



**TRANPLAN ASSOCIATES**

# **TRAFFIC IMPACT STUDY**

**Proposed Expansion  
Bessada Kia  
1675 & 1695 Bayly Street**

**City of Pickering**

**April 2026**

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April 01, 2026

Attn. David Leung, P.Eng.  
Kirby Structures Ltd.  
1260 Terwillegar Ave.,  
Oshawa, Ontario  
L1J 7A5

**Re: Traffic Impact Study for the Proposed Expansion at Existing Bessada Kia Showroom, located at 1675 & 1695 Bayly Street, in the City of Pickering**

Enclosed, please find our Traffic Impact Study for the proposed *Building Addition at Bessada Kia*, located at 1675 & 1695 Bayly Street, in the City of Pickering.

Tranplan is pleased to have the opportunity to work with your team on this project. If you should require further information on the study, please do not hesitate to contact us at your convenience.

Yours truly,

Sreelakshmi Changaradil, P.Eng.  
Transportation Planner and Analyst  
Tranplan Associates



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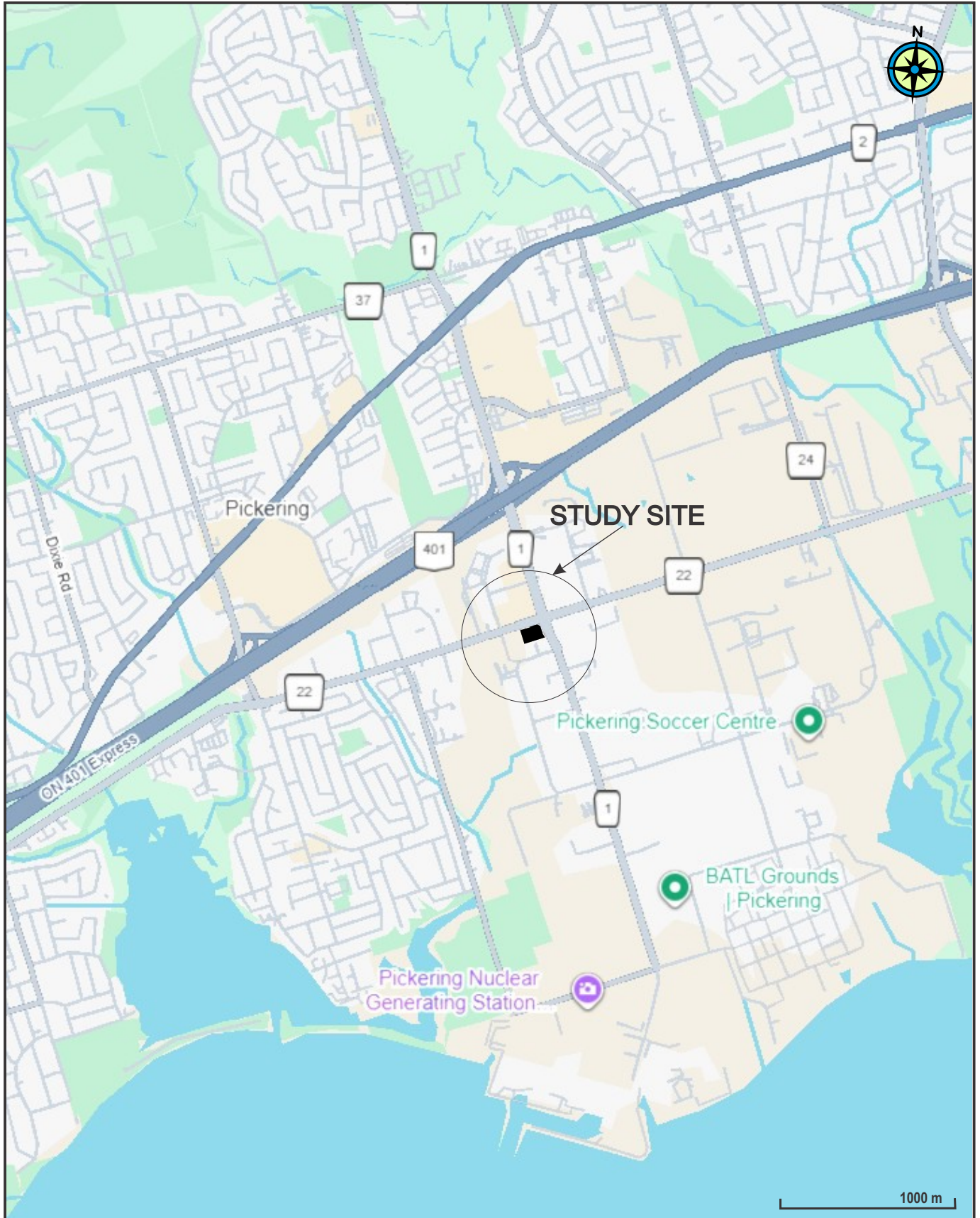
## 1.0 INTRODUCTION AND BACKGROUND

Tranplan Associates (Tranplan) is pleased to present the findings and recommendations from our traffic impact study dealing with the proposed additions at Bessada Kia located on southwest corner of Bayly Street and Brock Road intersection, with municipal address, 1675 & 1695 Bayly Street, in the City of Pickering (**Exhibit 1.1 - Key Map**). The proposal is to expand the existing Kia dealership showroom by approximately 908 m<sup>2</sup> to facilitate sale and service of electric vehicles and provide a new parking area (see **Exhibit 1.2 – Proposed Site Plan**).

As part of the planning approvals process, the owners have been carrying out a number of technical studies in support of the proposed development, including a traffic impact study. Tranplan was retained by Kirby Structures Ltd., on behalf of the owners, to carry out the traffic impact study in support of the proposed development application.

The study scope of work was developed with an understanding of the pre-consultation comments previously provided by the City of Pickering and through submission and approval of a Study Terms of Reference (see **Appendix A1** for Study TOR approval and comments). In particular, the study examined the traffic levels at Bayly Street and Brock Road intersection as well as the existing site entrance driveways located on Bayly Street and Brock Road. A detailed set of intersection capacity analysis have been carried out at the study intersections for present and planned site development with 2028 as the build-out year and 2033 as five years after the build-out of the proposed development. The following sections of the report describes the study analyses and presents the study findings.

