lower Base Line W

Baseline Condition
PM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	54	89	86	16	1429	9	786
Future Volume (vph)	14	54	89	86	16	1429	9	786
Lane Group Flow (vph)	0	92	0	208	17	1550	9	832
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
v/c Ratio		0.25		0.70	0.04	0.69	0.07	0.37
Control Delay (s/veh)		29.5		49.4	8.1	13.8	9.6	8.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		29.5		49.4	8.1	13.8	9.6	8.9
Queue Length 50th (m)		13.4		38.4	1.1	97.9	0.6	37.3
Queue Length 95th (m)		24.9		58.0	4.3	151.2	3.1	59.2
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		487		392	389	2246	138	2272
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.19		0.53	0.04	0.69	0.07	0.37

Intersection Summary

Cycle Length: 105

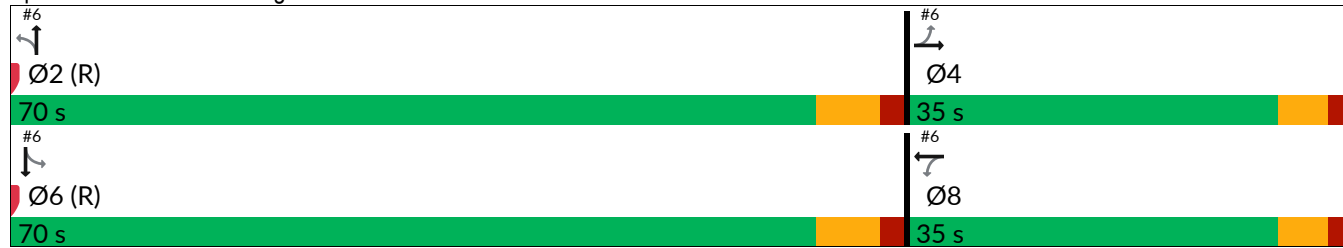
Actuated Cycle Length: 105

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 6: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary 6: Regional Road 25 & Lower Base Line W

Baseline Condition
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	54	19	89	86	22	16	1429	44	9	786	5
Future Volume (veh/h)	14	54	19	89	86	22	16	1429	44	9	786	5
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	15	57	20	94	91	23	17	1504	46	9	827	5
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	63	195	61	156	122	28	495	2440	74	237	2530	15
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	152	1258	392	686	787	183	670	3381	103	339	3507	21
Grp Volume(v), veh/h	92	0	0	208	0	0	17	758	792	9	406	426
Grp Sat Flow(s),veh/h/ln	1802	0	0	1657	0	0	670	1706	1778	339	1721	1807
Q Serve(g_s), s	0.0	0.0	0.0	7.8	0.0	0.0	1.0	23.3	23.5	1.4	9.0	9.0
Cycle Q Clear(g_c), s	4.7	0.0	0.0	12.5	0.0	0.0	10.0	23.3	23.5	24.9	9.0	9.0
Prop In Lane	0.16		0.22	0.45		0.11	1.00		0.06	1.00		0.01
Lane Grp Cap(c), veh/h	318	0	0	306	0	0	495	1231	1283	237	1242	1304
V/C Ratio(X)	0.29	0.00	0.00	0.68	0.00	0.00	0.03	0.62	0.62	0.04	0.33	0.33
Avail Cap(c_a), veh/h	526	0	0	497	0	0	495	1231	1283	237	1242	1304
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	0.0	42.6	0.0	0.0	7.2	7.3	7.3	13.6	5.3	5.3
Incr Delay (d2), s/veh	1.1	0.0	0.0	5.6	0.0	0.0	0.1	2.3	2.2	0.3	0.7	0.7
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	1.4	0.0	0.0	3.6	0.0	0.0	0.0	0.8	0.8	0.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.6	0.0	0.0	48.1	0.0	0.0	7.3	9.6	9.6	13.9	6.0	6.0
LnGrp LOS	D			D			A	A	A	B	A	A
Approach Vol, veh/h	92			208			1567			841		
Approach Delay, s/veh	40.6			48.1			9.6			6.1		
Approach LOS	D			D			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	82.8			22.2			82.8			22.2		
Change Period (Y+Rc), s	7.0			6.0			7.0			6.0		
Max Green Setting (Gmax), s	63.0			29.0			63.0			29.0		
Max Q Clear Time (g_c+I1), s	0.0			6.7			0.0			14.5		
Green Ext Time (p_c), s	0.0			0.8			0.0			1.7		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				12.5								
HCM 6th LOS				B								

Queues

7: Thompson Rd S & Britannia Road

Baseline Condition
PM Peak

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	195	525	2	758	1	0	64	0
Future Volume (vph)	195	525	2	758	1	0	64	0
Lane Group Flow (vph)	212	574	2	1020	1	2	70	65
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		2		6		8		4
Permitted Phases	2		6		8		4	
Detector Phase	2	2	6	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	30.0	30.0	25.0	25.0	7.0	7.0	7.0	7.0
Minimum Split (s)	37.0	37.0	32.0	32.0	39.0	39.0	39.0	39.0
Total Split (s)	56.0	56.0	56.0	56.0	39.0	39.0	39.0	39.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	None
v/c Ratio	0.67	0.17	0.00	0.32	0.01	0.00	0.40	0.21
Control Delay (s/veh)	22.8	4.2	4.5	4.6	34.0	0.0	43.6	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.8	4.2	4.5	4.6	34.0	0.0	43.6	1.5
Queue Length 50th (m)	19.2	12.0	0.1	23.3	0.2	0.0	12.1	0.0
Queue Length 95th (m)	#72.5	19.7	0.8	36.4	2.0	0.0	24.0	0.0
Internal Link Dist (m)		1377.1		902.8		634.1		1556.7
Turn Bay Length (m)	100.0		160.0				40.0	
Base Capacity (vph)	315	3365	547	3173	332	707	463	605
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	0.67	0.17	0.00	0.32	0.00	0.00	0.15	0.11

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 22.5 (24%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 7: Thompson Rd S & Britannia Road

#7 	#7 
Ø2 (R)	Ø4
56 s	39 s
#7 	#7 
Ø6 (R)	Ø8
56 s	39 s

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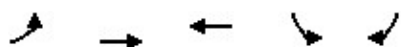
HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

Baseline Condition
PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	195	525	3	2	758	180	1	0	2	64	0	60
Future Volume (veh/h)	195	525	3	2	758	180	1	0	2	64	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1826
Adj Flow Rate, veh/h	212	571	3	2	824	196	1	0	2	70	0	65
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	5
Cap, veh/h	457	3636	19	698	2788	659	126	0	141	199	0	141
Arrive On Green	0.76	0.76	0.76	0.76	0.76	0.76	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	548	4756	25	850	3647	862	1006	0	1605	1421	0	1605
Grp Volume(v), veh/h	212	353	221	2	648	372	1	0	2	70	0	65
Grp Sat Flow(s),veh/h/ln	548	1473	1836	850	1437	1634	1006	0	1605	1421	0	1605
Q Serve(g_s), s	18.3	3.1	3.1	0.1	6.5	6.6	0.1	0.0	0.1	4.5	0.0	3.7
Cycle Q Clear(g_c), s	24.9	3.1	3.1	3.1	6.5	6.6	3.7	0.0	0.1	4.6	0.0	3.7
Prop In Lane	1.00		0.01	1.00		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	457	2251	1404	698	2197	1249	126	0	141	199	0	141
V/C Ratio(X)	0.46	0.16	0.16	0.00	0.30	0.30	0.01	0.00	0.01	0.35	0.00	0.46
Avail Cap(c_a), veh/h	457	2251	1404	698	2197	1249	376	0	541	553	0	541
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	3.0	3.0	3.4	3.4	3.4	42.9	0.0	39.5	41.6	0.0	41.2
Incr Delay (d2), s/veh	3.4	0.1	0.2	0.0	0.3	0.6	0.1	0.0	0.1	2.2	0.0	4.9
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	0.4	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.0	1.1	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.6	3.1	3.2	3.4	3.7	4.0	43.0	0.0	39.6	43.9	0.0	46.1
LnGrp LOS	B	A	A		A	A	D		D	D		D
Approach Vol, veh/h		786			1022			3			135	
Approach Delay, s/veh		5.2			3.8			40.8			44.9	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.6		15.4		79.6		15.4				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0		49.0		32.0				
Max Q Clear Time (g_c+I1), s		26.9		6.6		8.6		5.7				
Green Ext Time (p_c), s		11.0		1.3		16.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				7.3								
HCM 6th LOS				A								

Queues
8: Britannia Road & James Snow Pkwy

Baseline Condition
PM Peak



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	99	357	593	267	101
Future Volume (vph)	99	357	593	267	101
Lane Group Flow (vph)	114	410	1203	307	116
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		2	6	4	4
Permitted Phases	2				
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	15.0	15.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0
Total Split (s)	51.0	51.0	51.0	39.0	39.0
Total Split (%)	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
v/c Ratio	0.61	0.14	0.49	0.69	0.24
Control Delay (s/veh)	33.0	9.8	9.6	37.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.0	9.8	9.6	37.6	5.6
Queue Length 50th (m)	12.9	11.3	31.2	49.9	0.0
Queue Length 95th (m)	#46.3	19.3	50.0	65.3	10.2
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	120.0			200.0	
Base Capacity (vph)	188	2884	2471	590	595
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.14	0.49	0.52	0.19

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

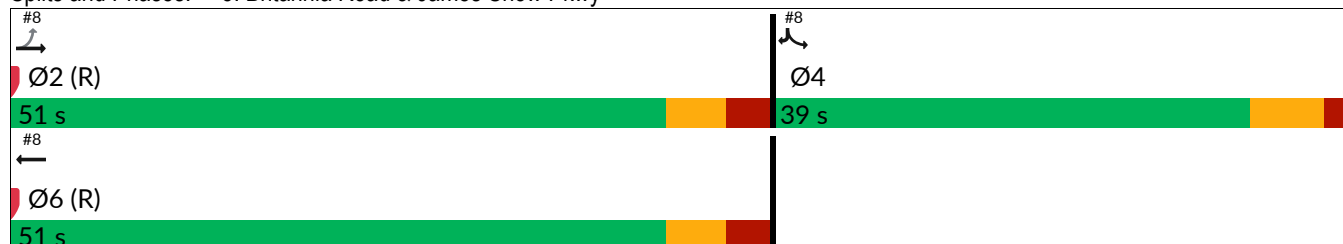
Natural Cycle: 90

Control Type: Actuated-Coordinated

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Britannia Road & James Snow Pkwy

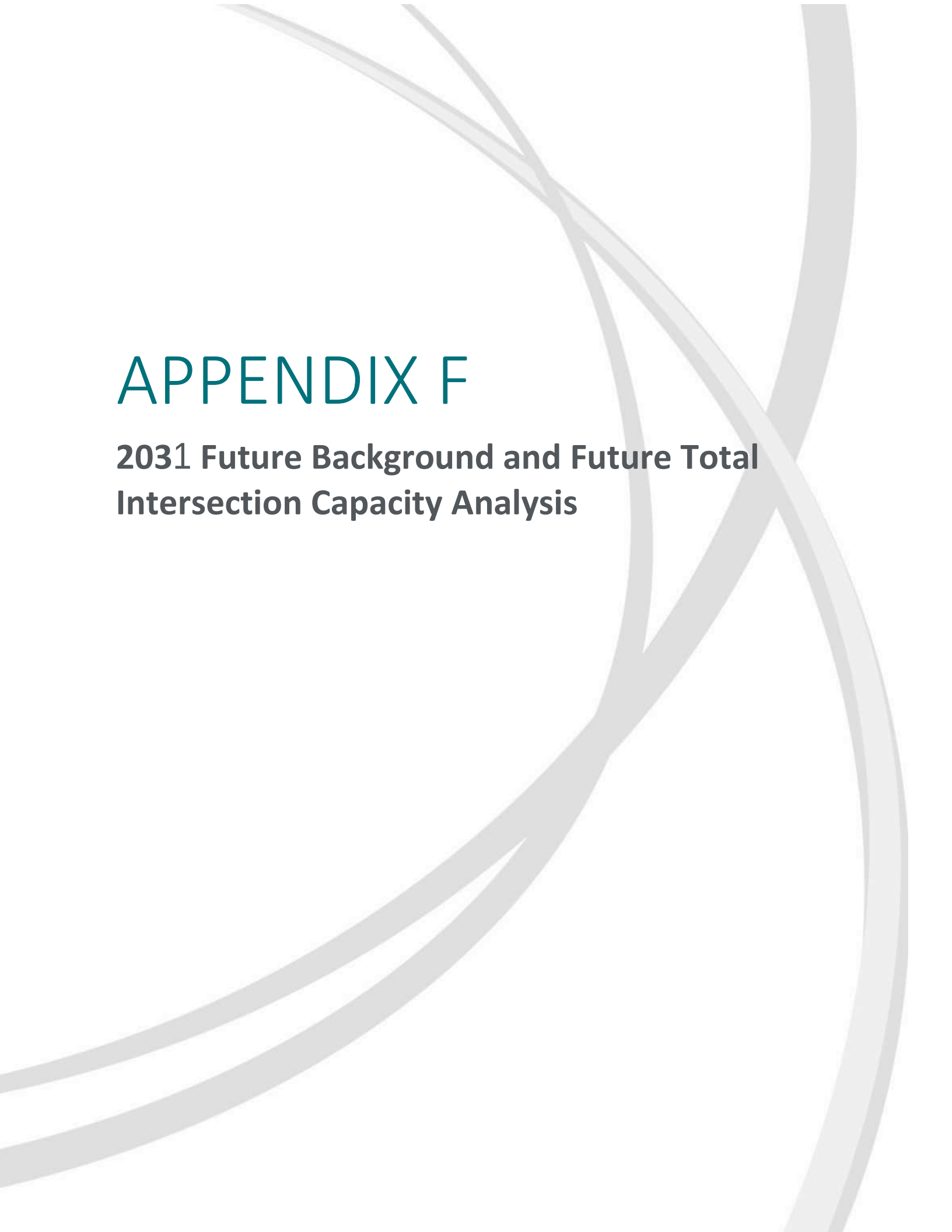


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HCM 6th Signalized Intersection Summary 8: Britannia Road & James Snow Pkwy

Baseline Condition
PM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	99	357	593	453	267	101
Future Volume (veh/h)	99	357	593	453	267	101
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	1722	1841	1796	1366	1826	1767
Adj Flow Rate, veh/h	114	410	682	521	307	116
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	12	4	7	36	5	9
Cap, veh/h	256	3080	2004	933	402	347
Arrive On Green	0.61	0.61	0.61	0.61	0.23	0.23
Sat Flow, veh/h	428	5191	3431	1522	1739	1497
Grp Volume(v), veh/h	114	410	682	521	307	116
Grp Sat Flow(s),veh/h/ln	428	1675	1635	1522	1739	1497
Q Serve(g_s), s	19.2	3.1	9.2	18.1	14.8	5.8
Cycle Q Clear(g_c), s	37.3	3.1	9.2	18.1	14.8	5.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	256	3080	2004	933	402	347
V/C Ratio(X)	0.45	0.13	0.34	0.56	0.76	0.33
Avail Cap(c_a), veh/h	256	3080	2004	933	618	532
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	21.2	7.3	8.5	10.2	32.3	28.8
Incr Delay (d2), s/veh	5.5	0.1	0.5	2.4	6.3	1.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.1	0.6	3.7	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	26.7	7.4	9.0	12.7	38.6	30.0
LnGrp LOS	C	A	A	B	D	C
Approach Vol, veh/h		524	1203		423	
Approach Delay, s/veh		11.6	10.6		36.2	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.2		27.8		62.2
Change Period (Y+Rc), s		7.0		7.0		7.0
Max Green Setting (Gmax), s		44.0		32.0		44.0
Max Q Clear Time (g_c+I1), s		39.3		16.8		20.1
Green Ext Time (p_c), s		2.5		4.0		15.3
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			15.9			
HCM 6th LOS			B			



APPENDIX F

2031 Future Background and Future Total Intersection Capacity Analysis

Appendix F – 2031 Future Background and Future Total Intersection Capacity Analysis

Table 1: Roundabout at Tremaine Road & Britannia Road

Future Background

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Background - 2031																
Leg 1 WB	0.18	~1	1.87	0.15	A	2.32	A	114 % [Leg 3 EB]	0.35	~1	2.16	0.26	A	2.05	A	149 % [Leg 1 WB]
Leg 2 SB	0.57	1.04	2.35	0.36	A				0.31	~1	2.01	0.23	A			
Leg 3 EB	0.41	~1	2.59	0.29	A				0.14	~1	1.83	0.13	A			
Leg 4 NB	0.25	~1	2.25	0.20	A				0.34	~1	2.09	0.25	A			

Future Total

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Total - 2031																
Leg 1 WB	0.20	~1	1.92	0.16	A	2.45	A	100 % [Leg 3 EB]	0.41	~1	2.26	0.29	A	2.13	A	133 % [Leg 1 WB]
Leg 2 SB	0.67	~1	2.53	0.39	A				0.34	~1	2.12	0.25	A			
Leg 3 EB	0.45	~1	2.74	0.31	A				0.15	~1	1.86	0.13	A			
Leg 4 NB	0.26	~1	2.36	0.20	A				0.35	~1	2.13	0.26	A			

Note: PCE = passenger car equivalents

Table 2: Signalized Intersection of Britannia Road & First Line/ Bronte St S

2: First Line/Bronte St. S & Britannia Road				
AM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (23)	-/-
EBL	147	0.33	B (20)	18/30
EBT	527	0.34	C (24)	35/46
EBR	54	0.10	C (21)	0/3
WBL	6	0.02	B (17)	1/3
WBT	335	0.22	C (22)	22/30
WBR	57	0.11	C (21)	0/4
NBL	27	0.07	C (27)	4/11
NBTR	67	0.10	C (22)	10/21
SBL	103	0.22	C (26)	16/30
SBT	168	0.26	C (24)	26/42
SBR	88	0.17	C (23)	0/11
2: First Line/Bronte St. S & Britannia Road				
PM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (23)	-/-
EBL	69	0.17	B (18)	8/16

EBT	332	0.21	C (22)	21/30
EBR	22	0.04	C (20)	0/0
WBL	4	0.01	B (16)	0/2
WBT	445	0.29	C (23)	30/40
WBR	78	0.14	C (22)	0/9
NBL	59	0.13	C (24)	11/21
NBTR	144	0.22	C (23)	26/43
SBL	52	0.13	C (27)	8/17
SBT	61	0.09	C (22)	9/18
SBR	73	0.14	C (22)	0/9

2: First Line/Bronte St. S & Britannia Road

AM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (23)	-/-
EBL	147	0.33	B (20)	18/30
EBT	561	0.37	C (24)	39/51
EBR	96	0.18	C (22)	0/11
WBL	87	0.26	B (19)	10/20
WBT	340	0.22	C (22)	22/31
WBR	60	0.11	C (21)	0/5
NBL	51	0.16	C (29)	9/19
NBTR	112	0.18	C (23)	14/27
SBL	110	0.26	C (28)	18/32
SBT	195	0.30	C (25)	31/49
SBR	88	0.17	C (23)	0/11

2: First Line/Bronte St. S & Britannia Road

PM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (23)	-/-
EBL	69	0.18	B (18)	8/16
EBT	347	0.23	C (22)	23/32
EBR	43	0.08	C (21)	0/1
WBL	42	0.10	B (17)	5/11
WBT	466	0.31	C (23)	31/42
WBR	89	0.16	C (22)	0/10
NBL	106	0.25	C (26)	20/35
NBTR	255	0.42	C (26)	43/66
SBL	55	0.17	C (32)	8/18
SBT	73	0.11	C (22)	11/21
SBR	73	0.14	C (22)	0/9

Table 3: Signalized Intersection of Britannia Road & Regional Road 25

3: Regional Road 25 & Britannia Road				
AM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (48)	-/-
EBL	64	0.41	E (67)	9/17
EBT	565	0.60	D (43)	92/117
EBR	242	0.49	D (42)	27/53
WBL	258	0.93	F (98)	39/70
WBT	268	0.17	C (31)	23/34
WBR	89	0.17	C (31)	0/5
NBL	65	0.43	E (67)	10/18
NBT	640	0.58	D (40)	85/103
NBR	180	0.37	D (36)	0/17
SBL	240	0.81	E (71)	35/50
SBT	1178	0.88	D (47)	158/180
SBR	73	0.13	C (29)	0/5
3: Regional Road 25 & Britannia Road				
PM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (44)	-/-
EBL	54	0.37	E (66)	8/15
EBT	324	0.31	C (33)	46/65
EBR	39	0.07	C (30)	0/0
WBL	167	0.78	E (76)	25/39
WBT	481	0.30	C (31)	43/61
WBR	251	0.45	D (35)	11/36
NBL	212	0.79	E (71)	32/45
NBT	998	0.84	D (46)	142/159
NBR	377	0.71	D (42)	23/51
SBL	94	0.58	E (68)	14/24
SBT	634	0.58	D (40)	83/98
SBR	64	0.13	C (34)	0/0
3: Regional Road 25 & Britannia Road				
AM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (48)	-/-
EBL	99	0.70	E (71)	16/27
EBT	589	0.64	D (44)	98/124
EBR	255	0.52	D (43)	30/58
WBL	258	0.93	F (98)	39/70
WBT	308	0.21	C (32)	28/40

WBR	89	0.17	C (32)	0/5
NBL	102	0.63	E (72)	15/27
NBT	640	0.57	D (39)	85/103
NBR	180	0.36	D (36)	0/17
SBL	240	0.81	E (71)	35/50
SBT	1178	0.88	D (47)	158/180
SBR	151	0.27	C (31)	7/22
3: Regional Road 25 & Britannia Road				
PM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (45)	-/-
EBL	125	0.75	E (76)	21/34
EBT	373	0.36	C (34)	54/76
EBR	80	0.15	C (31)	0/3
WBL	167	0.78	E (76)	25/39
WBT	500	0.32	C (33)	48/63
WBR	251	0.46	D (37)	20/48
NBL	230	0.81	E (72)	34/49
NBT	998	0.84	D (46)	142/159
NBR	377	0.71	D (42)	23/51
SBL	94	0.58	E (68)	14/24
SBT	634	0.59	D (41)	83/98
SBR	99	0.20	D (35)	0/6

Table 4: Signalized Intersection of Lower Base Line W & Regional Road 25

6: Regional Road 25 & Lower Base Line W				
AM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (11)	-/-
EBLTR	149	0.63	D (51)	27/44
WBLTR	96	0.52	D (50)	19/34
NBL	10	0.05	B (13)	1/3
NBTR	1050	0.42	A (5)	44/73
SBL	19	0.05	A (7)	1/4
SBTR	1688	0.66	A (9)	100/163
6: Regional Road 25 & Lower Base Line W				
PM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (13)	-/-
EBLTR	87	0.29	D (41)	13/25
WBLTR	197	0.68	D (48)	38/58

NBL	16	0.04	A (8)	1/4
NBTR	1680	0.70	B (12)	127/197
SBL	9	0.05	B (18)	1/3
SBTR	905	0.37	A (6)	45/70
6: Regional Road 25 & Lower Base Line W				
AM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (11)	-/-
EBLTR	149	0.63	D (51)	27/44
WBLTR	96	0.52	D (50)	19/34
NBL	10	0.05	B (13)	1/3
NBTR	1087	0.44	A (6)	47/76
SBL	19	0.05	A (7)	1/4
SBTR	1701	0.67	A (9)	102/166
6: Regional Road 25 & Lower Base Line W				
PM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (13)	-/-
EBLTR	87	0.29	D (41)	13/25
WBLTR	197	0.68	D (48)	38/58
NBL	16	0.04	A (8)	1/4
NBTR	1698	0.71	B (12)	130/202
SBL	9	0.05	B (18)	1/4
SBTR	946	0.39	A (7)	48/75

Table 5: Signalized Intersection of Britannia Road & Thompson Road S

7: Thompson Rd S & Britannia Road				
AM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (18)	-/-
EBL	87	0.78	E (59)	17/37
EBTR	1033	0.35	A (10)	38/57
WBL	1	0.00	(12)	0/1
WBT	506	0.22	B (13)	24/36
WBR	43	0.06	B (12)	0/2
NBLTR	5	0.01	C (28)	0/0
SBL	239	0.64	D (38)	44/64
SBT	1	0.00	(28)	0/1
SBR	153	0.46	C (33)	0/13
7: Thompson Rd S & Britannia Road				
PM	2031 Future Background			

Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	A (7)	-/-
EBL	195	0.52	B (12)	18/69
EBTR	653	0.19	A (3)	16/25
WBL	2	0.00	(4)	0/1
WBT	890	0.29	A (4)	24/36
WBR	180	0.18	A (3)	0/7
NBLTR	3	0.02	D (40)	0/0
SBL	64	0.35	D (44)	12/24
SBT	0	0.00	(0)	0/0
SBR	60	0.49	D (47)	0/7
7: Thompson Rd S & Britannia Road				
AM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (18)	-/-
EBL	92	0.79	E (60)	18/40
EBTR	1052	0.36	A (10)	39/58
WBL	1	0.00	(12)	0/1
WBT	538	0.24	B (14)	26/38
WBR	43	0.06	B (12)	0/2
NBLTR	5	0.01	C (28)	0/0
SBL	239	0.63	D (38)	44/64
SBT	1	0.00	(28)	0/1
SBR	161	0.48	C (34)	0/14
7: Thompson Rd S & Britannia Road				
PM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	A (7)	-/-
EBL	211	0.57	B (14)	22/78
EBTR	686	0.20	A (3)	16/26
WBL	2	0.00	(4)	0/1
WBT	905	0.30	A (4)	24/37
WBR	180	0.18	A (3)	0/7
NBLTR	3	0.02	D (40)	0/0
SBL	64	0.35	D (44)	12/24
SBT	0	0.00	(0)	0/0
SBR	64	0.52	D (48)	0/9

Table 6: Signalized Intersection of Britannia Road & James Snow Parkway

8: Britannia Road & James Snow Pkwy				
AM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (19)	-/-
EBL	92	0.21	B (11)	9/18
EBT	746	0.31	B (12)	32/42
WBTR	451	0.25	B (17)	19/28
SBL	372	0.82	D (39)	68/94
SBR	123	0.31	C (25)	0/11
8: Britannia Road & James Snow Pkwy				
PM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (16)	-/-
EBL	102	0.49	C (30)	15/53
EBT	446	0.17	A (8)	14/24
WBTR	1149	0.56	B (13)	39/60
SBL	267	0.76	D (38)	50/65
SBR	106	0.35	C (30)	0/11
8: Britannia Road & James Snow Pkwy				
AM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (19)	-/-
EBL	95	0.22	B (11)	9/19
EBT	762	0.32	B (12)	33/43
WBTR	478	0.26	B (17)	22/30
SBL	372	0.82	D (39)	68/94
SBR	128	0.33	C (26)	0/11
8: Britannia Road & James Snow Pkwy				
PM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (16)	-/-
EBL	103	0.51	C (31)	16/54
EBT	478	0.18	A (8)	16/26
WBTR	1162	0.56	B (13)	40/62
SBL	267	0.76	D (38)	50/65
SBR	108	0.36	C (30)	0/11

Table 7: Unsignalized Intersection of Tremaine Road & Lower Base Line W

4: Tremaine Road & Lower Base Line W				
AM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	322	0.00	(0)	-/0
NBR	29	0.00	(0)	-/0
WBL	52	0.29	D (28)	-/8
WBR	8	0.01	B (11)	-/0
SBL	70	0.07	A (8)	-/1
SBT	455	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
PM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	473	0.00	(0)	-/0
NBR	19	0.00	(0)	-/0
WBL	40	0.17	C (21)	-/4
WBR	48	0.11	B (13)	-/3
SBL	45	0.05	A (9)	-/1
SBT	236	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
AM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	322	0.00	(0)	-/0
NBR	41	0.00	(0)	-/0
WBL	55	0.31	D (29)	-/8
WBR	8	0.01	B (11)	-/0
SBL	70	0.07	A (8)	-/1
SBT	455	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
PM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (3)	#VALUE!
NBT	473	0.00	(0)	-/0
NBR	25	0.00	(0)	-/0
WBL	55	0.24	C (22)	-/6
WBR	48	0.11	B (13)	-/3
SBL	45	0.05	A (9)	-/1

SBT	236	0.00	A (0)	-/0
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Table 8: Unsignalized Intersection of Lower Base Line W & First Line

5: Lower Base Line W & First Line				
AM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (6)	#VALUE!
EBL	3	0.00	A (7)	-/0
EBT	99	0.00	A (0)	-/0
WBT	11	0.00	(0)	-/0
WBR	89	0.00	(0)	-/0
SBLR	252	0.31	B (11)	-/9
5: Lower Base Line W & First Line				
PM	2031 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
EBL	4	0.00	A (8)	-/0
EBT	65	0.00	A (0)	-/0
WBT	73	0.00	(0)	-/0
WBR	198	0.00	(0)	-/0
SBLR	89	0.13	B (11)	-/3
5: Lower Base Line W & First Line				
AM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (6)	#VALUE!
EBL	15	0.01	A (8)	-/0
EBT	99	0.00	A (0)	-/0
WBT	11	0.00	(0)	-/0
WBR	141	0.00	(0)	-/0
SBLR	271	0.36	B (12)	-/12
5: Lower Base Line W & First Line				
PM	2031 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (4)	#VALUE!
EBL	10	0.01	A (8)	-/0
EBT	65	0.00	A (0)	-/0
WBT	73	0.00	(0)	-/0
WBR	221	0.00	(0)	-/0
SBLR	163	0.24	B (12)	-/6

Junctions 8																
ARCADY 8 Lite																
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Filename: FB2029 - v3.arc8

Path: F:\24276\April 2026 TIS Resubmission\Traffic\Roundabout\FB\FB2029

Report generation date: 2026-04-23 12:55:56 PM

Summary of intersection performance

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Background - 2031																
Leg 1 WB	0.18	~1	1.87	0.15	A	2.32	A	114 % [Leg 3 EB]	0.35	~1	2.16	0.26	A	2.05	A	149 % [Leg 1 WB]
Leg 2 SB	0.57	1.04	2.35	0.36	A				0.31	~1	2.01	0.23	A			
Leg 3 EB	0.41	~1	2.59	0.29	A				0.14	~1	1.83	0.13	A			
Leg 4 NB	0.25	~1	2.25	0.20	A				0.34	~1	2.09	0.25	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - 2031, AM Peak" model duration: 7:45 AM - 8:45 AM

"D2 - 2031, PM Peak" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2026-04-23 12:55:53 PM

File summary

Title	(untitled)
Date	2024-04-05
Version	
Status	(new file)
Client	
Analyst	anatolek
Description	

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Future Background - 2031, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Background	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2031	AM Peak	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	4.0
2 SB	2 SB	Tremaine Rd	4.0
3 EB	3 EB	Britannia Rd	1.0
4 NB	4 NB	Tremaine Rd	4.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

	To				
From		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	98.000	75.000	146.000
	2 SB	222.000	0.000	144.000	451.000
	3 EB	246.000	277.000	0.000	8.000
	4 NB	128.000	238.000	9.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
319.00	0.93	SecondQuarter
817.00	0.93	SecondQuarter
531.00	0.93	SecondQuarter
375.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.15	1.87	0.18	~1	A
2 SB	0.36	2.35	0.57	1.04	A
3 EB	0.29	2.59	0.41	~1	A
4 NB	0.20	2.25	0.25	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.32	A	114	Leg 3 EB

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	302.99	302.39	496.47	0.00	2396.11	0.126	0.15	1.787	A
2 SB	776.00	774.13	218.02	0.00	2492.51	0.311	0.47	2.177	A

3 EB	504.35	503.04	776.08	0.00	2051.25	0.246	0.33	2.346	A
4 NB	356.18	355.35	705.81	0.00	2135.98	0.167	0.21	2.101	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	343.01	342.90	563.16	0.00	2345.32	0.146	0.18	1.868	A
2 SB	878.49	878.08	247.23	0.00	2470.83	0.356	0.57	2.350	A
3 EB	570.97	570.65	880.26	0.00	1976.06	0.289	0.41	2.587	A
4 NB	403.23	403.05	800.65	0.00	2065.99	0.195	0.25	2.251	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	327.00	327.05	537.26	0.00	2365.05	0.138	0.17	1.839	A
2 SB	837.50	837.65	235.80	0.00	2479.32	0.338	0.53	2.280	A
3 EB	544.32	544.45	839.70	0.00	2005.34	0.271	0.38	2.488	A
4 NB	384.41	384.48	763.86	0.00	2093.14	0.184	0.23	2.192	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	302.99	303.06	497.87	0.00	2395.05	0.127	0.15	1.791	A
2 SB	776.00	776.25	218.51	0.00	2492.15	0.311	0.47	2.183	A
3 EB	504.35	504.54	778.13	0.00	2049.77	0.246	0.33	2.352	A
4 NB	356.18	356.29	707.87	0.00	2134.46	0.167	0.21	2.105	A

Future Background - 2031, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Background	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2031	PM Peak	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	0.0
2 SB	2 SB	Tremaine Rd	1.0
3 EB	3 EB	Britannia Rd	0.0
4 NB	4 NB	Tremaine Rd	1.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

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	To				
From		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	182.000	232.000	127.000
	2 SB	156.000	0.000	173.000	180.000
	3 EB	65.000	190.000	0.000	10.000
	4 NB	97.000	435.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
541.00	0.93	SecondQuarter
509.00	0.93	SecondQuarter
265.00	0.93	SecondQuarter
549.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.26	2.16	0.35	~1	A
2 SB	0.23	2.01	0.31	~1	A
3 EB	0.13	1.83	0.14	~1	A
4 NB	0.25	2.09	0.34	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.05	A	149	Leg 1 WB

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	513.85	512.71	608.50	0.00	2310.78	0.222	0.29	2.001	A
2 SB	483.46	482.44	356.34	0.00	2389.86	0.202	0.26	1.906	A
3 EB	251.70	251.21	438.82	0.00	2294.69	0.110	0.12	1.761	A
4 NB	521.45	520.31	389.59	0.00	2369.36	0.220	0.28	1.965	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	581.72	581.47	690.07	0.00	2248.65	0.259	0.35	2.159	A
2 SB	547.31	547.11	404.13	0.00	2354.39	0.232	0.31	2.011	A
3 EB	284.95	284.86	497.66	0.00	2252.22	0.127	0.14	1.829	A
4 NB	590.32	590.09	441.79	0.00	2330.84	0.253	0.34	2.088	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	554.57	554.67	658.20	0.00	2272.92	0.244	0.32	2.094	A
2 SB	521.77	521.85	385.50	0.00	2368.22	0.220	0.29	1.970	A
3 EB	271.65	271.68	474.69	0.00	2268.80	0.120	0.14	1.801	A
4 NB	562.77	562.86	421.37	0.00	2345.91	0.240	0.32	2.039	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	513.85	514.00	609.93	0.00	2309.69	0.222	0.29	2.004	A
2 SB	483.46	483.58	357.23	0.00	2389.20	0.202	0.26	1.910	A
3 EB	251.70	251.75	439.88	0.00	2293.93	0.110	0.12	1.761	A
4 NB	521.45	521.59	390.46	0.00	2368.72	0.220	0.29	1.969	A

Junctions 8																
ARCADY 8 Lite																
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2026																
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Filename: FT2029 - v3.arc8

Path: F:\24276\April 2026 TIS Resubmission\Traffic\Roundabout\FT\FT2031

Report generation date: 2026-04-23 1:21:25 PM

Summary of intersection performance

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Total - 2031																
Leg 1 WB	0.20	~1	1.92	0.16	A	2.45	A	100 % [Leg 3 EB]	0.41	~1	2.26	0.29	A	2.13	A	133 % [Leg 1 WB]
Leg 2 SB	0.67	~1	2.53	0.39	A				0.34	~1	2.12	0.25	A			
Leg 3 EB	0.45	~1	2.74	0.31	A				0.15	~1	1.86	0.13	A			
Leg 4 NB	0.26	~1	2.36	0.20	A				0.35	~1	2.13	0.26	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - 2031, AM Peak" model duration: 7:45 AM - 8:45 AM

"D2 - 2031, PM Peak" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2026-04-23 1:21:23 PM

File summary

Title	(untitled)
Date	2024-04-05
Version	
Status	(new file)
Client	
Analyst	anatolek
Description	

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Future Total - 2031, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2031	AM Peak	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	5.0
2 SB	2 SB	Tremaine Rd	6.0
3 EB	3 EB	Britannia Rd	1.0
4 NB	4 NB	Tremaine Rd	4.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

	To				
		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	127.000	81.000	146.000
	2 SB	297.000	0.000	144.000	451.000
	3 EB	265.000	277.000	0.000	8.000
From	4 NB	128.000	238.000	9.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
354.00	0.93	SecondQuarter
892.00	0.93	SecondQuarter
550.00	0.93	SecondQuarter
375.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.16	1.92	0.20	~1	A
2 SB	0.39	2.53	0.67	~1	A
3 EB	0.31	2.74	0.45	~1	A
4 NB	0.20	2.36	0.26	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.45	A	100	Leg 3 EB

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	336.24	335.55	496.42	0.00	2396.15	0.140	0.17	1.834	A
2 SB	847.24	845.06	223.70	0.00	2488.30	0.340	0.55	2.319	A

3 EB	522.40	520.98	847.03	0.00	2000.04	0.261	0.36	2.456	A
4 NB	356.18	355.32	794.77	0.00	2070.32	0.172	0.22	2.182	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	380.65	380.52	563.13	0.00	2345.34	0.162	0.20	1.923	A
2 SB	959.14	958.63	253.68	0.00	2466.05	0.389	0.67	2.531	A
3 EB	591.40	591.03	960.81	0.00	1917.91	0.308	0.45	2.740	A
4 NB	403.23	403.03	901.62	0.00	1991.47	0.202	0.26	2.356	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	362.88	362.93	537.27	0.00	2365.04	0.153	0.19	1.890	A
2 SB	914.38	914.57	241.95	0.00	2474.75	0.369	0.62	2.447	A
3 EB	563.80	563.94	916.61	0.00	1949.82	0.289	0.41	2.623	A
4 NB	384.41	384.48	860.26	0.00	2021.99	0.190	0.24	2.287	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	336.24	336.31	497.89	0.00	2395.03	0.140	0.17	1.835	A
2 SB	847.24	847.54	224.21	0.00	2487.92	0.341	0.55	2.326	A
3 EB	522.40	522.62	849.42	0.00	1998.32	0.261	0.36	2.463	A
4 NB	356.18	356.29	797.21	0.00	2068.52	0.172	0.22	2.186	A

Future Total - 2031, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2031	PM Peak	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	0.0
2 SB	2 SB	Tremaine Rd	3.0
3 EB	3 EB	Britannia Rd	0.0
4 NB	4 NB	Tremaine Rd	1.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

--	--

		To			
		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	230.000	255.000	127.000
	2 SB	192.000	0.000	173.000	180.000
	3 EB	74.000	190.000	0.000	10.000
	4 NB	97.000	435.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
612.00	0.93	SecondQuarter
545.00	0.93	SecondQuarter
274.00	0.93	SecondQuarter
549.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.29	2.26	0.41	~1	A
2 SB	0.25	2.12	0.34	~1	A
3 EB	0.13	1.86	0.15	~1	A
4 NB	0.26	2.13	0.35	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.13	A	133	Leg 1 WB

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	581.29	579.95	608.47	0.00	2310.80	0.252	0.34	2.079	A
2 SB	517.65	516.51	378.11	0.00	2373.71	0.218	0.29	1.995	A
3 EB	260.25	259.73	472.90	0.00	2270.09	0.115	0.13	1.790	A
4 NB	521.45	520.30	432.22	0.00	2337.90	0.223	0.29	1.999	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	658.06	657.76	690.06	0.00	2248.65	0.293	0.41	2.262	A
2 SB	586.02	585.79	428.83	0.00	2336.06	0.251	0.34	2.118	A
3 EB	294.62	294.53	536.34	0.00	2224.30	0.132	0.15	1.864	A
4 NB	590.32	590.08	490.15	0.00	2295.15	0.257	0.35	2.132	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	627.35	627.47	658.21	0.00	2272.92	0.276	0.38	2.189	A
2 SB	558.67	558.76	409.09	0.00	2350.71	0.238	0.32	2.069	A
3 EB	280.87	280.91	511.60	0.00	2242.16	0.125	0.14	1.837	A
4 NB	562.77	562.87	467.51	0.00	2311.86	0.243	0.33	2.080	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	581.29	581.47	609.94	0.00	2309.68	0.252	0.34	2.084	A
2 SB	517.65	517.79	379.10	0.00	2372.97	0.218	0.29	1.998	A
3 EB	260.25	260.31	474.09	0.00	2269.24	0.115	0.13	1.791	A
4 NB	521.45	521.59	433.22	0.00	2337.16	0.223	0.29	2.004	A

Queues

2: First Line/Bronte St. S & Britannia Road

2031 Future Total

Weekday AM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  						
Traffic Volume (vph)	147	561	96	87	340	60	51	75	110	195	88
Future Volume (vph)	147	561	96	87	340	60	51	75	110	195	88
Lane Group Flow (vph)	162	616	105	96	374	66	56	123	121	214	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.35	0.37	0.16	0.28	0.23	0.10	0.15	0.19	0.27	0.30	0.16
Control Delay (s/veh)	16.3	24.2	4.8	15.6	22.3	2.4	25.1	19.9	25.2	24.9	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.3	24.2	4.8	15.6	22.3	2.4	25.1	19.9	25.2	24.9	5.2
LOS	B	C	A	B	C	A	C	B	C	C	A
Approach Delay (s/veh)		20.4			18.7			21.5		20.6	
Approach LOS		C			B			C		C	
Queue Length 50th (m)	17.6	39.0	0.0	10.4	22.0	0.0	8.6	13.8	17.6	30.6	0.0
Queue Length 95th (m)	29.8	50.8	10.8	19.5	30.7	4.7	18.5	26.9	32.2	48.8	10.6
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	469	1647	647	339	1662	651	378	653	444	705	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.37	0.16	0.28	0.23	0.10	0.15	0.19	0.27	0.30	0.16

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.37

Intersection Signal Delay (s/veh): 20.1

Intersection LOS: C

Intersection Capacity Utilization 65.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1	#2  Ø2 (R)	#2  Ø4
11 s	47 s	47 s
#2  Ø5	#2  Ø6 (R)	#2  Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2031 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	147	561	96	87	340	60	51	75	37	110	195	88
Future Volume (veh/h)	147	561	96	87	340	60	51	75	37	110	195	88
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		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	1841	1811	1826	1767	1826	1856	1752	1900	1663	1841	1900	1826
Adj Flow Rate, veh/h	162	616	105	96	374	66	56	82	41	121	214	97
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	6	5	9	5	3	10	0	16	4	0	5
Cap, veh/h	489	1664	592	375	1678	602	360	444	222	474	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4347	1547	1682	4382	1572	1001	1195	597	1248	1900	1528
Grp Volume(v), veh/h	162	616	105	96	374	66	56	0	123	121	214	97
Grp Sat Flow(s),veh/h/ln	1753	1449	1547	1682	1461	1572	1001	0	1792	1248	1900	1528
Q Serve(g_s), s	5.9	10.7	4.7	3.5	6.0	2.8	4.4	0.0	4.9	7.6	8.4	4.5
Cycle Q Clear(g_c), s	5.9	10.7	4.7	3.5	6.0	2.8	12.8	0.0	4.9	12.5	8.4	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	489	1664	592	375	1678	602	360	0	666	474	706	567
V/C Ratio(X)	0.33	0.37	0.18	0.26	0.22	0.11	0.16	0.00	0.18	0.26	0.30	0.17
Avail Cap(c_a), veh/h	489	1664	592	375	1678	602	360	0	666	474	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	23.3	21.5	17.5	21.9	20.9	27.9	0.0	22.3	26.5	23.4	22.1
Incr Delay (d2), s/veh	1.8	0.6	0.7	1.6	0.3	0.4	0.9	0.0	0.6	1.3	1.1	0.7
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	1.1	1.7	0.9	0.7	1.0	0.5	0.6	0.0	1.0	1.3	1.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.5	23.9	22.1	19.1	22.2	21.2	28.8	0.0	22.9	27.8	24.5	22.8
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		883			536			179			432	
Approach Delay, s/veh		22.9			21.5			24.7			25.0	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	0.0	0.0		14.8	0.0	0.0		14.5				
Green Ext Time (p_c), s	0.0	0.0		1.1	0.0	0.0		2.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			23.2									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2031 Future Total
Weekday AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	589	255	258	308	89	102	640	180	240	1178	151
Future Volume (vph)	99	589	255	258	308	89	102	640	180	240	1178	151
Lane Group Flow (vph)	102	607	263	266	318	92	105	660	186	247	1214	156
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	15.0	48.0	48.0	16.0	49.0	49.0	11.0	55.0	55.0	21.0	65.0	65.0
Total Split (%)	10.7%	34.3%	34.3%	11.4%	35.0%	35.0%	7.9%	39.3%	39.3%	15.0%	46.4%	46.4%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	9.8	41.1	41.1	14.6	46.9	46.9	7.0	44.9	44.9	15.2	53.1	53.1
Actuated g/C Ratio	0.07	0.29	0.29	0.10	0.34	0.34	0.05	0.32	0.32	0.11	0.38	0.38
v/c Ratio	0.51	0.70	0.48	0.80	0.22	0.16	0.65	0.60	0.31	0.70	0.88	0.24
Control Delay (s/veh)	71.8	49.6	23.6	79.1	35.1	2.4	83.8	42.5	5.8	71.2	48.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	71.8	49.6	23.6	79.1	35.1	2.4	83.8	42.5	5.8	71.2	48.3	9.3
LOS	E	D	C	E	D	A	F	D	A	E	D	A
Approach Delay (s/veh)		44.9			48.0			39.9			48.0	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	16.3	97.6	30.4	39.3	28.0	0.0	15.4	84.6	0.2	35.4	158.2	7.4
Queue Length 95th (m)	27.3	124.3	57.7	#69.8	39.7	5.2	#27.4	103.3	17.3	49.8	180.0	21.6
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	223	866	551	332	1440	590	162	1150	631	395	1495	700
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.70	0.48	0.80	0.22	0.16	0.65	0.57	0.29	0.63	0.81	0.22

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 45.5

Intersection LOS: D

Intersection Capacity Utilization 95.2%

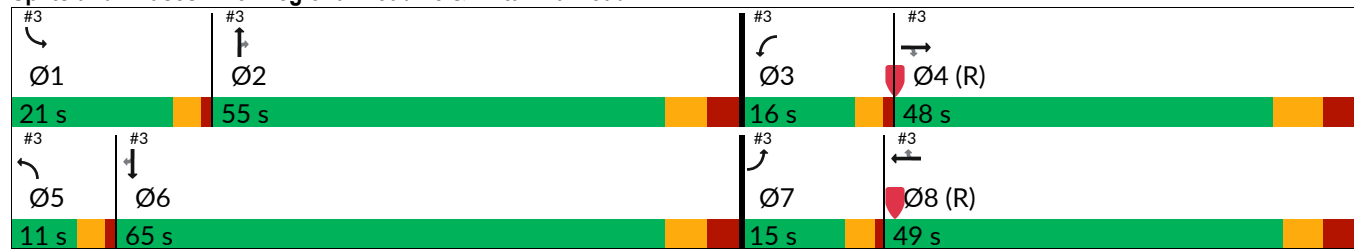
ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road



HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2031 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	589	255	258	308	89	102	640	180	240	1178	151
Future Volume (veh/h)	99	589	255	258	308	89	102	640	180	240	1178	151
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		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	1618	1856	1870	1811	1811	1811	1841	1811	1811	1841	1841	1870
Adj Flow Rate, veh/h	102	607	263	266	318	92	105	660	186	247	1214	156
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
Percent Heavy Veh, %	19	3	2	6	6	6	4	6	6	4	4	2
Cap, veh/h	147	943	503	287	1539	543	167	1149	512	306	1380	587
Arrive On Green	0.05	0.32	0.32	0.09	0.35	0.35	0.05	0.33	0.33	0.09	0.37	0.37
Sat Flow, veh/h	2990	2969	1584	3346	4347	1534	3401	3441	1535	3401	3681	1565
Grp Volume(v), veh/h	102	607	263	266	318	92	105	660	186	247	1214	156
Grp Sat Flow(s),veh/h/ln	1495	1484	1584	1673	1449	1534	1700	1721	1535	1700	1841	1565
Q Serve(g_s), s	4.7	24.6	19.0	11.1	7.1	5.8	4.2	22.1	12.9	10.0	43.1	9.7
Cycle Q Clear(g_c), s	4.7	24.6	19.0	11.1	7.1	5.8	4.2	22.1	12.9	10.0	43.1	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	147	943	503	287	1539	543	167	1149	512	306	1380	587
V/C Ratio(X)	0.70	0.64	0.52	0.93	0.21	0.17	0.63	0.57	0.36	0.81	0.88	0.27
Avail Cap(c_a), veh/h	235	943	503	287	1539	543	170	1163	519	413	1507	641
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.5	41.0	39.1	63.6	31.5	31.1	65.3	38.4	35.3	62.5	40.8	30.4
Incr Delay (d2), s/veh	5.8	3.4	3.9	34.5	0.3	0.7	7.0	0.7	0.4	8.3	6.0	0.2
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	1.5	6.3	5.3	4.9	1.6	1.5	1.6	6.1	3.2	3.6	12.9	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	71.3	44.4	43.0	98.1	31.8	31.7	72.3	39.1	35.8	70.8	46.8	30.6
LnGrp LOS	E	D	D	F	C	C	E	D	D	E	D	C
Approach Vol, veh/h		972			676			951			1617	
Approach Delay, s/veh		46.8			57.9			42.1			48.9	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	54.4	16.0	53.0	10.9	60.2	10.9	58.1				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	17.0	47.3	12.0	39.5	7.0	57.3	11.0	* 42				
Max Q Clear Time (g_c+I1), s	12.0	24.1	13.1	26.6	6.2	45.1	6.7	9.1				
Green Ext Time (p_c), s	0.6	6.1	0.0	2.5	0.0	7.4	0.2	1.7				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	48.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	8	322	41	70	455
Future Vol, veh/h	55	8	322	41	70	455
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	65	9	379	48	82	535