# EXHIBIT 1.1: KEY MAP

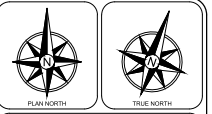
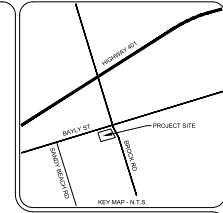
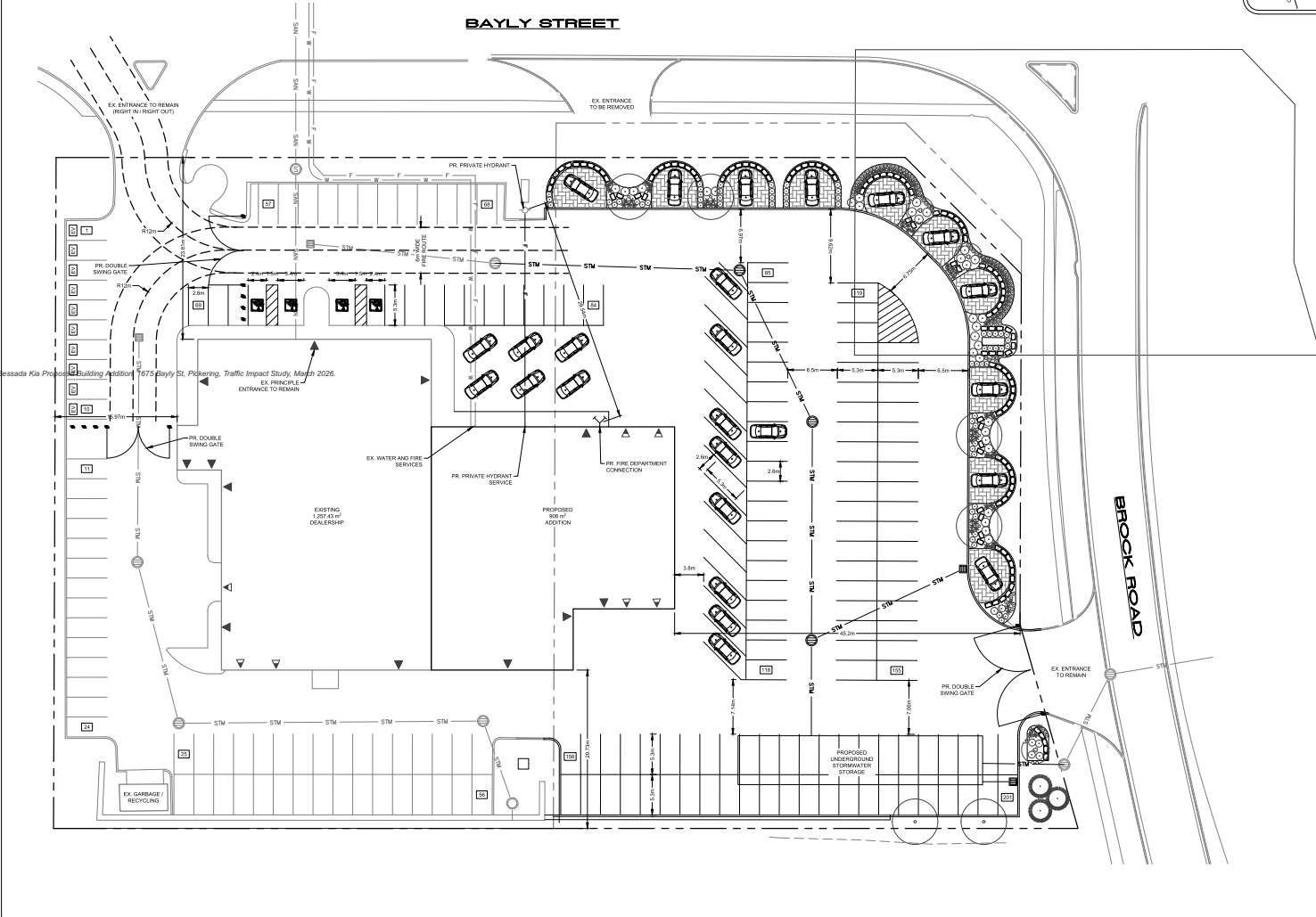


# EXHIBIT 1.2: PROPOSED SITE PLAN

**METRIC**  
ALL UNITS ARE METRIC UNLESS NOTED OTHERWISE

- NOTES**
1. TOPOGRAPHIC SURVEY PROVIDED BY J.D. BARKER LTD. (OCT 26, 2020). ELEVATIONS ARE GEODETIC AND REFERRED TO CITY OF PICKERING BENCHMARK No. R-404 HAVING A PUBLISHED ELEVATION OF 84.684M (CGVD 1985 DATUM).
  2. THE LOCATIONS OF ALL UTILITIES ARE ILLUSTRATIVE ONLY. THE ACCURACY OF LOCATION, DEPTH OR ORIENTATION IS NOT IMPLIED. ALL SUB CONTRACTORS ARE TO CONFIRM IMMEDIATELY THE EXACT LOCATIONS OF ALL UTILITIES AND SHALL ASSUME LIABILITY FOR ANY AND ALL DAMAGES INCURRED BY THEM.
  3. CONSTRUCTION DETAILS NOT SHOWN ON PLANS ARE TO BE REFERENCED TO ONTARIO PROVINCIAL STANDARD DRAWINGS AND MANUFACTURER SPECIFICATIONS & STANDARDS, AS APPLICABLE.

SITE STATISTICS		EXISTING ZONING		EXISTING ZONING		PARKING SPACES		
REGULATIONS	REQUIRED	PROVIDED	TYPE	AREA	COVERAGE	TYPE	REQUIRED	PROVIDED
MIN. LOT AREA	11,086.5 m <sup>2</sup>		TOTAL LOT*	11,086.5 m <sup>2</sup>	100%	VEHICLE SALES	65	201
MIN. FRONT YARD	23.81 m		BUILDINGS	2,187.4 m <sup>2</sup>	20%	3 SPACES PER 1000' GFA		
MIN. REAR YARD	20.73 m		ASPHALT / CONCRETE	7,433.5 m <sup>2</sup>	67%	(2,844.9 m <sup>2</sup> / 130 m <sup>2</sup> x 3)		
MIN. EXTERIOR SIDE YARD	4.52 m		LANDSCAPE	1,469.6 m <sup>2</sup>	13%			
MIN. INTERIOR SIDE YARD	15.87 m		*LOT AREA CONSIDERED IS THE COMBINATION OF BOTH LOTS			ACCESSIBLE PARKING	4	4



REV. NO.	DATE ISSUED	REVISION DESCRIPTION
2	24-03-26	REQUESTED FOR REZONING
1	23-12-26	FOR REZONING

REV. NO.	DATE ISSUED	REVISION DESCRIPTION
2	24-03-26	REQUESTED FOR REZONING
1	23-12-26	FOR REZONING

**BESSADA KIA PROPOSED ADDITION**  
1675 BAYLY STREET  
PICKERING, ON  
PROJECT No: 23-1368



SCALE	DRAWN	CHECKED	APPROVED
1:250	DL	GT	DL

DRAWING TITLE: **SITE PLAN**  
DRAWING No: **C1**



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## 2.0 EXISTING CONDITIONS

### 2.1 The Study Site

The study site and the land uses surrounding the study site (and the study intersections) as well as the existing traffic controls and lane configurations are illustrated in **Exhibit 2.1**. Generally, the study site is a corner property located to south of Bayly Street and to the west of Brock Road. Currently the subject lands comprise of two separate properties, known by municipal addresses 1675 Bayly St. and 1695 Bayly Street. The existing Kia dealership showroom is located on 1675 Bayly Street, and parking spaces on 1695 Bayly Street. The surrounding areas are occupied mostly by commercial establishments.

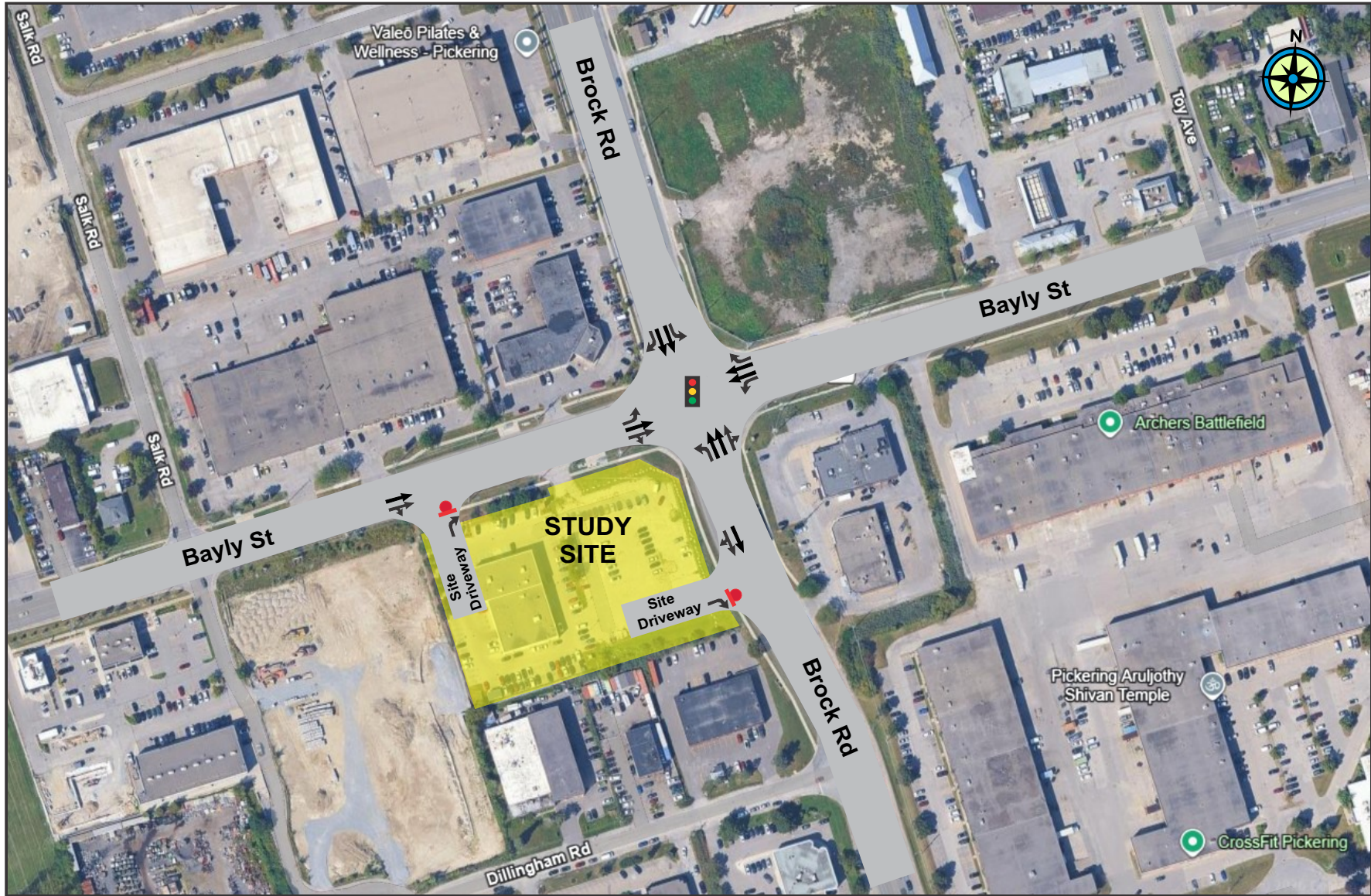
### 2.2 Access to the Study Site

Primary access to the study site is currently provided from Bayly Street. There are two other entrances, one on Bayly Street and one on Brock Road, both of which are currently gated and not open for vehicular traffic.

**Bayly Street (Regional Road 22)** under the jurisdiction of Durham Region is a Type A Arterial Road that runs in the east-west direction connecting Regional Road 38 (Whites Road S) in the west to Lake Ridge Road in the east, beyond which it is known as Victoria Street W. In the vicinity of the study site, it has a four-lane urban cross section (two-lanes in each travel direction) with sidewalks provided on both sides of the street and a posted speed limit of 60 km/h.

**Brock Road (Regional Road 1)** under the jurisdiction of Durham Region is a Type A Arterial Road to north of Bayly St. and a Type C Arterial Road to the south of Bayly St., that runs in the north-south direction starting from Regional Road 47 in the north (Uxbridge) and terminating at Pickering Nuclear Generating Station in the south. In the vicinity of the study site, it has a six-lane urban

# Exhibit 2.1: Existing Traffic Control and Lane Configurations



## LEGEND



Signalized Intersection



Stop Control



Dedicated Left Turn Lane



Dedicated Through Lane



Shared Left and Right Lane



Dedicated Right Turn Lane



Shared Left, Through and Right Turn Lane



Shared Through and Right Turn Lane

cross-section to the north of Bayly St., with sidewalks available on both sides. Whereas, to the south of Bayly St., it has a four-lane urban cross section, a central median and sidewalks on both sides of the street (two-lanes in each travel direction) up till Dillingham Rd, beyond which it has a rural cross-section with gravel shoulders and no sidewalks. Brock Road has a posted speed limit of 60km/hr.

The intersection of Bayly Street and Brock Road is a four-legged signalized intersection with pedestrian crossovers provided on all approach. The north approach has two through lanes and dedicated left and right turn lanes. The south approach has a dedicated left turn lane, two through lanes and a shared through-right turn lane. The west approach has a dedicated left turn lane, one through lane and a shared through-right turn lane. The east approach has dedicated left and right turn lanes, and two through lanes.

### **2.3 Transit Data**

Transit stops serving Durham Region transit routes 101 and 917 are located on Bayly St., right opposite the study site. Transit route 101 provides services to Pickering GO station and route 917 provides services between Pickering Parkway Terminal and Oshawa Centre Terminal, also connecting Ajax GO and Whitby GO stations (see **Appendix A2** for the Route Map and Schedule). The subject property is well connected by both Durham Transit and GO Transit services.

### **2.4 Peak Hour Traffic Volumes**

The study used weekday AM and PM traffic data obtained from Durham Region website, collected in September 2025. Tranplan conducted a traffic count program on March 14, 2026, Saturday to collect weekend mid-day peak hour traffic volumes from the study intersection. Tranplan simultaneously collected site generated peak hour trips from the driveway on Bayly Street during a typical weekday and weekend peak hours. As agreed with the City staff, the 2025 weekday TMC was projected ahead to existing traffic levels by applying an

annual growth rate of 2.0%. For analysis purposes, the site generated peak hour is assumed to coincide with the adjacent street peak hour. The resulting existing peak hour traffic volumes used as the base for analysis at the study intersection and site driveway is illustrated in **Exhibit 2.2(A)**. The base traffic data used for analysis is attached in **Appendix A2**.

## 2.5 Level of Service (LOS)<sup>1</sup>

The existing peak hour traffic volumes were assessed against the capacity of the study area intersections in terms of levels of service and volume/capacity ratios using the Highway Capacity Manual reports produced by *Trafficware Traffic Signal Timing Software -Synchro Version 12.0*. The results are summarized in **Table 2.1** Summary of Intersection Analysis. Detailed Synchro reports from the analysis are contained in **Appendix B**.

As per the Durham Region TIS Guidelines, it is the planning policy of the Region of Durham to operate the road network in an urban setting to a LOS "D" or better. Based on this, the study identifies movements to be critical if it operates at levels of service "E" or "F".