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1102	403	0	0	427	0
Stage 1	403	-	-	-	-	-
Stage 2	699	-	-	-	-	-
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	236	652	-	-	1143	-
Stage 1	679	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	212	652	-	-	1143	-
Mov Cap-2 Maneuver	212	-	-	-	-	-
Stage 1	610	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	26.9	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	212	652	1143	-
HCM Lane V/C Ratio	-	-	0.305	0.014	0.072	-
HCM Ctrl Dly (s/v)	-	-	29.3	10.6	8.4	0
HCM Lane LOS	-	-	D	B	A	A
HCM 95th %tile Q (veh)	-	-	1.2	0	0.2	-

Intersection

Int Delay, s/veh 6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	99	11	141	211	60
Future Vol, veh/h	15	99	11	141	211	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	16	105	12	150	224	64

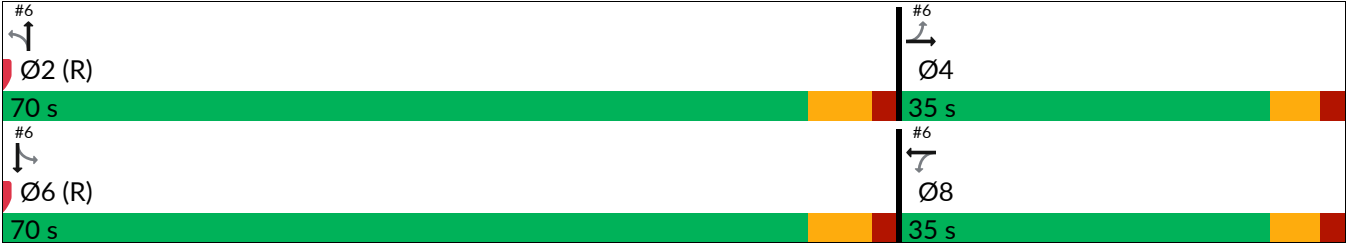
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	162	0	0 224 87
Stage 1	-	-	- 87 -
Stage 2	-	-	- 137 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1429	-	- 766 977
Stage 1	-	-	- 939 -
Stage 2	-	-	- 892 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1429	-	- 757 977
Mov Cap-2 Maneuver	-	-	- 757 -
Stage 1	-	-	- 928 -
Stage 2	-	-	- 892 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1	0	12.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1429	-	-	-	797
HCM Lane V/C Ratio	0.011	-	-	-	0.362
HCM Ctrl Dly (s/v)	7.5	0	-	-	12.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	1.7

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	22	94	73	13	10	999	19	1700
Future Volume (vph)	22	94	73	13	10	999	19	1700
Lane Group Flow (vph)	0	157	0	102	11	1145	20	1790
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		16.4		16.4	75.6	75.6	75.6	75.6
Actuated g/C Ratio		0.16		0.16	0.72	0.72	0.72	0.72
v/c Ratio		0.55		0.68	0.10	0.48	0.07	0.73
Control Delay (s/veh)		43.7		60.9	8.3	7.5	6.4	11.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		43.7		60.9	8.3	7.5	6.4	11.9
LOS		D		E	A	A	A	B
Approach Delay (s/veh)		43.7		60.9		7.5		11.8
Approach LOS		D		E		A		B
Queue Length 50th (m)		27.3		18.8	0.6	46.6	1.0	102.0
Queue Length 95th (m)		44.0		34.3	3.3	76.4	4.2	165.7
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		491		260	113	2405	293	2451
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.32		0.39	0.10	0.48	0.07	0.73
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.73								
Intersection Signal Delay (s/veh): 13.4				Intersection LOS: B				
Intersection Capacity Utilization 77.5%				ICU Level of Service D				
Analysis Period (min) 15								

Splits and Phases: 6: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

2031 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	94	33	73	13	10	10	999	88	19	1700	1
Future Volume (veh/h)	22	94	33	73	13	10	10	999	88	19	1700	1
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	23	99	35	77	14	11	11	1052	93	20	1789	1
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	59	142	46	155	27	15	207	2417	214	390	2689	2
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.76	0.76	0.76	0.76	0.76	0.76
Sat Flow, veh/h	174	1241	406	828	240	129	269	3172	280	499	3529	2
Grp Volume(v), veh/h	157	0	0	102	0	0	11	566	579	20	872	918
Grp Sat Flow(s),veh/h/ln	1821	0	0	1197	0	0	269	1706	1746	499	1721	1811
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	2.2	12.4	12.4	1.6	25.7	25.7
Cycle Q Clear(g_c), s	8.6	0.0	0.0	9.1	0.0	0.0	27.9	12.4	12.4	14.0	25.7	25.7
Prop In Lane	0.15		0.22	0.75		0.11	1.00		0.16	1.00		0.00
Lane Grp Cap(c), veh/h	247	0	0	197	0	0	207	1300	1330	390	1311	1380
V/C Ratio(X)	0.63	0.00	0.00	0.52	0.00	0.00	0.05	0.44	0.44	0.05	0.67	0.67
Avail Cap(c_a), veh/h	529	0	0	418	0	0	207	1300	1330	390	1311	1380
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	0.0	45.1	0.0	0.0	12.8	4.5	4.5	6.9	6.0	6.0
Incr Delay (d2), s/veh	5.6	0.0	0.0	4.4	0.0	0.0	0.5	1.1	1.0	0.2	2.7	2.6
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	2.9	0.0	0.0	1.9	0.0	0.0	0.1	0.4	0.4	0.0	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.7	0.0	0.0	49.5	0.0	0.0	13.3	5.5	5.5	7.2	8.7	8.6
LnGrp LOS	D			D			B	A	A	A	A	A
Approach Vol, veh/h		157			102			1156			1810	
Approach Delay, s/veh		50.7			49.5			5.6			8.6	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.0		18.0		87.0		18.0				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		10.6		0.0		11.1				
Green Ext Time (p_c), s		0.0		1.4		0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				10.9								
HCM 6th LOS				B								

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	92	1050	1	538	43	3	0	239	1	161
Future Volume (vph)	92	1050	1	538	43	3	0	239	1	161
Lane Group Flow (vph)	100	1143	1	585	47	0	5	260	1	175
Turn Type	Prot	NA	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		6			8		4	
Permitted Phases			6		6	8		4		4
Detector Phase	5	2	6	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	13.0	56.0	43.0	43.0	43.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.7%	58.9%	45.3%	45.3%	45.3%	41.1%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	2.0	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	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	9.7	56.2	44.7	44.7	44.7		24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.10	0.59	0.47	0.47	0.47		0.26	0.26	0.26	0.26
v/c Ratio	0.58	0.39	0.00	0.26	0.07		0.01	0.73	0.00	0.33
Control Delay (s/veh)	54.8	11.6	18.0	17.5	0.9		0.0	43.3	22.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.8	11.6	18.0	17.5	0.9		0.0	43.3	22.0	5.5
LOS	D	B	B	B	A		A	D	C	A
Approach Delay (s/veh)		15.1		16.3					28.1	
Approach LOS		B		B					C	
Queue Length 50th (m)	17.9	39.0	0.1	26.2	0.0		0.0	43.7	0.1	0.0
Queue Length 95th (m)	#39.7	58.3	1.1	38.2	1.5		0.0	64.0	1.2	13.7
Internal Link Dist (m)		1377.1		902.8			298.9		1556.7	
Turn Bay Length (m)	90.0		60.0		50.0			200.0		
Base Capacity (vph)	180	2946	202	2279	718		524	461	640	632
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.56	0.39	0.00	0.26	0.07		0.01	0.56	0.00	0.28

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 22.5 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 17.8

Intersection LOS: B

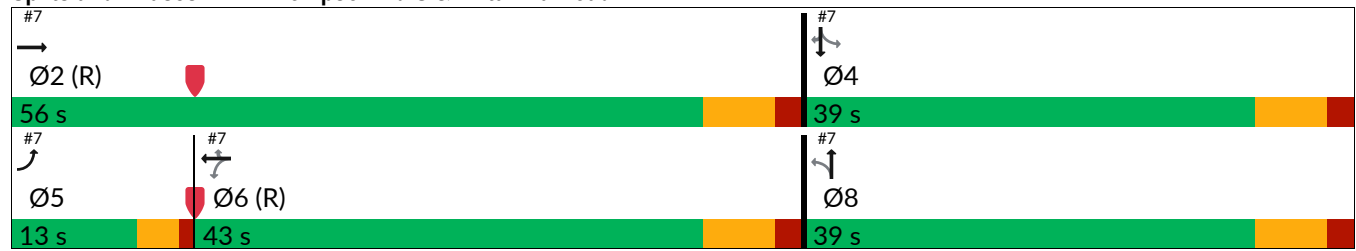
Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

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

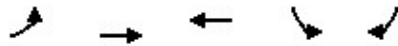
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2031 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	92	1050	2	1	538	43	3	0	2	239	1	161
Future Volume (veh/h)	92	1050	2	1	538	43	3	0	2	239	1	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	100	1141	2	1	585	47	3	0	2	260	1	175
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	4
Cap, veh/h	127	3205	6	328	2475	729	239	15	129	410	444	364
Arrive On Green	0.07	0.62	0.62	0.50	0.50	0.50	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1767	5180	9	499	4904	1445	764	64	552	1424	1900	1558
Grp Volume(v), veh/h	100	738	405	1	585	47	5	0	0	260	1	175
Grp Sat Flow(s),veh/h/ln	1767	1675	1839	499	1635	1445	1380	0	0	1424	1900	1558
Q Serve(g_s), s	5.3	10.2	10.2	0.1	6.4	1.6	0.0	0.0	0.0	16.0	0.0	9.2
Cycle Q Clear(g_c), s	5.3	10.2	10.2	0.1	6.4	1.6	0.2	0.0	0.0	16.2	0.0	9.2
Prop In Lane	1.00		0.00	1.00		1.00	0.60		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	127	2073	1138	328	2475	729	383	0	0	410	444	364
V/C Ratio(X)	0.79	0.36	0.36	0.00	0.24	0.06	0.01	0.00	0.00	0.63	0.00	0.48
Avail Cap(c_a), veh/h	167	2073	1138	328	2475	729	523	0	0	556	640	525
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	8.9	8.9	11.7	13.2	12.0	28.0	0.0	0.0	34.1	27.9	31.4
Incr Delay (d2), s/veh	16.5	0.5	0.9	0.0	0.2	0.2	0.0	0.0	0.0	3.5	0.0	2.1
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	2.0	0.1	0.3	0.0	0.4	0.1	0.0	0.0	0.0	3.2	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.9	9.3	9.7	11.7	13.5	12.2	28.0	0.0	0.0	37.5	27.9	33.5
LnGrp LOS	E	A	A		B	B	C			D		C
Approach Vol, veh/h		1243			633			5			436	
Approach Delay, s/veh		13.5			13.4			28.0			35.9	
Approach LOS		B			B			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.8		29.2	10.8	55.0		29.2				
Change Period (Y+Rc), s		7.0		7.0	4.0	7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0	9.0	36.0		32.0				
Max Q Clear Time (g_c+I1), s		12.2		18.2	7.3	8.4		2.2				
Green Ext Time (p_c), s		18.2		3.8	0.1	8.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				17.7								
HCM 6th LOS				B								

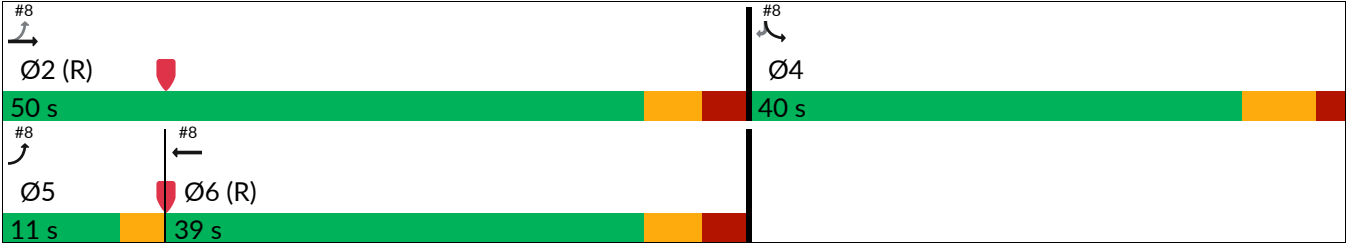


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↰
Traffic Volume (vph)	95	762	382	372	128
Future Volume (vph)	95	762	382	372	128
Lane Group Flow (vph)	109	876	549	428	147
Turn Type	pm+pt	NA	NA	Prot	Perm
Protected Phases	5	2	6	4	
Permitted Phases	2				4
Detector Phase	5	2	6	4	4
Switch Phase					
Minimum Initial (s)	7.0	25.0	25.0	15.0	15.0
Minimum Split (s)	10.0	39.0	39.0	39.0	39.0
Total Split (s)	11.0	50.0	39.0	40.0	40.0
Total Split (%)	12.2%	55.6%	43.3%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	5.0	5.0
All-Red Time (s)	0.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
Act Effect Green (s)	51.0	47.0	38.4	29.0	29.0
Actuated g/C Ratio	0.57	0.52	0.43	0.32	0.32
v/c Ratio	0.24	0.34	0.28	0.80	0.26
Control Delay (s/veh)	11.8	13.6	16.4	39.4	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.8	13.6	16.4	39.4	4.7
LOS	B	B	B	D	A
Approach Delay (s/veh)		13.4	16.4	30.6	
Approach LOS		B	B	C	
Queue Length 50th (m)	9.4	32.6	21.5	67.8	0.0
Queue Length 95th (m)	18.7	42.5	30.4	94.3	11.4
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	451	2604	1945	609	620
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.34	0.28	0.70	0.24

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay (s/veh): 18.8
Intersection Capacity Utilization 62.3%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service B

Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2031 Future Total
Weekday AM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	95	762	382	96	372	128
Future Volume (veh/h)	95	762	382	96	372	128
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	1707	1841	1796	1366	1826	1737
Adj Flow Rate, veh/h	109	876	439	110	428	147
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	13	4	7	36	5	11
Cap, veh/h	485	2739	1728	420	521	441
Arrive On Green	0.07	0.54	0.44	0.44	0.30	0.30
Sat Flow, veh/h	1626	5191	4099	956	1739	1472
Grp Volume(v), veh/h	109	876	362	187	428	147
Grp Sat Flow(s),veh/h/ln	1626	1675	1635	1624	1739	1472
Q Serve(g_s), s	3.0	8.6	6.3	6.6	20.6	7.0
Cycle Q Clear(g_c), s	3.0	8.6	6.3	6.6	20.6	7.0
Prop In Lane	1.00			0.59	1.00	1.00
Lane Grp Cap(c), veh/h	485	2739	1435	713	521	441
V/C Ratio(X)	0.22	0.32	0.25	0.26	0.82	0.33
Avail Cap(c_a), veh/h	511	2739	1435	713	638	540
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	11.0	11.3	15.9	16.0	29.3	24.5
Incr Delay (d2), s/veh	0.2	0.3	0.4	0.9	9.2	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.6	0.7	4.9	6.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.1	11.6	16.4	16.9	38.5	25.5
LnGrp LOS	B	B	B	B	D	C
Approach Vol, veh/h		985	549		575	
Approach Delay, s/veh		11.5	16.5		35.2	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		56.0		34.0	9.5	46.5
Change Period (Y+Rc), s		7.0		7.0	3.0	7.0
Max Green Setting (Gmax), s		43.0		33.0	8.0	32.0
Max Q Clear Time (g_c+l1), s		10.6		22.6	5.0	8.6
Green Ext Time (p_c), s		13.0		4.4	0.1	6.6
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			19.3			
HCM 6th LOS			B			

Queues

2: First Line/Bronte St. S & Britannia Road

2031 Future Total

Weekday PM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  						
Traffic Volume (vph)	69	347	43	42	466	89	106	185	55	73	73
Future Volume (vph)	69	347	43	42	466	89	106	185	55	73	73
Lane Group Flow (vph)	76	381	47	46	512	98	116	280	60	80	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.19	0.23	0.07	0.10	0.31	0.15	0.27	0.42	0.17	0.11	0.13
Control Delay (s/veh)	14.3	22.4	0.6	13.5	23.3	4.9	29.5	29.7	24.0	22.3	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.3	22.4	0.6	13.5	23.3	4.9	29.5	29.7	24.0	22.3	5.4
LOS	B	C	A	B	C	A	C	C	C	C	A
Approach Delay (s/veh)		19.2			19.9			29.6		16.6	
Approach LOS		B			B			C		B	
Queue Length 50th (m)	7.8	22.6	0.0	4.8	31.2	0.0	19.5	42.9	8.4	10.6	0.0
Queue Length 95th (m)	15.5	31.5	1.0	10.9	41.6	10.2	35.4	66.4	18.4	20.5	9.4
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	402	1647	640	445	1662	654	437	661	344	705	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.23	0.07	0.10	0.31	0.15	0.27	0.42	0.17	0.11	0.13

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.42

Intersection Signal Delay (s/veh): 21.4

Intersection LOS: C

Intersection Capacity Utilization 67.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1	#2  Ø2 (R)	#2  Ø4
11 s	47 s	47 s
#2  Ø5	#2  Ø6 (R)	#2  Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2031 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	347	43	42	466	89	106	185	70	55	73	73
Future Volume (veh/h)	69	347	43	42	466	89	106	185	70	55	73	73
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		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	1841	1811	1826	1767	1826	1856	1752	1900	1663	1841	1900	1826
Adj Flow Rate, veh/h	76	381	47	46	512	98	116	203	77	60	80	80
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	6	5	9	5	3	10	0	16	4	0	5
Cap, veh/h	426	1664	592	474	1678	602	463	488	185	346	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4347	1547	1682	4382	1572	1149	1313	498	1082	1900	1528
Grp Volume(v), veh/h	76	381	47	46	512	98	116	0	280	60	80	80
Grp Sat Flow(s),veh/h/ln	1753	1449	1547	1682	1461	1572	1149	0	1810	1082	1900	1528
Q Serve(g_s), s	2.6	6.2	2.0	1.6	8.6	4.3	7.7	0.0	12.1	4.6	2.9	3.6
Cycle Q Clear(g_c), s	2.6	6.2	2.0	1.6	8.6	4.3	10.6	0.0	12.1	16.7	2.9	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	426	1664	592	474	1678	602	463	0	672	346	706	567
V/C Ratio(X)	0.18	0.23	0.08	0.10	0.31	0.16	0.25	0.00	0.42	0.17	0.11	0.14
Avail Cap(c_a), veh/h	426	1664	592	474	1678	602	463	0	672	346	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	21.9	20.6	16.6	22.6	21.3	25.1	0.0	24.5	30.7	21.7	21.9
Incr Delay (d2), s/veh	0.9	0.3	0.3	0.4	0.5	0.6	1.3	0.0	1.9	1.1	0.3	0.5
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	0.5	1.0	0.4	0.3	1.4	0.8	1.2	0.0	2.7	0.8	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.9	22.2	20.9	17.0	23.1	21.9	26.4	0.0	26.4	31.8	22.0	22.4
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		504			656			396			220	
Approach Delay, s/veh		21.5			22.5			26.4			24.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	3.6	4.0		14.1	4.6	6.3		18.7				
Green Ext Time (p_c), s	0.0	0.0		2.6	0.1	0.1		1.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			23.4									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2031 Future Total
Weekday PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	373	80	167	500	251	230	998	377	94	634	99
Future Volume (vph)	125	373	80	167	500	251	230	998	377	94	634	99
Lane Group Flow (vph)	129	385	82	172	515	259	237	1029	389	97	654	102
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	14.0	48.0	48.0	15.0	49.0	49.0	20.0	65.0	65.0	12.0	57.0	57.0
Total Split (%)	10.0%	34.3%	34.3%	10.7%	35.0%	35.0%	14.3%	46.4%	46.4%	8.6%	40.7%	40.7%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	10.7	45.8	45.8	11.8	48.0	48.0	14.5	50.3	50.3	7.8	43.6	43.6
Actuated g/C Ratio	0.08	0.33	0.33	0.08	0.34	0.34	0.10	0.36	0.36	0.06	0.31	0.31
v/c Ratio	0.59	0.40	0.14	0.64	0.35	0.42	0.70	0.84	0.54	0.54	0.60	0.18
Control Delay (s/veh)	74.1	39.4	1.5	73.1	36.5	16.1	72.2	47.8	11.9	75.5	43.1	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	74.1	39.4	1.5	73.1	36.5	16.1	72.2	47.8	11.9	75.5	43.1	2.6
LOS	E	D	A	E	D	B	E	D	B	E	D	A
Approach Delay (s/veh)		41.7			37.5			42.9			41.9	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	20.7	54.0	0.0	25.1	47.6	19.8	34.0	142.2	22.5	14.1	83.4	0.0
Queue Length 95th (m)	33.8	75.8	2.5	#38.9	63.4	48.0	48.5	158.6	50.7	23.9	97.7	5.8
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	224	965	600	277	1473	623	372	1394	781	186	1222	632
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.40	0.14	0.62	0.35	0.42	0.64	0.74	0.50	0.52	0.54	0.16

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 41.3

Intersection LOS: D

Intersection Capacity Utilization 90.3%

ICU Level of Service E

Analysis Period (min) 15

Queues

3: Regional Road 25 & Britannia Road

2031 Future Total

Weekday PM Peak

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road

 Ø1	 Ø2	 Ø3	 Ø4 (R)
12 s	65 s	15 s	48 s
 Ø5	 Ø6	 Ø7	 Ø8 (R)
20 s	57 s	14 s	49 s

HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2031 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	373	80	167	500	251	230	998	377	94	634	99
Future Volume (veh/h)	125	373	80	167	500	251	230	998	377	94	634	99
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		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	1618	1856	1870	1811	1811	1811	1841	1811	1811	1841	1841	1870
Adj Flow Rate, veh/h	129	385	82	172	515	259	237	1029	389	97	654	102
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
Percent Heavy Veh, %	19	3	2	6	6	6	4	6	6	4	4	2
Cap, veh/h	171	1058	564	221	1587	560	294	1225	546	166	1113	498
Arrive On Green	0.06	0.36	0.36	0.07	0.37	0.37	0.09	0.36	0.36	0.05	0.32	0.32
Sat Flow, veh/h	2990	2969	1584	3346	4347	1534	3401	3441	1535	3401	3497	1565
Grp Volume(v), veh/h	129	385	82	172	515	259	237	1029	389	97	654	102
Grp Sat Flow(s),veh/h/ln	1495	1484	1584	1673	1449	1534	1700	1721	1535	1700	1749	1565
Q Serve(g_s), s	6.0	13.4	4.9	7.1	11.9	18.1	9.6	38.5	30.6	3.9	22.0	6.7
Cycle Q Clear(g_c), s	6.0	13.4	4.9	7.1	11.9	18.1	9.6	38.5	30.6	3.9	22.0	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	1058	564	221	1587	560	294	1225	546	166	1113	498
V/C Ratio(X)	0.75	0.36	0.15	0.78	0.32	0.46	0.81	0.84	0.71	0.58	0.59	0.20
Avail Cap(c_a), veh/h	214	1058	564	263	1587	560	389	1408	628	194	1232	551
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	33.3	30.6	64.4	32.0	33.9	62.8	41.4	38.9	65.2	40.0	34.8
Incr Delay (d2), s/veh	11.1	1.0	0.5	11.8	0.5	2.7	8.9	4.2	3.2	3.2	0.6	0.2
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	2.0	3.2	1.3	2.6	2.7	4.6	3.4	10.8	7.7	1.4	6.2	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	76.1	34.3	31.1	76.1	32.5	36.7	71.7	45.7	42.1	68.4	40.6	35.0
LnGrp LOS	E	C	C	E	C	D	E	D	D	E	D	D
Approach Vol, veh/h	596				946				1655			
Approach Delay, s/veh	42.9				41.6				48.5			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	57.5	13.2	58.4	16.1	52.2	12.0	59.6				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	8.0	57.3	11.0	39.5	16.0	49.3	10.0	* 42				
Max Q Clear Time (g_c+I1), s	5.9	40.5	9.1	15.4	11.6	24.0	8.0	13.9				
Green Ext Time (p_c), s	0.1	9.4	0.2	2.1	0.5	5.5	0.1	2.3				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	45.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	48	473	25	45	236
Future Vol, veh/h	55	48	473	25	45	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	65	56	556	29	53	278

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	955	571	0	0	585	0
Stage 1	571	-	-	-	-	-
Stage 2	384	-	-	-	-	-
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	289	524	-	-	1000	-
Stage 1	569	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	271	524	-	-	1000	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	533	-	-	-	-	-
Stage 2	693	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	17.9	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 271 524	1000	-
HCM Lane V/C Ratio	-	- 0.239 0.108	0.053	-
HCM Ctrl Dly (s/v)	-	- 22.4 12.7	8.8	0
HCM Lane LOS	-	- C B	A	A
HCM 95th %tile Q (veh)	-	- 0.9 0.4	0.2	-

Intersection

Int Delay, s/veh 3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	65	73	221	130	33
Future Vol, veh/h	10	65	73	221	130	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	11	69	78	235	138	35

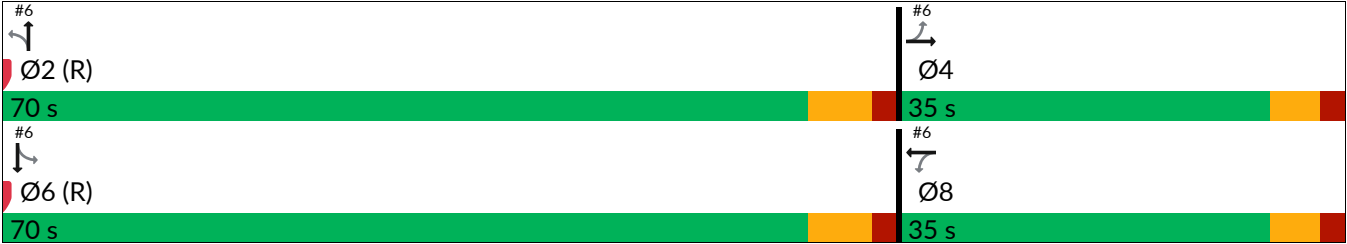
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	313	0	0 287 196
Stage 1	-	-	- 196 -
Stage 2	-	-	- 91 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1259	-	- 706 850
Stage 1	-	-	- 840 -
Stage 2	-	-	- 935 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1259	-	- 700 850
Mov Cap-2 Maneuver	-	-	- 700 -
Stage 1	-	-	- 832 -
Stage 2	-	-	- 935 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.1	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1259	-	-	-	726
HCM Lane V/C Ratio	0.008	-	-	-	0.239
HCM Ctrl Dly (s/v)	7.9	0	-	-	11.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	0.9

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	54	89	86	16	1654	9	941
Future Volume (vph)	14	54	89	86	16	1654	9	941
Lane Group Flow (vph)	0	92	0	208	17	1787	9	996
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		21.9		21.9	70.1	70.1	70.1	70.1
Actuated g/C Ratio		0.21		0.21	0.67	0.67	0.67	0.67
v/c Ratio		0.25		0.70	0.05	0.80	0.10	0.44
Control Delay (s/veh)		29.5		49.4	8.3	17.1	11.8	9.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		29.5		49.4	8.3	17.1	11.8	9.6
LOS		C		D	A	B	B	A
Approach Delay (s/veh)		29.5		49.4		17.0		9.7
Approach LOS		C		D		B		A
Queue Length 50th (m)		13.4		38.4	1.1	130.1	0.6	47.6
Queue Length 95th (m)		24.9		58.0	4.4	202.2	3.5	74.6
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		487		392	316	2245	87	2272
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.19		0.53	0.05	0.80	0.10	0.44
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.80								
Intersection Signal Delay (s/veh): 17.2				Intersection LOS: B				
Intersection Capacity Utilization 75.4%				ICU Level of Service D				
Analysis Period (min) 15								

Splits and Phases: 6: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

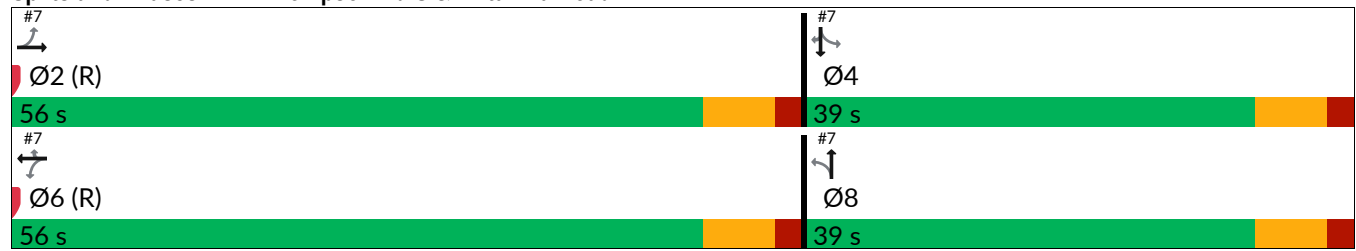
2031 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	54	19	89	86	22	16	1654	44	9	941	5
Future Volume (veh/h)	14	54	19	89	86	22	16	1654	44	9	941	5
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	15	57	20	94	91	23	17	1741	46	9	991	5
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	63	195	61	156	122	28	420	2451	65	184	2533	13
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	152	1258	392	686	787	183	574	3397	89	269	3511	18
Grp Volume(v), veh/h	92	0	0	208	0	0	17	872	915	9	486	510
Grp Sat Flow(s),veh/h/ln	1802	0	0	1657	0	0	574	1706	1780	269	1721	1808
Q Serve(g_s), s	0.0	0.0	0.0	7.8	0.0	0.0	1.2	30.5	30.9	2.1	11.5	11.5
Cycle Q Clear(g_c), s	4.7	0.0	0.0	12.5	0.0	0.0	12.7	30.5	30.9	33.0	11.5	11.5
Prop In Lane	0.16		0.22	0.45		0.11	1.00		0.05	1.00		0.01
Lane Grp Cap(c), veh/h	318	0	0	306	0	0	420	1231	1285	184	1242	1305
V/C Ratio(X)	0.29	0.00	0.00	0.68	0.00	0.00	0.04	0.71	0.71	0.05	0.39	0.39
Avail Cap(c_a), veh/h	526	0	0	497	0	0	420	1231	1285	184	1242	1305
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	0.0	42.6	0.0	0.0	8.1	8.3	8.4	17.8	5.7	5.7
Incr Delay (d2), s/veh	1.1	0.0	0.0	5.6	0.0	0.0	0.2	3.5	3.4	0.5	0.9	0.9
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	1.4	0.0	0.0	3.6	0.0	0.0	0.0	1.2	1.2	0.1	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.6	0.0	0.0	48.1	0.0	0.0	8.3	11.8	11.8	18.3	6.6	6.6
LnGrp LOS	D			D			A	B	B	B	A	A
Approach Vol, veh/h		92			208			1804			1005	
Approach Delay, s/veh		40.6			48.1			11.7			6.7	
Approach LOS		D			D			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.8		22.2		82.8		22.2				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		6.7		0.0		14.5				
Green Ext Time (p_c), s		0.0		0.8		0.0		1.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				13.4								
HCM 6th LOS				B								

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations									
Traffic Volume (vph)	211	683	2	905	180	1	0	64	64
Future Volume (vph)	211	683	2	905	180	1	0	64	64
Lane Group Flow (vph)	229	745	2	984	196	0	3	70	70
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	Perm
Protected Phases		2		6			8		
Permitted Phases	2		6		6	8		4	4
Detector Phase	2	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	30.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0
Minimum Split (s)	37.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0
Total Split (s)	56.0	56.0	56.0	56.0	56.0	39.0	39.0	39.0	39.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	73.2	73.2	73.2	73.2	73.2		12.2	12.2	12.2
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.13	0.13	0.13
v/c Ratio	0.69	0.22	0.00	0.30	0.17		0.01	0.40	0.26
Control Delay (s/veh)	23.4	4.4	4.5	4.8	1.1		0.0	43.7	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	23.4	4.4	4.5	4.8	1.1		0.0	43.7	8.2
LOS	C	A	A	A	A		A	D	A
Approach Delay (s/veh)		8.9		4.2					
Approach LOS		A		A					
Queue Length 50th (m)	21.5	16.4	0.1	24.0	0.0		0.0	12.1	0.0
Queue Length 95th (m)	#78.1	25.9	0.8	36.9	6.7		0.0	24.0	8.8
Internal Link Dist (m)		1377.1		902.8			634.1		
Turn Bay Length (m)	90.0		60.0		50.0			200.0	
Base Capacity (vph)	331	3367	449	3282	1143		511	463	573
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	0.69	0.22	0.00	0.30	0.17		0.01	0.15	0.12
Intersection Summary									
Cycle Length: 95									
Actuated Cycle Length: 95									
Offset: 22.5 (24%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green									
Natural Cycle: 110									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.69									
Intersection Signal Delay (s/veh): 7.5					Intersection LOS: A				
Intersection Capacity Utilization 72.8%					ICU Level of Service C				
Analysis Period (min) 15									

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

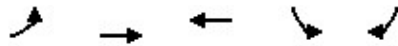
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2031 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	211	683	3	2	905	180	1	0	2	64	0	64
Future Volume (veh/h)	211	683	3	2	905	180	1	0	2	64	0	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	229	742	3	2	984	196	1	0	2	70	0	70
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	4
Cap, veh/h	404	3645	15	600	3300	1110	77	19	92	200	166	136
Arrive On Green	0.77	0.77	0.77	0.77	0.77	0.77	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	471	4763	19	726	4311	1450	305	222	1054	1421	1900	1555
Grp Volume(v), veh/h	229	459	286	2	984	196	3	0	0	70	0	70
Grp Sat Flow(s),veh/h/ln	471	1473	1837	726	1437	1450	1581	0	0	1421	1900	1555
Q Serve(g_s), s	27.3	4.1	4.1	0.1	6.6	3.5	0.0	0.0	0.0	4.3	0.0	4.1
Cycle Q Clear(g_c), s	33.9	4.1	4.1	4.2	6.6	3.5	0.2	0.0	0.0	4.4	0.0	4.1
Prop In Lane	1.00		0.01	1.00		1.00	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	404	2254	1406	600	3300	1110	188	0	0	200	166	136
V/C Ratio(X)	0.57	0.20	0.20	0.00	0.30	0.18	0.02	0.00	0.00	0.35	0.00	0.52
Avail Cap(c_a), veh/h	404	2254	1406	600	3300	1110	565	0	0	555	640	524
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.5	3.1	3.1	3.7	3.4	3.0	39.6	0.0	0.0	41.6	0.0	41.4
Incr Delay (d2), s/veh	5.7	0.2	0.3	0.0	0.2	0.3	0.1	0.0	0.0	2.2	0.0	6.4
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	0.6	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	1.1	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.2	3.3	3.4	3.7	3.6	3.4	39.7	0.0	0.0	43.8	0.0	47.8
LnGrp LOS	B	A	A		A	A	D			D		D
Approach Vol, veh/h		974			1182			3			140	
Approach Delay, s/veh		5.9			3.6			39.7			45.8	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.7		15.3		79.7		15.3				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0		49.0		32.0				
Max Q Clear Time (g_c+I1), s		35.9		6.4		8.6		2.2				
Green Ext Time (p_c), s		9.1		1.4		20.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				7.2								
HCM 6th LOS				A								



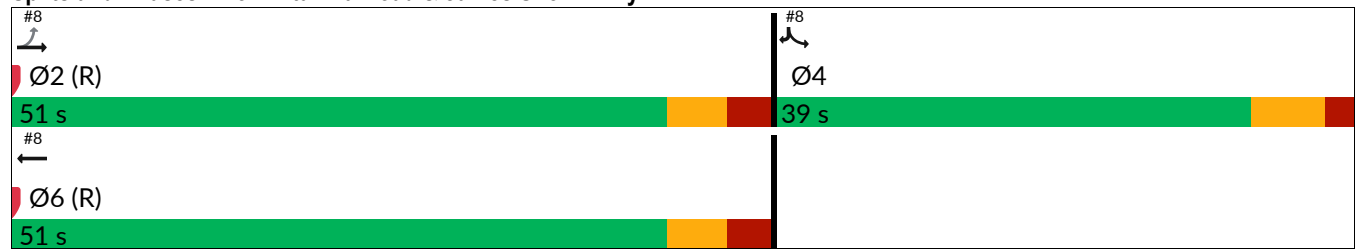
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↰
Traffic Volume (vph)	103	478	709	267	108
Future Volume (vph)	103	478	709	267	108
Lane Group Flow (vph)	118	549	1336	307	124
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		2	6	4	4
Permitted Phases	2				
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	15.0	15.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0
Total Split (s)	51.0	51.0	51.0	39.0	39.0
Total Split (%)	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
Act Effect Green (s)	52.0	52.0	52.0	24.0	24.0
Actuated g/C Ratio	0.58	0.58	0.58	0.27	0.27
v/c Ratio	0.76	0.19	0.54	0.69	0.26
Control Delay (s/veh)	51.8	10.1	10.9	37.6	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	51.8	10.1	10.9	37.6	5.9
LOS	D	B	B	D	A
Approach Delay (s/veh)		17.5	10.9	28.5	
Approach LOS		B	B	C	
Queue Length 50th (m)	15.5	15.6	39.7	49.9	0.4
Queue Length 95th (m)	#54.2	25.5	61.7	65.3	11.2
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	156	2884	2493	590	589
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.19	0.54	0.52	0.21

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay (s/veh): 15.8	Intersection LOS: B
Intersection Capacity Utilization 77.0%	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: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2031 Future Total
Weekday PM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	103	478	709	453	267	108
Future Volume (veh/h)	103	478	709	453	267	108
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	1707	1841	1796	1366	1826	1737
Adj Flow Rate, veh/h	118	549	815	521	307	124
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	13	4	7	36	5	11
Cap, veh/h	233	3076	2001	932	404	342
Arrive On Green	0.61	0.61	0.61	0.61	0.23	0.23
Sat Flow, veh/h	374	5191	3431	1522	1739	1472
Grp Volume(v), veh/h	118	549	815	521	307	124
Grp Sat Flow(s),veh/h/ln	374	1675	1635	1522	1739	1472
Q Serve(g_s), s	24.5	4.3	11.6	18.2	14.8	6.4
Cycle Q Clear(g_c), s	42.6	4.3	11.6	18.2	14.8	6.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	233	3076	2001	932	404	342
V/C Ratio(X)	0.51	0.18	0.41	0.56	0.76	0.36
Avail Cap(c_a), veh/h	233	3076	2001	932	618	523
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	22.9	7.6	9.0	10.3	32.2	29.0
Incr Delay (d2), s/veh	7.6	0.1	0.6	2.4	6.2	1.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	0.6	3.6	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	30.5	7.7	9.6	12.7	38.4	30.3
LnGrp LOS	C	A	A	B	D	C
Approach Vol, veh/h		667	1336		431	
Approach Delay, s/veh		11.8	10.8		36.1	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.1		27.9		62.1
Change Period (Y+Rc), s		7.0		7.0		7.0
Max Green Setting (Gmax), s		44.0		32.0		44.0
Max Q Clear Time (g_c+I1), s		44.6		16.8		20.2
Green Ext Time (p_c), s		0.0		4.1		16.7
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			15.6			
HCM 6th LOS			B			

Queues

2: First Line/Bronte St. S & Britannia Road

2031 Future Background

Weekday AM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  			 		 	
Traffic Volume (vph)	147	527	54	6	335	57	27	64	103	168	88
Future Volume (vph)	147	527	54	6	335	57	27	64	103	168	88
Lane Group Flow (vph)	162	579	59	7	368	63	30	73	113	185	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.34	0.34	0.09	0.02	0.22	0.10	0.07	0.10	0.24	0.26	0.16
Control Delay (s/veh)	16.3	23.7	1.9	12.8	22.3	2.2	24.7	24.3	24.6	24.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.3	23.7	1.9	12.8	22.3	2.2	24.7	24.3	24.6	24.3	5.2
LOS	B	C	A	B	C	A	C	C	C	C	A
Approach Delay (s/veh)		20.6			19.2			24.4		19.7	
Approach LOS		C			B			C		B	
Queue Length 50th (m)	17.6	35.2	0.0	0.8	21.6	0.0	4.3	10.3	16.2	26.0	0.0
Queue Length 95th (m)	29.8	46.2	3.4	3.2	30.2	4.1	11.0	20.5	30.0	42.3	10.6
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	471	1694	646	330	1662	646	437	702	465	705	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.34	0.09	0.02	0.22	0.10	0.07	0.10	0.24	0.26	0.16

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.34

Intersection Signal Delay (s/veh): 20.3

Intersection LOS: C

Intersection Capacity Utilization 62.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1	#2  Ø2 (R)	#2  Ø4
11 s	47 s	47 s
#2  Ø5	#2  Ø6 (R)	#2  Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2031 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	147	527	54	6	335	57	27	64	3	103	168	88
Future Volume (veh/h)	147	527	54	6	335	57	27	64	3	103	168	88
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		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	1841	1856	1841	1648	1826	1841	1900	1900	1900	1841	1900	1826
Adj Flow Rate, veh/h	162	579	59	7	368	63	30	70	3	113	185	97
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	4	17	5	4	0	0	0	4	0	5
Cap, veh/h	493	1705	597	376	1678	597	407	672	29	521	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4453	1560	1570	4382	1560	1115	1809	78	1306	1900	1528
Grp Volume(v), veh/h	162	579	59	7	368	63	30	0	73	113	185	97
Grp Sat Flow(s),veh/h/ln	1753	1484	1560	1570	1461	1560	1115	0	1886	1306	1900	1528
Q Serve(g_s), s	5.9	9.7	2.5	0.3	5.9	2.7	2.0	0.0	2.7	6.5	7.1	4.5
Cycle Q Clear(g_c), s	5.9	9.7	2.5	0.3	5.9	2.7	9.1	0.0	2.7	9.2	7.1	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	493	1705	597	376	1678	597	407	0	701	521	706	567
V/C Ratio(X)	0.33	0.34	0.10	0.02	0.22	0.11	0.07	0.00	0.10	0.22	0.26	0.17
Avail Cap(c_a), veh/h	493	1705	597	376	1678	597	407	0	701	521	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	23.0	20.8	16.4	21.8	20.8	26.2	0.0	21.6	24.6	23.0	22.1
Incr Delay (d2), s/veh	1.8	0.5	0.3	0.1	0.3	0.4	0.4	0.0	0.3	1.0	0.9	0.7
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	1.1	1.6	0.5	0.0	0.9	0.5	0.3	0.0	0.6	1.1	1.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.5	23.5	21.1	16.5	22.1	21.2	26.5	0.0	21.9	25.5	23.9	22.8
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		800			438			103			395	
Approach Delay, s/veh		22.5			21.9			23.2			24.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	0.0	0.0		11.1	0.0	0.0		11.2				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	0.0		2.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.8									
HCM 6th LOS			C									

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	565	242	258	268	89	65	640	180	240	1178	73
Future Volume (vph)	64	565	242	258	268	89	65	640	180	240	1178	73
Lane Group Flow (vph)	66	582	249	266	276	92	67	660	186	247	1214	75
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	15.0	48.0	48.0	16.0	49.0	49.0	11.0	55.0	55.0	21.0	65.0	65.0
Total Split (%)	10.7%	34.3%	34.3%	11.4%	35.0%	35.0%	7.9%	39.3%	39.3%	15.0%	46.4%	46.4%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	8.5	43.4	43.4	14.7	52.8	52.8	7.0	42.5	42.5	15.2	52.9	52.9
Actuated g/C Ratio	0.06	0.31	0.31	0.11	0.38	0.38	0.05	0.30	0.30	0.11	0.38	0.38
v/c Ratio	0.33	0.63	0.43	0.79	0.17	0.14	0.42	0.64	0.32	0.70	0.88	0.12
Control Delay (s/veh)	67.1	46.3	21.6	78.5	32.1	2.3	72.6	44.6	5.9	71.2	48.7	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.1	46.3	21.6	78.5	32.1	2.3	72.6	44.6	5.9	71.2	48.7	2.1
LOS	E	D	C	E	C	A	E	D	A	E	D	A
Approach Delay (s/veh)		41.0			47.2			38.8			50.0	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	9.3	91.6	26.7	39.3	23.3	0.0	9.8	84.6	0.2	35.4	158.2	0.0
Queue Length 95th (m)	17.1	117.0	53.2	#69.8	34.4	5.2	18.2	103.3	17.3	49.8	180.0	4.6
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	260	923	575	335	1638	648	161	1150	631	395	1495	689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.63	0.43	0.79	0.17	0.14	0.42	0.57	0.29	0.63	0.81	0.11

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 45.0

Intersection LOS: D

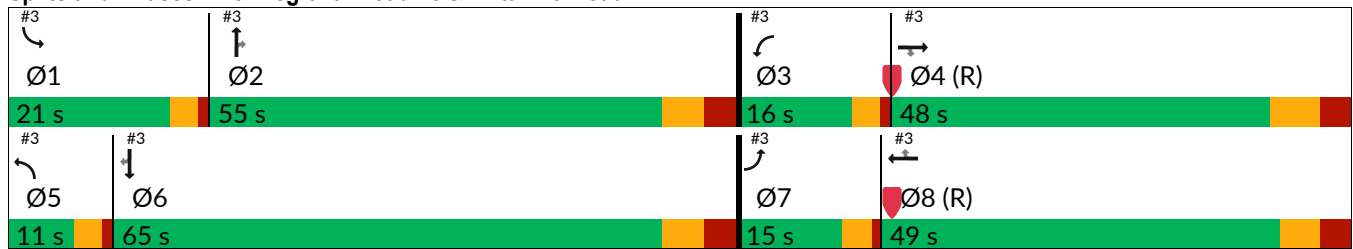
Intersection Capacity Utilization 95.2%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road

HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2031 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	565	242	258	268	89	65	640	180	240	1178	73
Future Volume (veh/h)	64	565	242	258	268	89	65	640	180	240	1178	73
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		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	1870	1870	1870	1811	1826	1811	1826	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	66	582	249	266	276	92	67	660	186	247	1214	75
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
Percent Heavy Veh, %	2	2	2	6	5	6	5	6	6	4	4	3
Cap, veh/h	160	964	510	287	1585	555	156	1133	505	306	1373	579
Arrive On Green	0.05	0.32	0.32	0.09	0.36	0.36	0.05	0.33	0.33	0.09	0.37	0.37
Sat Flow, veh/h	3456	2993	1584	3346	4382	1534	3374	3441	1535	3401	3681	1553
Grp Volume(v), veh/h	66	582	249	266	276	92	67	660	186	247	1214	75
Grp Sat Flow(s),veh/h/ln	1728	1496	1584	1673	1461	1534	1687	1721	1535	1700	1841	1553
Q Serve(g_s), s	2.6	22.9	17.7	11.1	6.0	5.7	2.7	22.3	13.0	10.0	43.2	4.5
Cycle Q Clear(g_c), s	2.6	22.9	17.7	11.1	6.0	5.7	2.7	22.3	13.0	10.0	43.2	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	964	510	287	1585	555	156	1133	505	306	1373	579
V/C Ratio(X)	0.41	0.60	0.49	0.93	0.17	0.17	0.43	0.58	0.37	0.81	0.88	0.13
Avail Cap(c_a), veh/h	272	964	510	287	1585	555	169	1163	519	413	1507	635
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.9	39.9	38.2	63.6	30.4	30.3	65.0	39.0	35.8	62.5	41.1	28.9
Incr Delay (d2), s/veh	1.7	2.8	3.3	34.5	0.2	0.6	1.9	0.7	0.4	8.3	6.2	0.1
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	0.9	5.8	4.9	4.9	1.4	1.4	0.9	6.2	3.2	3.6	13.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.6	42.7	41.5	98.1	30.7	31.0	66.8	39.7	36.3	70.8	47.3	29.0
LnGrp LOS	E	D	D	F	C	C	E	D	D	E	D	C
Approach Vol, veh/h	897				634			913			1536	
Approach Delay, s/veh	44.1				59.0			41.0			50.2	
Approach LOS	D				E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	53.8	16.0	53.6	10.5	59.9	10.5	59.1				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	17.0	47.3	12.0	39.5	7.0	57.3	11.0	* 42				
Max Q Clear Time (g_c+I1), s	12.0	24.3	13.1	24.9	4.7	45.2	4.6	8.0				
Green Ext Time (p_c), s	0.6	6.1	0.0	2.5	0.0	7.0	0.1	1.4				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	48.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	8	322	29	70	455
Future Vol, veh/h	52	8	322	29	70	455
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	61	9	379	34	82	535

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1095	396	0	0	413	0
Stage 1	396	-	-	-	-	-
Stage 2	699	-	-	-	-	-
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	239	658	-	-	1157	-
Stage 1	684	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	658	-	-	1157	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	25.9	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 215 658	1157	-
HCM Lane V/C Ratio	-	- 0.285 0.014	0.071	-
HCM Ctrl Dly (s/v)	-	- 28.3 10.6	8.4	0
HCM Lane LOS	-	- D B	A	A
HCM 95th %tile Q (veh)	-	- 1.1 0	0.2	-

Intersection

Int Delay, s/veh 6.2

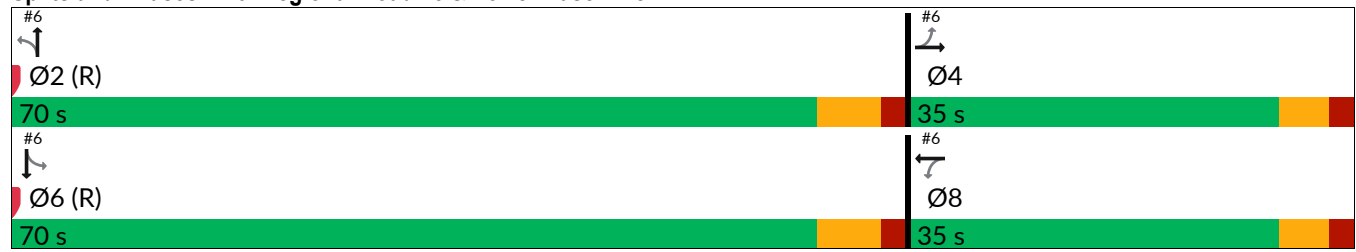
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	99	11	89	195	57
Future Vol, veh/h	3	99	11	89	195	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	3	105	12	95	207	61

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	107	0	0 171 60
Stage 1	-	-	- 60 -
Stage 2	-	-	- 111 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1497	-	- 821 1011
Stage 1	-	-	- 965 -
Stage 2	-	-	- 916 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1497	-	- 819 1011
Mov Cap-2 Maneuver	-	-	- 819 -
Stage 1	-	-	- 963 -
Stage 2	-	-	- 916 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.2	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1497	-	-	-	856
HCM Lane V/C Ratio	0.002	-	-	-	0.313
HCM Ctrl Dly (s/v)	7.4	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	1.3

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	22	94	73	13	10	962	19	1687
Future Volume (vph)	22	94	73	13	10	962	19	1687
Lane Group Flow (vph)	0	157	0	102	11	1106	20	1777
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		16.4		16.4	75.6	75.6	75.6	75.6
Actuated g/C Ratio		0.16		0.16	0.72	0.72	0.72	0.72
v/c Ratio		0.55		0.68	0.09	0.46	0.06	0.73
Control Delay (s/veh)		43.7		60.9	8.2	7.4	6.3	11.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		43.7		60.9	8.2	7.4	6.3	11.7
LOS		D		E	A	A	A	B
Approach Delay (s/veh)		43.7		60.9		7.4		11.7
Approach LOS		D		E		A		B
Queue Length 50th (m)		27.3		18.8	0.6	44.3	1.0	100.4
Queue Length 95th (m)		44.0		34.3	3.3	72.7	4.2	162.8
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		491		260	116	2403	309	2451
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.32		0.39	0.09	0.46	0.06	0.73
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.73								
Intersection Signal Delay (s/veh): 13.3				Intersection LOS: B				
Intersection Capacity Utilization 77.2%				ICU Level of Service D				
Analysis Period (min) 15								

Splits and Phases: 6: Regional Road 25 & Lower Base Line W

HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

2031 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	94	33	73	13	10	10	962	88	19	1687	1
Future Volume (veh/h)	22	94	33	73	13	10	10	962	88	19	1687	1
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	23	99	35	77	14	11	11	1013	93	20	1776	1
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	59	142	46	155	27	15	210	2408	221	405	2689	2
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.76	0.76	0.76	0.76	0.76	0.76
Sat Flow, veh/h	174	1241	406	828	240	129	272	3160	290	518	3529	2
Grp Volume(v), veh/h	157	0	0	102	0	0	11	547	559	20	866	911
Grp Sat Flow(s),veh/h/ln	1821	0	0	1197	0	0	272	1706	1744	518	1721	1811
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	2.1	11.8	11.8	1.5	25.3	25.3
Cycle Q Clear(g_c), s	8.6	0.0	0.0	9.1	0.0	0.0	27.4	11.8	11.8	13.3	25.3	25.3
Prop In Lane	0.15		0.22	0.75		0.11	1.00		0.17	1.00		0.00
Lane Grp Cap(c), veh/h	247	0	0	197	0	0	210	1300	1329	405	1311	1380
V/C Ratio(X)	0.63	0.00	0.00	0.52	0.00	0.00	0.05	0.42	0.42	0.05	0.66	0.66
Avail Cap(c_a), veh/h	529	0	0	418	0	0	210	1300	1329	405	1311	1380
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	0.0	45.1	0.0	0.0	12.6	4.4	4.4	6.7	6.0	6.0
Incr Delay (d2), s/veh	5.6	0.0	0.0	4.4	0.0	0.0	0.5	1.0	1.0	0.2	2.6	2.5
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	2.9	0.0	0.0	1.9	0.0	0.0	0.1	0.4	0.4	0.0	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.7	0.0	0.0	49.5	0.0	0.0	13.0	5.4	5.4	6.9	8.6	8.5
LnGrp LOS	D			D			B	A	A	A	A	A
Approach Vol, veh/h		157			102			1117			1797	
Approach Delay, s/veh		50.7			49.5			5.4			8.5	
Approach LOS		D			D			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.0		18.0		87.0		18.0				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		10.6		0.0		11.1				
Green Ext Time (p_c), s		0.0		1.4		0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				10.8								
HCM 6th LOS				B								

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	87	1031	1	506	43	3	0	239	1	153
Future Volume (vph)	87	1031	1	506	43	3	0	239	1	153
Lane Group Flow (vph)	95	1123	1	550	47	0	5	260	1	166
Turn Type	Prot	NA	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		6			8		4	
Permitted Phases			6		6	8		4		4
Detector Phase	5	2	6	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	13.0	56.0	43.0	43.0	43.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.7%	58.9%	45.3%	45.3%	45.3%	41.1%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	2.0	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	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effect Green (s)	9.6	56.2	44.8	44.8	44.8		24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.10	0.59	0.47	0.47	0.47		0.26	0.26	0.26	0.26
v/c Ratio	0.56	0.38	0.00	0.24	0.07		0.01	0.73	0.00	0.32
Control Delay (s/veh)	53.7	11.5	18.0	17.3	0.9		0.0	43.3	22.0	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.7	11.5	18.0	17.3	0.9		0.0	43.3	22.0	5.6
LOS	D	B	B	B	A		A	D	C	A
Approach Delay (s/veh)		14.8		16.0					28.6	
Approach LOS		B		B					C	
Queue Length 50th (m)	17.0	38.2	0.1	24.2	0.0		0.0	43.7	0.1	0.0
Queue Length 95th (m)	#37.3	57.1	1.1	35.8	1.5		0.0	64.0	1.2	13.4
Internal Link Dist (m)		1377.1		902.8			298.9		1556.7	
Turn Bay Length (m)	90.0		60.0		50.0			200.0		
Base Capacity (vph)	178	2946	207	2285	720		524	461	640	622
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.53	0.38	0.00	0.24	0.07		0.01	0.56	0.00	0.27

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 22.5 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 17.7

Intersection LOS: B

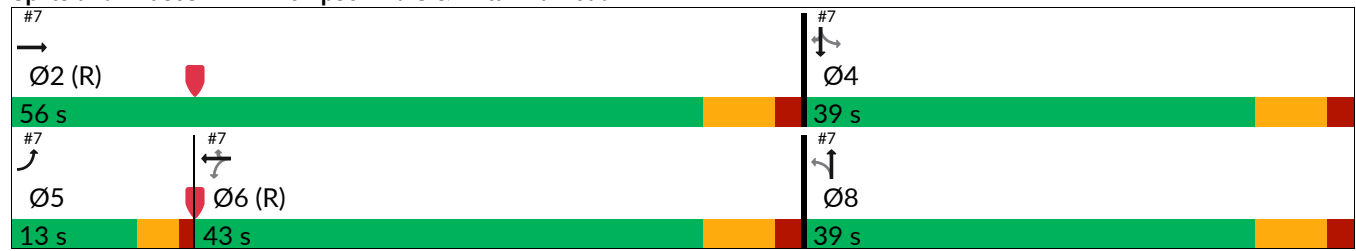
Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

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

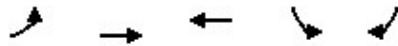
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2031 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	87	1031	2	1	506	43	3	0	2	239	1	153
Future Volume (veh/h)	87	1031	2	1	506	43	3	0	2	239	1	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1826
Adj Flow Rate, veh/h	95	1121	2	1	550	47	3	0	2	260	1	166
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	5
Cap, veh/h	121	3208	6	334	2495	735	240	15	129	409	443	360
Arrive On Green	0.07	0.62	0.62	0.51	0.51	0.51	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1767	5180	9	508	4904	1445	768	64	555	1424	1900	1545
Grp Volume(v), veh/h	95	725	398	1	550	47	5	0	0	260	1	166
Grp Sat Flow(s),veh/h/ln	1767	1675	1839	508	1635	1445	1387	0	0	1424	1900	1545
Q Serve(g_s), s	5.0	10.0	10.0	0.1	5.9	1.6	0.0	0.0	0.0	16.0	0.0	8.8
Cycle Q Clear(g_c), s	5.0	10.0	10.0	0.1	5.9	1.6	0.2	0.0	0.0	16.2	0.0	8.8
Prop In Lane	1.00		0.01	1.00		1.00	0.60		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	121	2075	1139	334	2495	735	384	0	0	409	443	360
V/C Ratio(X)	0.78	0.35	0.35	0.00	0.22	0.06	0.01	0.00	0.00	0.64	0.00	0.46
Avail Cap(c_a), veh/h	167	2075	1139	334	2495	735	525	0	0	556	640	521
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	8.8	8.8	11.5	12.9	11.8	28.0	0.0	0.0	34.1	27.9	31.3
Incr Delay (d2), s/veh	15.0	0.5	0.8	0.0	0.2	0.2	0.0	0.0	0.0	3.5	0.0	2.0
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	1.8	0.1	0.3	0.0	0.4	0.1	0.0	0.0	0.0	3.2	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.6	9.2	9.6	11.5	13.1	12.0	28.0	0.0	0.0	37.6	27.9	33.2
LnGrp LOS	E	A	A		B	B	C			D		C
Approach Vol, veh/h		1218			598			5			427	
Approach Delay, s/veh		13.2			13.0			28.0			35.9	
Approach LOS		B			B			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.8		29.2	10.5	55.3		29.2				
Change Period (Y+Rc), s		7.0		7.0	4.0	7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0	9.0	36.0		32.0				
Max Q Clear Time (g_c+I1), s		12.0		18.2	7.0	7.9		2.2				
Green Ext Time (p_c), s		17.8		3.7	0.1	8.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				17.5								
HCM 6th LOS				B								

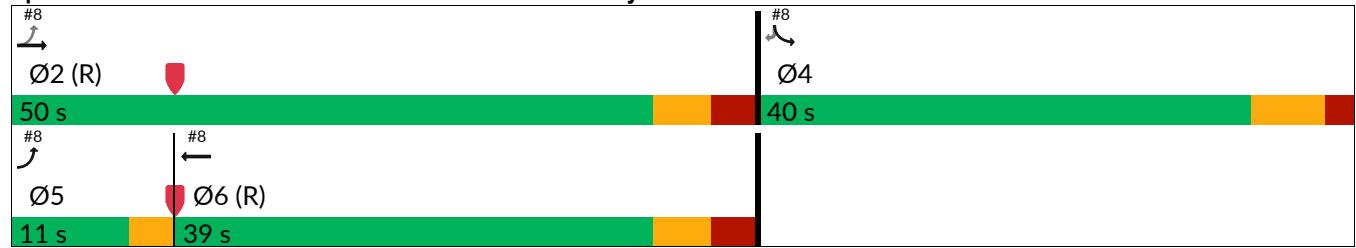


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	→→→	→→→	↱	↱
Traffic Volume (vph)	92	746	355	372	123
Future Volume (vph)	92	746	355	372	123
Lane Group Flow (vph)	106	857	518	428	141
Turn Type	pm+pt	NA	NA	Prot	Perm
Protected Phases	5	2	6	4	
Permitted Phases	2				4
Detector Phase	5	2	6	4	4
Switch Phase					
Minimum Initial (s)	7.0	25.0	25.0	15.0	15.0
Minimum Split (s)	10.0	39.0	39.0	39.0	39.0
Total Split (s)	11.0	50.0	39.0	40.0	40.0
Total Split (%)	12.2%	55.6%	43.3%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	5.0	5.0
All-Red Time (s)	0.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
Act Effect Green (s)	51.0	47.0	38.4	29.0	29.0
Actuated g/C Ratio	0.57	0.52	0.43	0.32	0.32
v/c Ratio	0.23	0.33	0.27	0.80	0.25
Control Delay (s/veh)	11.6	13.5	15.8	39.4	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.6	13.5	15.8	39.4	4.7
LOS	B	B	B	D	A
Approach Delay (s/veh)		13.3	15.8	30.8	
Approach LOS		B	B	C	
Queue Length 50th (m)	9.1	31.8	19.4	67.8	0.0
Queue Length 95th (m)	18.0	41.5	28.0	94.3	11.1
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	464	2604	1941	609	626
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.33	0.27	0.70	0.23

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay (s/veh): 18.8	Intersection LOS: B
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2031 Future Background
Weekday AM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	92	746	355	96	372	123
Future Volume (veh/h)	92	746	355	96	372	123
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	1722	1841	1796	1366	1826	1767
Adj Flow Rate, veh/h	106	857	408	110	428	141
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	12	4	7	36	5	9
Cap, veh/h	500	2741	1705	443	520	448
Arrive On Green	0.07	0.55	0.44	0.44	0.30	0.30
Sat Flow, veh/h	1640	5191	4038	1008	1739	1497
Grp Volume(v), veh/h	106	857	342	176	428	141
Grp Sat Flow(s),veh/h/ln	1640	1675	1635	1615	1739	1497
Q Serve(g_s), s	2.9	8.4	5.9	6.2	20.6	6.6
Cycle Q Clear(g_c), s	2.9	8.4	5.9	6.2	20.6	6.6
Prop In Lane	1.00			0.62	1.00	1.00
Lane Grp Cap(c), veh/h	500	2741	1438	710	520	448
V/C Ratio(X)	0.21	0.31	0.24	0.25	0.82	0.31
Avail Cap(c_a), veh/h	528	2741	1438	710	638	549
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	10.9	11.2	15.8	15.9	29.3	24.4
Incr Delay (d2), s/veh	0.2	0.3	0.4	0.8	9.3	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.6	0.7	4.9	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.0	11.5	16.2	16.7	38.6	25.3
LnGrp LOS	B	B	B	B	D	C
Approach Vol, veh/h		963	518		569	
Approach Delay, s/veh		11.5	16.3		35.3	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		56.1		33.9	9.5	46.6
Change Period (Y+Rc), s		7.0		7.0	3.0	7.0
Max Green Setting (Gmax), s		43.0		33.0	8.0	32.0
Max Q Clear Time (g_c+l1), s		10.4		22.6	4.9	8.2
Green Ext Time (p_c), s		12.7		4.3	0.1	6.2
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			19.3			
HCM 6th LOS			B			

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  						
Traffic Volume (vph)	69	332	22	4	445	78	59	141	52	61	73
Future Volume (vph)	69	332	22	4	445	78	59	141	52	61	73
Lane Group Flow (vph)	76	365	24	4	489	86	65	158	57	67	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.18	0.22	0.04	0.01	0.29	0.13	0.13	0.22	0.13	0.10	0.13
Control Delay (s/veh)	14.2	22.2	0.1	12.5	23.1	4.4	29.9	30.9	23.0	22.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.2	22.2	0.1	12.5	23.1	4.4	29.9	30.9	23.0	22.1	5.4
LOS	B	C	A	B	C	A	C	C	C	C	A
Approach Delay (s/veh)		19.8			20.3			30.6		15.8	
Approach LOS		B			C			C		B	
Queue Length 50th (m)	7.8	21.0	0.0	0.4	29.6	0.0	10.5	25.9	7.9	8.8	0.0
Queue Length 95th (m)	15.5	29.5	0.0	2.3	39.8	8.6	m20.8	42.6	17.0	17.8	9.4
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	413	1694	646	420	1662	646	486	704	430	705	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.22	0.04	0.01	0.29	0.13	0.13	0.22	0.13	0.10	0.13

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.29

Intersection Signal Delay (s/veh): 21.1

Intersection LOS: C

Intersection Capacity Utilization 61.5%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1 11 s	#2  Ø2 (R) 47 s	#2  Ø4 47 s
#2  Ø5 11 s	#2  Ø6 (R) 47 s	#2  Ø8 47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2031 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	332	22	4	445	78	59	141	3	52	61	73
Future Volume (veh/h)	69	332	22	4	445	78	59	141	3	52	61	73
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		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	1841	1856	1841	1648	1826	1841	1900	1900	1900	1841	1900	1826
Adj Flow Rate, veh/h	76	365	24	4	489	86	65	155	3	57	67	80
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	4	17	5	4	0	0	0	4	0	5
Cap, veh/h	437	1705	597	460	1678	597	508	690	13	448	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4453	1560	1570	4382	1560	1260	1858	36	1209	1900	1528
Grp Volume(v), veh/h	76	365	24	4	489	86	65	0	158	57	67	80
Grp Sat Flow(s),veh/h/ln	1753	1484	1560	1570	1461	1560	1260	0	1894	1209	1900	1528
Q Serve(g_s), s	2.6	5.8	1.0	0.1	8.1	3.8	3.7	0.0	6.0	3.6	2.4	3.6
Cycle Q Clear(g_c), s	2.6	5.8	1.0	0.1	8.1	3.8	6.1	0.0	6.0	9.6	2.4	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	437	1705	597	460	1678	597	508	0	703	448	706	567
V/C Ratio(X)	0.17	0.21	0.04	0.01	0.29	0.14	0.13	0.00	0.22	0.13	0.09	0.14
Avail Cap(c_a), veh/h	437	1705	597	460	1678	597	508	0	703	448	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.0	21.8	20.3	16.1	22.5	21.2	23.5	0.0	22.6	25.9	21.5	21.9
Incr Delay (d2), s/veh	0.9	0.3	0.1	0.0	0.4	0.5	0.5	0.0	0.7	0.6	0.3	0.5
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	0.5	0.9	0.2	0.0	1.3	0.7	0.6	0.0	1.4	0.6	0.5	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	17.8	22.1	20.4	16.1	22.9	21.7	24.0	0.0	23.4	26.5	21.8	22.4
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		465			579			223			204	
Approach Delay, s/veh		21.3			22.7			23.6			23.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	2.1	3.0		8.1	4.6	5.8		11.6				
Green Ext Time (p_c), s	0.0	0.0		1.3	0.1	0.1		1.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.5									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2031 Future Background
Weekday PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	324	39	167	481	251	212	998	377	94	634	64
Future Volume (vph)	54	324	39	167	481	251	212	998	377	94	634	64
Lane Group Flow (vph)	56	334	40	172	496	259	219	1029	389	97	654	66
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	14.0	48.0	48.0	15.0	49.0	49.0	20.0	65.0	65.0	12.0	57.0	57.0
Total Split (%)	10.0%	34.3%	34.3%	10.7%	35.0%	35.0%	14.3%	46.4%	46.4%	8.6%	40.7%	40.7%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	8.1	45.8	45.8	11.8	52.8	52.8	14.2	50.3	50.3	7.8	44.0	44.0
Actuated g/C Ratio	0.06	0.33	0.33	0.08	0.38	0.38	0.10	0.36	0.36	0.06	0.31	0.31
v/c Ratio	0.29	0.34	0.07	0.64	0.30	0.37	0.67	0.84	0.54	0.54	0.60	0.11
Control Delay (s/veh)	66.8	38.4	0.2	73.1	33.3	10.4	71.0	47.8	11.9	75.5	42.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.8	38.4	0.2	73.1	33.3	10.4	71.0	47.8	11.9	75.5	42.7	0.4
LOS	E	D	A	E	C	B	E	D	B	E	D	A
Approach Delay (s/veh)		38.6			34.3			42.4			43.2	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	7.9	45.5	0.0	25.1	43.1	10.5	31.7	142.2	22.5	14.1	82.8	0.0
Queue Length 95th (m)	15.0	64.8	0.0	#38.9	60.5	36.3	45.4	158.6	50.7	23.9	97.7	0.0
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	237	975	600	277	1636	695	368	1394	781	186	1222	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.34	0.07	0.62	0.30	0.37	0.60	0.74	0.50	0.52	0.54	0.11

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay (s/veh): 40.2

Intersection LOS: D

Intersection Capacity Utilization 90.3%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road

 Ø1	 Ø2	 Ø3	 Ø4 (R)
12 s	65 s	15 s	48 s
 Ø5	 Ø6	 Ø7	 Ø8 (R)
20 s	57 s	14 s	49 s

HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2031 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	324	39	167	481	251	212	998	377	94	634	64
Future Volume (veh/h)	54	324	39	167	481	251	212	998	377	94	634	64
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		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	1870	1870	1870	1811	1826	1811	1826	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	56	334	40	172	496	259	219	1029	389	97	654	66
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
Percent Heavy Veh, %	2	2	2	6	5	6	5	6	6	4	4	3
Cap, veh/h	153	1067	564	221	1657	580	276	1225	546	166	1129	501
Arrive On Green	0.04	0.36	0.36	0.07	0.38	0.38	0.08	0.36	0.36	0.05	0.32	0.32
Sat Flow, veh/h	3456	2993	1584	3346	4382	1534	3374	3441	1535	3401	3497	1553
Grp Volume(v), veh/h	56	334	40	172	496	259	219	1029	389	97	654	66
Grp Sat Flow(s),veh/h/ln	1728	1496	1584	1673	1461	1534	1687	1721	1535	1700	1749	1553
Q Serve(g_s), s	2.2	11.3	2.3	7.1	11.1	17.7	8.9	38.5	30.6	3.9	21.8	4.2
Cycle Q Clear(g_c), s	2.2	11.3	2.3	7.1	11.1	17.7	8.9	38.5	30.6	3.9	21.8	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	1067	564	221	1657	580	276	1225	546	166	1129	501
V/C Ratio(X)	0.37	0.31	0.07	0.78	0.30	0.45	0.79	0.84	0.71	0.58	0.58	0.13
Avail Cap(c_a), veh/h	247	1067	564	263	1657	580	386	1408	628	194	1232	547
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	32.6	29.7	64.4	30.5	32.6	63.1	41.4	38.9	65.2	39.5	33.5
Incr Delay (d2), s/veh	1.5	0.8	0.2	11.8	0.5	2.5	7.4	4.2	3.2	3.2	0.6	0.1
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	0.8	2.7	0.6	2.6	2.5	4.4	3.1	10.8	7.7	1.4	6.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.4	33.4	30.0	76.1	31.0	35.1	70.6	45.7	42.1	68.4	40.1	33.6
LnGrp LOS	E	C	C	E	C	D	E	D	D	E	D	C
Approach Vol, veh/h		430			927			1637			817	
Approach Delay, s/veh		37.4			40.5			48.1			42.9	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	57.5	13.2	58.4	15.5	52.9	10.2	61.4				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	8.0	57.3	11.0	39.5	16.0	49.3	10.0	* 42				
Max Q Clear Time (g_c+I1), s	5.9	40.5	9.1	13.3	10.9	23.8	4.2	13.1				
Green Ext Time (p_c), s	0.1	9.4	0.2	2.0	0.5	5.3	0.1	2.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	43.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	48	473	19	45	236
Future Vol, veh/h	40	48	473	19	45	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	47	56	556	22	53	278

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	951	567	0	0	578	0
Stage 1	567	-	-	-	-	-
Stage 2	384	-	-	-	-	-
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	291	527	-	-	1006	-
Stage 1	572	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	273	527	-	-	1006	-
Mov Cap-2 Maneuver	273	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	693	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.4	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 273 527	1006	-
HCM Lane V/C Ratio	-	- 0.172 0.107	0.053	-
HCM Ctrl Dly (s/v)	-	- 20.9 12.6	8.8	0
HCM Lane LOS	-	- C B	A	A
HCM 95th %tile Q (veh)	-	- 0.6 0.4	0.2	-

Intersection

Int Delay, s/veh 2.3

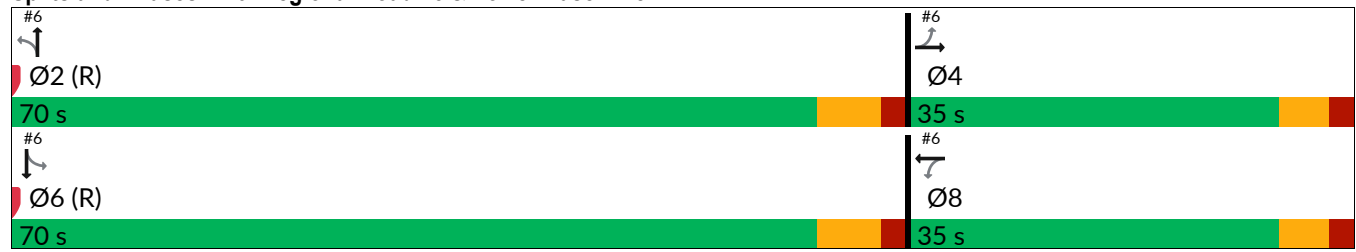
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	65	73	198	71	18
Future Vol, veh/h	4	65	73	198	71	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	4	69	78	211	76	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	289	0	0 261 184
Stage 1	-	-	- 184 -
Stage 2	-	-	- 77 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1284	-	- 730 864
Stage 1	-	-	- 850 -
Stage 2	-	-	- 949 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1284	-	- 728 864
Mov Cap-2 Maneuver	-	-	- 728 -
Stage 1	-	-	- 847 -
Stage 2	-	-	- 949 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.5	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	752
HCM Lane V/C Ratio	0.003	-	-	-	0.126
HCM Ctrl Dly (s/v)	7.8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	0.4

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	54	89	86	16	1636	9	900
Future Volume (vph)	14	54	89	86	16	1636	9	900
Lane Group Flow (vph)	0	92	0	208	17	1768	9	952
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		21.9		21.9	70.1	70.1	70.1	70.1
Actuated g/C Ratio		0.21		0.21	0.67	0.67	0.67	0.67
v/c Ratio		0.25		0.70	0.05	0.79	0.10	0.42
Control Delay (s/veh)		29.5		49.4	8.3	16.7	11.4	9.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		29.5		49.4	8.3	16.7	11.4	9.4
LOS		C		D	A	B	B	A
Approach Delay (s/veh)		29.5		49.4		16.7		9.5
Approach LOS		C		D		B		A
Queue Length 50th (m)		13.4		38.4	1.1	127.1	0.6	44.7
Queue Length 95th (m)		24.9		58.0	4.3	197.3	3.4	70.3
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		487		392	334	2245	92	2272
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.19		0.53	0.05	0.79	0.10	0.42
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 70								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.79								
Intersection Signal Delay (s/veh): 17.0				Intersection LOS: B				
Intersection Capacity Utilization 74.9%				ICU Level of Service D				
Analysis Period (min) 15								

Splits and Phases: 6: Regional Road 25 & Lower Base Line W

HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

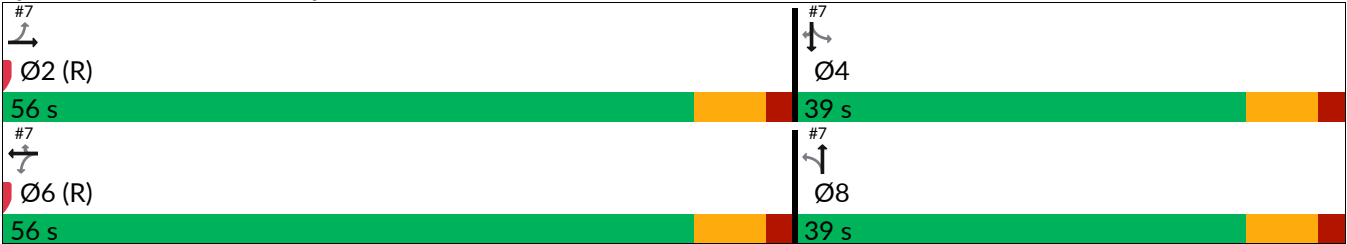
2031 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	54	19	89	86	22	16	1636	44	9	900	5
Future Volume (veh/h)	14	54	19	89	86	22	16	1636	44	9	900	5
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	15	57	20	94	91	23	17	1722	46	9	947	5
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	63	195	61	156	122	28	439	2450	65	187	2533	13
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	152	1258	392	686	787	183	599	3396	90	274	3510	19
Grp Volume(v), veh/h	92	0	0	208	0	0	17	863	905	9	464	488
Grp Sat Flow(s),veh/h/ln	1802	0	0	1657	0	0	599	1706	1780	274	1721	1808
Q Serve(g_s), s	0.0	0.0	0.0	7.8	0.0	0.0	1.2	29.9	30.3	2.0	10.8	10.8
Cycle Q Clear(g_c), s	4.7	0.0	0.0	12.5	0.0	0.0	12.0	29.9	30.3	32.3	10.8	10.8
Prop In Lane	0.16		0.22	0.45		0.11	1.00		0.05	1.00		0.01
Lane Grp Cap(c), veh/h	318	0	0	306	0	0	439	1231	1284	187	1242	1304
V/C Ratio(X)	0.29	0.00	0.00	0.68	0.00	0.00	0.04	0.70	0.70	0.05	0.37	0.37
Avail Cap(c_a), veh/h	526	0	0	497	0	0	439	1231	1284	187	1242	1304
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	0.0	42.6	0.0	0.0	7.9	8.2	8.3	17.4	5.6	5.6
Incr Delay (d2), s/veh	1.1	0.0	0.0	5.6	0.0	0.0	0.2	3.3	3.3	0.5	0.9	0.8
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	1.4	0.0	0.0	3.6	0.0	0.0	0.0	1.1	1.2	0.1	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.6	0.0	0.0	48.1	0.0	0.0	8.0	11.6	11.5	17.9	6.4	6.4
LnGrp LOS	D			D			A	B	B	B	A	A
Approach Vol, veh/h		92			208			1785			961	
Approach Delay, s/veh		40.6			48.1			11.5			6.5	
Approach LOS		D			D			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.8		22.2		82.8		22.2				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		6.7		0.0		14.5				
Green Ext Time (p_c), s		0.0		0.8		0.0		1.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				13.3								
HCM 6th LOS				B								

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations									
Traffic Volume (vph)	195	650	2	890	180	1	0	64	60
Future Volume (vph)	195	650	2	890	180	1	0	64	60
Lane Group Flow (vph)	212	710	2	967	196	0	3	70	65
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	Perm
Protected Phases		2		6			8		
Permitted Phases	2		6		6	8		4	4
Detector Phase	2	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	30.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0
Minimum Split (s)	37.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0
Total Split (s)	56.0	56.0	56.0	56.0	56.0	39.0	39.0	39.0	39.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	73.2	73.2	73.2	73.2	73.2		12.2	12.2	12.2
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.13	0.13	0.13
v/c Ratio	0.63	0.21	0.00	0.29	0.17		0.01	0.40	0.24
Control Delay (s/veh)	19.0	4.4	4.5	4.8	1.1		0.0	43.7	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	19.0	4.4	4.5	4.8	1.1		0.0	43.7	6.1
LOS	B	A	A	A	A		A	D	A
Approach Delay (s/veh)		7.8		4.2					
Approach LOS		A		A					
Queue Length 50th (m)	17.9	15.5	0.1	23.5	0.0		0.0	12.1	0.0
Queue Length 95th (m)	#68.5	24.6	0.8	36.2	6.7		0.0	24.0	6.9
Internal Link Dist (m)		1377.1		902.8			634.1		
Turn Bay Length (m)	90.0		60.0		50.0			200.0	
Base Capacity (vph)	338	3367	469	3282	1143		511	463	571
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	0.63	0.21	0.00	0.29	0.17		0.01	0.15	0.11
Intersection Summary									
Cycle Length: 95									
Actuated Cycle Length: 95									
Offset: 22.5 (24%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green									
Natural Cycle: 90									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.63									
Intersection Signal Delay (s/veh): 7.0					Intersection LOS: A				
Intersection Capacity Utilization 72.8%					ICU Level of Service C				
Analysis Period (min) 15									

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

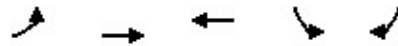
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2031 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	195	650	3	2	890	180	1	0	2	64	0	60
Future Volume (veh/h)	195	650	3	2	890	180	1	0	2	64	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1826
Adj Flow Rate, veh/h	212	707	3	2	967	196	1	0	2	70	0	65
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	5
Cap, veh/h	410	3648	15	620	3303	1111	77	19	91	199	164	133
Arrive On Green	0.77	0.77	0.77	0.77	0.77	0.77	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	479	4762	20	750	4311	1450	305	223	1055	1421	1900	1542
Grp Volume(v), veh/h	212	437	273	2	967	196	3	0	0	70	0	65
Grp Sat Flow(s),veh/h/ln	479	1473	1837	750	1437	1450	1583	0	0	1421	1900	1542
Q Serve(g_s), s	22.8	3.9	3.9	0.1	6.4	3.5	0.0	0.0	0.0	4.3	0.0	3.8
Cycle Q Clear(g_c), s	29.2	3.9	3.9	3.9	6.4	3.5	0.2	0.0	0.0	4.5	0.0	3.8
Prop In Lane	1.00		0.01	1.00		1.00	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	410	2256	1407	620	3303	1111	187	0	0	199	164	133
V/C Ratio(X)	0.52	0.19	0.19	0.00	0.29	0.18	0.02	0.00	0.00	0.35	0.00	0.49
Avail Cap(c_a), veh/h	410	2256	1407	620	3303	1111	566	0	0	555	640	519
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.7	3.0	3.1	3.6	3.3	3.0	39.7	0.0	0.0	41.7	0.0	41.4
Incr Delay (d2), s/veh	4.6	0.2	0.3	0.0	0.2	0.3	0.1	0.0	0.0	2.2	0.0	5.8
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	0.5	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	1.1	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.3	3.2	3.4	3.6	3.6	3.3	39.8	0.0	0.0	43.9	0.0	47.2
LnGrp LOS	B	A	A		A	A	D			D		D
Approach Vol, veh/h		922			1165			3			135	
Approach Delay, s/veh		5.4			3.5			39.8			45.5	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.8		15.2		79.8		15.2				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0		49.0		32.0				
Max Q Clear Time (g_c+I1), s		31.2		6.5		8.4		2.2				
Green Ext Time (p_c), s		11.1		1.3		19.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				6.9								
HCM 6th LOS				A								



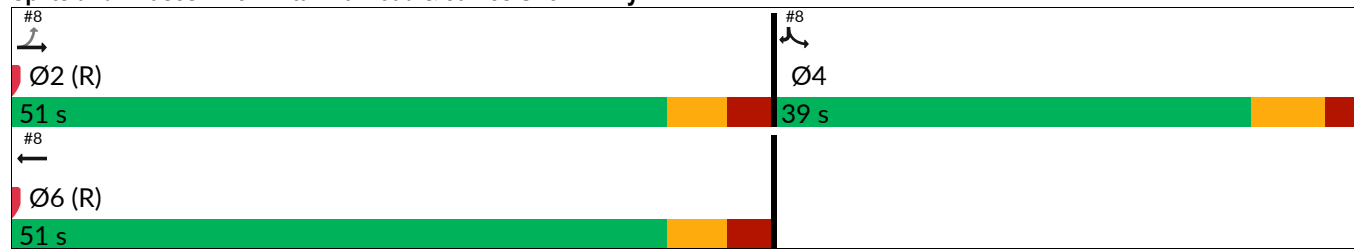
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↱
Traffic Volume (vph)	102	446	696	267	106
Future Volume (vph)	102	446	696	267	106
Lane Group Flow (vph)	117	513	1321	307	122
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		2	6	4	4
Permitted Phases	2				
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	15.0	15.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0
Total Split (s)	51.0	51.0	51.0	39.0	39.0
Total Split (%)	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
Act Effect Green (s)	52.0	52.0	52.0	24.0	24.0
Actuated g/C Ratio	0.58	0.58	0.58	0.27	0.27
v/c Ratio	0.73	0.18	0.53	0.69	0.25
Control Delay (s/veh)	47.1	10.0	10.8	37.6	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.1	10.0	10.8	37.6	5.6
LOS	D	B	B	D	A
Approach Delay (s/veh)		16.9	10.8	28.5	
Approach LOS		B	B	C	
Queue Length 50th (m)	14.8	14.4	38.8	49.9	0.0
Queue Length 95th (m)	#52.5	23.9	60.3	65.3	10.5
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	161	2884	2490	590	599
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.18	0.53	0.52	0.20

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay (s/veh): 15.6	Intersection LOS: B
Intersection Capacity Utilization 76.7%	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.

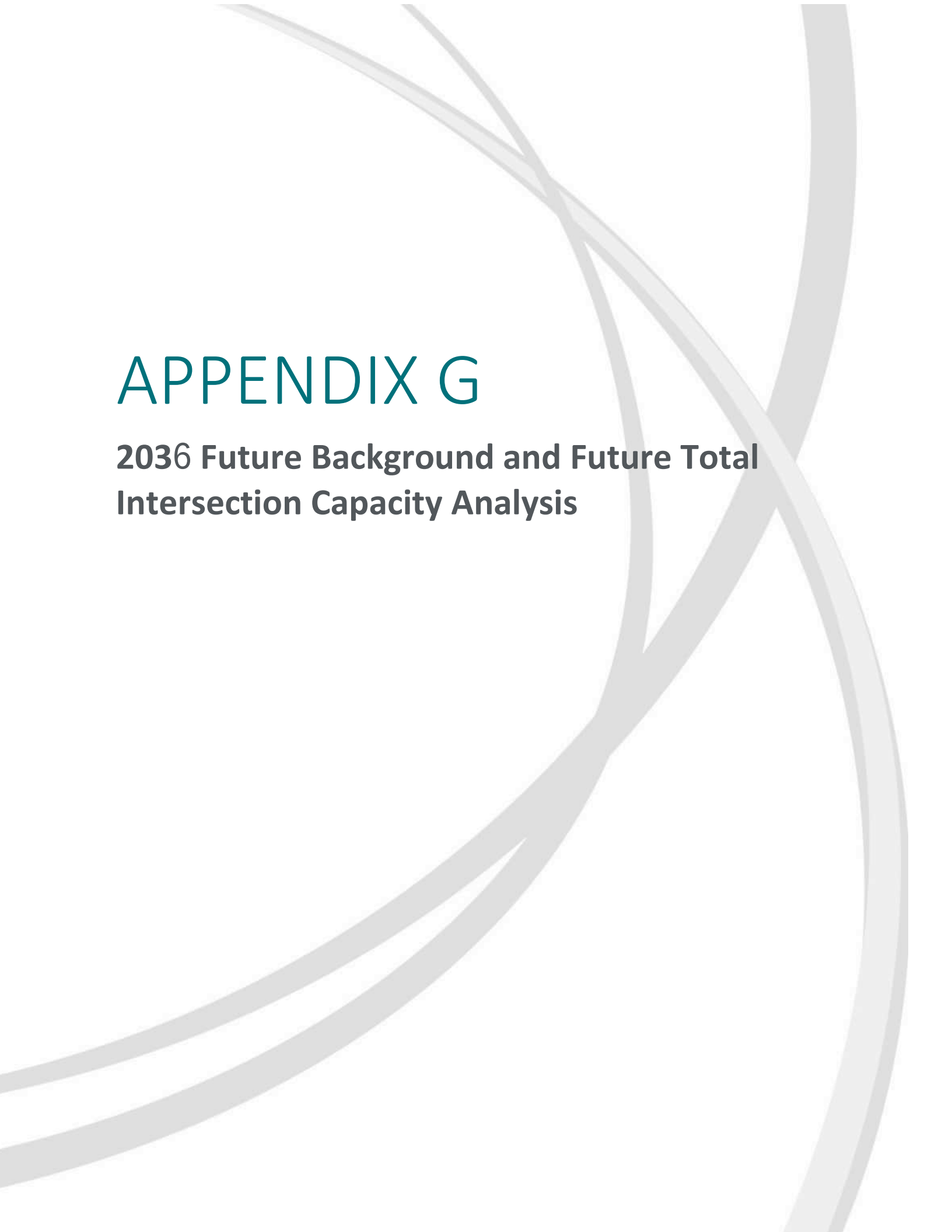
Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2031 Future Background
Weekday PM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	102	446	696	453	267	106
Future Volume (veh/h)	102	446	696	453	267	106
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	1722	1841	1796	1366	1826	1767
Adj Flow Rate, veh/h	117	513	800	521	307	122
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	12	4	7	36	5	9
Cap, veh/h	237	3077	2002	932	403	347
Arrive On Green	0.61	0.61	0.61	0.61	0.23	0.23
Sat Flow, veh/h	383	5191	3431	1522	1739	1497
Grp Volume(v), veh/h	117	513	800	521	307	122
Grp Sat Flow(s),veh/h/ln	383	1675	1635	1522	1739	1497
Q Serve(g_s), s	23.4	4.0	11.3	18.2	14.8	6.1
Cycle Q Clear(g_c), s	41.5	4.0	11.3	18.2	14.8	6.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	237	3077	2002	932	403	347
V/C Ratio(X)	0.49	0.17	0.40	0.56	0.76	0.35
Avail Cap(c_a), veh/h	237	3077	2002	932	618	532
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	22.5	7.5	9.0	10.3	32.2	28.9
Incr Delay (d2), s/veh	7.2	0.1	0.6	2.4	6.2	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	0.6	3.6	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	29.7	7.6	9.5	12.7	38.4	30.2
LnGrp LOS	C	A	A	B	D	C
Approach Vol, veh/h		630	1321		429	
Approach Delay, s/veh		11.7	10.8		36.1	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.1		27.9		62.1
Change Period (Y+Rc), s		7.0		7.0		7.0
Max Green Setting (Gmax), s		44.0		32.0		44.0
Max Q Clear Time (g_c+I1), s		43.5		16.8		20.2
Green Ext Time (p_c), s		0.3		4.1		16.5
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			15.6			
HCM 6th LOS			B			



APPENDIX G

2036 Future Background and Future Total Intersection Capacity Analysis

Appendix G – 2036 Future Background and Future Total Intersection Capacity Analysis

Table 1: Roundabout at Tremaine Rd & Britannia Rd

Future Background

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Background - 2036																
Leg 1 WB	0.19	~1	1.97	0.16	A	2.48	A	104 % [Leg 3 EB]	0.38	~1	2.24	0.27	A	2.11	A	136 % [Leg 1 WB]
Leg 2 SB	0.66	~1	2.59	0.39	A				0.32	~1	2.06	0.24	A			
Leg 3 EB	0.45	~1	2.71	0.31	A				0.15	~1	1.85	0.13	A			
Leg 4 NB	0.28	~1	2.31	0.21	A				0.38	~1	2.15	0.27	A			

Future Total

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Total - 2036																
Leg 1 WB	0.24	~1	2.04	0.19	A	2.67	A	82 % [Leg 3 EB]	0.52	1.01	2.52	0.34	A	2.29	A	107 % [Leg 1 WB]
Leg 2 SB	0.82	~1	2.76	0.44	A				0.39	~1	2.23	0.28	A			
Leg 3 EB	0.53	1.01	3.04	0.35	A				0.17	~1	1.92	0.14	A			
Leg 4 NB	0.32	~1	2.55	0.23	A				0.42	~1	2.27	0.30	A			

Note: PCE = Passenger Car Equivalent

Table 2: Signalized Intersection of Britannia Road & First Line/ Bronte St S

2: First Line/Bronte St. S & Britannia Road				
AM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (23)	-/-
EBL	147	0.34	B (20)	18/30
EBT	578	0.37	C (24)	39/51
EBR	54	0.10	C (21)	0/3
WBL	6	0.02	B (17)	1/3
WBT	366	0.24	C (22)	24/33
WBR	57	0.11	C (21)	0/4
NBL	27	0.07	C (27)	4/11
NBTR	67	0.10	C (22)	10/21
SBL	103	0.22	C (26)	16/30
SBT	168	0.26	C (24)	26/42
SBR	88	0.17	C (23)	0/11
2: First Line/Bronte St. S & Britannia Road				
PM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)

Overall	-	-	C (23)	-/-
EBL	69	0.18	B (18)	8/16
EBT	363	0.23	C (22)	23/32
EBR	22	0.04	C (20)	0/0
WBL	4	0.01	B (16)	0/2
WBT	487	0.32	C (23)	33/44
WBR	78	0.14	C (22)	0/9
NBL	59	0.13	C (24)	11/21
NBTR	144	0.22	C (23)	26/43
SBL	52	0.13	C (27)	8/17
SBT	61	0.09	C (22)	9/18
SBR	73	0.14	C (22)	0/9
2: First Line/Bronte St. S & Britannia Road				
AM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (24)	-/-
EBL	147	0.34	B (20)	18/30
EBT	617	0.40	C (24)	43/56
EBR	139	0.27	C (23)	0/13
WBL	158	0.51	C (24)	21/35
WBT	377	0.25	C (22)	25/34
WBR	60	0.11	C (21)	0/5
NBL	77	0.26	C (32)	14/28
NBTR	153	0.26	C (24)	19/34
SBL	110	0.28	C (30)	18/32
SBT	221	0.34	C (25)	35/55
SBR	88	0.17	C (23)	0/11
2: First Line/Bronte St. S & Britannia Road				
PM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (25)	-/-
EBL	69	0.19	B (18)	8/16
EBT	380	0.25	C (23)	25/34
EBR	63	0.12	C (21)	0/6
WBL	75	0.19	B (18)	9/18
WBT	511	0.33	C (24)	35/46
WBR	89	0.16	C (22)	0/10
NBL	153	0.39	C (30)	31/54
NBTR	349	0.58	C (30)	62/93
SBL	55	0.23	D (38)	9/19
SBT	85	0.13	C (22)	12/23
SBR	73	0.14	C (22)	0/9

Table 3: Signalized Intersection of Britannia Road & Regional Road 25

3: Regional Road 25 & Britannia Road				
AM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (49)	-/-
EBL	64	0.41	E (67)	9/17
EBT	620	0.71	D (48)	103/131
EBR	242	0.52	D (45)	27/53
WBL	258	0.93	F (98)	40/70
WBT	293	0.20	C (33)	27/37
WBR	89	0.18	C (33)	0/5
NBL	65	0.43	E (67)	10/18
NBT	705	0.60	D (38)	92/116
NBR	180	0.35	C (34)	4/21
SBL	240	0.81	E (71)	35/50
SBT	1297	0.92	D (50)	176/208
SBR	73	0.12	C (27)	0/5
3: Regional Road 25 & Britannia Road				
PM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (44)	-/-
EBL	54	0.37	E (66)	8/15
EBT	355	0.37	D (36)	53/71
EBR	39	0.08	C (32)	0/0
WBL	167	0.78	E (76)	25/39
WBT	528	0.35	C (34)	50/66
WBR	251	0.47	D (38)	13/39
NBL	212	0.79	E (71)	32/45
NBT	1099	0.87	D (46)	157/182
NBR	377	0.67	D (39)	28/58
SBL	94	0.58	E (68)	14/24
SBT	698	0.60	D (39)	90/109
SBR	64	0.12	C (32)	0/0
3: Regional Road 25 & Britannia Road				
AM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (50)	-/-
EBL	111	0.73	E (72)	18/30
EBT	663	0.79	D (53)	115/145
EBR	259	0.58	D (47)	32/60
WBL	258	0.93	F (98)	40/70
WBT	358	0.26	D (35)	35/46
WBR	89	0.18	C (35)	0/5
NBL	106	0.66	E (75)	16/30

NBT	710	0.59	D (37)	93/117
NBR	180	0.34	C (33)	4/21
SBL	240	0.81	E (71)	35/50
SBT	1319	0.93	D (50)	181/214
SBR	199	0.33	C (29)	12/30
3: Regional Road 25 & Britannia Road				
PM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (46)	-/-
EBL	158	0.80	F (83)	26/48
EBT	422	0.45	D (38)	66/87
EBR	82	0.16	C (34)	0/3
WBL	167	0.78	E (76)	25/39
WBT	560	0.41	D (38)	58/73
WBR	251	0.52	D (42)	25/53
NBL	232	0.81	E (72)	35/50
NBT	1121	0.88	D (47)	160/187
NBR	377	0.66	D (38)	29/59
SBL	94	0.58	E (68)	14/24
SBT	708	0.61	D (39)	92/111
SBR	120	0.23	C (33)	0/11

Table 4: Signalized Intersection of Lower Base Line W & Regional Road 25

6: Regional Road 25 & Lower Base Line W				
AM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (12)	-/-
EBLTR	149	0.63	D (51)	28/44
WBLTR	96	0.52	D (50)	19/34
NBL	10	0.06	B (16)	1/4
NBTR	1148	0.46	A (6)	51/83
SBL	19	0.05	A (8)	1/4
SBTR	1859	0.73	B (10)	125/203
6: Regional Road 25 & Lower Base Line W				
PM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (15)	-/-
EBLTR	87	0.29	D (41)	13/25
WBLTR	197	0.68	D (48)	38/58
NBL	16	0.04	A (9)	1/4
NBTR	1846	0.78	B (14)	157/266

SBL	9	0.06	C (23)	1/4
SBTR	996	0.41	A (7)	51/80
6: Regional Road 25 & Lower Base Line W				
AM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (13)	-/-
EBLTR	159	0.65	D (50)	30/46
WBLTR	110	0.55	D (49)	22/38
NBL	10	0.07	B (19)	1/4
NBTR	1189	0.48	A (6)	56/91
SBL	19	0.06	A (8)	1/5
SBTR	1898	0.75	B (11)	136/223
6: Regional Road 25 & Lower Base Line W				
PM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (16)	-/-
EBLTR	128	0.42	D (42)	22/37
WBLTR	203	0.69	D (48)	40/61
NBL	16	0.05	A (10)	1/5
NBTR	1866	0.79	B (15)	167/271
SBL	9	0.06	C (25)	1/4
SBTR	1049	0.44	A (8)	57/86

Table 5: Signalized Intersection of Britannia Road & Thompson Road S

7: Thompson Rd S & Britannia Road				
AM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (17)	-/-
EBL	87	0.78	E (59)	17/37
EBTR	1136	0.38	B (10)	43/64
WBL	1	0.00	(12)	0/1
WBT	555	0.24	B (13)	27/39
WBR	43	0.06	B (12)	0/2
NBLTR	5	0.01	C (28)	0/0
SBL	239	0.64	D (38)	44/64
SBT	1	0.00	(28)	0/1
SBR	153	0.46	C (33)	0/13
7: Thompson Rd S & Britannia Road				
PM	2036 Future Background			

Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	A (7)	-/-
EBL	195	0.56	B (15)	21/76
EBTR	717	0.21	A (3)	17/27
WBL	2	0.00	(4)	0/1
WBT	978	0.32	A (4)	27/41
WBR	180	0.18	A (3)	0/7
NBLTR	3	0.02	D (40)	0/0
SBL	64	0.35	D (44)	12/24
SBT	0	0.00	(0)	0/0
SBR	60	0.49	D (47)	0/10
7: Thompson Rd S & Britannia Road				
AM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (18)	-/-
EBL	95	0.79	E (61)	18/41
EBTR	1171	0.40	B (10)	46/68
WBL	1	0.00	(12)	0/1
WBT	607	0.27	B (14)	31/44
WBR	43	0.06	B (12)	0/2
NBLTR	5	0.01	C (28)	0/0
SBL	239	0.63	D (37)	44/64
SBT	1	0.00	(28)	0/1
SBR	166	0.49	C (34)	0/14
7: Thompson Rd S & Britannia Road				
PM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	A (8)	-/-
EBL	221	0.65	B (20)	30/91
EBTR	758	0.23	A (4)	19/29
WBL	2	0.00	(4)	0/1
WBT	1004	0.33	A (4)	28/42
WBR	180	0.18	A (3)	0/7
NBLTR	3	0.02	D (40)	0/0
SBL	64	0.35	D (44)	12/24
SBT	0	0.00	(0)	0/0
SBR	66	0.53	D (48)	1/13

Table 6: Signalized Intersection of Britannia Road & James Snow Parkway

8: Britannia Road & James Snow Pkwy	
AM	2036 Future Background

Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (19)	-/-
EBL	92	0.22	B (11)	9/18
EBT	820	0.34	B (12)	36/46
WBTR	486	0.27	B (17)	22/31
SBL	372	0.82	D (39)	68/94
SBR	123	0.31	C (25)	0/11
8: Britannia Road & James Snow Pkwy				
PM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (16)	-/-
EBL	102	0.52	C (32)	16/55
EBT	489	0.18	A (8)	16/26
WBTR	1218	0.56	B (13)	44/67
SBL	267	0.76	D (38)	50/65
SBR	106	0.35	C (30)	3/13
8: Britannia Road & James Snow Pkwy				
AM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (19)	-/-
EBL	99	0.25	B (11)	10/20
EBT	848	0.36	B (12)	38/48
WBTR	527	0.29	B (17)	25/35
SBL	372	0.82	D (38)	68/94
SBR	134	0.35	C (26)	0/12
8: Britannia Road & James Snow Pkwy				
PM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (16)	-/-
EBL	104	0.55	C (34)	18/60
EBT	528	0.20	A (8)	18/28
WBTR	1237	0.56	B (13)	46/70
SBL	267	0.76	D (38)	50/65
SBR	113	0.38	C (31)	5/16

Table 7: Unsignalized Intersection of Tremaine Road & Lower Base Line W

4: Tremaine Road & Lower Base Line W	
AM	2036 Future Background

Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	322	0.00	(0)	-/0
NBR	29	0.00	(0)	-/0
WBL	52	0.29	D (28)	-/8
WBR	8	0.01	B (11)	-/0
SBL	70	0.07	A (8)	-/1
SBT	455	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
PM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	473	0.00	(0)	-/0
NBR	19	0.00	(0)	-/0
WBL	40	0.17	C (21)	-/4
WBR	48	0.11	B (13)	-/3
SBL	45	0.05	A (9)	-/1
SBT	236	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
AM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (3)	#VALUE!
NBT	334	0.00	(0)	-/0
NBR	55	0.00	(0)	-/0
WBL	67	0.43	E (39)	-/14
WBR	13	0.02	B (11)	-/1
SBL	85	0.09	A (9)	-/2
SBT	472	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
PM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (4)	#VALUE!
NBT	488	0.00	(0)	-/0
NBR	39	0.00	(0)	-/0
WBL	74	0.35	D (27)	-/11
WBR	67	0.16	B (13)	-/4
SBL	52	0.06	A (9)	-/1
SBT	244	0.00	A (0)	-/0

Table 8: Unsignalized Intersection of Lower Base Line W & First Line

5: Lower Base Line W & First Line				
AM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (6)	#VALUE!
EBL	3	0.00	A (7)	-/0
EBT	99	0.00	A (0)	-/0
WBT	11	0.00	(0)	-/0
WBR	89	0.00	(0)	-/0
SBLR	252	0.31	B (11)	-/9
5: Lower Base Line W & First Line				
PM	2036 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
EBL	4	0.00	A (8)	-/0
EBT	65	0.00	A (0)	-/0
WBT	73	0.00	(0)	-/0
WBR	198	0.00	(0)	-/0
SBLR	89	0.13	B (11)	-/3
5: Lower Base Line W & First Line				
AM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (7)	#VALUE!
EBL	27	0.02	A (8)	-/1
EBT	111	0.00	A (0)	-/0
WBT	57	0.00	(0)	-/0
WBR	203	0.00	(0)	-/0
SBLR	294	0.46	B (15)	-/17
5: Lower Base Line W & First Line				
PM	2036 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (5)	#VALUE!
EBL	16	0.01	A (8)	-/0
EBT	114	0.00	A (0)	-/0
WBT	94	0.00	(0)	-/0
WBR	249	0.00	(0)	-/0
SBLR	253	0.42	B (15)	-/15

Junctions 8																
ARCADY 8 Lite																
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Filename: FB2034 - v3.arc8

Path: F:\24276\April 2026 TIS Resubmission\Traffic\Roundabout\FB\FB2036

Report generation date: 2026-04-23 1:08:39 PM

Summary of intersection performance

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Background - 2036																
Leg 1 WB	0.19	~1	1.97	0.16	A	2.48	A	104 % [Leg 3 EB]	0.38	~1	2.24	0.27	A	2.11	A	136 % [Leg 1 WB]
Leg 2 SB	0.66	~1	2.59	0.39	A				0.32	~1	2.06	0.24	A			
Leg 3 EB	0.45	~1	2.71	0.31	A				0.15	~1	1.85	0.13	A			
Leg 4 NB	0.28	~1	2.31	0.21	A				0.38	~1	2.15	0.27	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - 2036, AM Peak" model duration: 7:45 AM - 8:45 AM

"D2 - 2036, PM Peak" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2026-04-23 1:08:36 PM

File summary

Title	(untitled)
Date	2024-04-05
Version	
Status	(new file)
Client	
Analyst	anatolek
Description	

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Future Background - 2036, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Background	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2036	AM Peak	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	3.0
2 SB	2 SB	Tremaine Rd	4.0
3 EB	3 EB	Britannia Rd	1.0
4 NB	4 NB	Tremaine Rd	4.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

	To				
		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	98.000	82.000	146.000
	2 SB	222.000	0.000	144.000	496.000
	3 EB	271.000	277.000	0.000	8.000
From	4 NB	9.000	262.000	128.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
326.00	0.93	SecondQuarter
862.00	0.93	SecondQuarter
556.00	0.93	SecondQuarter
399.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.16	1.97	0.19	~1	A
2 SB	0.39	2.59	0.66	~1	A
3 EB	0.31	2.71	0.45	~1	A
4 NB	0.21	2.31	0.28	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.48	A	104	Leg 3 EB

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	309.64	309.00	631.94	0.00	2292.93	0.135	0.16	1.868	A
2 SB	818.75	816.61	337.40	0.00	2403.92	0.341	0.54	2.355	A

3 EB	528.10	526.68	818.58	0.00	2020.58	0.261	0.36	2.431	A
4 NB	378.98	378.07	729.41	0.00	2118.57	0.179	0.23	2.150	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	350.54	350.41	716.83	0.00	2228.26	0.157	0.19	1.974	A
2 SB	926.88	926.36	382.64	0.00	2370.34	0.391	0.66	2.593	A
3 EB	597.85	597.48	928.54	0.00	1941.21	0.308	0.45	2.706	A
4 NB	429.03	428.84	827.46	0.00	2046.20	0.210	0.28	2.314	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	334.18	334.23	683.88	0.00	2253.36	0.148	0.18	1.931	A
2 SB	883.63	883.82	364.99	0.00	2383.44	0.371	0.62	2.498	A
3 EB	569.95	570.09	885.86	0.00	1972.01	0.289	0.41	2.595	A
4 NB	409.01	409.09	789.51	0.00	2074.21	0.197	0.26	2.248	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	309.64	309.72	633.75	0.00	2291.55	0.135	0.16	1.873	A
2 SB	818.75	819.05	338.22	0.00	2403.30	0.341	0.54	2.365	A
3 EB	528.10	528.31	820.93	0.00	2018.88	0.262	0.36	2.441	A
4 NB	378.98	379.09	731.65	0.00	2116.91	0.179	0.23	2.155	A

Future Background - 2036, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Background	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2036	PM Peak	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	0.0
2 SB	2 SB	Tremaine Rd	1.0
3 EB	3 EB	Britannia Rd	0.0
4 NB	4 NB	Tremaine Rd	1.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

--	--

		To			
		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	182.000	256.000	127.000
	2 SB	156.000	0.000	173.000	198.000
	3 EB	72.000	190.000	0.000	10.000
	4 NB	97.000	478.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
565.00	0.93	SecondQuarter
527.00	0.93	SecondQuarter
272.00	0.93	SecondQuarter
592.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.27	2.24	0.38	~1	A
2 SB	0.24	2.06	0.32	~1	A
3 EB	0.13	1.85	0.15	~1	A
4 NB	0.27	2.15	0.38	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.11	A	136	Leg 1 WB

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	536.65	535.42	649.22	0.00	2279.76	0.235	0.31	2.063	A
2 SB	500.56	499.48	379.06	0.00	2373.00	0.211	0.27	1.940	A
3 EB	258.35	257.84	455.86	0.00	2282.39	0.113	0.13	1.777	A
4 NB	562.29	561.04	396.22	0.00	2364.47	0.238	0.31	2.015	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	607.53	607.25	736.28	0.00	2213.45	0.274	0.38	2.241	A
2 SB	566.67	566.45	429.91	0.00	2335.26	0.243	0.32	2.055	A
3 EB	292.47	292.38	517.00	0.00	2238.26	0.131	0.15	1.849	A
4 NB	636.56	636.30	449.31	0.00	2325.29	0.274	0.38	2.152	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	579.18	579.28	702.29	0.00	2239.34	0.259	0.35	2.170	A
2 SB	540.22	540.30	410.11	0.00	2349.95	0.230	0.30	2.009	A
3 EB	278.82	278.86	493.15	0.00	2255.48	0.124	0.14	1.823	A
4 NB	606.85	606.95	428.54	0.00	2340.61	0.259	0.35	2.098	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	536.65	536.81	650.79	0.00	2278.56	0.236	0.31	2.068	A
2 SB	500.56	500.68	380.04	0.00	2372.27	0.211	0.27	1.942	A
3 EB	258.35	258.40	456.99	0.00	2281.58	0.113	0.13	1.781	A
4 NB	562.29	562.45	397.11	0.00	2363.81	0.238	0.32	2.019	A

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Filename: FT2034 - v3.arc8

Path: F:\24276\April 2026 TIS Resubmission\Traffic\Roundabout\FT\FT2034

Report generation date: 2026-04-23 1:28:59 PM

Summary of intersection performance

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Total - 2036																
Leg 1 WB	0.24	~1	2.04	0.19	A	2.67	A	82 % [Leg 3 EB]	0.52	1.01	2.52	0.34	A	2.29	A	107 % [Leg 1 WB]
Leg 2 SB	0.82	~1	2.76	0.44	A				0.39	~1	2.23	0.28	A			
Leg 3 EB	0.53	1.01	3.04	0.35	A				0.17	~1	1.92	0.14	A			
Leg 4 NB	0.32	~1	2.55	0.23	A				0.42	~1	2.27	0.30	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - 2036, AM Peak" model duration: 7:45 AM - 8:45 AM

"D2 - 2036, PM Peak" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2026-04-23 1:28:57 PM

File summary

Title	(untitled)
Date	2024-04-05
Version	
Status	(new file)
Client	
Analyst	anatolek
Description	

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Future Total - 2036, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2036	AM Peak	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	7.0
2 SB	2 SB	Tremaine Rd	6.0
3 EB	3 EB	Britannia Rd	1.0
4 NB	4 NB	Tremaine Rd	5.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

	To				
		1 WB	2 SB	3 EB	4 NB
	From	1 WB	2 SB	3 EB	4 NB
		0.000	157.000	92.000	152.000
		2 SB	335.000	0.000	144.000
		3 EB	302.000	277.000	0.000
		4 NB	134.000	273.000	10.000
					0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
401.00	0.93	SecondQuarter
996.00	0.93	SecondQuarter
592.00	0.93	SecondQuarter
417.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.19	2.04	0.24	~1	A
2 SB	0.44	2.76	0.82	~1	A
3 EB	0.35	3.04	0.53	1.01	A
4 NB	0.23	2.55	0.32	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.67	A	82	Leg 3 EB

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	380.88	380.06	530.43	0.00	2370.25	0.161	0.20	1.934	A
2 SB	946.02	943.41	240.73	0.00	2475.66	0.382	0.65	2.486	A

3 EB	562.29	560.63	951.08	0.00	1924.94	0.292	0.42	2.661	A
4 NB	396.08	395.05	865.63	0.00	2018.02	0.196	0.26	2.328	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	431.18	431.02	601.76	0.00	2315.91	0.186	0.24	2.043	A
2 SB	1070.97	1070.31	273.02	0.00	2451.70	0.437	0.82	2.761	A
3 EB	636.56	636.08	1078.94	0.00	1832.65	0.347	0.53	3.036	A
4 NB	448.39	448.14	982.10	0.00	1932.07	0.232	0.32	2.547	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	411.06	411.12	574.20	0.00	2336.91	0.176	0.23	2.000	A
2 SB	1020.99	1021.24	260.41	0.00	2461.05	0.415	0.76	2.652	A
3 EB	606.85	607.04	1029.43	0.00	1868.39	0.325	0.49	2.884	A
4 NB	427.46	427.56	937.20	0.00	1965.21	0.218	0.29	2.457	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	380.88	380.97	532.12	0.00	2368.95	0.161	0.21	1.937	A
2 SB	946.02	946.41	241.32	0.00	2475.22	0.382	0.66	2.496	A
3 EB	562.29	562.57	953.99	0.00	1922.84	0.292	0.42	2.673	A
4 NB	396.08	396.22	868.54	0.00	2015.88	0.196	0.26	2.333	A

Future Total - 2036, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2036	PM Peak	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	1.0
2 SB	2 SB	Tremaine Rd	3.0
3 EB	3 EB	Britannia Rd	0.0
4 NB	4 NB	Tremaine Rd	1.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

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	To				
From		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	267.000	294.000	130.000
	2 SB	209.000	0.000	173.000	209.000
	3 EB	87.000	190.000	0.000	12.000
	4 NB	99.000	505.000	22.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
691.00	0.93	SecondQuarter
591.00	0.93	SecondQuarter
289.00	0.93	SecondQuarter
626.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.34	2.52	0.52	1.01	A
2 SB	0.28	2.23	0.39	~1	A
3 EB	0.14	1.92	0.17	~1	A
4 NB	0.30	2.27	0.42	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.29	A	107	Leg 1 WB

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	656.33	654.68	679.48	0.00	2256.71	0.291	0.41	2.268	A
2 SB	561.34	560.05	422.56	0.00	2340.72	0.240	0.32	2.081	A
3 EB	274.50	273.94	519.27	0.00	2236.62	0.123	0.14	1.833	A
4 NB	594.59	593.20	460.62	0.00	2316.94	0.257	0.35	2.107	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	743.01	742.59	770.64	0.00	2187.28	0.340	0.52	2.517	A
2 SB	635.48	635.21	479.30	0.00	2298.60	0.276	0.39	2.229	A
3 EB	310.75	310.65	588.98	0.00	2186.31	0.142	0.17	1.918	A
4 NB	673.12	672.81	522.39	0.00	2271.36	0.296	0.42	2.274	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	708.34	708.50	735.11	0.00	2214.34	0.320	0.48	2.416	A
2 SB	605.83	605.93	457.29	0.00	2314.94	0.262	0.37	2.169	A
3 EB	296.25	296.29	561.85	0.00	2205.89	0.134	0.16	1.887	A
4 NB	641.71	641.82	498.27	0.00	2289.16	0.280	0.39	2.208	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	656.33	656.57	681.21	0.00	2255.39	0.291	0.42	2.275	A
2 SB	561.34	561.50	423.78	0.00	2339.81	0.240	0.33	2.085	A
3 EB	274.50	274.56	520.66	0.00	2235.62	0.123	0.14	1.834	A
4 NB	594.59	594.77	461.73	0.00	2316.12	0.257	0.35	2.113	A

Queues

2: First Line/Bronte St. S & Britannia Road

2036 Future Total
Weekday AM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  					 	
Traffic Volume (vph)	147	617	139	158	377	60	77	86	110	221	88
Future Volume (vph)	147	617	139	158	377	60	77	86	110	221	88
Lane Group Flow (vph)	162	678	153	174	414	66	85	169	121	243	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.36	0.41	0.23	0.57	0.25	0.10	0.26	0.27	0.28	0.34	0.16
Control Delay (s/veh)	16.5	24.6	4.5	23.2	22.6	2.4	27.1	19.9	25.5	25.5	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.5	24.6	4.5	23.2	22.6	2.4	27.1	19.9	25.5	25.5	5.2
LOS	B	C	A	C	C	A	C	B	C	C	A
Approach Delay (s/veh)		20.2			20.7			22.3		21.3	
Approach LOS		C			C			C		C	
Queue Length 50th (m)	17.6	43.2	0.0	20.6	24.6	0.0	14.3	18.6	17.7	35.3	0.0
Queue Length 95th (m)	29.8	55.7	13.1	34.5	33.7	4.7	m27.6	m33.8	32.4	55.1	10.6
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	453	1662	655	304	1662	651	330	615	426	705	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.41	0.23	0.57	0.25	0.10	0.26	0.27	0.28	0.34	0.16

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.57

Intersection Signal Delay (s/veh): 20.8

Intersection LOS: C

Intersection Capacity Utilization 67.7%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1 11 s	#2  Ø2 (R) 47 s	#2  Ø4 47 s
#2  Ø5 11 s	#2  Ø6 (R) 47 s	#2  Ø8 47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2036 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	147	617	139	158	377	60	77	86	67	110	221	88
Future Volume (veh/h)	147	617	139	158	377	60	77	86	67	110	221	88
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		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	1841	1826	1767	1707	1826	1856	1633	1900	1500	1841	1900	1826
Adj Flow Rate, veh/h	162	678	153	174	414	66	85	95	74	121	243	97
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	5	9	13	5	3	18	0	27	4	0	5
Cap, veh/h	472	1678	573	340	1678	602	322	368	286	433	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4382	1497	1626	4382	1572	909	990	771	1197	1900	1528
Grp Volume(v), veh/h	162	678	153	174	414	66	85	0	169	121	243	97
Grp Sat Flow(s),veh/h/ln	1753	1461	1497	1626	1461	1572	909	0	1761	1197	1900	1528
Q Serve(g_s), s	5.9	11.9	7.4	6.9	6.8	2.8	7.8	0.0	7.0	8.2	9.7	4.5
Cycle Q Clear(g_c), s	5.9	11.9	7.4	6.9	6.8	2.8	17.5	0.0	7.0	15.2	9.7	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	472	1678	573	340	1678	602	322	0	654	433	706	567
V/C Ratio(X)	0.34	0.40	0.27	0.51	0.25	0.11	0.26	0.00	0.26	0.28	0.34	0.17
Avail Cap(c_a), veh/h	472	1678	573	340	1678	602	322	0	654	433	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	23.7	22.3	18.8	22.1	20.9	30.1	0.0	22.9	28.2	23.8	22.1
Incr Delay (d2), s/veh	2.0	0.7	1.1	5.4	0.4	0.4	2.0	0.0	1.0	1.6	1.3	0.7
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	1.1	1.9	1.3	1.4	1.1	0.5	1.1	0.0	1.5	1.4	2.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.8	24.4	23.4	24.2	22.4	21.2	32.1	0.0	23.9	29.8	25.1	22.8
LnGrp LOS	B	C	C	C	C	C	C		C	C	C	C
Approach Vol, veh/h		993			654			254			461	
Approach Delay, s/veh		23.5			22.8			26.6			25.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	0.0	0.0		19.5	0.0	0.0		17.2				
Green Ext Time (p_c), s	0.0	0.0		1.6	0.0	0.0		2.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			24.1									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2036 Future Total
Weekday AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	663	259	258	358	89	106	710	180	240	1319	199
Future Volume (vph)	111	663	259	258	358	89	106	710	180	240	1319	199
Lane Group Flow (vph)	114	684	267	266	369	92	109	732	186	247	1360	205
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	15.0	48.0	48.0	16.0	49.0	49.0	11.0	55.0	55.0	21.0	65.0	65.0
Total Split (%)	10.7%	34.3%	34.3%	11.4%	35.0%	35.0%	7.9%	39.3%	39.3%	15.0%	46.4%	46.4%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	10.1	39.8	39.8	12.9	43.6	43.6	7.0	47.9	47.9	15.2	56.1	56.1
Actuated g/C Ratio	0.07	0.28	0.28	0.09	0.31	0.31	0.05	0.34	0.34	0.11	0.40	0.40
v/c Ratio	0.56	0.82	0.50	0.91	0.28	0.16	0.69	0.63	0.30	0.70	0.93	0.30
Control Delay (s/veh)	73.3	56.4	24.5	95.9	37.6	2.5	86.9	41.5	7.6	71.2	51.9	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	73.3	56.4	24.5	95.9	37.6	2.5	86.9	41.5	7.6	71.2	51.9	10.9
LOS	E	E	C	F	D	A	F	D	A	E	D	B
Approach Delay (s/veh)		50.2			54.5			40.2			49.9	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	18.2	115.0	31.8	40.4	35.0	0.0	16.3	92.9	3.7	35.4	181.1	12.4
Queue Length 95th (m)	30.1	144.6	60.0	#69.8	46.4	5.2	#29.8	116.5	21.4	49.8	#214.2	30.2
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	223	831	533	293	1315	558	159	1166	625	395	1495	706
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.82	0.50	0.91	0.28	0.16	0.69	0.63	0.30	0.63	0.91	0.29

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay (s/veh): 48.5

Intersection LOS: D

Intersection Capacity Utilization 99.1%

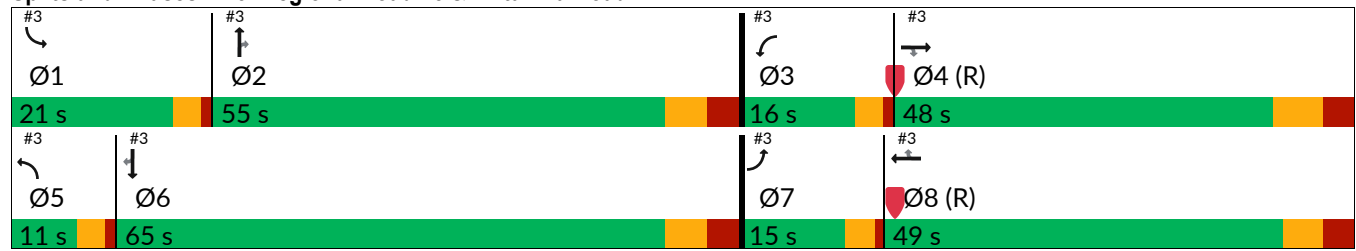
ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road



HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2036 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	663	259	258	358	89	106	710	180	240	1319	199
Future Volume (veh/h)	111	663	259	258	358	89	106	710	180	240	1319	199
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		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	1618	1841	1856	1811	1781	1811	1811	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	114	684	267	266	369	92	109	732	186	247	1360	205
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
Percent Heavy Veh, %	19	4	3	6	8	6	6	6	6	4	4	3
Cap, veh/h	157	863	460	287	1395	500	165	1233	550	306	1470	620
Arrive On Green	0.05	0.29	0.29	0.09	0.33	0.33	0.05	0.36	0.36	0.09	0.40	0.40
Sat Flow, veh/h	2990	2945	1571	3346	4275	1533	3346	3441	1535	3401	3681	1553
Grp Volume(v), veh/h	114	684	267	266	369	92	109	732	186	247	1360	205
Grp Sat Flow(s),veh/h/ln	1495	1473	1571	1673	1425	1533	1673	1721	1535	1700	1841	1553
Q Serve(g_s), s	5.3	29.9	20.3	11.1	8.9	6.0	4.5	24.3	12.4	10.0	49.3	12.8
Cycle Q Clear(g_c), s	5.3	29.9	20.3	11.1	8.9	6.0	4.5	24.3	12.4	10.0	49.3	12.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	157	863	460	287	1395	500	165	1233	550	306	1470	620
V/C Ratio(X)	0.73	0.79	0.58	0.93	0.26	0.18	0.66	0.59	0.34	0.81	0.93	0.33
Avail Cap(c_a), veh/h	235	863	460	287	1395	500	167	1233	550	413	1507	636
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.3	45.6	42.2	63.6	34.8	33.8	65.4	36.6	32.8	62.5	40.1	29.1
Incr Delay (d2), s/veh	6.3	7.4	5.3	34.5	0.5	0.8	9.1	0.8	0.4	8.3	9.9	0.3
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	1.7	8.1	5.9	4.9	2.1	1.6	1.7	6.5	2.9	3.6	15.1	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	71.6	53.0	47.4	98.1	35.2	34.6	74.5	37.4	33.1	70.8	50.0	29.4
LnGrp LOS	E	D	D	F	D	C	E	D	C	E	D	C
Approach Vol, veh/h	1065				727			1027			1812	
Approach Delay, s/veh	53.6				58.2			40.5			50.5	
Approach LOS	D				E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	57.9	16.0	49.5	10.9	63.6	11.3	54.2				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	17.0	47.3	12.0	39.5	7.0	57.3	11.0	* 42				
Max Q Clear Time (g_c+I1), s	12.0	26.3	13.1	31.9	6.5	51.3	7.3	10.9				
Green Ext Time (p_c), s	0.6	6.5	0.0	2.3	0.0	4.6	0.2	2.1				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	50.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	13	334	55	85	472
Future Vol, veh/h	67	13	334	55	85	472
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	79	15	393	65	100	555
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1181	426	0	0	458	0
Stage 1	426	-	-	-	-	-
Stage 2	755	-	-	-	-	-
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	212	633	-	-	1114	-
Stage 1	663	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	184	633	-	-	1114	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	577	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	34	0	1.3			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	184	633	1114	-
HCM Lane V/C Ratio	-	-	0.428	0.024	0.09	-
HCM Ctrl Dly (s/v)	-	-	38.5	10.8	8.6	0
HCM Lane LOS	-	-	E	B	A	A
HCM 95th %tile Q (veh)	-	-	2	0.1	0.3	-

Intersection

Int Delay, s/veh 6.5

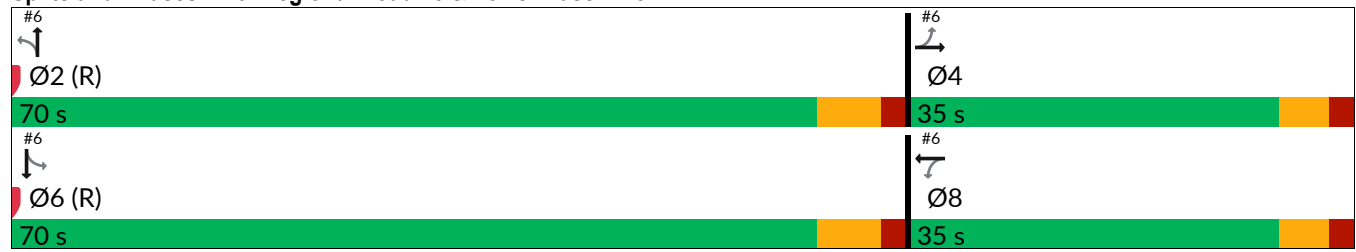
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	111	57	203	230	64
Future Vol, veh/h	27	111	57	203	230	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	29	118	61	216	245	68

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	277	0	0 345 169
Stage 1	-	-	- 169 -
Stage 2	-	-	- 176 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1298	-	- 654 880
Stage 1	-	-	- 863 -
Stage 2	-	-	- 857 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1298	-	- 638 880
Mov Cap-2 Maneuver	-	-	- 638 -
Stage 1	-	-	- 842 -
Stage 2	-	-	- 857 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.5	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1298	-	-	-	679
HCM Lane V/C Ratio	0.022	-	-	-	0.461
HCM Ctrl Dly (s/v)	7.8	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0.1	-	-	-	2.4

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	27	99	73	27	10	1101	19	1875
Future Volume (vph)	27	99	73	27	10	1101	19	1875
Lane Group Flow (vph)	0	167	0	116	11	1252	20	1998
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		17.3		17.3	74.7	74.7	74.7	74.7
Actuated g/C Ratio		0.16		0.16	0.71	0.71	0.71	0.71
v/c Ratio		0.57		0.70	0.16	0.53	0.08	0.83
Control Delay (s/veh)		44.1		60.8	13.0	8.5	7.1	15.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		44.1		60.8	13.0	8.5	7.1	15.7
LOS		D		E	B	A	A	B
Approach Delay (s/veh)		44.1		60.8		8.6		15.6
Approach LOS		D		E		A		B
Queue Length 50th (m)		29.5		21.7	0.6	56.3	1.1	136.4
Queue Length 95th (m)		46.3		38.1	4.3	91.2	4.5	222.5
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		485		273	70	2378	249	2419
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.34		0.42	0.16	0.53	0.08	0.83
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 80								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.83								
Intersection Signal Delay (s/veh): 15.9				Intersection LOS: B				
Intersection Capacity Utilization 81.5%				ICU Level of Service D				
Analysis Period (min) 15								

Splits and Phases: 6: Regional Road 25 & Lower Base Line W

HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

2036 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	99	33	73	27	10	10	1101	88	19	1875	23
Future Volume (veh/h)	27	99	33	73	27	10	10	1101	88	19	1875	23
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	28	104	35	77	28	11	11	1159	93	20	1974	24
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	65	148	46	146	49	14	163	2416	194	346	2629	32
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.76	0.76	0.76	0.76	0.76	0.76
Sat Flow, veh/h	207	1219	378	736	402	119	219	3200	256	451	3482	42
Grp Volume(v), veh/h	167	0	0	116	0	0	11	617	635	20	973	1025
Grp Sat Flow(s),veh/h/ln	1804	0	0	1257	0	0	219	1706	1750	451	1721	1803
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	3.1	14.6	14.6	1.9	33.5	33.8
Cycle Q Clear(g_c), s	9.3	0.0	0.0	9.8	0.0	0.0	37.0	14.6	14.6	16.5	33.5	33.8
Prop In Lane	0.17		0.21	0.66		0.09	1.00		0.15	1.00		0.02
Lane Grp Cap(c), veh/h	259	0	0	209	0	0	163	1288	1321	346	1299	1362
V/C Ratio(X)	0.65	0.00	0.00	0.55	0.00	0.00	0.07	0.48	0.48	0.06	0.75	0.75
Avail Cap(c_a), veh/h	527	0	0	428	0	0	163	1288	1321	346	1299	1362
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	0.0	0.0	44.6	0.0	0.0	17.8	4.9	4.9	8.1	7.3	7.3
Incr Delay (d2), s/veh	5.7	0.0	0.0	4.8	0.0	0.0	0.8	1.3	1.3	0.3	4.0	3.9
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	3.0	0.0	0.0	2.1	0.0	0.0	0.1	0.5	0.5	0.0	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.3	0.0	0.0	49.4	0.0	0.0	18.6	6.2	6.2	8.4	11.3	11.2
LnGrp LOS	D			D			B	A	A	A	B	B
Approach Vol, veh/h	167			116			1263			2018		
Approach Delay, s/veh	50.3			49.4			6.3			11.2		
Approach LOS	D			D			A			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	86.3			18.7			86.3			18.7		
Change Period (Y+Rc), s	7.0			6.0			7.0			6.0		
Max Green Setting (Gmax), s	63.0			29.0			63.0			29.0		
Max Q Clear Time (g_c+I1), s	0.0			11.3			0.0			11.8		
Green Ext Time (p_c), s	0.0			1.4			0.0			0.9		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	12.5											
HCM 6th LOS	B											

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	95	1169	1	607	43	3	0	239	1	166
Future Volume (vph)	95	1169	1	607	43	3	0	239	1	166
Lane Group Flow (vph)	103	1273	1	660	47	0	5	260	1	180
Turn Type	Prot	NA	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		6			8		4	
Permitted Phases			6		6	8		4		4
Detector Phase	5	2	6	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	13.0	56.0	43.0	43.0	43.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.7%	58.9%	45.3%	45.3%	45.3%	41.1%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	2.0	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	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	9.8	56.2	42.3	42.3	42.3		24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.10	0.59	0.45	0.45	0.45		0.26	0.26	0.26	0.26
v/c Ratio	0.59	0.44	0.01	0.31	0.07		0.01	0.73	0.00	0.34
Control Delay (s/veh)	55.2	12.1	19.0	18.6	0.9		0.0	43.3	22.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.2	12.1	19.0	18.6	0.9		0.0	43.3	22.0	5.5
LOS	E	B	B	B	A		A	D	C	A
Approach Delay (s/veh)		15.3		17.5					27.9	
Approach LOS		B		B					C	
Queue Length 50th (m)	18.4	45.5	0.1	30.5	0.0		0.0	43.7	0.1	0.0
Queue Length 95th (m)	#41.3	67.5	1.2	43.6	1.5		0.0	64.0	1.2	13.9
Internal Link Dist (m)		1377.1		902.8			298.9		1556.7	
Turn Bay Length (m)	90.0		60.0		50.0			200.0		
Base Capacity (vph)	182	2918	167	2140	686		524	461	640	636
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.57	0.44	0.01	0.31	0.07		0.01	0.56	0.00	0.28

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 22.5 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 18.1

Intersection LOS: B

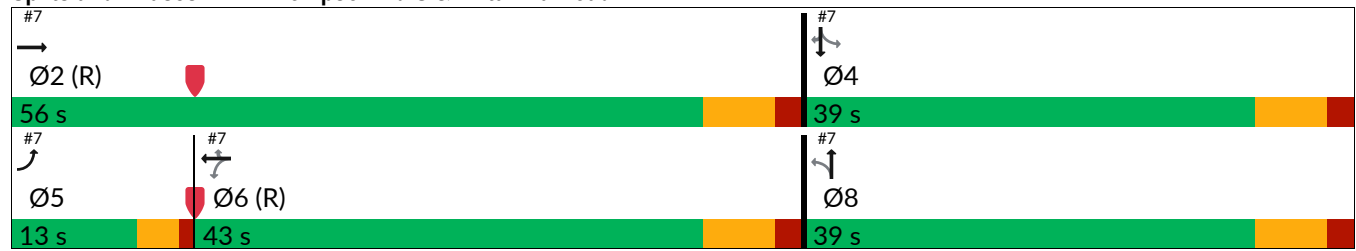
Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

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

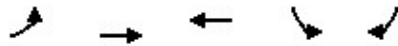
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2036 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	95	1169	2	1	607	43	3	0	2	239	1	166
Future Volume (veh/h)	95	1169	2	1	607	43	3	0	2	239	1	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1826	1159	1900	1781	1722	1411	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	103	1271	2	1	660	47	3	0	2	260	1	180
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
Percent Heavy Veh, %	3	5	50	0	8	12	33	0	0	1	0	4
Cap, veh/h	130	3178	5	293	2443	726	239	15	129	410	445	365
Arrive On Green	0.07	0.62	0.62	0.50	0.50	0.50	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1767	5139	8	441	4863	1445	762	64	550	1424	1900	1558
Grp Volume(v), veh/h	103	822	451	1	660	47	5	0	0	260	1	180
Grp Sat Flow(s),veh/h/ln	1767	1662	1824	441	1621	1445	1376	0	0	1424	1900	1558
Q Serve(g_s), s	5.4	11.9	11.9	0.1	7.4	1.6	0.0	0.0	0.0	16.0	0.0	9.5
Cycle Q Clear(g_c), s	5.4	11.9	11.9	1.0	7.4	1.6	0.2	0.0	0.0	16.2	0.0	9.5
Prop In Lane	1.00		0.00	1.00		1.00	0.60		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	130	2055	1128	293	2443	726	383	0	0	410	445	365
V/C Ratio(X)	0.79	0.40	0.40	0.00	0.27	0.06	0.01	0.00	0.00	0.63	0.00	0.49
Avail Cap(c_a), veh/h	167	2055	1128	293	2443	726	522	0	0	556	640	525
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	9.2	9.2	12.2	13.6	12.2	27.9	0.0	0.0	34.0	27.9	31.5
Incr Delay (d2), s/veh	17.4	0.6	1.1	0.0	0.3	0.2	0.0	0.0	0.0	3.4	0.0	2.2
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	2.1	0.2	0.3	0.0	0.5	0.1	0.0	0.0	0.0	3.2	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.7	9.8	10.3	12.3	13.9	12.3	28.0	0.0	0.0	37.4	27.9	33.7
LnGrp LOS	E	A	B		B	B	C			D		C
Approach Vol, veh/h		1376			708			5			441	
Approach Delay, s/veh		13.7			13.8			28.0			35.9	
Approach LOS		B			B			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.7		29.3	11.0	54.7		29.3				
Change Period (Y+Rc), s		7.0		7.0	4.0	7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0	9.0	36.0		32.0				
Max Q Clear Time (g_c+I1), s		13.9		18.2	7.4	9.4		2.2				
Green Ext Time (p_c), s		20.1		3.8	0.1	9.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				17.6								
HCM 6th LOS				B								

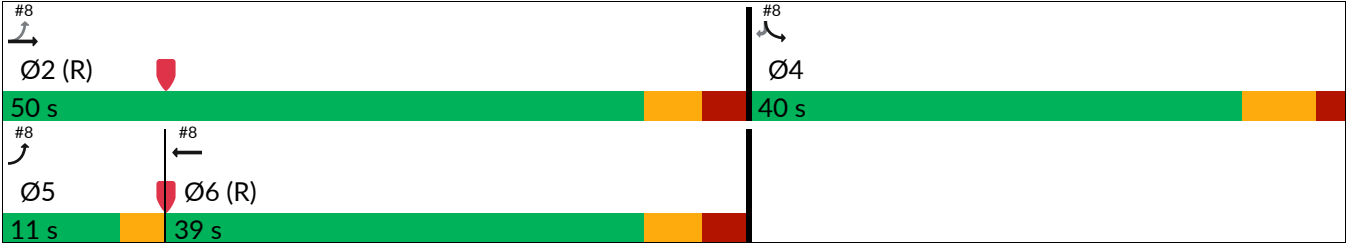


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↰
Traffic Volume (vph)	99	848	431	372	134
Future Volume (vph)	99	848	431	372	134
Lane Group Flow (vph)	114	975	605	428	154
Turn Type	pm+pt	NA	NA	Prot	Perm
Protected Phases	5	2	6	4	
Permitted Phases	2				4
Detector Phase	5	2	6	4	4
Switch Phase					
Minimum Initial (s)	7.0	25.0	25.0	15.0	15.0
Minimum Split (s)	10.0	39.0	39.0	39.0	39.0
Total Split (s)	11.0	50.0	39.0	40.0	40.0
Total Split (%)	12.2%	55.6%	43.3%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	5.0	5.0
All-Red Time (s)	0.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
Act Effect Green (s)	51.0	47.0	38.3	29.0	29.0
Actuated g/C Ratio	0.57	0.52	0.43	0.32	0.32
v/c Ratio	0.27	0.38	0.31	0.80	0.27
Control Delay (s/veh)	12.1	14.0	17.3	39.4	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.1	14.0	17.3	39.4	4.8
LOS	B	B	B	D	A
Approach Delay (s/veh)		13.8	17.3	30.3	
Approach LOS		B	B	C	
Queue Length 50th (m)	10.1	37.6	25.4	67.8	0.0
Queue Length 95th (m)	19.7	48.3	35.0	94.3	11.6
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	424	2579	1935	609	620
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.38	0.31	0.70	0.25

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay (s/veh): 18.9	Intersection LOS: B
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2036 Future Total
Weekday AM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	99	848	431	96	372	134
Future Volume (veh/h)	99	848	431	96	372	134
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	1678	1826	1781	1366	1826	1722
Adj Flow Rate, veh/h	114	975	495	110	428	154
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	15	5	8	36	5	12
Cap, veh/h	457	2714	1752	380	522	438
Arrive On Green	0.07	0.54	0.44	0.44	0.30	0.30
Sat Flow, veh/h	1598	5149	4161	867	1739	1459
Grp Volume(v), veh/h	114	975	399	206	428	154
Grp Sat Flow(s),veh/h/ln	1598	1662	1621	1625	1739	1459
Q Serve(g_s), s	3.2	10.0	7.1	7.3	20.6	7.4
Cycle Q Clear(g_c), s	3.2	10.0	7.1	7.3	20.6	7.4
Prop In Lane	1.00			0.53	1.00	1.00
Lane Grp Cap(c), veh/h	457	2714	1420	712	522	438
V/C Ratio(X)	0.25	0.36	0.28	0.29	0.82	0.35
Avail Cap(c_a), veh/h	482	2714	1420	712	638	535
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	11.1	11.6	16.2	16.3	29.3	24.7
Incr Delay (d2), s/veh	0.2	0.4	0.5	1.0	9.2	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.7	0.9	4.9	6.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.3	12.0	16.7	17.3	38.4	25.7
LnGrp LOS	B	B	B	B	D	C
Approach Vol, veh/h		1089	605		582	
Approach Delay, s/veh		11.9	16.9		35.0	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		56.0		34.0	9.6	46.4
Change Period (Y+Rc), s		7.0		7.0	3.0	7.0
Max Green Setting (Gmax), s		43.0		33.0	8.0	32.0
Max Q Clear Time (g_c+l1), s		12.0		22.6	5.2	9.3
Green Ext Time (p_c), s		14.4		4.4	0.1	7.2
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			19.2			
HCM 6th LOS			B			

Queues

2: First Line/Bronte St. S & Britannia Road

2036 Future Total

Weekday PM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	69	380	63	75	511	89	153	228	55	85	73
Future Volume (vph)	69	380	63	75	511	89	153	228	55	85	73
Lane Group Flow (vph)	76	418	69	82	562	98	168	384	60	93	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.20	0.25	0.11	0.20	0.34	0.15	0.42	0.61	0.23	0.13	0.13
Control Delay (s/veh)	14.5	22.6	2.6	14.5	23.7	4.9	31.7	33.0	25.7	22.5	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.5	22.6	2.6	14.5	23.7	4.9	31.7	33.0	25.7	22.5	5.4
LOS	B	C	A	B	C	A	C	C	C	C	A
Approach Delay (s/veh)		19.1			20.2			32.6		17.5	
Approach LOS		B			C			C		B	
Queue Length 50th (m)	7.8	24.9	0.0	9.1	34.7	0.0	30.9	61.7	8.6	12.4	0.0
Queue Length 95th (m)	15.5	34.1	5.5	17.7	45.7	10.2	53.6	93.4	19.3	23.2	9.4
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	378	1662	618	414	1662	654	403	629	261	705	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.25	0.11	0.20	0.34	0.15	0.42	0.61	0.23	0.13	0.13

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.61

Intersection Signal Delay (s/veh): 22.9

Intersection LOS: C

Intersection Capacity Utilization 72.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2 	#2 	#2 
Ø1	Ø2 (R)	Ø4
11 s	47 s	47 s
#2 	#2 	#2 
Ø5	Ø6 (R)	Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2036 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	380	63	75	511	89	153	228	121	55	85	73
Future Volume (veh/h)	69	380	63	75	511	89	153	228	121	55	85	73
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		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	1841	1826	1767	1707	1826	1856	1633	1900	1500	1841	1900	1826
Adj Flow Rate, veh/h	76	418	69	82	562	98	168	251	133	60	93	80
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	5	9	13	5	3	18	0	27	4	0	5
Cap, veh/h	408	1678	573	441	1678	602	427	434	230	265	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4382	1497	1626	4382	1572	1058	1169	619	983	1900	1528
Grp Volume(v), veh/h	76	418	69	82	562	98	168	0	384	60	93	80
Grp Sat Flow(s),veh/h/ln	1753	1461	1497	1626	1461	1572	1058	0	1788	983	1900	1528
Q Serve(g_s), s	2.6	6.8	3.1	3.1	9.5	4.3	13.1	0.0	18.0	5.5	3.4	3.6
Cycle Q Clear(g_c), s	2.6	6.8	3.1	3.1	9.5	4.3	16.5	0.0	18.0	23.5	3.4	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	408	1678	573	441	1678	602	427	0	664	265	706	567
V/C Ratio(X)	0.19	0.25	0.12	0.19	0.33	0.16	0.39	0.00	0.58	0.23	0.13	0.14
Avail Cap(c_a), veh/h	408	1678	573	441	1678	602	427	0	664	265	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	22.1	21.0	17.0	22.9	21.3	27.3	0.0	26.4	35.8	21.8	21.9
Incr Delay (d2), s/veh	1.0	0.4	0.4	0.9	0.5	0.6	2.7	0.0	3.6	2.0	0.4	0.5
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	0.5	1.1	0.6	0.5	1.5	0.8	1.9	0.0	4.1	0.9	0.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.1	22.5	21.4	17.9	23.5	21.9	30.0	0.0	30.1	37.8	22.2	22.4
LnGrp LOS	B	C	C	B	C	C	C		C	D	C	C
Approach Vol, veh/h		563			742			552			233	
Approach Delay, s/veh		21.7			22.7			30.0			26.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	5.1	5.1		20.0	4.6	6.3		25.5				
Green Ext Time (p_c), s	0.1	0.0		3.7	0.1	0.1		1.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			24.8									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2036 Future Total
Weekday PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	422	82	167	560	251	232	1121	377	94	708	120
Future Volume (vph)	158	422	82	167	560	251	232	1121	377	94	708	120
Lane Group Flow (vph)	163	435	85	172	577	259	239	1156	389	97	730	124
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	14.0	48.0	48.0	15.0	49.0	49.0	20.0	65.0	65.0	12.0	57.0	57.0
Total Split (%)	10.0%	34.3%	34.3%	10.7%	35.0%	35.0%	14.3%	46.4%	46.4%	8.6%	40.7%	40.7%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	10.9	43.2	43.2	11.2	44.5	44.5	14.7	53.7	53.7	7.8	46.8	46.8
Actuated g/C Ratio	0.08	0.31	0.31	0.08	0.32	0.32	0.11	0.38	0.38	0.06	0.33	0.33
v/c Ratio	0.74	0.48	0.15	0.68	0.43	0.45	0.72	0.89	0.53	0.54	0.63	0.21
Control Delay (s/veh)	83.1	42.5	1.8	76.4	39.7	19.3	72.9	49.3	13.6	75.5	41.8	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	83.1	42.5	1.8	76.4	39.7	19.3	72.9	49.3	13.6	75.5	41.8	4.6
LOS	F	D	A	E	D	B	E	D	B	E	D	A
Approach Delay (s/veh)		47.1			40.7			44.7			40.4	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	26.4	65.8	0.0	25.1	57.8	25.4	34.8	160.1	28.7	14.1	91.6	0.0
Queue Length 95th (m)	#47.9	86.7	3.3	#38.9	72.5	52.9	49.6	186.9	58.8	23.9	111.0	11.2
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	220	901	567	261	1341	578	364	1394	763	186	1222	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.48	0.15	0.66	0.43	0.45	0.66	0.83	0.51	0.52	0.60	0.20

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay (s/veh): 43.2

Intersection LOS: D

Intersection Capacity Utilization 93.7%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road

 Ø1	 Ø2	 Ø3	 Ø4 (R)
12 s	65 s	15 s	48 s
 Ø5	 Ø6	 Ø7	 Ø8 (R)
20 s	57 s	14 s	49 s

HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2036 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	422	82	167	560	251	232	1121	377	94	708	120
Future Volume (veh/h)	158	422	82	167	560	251	232	1121	377	94	708	120
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		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	1618	1841	1856	1811	1781	1811	1811	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	163	435	85	172	577	259	239	1156	389	97	730	124
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
Percent Heavy Veh, %	19	4	3	6	8	6	6	6	6	4	4	3
Cap, veh/h	204	972	519	221	1402	503	295	1315	587	166	1199	532
Arrive On Green	0.07	0.33	0.33	0.07	0.33	0.33	0.09	0.38	0.38	0.05	0.34	0.34
Sat Flow, veh/h	2990	2945	1571	3346	4275	1533	3346	3441	1535	3401	3497	1553
Grp Volume(v), veh/h	163	435	85	172	577	259	239	1156	389	97	730	124
Grp Sat Flow(s),veh/h/ln	1495	1473	1571	1673	1425	1533	1673	1721	1535	1700	1749	1553
Q Serve(g_s), s	7.5	16.3	5.4	7.1	14.7	19.1	9.8	43.8	29.4	3.9	24.3	8.0
Cycle Q Clear(g_c), s	7.5	16.3	5.4	7.1	14.7	19.1	9.8	43.8	29.4	3.9	24.3	8.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	972	519	221	1402	503	295	1315	587	166	1199	532
V/C Ratio(X)	0.80	0.45	0.16	0.78	0.41	0.52	0.81	0.88	0.66	0.58	0.61	0.23
Avail Cap(c_a), veh/h	214	972	519	263	1402	503	382	1408	628	194	1232	547
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.3	36.9	33.2	64.4	36.6	38.1	62.7	40.2	35.8	65.2	38.2	32.8
Incr Delay (d2), s/veh	18.4	1.5	0.7	11.8	0.9	3.7	9.7	6.4	2.4	3.2	0.8	0.2
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	2.7	4.0	1.4	2.6	3.4	5.1	3.5	12.2	7.0	1.4	6.7	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	82.7	38.4	33.9	76.1	37.5	41.8	72.3	46.6	38.2	68.4	39.0	33.1
LnGrp LOS	F	D	C	E	D	D	E	D	D	E	D	C
Approach Vol, veh/h	683				1008				1784			
Approach Delay, s/veh	48.4				45.2				48.2			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	61.2	13.2	54.7	16.3	55.7	13.5	54.4				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	8.0	57.3	11.0	39.5	16.0	49.3	10.0	* 42				
Max Q Clear Time (g_c+I1), s	5.9	45.8	9.1	18.3	11.8	26.3	9.5	16.7				
Green Ext Time (p_c), s	0.1	7.8	0.2	2.4	0.5	6.2	0.0	2.8				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	46.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	74	67	488	39	52	244
Future Vol, veh/h	74	67	488	39	52	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	87	79	574	46	61	287