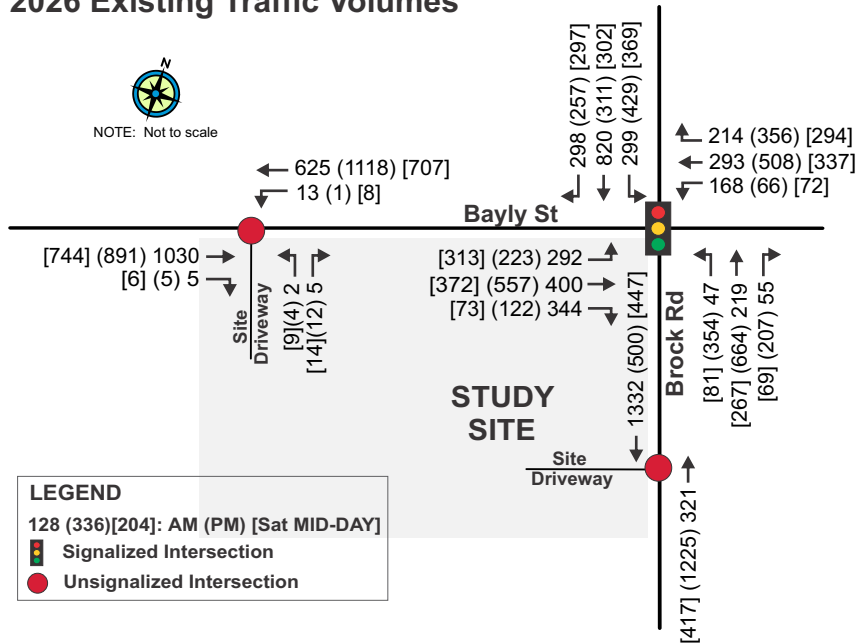
Under the existing conditions, the **Bayly Road/Brock Road** signalized intersection currently operates satisfactorily during the peak periods. It operates with an overall average intersection LOS "C", average delay of 30.4 seconds per vehicle and v/c ratio at 0.73 in the weekday AM peak hour. During the weekday PM peak hour, it is operating at average intersection LOS "D", delays of 43.9 seconds per vehicle and v/c ratio 0.93. During Saturday mid-day peak hour, the intersection is operating at average intersection LOS "C", delays of 28.6 seconds per vehicle and v/c ratio at 0.82. The critical movements identified are the eastbound left turn lane and westbound through lanes on Bayly St., both

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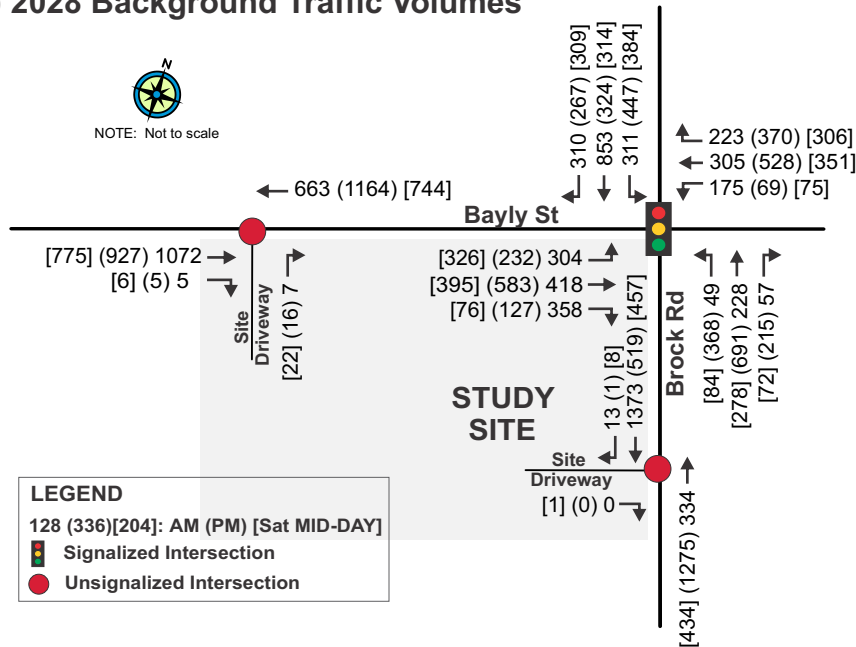
<sup>1</sup> Level of Service (LOS) is commonly used in traffic engineering to describe the level of congestion along a roadway or at an intersection. Levels from "A" to "F" denote increasing amounts of congestion with "F" representing a complete breakdown in traffic flow. Level of Service "C" and "D" are commonly used as design standards. However, many individual turning movements at TWSC intersections and commercial entrances along urban arterial corridor operate at LOS "F" during peak periods. Synchro software capable of producing Highway Capacity Manual results for signalized and unsignalized intersections was used to calculate the Levels of Service.

# Exhibit 2.2: Existing & Background Traffic Volumes

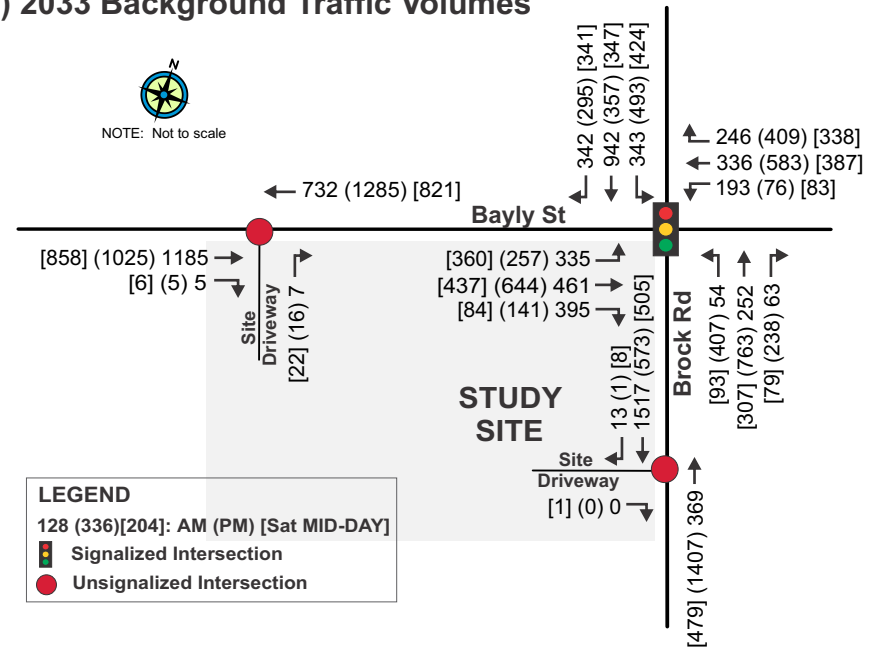
## A) 2026 Existing Traffic Volumes



## B) 2028 Background Traffic Volumes



## C) 2033 Background Traffic Volumes



operating at LOS "E" during the PM peak hour. No other individual movements are operating at critical levels.

Under the existing conditions, the site driveway on Bayly Street was observed to be operating as a full-moves access although it is designed to operate as a Right-In Right-Out (RIRO) driveway restricting left turns. The capacity analysis results when the driveway was assessed as a full moves access indicates that the driveway is operating satisfactorily with the outbound movements operating at LOS "C", delays less than 20 seconds per vehicle during all peak hour periods.

**Table 2.1: Summary of Intersection Capacity Analysis: Existing Conditions**

Intersection	Existing Traffic Condition- 2026											
	AM Peak				PM Peak				Weekend Mid-Day			
Bayly Street and Brock Road (Signalized)	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c
EBL	C	30.5	71.2	0.74	E	59.2	88.5	0.88	D	51.1	#103.0	0.90
EBTTR	D	43.4	#97.6	0.81	D	48.1	118.2	0.76	C	29.4	56.0	0.45
WBL	C	32.6	39.0	0.69	D	42.0	22.6	0.51	C	28.2	19.1	0.29
WBTT	C	33.1	41.4	0.38	E	55.3	95.3	0.75	C	34.4	48.1	0.44
WBR	C	31.3	18.1	0.17	D	45.3	28.9	0.26	C	32.1	22.0	0.21
NBL	C	21.7	10.9	0.22	D	35.2	73.3	0.75	C	22.1	15.8	0.22
NBTTTR	C	25.8	19.1	0.19	D	42.8	97.1	0.65	C	26.6	24.9	0.22
SBL	B	18.4	57.6	0.59	D	49.4	131.5	0.90	B	19.1	68.4	0.68
SBTT	C	26.9	99.3	0.64	C	25.3	41.4	0.24	B	19.2	31.8	0.23
SBR	C	20.8	17.2	0.21	C	25.0	17.1	0.18	B	19.3	16.2	0.21
<b>Average</b>	<b>C</b>	<b>30.4</b>	<b>-</b>	<b>0.73</b>	<b>D</b>	<b>43.9</b>	<b>-</b>	<b>0.93</b>	<b>C</b>	<b>28.6</b>	<b>-</b>	<b>0.82</b>
Site Entrance on Bayly Street	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c
EBTTR	-	0.0	0.0	0.44	-	0.0	0.0	0.38	-	0.0	0.0	0.32
WBLTT	A	0.9	0.6	0.27	A	0.0	0.0	0.48	A	0.4	0.3	0.01
NBLR	C	19.3	0.7	0.03	C	18.0	1.5	0.06	C	16.7	1.9	0.08

NOTE: Delay in seconds; 95th percentile queue in metres as provided in Synchro detail output, see Appendix B; # 95th percentile volume exceeds capacity, queue may be longer. Critical movements are highlighted in red.

## 3.0 TRAFFIC FORECASTS

### 3.1 Background Traffic

Background traffic is defined as all traffic within the study area that is not related to the proposed development. For the purpose of this study, planned build-out of the study site is assumed as 2028 and a five-year planning horizon to 2033 was assumed for assessing the background and total traffic levels. The existing traffic volumes were projected ahead to 2028 and 2033 based on an average growth rate of 2% per annum, applied to all movements of the study intersection. For future traffic conditions, the existing driveway on Bayly Street as well as the driveway on Brock Road (currently closed for vehicular traffic) is assumed to operate as RIRO accesses post the proposed building addition. Based on the City of Pickering website, there are no other development approvals planned in the immediate vicinity of the study site, that has direct impact on the study intersection, hence traffic from other developments is not included in the future traffic analysis.

**Exhibit 2.2(B)** and **Exhibit 2.2(C)** illustrates the forecast 2028 and 2033 background traffic volumes respectively, at the study intersection and the site driveways.

### 3.2 Traffic Generation by the Proposed Development

The forecasts of future site trip generation were developed by comparing the trip generation relationships taken from the current Institute of Transportation Engineers (ITE) *Trip Generation Manual*<sup>2</sup> and the observed trip rates developed by collecting peak hour trips from the existing showroom. The observed site trips are provided in **Appendix A2**. The forecast peak hour site trips for the proposed development are calculated as given below;

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<sup>2</sup> The Institute of Transportation Engineers, based in the United States, is an international association for traffic engineers and transportation planners. The organization publishes a number of handbooks and manuals, including the Trip Generation Manual which is based on American and Canadian experience. The twelfth edition of this publication was used.

- Observed trip rates calculated using Gross Floor Area (GFA) of the existing showroom as the independent variable.
- Using the observed trip rates and proposed building addition area (GFA) as the independent variable, forecast site trip numbers are calculated.
- ITE average rate for land use code (LU) 840 (Automobile Sales-New) was used to calculate the forecast site trip numbers using the proposed building GFA as independent variable.

A comparison of the two methods indicated comparable trip generation rates. Accordingly, the ITE trip rates were adopted for the purposes of the trip generation calculations. The resulting forecast peak hour vehicular trip generation by the proposed building addition is provided in **Table 3.1** below.

**Table 3.1: Trip Generation of the Proposed Development**

LAND USE	WEEKDAY AM PEAK HOUR				WEEKDAY PM PEAK HOUR				WEEKEND MID-DAY PEAK HOUR			
	Trip Generation Rate	Vehicle Trips			Trip Generation Rate	Vehicle Trips			Trip Generation Rate	Vehicle Trips		
		Total	In	Out		Total	In	Out		Total	In	Out
<b>Based on Observed Trip rate at existing Kia showroom</b>												
Existing Kia Showroom (1,257 sq.m.) 13,530 sq.ft.	Observed Rate per 1,000sq.ft.		72%	28%	Observed Rate per 1,000sq.ft.		27%	73%	Observed Rate per 1,000sq.ft.		38%	62%
	1.85	25	18	7	1.63	22	6	16	2.73	37	14	23
Proposed Addition (908 sq.m.) 9,773 sq.ft.	Observed Rate per 1,000sq.ft.	18	72%	28%	Observed Rate per 1,000sq.ft.	16	27%	73%	Observed Rate per 1,000sq.ft.	27	38%	62%
	1.85		13	5	1.63		4	12	2.73		10	17
<b>Based on ITE Trip Generation Manual, 12th Ed.</b>												
Proposed Showroom Addition 908 sq.m. (9,773 sq.ft.) ITE Land Use LU- 840 Automobile Sales-New	ITE Average Rate (Trips Per 1000sq.ft.GFA)	20	73%	27%	ITE Average Rate (Trips Per 1000sq.ft.GFA)	22	40%	60%	ITE Average Rate (Trips Per 1000sq.ft.GFA)	24	54%	46%
	2.0		14	5	2.29		9	13	2.47		13	11
<b>Forecast Site Generated Trips (ITE Rates)</b>	<b>Weekday AM Peak</b>	<b>20</b>	<b>14</b>	<b>5</b>	<b>Weekday PM Peak</b>	<b>22</b>	<b>9</b>	<b>13</b>	<b>Weekend Mid-day Peak</b>	<b>24</b>	<b>13</b>	<b>11</b>

\* Totals may not add-up due to rounding.

The site's proposed building addition is expected to generate a total of 20 vehicle trips in the weekday AM peak hour, 22 vehicle trips in the weekday PM peak hour and 24 vehicle trips in the weekend mid-day peak hour.

### 3.3 Directional Orientation of Site Traffic

The directional orientation of the site traffic is expected to be similar to the trip patterns observed at the study intersections and consistent with population distribution within commuting distance. The proposed use on the study site is