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1006	597	0	0	620	0
Stage 1	597	-	-	-	-	-
Stage 2	409	-	-	-	-	-
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	270	507	-	-	970	-
Stage 1	554	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	250	507	-	-	970	-
Mov Cap-2 Maneuver	250	-	-	-	-	-
Stage 1	512	-	-	-	-	-
Stage 2	675	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	20.5	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 250 507	970	-
HCM Lane V/C Ratio	-	- 0.348 0.155	0.063	-
HCM Ctrl Dly (s/v)	-	- 26.9 13.4	9	0
HCM Lane LOS	-	- D B	A	A
HCM 95th %tile Q (veh)	-	- 1.5 0.5	0.2	-

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	114	94	249	205	48
Future Vol, veh/h	16	114	94	249	205	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	17	121	100	265	218	51

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	365	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1205	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1205	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

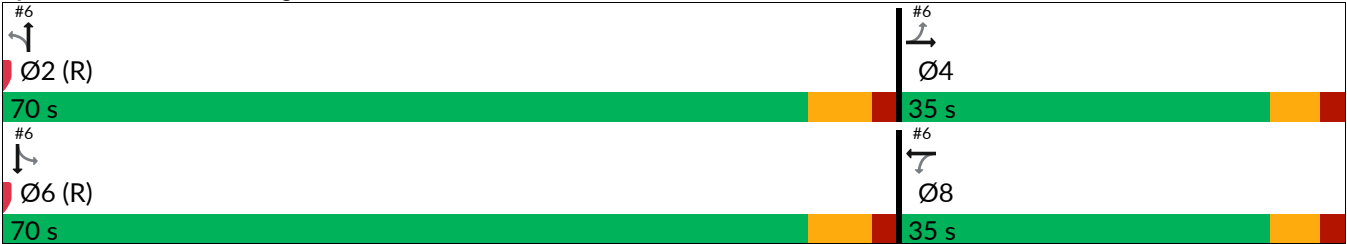
Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1205	-	-	-	638
HCM Lane V/C Ratio	0.014	-	-	-	0.422
HCM Ctrl Dly (s/v)	8	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	2.1

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	36	73	89	92	16	1822	9	1034
Future Volume (vph)	36	73	89	92	16	1822	9	1034
Lane Group Flow (vph)	0	135	0	214	17	1964	9	1104
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		22.6		22.6	69.4	69.4	69.4	69.4
Actuated g/C Ratio		0.22		0.22	0.66	0.66	0.66	0.66
v/c Ratio		0.39		0.74	0.06	0.88	0.13	0.49
Control Delay (s/veh)		35.2		52.3	8.8	22.0	14.0	10.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		35.2		52.3	8.8	22.0	14.0	10.6
LOS		D		D	A	C	B	B
Approach Delay (s/veh)		35.2		52.3		21.9		10.6
Approach LOS		D		D		C		B
Queue Length 50th (m)		22.1		39.7	1.1	167.2	0.6	57.4
Queue Length 95th (m)		36.7		61.2	4.5	#271.4	3.8	86.1
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		439		369	268	2221	70	2247
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.31		0.58	0.06	0.88	0.13	0.49
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 80								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.88								
Intersection Signal Delay (s/veh): 20.7				Intersection LOS: C				
Intersection Capacity Utilization 80.4%				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: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

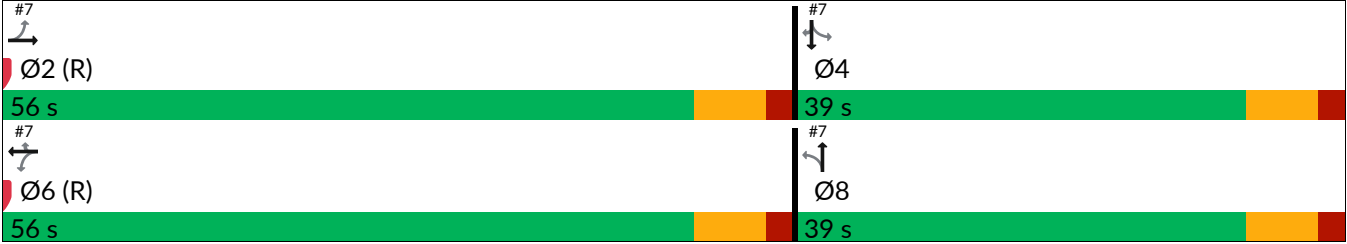
2036 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	73	19	89	92	22	16	1822	44	9	1034	15
Future Volume (veh/h)	36	73	19	89	92	22	16	1822	44	9	1034	15
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	38	77	20	94	97	23	17	1918	46	9	1088	16
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	97	180	41	153	130	28	370	2425	58	145	2471	36
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	324	1097	247	632	788	171	519	3407	81	227	3471	51
Grp Volume(v), veh/h	135	0	0	214	0	0	17	957	1007	9	539	565
Grp Sat Flow(s),veh/h/ln	1668	0	0	1591	0	0	519	1706	1782	227	1721	1802
Q Serve(g_s), s	0.0	0.0	0.0	6.3	0.0	0.0	1.5	38.6	39.4	2.9	13.8	13.8
Cycle Q Clear(g_c), s	7.3	0.0	0.0	13.6	0.0	0.0	15.3	38.6	39.4	42.2	13.8	13.8
Prop In Lane	0.28		0.15	0.44		0.11	1.00		0.05	1.00		0.03
Lane Grp Cap(c), veh/h	318	0	0	311	0	0	370	1215	1268	145	1225	1283
V/C Ratio(X)	0.42	0.00	0.00	0.69	0.00	0.00	0.05	0.79	0.79	0.06	0.44	0.44
Avail Cap(c_a), veh/h	501	0	0	486	0	0	370	1215	1268	145	1225	1283
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	0.0	42.2	0.0	0.0	9.6	9.9	10.0	24.0	6.4	6.4
Incr Delay (d2), s/veh	1.9	0.0	0.0	5.7	0.0	0.0	0.2	5.2	5.2	0.8	1.2	1.1
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	2.1	0.0	0.0	3.7	0.0	0.0	0.0	1.8	1.8	0.1	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.5	0.0	0.0	47.9	0.0	0.0	9.8	15.1	15.2	24.9	7.5	7.5
LnGrp LOS	D			D			A	B	B	C	A	A
Approach Vol, veh/h		135			214			1981			1113	
Approach Delay, s/veh		41.5			47.9			15.1			7.6	
Approach LOS		D			D			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		81.7		23.3		81.7		23.3				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		9.3		0.0		15.6				
Green Ext Time (p_c), s		0.0		1.2		0.0		1.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				15.8								
HCM 6th LOS				B								

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations									
Traffic Volume (vph)	221	755	2	1004	180	1	0	64	66
Future Volume (vph)	221	755	2	1004	180	1	0	64	66
Lane Group Flow (vph)	240	824	2	1091	196	0	3	70	72
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	Perm
Protected Phases		2		6			8		
Permitted Phases	2		6		6	8		4	4
Detector Phase	2	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	30.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0
Minimum Split (s)	37.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0
Total Split (s)	56.0	56.0	56.0	56.0	56.0	39.0	39.0	39.0	39.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	73.2	73.2	73.2	73.2	73.2		12.2	12.2	12.2
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.13	0.13	0.13
v/c Ratio	0.84	0.25	0.00	0.34	0.17		0.01	0.40	0.28
Control Delay (s/veh)	40.3	4.6	4.5	5.0	1.1		0.0	43.7	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	40.3	4.6	4.5	5.0	1.1		0.0	43.7	13.8
LOS	D	A	A	A	A		A	D	B
Approach Delay (s/veh)		12.6		4.5					
Approach LOS		B		A					
Queue Length 50th (m)	29.5	18.7	0.1	27.8	0.0		0.0	12.1	1.2
Queue Length 95th (m)	#90.8	29.4	0.8	42.4	6.7		0.0	24.0	12.8
Internal Link Dist (m)		1377.1		902.8			634.1		
Turn Bay Length (m)	90.0		60.0		50.0			200.0	
Base Capacity (vph)	287	3335	411	3251	1143		511	463	559
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	0.84	0.25	0.00	0.34	0.17		0.01	0.15	0.13
Intersection Summary									
Cycle Length: 95									
Actuated Cycle Length: 95									
Offset: 22.5 (24%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green									
Natural Cycle: 140									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.84									
Intersection Signal Delay (s/veh): 9.3					Intersection LOS: A				
Intersection Capacity Utilization 72.8%					ICU Level of Service C				
Analysis Period (min) 15									

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

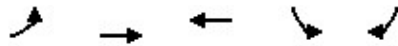
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2036 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	221	755	3	2	1004	180	1	0	2	64	0	66
Future Volume (veh/h)	221	755	3	2	1004	180	1	0	2	64	0	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1826	1159	1900	1781	1722	1411	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	240	821	3	2	1091	196	1	0	2	70	0	72
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
Percent Heavy Veh, %	3	5	50	0	8	12	33	0	0	1	0	4
Cap, veh/h	367	3616	13	558	3271	1109	77	19	92	201	166	136
Arrive On Green	0.77	0.77	0.77	0.77	0.77	0.77	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	425	4727	17	674	4275	1450	306	221	1053	1421	1900	1555
Grp Volume(v), veh/h	240	507	317	2	1091	196	3	0	0	70	0	72
Grp Sat Flow(s),veh/h/ln	425	1461	1823	674	1425	1450	1580	0	0	1421	1900	1555
Q Serve(g_s), s	38.8	4.7	4.7	0.1	7.6	3.5	0.0	0.0	0.0	4.3	0.0	4.2
Cycle Q Clear(g_c), s	46.4	4.7	4.7	4.8	7.6	3.5	0.2	0.0	0.0	4.4	0.0	4.2
Prop In Lane	1.00		0.01	1.00		1.00	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	367	2235	1394	558	3271	1109	189	0	0	201	166	136
V/C Ratio(X)	0.65	0.23	0.23	0.00	0.33	0.18	0.02	0.00	0.00	0.35	0.00	0.53
Avail Cap(c_a), veh/h	367	2235	1394	558	3271	1109	565	0	0	555	640	524
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	3.2	3.2	3.9	3.5	3.0	39.6	0.0	0.0	41.6	0.0	41.5
Incr Delay (d2), s/veh	8.8	0.2	0.4	0.0	0.3	0.3	0.1	0.0	0.0	2.2	0.0	6.7
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	0.9	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	1.1	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.6	3.4	3.6	3.9	3.8	3.4	39.7	0.0	0.0	43.8	0.0	48.1
LnGrp LOS	B	A	A		A	A	D			D		D
Approach Vol, veh/h	1064			1289			3			142		
Approach Delay, s/veh	7.1			3.7			39.7			46.0		
Approach LOS	A			A			D			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	79.7			15.3			79.7			15.3		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	49.0			32.0			49.0			32.0		
Max Q Clear Time (g_c+I1), s	48.4			6.4			9.6			2.2		
Green Ext Time (p_c), s	0.5			1.4			22.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			7.6									
HCM 6th LOS			A									



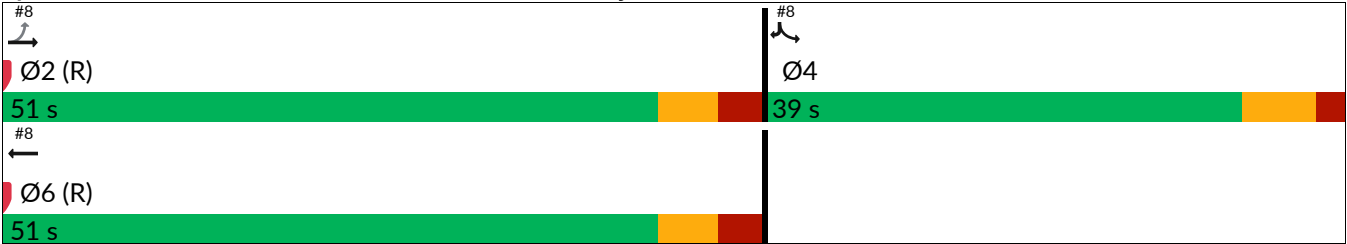
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↰
Traffic Volume (vph)	104	528	784	267	113
Future Volume (vph)	104	528	784	267	113
Lane Group Flow (vph)	120	607	1422	307	130
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		2	6	4	4
Permitted Phases	2				
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	15.0	15.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0
Total Split (s)	51.0	51.0	51.0	39.0	39.0
Total Split (%)	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
Act Effect Green (s)	52.0	52.0	52.0	24.0	24.0
Actuated g/C Ratio	0.58	0.58	0.58	0.27	0.27
v/c Ratio	0.89	0.21	0.57	0.69	0.29
Control Delay (s/veh)	78.0	10.2	11.7	37.6	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	78.0	10.2	11.7	37.6	9.6
LOS	E	B	B	D	A
Approach Delay (s/veh)		21.4	11.7	29.2	
Approach LOS		C	B	C	
Queue Length 50th (m)	18.4	17.6	45.7	49.9	5.0
Queue Length 95th (m)	#59.7	28.4	70.0	65.3	16.1
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	135	2856	2492	590	568
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.89	0.21	0.57	0.52	0.23

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay (s/veh): 17.4	Intersection LOS: B
Intersection Capacity Utilization 78.4%	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: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2036 Future Total
Weekday PM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	104	528	784	453	267	113
Future Volume (veh/h)	104	528	784	453	267	113
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	1678	1826	1781	1366	1826	1722
Adj Flow Rate, veh/h	120	607	901	521	307	130
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	15	5	8	36	5	12
Cap, veh/h	218	3049	1983	923	405	340
Arrive On Green	0.61	0.61	0.61	0.61	0.23	0.23
Sat Flow, veh/h	338	5149	3403	1510	1739	1459
Grp Volume(v), veh/h	120	607	901	521	307	130
Grp Sat Flow(s),veh/h/ln	338	1662	1621	1510	1739	1459
Q Serve(g_s), s	29.3	4.8	13.5	18.4	14.8	6.8
Cycle Q Clear(g_c), s	47.8	4.8	13.5	18.4	14.8	6.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	218	3049	1983	923	405	340
V/C Ratio(X)	0.55	0.20	0.45	0.56	0.76	0.38
Avail Cap(c_a), veh/h	218	3049	1983	923	618	519
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	24.5	7.7	9.4	10.4	32.2	29.1
Incr Delay (d2), s/veh	9.7	0.1	0.8	2.5	6.1	1.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.2	0.6	3.6	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	34.2	7.9	10.2	12.9	38.3	30.6
LnGrp LOS	C	A	B	B	D	C
Approach Vol, veh/h		727	1422		437	
Approach Delay, s/veh		12.2	11.1		36.0	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.0		28.0		62.0
Change Period (Y+Rc), s		7.0		7.0		7.0
Max Green Setting (Gmax), s		44.0		32.0		44.0
Max Q Clear Time (g_c+I1), s		49.8		16.8		20.4
Green Ext Time (p_c), s		0.0		4.2		17.4
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			15.6			
HCM 6th LOS			B			

Queues

2: First Line/Bronte St. S & Britannia Road

2036 Future Background

Weekday AM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  			 		 	
Traffic Volume (vph)	147	578	54	6	366	57	27	64	103	168	88
Future Volume (vph)	147	578	54	6	366	57	27	64	103	168	88
Lane Group Flow (vph)	162	635	59	7	402	63	30	73	113	185	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.35	0.37	0.09	0.02	0.24	0.10	0.07	0.10	0.24	0.26	0.16
Control Delay (s/veh)	16.5	24.2	1.9	12.8	22.5	2.2	24.7	24.2	24.6	24.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.5	24.2	1.9	12.8	22.5	2.2	24.7	24.2	24.6	24.3	5.2
LOS	B	C	A	B	C	A	C	C	C	C	A
Approach Delay (s/veh)		21.2			19.7			24.3		19.7	
Approach LOS		C			B			C		B	
Queue Length 50th (m)	17.6	39.2	0.0	0.8	23.8	0.0	4.3	10.3	16.2	26.0	0.0
Queue Length 95th (m)	29.8	50.9	3.4	3.2	32.9	4.1	11.0	20.5	30.0	42.3	10.6
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	458	1694	646	309	1662	646	437	702	465	705	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.37	0.09	0.02	0.24	0.10	0.07	0.10	0.24	0.26	0.16

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.37

Intersection Signal Delay (s/veh): 20.6

Intersection LOS: C

Intersection Capacity Utilization 62.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1	#2  Ø2 (R)	#2  Ø4
11 s	47 s	47 s
#2  Ø5	#2  Ø6 (R)	#2  Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2036 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	578	54	6	366	57	27	64	3	103	168	88
Future Volume (veh/h)	147	578	54	6	366	57	27	64	3	103	168	88
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		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	1841	1856	1841	1648	1826	1841	1900	1900	1900	1841	1900	1826
Adj Flow Rate, veh/h	162	635	59	7	402	63	30	70	3	113	185	97
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	4	17	5	4	0	0	0	4	0	5
Cap, veh/h	478	1705	597	358	1678	597	407	672	29	521	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4453	1560	1570	4382	1560	1115	1809	78	1306	1900	1528
Grp Volume(v), veh/h	162	635	59	7	402	63	30	0	73	113	185	97
Grp Sat Flow(s),veh/h/ln	1753	1484	1560	1570	1461	1560	1115	0	1886	1306	1900	1528
Q Serve(g_s), s	5.9	10.8	2.5	0.3	6.5	2.7	2.0	0.0	2.7	6.5	7.1	4.5
Cycle Q Clear(g_c), s	5.9	10.8	2.5	0.3	6.5	2.7	9.1	0.0	2.7	9.2	7.1	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	478	1705	597	358	1678	597	407	0	701	521	706	567
V/C Ratio(X)	0.34	0.37	0.10	0.02	0.24	0.11	0.07	0.00	0.10	0.22	0.26	0.17
Avail Cap(c_a), veh/h	478	1705	597	358	1678	597	407	0	701	521	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	23.3	20.8	16.5	22.0	20.8	26.2	0.0	21.6	24.6	23.0	22.1
Incr Delay (d2), s/veh	1.9	0.6	0.3	0.1	0.3	0.4	0.4	0.0	0.3	1.0	0.9	0.7
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	1.1	1.8	0.5	0.0	1.0	0.5	0.3	0.0	0.6	1.1	1.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.7	23.9	21.1	16.6	22.4	21.2	26.5	0.0	21.9	25.5	23.9	22.8
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		856			472			103			395	
Approach Delay, s/veh		22.9			22.1			23.2			24.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	0.0	0.0		11.1	0.0	0.0		11.2				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	0.0		2.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			23.0									
HCM 6th LOS			C									

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	620	242	258	293	89	65	705	180	240	1297	73
Future Volume (vph)	64	620	242	258	293	89	65	705	180	240	1297	73
Lane Group Flow (vph)	66	639	249	266	302	92	67	727	186	247	1337	75
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	15.0	48.0	48.0	16.0	49.0	49.0	11.0	55.0	55.0	21.0	65.0	65.0
Total Split (%)	10.7%	34.3%	34.3%	11.4%	35.0%	35.0%	7.9%	39.3%	39.3%	15.0%	46.4%	46.4%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	8.5	42.3	42.3	13.1	50.2	50.2	7.0	45.2	45.2	15.2	55.6	55.6
Actuated g/C Ratio	0.06	0.30	0.30	0.09	0.36	0.36	0.05	0.32	0.32	0.11	0.40	0.40
v/c Ratio	0.33	0.71	0.44	0.89	0.19	0.15	0.42	0.66	0.31	0.70	0.92	0.11
Control Delay (s/veh)	67.1	49.5	21.8	92.4	33.7	2.3	72.6	43.8	7.6	71.2	51.4	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.1	49.5	21.8	92.4	33.7	2.3	72.6	43.8	7.6	71.2	51.4	2.1
LOS	E	D	C	F	C	A	E	D	A	E	D	A
Approach Delay (s/veh)		43.5			53.0			38.9			52.1	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	9.3	103.1	26.7	40.4	26.6	0.0	9.8	92.1	3.5	35.4	176.3	0.0
Queue Length 95th (m)	17.1	130.5	53.2	#69.8	37.2	5.2	18.2	115.6	21.1	49.8	207.5	4.6
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	260	900	564	299	1556	622	161	1160	624	395	1495	689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.71	0.44	0.89	0.19	0.15	0.42	0.63	0.30	0.63	0.89	0.11

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay (s/veh): 47.2

Intersection LOS: D

Intersection Capacity Utilization 98.5%

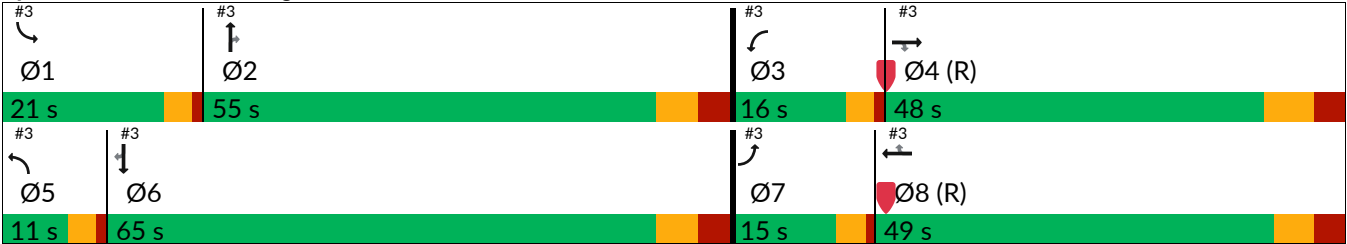
ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road



HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2036 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	620	242	258	293	89	65	705	180	240	1297	73
Future Volume (veh/h)	64	620	242	258	293	89	65	705	180	240	1297	73
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		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	1870	1870	1870	1811	1826	1811	1826	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	66	639	249	266	302	92	67	727	186	247	1337	75
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
Percent Heavy Veh, %	2	2	2	6	5	6	5	6	6	4	4	3
Cap, veh/h	160	899	476	287	1490	521	156	1208	539	306	1453	613
Arrive On Green	0.05	0.30	0.30	0.09	0.34	0.34	0.05	0.35	0.35	0.09	0.39	0.39
Sat Flow, veh/h	3456	2993	1583	3346	4382	1533	3374	3441	1535	3401	3681	1553
Grp Volume(v), veh/h	66	639	249	266	302	92	67	727	186	247	1337	75
Grp Sat Flow(s),veh/h/ln	1728	1496	1583	1673	1461	1533	1687	1721	1535	1700	1841	1553
Q Serve(g_s), s	2.6	26.6	18.3	11.1	6.8	5.9	2.7	24.3	12.5	10.0	48.3	4.3
Cycle Q Clear(g_c), s	2.6	26.6	18.3	11.1	6.8	5.9	2.7	24.3	12.5	10.0	48.3	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	899	476	287	1490	521	156	1208	539	306	1453	613
V/C Ratio(X)	0.41	0.71	0.52	0.93	0.20	0.18	0.43	0.60	0.35	0.81	0.92	0.12
Avail Cap(c_a), veh/h	272	899	476	287	1490	521	169	1208	539	413	1507	636
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.9	43.6	40.6	63.6	32.8	32.4	65.0	37.4	33.6	62.5	40.3	26.9
Incr Delay (d2), s/veh	1.7	4.7	4.1	34.5	0.3	0.7	1.9	0.8	0.4	8.3	9.3	0.1
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	0.9	7.1	5.2	4.9	1.6	1.5	0.9	6.6	3.0	3.6	14.8	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.6	48.3	44.7	98.1	33.1	33.2	66.8	38.2	33.9	70.8	49.6	27.0
LnGrp LOS	E	D	D	F	C	C	E	D	C	E	D	C
Approach Vol, veh/h	954			660			980			1659		
Approach Delay, s/veh	48.6			59.3			39.4			51.7		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	56.8	16.0	50.6	10.5	63.0	10.5	56.1				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	17.0	47.3	12.0	39.5	7.0	57.3	11.0	* 42				
Max Q Clear Time (g_c+l1), s	12.0	26.3	13.1	28.6	4.7	50.3	4.6	8.8				
Green Ext Time (p_c), s	0.6	6.5	0.0	2.5	0.0	4.9	0.1	1.6				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	49.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	8	322	29	70	455
Future Vol, veh/h	52	8	322	29	70	455
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	61	9	379	34	82	535

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1095	396	0	0	413	0
Stage 1	396	-	-	-	-	-
Stage 2	699	-	-	-	-	-
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	239	658	-	-	1157	-
Stage 1	684	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	658	-	-	1157	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	25.9	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 215 658	1157	-
HCM Lane V/C Ratio	-	- 0.285 0.014	0.071	-
HCM Ctrl Dly (s/v)	-	- 28.3 10.6	8.4	0
HCM Lane LOS	-	- D B	A	A
HCM 95th %tile Q (veh)	-	- 1.1 0	0.2	-

Intersection

Int Delay, s/veh 6.2

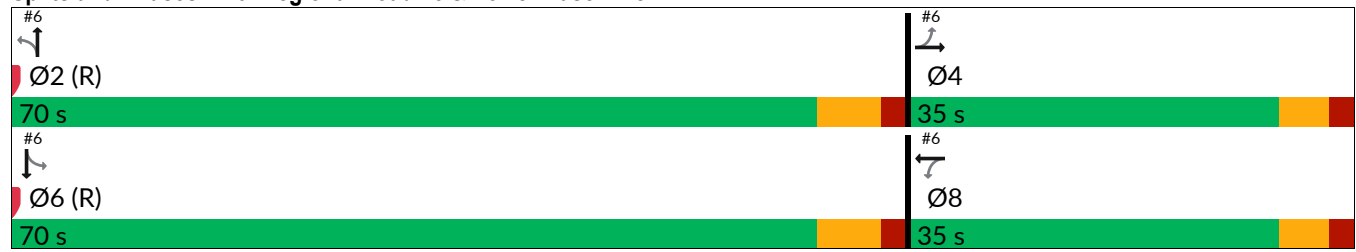
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	99	11	89	195	57
Future Vol, veh/h	3	99	11	89	195	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	3	105	12	95	207	61

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	107	0	0 171 60
Stage 1	-	-	- 60 -
Stage 2	-	-	- 111 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1497	-	- 821 1011
Stage 1	-	-	- 965 -
Stage 2	-	-	- 916 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1497	-	- 819 1011
Mov Cap-2 Maneuver	-	-	- 819 -
Stage 1	-	-	- 963 -
Stage 2	-	-	- 916 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.2	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1497	-	-	-	856
HCM Lane V/C Ratio	0.002	-	-	-	0.313
HCM Ctrl Dly (s/v)	7.4	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	1.3

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	22	94	73	13	10	1060	19	1858
Future Volume (vph)	22	94	73	13	10	1060	19	1858
Lane Group Flow (vph)	0	157	0	102	11	1209	20	1957
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		16.5		16.5	75.5	75.5	75.5	75.5
Actuated g/C Ratio		0.16		0.16	0.72	0.72	0.72	0.72
v/c Ratio		0.55		0.68	0.13	0.50	0.07	0.80
Control Delay (s/veh)		44.3		60.3	10.7	7.8	6.5	14.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		44.3		60.3	10.7	7.8	6.5	14.1
LOS		D		E	B	A	A	B
Approach Delay (s/veh)		44.3		60.3		7.9		14.0
Approach LOS		D		E		A		B
Queue Length 50th (m)		27.7		18.8	0.6	50.8	1.0	124.5
Queue Length 95th (m)		44.4		34.2	3.8	83.1	4.3	203.2
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		490		261	82	2404	269	2450
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.32		0.39	0.13	0.50	0.07	0.80
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 80								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.80								
Intersection Signal Delay (s/veh): 14.6				Intersection LOS: B				
Intersection Capacity Utilization 81.9%				ICU Level of Service D				
Analysis Period (min) 15								

Splits and Phases: 6: Regional Road 25 & Lower Base Line W

HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

2036 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	94	33	73	13	10	10	1060	88	19	1858	1
Future Volume (veh/h)	22	94	33	73	13	10	10	1060	88	19	1858	1
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	23	99	35	77	14	11	11	1116	93	20	1956	1
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	59	142	46	155	27	15	175	2430	202	366	2689	1
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.76	0.76	0.76	0.76	0.76	0.76
Sat Flow, veh/h	174	1241	406	828	240	129	228	3189	266	470	3529	2
Grp Volume(v), veh/h	157	0	0	102	0	0	11	597	612	20	953	1004
Grp Sat Flow(s),veh/h/ln	1821	0	0	1197	0	0	228	1706	1748	470	1721	1811
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	2.8	13.4	13.5	1.7	31.1	31.1
Cycle Q Clear(g_c), s	8.6	0.0	0.0	9.1	0.0	0.0	33.9	13.4	13.5	15.2	31.1	31.1
Prop In Lane	0.15		0.22	0.75		0.11	1.00		0.15	1.00		0.00
Lane Grp Cap(c), veh/h	247	0	0	197	0	0	175	1300	1332	366	1311	1380
V/C Ratio(X)	0.63	0.00	0.00	0.52	0.00	0.00	0.06	0.46	0.46	0.05	0.73	0.73
Avail Cap(c_a), veh/h	529	0	0	418	0	0	175	1300	1332	366	1311	1380
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	0.0	45.1	0.0	0.0	15.7	4.6	4.6	7.4	6.7	6.7
Incr Delay (d2), s/veh	5.6	0.0	0.0	4.4	0.0	0.0	0.7	1.2	1.1	0.3	3.6	3.4
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	2.9	0.0	0.0	1.9	0.0	0.0	0.1	0.4	0.4	0.0	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.7	0.0	0.0	49.5	0.0	0.0	16.4	5.7	5.7	7.6	10.2	10.1
LnGrp LOS	D			D			B	A	A	A	B	B
Approach Vol, veh/h		157			102			1220			1977	
Approach Delay, s/veh		50.7			49.5			5.8			10.1	
Approach LOS		D			D			A			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.0		18.0		87.0		18.0				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		10.6		0.0		11.1				
Green Ext Time (p_c), s		0.0		1.4		0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				11.6								
HCM 6th LOS				B								

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	87	1134	1	555	43	3	0	239	1	153
Future Volume (vph)	87	1134	1	555	43	3	0	239	1	153
Lane Group Flow (vph)	95	1235	1	603	47	0	5	260	1	166
Turn Type	Prot	NA	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		6			8		4	
Permitted Phases			6		6	8		4		4
Detector Phase	5	2	6	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	13.0	56.0	43.0	43.0	43.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.7%	58.9%	45.3%	45.3%	45.3%	41.1%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	2.0	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	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	9.6	56.2	44.8	44.8	44.8		24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.10	0.59	0.47	0.47	0.47		0.26	0.26	0.26	0.26
v/c Ratio	0.56	0.42	0.01	0.26	0.07		0.01	0.73	0.00	0.32
Control Delay (s/veh)	53.7	11.9	18.0	17.5	0.9		0.0	43.3	22.0	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.7	11.9	18.0	17.5	0.9		0.0	43.3	22.0	5.6
LOS	D	B	B	B	A		A	D	C	A
Approach Delay (s/veh)		14.9		16.3					28.6	
Approach LOS		B		B					C	
Queue Length 50th (m)	17.0	43.2	0.1	26.9	0.0		0.0	43.7	0.1	0.0
Queue Length 95th (m)	#37.3	64.1	1.2	39.4	1.5		0.0	64.0	1.2	13.4
Internal Link Dist (m)		1377.1		902.8			298.9		1556.7	
Turn Bay Length (m)	90.0		60.0		50.0			200.0		
Base Capacity (vph)	178	2947	185	2285	720		524	461	640	622
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.53	0.42	0.01	0.26	0.07		0.01	0.56	0.00	0.27

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 22.5 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 17.7

Intersection LOS: B

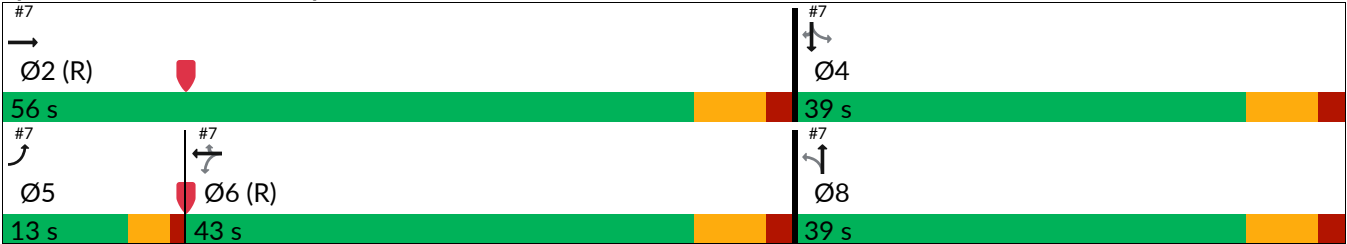
Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

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

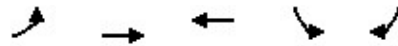
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2036 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	87	1134	2	1	555	43	3	0	2	239	1	153
Future Volume (veh/h)	87	1134	2	1	555	43	3	0	2	239	1	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1826
Adj Flow Rate, veh/h	95	1233	2	1	603	47	3	0	2	260	1	166
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	5
Cap, veh/h	121	3209	5	305	2495	735	240	15	129	409	443	360
Arrive On Green	0.07	0.62	0.62	0.51	0.51	0.51	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1767	5181	8	457	4904	1445	768	64	555	1424	1900	1545
Grp Volume(v), veh/h	95	797	438	1	603	47	5	0	0	260	1	166
Grp Sat Flow(s),veh/h/ln	1767	1675	1839	457	1635	1445	1387	0	0	1424	1900	1545
Q Serve(g_s), s	5.0	11.3	11.3	0.1	6.5	1.6	0.0	0.0	0.0	16.0	0.0	8.8
Cycle Q Clear(g_c), s	5.0	11.3	11.3	0.9	6.5	1.6	0.2	0.0	0.0	16.2	0.0	8.8
Prop In Lane	1.00		0.00	1.00		1.00	0.60		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	121	2075	1139	305	2495	735	384	0	0	409	443	360
V/C Ratio(X)	0.78	0.38	0.38	0.00	0.24	0.06	0.01	0.00	0.00	0.64	0.00	0.46
Avail Cap(c_a), veh/h	167	2075	1139	305	2495	735	525	0	0	556	640	521
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	9.0	9.0	11.9	13.1	11.8	28.0	0.0	0.0	34.1	27.9	31.3
Incr Delay (d2), s/veh	15.0	0.5	1.0	0.0	0.2	0.2	0.0	0.0	0.0	3.5	0.0	2.0
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	1.8	0.2	0.3	0.0	0.4	0.1	0.0	0.0	0.0	3.2	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.6	9.6	10.0	11.9	13.3	12.0	28.0	0.0	0.0	37.6	27.9	33.2
LnGrp LOS	E	A	B		B	B	C			D		C
Approach Vol, veh/h		1330			651			5			427	
Approach Delay, s/veh		13.2			13.2			28.0			35.9	
Approach LOS		B			B			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.8		29.2	10.5	55.3		29.2				
Change Period (Y+Rc), s		7.0		7.0	4.0	7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0	9.0	36.0		32.0				
Max Q Clear Time (g_c+I1), s		13.3		18.2	7.0	8.5		2.2				
Green Ext Time (p_c), s		19.6		3.7	0.1	8.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				17.3								
HCM 6th LOS				B								

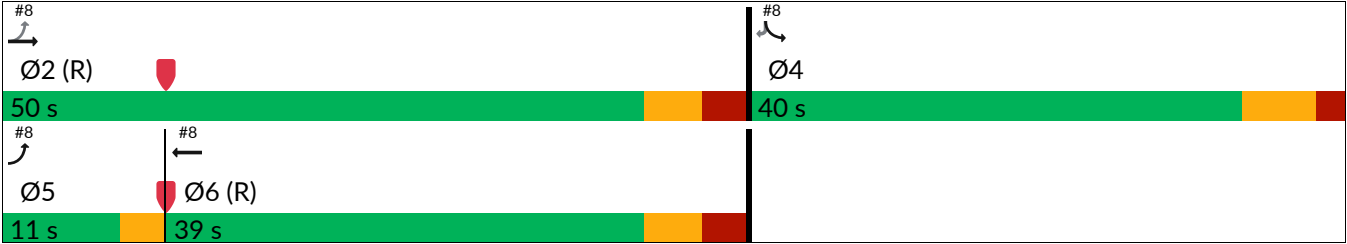


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↰
Traffic Volume (vph)	92	820	390	372	123
Future Volume (vph)	92	820	390	372	123
Lane Group Flow (vph)	106	943	558	428	141
Turn Type	pm+pt	NA	NA	Prot	Perm
Protected Phases	5	2	6	4	
Permitted Phases	2				4
Detector Phase	5	2	6	4	4
Switch Phase					
Minimum Initial (s)	7.0	25.0	25.0	15.0	15.0
Minimum Split (s)	10.0	39.0	39.0	39.0	39.0
Total Split (s)	11.0	50.0	39.0	40.0	40.0
Total Split (%)	12.2%	55.6%	43.3%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	5.0	5.0
All-Red Time (s)	0.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
Act Effect Green (s)	51.0	47.0	38.4	29.0	29.0
Actuated g/C Ratio	0.57	0.52	0.43	0.32	0.32
v/c Ratio	0.24	0.36	0.29	0.80	0.25
Control Delay (s/veh)	11.7	13.8	16.5	39.4	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.7	13.8	16.5	39.4	4.7
LOS	B	B	B	D	A
Approach Delay (s/veh)		13.6	16.5	30.8	
Approach LOS		B	B	C	
Queue Length 50th (m)	9.1	35.7	22.0	67.8	0.0
Queue Length 95th (m)	18.0	46.0	31.0	94.3	11.1
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	452	2604	1946	609	626
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.36	0.29	0.70	0.23

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay (s/veh): 18.9
Intersection Capacity Utilization 62.3%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service B

Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2036 Future Background
Weekday AM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	92	820	390	96	372	123
Future Volume (veh/h)	92	820	390	96	372	123
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	1722	1841	1796	1366	1826	1767
Adj Flow Rate, veh/h	106	943	448	110	428	141
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	12	4	7	36	5	9
Cap, veh/h	485	2741	1739	414	520	448
Arrive On Green	0.07	0.55	0.44	0.44	0.30	0.30
Sat Flow, veh/h	1640	5191	4116	942	1739	1497
Grp Volume(v), veh/h	106	943	368	190	428	141
Grp Sat Flow(s),veh/h/ln	1640	1675	1635	1627	1739	1497
Q Serve(g_s), s	2.9	9.5	6.4	6.7	20.6	6.6
Cycle Q Clear(g_c), s	2.9	9.5	6.4	6.7	20.6	6.6
Prop In Lane	1.00			0.58	1.00	1.00
Lane Grp Cap(c), veh/h	485	2741	1438	715	520	448
V/C Ratio(X)	0.22	0.34	0.26	0.27	0.82	0.31
Avail Cap(c_a), veh/h	512	2741	1438	715	638	549
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	10.9	11.4	15.9	16.0	29.3	24.4
Incr Delay (d2), s/veh	0.2	0.3	0.4	0.9	9.3	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.6	0.8	4.9	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.1	11.8	16.3	16.9	38.6	25.3
LnGrp LOS	B	B	B	B	D	C
Approach Vol, veh/h		1049	558		569	
Approach Delay, s/veh		11.7	16.5		35.3	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		56.1		33.9	9.5	46.6
Change Period (Y+Rc), s		7.0		7.0	3.0	7.0
Max Green Setting (Gmax), s		43.0		33.0	8.0	32.0
Max Q Clear Time (g_c+l1), s		11.5		22.6	4.9	8.7
Green Ext Time (p_c), s		14.0		4.3	0.1	6.7
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			19.1			
HCM 6th LOS			B			

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  			 		 	
Traffic Volume (vph)	69	363	22	4	487	78	59	141	52	61	73
Future Volume (vph)	69	363	22	4	487	78	59	141	52	61	73
Lane Group Flow (vph)	76	399	24	4	535	86	65	158	57	67	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.19	0.24	0.04	0.01	0.32	0.13	0.13	0.22	0.13	0.10	0.13
Control Delay (s/veh)	14.4	22.4	0.1	12.5	23.5	4.4	29.8	30.9	23.0	22.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.4	22.4	0.1	12.5	23.5	4.4	29.8	30.9	23.0	22.1	5.4
LOS	B	C	A	B	C	A	C	C	C	C	A
Approach Delay (s/veh)		20.1			20.8			30.6		15.8	
Approach LOS		C			C			C		B	
Queue Length 50th (m)	7.8	23.2	0.0	0.4	32.8	0.0	10.5	25.9	7.9	8.8	0.0
Queue Length 95th (m)	15.5	32.0	0.0	2.3	43.5	8.6	m20.8	42.6	17.0	17.8	9.4
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	391	1694	646	408	1662	646	486	704	430	705	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.24	0.04	0.01	0.32	0.13	0.13	0.22	0.13	0.10	0.13

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.32

Intersection Signal Delay (s/veh): 21.3

Intersection LOS: C

Intersection Capacity Utilization 61.5%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1 11 s	#2  Ø2 (R) 47 s	#2  Ø4 47 s
#2  Ø5 11 s	#2  Ø6 (R) 47 s	#2  Ø8 47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2036 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	363	22	4	487	78	59	141	3	52	61	73
Future Volume (veh/h)	69	363	22	4	487	78	59	141	3	52	61	73
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		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	1841	1856	1841	1648	1826	1841	1900	1900	1900	1841	1900	1826
Adj Flow Rate, veh/h	76	399	24	4	535	86	65	155	3	57	67	80
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	4	17	5	4	0	0	0	4	0	5
Cap, veh/h	420	1705	597	447	1678	597	508	690	13	448	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4453	1560	1570	4382	1560	1260	1858	36	1209	1900	1528
Grp Volume(v), veh/h	76	399	24	4	535	86	65	0	158	57	67	80
Grp Sat Flow(s),veh/h/ln	1753	1484	1560	1570	1461	1560	1260	0	1894	1209	1900	1528
Q Serve(g_s), s	2.6	6.4	1.0	0.1	9.0	3.8	3.7	0.0	6.0	3.6	2.4	3.6
Cycle Q Clear(g_c), s	2.6	6.4	1.0	0.1	9.0	3.8	6.1	0.0	6.0	9.6	2.4	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	420	1705	597	447	1678	597	508	0	703	448	706	567
V/C Ratio(X)	0.18	0.23	0.04	0.01	0.32	0.14	0.13	0.00	0.22	0.13	0.09	0.14
Avail Cap(c_a), veh/h	420	1705	597	447	1678	597	508	0	703	448	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	22.0	20.3	16.1	22.8	21.2	23.5	0.0	22.6	25.9	21.5	21.9
Incr Delay (d2), s/veh	0.9	0.3	0.1	0.0	0.5	0.5	0.5	0.0	0.7	0.6	0.3	0.5
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	0.5	1.0	0.2	0.0	1.4	0.7	0.6	0.0	1.4	0.6	0.5	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.0	22.3	20.4	16.2	23.3	21.7	24.0	0.0	23.4	26.5	21.8	22.4
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		499			625			223			204	
Approach Delay, s/veh		21.5			23.0			23.6			23.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	2.1	3.0		8.1	4.6	5.8		11.6				
Green Ext Time (p_c), s	0.0	0.0		1.3	0.1	0.1		1.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.7									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2036 Future Background
Weekday PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	355	39	167	528	251	212	1099	377	94	698	64
Future Volume (vph)	54	355	39	167	528	251	212	1099	377	94	698	64
Lane Group Flow (vph)	56	366	40	172	544	259	219	1133	389	97	720	66
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	14.0	48.0	48.0	15.0	49.0	49.0	20.0	65.0	65.0	12.0	57.0	57.0
Total Split (%)	10.0%	34.3%	34.3%	10.7%	35.0%	35.0%	14.3%	46.4%	46.4%	8.6%	40.7%	40.7%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	8.1	43.6	43.6	11.2	49.9	49.9	14.2	53.2	53.2	7.8	46.8	46.8
Actuated g/C Ratio	0.06	0.31	0.31	0.08	0.36	0.36	0.10	0.38	0.38	0.06	0.33	0.33
v/c Ratio	0.29	0.39	0.07	0.68	0.35	0.39	0.67	0.88	0.53	0.54	0.62	0.11
Control Delay (s/veh)	66.8	40.5	0.2	76.4	35.7	11.8	71.0	48.7	13.2	75.5	41.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.8	40.5	0.2	76.4	35.7	11.8	71.0	48.7	13.2	75.5	41.5	0.4
LOS	E	D	A	E	D	B	E	D	B	E	D	A
Approach Delay (s/veh)		40.2			36.5			43.6			42.2	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	7.9	52.5	0.0	25.1	49.9	12.6	31.7	156.9	27.7	14.1	89.7	0.0
Queue Length 95th (m)	15.0	71.2	0.0	#38.9	66.3	38.6	45.4	181.6	57.5	23.9	109.4	0.0
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	237	928	577	262	1547	663	368	1394	766	186	1222	627
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.39	0.07	0.66	0.35	0.39	0.60	0.81	0.51	0.52	0.59	0.11

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay (s/veh): 41.2

Intersection LOS: D

Intersection Capacity Utilization 93.0%

ICU Level of Service F

Analysis Period (min) 15

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

Splits and Phases: 3: Regional Road 25 & Britannia Road

#3 Ø1 12 s	#3 Ø2 65 s	#3 Ø3 15 s	#3 Ø4 (R) 48 s
#3 Ø5 20 s	#3 Ø6 57 s	#3 Ø7 14 s	#3 Ø8 (R) 49 s

HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2036 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	355	39	167	528	251	212	1099	377	94	698	64
Future Volume (veh/h)	54	355	39	167	528	251	212	1099	377	94	698	64
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		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	1870	1870	1870	1811	1826	1811	1826	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	56	366	40	172	544	259	219	1133	389	97	720	66
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
Percent Heavy Veh, %	2	2	2	6	5	6	5	6	6	4	4	3
Cap, veh/h	153	1001	529	221	1560	546	276	1301	580	166	1206	536
Arrive On Green	0.04	0.33	0.33	0.07	0.36	0.36	0.08	0.38	0.38	0.05	0.34	0.34
Sat Flow, veh/h	3456	2993	1584	3346	4382	1534	3374	3441	1535	3401	3497	1553
Grp Volume(v), veh/h	56	366	40	172	544	259	219	1133	389	97	720	66
Grp Sat Flow(s),veh/h/ln	1728	1496	1584	1673	1461	1534	1687	1721	1535	1700	1749	1553
Q Serve(g_s), s	2.2	13.0	2.4	7.1	12.8	18.3	8.9	42.8	29.6	3.9	23.8	4.1
Cycle Q Clear(g_c), s	2.2	13.0	2.4	7.1	12.8	18.3	8.9	42.8	29.6	3.9	23.8	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	1001	529	221	1560	546	276	1301	580	166	1206	536
V/C Ratio(X)	0.37	0.37	0.08	0.78	0.35	0.47	0.79	0.87	0.67	0.58	0.60	0.12
Avail Cap(c_a), veh/h	247	1001	529	263	1560	546	386	1408	628	194	1232	547
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	35.3	31.8	64.4	33.1	34.9	63.1	40.4	36.3	65.2	37.8	31.4
Incr Delay (d2), s/veh	1.5	1.0	0.3	11.8	0.6	2.9	7.4	5.9	2.5	3.2	0.8	0.1
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	0.8	3.2	0.6	2.6	2.9	4.7	3.1	12.0	7.1	1.4	6.6	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.4	36.4	32.1	76.1	33.8	37.9	70.6	46.3	38.8	68.4	38.6	31.5
LnGrp LOS	E	D	C	E	C	D	E	D	D	E	D	C
Approach Vol, veh/h	462				975				1741			
Approach Delay, s/veh	39.6				42.3				47.7			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	60.6	13.2	55.3	15.5	56.0	10.2	58.3				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	8.0	57.3	11.0	39.5	16.0	49.3	10.0	* 42				
Max Q Clear Time (g_c+I1), s	5.9	44.8	9.1	15.0	10.9	25.8	4.2	14.8				
Green Ext Time (p_c), s	0.1	8.2	0.2	2.2	0.5	5.7	0.1	2.5				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	44.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	48	473	19	45	236
Future Vol, veh/h	40	48	473	19	45	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	47	56	556	22	53	278

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	951	567	0	0	578	0
Stage 1	567	-	-	-	-	-
Stage 2	384	-	-	-	-	-
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	291	527	-	-	1006	-
Stage 1	572	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	273	527	-	-	1006	-
Mov Cap-2 Maneuver	273	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	693	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.4	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	273	527	1006	-
HCM Lane V/C Ratio	-	-	0.172	0.107	0.053	-
HCM Ctrl Dly (s/v)	-	-	20.9	12.6	8.8	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q (veh)	-	-	0.6	0.4	0.2	-

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	65	73	198	71	18
Future Vol, veh/h	4	65	73	198	71	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	4	69	78	211	76	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	289	0	0 261 184
Stage 1	-	-	- 184 -
Stage 2	-	-	- 77 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1284	-	- 730 864
Stage 1	-	-	- 850 -
Stage 2	-	-	- 949 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1284	-	- 728 864
Mov Cap-2 Maneuver	-	-	- 728 -
Stage 1	-	-	- 847 -
Stage 2	-	-	- 949 -

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.5	0	10.5
HCM LOS			B

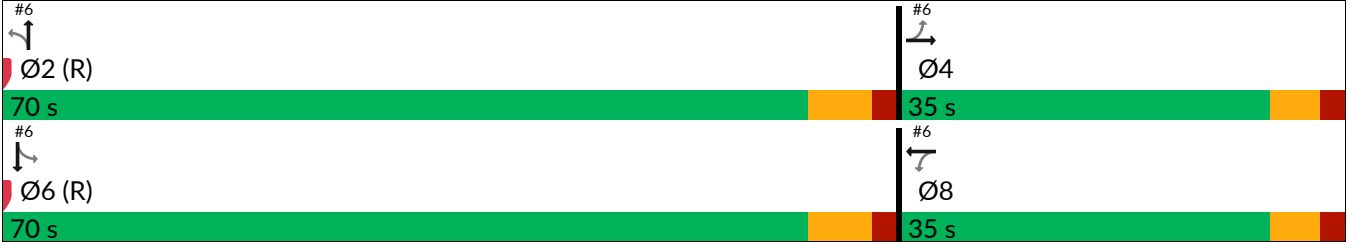
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	752
HCM Lane V/C Ratio	0.003	-	-	-	0.126
HCM Ctrl Dly (s/v)	7.8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	0.4