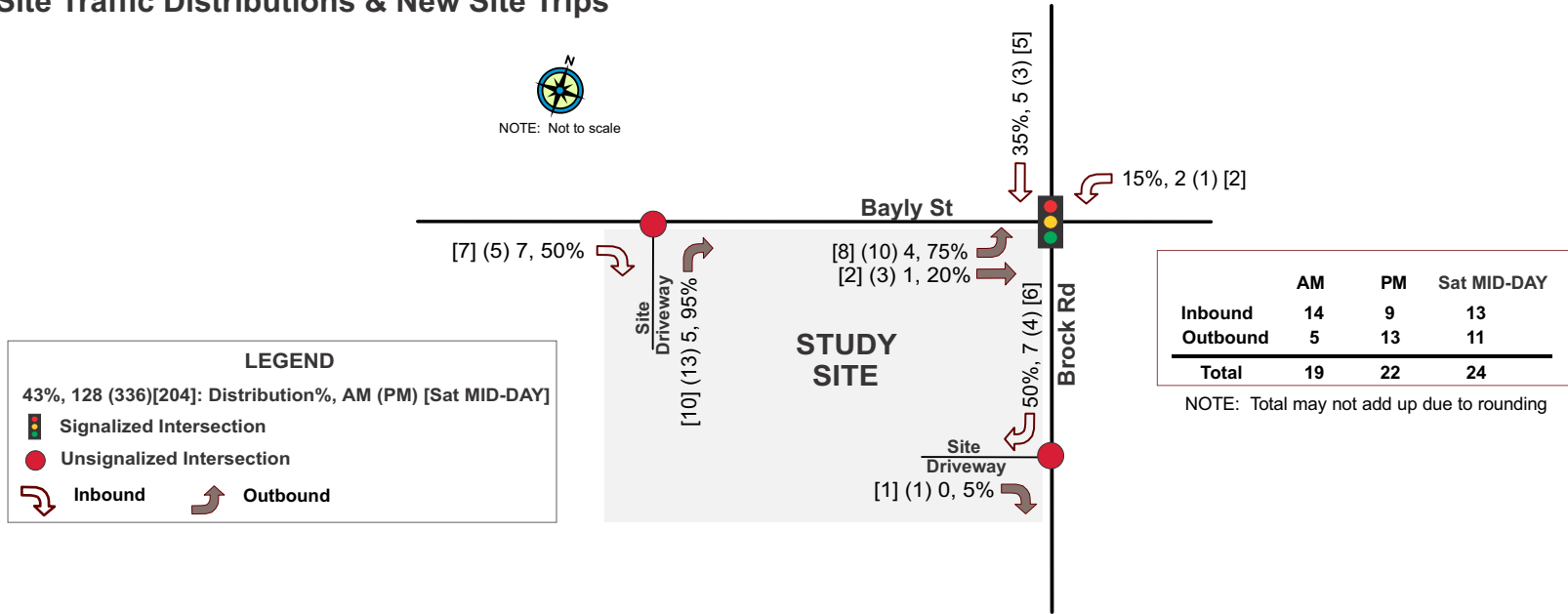
expected to draw traffic mainly from the near-by neighbourhoods/communities. With the proposed additions, the site is expected to operate with two right-in and right-out (RIRO) driveways, the existing operational access on Bayly St. and the gated access on Brock Road. The inbound site traffic is assumed to be equally distributed between two driveways, while about 95% outbound traffic is expected to utilise the Bayly St. driveway to access the signalized intersection of Bayly Street and Brock Road. The remaining 5% outbound traffic is assumed to use the Brock Rd. driveway. The forecast trip distribution patterns and volumes are illustrated in **Exhibit 3.1(A)**.

### **3.4 Projected Total Traffic Volumes**

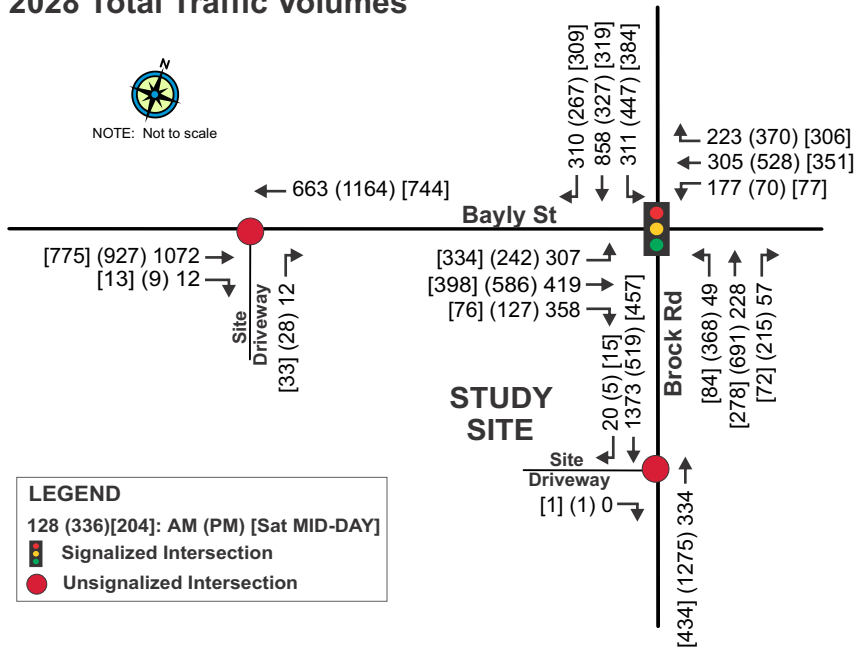
The future total traffic volumes (2028 & 2033) are produced by adding the proposed development traffic to the respective background traffic volumes. **Exhibit 3.1(B)** and **Exhibit 3.1(C)** shows the projected total traffic volumes for 2028 and 2033 planning horizons respectively.

# Exhibit 3.1: Future Traffic Volumes

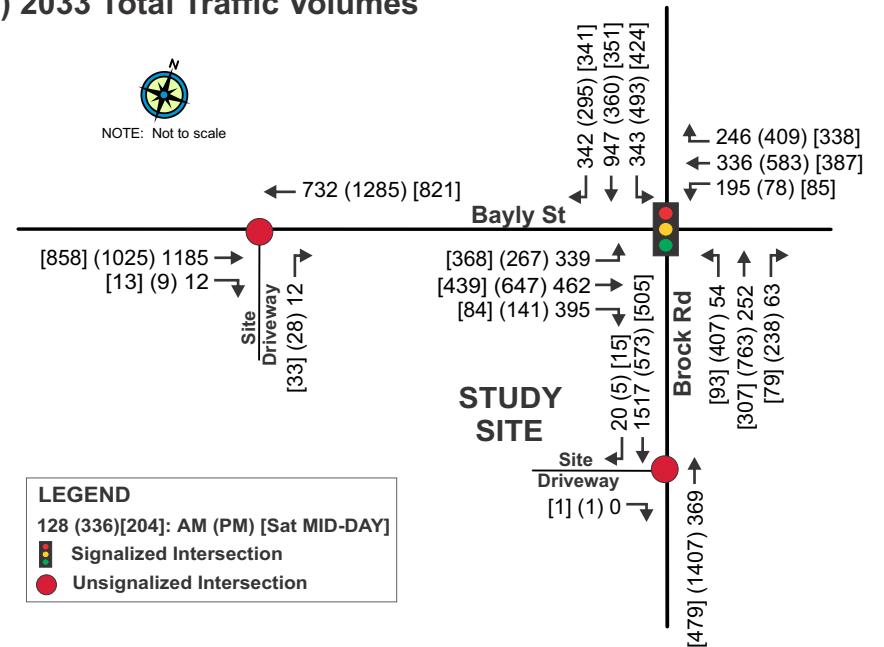
## A) Site Traffic Distributions & New Site Trips



## B) 2028 Total Traffic Volumes



## C) 2033 Total Traffic Volumes



## 4.0 ANALYSIS OF PROJECTED TRAFFIC VOLUMES

Detailed intersection capacity analyses of 2028 and 2033 planning horizons with and without the proposed development were carried out using *Trafficware Traffic Signal Timing Software - Synchro Version 12.0*. The results are summarized in **Table 4.1** and **Table 4.2**, and detailed reports from the analyses are contained in **Appendix B Intersection Capacity Analyses**.

### 4.1 Levels of Service-Background Traffic Condition

#### Background Traffic Condition-2028

Under the 2028 background traffic levels, the **Bayly Street/Brock Road** signalized intersection is forecast to continue operating at acceptable overall intersection levels of service. It is expected to operate at average intersection LOS "C", delays of approximately 31.7 seconds per vehicle, v/c ratio at 0.77 during AM peak hour. While during PM peak hour, it is forecast to operate at average LOS "D", delays of 47.1 seconds per vehicle and v/c ratio at 0.97, with the eastbound left turn lane movement, westbound through movement and southbound left turn movement forecast to operate at critical LOS "E". At mid-day peak hour, the intersection is expected to operate at average intersection LOS "C", delays of 30.3 seconds per vehicle, v/c ratio at 0.87, with the eastbound left turn lane forecast to operate at critical levels.

#### Background Traffic Condition-2033

Under the 2033 background traffic levels, the **Bayly Street/Brock Road** signalized intersection is forecast to continue operating at acceptable overall intersection levels of service during the weekday AM and weekend mid-day peak hour. It is expected to operate at average intersection LOS "D", delays of approximately 37.3 seconds per vehicle, v/c ratio at 0.86 during AM peak hour, with the eastbound through/shared through-right turn movement falling

to critical levels. At weekend mid-day peak hour, the intersection is expected to operate at average intersection LOS "D", delays of 36.3 seconds per vehicle, v/c ratio at 0.99, with the eastbound left turn lane forecast to operate at critical levels (LOS "F", delays of 108.9 and v/c ratio at 1.11). While during the PM peak hour, the overall intersection operations are expected to fail with multiple turning movements forecast to fall to critical levels. The intersection would operate at intersection average LOS "E", delays of 58.2 seconds per vehicle and v/c ratio at 1.08.

**Table 4.1: Summary of Intersection Capacity Analysis: Background Conditions**

Intersection	Background Traffic Condition- 2028												Background Traffic Condition- 2033												
	AM Peak				PM Peak				Weekend Mid-Day				AM Peak				PM Peak				Weekend Mid-Day				
	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	
<b>Bayly St on Brock Rd</b>																									
EBL	C	33.2	#79.2	0.78	E	72.2	#100.9	0.94	E	63.4	#114.3	0.96	D	46.2	#77.1	0.89	F	126.3	#131.0	1.11	F	108.9	#144.6	1.11	
EBTR	D	46.4	#105.6	0.85	D	49.9	125.1	0.80	C	29.8	59.6	0.47	E	62.9	#126.3	0.97	E	62.9	#153.3	0.93	C	30.7	66.5	0.53	
WBL	C	34.0	40.7	0.71	D	45.1	23.3	0.57	C	28.4	19.8	0.31	D	38.0	#52.4	0.77	D	53.5	#27.2	0.67	C	28.7	21.5	0.36	
WBTT	C	33.4	43.1	0.39	E	57.0	99.4	0.78	C	34.7	50.1	0.46	C	34.0	47.3	0.43	E	65.6	#119.5	0.89	D	35.5	55.1	0.51	
WBR	C	31.5	18.4	0.18	D	45.6	29.8	0.27	C	32.3	22.5	0.22	C	31.8	19.4	0.20	D	46.7	31.7	0.30	C	32.6	23.7	0.24	
NBL	C	22.0	11.4	0.24	D	40.0	#82.0	0.80	C	22.3	16.2	0.23	C	22.9	12.4	0.30	E	59.5	#112.9	0.93	C	23.0	17.7	0.26	
NBTTTR	C	26.0	20.0	0.20	D	45.7	102.0	0.71	C	26.8	25.9	0.23	C	26.4	22.1	0.22	D	52.5	115.4	0.84	C	27.7	28.9	0.26	
SBL	B	19.0	60.0	0.61	E	56.5	#157.1	0.92	C	20.1	71.8	0.71	C	21.0	67.4	0.69	E	70.7	#194.0	0.98	C	24.2	81.4	0.79	
SBTT	C	27.6	104.5	0.67	C	25.6	43.1	0.25	B	19.3	33.0	0.24	C	29.6	119.1	0.74	C	25.7	47.5	0.27	B	19.6	36.4	0.27	
SBR	C	21.0	17.4	0.22	C	25.2	17.1	0.19	B	19.4	16.5	0.22	C	21.3	18.1	0.25	C	25.7	24.8	0.24	B	19.7	17.2	0.24	
Average	C	31.7		0.77	D	47.1		0.97	C	30.3		0.87	D	37.3		0.86	E	58.2		1.08	D	36.3		0.99	
<b>Site Entrance on Bayly Street</b>																									
EBT		0.0	0.0	0.46		0.0	0.0	0.40		0.0	0.0	0.33		0.0	0.0	0.51		0.0	0.0	0.44		0.0	0.0	0.37	
EBTR		0.0	0.0	0.24		0.0	0.0	0.20		0.0	0.0	0.17		0.0	0.0	0.26		0.0	0.0	0.22		0.0	0.0	0.19	
WBTT		0.0	0.0	0.21		0.0	0.0	0.37		0.0	0.0	0.24		0.0	0.0	0.23		0.0	0.0	0.41		0.0	0.0	0.26	
NBR	B	13.1	0.4	0.02	B	12.4	0.8	0.03	B	11.5	1.0	0.04	B	13.9	0.5	0.02	B	13.0	0.9	0.04	B	12.0	1.1	0.04	
<b>Site Entrance on Brock Road</b>																									
EBR	A	0.0	0.0	0.00	A	0.0	0.0	0.00	A	9.0	0.0	0.00	A	0.0	0.0	0.00	A	0.0	0.0	0.00	A	9.0	0.0	0.00	
NBTT		0.0	0.0	0.11		0.0	0.0	0.41		0.0	0.0	0.14		0.0	0.0	0.12		0.0	0.0	0.45		0.0	0.0	0.15	
SBT		0.0	0.0	0.58		0.0	0.0	0.22		0.0	0.0	0.19		0.0	0.0	0.65		0.0	0.0	0.24		0.0	0.0	0.22	
SBTR		0.0	0.0	0.30		0.0	0.0	0.11		0.0	0.0	0.10		0.0	0.0	0.33		0.0	0.0	0.24		0.0	0.0	0.11	

NOTE: Delay in seconds; 95th percentile queue in metres as provided in Synchro detail output, see Appendix B; # 95th percentile volume exceeds capacity, queue may be longer. Critical movements are highlighted in red.

The site entrance driveways (when the existing site trips are redistributed to the two RIRO driveways), are projected to operate satisfactorily with acceptable LOS and delays for the right turn movements during all peak periods of both planning horizons.

## 4.2 Levels of Service- Total Traffic Condition

The impact of the proposed addition of site traffic is assessed by comparing the capacity analysis results of total traffic condition with the background traffic condition.

### Total Traffic Condition-2028

Under the 2028 total traffic levels, the **Bayly Street/Brock Road** signalized intersection is forecast to continue operating at acceptable overall intersection levels of service during all peak periods. The intersection is expected to operate at average intersection LOS "C", delays of approximately 31.8 seconds per vehicle (*additional 0.1 seconds from background condition*), and v/c ratio at 0.77 during AM peak hour. While during PM peak hour, it is forecast to operate at average LOS "D", delays of 47.8 seconds per vehicle (*additional 0.7 seconds*) and v/c ratio at 0.99, with the eastbound left turn lane movement, westbound through movement and southbound left turn movement forecast to operate at critical LOS "E". With the addition of site traffic, an additional delay of 11.3 seconds per vehicle is forecast for the eastbound left turn movement. During mid-day peak hour, the intersection is expected to operate at average intersection LOS "C", delays of 31 seconds per vehicle (*additional 0.7 seconds*), v/c ratio at 0.88, with the eastbound left turn lane forecast to continue to operate at critical levels (*additional delays of 5.8 seconds*).

### Total Traffic Condition-2033

Under the 2033 total traffic levels, the **Bayly Street/Brock Road** signalized intersection is forecast to continue operating at acceptable overall intersection levels of service during the weekday AM and weekend mid-day peak hour.

It is expected to operate at average intersection LOS "D", delays of approximately 37.7 seconds per vehicle (*additional 0.4 seconds*), v/c ratio at 0.86 during AM peak hour, with the eastbound through/shared through-right turn movement forecast to operate at critical levels (*additional 1.1 seconds of delay per vehicle*).