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	54	89	86	16	1802	9	991
Future Volume (vph)	14	54	89	86	16	1802	9	991
Lane Group Flow (vph)	0	92	0	208	17	1943	9	1048
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		21.9		21.9	70.1	70.1	70.1	70.1
Actuated g/C Ratio		0.21		0.21	0.67	0.67	0.67	0.67
v/c Ratio		0.25		0.70	0.06	0.87	0.13	0.46
Control Delay (s/veh)		29.5		49.4	8.4	20.4	13.9	9.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		29.5		49.4	8.4	20.4	13.9	9.9
LOS		C		D	A	C	B	A
Approach Delay (s/veh)		29.5		49.4		20.3		9.9
Approach LOS		C		D		C		A
Queue Length 50th (m)		13.4		38.4	1.1	157.0	0.6	51.4
Queue Length 95th (m)		24.9		58.0	4.4	#266.4	3.8	80.1
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		487		392	294	2245	70	2272
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.19		0.53	0.06	0.87	0.13	0.46
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 80								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.87								
Intersection Signal Delay (s/veh): 19.1				Intersection LOS: B				
Intersection Capacity Utilization 79.5%				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: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

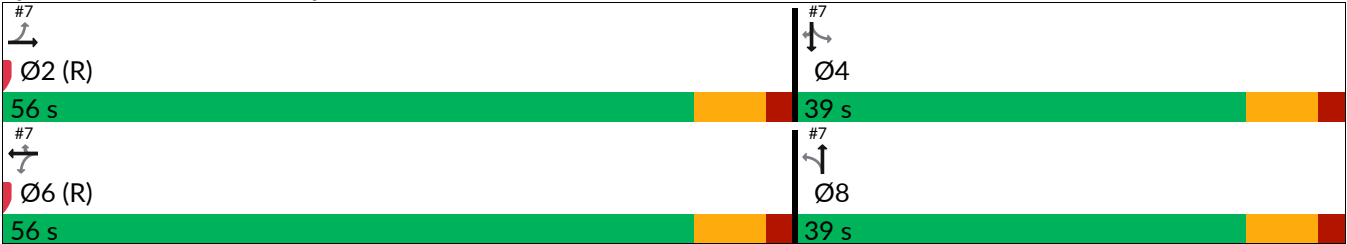
2036 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	54	19	89	86	22	16	1802	44	9	991	5
Future Volume (veh/h)	14	54	19	89	86	22	16	1802	44	9	991	5
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	15	57	20	94	91	23	17	1897	46	9	1043	5
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	63	195	61	156	122	28	399	2457	59	154	2534	12
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	152	1258	392	686	787	183	547	3406	82	231	3512	17
Grp Volume(v), veh/h	92	0	0	208	0	0	17	947	996	9	511	537
Grp Sat Flow(s),veh/h/ln	1802	0	0	1657	0	0	547	1706	1781	231	1721	1808
Q Serve(g_s), s	0.0	0.0	0.0	7.8	0.0	0.0	1.3	36.4	37.1	2.7	12.4	12.4
Cycle Q Clear(g_c), s	4.7	0.0	0.0	12.5	0.0	0.0	13.7	36.4	37.1	39.8	12.4	12.4
Prop In Lane	0.16		0.22	0.45		0.11	1.00		0.05	1.00		0.01
Lane Grp Cap(c), veh/h	318	0	0	306	0	0	399	1231	1285	154	1242	1305
V/C Ratio(X)	0.29	0.00	0.00	0.68	0.00	0.00	0.04	0.77	0.78	0.06	0.41	0.41
Avail Cap(c_a), veh/h	526	0	0	497	0	0	399	1231	1285	154	1242	1305
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	0.0	42.6	0.0	0.0	8.5	9.1	9.2	21.8	5.8	5.8
Incr Delay (d2), s/veh	1.1	0.0	0.0	5.6	0.0	0.0	0.2	4.7	4.6	0.7	1.0	1.0
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	1.4	0.0	0.0	3.6	0.0	0.0	0.0	1.6	1.6	0.1	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.6	0.0	0.0	48.1	0.0	0.0	8.7	13.8	13.9	22.5	6.8	6.8
LnGrp LOS	D			D			A	B	B	C	A	A
Approach Vol, veh/h		92			208			1960			1057	
Approach Delay, s/veh		40.6			48.1			13.8			6.9	
Approach LOS		D			D			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.8		22.2		82.8		22.2				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		6.7		0.0		14.5				
Green Ext Time (p_c), s		0.0		0.8		0.0		1.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				14.5								
HCM 6th LOS				B								

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations									
Traffic Volume (vph)	195	714	2	978	180	1	0	64	60
Future Volume (vph)	195	714	2	978	180	1	0	64	60
Lane Group Flow (vph)	212	779	2	1063	196	0	3	70	65
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	Perm
Protected Phases		2		6			8		
Permitted Phases	2		6		6	8		4	4
Detector Phase	2	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	30.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0
Minimum Split (s)	37.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0
Total Split (s)	56.0	56.0	56.0	56.0	56.0	39.0	39.0	39.0	39.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	73.2	73.2	73.2	73.2	73.2		12.2	12.2	12.2
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.13	0.13	0.13
v/c Ratio	0.71	0.23	0.00	0.32	0.17		0.01	0.40	0.25
Control Delay (s/veh)	26.5	4.5	4.5	5.0	1.1		0.0	43.7	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	26.5	4.5	4.5	5.0	1.1		0.0	43.7	10.8
LOS	C	A	A	A	A		A	D	B
Approach Delay (s/veh)		9.2		4.4					
Approach LOS		A		A					
Queue Length 50th (m)	20.5	17.3	0.1	26.6	0.0		0.0	12.1	0.0
Queue Length 95th (m)	#75.5	27.3	0.8	40.6	6.7		0.0	24.0	10.3
Internal Link Dist (m)		1377.1		902.8			634.1		
Turn Bay Length (m)	90.0		60.0		50.0			200.0	
Base Capacity (vph)	298	3367	433	3282	1143		511	463	558
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	0.71	0.23	0.00	0.32	0.17		0.01	0.15	0.12
Intersection Summary									
Cycle Length: 95									
Actuated Cycle Length: 95									
Offset: 22.5 (24%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green									
Natural Cycle: 110									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.71									
Intersection Signal Delay (s/veh): 7.7					Intersection LOS: A				
Intersection Capacity Utilization 72.8%					ICU Level of Service C				
Analysis Period (min) 15									

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

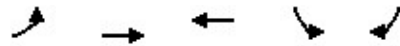
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2036 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	195	714	3	2	978	180	1	0	2	64	0	60
Future Volume (veh/h)	195	714	3	2	978	180	1	0	2	64	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1826
Adj Flow Rate, veh/h	212	776	3	2	1063	196	1	0	2	70	0	65
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	5
Cap, veh/h	377	3650	14	582	3303	1111	77	19	91	199	164	133
Arrive On Green	0.77	0.77	0.77	0.77	0.77	0.77	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	437	4764	18	703	4311	1450	305	223	1055	1421	1900	1542
Grp Volume(v), veh/h	212	480	299	2	1063	196	3	0	0	70	0	65
Grp Sat Flow(s),veh/h/ln	437	1473	1837	703	1437	1450	1583	0	0	1421	1900	1542
Q Serve(g_s), s	27.8	4.3	4.3	0.1	7.3	3.5	0.0	0.0	0.0	4.3	0.0	3.8
Cycle Q Clear(g_c), s	35.1	4.3	4.3	4.4	7.3	3.5	0.2	0.0	0.0	4.5	0.0	3.8
Prop In Lane	1.00		0.01	1.00		1.00	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	377	2256	1408	582	3303	1111	187	0	0	199	164	133
V/C Ratio(X)	0.56	0.21	0.21	0.00	0.32	0.18	0.02	0.00	0.00	0.35	0.00	0.49
Avail Cap(c_a), veh/h	377	2256	1408	582	3303	1111	566	0	0	555	640	519
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.9	3.1	3.1	3.7	3.4	3.0	39.7	0.0	0.0	41.7	0.0	41.4
Incr Delay (d2), s/veh	5.9	0.2	0.3	0.0	0.3	0.3	0.1	0.0	0.0	2.2	0.0	5.8
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	0.6	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	1.1	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.8	3.3	3.4	3.7	3.7	3.3	39.8	0.0	0.0	43.9	0.0	47.2
LnGrp LOS	B	A	A		A	A	D			D		D
Approach Vol, veh/h		991			1261			3			135	
Approach Delay, s/veh		5.8			3.7			39.8			45.5	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.8		15.2		79.8		15.2				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0		49.0		32.0				
Max Q Clear Time (g_c+I1), s		37.1		6.5		9.3		2.2				
Green Ext Time (p_c), s		8.6		1.3		21.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				7.0								
HCM 6th LOS				A								



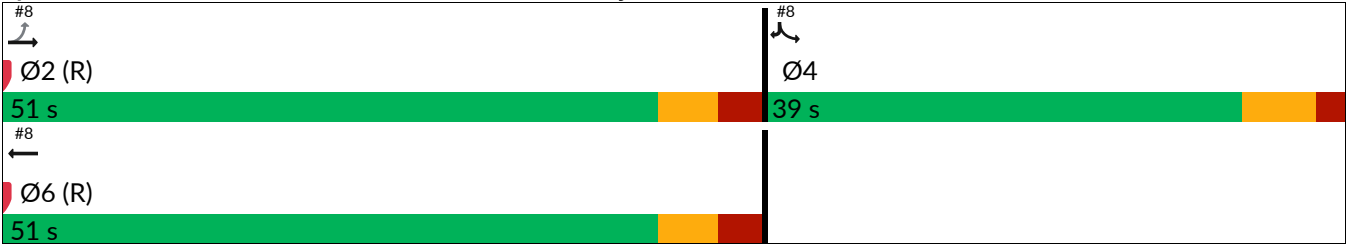
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↱
Traffic Volume (vph)	102	489	765	267	106
Future Volume (vph)	102	489	765	267	106
Lane Group Flow (vph)	117	562	1400	307	122
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		2	6	4	4
Permitted Phases	2				
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	15.0	15.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0
Total Split (s)	51.0	51.0	51.0	39.0	39.0
Total Split (%)	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
Act Effect Green (s)	52.0	52.0	52.0	24.0	24.0
Actuated g/C Ratio	0.58	0.58	0.58	0.27	0.27
v/c Ratio	0.82	0.19	0.56	0.69	0.26
Control Delay (s/veh)	62.7	10.1	11.5	37.6	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.7	10.1	11.5	37.6	8.1
LOS	E	B	B	D	A
Approach Delay (s/veh)		19.2	11.5	29.2	
Approach LOS		B	B	C	
Queue Length 50th (m)	16.2	16.0	43.8	49.9	2.9
Queue Length 95th (m)	#55.4	26.1	67.1	65.3	13.3
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	143	2884	2501	590	585
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	0.19	0.56	0.52	0.21

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay (s/veh): 16.6	Intersection LOS: B
Intersection Capacity Utilization 78.0%	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.

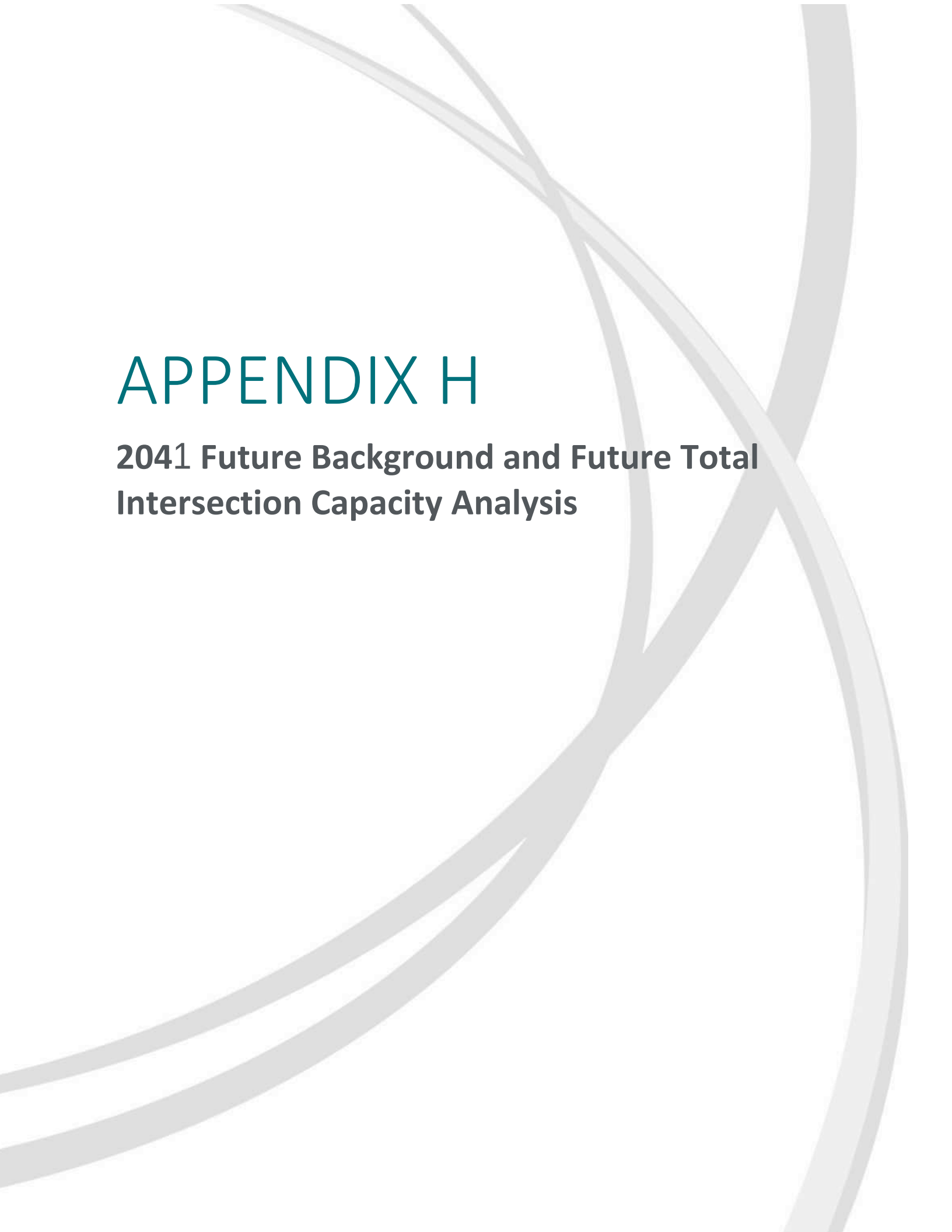
Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2036 Future Background
Weekday PM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	102	489	765	453	267	106
Future Volume (veh/h)	102	489	765	453	267	106
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	1722	1841	1796	1366	1826	1767
Adj Flow Rate, veh/h	117	562	879	521	307	122
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	12	4	7	36	5	9
Cap, veh/h	226	3077	2002	932	403	347
Arrive On Green	0.61	0.61	0.61	0.61	0.23	0.23
Sat Flow, veh/h	355	5191	3431	1522	1739	1497
Grp Volume(v), veh/h	117	562	879	521	307	122
Grp Sat Flow(s),veh/h/ln	355	1675	1635	1522	1739	1497
Q Serve(g_s), s	26.1	4.4	12.8	18.2	14.8	6.1
Cycle Q Clear(g_c), s	44.3	4.4	12.8	18.2	14.8	6.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	226	3077	2002	932	403	347
V/C Ratio(X)	0.52	0.18	0.44	0.56	0.76	0.35
Avail Cap(c_a), veh/h	226	3077	2002	932	618	532
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	23.3	7.6	9.2	10.3	32.2	28.9
Incr Delay (d2), s/veh	8.3	0.1	0.7	2.4	6.2	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	0.6	3.6	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	31.6	7.7	9.9	12.7	38.4	30.2
LnGrp LOS	C	A	A	B	D	C
Approach Vol, veh/h		679	1400		429	
Approach Delay, s/veh		11.9	11.0		36.1	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.1		27.9		62.1
Change Period (Y+Rc), s		7.0		7.0		7.0
Max Green Setting (Gmax), s		44.0		32.0		44.0
Max Q Clear Time (g_c+I1), s		46.3		16.8		20.2
Green Ext Time (p_c), s		0.0		4.1		17.3
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			15.5			
HCM 6th LOS			B			



APPENDIX H

2041 Future Background and Future Total Intersection Capacity Analysis

Appendix H – 2041 Future Background and Future Total Intersection Capacity Analysis

Table 1: Roundabout at Tremaine Rd & Britannia Rd

Future Background

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Background - 2041																
Leg 1 WB	0.19	~1	1.90	0.16	A	2.49	A	93 % [Leg 3 EB]	0.41	~1	2.34	0.29	A	2.18	A	123 % [Leg 1 WB]
Leg 2 SB	0.69	~1	2.53	0.40	A				0.34	~1	2.10	0.25	A			
Leg 3 EB	0.49	1.01	2.85	0.33	A				0.16	~1	1.87	0.13	A			
Leg 4 NB	0.30	~1	2.39	0.23	A				0.43	~1	2.23	0.30	A			

Future Total

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Total - 2041																
Leg 1 WB	0.28	~1	2.17	0.20	A	2.85	A	72 % [Leg 3 EB]	0.58	1.02	2.68	0.36	A	2.40	A	96 % [Leg 1 WB]
Leg 2 SB	0.93	~1	2.97	0.47	A				0.42	~1	2.32	0.29	A			
Leg 3 EB	0.60	1.01	3.25	0.37	A				0.17	~1	1.95	0.15	A			
Leg 4 NB	0.35	~1	2.63	0.25	A				0.48	1.01	2.37	0.32	A			

Note: PCE = Passenger Car Equivalent

Table 2: Signalized Intersection of Britannia Road & First Line/ Bronte St S

2: First Line/Bronte St. S & Britannia Road				
AM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (23)	-/-
EBL	147	0.35	B (20)	18/30
EBT	634	0.41	C (24)	44/56
EBR	54	0.10	C (21)	0/3
WBL	6	0.02	B (17)	1/3
WBT	401	0.26	C (23)	26/36
WBR	57	0.11	C (21)	0/4
NBL	27	0.07	C (27)	4/11
NBTR	67	0.10	C (22)	10/21
SBL	103	0.22	C (26)	16/30
SBT	168	0.26	C (24)	26/42
SBR	88	0.17	C (23)	0/11
2: First Line/Bronte St. S & Britannia Road				
PM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (23)	-/-
EBL	69	0.19	B (18)	8/16

EBT	397	0.26	C (23)	26/35
EBR	22	0.04	C (20)	0/0
WBL	4	0.01	B (16)	0/2
WBT	534	0.35	C (24)	37/48
WBR	78	0.14	C (22)	0/9
NBL	59	0.13	C (24)	11/21
NBTR	144	0.22	C (23)	26/43
SBL	52	0.13	C (27)	8/17
SBT	61	0.09	C (22)	9/18
SBR	73	0.14	C (22)	0/9

2: First Line/Bronte St. S & Britannia Road

AM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (25)	-/-
EBL	147	0.36	C (20)	18/30
EBT	673	0.44	C (25)	48/61
EBR	139	0.29	C (24)	0/14
WBL	158	0.60	C (30)	23/45
WBT	412	0.27	C (23)	27/37
WBR	60	0.11	C (21)	0/5
NBL	77	0.31	C (34)	17/33
NBTR	153	0.26	C (24)	19/34
SBL	110	0.28	C (30)	18/32
SBT	221	0.34	C (25)	35/55
SBR	88	0.17	C (23)	0/11

2: First Line/Bronte St. S & Britannia Road

PM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (25)	-/-
EBL	69	0.19	B (18)	8/16
EBT	414	0.27	C (23)	27/37
EBR	63	0.13	C (22)	0/6
WBL	75	0.21	B (19)	10/20
WBT	558	0.37	C (24)	38/50
WBR	89	0.16	C (22)	0/10
NBL	153	0.47	C (33)	37/65
NBTR	349	0.58	C (30)	63/97
SBL	55	0.23	D (38)	9/19
SBT	85	0.13	C (22)	12/23
SBR	73	0.14	C (22)	0/9

Table 3: Signalized Intersection of Britannia Road & Regional Road 25

3: Regional Road 25 & Britannia Road				
AM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (53)	-/-
EBL	64	0.41	E (67)	9/17
EBT	681	0.82	E (55)	116/146
EBR	242	0.55	D (47)	27/53
WBL	258	0.93	F (98)	40/70
WBT	321	0.23	C (35)	29/41
WBR	89	0.18	C (35)	0/5
NBL	65	0.43	E (67)	10/18
NBT	776	0.64	D (38)	104/130
NBR	180	0.33	C (32)	6/25
SBL	240	0.81	E (71)	35/50
SBT	1429	0.98	E (59)	206/257
SBR	73	0.12	C (26)	0/5
3: Regional Road 25 & Britannia Road				
PM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	D (45)	-/-
EBL	54	0.37	E (66)	8/15
EBT	389	0.42	D (39)	59/78
EBR	39	0.08	C (34)	0/0
WBL	167	0.78	E (76)	26/39
WBT	579	0.40	D (37)	57/73
WBR	251	0.50	D (41)	14/40
NBL	212	0.79	E (71)	32/45
NBT	1211	0.91	D (49)	176/210
NBR	377	0.64	D (36)	33/64
SBL	94	0.58	E (68)	14/24
SBT	769	0.62	D (38)	99/123
SBR	64	0.12	C (30)	0/0
2: First Line/Bronte St. S & Britannia Road				
AM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (25)	-/-
EBL	147	0.36	C (20)	18/30
EBT	673	0.44	C (25)	48/61
EBR	139	0.29	C (24)	0/14
WBL	158	0.60	C (30)	23/45
WBT	412	0.27	C (23)	27/37

WBR	60	0.11	C (21)	0/5
NBL	77	0.31	C (34)	17/33
NBTR	153	0.26	C (24)	19/34
SBL	110	0.28	C (30)	18/32
SBT	221	0.34	C (25)	35/55
SBR	88	0.17	C (23)	0/11
2: First Line/Bronte St. S & Britannia Road				
PM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	C (25)	-/-
EBL	69	0.19	B (18)	8/16
EBT	414	0.27	C (23)	27/37
EBR	63	0.13	C (22)	0/6
WBL	75	0.21	B (19)	10/20
WBT	558	0.37	C (24)	38/50
WBR	89	0.16	C (22)	0/10
NBL	153	0.47	C (33)	37/65
NBTR	349	0.58	C (30)	63/97
SBL	55	0.23	D (38)	9/19
SBT	85	0.13	C (22)	12/23
SBR	73	0.14	C (22)	0/9

Table 4: Signalized Intersection of Lower Base Line W & Regional Road 25

6: Regional Road 25 & Lower Base Line W				
AM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (13)	-/-
EBLTR	149	0.63	D (51)	29/45
WBLTR	96	0.52	D (50)	19/34
NBL	10	0.08	C (22)	1/4
NBTR	1255	0.50	A (6)	59/96
SBL	19	0.06	A (9)	1/4
SBTR	2047	0.80	B (13)	159/288
6: Regional Road 25 & Lower Base Line W				
PM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (17)	-/-
EBLTR	87	0.29	D (41)	13/25
WBLTR	197	0.68	D (48)	38/58
NBL	16	0.05	A (10)	1/5
NBTR	2029	0.85	B (18)	199/312

SBL	9	0.07	C (30)	1/4
SBTR	1097	0.45	A (7)	59/92
6: Regional Road 25 & Lower Base Line W				
AM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (14)	-/-
EBLTR	159	0.65	D (50)	31/47
WBLTR	110	0.55	D (49)	22/38
NBL	10	0.08	C (25)	1/4
NBTR	1296	0.53	A (7)	66/106
SBL	19	0.06	A (10)	1/5
SBTR	2086	0.83	B (14)	175/303
6: Regional Road 25 & Lower Base Line W				
PM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (19)	-/-
EBLTR	128	0.42	D (42)	22/37
WBLTR	203	0.69	D (48)	40/61
NBL	16	0.05	B (11)	1/5
NBTR	2049	0.88	C (21)	218/322
SBL	9	0.08	C (34)	1/4
SBTR	1150	0.48	A (8)	66/99

Table 5: Signalized Intersection of Britannia Road & Thompson Road S

7: Thompson Rd S & Britannia Road				
AM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (17)	-/-
EBL	87	0.78	E (59)	17/37
EBTR	1249	0.42	B (11)	49/72
WBL	1	0.00	(13)	0/1
WBT	610	0.27	B (14)	30/44
WBR	43	0.06	B (12)	0/2
NBLTR	5	0.01	C (28)	0/0
SBL	239	0.64	D (38)	44/64
SBT	1	0.00	(28)	0/1
SBR	153	0.46	C (33)	0/13
7: Thompson Rd S & Britannia Road				
PM	2041 Future Background			

Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	A (7)	-/-
EBL	195	0.62	B (19)	25/82
EBTR	787	0.23	A (4)	20/30
WBL	2	0.00	(4)	0/1
WBT	1075	0.35	A (4)	30/46
WBR	180	0.18	A (3)	0/7
NBLTR	3	0.02	D (40)	0/0
SBL	64	0.35	D (44)	12/24
SBT	0	0.00	(0)	0/0
SBR	60	0.49	D (47)	2/13
7: Thompson Rd S & Britannia Road				
AM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (18)	-/-
EBL	95	0.79	E (61)	18/41
EBTR	1284	0.44	B (11)	52/77
WBL	1	0.00	(13)	0/1
WBT	662	0.30	B (14)	35/49
WBR	43	0.06	B (12)	0/2
NBLTR	5	0.01	C (28)	0/0
SBL	239	0.63	D (37)	44/64
SBT	1	0.00	(28)	0/1
SBR	166	0.49	C (34)	0/14
7: Thompson Rd S & Britannia Road				
PM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	A (8)	-/-
EBL	221	0.72	C (26)	48/56
EBTR	828	0.25	A (4)	21/33
WBL	2	0.00	(4)	0/1
WBT	1101	0.38	A (4)	33/50
WBR	180	0.18	A (3)	0/7
NBLTR	3	0.02	D (40)	0/0
SBL	64	0.35	D (44)	12/24
SBT	0	0.00	(0)	0/0
SBR	66	0.53	D (48)	4/16

Table 6: Signalized Intersection of Britannia Road & James Snow Parkway

8: Britannia Road & James Snow Pkwy	
AM	2041 Future Background

Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (19)	-/-
EBL	92	0.23	B (11)	9/18
EBT	902	0.38	B (12)	40/51
WBTR	524	0.28	B (17)	25/34
SBL	372	0.82	D (39)	68/94
SBR	123	0.31	C (25)	0/11
8: Britannia Road & James Snow Pkwy				
PM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (16)	-/-
EBL	102	0.55	C (34)	18/58
EBT	537	0.20	A (8)	18/29
WBTR	1294	0.56	B (13)	50/75
SBL	267	0.76	D (38)	50/65
SBR	106	0.35	C (30)	6/17
8: Britannia Road & James Snow Pkwy				
AM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (19)	-/-
EBL	99	0.26	B (12)	10/20
EBT	930	0.40	B (12)	43/54
WBTR	565	0.31	B (18)	29/39
SBL	372	0.82	D (38)	68/94
SBR	134	0.36	C (26)	0/12
8: Britannia Road & James Snow Pkwy				
PM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	B (16)	-/-
EBL	104	0.60	D (39)	24/46
EBT	576	0.22	A (8)	20/31
WBTR	1313	0.57	B (13)	53/80
SBL	267	0.76	D (38)	50/65
SBR	113	0.40	C (31)	9/20

Table 7: Unsignalized Intersection of Tremaine Road & Lower Base Line W

4: Tremaine Road & Lower Base Line W	
AM	2041 Future Background

Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	322	0.00	(0)	-/0
NBR	29	0.00	(0)	-/0
WBL	52	0.29	D (28)	-/8
WBR	8	0.01	B (11)	-/0
SBL	70	0.07	A (8)	-/1
SBT	455	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
PM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
NBT	473	0.00	(0)	-/0
NBR	19	0.00	(0)	-/0
WBL	40	0.17	C (21)	-/4
WBR	48	0.11	B (13)	-/3
SBL	45	0.05	A (9)	-/1
SBT	236	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
AM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (3)	#VALUE!
NBT	334	0.00	(0)	-/0
NBR	55	0.00	(0)	-/0
WBL	67	0.43	E (39)	-/14
WBR	13	0.02	B (11)	-/1
SBL	85	0.09	A (9)	-/2
SBT	472	0.00	A (0)	-/0
4: Tremaine Road & Lower Base Line W				
PM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (4)	#VALUE!
NBT	488	0.00	(0)	-/0
NBR	39	0.00	(0)	-/0
WBL	74	0.35	D (27)	-/11
WBR	67	0.16	B (13)	-/4
SBL	52	0.06	A (9)	-/1
SBT	244	0.00	A (0)	-/0

Table 8: Unsignalized Intersection of Lower Base Line W & First Line

5: Lower Base Line W & First Line				
AM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (6)	#VALUE!
EBL	3	0.00	A (7)	-/0
EBT	99	0.00	A (0)	-/0
WBT	11	0.00	(0)	-/0
WBR	89	0.00	(0)	-/0
SBLR	252	0.31	B (11)	-/9
5: Lower Base Line W & First Line				
PM	2041 Future Background			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (2)	#VALUE!
EBL	4	0.00	A (8)	-/0
EBT	65	0.00	A (0)	-/0
WBT	73	0.00	(0)	-/0
WBR	198	0.00	(0)	-/0
SBLR	89	0.13	B (11)	-/3
5: Lower Base Line W & First Line				
AM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (7)	#VALUE!
EBL	27	0.02	A (8)	-/1
EBT	111	0.00	A (0)	-/0
WBT	57	0.00	(0)	-/0
WBR	203	0.00	(0)	-/0
SBLR	294	0.46	B (15)	-/17
5: Lower Base Line W & First Line				
PM	2041 Future Total			
Mvmt	Vol	V/C	LOS (Delay)	Queues (50/95)
Overall	-	-	- (5)	#VALUE!
EBL	16	0.01	A (8)	-/0
EBT	114	0.00	A (0)	-/0
WBT	94	0.00	(0)	-/0
WBR	249	0.00	(0)	-/0
SBLR	253	0.42	B (15)	-/15

Junctions 8															
ARCADY 8 Lite															
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2026															
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Filename: FB2039 - v3.arc8

Path: F:\24276\April 2026 TIS Resubmission\Traffic\Roundabout\FB\FB2041

Report generation date: 2026-04-23 1:15:14 PM

Summary of intersection performance

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Background - 2041																
Leg 1 WB	0.19	~1	1.90	0.16	A	2.49	A	93 % [Leg 3 EB]	0.41	~1	2.34	0.29	A	2.18	A	123 % [Leg 1 WB]
Leg 2 SB	0.69	~1	2.53	0.40	A				0.34	~1	2.10	0.25	A			
Leg 3 EB	0.49	1.01	2.85	0.33	A				0.16	~1	1.87	0.13	A			
Leg 4 NB	0.30	~1	2.39	0.23	A				0.43	~1	2.23	0.30	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - 2041, AM Peak" model duration: 7:45 AM - 8:45 AM

"D2 - 2041, PM Peak" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2026-04-23 1:15:11 PM

File summary

Title	(untitled)
Date	2024-04-05
Version	
Status	(new file)
Client	
Analyst	anatolek
Description	

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Future Background - 2041, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Background	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2041	AM Peak	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	3.0
2 SB	2 SB	Tremaine Rd	4.0
3 EB	3 EB	Britannia Rd	1.0
4 NB	4 NB	Tremaine Rd	4.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

	To				
From		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	98.000	90.000	146.000
	2 SB	222.000	0.000	144.000	545.000
	3 EB	298.000	277.000	0.000	8.000
	4 NB	128.000	288.000	9.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
334.00	0.93	SecondQuarter
911.00	0.93	SecondQuarter
583.00	0.93	SecondQuarter
425.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.16	1.90	0.19	~1	A
2 SB	0.40	2.53	0.69	~1	A
3 EB	0.33	2.85	0.49	1.01	A
4 NB	0.23	2.39	0.30	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.49	A	93	Leg 3 EB

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	317.24	316.60	543.77	0.00	2360.09	0.134	0.16	1.814	A
2 SB	865.29	863.07	232.23	0.00	2481.96	0.349	0.55	2.310	A

3 EB	553.75	552.19	865.04	0.00	1987.04	0.279	0.39	2.532	A
4 NB	403.67	402.69	754.93	0.00	2099.73	0.192	0.25	2.205	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	359.14	359.02	616.85	0.00	2304.42	0.156	0.19	1.905	A
2 SB	979.57	979.05	263.35	0.00	2458.87	0.398	0.69	2.530	A
3 EB	626.88	626.46	981.23	0.00	1903.18	0.329	0.49	2.848	A
4 NB	456.99	456.77	856.45	0.00	2024.81	0.226	0.30	2.387	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	342.38	342.43	588.54	0.00	2325.98	0.147	0.18	1.871	A
2 SB	933.86	934.06	251.18	0.00	2467.90	0.378	0.64	2.442	A
3 EB	597.63	597.79	936.09	0.00	1935.76	0.309	0.45	2.719	A
4 NB	435.66	435.75	817.21	0.00	2053.77	0.212	0.28	2.315	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	317.24	317.31	545.40	0.00	2358.84	0.134	0.16	1.815	A
2 SB	865.29	865.59	232.76	0.00	2481.57	0.349	0.56	2.316	A
3 EB	553.75	553.99	867.48	0.00	1985.29	0.279	0.39	2.542	A
4 NB	403.67	403.80	757.32	0.00	2097.96	0.192	0.25	2.209	A

Future Background - 2041, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Background	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2041	PM Peak	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	0.0
2 SB	2 SB	Tremaine Rd	1.0
3 EB	3 EB	Britannia Rd	0.0
4 NB	4 NB	Tremaine Rd	1.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

--	--

		To			
		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	182.000	281.000	127.000
	2 SB	156.000	0.000	173.000	218.000
	3 EB	79.000	190.000	0.000	10.000
	4 NB	97.000	527.000	17.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
590.00	0.93	SecondQuarter
547.00	0.93	SecondQuarter
279.00	0.93	SecondQuarter
641.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.29	2.34	0.41	~1	A
2 SB	0.25	2.10	0.34	~1	A
3 EB	0.13	1.87	0.16	~1	A
4 NB	0.30	2.23	0.43	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.18	A	123	Leg 1 WB

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	560.39	559.07	695.62	0.00	2244.42	0.250	0.33	2.133	A
2 SB	519.55	518.41	402.72	0.00	2355.44	0.221	0.29	1.978	A
3 EB	265.00	264.47	474.80	0.00	2268.73	0.117	0.13	1.795	A
4 NB	608.84	607.43	402.84	0.00	2359.59	0.258	0.35	2.073	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	634.41	634.09	788.93	0.00	2173.35	0.292	0.41	2.338	A
2 SB	588.17	587.94	456.76	0.00	2315.33	0.254	0.34	2.104	A
3 EB	300.00	299.91	538.48	0.00	2222.76	0.135	0.16	1.871	A
4 NB	689.25	688.95	456.83	0.00	2319.74	0.297	0.43	2.229	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	604.80	604.93	752.54	0.00	2201.07	0.275	0.38	2.257	A
2 SB	560.72	560.81	435.75	0.00	2330.92	0.241	0.32	2.055	A
3 EB	286.00	286.04	513.66	0.00	2240.68	0.128	0.15	1.840	A
4 NB	657.08	657.20	435.72	0.00	2335.32	0.281	0.40	2.168	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	560.39	560.58	697.36	0.00	2243.10	0.250	0.33	2.139	A
2 SB	519.55	519.69	403.81	0.00	2354.63	0.221	0.29	1.982	A
3 EB	265.00	265.06	475.99	0.00	2267.86	0.117	0.13	1.796	A
4 NB	608.84	609.01	403.77	0.00	2358.90	0.258	0.35	2.077	A

Junctions 8																
ARCADY 8 Lite																
Version: 8.0.6.541 [19821,26/11/2015] © Copyright TRL Limited, 2026																
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Filename: FT2039 - v3.arc8

Path: F:\24276\April 2026 TIS Resubmission\Traffic\Roundabout\FT\FT2041

Report generation date: 2026-04-23 1:35:57 PM

Summary of intersection performance

	AM Peak								PM Peak							
	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity	Queue (PCE)	95% Queue (PCE)	Delay (s)	V/C Ratio	LOS	Intersection Delay (s)	Intersection LOS	Network Residual Capacity
Future Total - 2041																
Leg 1 WB	0.28	~1	2.17	0.20	A	2.85	A	72 % [Leg 3 EB]	0.58	1.02	2.68	0.36	A	2.40	A	96 % [Leg 1 WB]
Leg 2 SB	0.93	~1	2.97	0.47	A				0.42	~1	2.32	0.29	A			
Leg 3 EB	0.60	1.01	3.25	0.37	A				0.17	~1	1.95	0.15	A			
Leg 4 NB	0.35	~1	2.63	0.25	A				0.48	1.01	2.37	0.32	A			

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle. Intersection LOS and Intersection Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

"D1 - 2041, AM Peak" model duration: 7:45 AM - 8:45 AM

"D2 - 2041, PM Peak" model duration: 4:45 PM - 5:45 PM

Run using Junctions 8.0.6.541 at 2026-04-23 1:35:54 PM

File summary

Title	(untitled)
Date	2024-04-05
Version	
Status	(new file)
Client	
Analyst	anatolek
Description	

Analysis Options

Calculate Residual Capacity	Residual Capacity Criteria Type	V/C Ratio Threshold	Average Delay Threshold (s)	Queue Threshold (PCE)
✓	Delay	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCE	PCE	perHour	s	-Min	perMin

Future Total - 2041, AM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2041	AM Peak	PHF	07:45	08:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	11.0
2 SB	2 SB	Tremaine Rd	8.0
3 EB	3 EB	Britannia Rd	1.0
4 NB	4 NB	Tremaine Rd	4.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

	To				
		1 WB	2 SB	3 EB	4 NB
From	1 WB	0.000	173.000	100.000	152.000
	2 SB	347.000	0.000	144.000	567.000
	3 EB	330.000	277.000	0.000	13.000
	4 NB	134.000	299.000	10.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
425.00	0.93	SecondQuarter
1058.00	0.93	SecondQuarter
620.00	0.93	SecondQuarter
443.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.20	2.17	0.28	~1	A
2 SB	0.47	2.97	0.93	~1	A
3 EB	0.37	3.25	0.60	1.01	A
4 NB	0.25	2.63	0.35	~1	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.85	A	72	Leg 3 EB

Main Results for each time segment

Main results: (07:45-08:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	403.67	402.76	555.00	0.00	2351.53	0.172	0.23	2.049	A
2 SB	1004.91	1001.96	248.28	0.00	2470.05	0.407	0.74	2.642	A

3 EB	588.89	587.06	1009.63	0.00	1882.68	0.313	0.46	2.803	A
4 NB	420.77	419.66	903.37	0.00	1990.17	0.211	0.28	2.383	A

Main results: (08:00-08:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	456.99	456.81	629.66	0.00	2294.66	0.199	0.28	2.174	A
2 SB	1137.63	1136.85	281.61	0.00	2445.32	0.465	0.93	2.970	A
3 EB	666.67	666.10	1145.49	0.00	1784.61	0.374	0.60	3.249	A
4 NB	476.34	476.07	1025.00	0.00	1900.41	0.251	0.35	2.628	A

Main results: (08:15-08:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	435.66	435.73	600.88	0.00	2316.59	0.188	0.26	2.125	A
2 SB	1084.54	1084.84	268.62	0.00	2454.96	0.442	0.86	2.837	A
3 EB	635.56	635.78	1093.03	0.00	1822.48	0.349	0.54	3.066	A
4 NB	454.11	454.22	978.25	0.00	1934.91	0.235	0.32	2.530	A

Main results: (08:30-08:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	403.67	403.78	556.85	0.00	2350.12	0.172	0.23	2.054	A
2 SB	1004.91	1005.37	248.92	0.00	2469.58	0.407	0.74	2.657	A
3 EB	588.89	589.21	1012.94	0.00	1880.29	0.313	0.46	2.818	A
4 NB	420.77	420.93	906.60	0.00	1987.79	0.212	0.28	2.391	A

Future Total - 2041, PM Peak

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Network Flow Scaling Factor (%)	Use Second Intercept Adjustment
Future Total	ARCADY		100.000	

Demand Set Details

Year	Time of day	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only
2041	PM Peak	PHF	16:45	17:45	60	15	

Roundabout details

Legs

Leg	Leg	Name	Truck Proportion
1 WB	1 WB	Britannia Rd	2.0
2 SB	2 SB	Tremaine Rd	4.0
3 EB	3 EB	Britannia Rd	0.0
4 NB	4 NB	Tremaine Rd	1.0

Capacity Options

Leg	Minimum Capacity (PCE/hr)	Maximum Capacity (PCE/hr)	Percentage Intercept Adjustment (%)	Percentage Intercept Adjustment2 (%)	Final Slope	Final Intercept (PCE/hr)
1 WB	0.00	99999.00	100.00	100.00	0.762	2774.274
2 SB	0.00	99999.00	100.00	100.00	0.742	2654.317
3 EB	0.00	99999.00	100.00	100.00	0.722	2611.439
4 NB	0.00	99999.00	100.00	100.00	0.738	2656.898

Roundabout Geometry

Leg	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
1 WB	7.10	9.10	17.00	25.00	60.00	12.50	
2 SB	6.90	8.70	13.00	38.00	60.00	15.00	
3 EB	6.90	9.40	12.00	20.00	60.00	22.50	
4 NB	7.30	8.50	18.00	38.00	60.00	20.00	

Traffic Demand

Turning Counts / Proportions (PCE/hr) - Roundabout 1 (for whole period)

--	--

		To			
From		1 WB	2 SB	3 EB	4 NB
	1 WB	0.000	275.000	319.000	130.000
	2 SB	215.000	0.000	173.000	228.000
	3 EB	94.000	190.000	0.000	12.000
	4 NB	99.000	554.000	22.000	0.000

PHF details

Hourly Volume (PCE/hr)	Peak Hour Factor	Peak Time Segment
724.00	0.93	SecondQuarter
616.00	0.93	SecondQuarter
296.00	0.93	SecondQuarter
675.00	0.93	SecondQuarter

Results

Results Summary for whole modelled period

Leg	Max V/C Ratio	Max Delay (s)	Max Queue (PCE)	Max 95th percentile Queue (PCE)	Max LOS
1 WB	0.36	2.68	0.58	1.02	A
2 SB	0.29	2.32	0.42	~1	A
3 EB	0.15	1.95	0.17	~1	A
4 NB	0.32	2.37	0.48	1.01	A

Roundabout performance

Driving Side	Name	Intersection Delay (s)	Intersection LOS	Network Residual Capacity (%)	First Leg Reaching Threshold
Right	untitled	2.40	A	96	Leg 1 WB

Main Results for each time segment

Main results: (16:45-17:00)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	687.67	685.85	725.87	0.00	2221.38	0.310	0.46	2.388	A
2 SB	585.09	583.69	446.18	0.00	2323.18	0.252	0.35	2.150	A
3 EB	281.15	280.57	542.92	0.00	2219.56	0.127	0.14	1.856	A
4 NB	641.13	639.58	472.92	0.00	2307.87	0.278	0.39	2.177	A

Main results: (17:00-17:15)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	778.49	778.01	823.28	0.00	2147.18	0.363	0.58	2.682	A
2 SB	662.37	662.06	506.14	0.00	2278.69	0.291	0.42	2.315	A
3 EB	318.28	318.17	615.82	0.00	2166.93	0.147	0.17	1.947	A
4 NB	725.81	725.45	536.35	0.00	2261.05	0.321	0.48	2.367	A

Main results: (17:15-17:30)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	742.16	742.35	785.36	0.00	2176.06	0.341	0.53	2.561	A
2 SB	631.46	631.57	482.94	0.00	2295.90	0.275	0.40	2.251	A
3 EB	303.43	303.47	587.49	0.00	2187.38	0.139	0.16	1.909	A
4 NB	691.94	692.07	511.60	0.00	2279.32	0.304	0.44	2.292	A

Main results: (17:30-17:45)

Leg	Total Demand (PCE/hr)	Entry Flow (PCE/hr)	Circulating Flow (PCE/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCE/hr)	V/C Ratio	End Queue (PCE)	Delay (s)	LOS
1 WB	687.67	687.95	727.78	0.00	2219.92	0.310	0.46	2.396	A
2 SB	585.09	585.27	447.55	0.00	2322.17	0.252	0.35	2.157	A
3 EB	281.15	281.21	544.43	0.00	2218.47	0.127	0.15	1.857	A
4 NB	641.13	641.34	474.08	0.00	2307.00	0.278	0.39	2.184	A

Queues

2: First Line/Bronte St. S & Britannia Road

2041 Future Total
Weekday AM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  			 		 	
Traffic Volume (vph)	147	673	139	158	412	60	77	86	110	221	88
Future Volume (vph)	147	673	139	158	412	60	77	86	110	221	88
Lane Group Flow (vph)	162	740	153	174	453	66	85	169	121	243	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.38	0.45	0.25	0.69	0.27	0.10	0.30	0.30	0.28	0.34	0.16
Control Delay (s/veh)	16.8	25.2	4.6	32.4	22.9	2.4	28.6	20.4	25.5	25.5	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.8	25.2	4.6	32.4	22.9	2.4	28.6	20.4	25.5	25.5	5.2
LOS	B	C	A	C	C	A	C	C	C	C	A
Approach Delay (s/veh)		20.9			23.3			23.2		21.3	
Approach LOS		C			C			C		C	
Queue Length 50th (m)	17.6	48.0	0.0	23.1	27.2	0.0	16.6	18.6	17.7	35.3	0.0
Queue Length 95th (m)	29.8	61.2	13.9	#44.9	36.9	4.7	m32.5	m34.3	32.4	55.1	10.6
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	432	1662	617	251	1662	651	280	557	426	705	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.45	0.25	0.69	0.27	0.10	0.30	0.30	0.28	0.34	0.16

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.69

Intersection Signal Delay (s/veh): 21.9

Intersection LOS: C

Intersection Capacity Utilization 67.7%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1 11 s	#2  Ø2 (R) 47 s	#2  Ø4 47 s
#2  Ø5 11 s	#2  Ø6 (R) 47 s	#2  Ø8 47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2041 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	673	139	158	412	60	77	86	67	110	221	88
Future Volume (veh/h)	147	673	139	158	412	60	77	86	67	110	221	88
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		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	1841	1826	1648	1500	1826	1856	1322	1900	1085	1841	1900	1826
Adj Flow Rate, veh/h	162	740	153	174	453	66	85	95	74	121	243	97
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	5	17	27	5	3	39	0	55	4	0	5
Cap, veh/h	456	1678	535	292	1678	602	274	368	286	433	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4382	1397	1428	4382	1572	735	990	771	1197	1900	1528
Grp Volume(v), veh/h	162	740	153	174	453	66	85	0	169	121	243	97
Grp Sat Flow(s),veh/h/ln	1753	1461	1397	1428	1461	1572	735	0	1761	1197	1900	1528
Q Serve(g_s), s	5.9	13.2	8.0	7.0	7.5	2.8	9.9	0.0	7.0	8.2	9.7	4.5
Cycle Q Clear(g_c), s	5.9	13.2	8.0	7.0	7.5	2.8	19.6	0.0	7.0	15.2	9.7	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.44	1.00		1.00
Lane Grp Cap(c), veh/h	456	1678	535	292	1678	602	274	0	654	433	706	567
V/C Ratio(X)	0.36	0.44	0.29	0.60	0.27	0.11	0.31	0.00	0.26	0.28	0.34	0.17
Avail Cap(c_a), veh/h	456	1678	535	292	1678	602	274	0	654	433	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	24.1	22.5	20.9	22.3	20.9	30.8	0.0	22.9	28.2	23.8	22.1
Incr Delay (d2), s/veh	2.2	0.8	1.3	8.6	0.4	0.4	2.9	0.0	1.0	1.6	1.3	0.7
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	1.1	2.1	1.4	1.6	1.2	0.5	1.2	0.0	1.5	1.4	2.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.0	24.9	23.8	29.5	22.7	21.2	33.8	0.0	23.9	29.8	25.1	22.8
LnGrp LOS	C	C	C	C	C	C	C		C	C	C	C
Approach Vol, veh/h	1055				693			254			461	
Approach Delay, s/veh	24.0				24.3			27.2			25.9	
Approach LOS	C				C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	0.0	0.0		21.6	0.0	0.0		17.2				
Green Ext Time (p_c), s	0.0	0.0		1.7	0.0	0.0		2.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	24.8											
HCM 6th LOS	C											

Queues

3: Regional Road 25 & Britannia Road

2041 Future Total

Weekday AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	724	259	258	386	89	106	781	180	240	1451	199
Future Volume (vph)	111	724	259	258	386	89	106	781	180	240	1451	199
Lane Group Flow (vph)	114	746	267	266	398	92	109	805	186	247	1496	205
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	15.0	48.0	48.0	16.0	49.0	49.0	11.0	55.0	55.0	21.0	65.0	65.0
Total Split (%)	10.7%	34.3%	34.3%	11.4%	35.0%	35.0%	7.9%	39.3%	39.3%	15.0%	46.4%	46.4%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	10.1	39.5	39.5	12.0	42.4	42.4	7.0	49.1	49.1	15.2	57.3	57.3
Actuated g/C Ratio	0.07	0.28	0.28	0.09	0.30	0.30	0.05	0.35	0.35	0.11	0.41	0.41
v/c Ratio	0.57	0.91	0.51	0.97	0.32	0.17	0.70	0.67	0.30	0.70	1.00	0.30
Control Delay (s/veh)	74.1	65.3	24.7	111.4	38.8	2.5	88.9	42.4	9.2	71.2	64.6	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	74.1	65.3	24.7	111.4	38.8	2.5	88.9	42.4	9.2	71.2	64.6	12.3
LOS	E	E	C	F	D	A	F	D	A	E	E	B
Approach Delay (s/veh)		56.5			59.9			41.4			59.9	
Approach LOS		E			E			D			E	
Queue Length 50th (m)	18.7	130.3	32.1	40.4	39.3	0.0	16.7	105.1	6.6	35.4	~211.8	14.7
Queue Length 95th (m)	30.8	#175.0	60.6	#69.8	51.8	5.2	#31.2	130.8	25.1	49.8	#263.6	33.2
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	218	816	526	273	1232	546	155	1195	627	395	1495	692
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.91	0.51	0.97	0.32	0.17	0.70	0.67	0.30	0.63	1.00	0.30

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay (s/veh): 55.0

Intersection LOS: D

Intersection Capacity Utilization 102.8%

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: 3: Regional Road 25 & Britannia Road

#3 Ø1 21 s	#3 Ø2 55 s	#3 Ø3 16 s	#3 Ø4 (R) 48 s
#3 Ø5 11 s	#3 Ø6 65 s	#3 Ø7 15 s	#3 Ø8 (R) 49 s

HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2041 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	724	259	258	386	89	106	781	180	240	1451	199
Future Volume (veh/h)	111	724	259	258	386	89	106	781	180	240	1451	199
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		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	1574	1826	1841	1811	1722	1811	1767	1811	1811	1841	1841	1841
Adj Flow Rate, veh/h	114	746	267	266	398	92	109	805	186	247	1496	205
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
Percent Heavy Veh, %	22	5	4	6	12	6	9	6	6	4	4	4
Cap, veh/h	155	826	441	287	1302	483	161	1268	566	306	1507	630
Arrive On Green	0.05	0.28	0.28	0.09	0.32	0.32	0.05	0.37	0.37	0.09	0.41	0.41
Sat Flow, veh/h	2908	2921	1558	3346	4133	1533	3264	3441	1535	3401	3681	1540
Grp Volume(v), veh/h	114	746	267	266	398	92	109	805	186	247	1496	205
Grp Sat Flow(s),veh/h/ln	1454	1461	1558	1673	1378	1533	1632	1721	1535	1700	1841	1540
Q Serve(g_s), s	5.4	34.4	20.8	11.1	10.2	6.1	4.6	27.0	12.2	10.0	56.6	12.7
Cycle Q Clear(g_c), s	5.4	34.4	20.8	11.1	10.2	6.1	4.6	27.0	12.2	10.0	56.6	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	155	826	441	287	1302	483	161	1268	566	306	1507	630
V/C Ratio(X)	0.73	0.90	0.61	0.93	0.31	0.19	0.68	0.63	0.33	0.81	0.99	0.33
Avail Cap(c_a), veh/h	228	826	441	287	1302	483	163	1268	566	413	1507	630
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.3	48.3	43.4	63.6	36.3	34.9	65.5	36.4	31.8	62.5	41.1	28.2
Incr Delay (d2), s/veh	6.5	15.0	6.1	34.5	0.6	0.9	10.5	1.0	0.3	8.3	21.4	0.3
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	1.7	10.0	6.1	4.9	2.3	1.6	1.7	7.2	2.9	3.6	19.2	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	71.8	63.4	49.5	98.1	36.9	35.8	76.0	37.5	32.1	70.8	62.6	28.5
LnGrp LOS	E	E	D	F	D	D	E	D	C	E	E	C
Approach Vol, veh/h		1127			756			1100			1948	
Approach Delay, s/veh		61.0			58.3			40.4			60.0	
Approach LOS		E			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	59.3	16.0	48.1	10.9	65.0	11.5	52.6				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	17.0	47.3	12.0	39.5	7.0	57.3	11.0	* 42				
Max Q Clear Time (g_c+I1), s	12.0	29.0	13.1	36.4	6.6	58.6	7.4	12.2				
Green Ext Time (p_c), s	0.6	6.7	0.0	1.3	0.0	0.0	0.2	2.3				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	55.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	13	334	55	85	472
Future Vol, veh/h	67	13	334	55	85	472
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	79	15	393	65	100	555
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1181	426	0	0	458	0
Stage 1	426	-	-	-	-	-
Stage 2	755	-	-	-	-	-
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	212	633	-	-	1114	-
Stage 1	663	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	184	633	-	-	1114	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	577	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctrl Dly, s/v	34	0	1.3			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	184	633	1114	-
HCM Lane V/C Ratio	-	-	0.428	0.024	0.09	-
HCM Ctrl Dly (s/v)	-	-	38.5	10.8	8.6	0
HCM Lane LOS	-	-	E	B	A	A
HCM 95th %tile Q (veh)	-	-	2	0.1	0.3	-

Intersection

Int Delay, s/veh 6.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	27	111	57	203	230	64
Future Vol, veh/h	27	111	57	203	230	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	29	118	61	216	245	68

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	277	0	0 345 169
Stage 1	-	-	- 169 -
Stage 2	-	-	- 176 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1298	-	- 654 880
Stage 1	-	-	- 863 -
Stage 2	-	-	- 857 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1298	-	- 638 880
Mov Cap-2 Maneuver	-	-	- 638 -
Stage 1	-	-	- 842 -
Stage 2	-	-	- 857 -

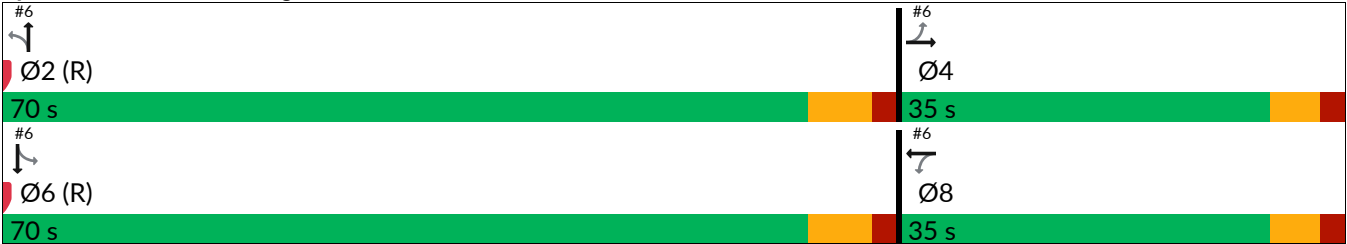
Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1.5	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1298	-	-	-	679
HCM Lane V/C Ratio	0.022	-	-	-	0.461
HCM Ctrl Dly (s/v)	7.8	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0.1	-	-	-	2.4

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	27	99	73	27	10	1208	19	2063
Future Volume (vph)	27	99	73	27	10	1208	19	2063
Lane Group Flow (vph)	0	167	0	116	11	1365	20	2196
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		17.4		17.4	74.6	74.6	74.6	74.6
Actuated g/C Ratio		0.17		0.17	0.71	0.71	0.71	0.71
v/c Ratio		0.57		0.70	0.16	0.58	0.09	0.91
Control Delay (s/veh)		45.5		60.3	13.0	9.3	7.4	20.8
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		45.5		60.3	13.0	9.3	7.4	20.8
LOS		D		E	B	A	A	C
Approach Delay (s/veh)		45.5		60.3		9.3		20.7
Approach LOS		D		E		A		C
Queue Length 50th (m)		30.5		21.7	0.6	65.6	1.1	174.7
Queue Length 95th (m)		47.4		38.1	4.3	106.3	4.6	#302.8
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		482		274	70	2356	213	2416
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.35		0.42	0.16	0.58	0.09	0.91
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.91								
Intersection Signal Delay (s/veh): 18.9				Intersection LOS: B				
Intersection Capacity Utilization 86.7%				ICU Level of Service E				
Analysis Period (min) 15								

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

Splits and Phases: 6: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

2041 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	99	33	73	27	10	10	1208	88	19	2063	23
Future Volume (veh/h)	27	99	33	73	27	10	10	1208	88	19	2063	23
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	1900	1900	1900	1752	1900	1159	1900	1781	1811	1900	1811	1900
Adj Flow Rate, veh/h	28	104	35	77	28	11	11	1272	93	20	2172	24
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	8	6	0	6	0
Cap, veh/h	65	148	46	146	49	14	131	2415	176	308	2632	29
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.76	0.76	0.76	0.76	0.76	0.76
Sat Flow, veh/h	207	1219	378	736	402	119	180	3198	233	405	3486	38
Grp Volume(v), veh/h	167	0	0	116	0	0	11	672	693	20	1070	1126
Grp Sat Flow(s),veh/h/ln	1804	0	0	1257	0	0	180	1692	1739	405	1721	1804
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	4.4	16.9	17.0	2.2	42.3	42.7
Cycle Q Clear(g_c), s	9.3	0.0	0.0	9.8	0.0	0.0	47.2	16.9	17.0	19.3	42.3	42.7
Prop In Lane	0.17		0.21	0.66		0.09	1.00		0.13	1.00		0.02
Lane Grp Cap(c), veh/h	259	0	0	209	0	0	131	1278	1313	308	1299	1362
V/C Ratio(X)	0.65	0.00	0.00	0.55	0.00	0.00	0.08	0.53	0.53	0.06	0.82	0.83
Avail Cap(c_a), veh/h	527	0	0	428	0	0	131	1278	1313	308	1299	1362
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	0.0	0.0	44.6	0.0	0.0	23.8	5.2	5.2	9.2	8.3	8.4
Incr Delay (d2), s/veh	5.7	0.0	0.0	4.8	0.0	0.0	1.2	1.6	1.5	0.4	6.0	5.9
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	3.0	0.0	0.0	2.1	0.0	0.0	0.1	0.6	0.6	0.0	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.3	0.0	0.0	49.4	0.0	0.0	25.0	6.8	6.8	9.6	14.3	14.2
LnGrp LOS	D			D			C	A	A	A	B	B
Approach Vol, veh/h	167			116			1376			2216		
Approach Delay, s/veh	50.3			49.4			6.9			14.3		
Approach LOS	D			D			A			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	86.3			18.7			86.3			18.7		
Change Period (Y+Rc), s	7.0			6.0			7.0			6.0		
Max Green Setting (Gmax), s	63.0			29.0			63.0			29.0		
Max Q Clear Time (g_c+I1), s	0.0			11.3			0.0			11.8		
Green Ext Time (p_c), s	0.0			1.4			0.0			0.9		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	14.3											
HCM 6th LOS	B											

Queues
7: Thompson Rd S & Britannia Road

2041 Future Total
Weekday AM Peak

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	95	1282	1	662	43	3	0	239	1	166
Future Volume (vph)	95	1282	1	662	43	3	0	239	1	166
Lane Group Flow (vph)	103	1395	1	720	47	0	5	260	1	180
Turn Type	Prot	NA	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		6			8		4	
Permitted Phases			6		6	8		4		4
Detector Phase	5	2	6	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	13.0	56.0	43.0	43.0	43.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.7%	58.9%	45.3%	45.3%	45.3%	41.1%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	2.0	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	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	9.8	56.2	42.3	42.3	42.3		24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.10	0.59	0.45	0.45	0.45		0.26	0.26	0.26	0.26
v/c Ratio	0.59	0.48	0.01	0.35	0.07		0.01	0.73	0.00	0.34
Control Delay (s/veh)	55.2	12.6	19.0	19.1	0.9		0.0	43.3	22.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.2	12.6	19.0	19.1	0.9		0.0	43.3	22.0	5.5
LOS	E	B	B	B	A		A	D	C	A
Approach Delay (s/veh)		15.6		17.9					27.9	
Approach LOS		B		B					C	
Queue Length 50th (m)	18.4	52.1	0.1	34.7	0.0		0.0	43.7	0.1	0.0
Queue Length 95th (m)	#41.3	76.7	1.2	49.2	1.5		0.0	64.0	1.2	13.9
Internal Link Dist (m)		1377.1		902.8			298.9		1556.7	
Turn Bay Length (m)	90.0		60.0		50.0			200.0		
Base Capacity (vph)	182	2891	147	2082	686		524	461	640	636
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.57	0.48	0.01	0.35	0.07		0.01	0.56	0.00	0.28

Intersection Summary

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 22.5 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay (s/veh): 18.2

Intersection LOS: B

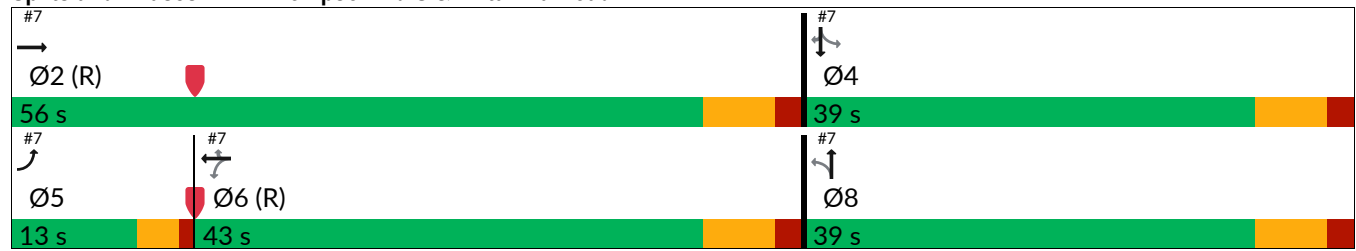
Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

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

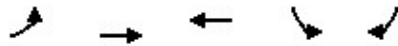
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2041 Future Total
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	95	1282	2	1	662	43	3	0	2	239	1	166
Future Volume (veh/h)	95	1282	2	1	662	43	3	0	2	239	1	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1811	1159	1900	1737	1722	1411	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	103	1393	2	1	720	47	3	0	2	260	1	180
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
Percent Heavy Veh, %	3	6	50	0	11	12	33	0	0	1	0	4
Cap, veh/h	130	3152	5	262	2382	726	239	15	129	410	445	365
Arrive On Green	0.07	0.62	0.62	0.50	0.50	0.50	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1767	5099	7	393	4742	1445	762	64	550	1424	1900	1558
Grp Volume(v), veh/h	103	901	494	1	720	47	5	0	0	260	1	180
Grp Sat Flow(s),veh/h/ln	1767	1648	1810	393	1581	1445	1376	0	0	1424	1900	1558
Q Serve(g_s), s	5.4	13.6	13.6	0.1	8.5	1.6	0.0	0.0	0.0	16.0	0.0	9.5
Cycle Q Clear(g_c), s	5.4	13.6	13.6	2.8	8.5	1.6	0.2	0.0	0.0	16.2	0.0	9.5
Prop In Lane	1.00		0.00	1.00		1.00	0.60		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	130	2038	1119	262	2382	726	383	0	0	410	445	365
V/C Ratio(X)	0.79	0.44	0.44	0.00	0.30	0.06	0.01	0.00	0.00	0.63	0.00	0.49
Avail Cap(c_a), veh/h	167	2038	1119	262	2382	726	522	0	0	556	640	525
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	9.5	9.5	13.1	13.9	12.2	27.9	0.0	0.0	34.0	27.9	31.5
Incr Delay (d2), s/veh	17.4	0.7	1.3	0.0	0.3	0.2	0.0	0.0	0.0	3.4	0.0	2.2
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	2.1	0.2	0.4	0.0	0.6	0.1	0.0	0.0	0.0	3.2	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.7	10.2	10.8	13.2	14.2	12.3	28.0	0.0	0.0	37.4	27.9	33.7
LnGrp LOS	E	B	B		B	B	C			D		C
Approach Vol, veh/h		1498			768			5			441	
Approach Delay, s/veh		13.9			14.1			28.0			35.9	
Approach LOS		B			B			C			D	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		65.7		29.3	11.0	54.7		29.3				
Change Period (Y+Rc), s		7.0		7.0	4.0	7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0	9.0	36.0		32.0				
Max Q Clear Time (g_c+l1), s		15.6		18.2	7.4	10.5		2.2				
Green Ext Time (p_c), s		21.5		3.8	0.1	10.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				17.5								
HCM 6th LOS				B								

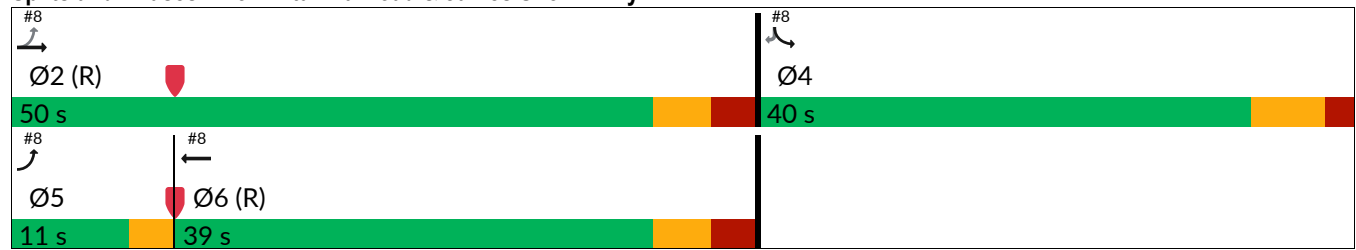


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↰
Traffic Volume (vph)	99	930	469	372	134
Future Volume (vph)	99	930	469	372	134
Lane Group Flow (vph)	114	1069	649	428	154
Turn Type	pm+pt	NA	NA	Prot	Perm
Protected Phases	5	2	6	4	
Permitted Phases	2				4
Detector Phase	5	2	6	4	4
Switch Phase					
Minimum Initial (s)	7.0	25.0	25.0	15.0	15.0
Minimum Split (s)	10.0	39.0	39.0	39.0	39.0
Total Split (s)	11.0	50.0	39.0	40.0	40.0
Total Split (%)	12.2%	55.6%	43.3%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	5.0	5.0
All-Red Time (s)	0.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
Act Effect Green (s)	51.0	47.0	38.3	29.0	29.0
Actuated g/C Ratio	0.57	0.52	0.43	0.32	0.32
v/c Ratio	0.29	0.42	0.34	0.80	0.28
Control Delay (s/veh)	12.4	14.4	18.0	39.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	12.4	14.4	18.0	39.4	4.9
LOS	B	B	B	D	A
Approach Delay (s/veh)		14.2	18.0	30.3	
Approach LOS		B	B	C	
Queue Length 50th (m)	10.3	42.6	28.8	67.8	0.0
Queue Length 95th (m)	20.2	54.3	38.9	94.3	12.0
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	397	2555	1911	609	602
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.29	0.42	0.34	0.70	0.26

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay (s/veh): 19.1	Intersection LOS: B
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2041 Future Total
Weekday AM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	99	930	469	96	372	134
Future Volume (veh/h)	99	930	469	96	372	134
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	1633	1811	1752	1366	1826	1663
Adj Flow Rate, veh/h	114	1069	539	110	428	154
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	18	6	10	36	5	16
Cap, veh/h	432	2692	1750	350	522	423
Arrive On Green	0.07	0.54	0.44	0.44	0.30	0.30
Sat Flow, veh/h	1555	5107	4155	799	1739	1409
Grp Volume(v), veh/h	114	1069	428	221	428	154
Grp Sat Flow(s),veh/h/ln	1555	1648	1594	1608	1739	1409
Q Serve(g_s), s	3.3	11.3	7.8	8.1	20.6	7.7
Cycle Q Clear(g_c), s	3.3	11.3	7.8	8.1	20.6	7.7
Prop In Lane	1.00			0.50	1.00	1.00
Lane Grp Cap(c), veh/h	432	2692	1396	704	522	423
V/C Ratio(X)	0.26	0.40	0.31	0.31	0.82	0.36
Avail Cap(c_a), veh/h	456	2692	1396	704	638	517
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	11.3	11.9	16.4	16.5	29.2	24.8
Incr Delay (d2), s/veh	0.2	0.4	0.6	1.2	9.2	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.8	0.9	4.8	6.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.5	12.4	17.0	17.7	38.4	25.9
LnGrp LOS	B	B	B	B	D	C
Approach Vol, veh/h		1183	649		582	
Approach Delay, s/veh		12.3	17.2		35.1	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		56.0		34.0	9.6	46.4
Change Period (Y+Rc), s		7.0		7.0	3.0	7.0
Max Green Setting (Gmax), s		43.0		33.0	8.0	32.0
Max Q Clear Time (g_c+I1), s		13.3		22.6	5.3	10.1
Green Ext Time (p_c), s		15.6		4.4	0.1	7.7
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			19.1			
HCM 6th LOS			B			

Queues

2: First Line/Bronte St. S & Britannia Road

2041 Future Total

Weekday PM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	69	414	63	75	558	89	153	228	55	85	73
Future Volume (vph)	69	414	63	75	558	89	153	228	55	85	73
Lane Group Flow (vph)	76	455	69	82	613	98	168	384	60	93	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.21	0.27	0.12	0.23	0.37	0.15	0.49	0.66	0.23	0.13	0.13
Control Delay (s/veh)	14.6	22.9	2.7	15.1	24.1	4.9	34.6	35.3	25.7	22.5	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.6	22.9	2.7	15.1	24.1	4.9	34.6	35.3	25.7	22.5	5.4
LOS	B	C	A	B	C	A	C	D	C	C	A
Approach Delay (s/veh)		19.5			20.8			35.1		17.5	
Approach LOS		B			C			D		B	
Queue Length 50th (m)	7.8	27.3	0.0	10.1	38.3	0.0	36.5	63.1	8.6	12.4	0.0
Queue Length 95th (m)	15.5	37.0	5.8	19.8	50.0	10.2	64.7	96.7	19.3	23.2	9.4
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	357	1662	580	352	1662	654	342	580	261	705	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.27	0.12	0.23	0.37	0.15	0.49	0.66	0.23	0.13	0.13

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.66

Intersection Signal Delay (s/veh): 23.7

Intersection LOS: C

Intersection Capacity Utilization 72.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2 	#2 	#2 
Ø1	Ø2 (R)	Ø4
11 s	47 s	47 s
#2 	#2 	#2 
Ø5	Ø6 (R)	Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2041 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	414	63	75	558	89	153	228	121	55	85	73
Future Volume (veh/h)	69	414	63	75	558	89	153	228	121	55	85	73
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		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	1841	1826	1648	1500	1826	1856	1322	1900	1085	1841	1900	1826
Adj Flow Rate, veh/h	76	455	69	82	613	98	168	251	133	60	93	80
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	5	17	27	5	3	39	0	55	4	0	5
Cap, veh/h	391	1678	535	383	1678	602	359	434	230	265	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4382	1397	1428	4382	1572	857	1169	619	983	1900	1528
Grp Volume(v), veh/h	76	455	69	82	613	98	168	0	384	60	93	80
Grp Sat Flow(s),veh/h/ln	1753	1461	1397	1428	1461	1572	857	0	1788	983	1900	1528
Q Serve(g_s), s	2.6	7.5	3.4	3.5	10.5	4.3	16.9	0.0	18.0	5.5	3.4	3.6
Cycle Q Clear(g_c), s	2.6	7.5	3.4	3.5	10.5	4.3	20.3	0.0	18.0	23.5	3.4	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	391	1678	535	383	1678	602	359	0	664	265	706	567
V/C Ratio(X)	0.19	0.27	0.13	0.21	0.37	0.16	0.47	0.00	0.58	0.23	0.13	0.14
Avail Cap(c_a), veh/h	391	1678	535	383	1678	602	359	0	664	265	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	22.3	21.0	17.2	23.2	21.3	28.5	0.0	26.4	35.8	21.8	21.9
Incr Delay (d2), s/veh	1.1	0.4	0.5	1.3	0.6	0.6	4.3	0.0	3.6	2.0	0.4	0.5
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	0.5	1.2	0.6	0.5	1.7	0.8	2.1	0.0	4.1	0.9	0.8	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.3	22.7	21.5	18.5	23.9	21.9	32.9	0.0	30.1	37.8	22.2	22.4
LnGrp LOS	B	C	C	B	C	C	C		C	D	C	C
Approach Vol, veh/h		600			793			552			233	
Approach Delay, s/veh		22.0			23.1			30.9			26.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	5.5	5.4		22.3	4.6	6.3		25.5				
Green Ext Time (p_c), s	0.0	0.0		3.8	0.1	0.1		1.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			25.1									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2041 Future Total
Weekday PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	456	82	167	611	251	232	1233	377	94	779	120
Future Volume (vph)	158	456	82	167	611	251	232	1233	377	94	779	120
Lane Group Flow (vph)	163	470	85	172	630	259	239	1271	389	97	803	124
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	14.0	48.0	48.0	15.0	49.0	49.0	20.0	65.0	65.0	12.0	57.0	57.0
Total Split (%)	10.0%	34.3%	34.3%	10.7%	35.0%	35.0%	14.3%	46.4%	46.4%	8.6%	40.7%	40.7%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	10.2	41.1	41.1	10.8	42.7	42.7	14.8	56.1	56.1	7.8	49.1	49.1
Actuated g/C Ratio	0.07	0.29	0.29	0.08	0.31	0.31	0.11	0.40	0.40	0.06	0.35	0.35
v/c Ratio	0.81	0.55	0.16	0.70	0.51	0.46	0.73	0.93	0.53	0.54	0.66	0.20
Control Delay (s/veh)	92.4	45.2	1.9	78.7	42.0	20.7	74.1	52.9	15.1	75.5	41.5	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	92.4	45.2	1.9	78.7	42.0	20.7	74.1	52.9	15.1	75.5	41.5	4.6
LOS	F	D	A	E	D	C	E	D	B	E	D	A
Approach Delay (s/veh)		50.8			42.8			47.8			40.2	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	27.5	72.7	0.0	25.5	66.5	27.0	35.6	181.2	33.5	14.1	101.4	0.0
Queue Length 95th (m)	#49.7	95.3	3.4	#38.9	82.7	54.6	50.9	#219.7	65.1	23.9	124.3	11.3
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	201	850	542	252	1242	557	354	1394	749	186	1228	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.55	0.16	0.68	0.51	0.46	0.68	0.91	0.52	0.52	0.65	0.20

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay (s/veh): 45.5

Intersection LOS: D

Intersection Capacity Utilization 96.8%

ICU Level of Service F

Analysis Period (min) 15

Queues

3: Regional Road 25 & Britannia Road

2041 Future Total

Weekday PM Peak

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road

 Ø1	 Ø2	 Ø3	 Ø4 (R)
12 s	65 s	15 s	48 s
 Ø5	 Ø6	 Ø7	 Ø8 (R)
20 s	57 s	14 s	49 s

HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2041 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	456	82	167	611	251	232	1233	377	94	779	120
Future Volume (veh/h)	158	456	82	167	611	251	232	1233	377	94	779	120
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		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	1574	1826	1841	1811	1722	1811	1767	1811	1811	1841	1841	1841
Adj Flow Rate, veh/h	163	470	85	172	630	259	239	1271	389	97	803	124
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
Percent Heavy Veh, %	22	5	4	6	12	6	9	6	6	4	4	4
Cap, veh/h	202	912	487	221	1276	473	293	1376	614	166	1256	553
Arrive On Green	0.07	0.31	0.31	0.07	0.31	0.31	0.09	0.40	0.40	0.05	0.36	0.36
Sat Flow, veh/h	2908	2921	1558	3346	4133	1533	3264	3441	1535	3401	3497	1540
Grp Volume(v), veh/h	163	470	85	172	630	259	239	1271	389	97	803	124
Grp Sat Flow(s),veh/h/ln	1454	1461	1558	1673	1378	1533	1632	1721	1535	1700	1749	1540
Q Serve(g_s), s	7.7	18.5	5.6	7.1	17.4	19.7	10.1	49.2	28.5	3.9	26.7	7.9
Cycle Q Clear(g_c), s	7.7	18.5	5.6	7.1	17.4	19.7	10.1	49.2	28.5	3.9	26.7	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	912	487	221	1276	473	293	1376	614	166	1256	553
V/C Ratio(X)	0.81	0.52	0.17	0.78	0.49	0.55	0.82	0.92	0.63	0.58	0.64	0.22
Avail Cap(c_a), veh/h	208	912	487	263	1276	473	373	1408	628	194	1256	553
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.2	39.4	35.0	64.4	39.5	40.2	62.6	40.0	33.8	65.2	37.3	31.3
Incr Delay (d2), s/veh	19.9	2.1	0.8	11.8	1.4	4.5	10.5	10.3	2.0	3.2	1.1	0.2
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	2.7	4.6	1.5	2.6	4.0	5.4	3.5	14.1	6.6	1.4	7.3	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	84.1	41.5	35.8	76.1	40.8	44.7	73.1	50.3	35.8	68.4	38.4	31.5
LnGrp LOS	F	D	D	E	D	D	E	D	D	E	D	C
Approach Vol, veh/h		718			1061			1899			1024	
Approach Delay, s/veh		50.5			47.5			50.2			40.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	63.7	13.2	52.2	16.6	58.0	13.7	51.7				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	8.0	57.3	11.0	39.5	16.0	49.3	10.0	* 42				
Max Q Clear Time (g_c+I1), s	5.9	51.2	9.1	20.5	12.1	28.7	9.7	19.4				
Green Ext Time (p_c), s	0.1	4.8	0.2	2.6	0.5	6.6	0.0	3.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	47.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	74	67	488	39	52	244
Future Vol, veh/h	74	67	488	39	52	244
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	87	79	574	46	61	287

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1006	597	0	0	620	0
Stage 1	597	-	-	-	-	-
Stage 2	409	-	-	-	-	-
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	270	507	-	-	970	-
Stage 1	554	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	250	507	-	-	970	-
Mov Cap-2 Maneuver	250	-	-	-	-	-
Stage 1	512	-	-	-	-	-
Stage 2	675	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	20.5	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 250 507	970	-
HCM Lane V/C Ratio	-	- 0.348 0.155	0.063	-
HCM Ctrl Dly (s/v)	-	- 26.9 13.4	9	0
HCM Lane LOS	-	- D B	A	A
HCM 95th %tile Q (veh)	-	- 1.5 0.5	0.2	-

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	114	94	249	205	48
Future Vol, veh/h	16	114	94	249	205	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	17	121	100	265	218	51

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	365	0	0 388 233
Stage 1	-	-	- 233 -
Stage 2	-	-	- 155 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1205	-	- 617 811
Stage 1	-	-	- 808 -
Stage 2	-	-	- 876 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1205	-	- 608 811
Mov Cap-2 Maneuver	-	-	- 608 -
Stage 1	-	-	- 796 -
Stage 2	-	-	- 876 -

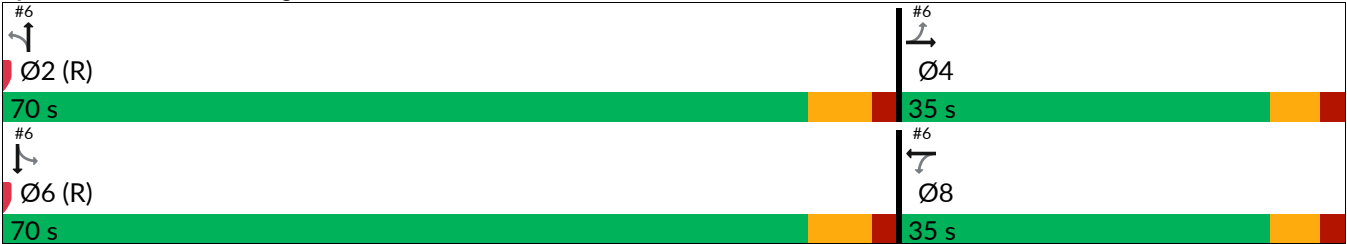
Approach	EB	WB	SB
HCM Ctrl Dly, s/v	1	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1205	-	-	-	638
HCM Lane V/C Ratio	0.014	-	-	-	0.422
HCM Ctrl Dly (s/v)	8	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	2.1

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	36	73	89	92	16	2005	9	1135
Future Volume (vph)	36	73	89	92	16	2005	9	1135
Lane Group Flow (vph)	0	135	0	214	17	2157	9	1211
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		22.6		22.6	69.4	69.4	69.4	69.4
Actuated g/C Ratio		0.22		0.22	0.66	0.66	0.66	0.66
v/c Ratio		0.39		0.74	0.07	0.98	0.13	0.54
Control Delay (s/veh)		35.2		52.3	9.1	33.8	14.0	11.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		35.2		52.3	9.1	33.8	14.0	11.3
LOS		D		D	A	C	B	B
Approach Delay (s/veh)		35.2		52.3		33.6		11.3
Approach LOS		D		D		C		B
Queue Length 50th (m)		22.1		39.7	1.2	218.0	0.6	66.0
Queue Length 95th (m)		36.7		61.2	4.5	#322.3	3.8	98.6
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		439		369	230	2203	70	2247
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.31		0.58	0.07	0.98	0.13	0.54
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.98								
Intersection Signal Delay (s/veh): 27.4				Intersection LOS: C				
Intersection Capacity Utilization 85.4%				ICU Level of Service E				
Analysis Period (min) 15								

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

Splits and Phases: 6: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

2041 Future Total
Weekday PM Peak

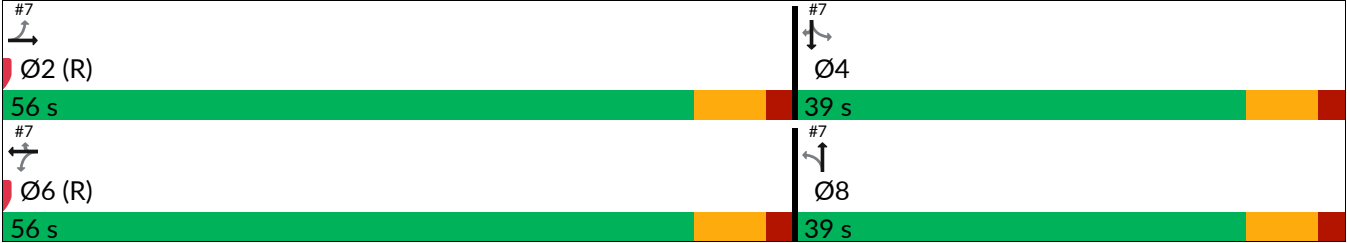
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	73	19	89	92	22	16	2005	44	9	1135	15
Future Volume (veh/h)	36	73	19	89	92	22	16	2005	44	9	1135	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1900	1900	1900	1752	1900	1159	1900	1781	1811	1900	1811	1900
Adj Flow Rate, veh/h	38	77	20	94	97	23	17	2111	46	9	1195	16
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	8	6	0	6	0
Cap, veh/h	97	180	41	153	130	28	331	2411	52	112	2475	33
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	324	1097	247	632	788	171	469	3387	74	187	3477	47
Grp Volume(v), veh/h	135	0	0	214	0	0	17	1051	1106	9	591	620
Grp Sat Flow(s),veh/h/ln	1668	0	0	1591	0	0	469	1692	1768	187	1721	1803
Q Serve(g_s), s	0.0	0.0	0.0	6.3	0.0	0.0	1.7	49.6	50.6	4.1	15.8	15.9
Cycle Q Clear(g_c), s	7.3	0.0	0.0	13.6	0.0	0.0	17.6	49.6	50.6	54.6	15.8	15.9
Prop In Lane	0.28		0.15	0.44		0.11	1.00		0.04	1.00		0.03
Lane Grp Cap(c), veh/h	318	0	0	311	0	0	331	1205	1259	112	1225	1283
V/C Ratio(X)	0.42	0.00	0.00	0.69	0.00	0.00	0.05	0.87	0.88	0.08	0.48	0.48
Avail Cap(c_a), veh/h	501	0	0	486	0	0	331	1205	1259	112	1225	1283
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	0.0	42.2	0.0	0.0	10.5	11.5	11.6	32.7	6.6	6.6
Incr Delay (d2), s/veh	1.9	0.0	0.0	5.7	0.0	0.0	0.3	8.8	8.9	1.4	1.4	1.3
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	2.1	0.0	0.0	3.7	0.0	0.0	0.1	3.0	3.1	0.1	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	41.5	0.0	0.0	47.9	0.0	0.0	10.8	20.3	20.6	34.1	8.0	7.9
LnGrp LOS	D			D			B	C	C	C	A	A
Approach Vol, veh/h		135			214			2174			1220	
Approach Delay, s/veh		41.5			47.9			20.4			8.2	
Approach LOS		D			D			C			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		81.7		23.3		81.7		23.3				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		9.3		0.0		15.6				
Green Ext Time (p_c), s		0.0		1.2		0.0		1.7				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				18.7								
HCM 6th LOS				B								

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations									
Traffic Volume (vph)	221	825	2	1101	180	1	0	64	66
Future Volume (vph)	221	825	2	1101	180	1	0	64	66
Lane Group Flow (vph)	240	900	2	1197	196	0	3	70	72
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	Perm
Protected Phases		2		6			8		
Permitted Phases	2		6		6	8		4	4
Detector Phase	2	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	30.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0
Minimum Split (s)	37.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0
Total Split (s)	56.0	56.0	56.0	56.0	56.0	39.0	39.0	39.0	39.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	73.2	73.2	73.2	73.2	73.2		12.2	12.2	12.2
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.13	0.13	0.13
v/c Ratio	0.97	0.27	0.01	0.38	0.17		0.01	0.40	0.30
Control Delay (s/veh)	69.0	4.7	4.5	5.3	1.1		0.0	43.7	19.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	69.0	4.7	4.5	5.3	1.1		0.0	43.7	19.5
LOS	E	A	A	A	A		A	D	B
Approach Delay (s/veh)		18.2		4.7					
Approach LOS		B		A					
Queue Length 50th (m)	~48.4	21.1	0.1	32.7	0.0		0.0	12.1	4.1
Queue Length 95th (m)	#56.4	32.9	0.8	49.6	6.7		0.0	24.0	15.8
Internal Link Dist (m)		1377.1		902.8			634.1		
Turn Bay Length (m)	90.0		60.0		50.0			200.0	
Base Capacity (vph)	248	3304	376	3163	1143		511	463	548
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	0.97	0.27	0.01	0.38	0.17		0.01	0.15	0.13
Intersection Summary									
Cycle Length: 95									
Actuated Cycle Length: 95									
Offset: 22.5 (24%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green									
Natural Cycle: 150									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.97									
Intersection Signal Delay (s/veh): 11.9					Intersection LOS: B				
Intersection Capacity Utilization 73.2%					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.

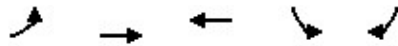
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2041 Future Total
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Traffic Volume (veh/h)	221	825	3	2	1101	180	1	0	2	64	0	66
Future Volume (veh/h)	221	825	3	2	1101	180	1	0	2	64	0	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1811	1159	1900	1737	1722	1411	1900	1900	1885	1900	1841
Adj Flow Rate, veh/h	240	897	3	2	1197	196	1	0	2	70	0	72
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
Percent Heavy Veh, %	3	6	50	0	11	12	33	0	0	1	0	4
Cap, veh/h	334	3588	12	521	3189	1109	77	19	92	201	166	136
Arrive On Green	0.77	0.77	0.77	0.77	0.77	0.77	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	385	4690	16	628	4169	1450	306	221	1053	1421	1900	1555
Grp Volume(v), veh/h	240	554	346	2	1197	196	3	0	0	70	0	72
Grp Sat Flow(s),veh/h/ln	385	1449	1808	628	1390	1450	1580	0	0	1421	1900	1555
Q Serve(g_s), s	52.0	5.3	5.3	0.1	9.0	3.5	0.0	0.0	0.0	4.3	0.0	4.2
Cycle Q Clear(g_c), s	61.0	5.3	5.3	5.4	9.0	3.5	0.2	0.0	0.0	4.4	0.0	4.2
Prop In Lane	1.00		0.01	1.00		1.00	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	334	2217	1383	521	3189	1109	189	0	0	201	166	136
V/C Ratio(X)	0.72	0.25	0.25	0.00	0.38	0.18	0.02	0.00	0.00	0.35	0.00	0.53
Avail Cap(c_a), veh/h	334	2217	1383	521	3189	1109	565	0	0	555	640	524
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.7	3.2	3.2	4.0	3.7	3.0	39.6	0.0	0.0	41.6	0.0	41.5
Incr Delay (d2), s/veh	12.6	0.3	0.4	0.0	0.3	0.3	0.1	0.0	0.0	2.2	0.0	6.7
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	1.2	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.0	1.1	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.3	3.5	3.7	4.0	4.0	3.4	39.7	0.0	0.0	43.8	0.0	48.1
LnGrp LOS	C	A	A		A	A	D			D		D
Approach Vol, veh/h		1140			1395			3			142	
Approach Delay, s/veh		8.4			3.9			39.7			46.0	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.7		15.3		79.7		15.3				
Change Period (Y+Rc), s		7.0		7.0		7.0		7.0				
Max Green Setting (Gmax), s		49.0		32.0		49.0		32.0				
Max Q Clear Time (g_c+I1), s		63.0		6.4		11.0		2.2				
Green Ext Time (p_c), s		0.0		1.4		23.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				8.1								
HCM 6th LOS				A								



Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↰
Traffic Volume (vph)	104	576	860	267	113
Future Volume (vph)	104	576	860	267	113
Lane Group Flow (vph)	120	662	1510	307	130
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		2	6	4	4
Permitted Phases	2				
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	15.0	15.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0
Total Split (s)	51.0	51.0	51.0	39.0	39.0
Total Split (%)	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
Act Effect Green (s)	52.0	52.0	52.0	24.0	24.0
Actuated g/C Ratio	0.58	0.58	0.58	0.27	0.27
v/c Ratio	1.03	0.23	0.61	0.69	0.31
Control Delay (s/veh)	120.2	10.4	12.6	37.6	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	120.2	10.4	12.6	37.6	13.2
LOS	F	B	B	D	B
Approach Delay (s/veh)		27.2	12.6	30.3	
Approach LOS		C	B	C	
Queue Length 50th (m)	~23.9	19.6	52.8	49.9	8.5
Queue Length 95th (m)	#45.8	31.4	79.8	65.3	20.0
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	116	2829	2477	590	536
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.03	0.23	0.61	0.52	0.24

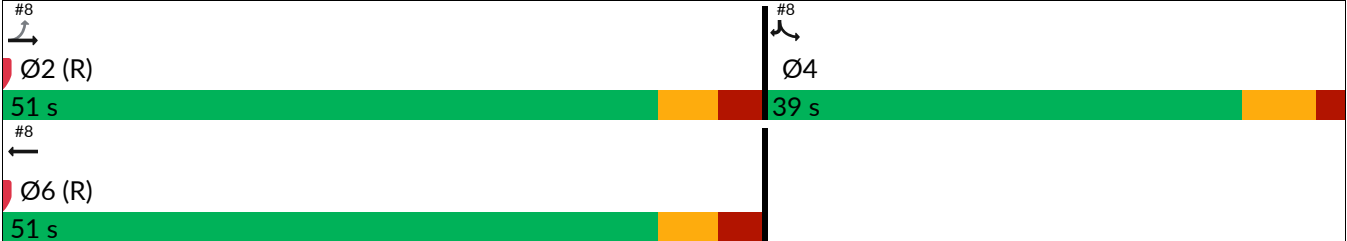
Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay (s/veh): 19.7	Intersection LOS: B
Intersection Capacity Utilization 79.9%	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: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2041 Future Total
Weekday PM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	104	576	860	453	267	113
Future Volume (veh/h)	104	576	860	453	267	113
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	1633	1811	1752	1366	1826	1663
Adj Flow Rate, veh/h	120	662	989	521	307	130
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	18	6	10	36	5	16
Cap, veh/h	201	3023	1950	908	405	328
Arrive On Green	0.61	0.61	0.61	0.61	0.23	0.23
Sat Flow, veh/h	303	5107	3346	1485	1739	1409
Grp Volume(v), veh/h	120	662	989	521	307	130
Grp Sat Flow(s),veh/h/ln	303	1648	1594	1485	1739	1409
Q Serve(g_s), s	35.4	5.4	15.7	18.9	14.8	7.0
Cycle Q Clear(g_c), s	54.3	5.4	15.7	18.9	14.8	7.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	201	3023	1950	908	405	328
V/C Ratio(X)	0.60	0.22	0.51	0.57	0.76	0.40
Avail Cap(c_a), veh/h	201	3023	1950	908	618	501
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	26.7	7.8	9.8	10.5	32.2	29.2
Incr Delay (d2), s/veh	12.3	0.2	0.9	2.6	6.1	1.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.3	0.7	3.6	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	39.0	8.0	10.8	13.1	38.2	30.8
LnGrp LOS	D	A	B	B	D	C
Approach Vol, veh/h		782	1510		437	
Approach Delay, s/veh		12.8	11.6		36.0	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.0		28.0		62.0
Change Period (Y+Rc), s		7.0		7.0		7.0
Max Green Setting (Gmax), s		44.0		32.0		44.0
Max Q Clear Time (g_c+I1), s		56.3		16.8		20.9
Green Ext Time (p_c), s		0.0		4.2		17.9
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			15.8			
HCM 6th LOS			B			

Queues

2: First Line/Bronte St. S & Britannia Road

2041 Future Background

Weekday AM Peak

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  						
Traffic Volume (vph)	147	634	54	6	401	57	27	64	103	168	88
Future Volume (vph)	147	634	54	6	401	57	27	64	103	168	88
Lane Group Flow (vph)	162	697	59	7	441	63	30	73	113	185	97
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.37	0.41	0.09	0.02	0.27	0.10	0.07	0.10	0.24	0.26	0.16
Control Delay (s/veh)	16.7	24.7	1.9	12.8	22.8	2.2	24.7	24.2	24.6	24.3	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	16.7	24.7	1.9	12.8	22.8	2.2	24.7	24.2	24.6	24.3	5.2
LOS	B	C	A	B	C	A	C	C	C	C	A
Approach Delay (s/veh)		21.8			20.1			24.3		19.7	
Approach LOS		C			C			C		B	
Queue Length 50th (m)	17.6	43.8	0.0	0.8	26.4	0.0	4.3	10.3	16.2	26.0	0.0
Queue Length 95th (m)	29.8	56.2	3.4	3.2	35.9	4.1	11.0	20.5	30.0	42.3	10.6
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	438	1694	646	286	1662	646	437	702	465	705	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.41	0.09	0.02	0.27	0.10	0.07	0.10	0.24	0.26	0.16

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.41

Intersection Signal Delay (s/veh): 21.1

Intersection LOS: C

Intersection Capacity Utilization 62.9%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

#2  Ø1	#2  Ø2 (R)	#2  Ø4
11 s	47 s	47 s
#2  Ø5	#2  Ø6 (R)	#2  Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2041 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	147	634	54	6	401	57	27	64	3	103	168	88
Future Volume (veh/h)	147	634	54	6	401	57	27	64	3	103	168	88
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		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	1841	1856	1841	1648	1826	1841	1900	1900	1900	1841	1900	1826
Adj Flow Rate, veh/h	162	697	59	7	441	63	30	70	3	113	185	97
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	4	17	5	4	0	0	0	4	0	5
Cap, veh/h	462	1705	597	341	1678	597	407	672	29	521	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4453	1560	1570	4382	1560	1115	1809	78	1306	1900	1528
Grp Volume(v), veh/h	162	697	59	7	441	63	30	0	73	113	185	97
Grp Sat Flow(s),veh/h/ln	1753	1484	1560	1570	1461	1560	1115	0	1886	1306	1900	1528
Q Serve(g_s), s	5.9	12.0	2.5	0.3	7.3	2.7	2.0	0.0	2.7	6.5	7.1	4.5
Cycle Q Clear(g_c), s	5.9	12.0	2.5	0.3	7.3	2.7	9.1	0.0	2.7	9.2	7.1	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	462	1705	597	341	1678	597	407	0	701	521	706	567
V/C Ratio(X)	0.35	0.41	0.10	0.02	0.26	0.11	0.07	0.00	0.10	0.22	0.26	0.17
Avail Cap(c_a), veh/h	462	1705	597	341	1678	597	407	0	701	521	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.8	23.7	20.8	16.7	22.2	20.8	26.2	0.0	21.6	24.6	23.0	22.1
Incr Delay (d2), s/veh	2.1	0.7	0.3	0.1	0.4	0.4	0.4	0.0	0.3	1.0	0.9	0.7
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	1.1	2.0	0.5	0.0	1.2	0.5	0.3	0.0	0.6	1.1	1.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	19.9	24.4	21.1	16.8	22.6	21.2	26.5	0.0	21.9	25.5	23.9	22.8
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		918			511			103			395	
Approach Delay, s/veh		23.4			22.4			23.2			24.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	0.0	0.0		11.1	0.0	0.0		11.2				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	0.0		2.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			23.3									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2041 Future Background
Weekday AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	681	242	258	321	89	65	776	180	240	1429	73
Future Volume (vph)	64	681	242	258	321	89	65	776	180	240	1429	73
Lane Group Flow (vph)	66	702	249	266	331	92	67	800	186	247	1473	75
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	15.0	48.0	48.0	16.0	49.0	49.0	11.0	55.0	55.0	21.0	65.0	65.0
Total Split (%)	10.7%	34.3%	34.3%	11.4%	35.0%	35.0%	7.9%	39.3%	39.3%	15.0%	46.4%	46.4%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	8.5	40.6	40.6	12.8	48.1	48.1	7.0	47.3	47.3	15.2	57.6	57.6
Actuated g/C Ratio	0.06	0.29	0.29	0.09	0.34	0.34	0.05	0.34	0.34	0.11	0.41	0.41
v/c Ratio	0.33	0.81	0.46	0.92	0.22	0.15	0.42	0.70	0.30	0.70	0.98	0.11
Control Delay (s/veh)	67.1	55.2	22.1	97.7	34.7	2.4	72.6	43.9	9.2	71.2	59.4	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	67.1	55.2	22.1	97.7	34.7	2.4	72.6	43.9	9.2	71.2	59.4	2.0
LOS	E	E	C	F	C	A	E	D	A	E	E	A
Approach Delay (s/veh)		47.8			54.7			39.6			58.6	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	9.3	116.3	26.7	40.4	29.4	0.0	9.8	104.3	6.4	35.4	206.3	0.0
Queue Length 95th (m)	17.1	146.0	53.2	#69.8	40.7	5.2	18.2	129.6	24.9	49.8	#256.8	4.6
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	260	863	546	290	1491	602	161	1169	618	395	1504	692
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.81	0.46	0.92	0.22	0.15	0.42	0.68	0.30	0.63	0.98	0.11

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay (s/veh): 51.2

Intersection LOS: D

Intersection Capacity Utilization 102.2%

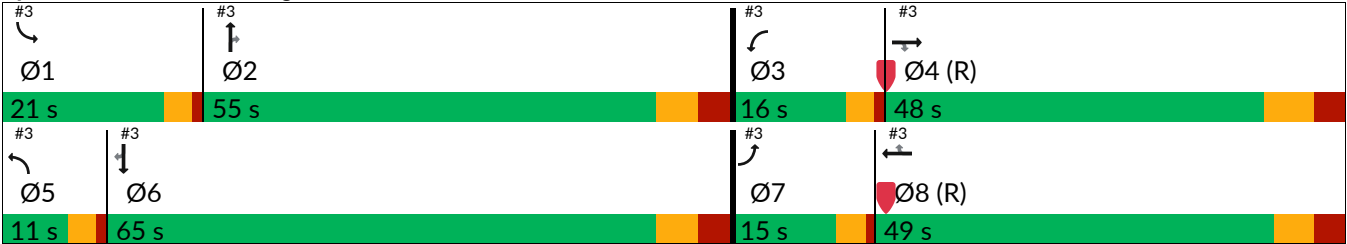
ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Regional Road 25 & Britannia Road



HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2041 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	681	242	258	321	89	65	776	180	240	1429	73
Future Volume (veh/h)	64	681	242	258	321	89	65	776	180	240	1429	73
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		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	1870	1870	1870	1811	1826	1811	1826	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	66	702	249	266	331	92	67	800	186	247	1473	75
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
Percent Heavy Veh, %	2	2	2	6	5	6	5	6	6	4	4	3
Cap, veh/h	160	856	453	287	1426	499	156	1257	561	306	1506	635
Arrive On Green	0.05	0.29	0.29	0.09	0.33	0.33	0.05	0.37	0.37	0.09	0.41	0.41
Sat Flow, veh/h	3456	2993	1583	3346	4382	1533	3374	3441	1535	3401	3681	1553
Grp Volume(v), veh/h	66	702	249	266	331	92	67	800	186	247	1473	75
Grp Sat Flow(s),veh/h/ln	1728	1496	1583	1673	1461	1533	1687	1721	1535	1700	1841	1553
Q Serve(g_s), s	2.6	30.6	18.7	11.1	7.7	6.0	2.7	26.9	12.3	10.0	55.2	4.2
Cycle Q Clear(g_c), s	2.6	30.6	18.7	11.1	7.7	6.0	2.7	26.9	12.3	10.0	55.2	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	160	856	453	287	1426	499	156	1257	561	306	1506	635
V/C Ratio(X)	0.41	0.82	0.55	0.93	0.23	0.18	0.43	0.64	0.33	0.81	0.98	0.12
Avail Cap(c_a), veh/h	272	856	453	287	1426	499	169	1257	561	413	1507	636
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.9	46.6	42.3	63.6	34.4	33.9	65.0	36.7	32.1	62.5	40.7	25.7
Incr Delay (d2), s/veh	1.7	8.7	4.7	34.5	0.4	0.8	1.9	1.1	0.3	8.3	18.1	0.1
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	0.9	8.6	5.5	4.9	1.8	1.6	0.9	7.2	2.9	3.6	18.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.6	55.3	47.1	98.1	34.8	34.7	66.8	37.8	32.4	70.8	58.8	25.8
LnGrp LOS	E	E	D	F	C	C	E	D	C	E	E	C
Approach Vol, veh/h	1017				689			1053			1795	
Approach Delay, s/veh	54.0				59.2			38.7			59.1	
Approach LOS	D				E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.6	58.9	16.0	48.5	10.5	65.0	10.5	54.1				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	17.0	47.3	12.0	39.5	7.0	57.3	11.0	* 42				
Max Q Clear Time (g_c+I1), s	12.0	28.9	13.1	32.6	4.7	57.2	4.6	9.7				
Green Ext Time (p_c), s	0.6	6.7	0.0	2.2	0.0	0.1	0.1	1.8				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	53.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	8	322	29	70	455
Future Vol, veh/h	52	8	322	29	70	455
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	61	9	379	34	82	535

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1095	396	0	0	413	0
Stage 1	396	-	-	-	-	-
Stage 2	699	-	-	-	-	-
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	239	658	-	-	1157	-
Stage 1	684	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	658	-	-	1157	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	615	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	25.9	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 215 658	1157	-
HCM Lane V/C Ratio	-	- 0.285 0.014	0.071	-
HCM Ctrl Dly (s/v)	-	- 28.3 10.6	8.4	0
HCM Lane LOS	-	- D B	A	A
HCM 95th %tile Q (veh)	-	- 1.1 0	0.2	-

Intersection

Int Delay, s/veh 6.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	99	11	89	195	57
Future Vol, veh/h	3	99	11	89	195	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	3	105	12	95	207	61

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	107	0	0 171 60
Stage 1	-	-	- 60 -
Stage 2	-	-	- 111 -
Critical Hdwy	4.1	-	- 6.41 6.2
Critical Hdwy Stg 1	-	-	- 5.41 -
Critical Hdwy Stg 2	-	-	- 5.41 -
Follow-up Hdwy	2.2	-	- 3.509 3.3
Pot Cap-1 Maneuver	1497	-	- 821 1011
Stage 1	-	-	- 965 -
Stage 2	-	-	- 916 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1497	-	- 819 1011
Mov Cap-2 Maneuver	-	-	- 819 -
Stage 1	-	-	- 963 -
Stage 2	-	-	- 916 -

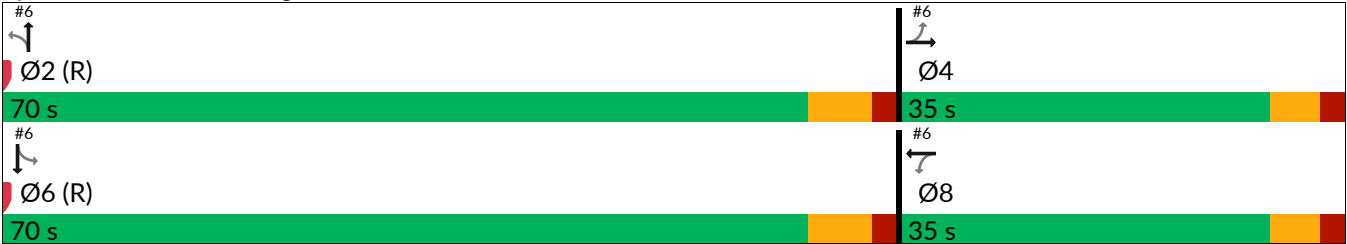
Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.2	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1497	-	-	-	856
HCM Lane V/C Ratio	0.002	-	-	-	0.313
HCM Ctrl Dly (s/v)	7.4	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	1.3

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	22	94	73	13	10	1167	19	2046
Future Volume (vph)	22	94	73	13	10	1167	19	2046
Lane Group Flow (vph)	0	157	0	102	11	1321	20	2155
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		16.5		16.5	75.5	75.5	75.5	75.5
Actuated g/C Ratio		0.16		0.16	0.72	0.72	0.72	0.72
v/c Ratio		0.56		0.68	0.16	0.55	0.09	0.88
Control Delay (s/veh)		45.6		59.9	12.6	8.5	6.8	18.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		45.6		59.9	12.6	8.5	6.8	18.1
LOS		D		E	B	A	A	B
Approach Delay (s/veh)		45.6		59.9		8.5		18.0
Approach LOS		D		E		A		B
Queue Length 50th (m)		28.5		18.8	0.6	58.8	1.1	158.7
Queue Length 95th (m)		45.2		34.2	4.2	95.8	4.4	#288.2
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		487		261	69	2403	232	2447
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.32		0.39	0.16	0.55	0.09	0.88
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.88								
Intersection Signal Delay (s/veh): 16.9				Intersection LOS: B				
Intersection Capacity Utilization 87.1%				ICU Level of Service E				
Analysis Period (min) 15								

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

Splits and Phases: 6: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

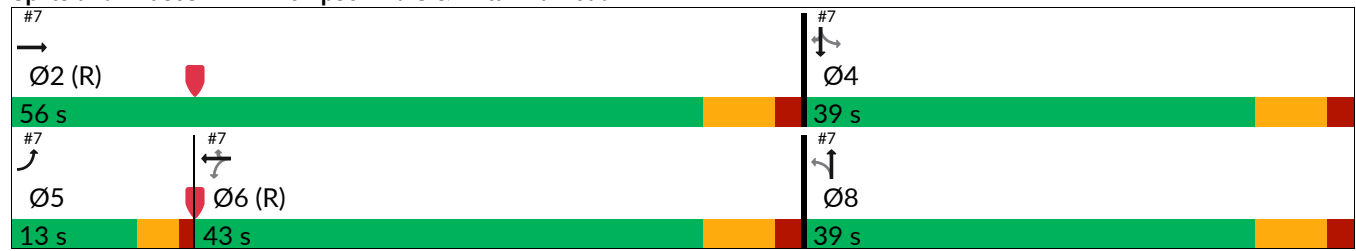
2041 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	94	33	73	13	10	10	1167	88	19	2046	1
Future Volume (veh/h)	22	94	33	73	13	10	10	1167	88	19	2046	1
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	23	99	35	77	14	11	11	1228	93	20	2154	1
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	59	142	46	155	27	15	142	2450	185	328	2689	1
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.76	0.76	0.76	0.76	0.76	0.76
Sat Flow, veh/h	174	1241	406	828	240	129	188	3216	243	422	3530	2
Grp Volume(v), veh/h	157	0	0	102	0	0	11	651	670	20	1050	1105
Grp Sat Flow(s),veh/h/ln	1821	0	0	1197	0	0	188	1706	1752	422	1721	1811
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	4.0	15.4	15.5	2.0	39.1	39.2
Cycle Q Clear(g_c), s	8.6	0.0	0.0	9.1	0.0	0.0	43.1	15.4	15.5	17.5	39.1	39.2
Prop In Lane	0.15		0.22	0.75		0.11	1.00		0.14	1.00		0.00
Lane Grp Cap(c), veh/h	247	0	0	197	0	0	142	1300	1335	328	1311	1380
V/C Ratio(X)	0.63	0.00	0.00	0.52	0.00	0.00	0.08	0.50	0.50	0.06	0.80	0.80
Avail Cap(c_a), veh/h	529	0	0	418	0	0	142	1300	1335	328	1311	1380
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	0.0	45.1	0.0	0.0	20.8	4.8	4.8	8.2	7.6	7.6
Incr Delay (d2), s/veh	5.6	0.0	0.0	4.4	0.0	0.0	1.1	1.4	1.4	0.4	5.2	5.0
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	2.9	0.0	0.0	1.9	0.0	0.0	0.1	0.5	0.5	0.0	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.7	0.0	0.0	49.5	0.0	0.0	21.9	6.2	6.2	8.5	12.9	12.6
LnGrp LOS	D			D			C	A	A	A	B	B
Approach Vol, veh/h		157			102			1332			2175	
Approach Delay, s/veh		50.7			49.5			6.3			12.7	
Approach LOS		D			D			A			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		87.0		18.0		87.0		18.0				
Change Period (Y+Rc), s		7.0		6.0		7.0		6.0				
Max Green Setting (Gmax), s		63.0		29.0		63.0		29.0				
Max Q Clear Time (g_c+I1), s		0.0		10.6		0.0		11.1				
Green Ext Time (p_c), s		0.0		1.4		0.0		0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				13.0								
HCM 6th LOS				B								

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	87	1247	1	610	43	3	0	239	1	153
Future Volume (vph)	87	1247	1	610	43	3	0	239	1	153
Lane Group Flow (vph)	95	1357	1	663	47	0	5	260	1	166
Turn Type	Prot	NA	Perm	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		6			8		4	
Permitted Phases			6		6	8		4		4
Detector Phase	5	2	6	6	6	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	7.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0	39.0
Total Split (s)	13.0	56.0	43.0	43.0	43.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	13.7%	58.9%	45.3%	45.3%	45.3%	41.1%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	3.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	1.0	2.0	2.0	2.0	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	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag	Lag	Lag					
Lead-Lag Optimize?	Yes		Yes	Yes	Yes					
Recall Mode	None	C-Max	C-Max	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	9.6	56.2	44.8	44.8	44.8		24.8	24.8	24.8	24.8
Actuated g/C Ratio	0.10	0.59	0.47	0.47	0.47		0.26	0.26	0.26	0.26
v/c Ratio	0.56	0.46	0.01	0.29	0.07		0.01	0.73	0.00	0.32
Control Delay (s/veh)	53.7	12.4	18.0	17.8	0.9		0.0	43.3	22.0	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.7	12.4	18.0	17.8	0.9		0.0	43.3	22.0	5.6
LOS	D	B	B	B	A		A	D	C	A
Approach Delay (s/veh)		15.1		16.7					28.6	
Approach LOS		B		B					C	
Queue Length 50th (m)	17.0	49.1	0.1	30.0	0.0		0.0	43.7	0.1	0.0
Queue Length 95th (m)	#37.3	72.2	1.2	43.5	1.5		0.0	64.0	1.2	13.4
Internal Link Dist (m)		1377.1		902.8			298.9		1556.7	
Turn Bay Length (m)	90.0		60.0		50.0			200.0		
Base Capacity (vph)	178	2947	163	2285	720		524	461	640	622
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0
Reduced v/c Ratio	0.53	0.46	0.01	0.29	0.07		0.01	0.56	0.00	0.27
Intersection Summary										
Cycle Length: 95										
Actuated Cycle Length: 95										
Offset: 22.5 (24%), Referenced to phase 2:EBT and 6:WBTL, Start of Green										
Natural Cycle: 85										
Control Type: Actuated-Coordinated										
Maximum v/c Ratio: 0.73										
Intersection Signal Delay (s/veh): 17.7					Intersection LOS: B					
Intersection Capacity Utilization 83.4%					ICU Level of Service E					
Analysis Period (min) 15										

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

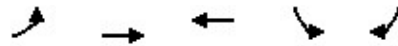
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2041 Future Background
Weekday AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	87	1247	2	1	610	43	3	0	2	239	1	153
Future Volume (veh/h)	87	1247	2	1	610	43	3	0	2	239	1	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1826
Adj Flow Rate, veh/h	95	1355	2	1	663	47	3	0	2	260	1	166
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	5
Cap, veh/h	121	3210	5	273	2495	735	240	15	129	409	443	360
Arrive On Green	0.07	0.62	0.62	0.51	0.51	0.51	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1767	5182	8	407	4904	1445	768	64	555	1424	1900	1545
Grp Volume(v), veh/h	95	876	481	1	663	47	5	0	0	260	1	166
Grp Sat Flow(s),veh/h/ln	1767	1675	1839	407	1635	1445	1387	0	0	1424	1900	1545
Q Serve(g_s), s	5.0	12.8	12.8	0.1	7.3	1.6	0.0	0.0	0.0	16.0	0.0	8.8
Cycle Q Clear(g_c), s	5.0	12.8	12.8	2.4	7.3	1.6	0.2	0.0	0.0	16.2	0.0	8.8
Prop In Lane	1.00		0.00	1.00		1.00	0.60		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	121	2075	1139	273	2495	735	384	0	0	409	443	360
V/C Ratio(X)	0.78	0.42	0.42	0.00	0.27	0.06	0.01	0.00	0.00	0.64	0.00	0.46
Avail Cap(c_a), veh/h	167	2075	1139	273	2495	735	525	0	0	556	640	521
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	9.3	9.3	12.6	13.3	11.8	28.0	0.0	0.0	34.1	27.9	31.3
Incr Delay (d2), s/veh	15.0	0.6	1.1	0.0	0.3	0.2	0.0	0.0	0.0	3.5	0.0	2.0
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	1.8	0.2	0.4	0.0	0.5	0.1	0.0	0.0	0.0	3.2	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	58.6	9.9	10.5	12.7	13.5	12.0	28.0	0.0	0.0	37.6	27.9	33.2
LnGrp LOS	E	A	B		B	B	C			D		C
Approach Vol, veh/h	1452			711			5			427		
Approach Delay, s/veh	13.3			13.4			28.0			35.9		
Approach LOS	B			B			C			D		
Timer - Assigned Phs	2			4		5	6	8				
Phs Duration (G+Y+Rc), s	65.8			29.2		10.5	55.3	29.2				
Change Period (Y+Rc), s	7.0			7.0		4.0	7.0	7.0				
Max Green Setting (Gmax), s	49.0			32.0		9.0	36.0	32.0				
Max Q Clear Time (g_c+I1), s	14.8			18.2		7.0	9.3	2.2				
Green Ext Time (p_c), s	21.2			3.7		0.1	9.4	0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				17.1								
HCM 6th LOS				B								

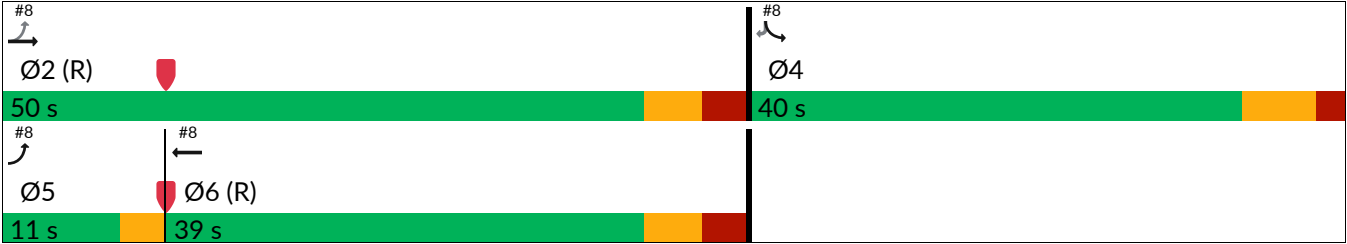


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	92	902	428	372	123
Future Volume (vph)	92	902	428	372	123
Lane Group Flow (vph)	106	1037	602	428	141
Turn Type	pm+pt	NA	NA	Prot	Perm
Protected Phases	5	2	6	4	
Permitted Phases	2				4
Detector Phase	5	2	6	4	4
Switch Phase					
Minimum Initial (s)	7.0	25.0	25.0	15.0	15.0
Minimum Split (s)	10.0	39.0	39.0	39.0	39.0
Total Split (s)	11.0	50.0	39.0	40.0	40.0
Total Split (%)	12.2%	55.6%	43.3%	44.4%	44.4%
Yellow Time (s)	3.0	4.0	4.0	5.0	5.0
All-Red Time (s)	0.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	3.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	C-Max	C-Max	None	None
Act Effect Green (s)	51.0	47.0	38.4	29.0	29.0
Actuated g/C Ratio	0.57	0.52	0.43	0.32	0.32
v/c Ratio	0.25	0.40	0.31	0.80	0.25
Control Delay (s/veh)	11.8	14.2	17.2	39.4	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.8	14.2	17.2	39.4	4.7
LOS	B	B	B	D	A
Approach Delay (s/veh)		14.0	17.2	30.8	
Approach LOS		B	B	C	
Queue Length 50th (m)	9.1	40.1	24.9	67.8	0.0
Queue Length 95th (m)	18.0	51.3	34.4	94.3	11.1
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	436	2604	1952	609	626
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.40	0.31	0.70	0.23

Intersection Summary

Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay (s/veh): 19.0	Intersection LOS: B
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2041 Future Background
Weekday AM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	92	902	428	96	372	123
Future Volume (veh/h)	92	902	428	96	372	123
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	1722	1841	1796	1366	1826	1767
Adj Flow Rate, veh/h	106	1037	492	110	428	141
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	12	4	7	36	5	9
Cap, veh/h	469	2741	1772	386	520	448
Arrive On Green	0.07	0.55	0.44	0.44	0.30	0.30
Sat Flow, veh/h	1640	5191	4190	879	1739	1497
Grp Volume(v), veh/h	106	1037	397	205	428	141
Grp Sat Flow(s),veh/h/ln	1640	1675	1635	1638	1739	1497
Q Serve(g_s), s	2.9	10.6	7.0	7.2	20.6	6.6
Cycle Q Clear(g_c), s	2.9	10.6	7.0	7.2	20.6	6.6
Prop In Lane	1.00			0.54	1.00	1.00
Lane Grp Cap(c), veh/h	469	2741	1438	720	520	448
V/C Ratio(X)	0.23	0.38	0.28	0.28	0.82	0.31
Avail Cap(c_a), veh/h	496	2741	1438	720	638	549
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	11.0	11.7	16.1	16.1	29.3	24.4
Incr Delay (d2), s/veh	0.2	0.4	0.5	1.0	9.3	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.7	0.8	4.9	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	11.2	12.1	16.6	17.1	38.6	25.3
LnGrp LOS	B	B	B	B	D	C
Approach Vol, veh/h		1143	602		569	
Approach Delay, s/veh		12.0	16.8		35.3	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		56.1		33.9	9.5	46.6
Change Period (Y+Rc), s		7.0		7.0	3.0	7.0
Max Green Setting (Gmax), s		43.0		33.0	8.0	32.0
Max Q Clear Time (g_c+l1), s		12.6		22.6	4.9	9.2
Green Ext Time (p_c), s		15.2		4.3	0.1	7.2
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			19.0			
HCM 6th LOS			B			

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	69	397	22	4	534	78	59	141	52	61	73
Future Volume (vph)	69	397	22	4	534	78	59	141	52	61	73
Lane Group Flow (vph)	76	436	24	4	587	86	65	158	57	67	80
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2		1	6			4		8	
Permitted Phases	2		2	6		6	4		8		8
Minimum Split (s)	11.0	35.8	35.8	11.0	35.8	35.8	47.0	47.0	47.0	47.0	47.0
Total Split (s)	11.0	47.0	47.0	11.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	10.5%	44.8%	44.8%	10.5%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%	44.8%
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.0	2.6	2.6	1.0	2.6	2.6	4.7	4.7	4.7	4.7	4.7
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.8	6.8	4.0	6.8	6.8	8.0	8.0	8.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes					
Act Effect Green (s)	50.0	40.2	40.2	50.0	40.2	40.2	39.0	39.0	39.0	39.0	39.0
Actuated g/C Ratio	0.48	0.38	0.38	0.48	0.38	0.38	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.21	0.26	0.04	0.01	0.35	0.13	0.13	0.22	0.13	0.10	0.13
Control Delay (s/veh)	14.6	22.7	0.1	12.5	23.9	4.4	29.8	30.9	23.0	22.1	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	14.6	22.7	0.1	12.5	23.9	4.4	29.8	30.9	23.0	22.1	5.4
LOS	B	C	A	B	C	A	C	C	C	C	A
Approach Delay (s/veh)		20.5			21.3			30.6		15.8	
Approach LOS		C			C			C		B	
Queue Length 50th (m)	7.8	25.6	0.0	0.4	36.5	0.0	10.5	25.9	7.9	8.8	0.0
Queue Length 95th (m)	15.5	34.8	0.0	2.3	47.8	8.6	m20.8	42.6	17.0	17.8	9.4
Internal Link Dist (m)		1431.0			1350.0			1570.9		872.3	
Turn Bay Length (m)	60.0		45.0	50.0		60.0	30.0		40.0		
Base Capacity (vph)	367	1694	646	391	1662	646	486	704	430	705	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.26	0.04	0.01	0.35	0.13	0.13	0.22	0.13	0.10	0.13

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 22.5 (21%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Pretimed

Maximum v/c Ratio: 0.35

Intersection Signal Delay (s/veh): 21.6

Intersection LOS: C

Intersection Capacity Utilization 61.5%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: First Line/Bronte St. S & Britannia Road

 Ø1	 Ø2 (R)	 Ø4
11 s	47 s	47 s
 Ø5	 Ø6 (R)	 Ø8
11 s	47 s	47 s

HCM 6th Signalized Intersection Summary
2: First Line/Bronte St. S & Britannia Road

2041 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	69	397	22	4	534	78	59	141	3	52	61	73
Future Volume (veh/h)	69	397	22	4	534	78	59	141	3	52	61	73
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		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	1841	1856	1841	1648	1826	1841	1900	1900	1900	1841	1900	1826
Adj Flow Rate, veh/h	76	436	24	4	587	86	65	155	3	57	67	80
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	4	17	5	4	0	0	0	4	0	5
Cap, veh/h	402	1705	597	433	1678	597	508	690	13	448	706	567
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1753	4453	1560	1570	4382	1560	1260	1858	36	1209	1900	1528
Grp Volume(v), veh/h	76	436	24	4	587	86	65	0	158	57	67	80
Grp Sat Flow(s),veh/h/ln	1753	1484	1560	1570	1461	1560	1260	0	1894	1209	1900	1528
Q Serve(g_s), s	2.6	7.0	1.0	0.1	10.0	3.8	3.7	0.0	6.0	3.6	2.4	3.6
Cycle Q Clear(g_c), s	2.6	7.0	1.0	0.1	10.0	3.8	6.1	0.0	6.0	9.6	2.4	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	402	1705	597	433	1678	597	508	0	703	448	706	567
V/C Ratio(X)	0.19	0.26	0.04	0.01	0.35	0.14	0.13	0.00	0.22	0.13	0.09	0.14
Avail Cap(c_a), veh/h	402	1705	597	433	1678	597	508	0	703	448	706	567
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	22.2	20.3	16.2	23.1	21.2	23.5	0.0	22.6	25.9	21.5	21.9
Incr Delay (d2), s/veh	1.0	0.4	0.1	0.0	0.6	0.5	0.5	0.0	0.7	0.6	0.3	0.5
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	0.5	1.1	0.2	0.0	1.6	0.7	0.6	0.0	1.4	0.6	0.5	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.2	22.5	20.4	16.2	23.7	21.7	24.0	0.0	23.4	26.5	21.8	22.4
LnGrp LOS	B	C	C	B	C	C	C		C	C	C	C
Approach Vol, veh/h		536			677			223			204	
Approach Delay, s/veh		21.8			23.4			23.6			23.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	47.0		47.0	11.0	47.0		47.0				
Change Period (Y+Rc), s	4.0	6.8		8.0	4.0	6.8		8.0				
Max Green Setting (Gmax), s	7.0	40.2		39.0	7.0	40.2		39.0				
Max Q Clear Time (g_c+I1), s	2.1	3.0		8.1	4.6	5.8		11.6				
Green Ext Time (p_c), s	0.0	0.0		1.3	0.1	0.1		1.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.9									
HCM 6th LOS			C									

Queues
3: Regional Road 25 & Britannia Road

2041 Future Background
Weekday PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	389	39	167	579	251	212	1211	377	94	769	64
Future Volume (vph)	54	389	39	167	579	251	212	1211	377	94	769	64
Lane Group Flow (vph)	56	401	40	172	597	259	219	1248	389	97	793	66
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0	10.0	7.0	20.0	20.0	7.0	20.0	20.0
Minimum Split (s)	11.0	46.5	46.5	11.0	45.5	45.5	11.0	49.7	49.7	11.0	49.7	49.7
Total Split (s)	14.0	48.0	48.0	15.0	49.0	49.0	20.0	65.0	65.0	12.0	57.0	57.0
Total Split (%)	10.0%	34.3%	34.3%	10.7%	35.0%	35.0%	14.3%	46.4%	46.4%	8.6%	40.7%	40.7%
Yellow Time (s)	3.0	5.2	5.2	3.0	4.2	4.2	3.0	4.2	4.2	3.0	4.2	4.2
All-Red Time (s)	1.0	3.3	3.3	1.0	3.3	3.3	1.0	3.5	3.5	1.0	3.5	3.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	8.5	8.5	4.0	7.5	7.5	4.0	7.7	7.7	4.0	7.7	7.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	8.1	41.5	41.5	10.8	47.4	47.4	14.2	55.7	55.7	7.8	49.4	49.4
Actuated g/C Ratio	0.06	0.30	0.30	0.08	0.34	0.34	0.10	0.40	0.40	0.06	0.35	0.35
v/c Ratio	0.29	0.45	0.07	0.70	0.41	0.41	0.67	0.92	0.53	0.54	0.65	0.11
Control Delay (s/veh)	66.8	42.7	0.3	78.7	37.8	12.9	71.0	51.7	14.9	75.5	41.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	66.8	42.7	0.3	78.7	37.8	12.9	71.0	51.7	14.9	75.5	41.0	0.3
LOS	E	D	A	E	D	B	E	D	B	E	D	A
Approach Delay (s/veh)		42.0			38.4			46.2			41.7	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	7.9	58.7	0.0	25.5	57.2	14.3	31.7	176.1	32.5	14.1	98.5	0.0
Queue Length 95th (m)	15.0	78.1	0.0	#38.9	73.0	40.3	45.4	209.5	64.1	23.9	122.5	0.0
Internal Link Dist (m)		1350.0			1377.1			1297.7			993.1	
Turn Bay Length (m)	60.0			70.0		50.0	65.0		60.0	50.0		70.0
Base Capacity (vph)	237	882	555	252	1469	635	368	1394	752	186	1234	632
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.45	0.07	0.68	0.41	0.41	0.60	0.90	0.52	0.52	0.64	0.10

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 73 (52%), Referenced to phase 4:EBT and 8:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay (s/veh): 42.9

Intersection LOS: D

Intersection Capacity Utilization 96.1%

ICU Level of Service F

Analysis Period (min) 15

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

Splits and Phases: 3: Regional Road 25 & Britannia Road

#3 Ø1 12 s	#3 Ø2 65 s	#3 Ø3 15 s	#3 Ø4 (R) 48 s
#3 Ø5 20 s	#3 Ø6 57 s	#3 Ø7 14 s	#3 Ø8 (R) 49 s

HCM 6th Signalized Intersection Summary
3: Regional Road 25 & Britannia Road

2041 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	389	39	167	579	251	212	1211	377	94	769	64
Future Volume (veh/h)	54	389	39	167	579	251	212	1211	377	94	769	64
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		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	1870	1870	1870	1811	1826	1811	1826	1811	1811	1841	1841	1856
Adj Flow Rate, veh/h	56	401	40	172	597	259	219	1248	389	97	793	66
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
Percent Heavy Veh, %	2	2	2	6	5	6	5	6	6	4	4	3
Cap, veh/h	153	944	499	221	1477	517	276	1366	609	166	1273	565
Arrive On Green	0.04	0.32	0.32	0.07	0.34	0.34	0.08	0.40	0.40	0.05	0.36	0.36
Sat Flow, veh/h	3456	2993	1584	3346	4382	1533	3374	3441	1535	3401	3497	1553
Grp Volume(v), veh/h	56	401	40	172	597	259	219	1248	389	97	793	66
Grp Sat Flow(s),veh/h/ln	1728	1496	1584	1673	1461	1533	1687	1721	1535	1700	1749	1553
Q Serve(g_s), s	2.2	14.8	2.5	7.1	14.6	18.9	8.9	48.0	28.7	3.9	26.1	4.0
Cycle Q Clear(g_c), s	2.2	14.8	2.5	7.1	14.6	18.9	8.9	48.0	28.7	3.9	26.1	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	944	499	221	1477	517	276	1366	609	166	1273	565
V/C Ratio(X)	0.37	0.42	0.08	0.78	0.40	0.50	0.79	0.91	0.64	0.58	0.62	0.12
Avail Cap(c_a), veh/h	247	944	499	263	1477	517	386	1408	628	194	1273	565
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.0	37.9	33.7	64.4	35.6	37.0	63.1	39.9	34.1	65.2	36.6	29.6
Incr Delay (d2), s/veh	1.5	1.4	0.3	11.8	0.8	3.4	7.4	9.2	2.1	3.2	1.0	0.1
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	0.8	3.7	0.7	2.6	3.5	5.0	3.1	13.7	6.7	1.4	7.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.4	39.3	34.0	76.1	36.5	40.5	70.6	49.2	36.2	68.4	37.6	29.7
LnGrp LOS	E	D	C	E	D	D	E	D	D	E	D	C
Approach Vol, veh/h	497				1028				1856			
Approach Delay, s/veh	41.9				44.1				49.0			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	63.3	13.2	52.6	15.5	58.7	10.2	55.7				
Change Period (Y+Rc), s	4.0	7.7	4.0	8.5	4.0	7.7	4.0	* 8.5				
Max Green Setting (Gmax), s	8.0	57.3	11.0	39.5	16.0	49.3	10.0	* 42				
Max Q Clear Time (g_c+I1), s	5.9	50.0	9.1	16.8	10.9	28.1	4.2	16.6				
Green Ext Time (p_c), s	0.1	5.5	0.2	2.4	0.5	6.1	0.1	2.9				

Intersection Summary

HCM 6th Ctrl Delay, s/veh	45.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	40	48	473	19	45	236
Future Vol, veh/h	40	48	473	19	45	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	8	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	47	56	556	22	53	278

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	951	567	0	0	578	0
Stage 1	567	-	-	-	-	-
Stage 2	384	-	-	-	-	-
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	291	527	-	-	1006	-
Stage 1	572	-	-	-	-	-
Stage 2	693	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	273	527	-	-	1006	-
Mov Cap-2 Maneuver	273	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	693	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	16.4	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	273	527	1006	-
HCM Lane V/C Ratio	-	-	0.172	0.107	0.053	-
HCM Ctrl Dly (s/v)	-	-	20.9	12.6	8.8	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q (veh)	-	-	0.6	0.4	0.2	-

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	65	73	198	71	18
Future Vol, veh/h	4	65	73	198	71	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	0
Mvmt Flow	4	69	78	211	76	19

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	289	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1284	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1284	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

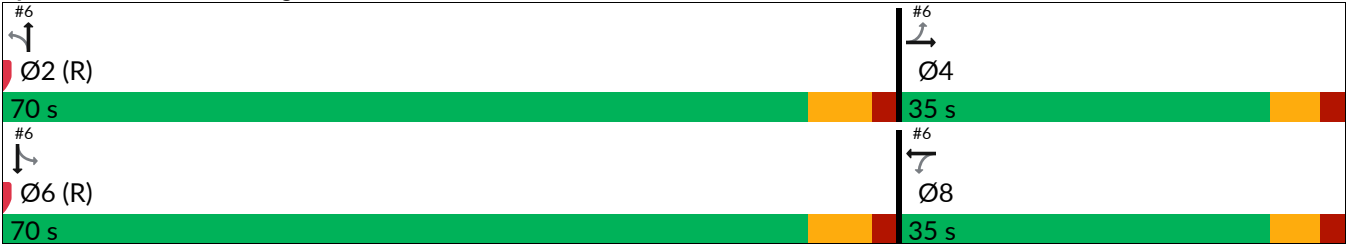
Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.5	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	752
HCM Lane V/C Ratio	0.003	-	-	-	0.126
HCM Ctrl Dly (s/v)	7.8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q (veh)	0	-	-	-	0.4

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	14	54	89	86	16	1985	9	1092
Future Volume (vph)	14	54	89	86	16	1985	9	1092
Lane Group Flow (vph)	0	92	0	208	17	2135	9	1154
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		4		8		2		6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	20.0	20.0	20.0	20.0
Minimum Split (s)	24.0	24.0	24.0	24.0	27.0	27.0	27.0	27.0
Total Split (s)	35.0	35.0	35.0	35.0	70.0	70.0	70.0	70.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	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	7.0	7.0	7.0	7.0
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)		21.9		21.9	70.1	70.1	70.1	70.1
Actuated g/C Ratio		0.21		0.21	0.67	0.67	0.67	0.67
v/c Ratio		0.25		0.70	0.07	0.95	0.13	0.51
Control Delay (s/veh)		29.5		49.4	8.7	28.2	13.9	10.5
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)		29.5		49.4	8.7	28.2	13.9	10.5
LOS		C		D	A	C	B	B
Approach Delay (s/veh)		29.5		49.4		28.1		10.5
Approach LOS		C		D		C		B
Queue Length 50th (m)		13.4		38.4	1.1	199.4	0.6	59.1
Queue Length 95th (m)		24.9		58.0	4.5	#312.3	3.8	91.9
Internal Link Dist (m)		1288.2		1903.5		523.0		1053.8
Turn Bay Length (m)					190.0		190.0	
Base Capacity (vph)		487		392	255	2247	70	2272
Starvation Cap Reductn		0		0	0	0	0	0
Spillback Cap Reductn		0		0	0	0	0	0
Storage Cap Reductn		0		0	0	0	0	0
Reduced v/c Ratio		0.19		0.53	0.07	0.95	0.13	0.51
Intersection Summary								
Cycle Length: 105								
Actuated Cycle Length: 105								
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green								
Natural Cycle: 90								
Control Type: Actuated-Coordinated								
Maximum v/c Ratio: 0.95								
Intersection Signal Delay (s/veh): 23.7				Intersection LOS: C				
Intersection Capacity Utilization 84.6%				ICU Level of Service E				
Analysis Period (min) 15								

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

Splits and Phases: 6: Regional Road 25 & Lower Base Line W



HCM 6th Signalized Intersection Summary
6: Regional Road 25 & Lower Base Line W

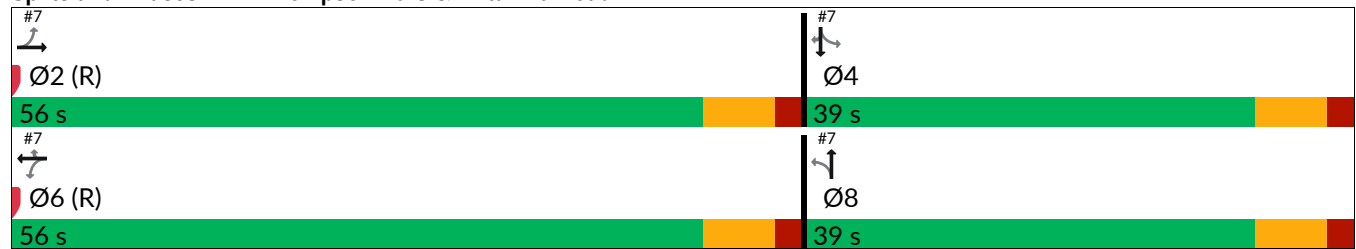
2041 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	54	19	89	86	22	16	1985	44	9	1092	5
Future Volume (veh/h)	14	54	19	89	86	22	16	1985	44	9	1092	5
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	1900	1900	1900	1752	1900	1159	1900	1796	1811	1900	1811	1900
Adj Flow Rate, veh/h	15	57	20	94	91	23	17	2089	46	9	1149	5
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
Percent Heavy Veh, %	0	0	0	10	0	50	0	7	6	0	6	0
Cap, veh/h	63	195	61	156	122	28	359	2464	54	122	2535	11
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	152	1258	392	686	787	183	495	3414	75	192	3514	15
Grp Volume(v), veh/h	92	0	0	208	0	0	17	1040	1095	9	563	591
Grp Sat Flow(s),veh/h/ln	1802	0	0	1657	0	0	495	1706	1783	192	1721	1808
Q Serve(g_s), s	0.0	0.0	0.0	7.8	0.0	0.0	1.5	45.6	46.5	3.7	14.2	14.2
Cycle Q Clear(g_c), s	4.7	0.0	0.0	12.5	0.0	0.0	15.8	45.6	46.5	50.3	14.2	14.2
Prop In Lane	0.16		0.22	0.45		0.11	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	318	0	0	306	0	0	359	1231	1286	122	1242	1305
V/C Ratio(X)	0.29	0.00	0.00	0.68	0.00	0.00	0.05	0.84	0.85	0.07	0.45	0.45
Avail Cap(c_a), veh/h	526	0	0	497	0	0	359	1231	1286	122	1242	1305
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	0.0	42.6	0.0	0.0	9.3	10.4	10.5	28.7	6.0	6.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	5.6	0.0	0.0	0.2	7.2	7.2	1.2	1.2	1.1
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	1.4	0.0	0.0	3.6	0.0	0.0	0.0	2.5	2.6	0.1	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.6	0.0	0.0	48.1	0.0	0.0	9.6	17.6	17.8	29.9	7.2	7.2
LnGrp LOS	D			D			A	B	B	C	A	A
Approach Vol, veh/h	92			208			2152			1163		
Approach Delay, s/veh	40.6			48.1			17.6			7.4		
Approach LOS	D			D			B			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	82.8			22.2			82.8			22.2		
Change Period (Y+Rc), s	7.0			6.0			7.0			6.0		
Max Green Setting (Gmax), s	63.0			29.0			63.0			29.0		
Max Q Clear Time (g_c+I1), s	0.0			6.7			0.0			14.5		
Green Ext Time (p_c), s	0.0			0.8			0.0			1.7		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				16.7								
HCM 6th LOS				B								

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBR
Lane Configurations									
Traffic Volume (vph)	195	784	2	1075	180	1	0	64	60
Future Volume (vph)	195	784	2	1075	180	1	0	64	60
Lane Group Flow (vph)	212	855	2	1168	196	0	3	70	65
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	Perm
Protected Phases		2		6			8		
Permitted Phases	2		6		6	8		4	4
Detector Phase	2	2	6	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	30.0	30.0	25.0	25.0	25.0	7.0	7.0	7.0	7.0
Minimum Split (s)	37.0	37.0	32.0	32.0	32.0	39.0	39.0	39.0	39.0
Total Split (s)	56.0	56.0	56.0	56.0	56.0	39.0	39.0	39.0	39.0
Total Split (%)	58.9%	58.9%	58.9%	58.9%	58.9%	41.1%	41.1%	41.1%	41.1%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	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	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	73.2	73.2	73.2	73.2	73.2		12.2	12.2	12.2
Actuated g/C Ratio	0.77	0.77	0.77	0.77	0.77		0.13	0.13	0.13
v/c Ratio	0.82	0.25	0.01	0.36	0.17		0.01	0.40	0.27
Control Delay (s/veh)	40.2	4.6	4.5	5.2	1.1		0.0	43.7	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	40.2	4.6	4.5	5.2	1.1		0.0	43.7	16.6
LOS	D	A	A	A	A		A	D	B
Approach Delay (s/veh)		11.7		4.6					
Approach LOS		B		A					
Queue Length 50th (m)	25.0	19.5	0.1	30.2	0.0		0.0	12.1	2.2
Queue Length 95th (m)	#82.2	30.3	0.8	45.7	6.7		0.0	24.0	13.4
Internal Link Dist (m)		1377.1		902.8			634.1		
Turn Bay Length (m)	90.0		60.0		50.0			200.0	
Base Capacity (vph)	259	3368	395	3282	1143		511	463	546
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	0.82	0.25	0.01	0.36	0.17		0.01	0.15	0.12
Intersection Summary									
Cycle Length: 95									
Actuated Cycle Length: 95									
Offset: 22.5 (24%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green									
Natural Cycle: 140									
Control Type: Actuated-Coordinated									
Maximum v/c Ratio: 0.82									
Intersection Signal Delay (s/veh): 8.9					Intersection LOS: A				
Intersection Capacity Utilization 72.8%					ICU Level of Service C				
Analysis Period (min) 15									

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

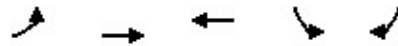
Splits and Phases: 7: Thompson Rd S & Britannia Road



HCM 6th Signalized Intersection Summary
7: Thompson Rd S & Britannia Road

2041 Future Background
Weekday PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	784	3	2	1075	180	1	0	2	64	0	60
Future Volume (veh/h)	195	784	3	2	1075	180	1	0	2	64	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	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	1856	1841	1159	1900	1796	1722	1411	1900	1900	1885	1900	1826
Adj Flow Rate, veh/h	212	852	3	2	1168	196	1	0	2	70	0	65
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
Percent Heavy Veh, %	3	4	50	0	7	12	33	0	0	1	0	5
Cap, veh/h	344	3652	13	544	3303	1111	77	19	91	199	164	133
Arrive On Green	0.77	0.77	0.77	0.77	0.77	0.77	0.09	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	395	4766	17	655	4311	1450	305	223	1055	1421	1900	1542
Grp Volume(v), veh/h	212	526	329	2	1168	196	3	0	0	70	0	65
Grp Sat Flow(s),veh/h/ln	395	1473	1838	655	1437	1450	1583	0	0	1421	1900	1542
Q Serve(g_s), s	35.2	4.8	4.8	0.1	8.3	3.5	0.0	0.0	0.0	4.3	0.0	3.8
Cycle Q Clear(g_c), s	43.5	4.8	4.8	4.9	8.3	3.5	0.2	0.0	0.0	4.5	0.0	3.8
Prop In Lane	1.00		0.01	1.00		1.00	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	344	2256	1408	544	3303	1111	187	0	0	199	164	133
V/C Ratio(X)	0.62	0.23	0.23	0.00	0.35	0.18	0.02	0.00	0.00	0.35	0.00	0.49
Avail Cap(c_a), veh/h	344	2256	1408	544	3303	1111	566	0	0	555	640	519
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.5	3.2	3.2	3.9	3.6	3.0	39.7	0.0	0.0	41.7	0.0	41.4
Incr Delay (d2), s/veh	8.0	0.2	0.4	0.0	0.3	0.3	0.1	0.0	0.0	2.2	0.0	5.8
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	0.8	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.0	1.1	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.5	3.4	3.6	3.9	3.9	3.3	39.8	0.0	0.0	43.9	0.0	47.2
LnGrp LOS	B	A	A		A	A	D			D		D
Approach Vol, veh/h	1067				1366		3				135	
Approach Delay, s/veh	6.5				3.8		39.8				45.5	
Approach LOS	A				A		D				D	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	79.8		15.2		79.8		15.2					
Change Period (Y+Rc), s	7.0		7.0		7.0		7.0					
Max Green Setting (Gmax), s	49.0		32.0		49.0		32.0					
Max Q Clear Time (g_c+I1), s	45.5		6.5		10.3		2.2					
Green Ext Time (p_c), s	3.0		1.3		23.2		0.0					
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			7.1									
HCM 6th LOS			A									



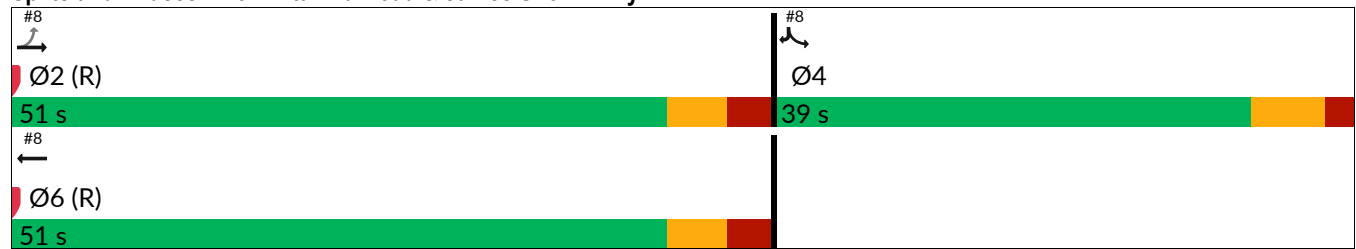
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations	↰	↑↑↑	↑↑↑	↰	↰
Traffic Volume (vph)	102	537	841	267	106
Future Volume (vph)	102	537	841	267	106
Lane Group Flow (vph)	117	617	1488	307	122
Turn Type	Perm	NA	NA	Prot	Prot
Protected Phases		2	6	4	4
Permitted Phases	2				
Detector Phase	2	2	6	4	4
Switch Phase					
Minimum Initial (s)	25.0	25.0	25.0	15.0	15.0
Minimum Split (s)	39.0	39.0	39.0	39.0	39.0
Total Split (s)	51.0	51.0	51.0	39.0	39.0
Total Split (%)	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.0	4.0	4.0	5.0	5.0
All-Red Time (s)	3.0	3.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	None
Act Effect Green (s)	52.0	52.0	52.0	24.0	24.0
Actuated g/C Ratio	0.58	0.58	0.58	0.27	0.27
v/c Ratio	0.92	0.21	0.59	0.69	0.27
Control Delay (s/veh)	88.8	10.2	12.3	37.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	88.8	10.2	12.3	37.6	11.2
LOS	F	B	B	D	B
Approach Delay (s/veh)		22.8	12.3	30.1	
Approach LOS		C	B	C	
Queue Length 50th (m)	18.4	17.8	49.7	49.9	6.2
Queue Length 95th (m)	#58.3	28.6	75.3	65.3	16.5
Internal Link Dist (m)		404.4	2447.6	452.3	
Turn Bay Length (m)	105.0			175.0	
Base Capacity (vph)	127	2884	2513	590	571
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.92	0.21	0.59	0.52	0.21

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 22.5 (25%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay (s/veh): 18.1
Intersection Capacity Utilization 79.5%
Analysis Period (min) 15
Intersection LOS: B
ICU Level of Service D

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

Splits and Phases: 8: Britannia Road & James Snow Pkwy



HCM 6th Signalized Intersection Summary
8: Britannia Road & James Snow Pkwy

2041 Future Background
Weekday PM Peak

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		  	  			
Traffic Volume (veh/h)	102	537	841	453	267	106
Future Volume (veh/h)	102	537	841	453	267	106
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	1722	1841	1796	1366	1826	1767
Adj Flow Rate, veh/h	117	617	967	521	307	122
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	12	4	7	36	5	9
Cap, veh/h	214	3077	2002	932	403	347
Arrive On Green	0.61	0.61	0.61	0.61	0.23	0.23
Sat Flow, veh/h	326	5191	3431	1522	1739	1497
Grp Volume(v), veh/h	117	617	967	521	307	122
Grp Sat Flow(s),veh/h/ln	326	1675	1635	1522	1739	1497
Q Serve(g_s), s	29.7	4.9	14.7	18.2	14.8	6.1
Cycle Q Clear(g_c), s	47.9	4.9	14.7	18.2	14.8	6.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	214	3077	2002	932	403	347
V/C Ratio(X)	0.55	0.20	0.48	0.56	0.76	0.35
Avail Cap(c_a), veh/h	214	3077	2002	932	618	532
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	24.4	7.7	9.6	10.3	32.2	28.9
Incr Delay (d2), s/veh	9.7	0.1	0.8	2.4	6.2	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.2	0.6	3.6	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	34.1	7.9	10.4	12.7	38.4	30.2
LnGrp LOS	C	A	B	B	D	C
Approach Vol, veh/h		734	1488		429	
Approach Delay, s/veh		12.0	11.2		36.1	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.1		27.9		62.1
Change Period (Y+Rc), s		7.0		7.0		7.0
Max Green Setting (Gmax), s		44.0		32.0		44.0
Max Q Clear Time (g_c+I1), s		49.9		16.8		20.2
Green Ext Time (p_c), s		0.0		4.1		18.1
Intersection Summary						
HCM 6th Ctrl Delay, s/veh			15.5			
HCM 6th LOS			B			