During weekend mid-day peak hour, the intersection is expected to operate at average intersection LOS "D", delays of 37.3 seconds per vehicle (*additional 1 seconds*), v/c ratio at 1.0, with the eastbound left turn lane forecast to

continue to operate at critical levels (LOS "F", additional delays of 8 seconds and v/c ratio at 1.13).

While during the PM peak hour, the overall intersection operations are expected to fail with multiple turning movements forecast to operate at critical levels. The intersection would operate at intersection average LOS "E", delays of 59.3 seconds per vehicle (*additional 1.1 seconds*) and v/c ratio at 1.09. With the addition of site traffic, highest additional delays are projected for the eastbound left turn movement, approximately 13.8 seconds per vehicle. All other critical movements are expected to have only slight increase in delays.

The site driveways with the addition of site traffic are forecast to operate at good levels of service (LOS) "B" or better with acceptable delays, v/c ratios and queue lengths.

**Table 4.2: Summary of Intersection Capacity Analysis: Total Conditions**

Intersection	Total Traffic Condition- 2028												Total Traffic Condition- 2033												
	AM Peak				PM Peak				Weekend Mid-Day				AM Peak				PM Peak				Weekend Mid-Day				
	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	
<b>Bayly St on Brock Rd</b>																									
EBL	C	33.9	#81.8	0.79	F	83.5	#108.6	0.98	E	69.2	#119.3	0.98	D	47.9	#78.5	0.90	F	140.1	#137.0	1.15	F	116.9	#156.3	1.13	
EBTR	D	46.6	#106.1	0.85	D	50.1	125.6	0.80	C	29.9	60.1	0.48	E	64.0	#126.5	0.98	E	63.3	#154.2	0.93	C	30.7	66.8	0.53	
WBL	C	34.6	41.4	0.72	D	46.2	23.5	0.58	C	28.4	20.2	0.32	D	38.3	#53.2	0.77	E	55.4	#28.7	0.69	C	28.8	21.8	0.37	
WBTR	C	33.4	43.1	0.39	E	57.0	99.4	0.78	C	34.7	50.1	0.46	C	34.0	47.3	0.43	E	65.6	#119.5	0.89	D	35.5	55.1	0.51	
WBR	C	31.5	18.4	0.18	D	45.6	29.8	0.27	C	32.3	22.5	0.22	C	31.8	19.4	0.20	D	46.7	31.7	0.30	C	32.6	23.7	0.24	
NBL	C	22.0	11.4	0.24	D	40.1	#82.4	0.81	C	22.3	16.2	0.23	C	22.9	12.4	0.30	E	59.8	#113.2	0.93	C	23.0	17.7	0.26	
NBTR	C	26.0	20.0	0.20	D	45.7	102.0	0.71	C	26.8	25.9	0.23	C	26.4	22.1	0.22	D	52.5	115.4	0.84	C	27.7	28.9	0.26	
SBL	B	19.0	60.0	0.61	E	56.5	#157.1	0.92	C	20.1	71.8	0.71	C	21.0	67.4	0.69	E	70.7	#194.0	0.98	C	24.2	81.4	0.79	
SBTR	C	27.7	105.3	0.68	C	25.6	43.5	0.25	B	19.3	33.6	0.24	C	29.7	119.8	0.75	C	25.7	47.8	0.27	B	19.6	36.4	0.27	
SBR	C	21.0	17.4	0.22	C	25.2	17.1	0.19	B	19.4	16.5	0.22	C	21.3	18.1	0.25	C	25.7	24.8	0.24	B	19.7	17.2	0.24	
<b>Average</b>	<b>C</b>	<b>31.8</b>		<b>0.77</b>	<b>D</b>	<b>47.8</b>		<b>0.99</b>	<b>C</b>	<b>31.0</b>		<b>0.88</b>	<b>D</b>	<b>37.7</b>		<b>0.86</b>	<b>E</b>	<b>59.3</b>		<b>1.09</b>	<b>D</b>	<b>37.3</b>		<b>1.00</b>	
<b>Site Entrance on Bayly Street</b>	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	
EBT	0.0	0.0	0.46		0.0	0.0	0.40		0.0	0.0	0.33		0.0	0.0	0.51		0.0	0.0	0.44		0.0	0.0	0.0	0.37	
EBTR	0.0	0.0	0.24		0.0	0.0	0.20		0.0	0.0	0.17		0.0	0.0	0.26		0.0	0.0	0.22		0.0	0.0	0.0	0.19	
WBTT	0.0	0.0	0.21		0.0	0.0	0.37		0.0	0.0	0.24		0.0	0.0	0.23		0.0	0.0	0.41		0.0	0.0	0.0	0.26	
NBR	B	13.2	0.7	0.03	B	12.6	1.5	0.06	B	11.7	1.6	0.06	B	14.1	0.8	0.03	B	13.3	1.6	0.06	B	12.2	1.7	0.07	
<b>Site Entrance on Brock Road</b>	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	LOS	Delay	95th Queue	v/c	
EBR	B	10.1	0.0	0.00	A	9.1	0.1	0.00	A	9.0	0.0	0.00	B	10.2	0.0	0.00	A	9.2	0.1	0.00	A	9.0	0.1	0.00	
NBTR	0.0	0.0	0.11		0.0	0.0	0.41		0.0	0.0	0.14		0.0	0.0	0.12		0.0	0.0	0.45		0.0	0.0	0.0	0.15	
SBTR	0.0	0.0	0.58		0.0	0.0	0.22		0.0	0.0	0.19		0.0	0.0	0.65		0.0	0.0	0.24		0.0	0.0	0.0	0.22	
SBR	0.0	0.0	0.30		0.0	0.0	0.11		0.0	0.0	0.10		0.0	0.0	0.34		0.0	0.0	0.13		0.0	0.0	0.0	0.12	

NOTE: Delay in seconds; 95th percentile queue in metres as provided in Synchro detail output, see Appendix B; # 95th percentile volume exceeds capacity, queue may be longer. Critical movements are highlighted in red.

## Summary

The capacity analysis results of background and total traffic levels indicate that the addition of site traffic has minor impact on the study intersection. The critical operations of the intersection, particularly during the PM peak hour can

be attributed to the general incremental increase in traffic volumes at this major arterial road intersection from background traffic growth. With the site traffic addition, the additional overall intersection delay is forecast to be less than 1.5 seconds per vehicle, which is negligible. Therefore, physical mitigation measures or off-site road improvements are not expected to be required to support the proposed building addition at the site.

The critical movements and the overall intersection operation of Bayly Street and Brock Road intersection can be improved to some extent by adjusting the existing signal timing plan (optimised cycle length). The synchro results for 2033 total traffic condition by optimising the existing cycle length to 90 seconds is provided in Appendix B. The results indicate that the overall intersection average LOS improves from "E" to "D", and average delays reduce to 48.1 seconds per vehicle from 59.3 seconds per vehicle during the PM peak hour.

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## 5.0 SITE PLAN REVIEW

### 5.1 Site Entrance

As per the Region's comments on the existing site accesses, the westerly entrance on Bayly Street and the south entrance on Brock Road will operate as the primary access points to the site. The existing easterly access on Bayly Street will be closed and removed as it is located within the functional area of the signalized intersection.

The westerly (currently operational) driveway on Bayly St. is designed to restrict left turns in and out from the site by providing a central triangular island. However, field observations indicated non-compliance with the intended access restrictions, with vehicles observed making left-turn ingress movements from east of Bayly Street and left-turn egress movements toward west of Bayly Street. To ensure safe access for vehicular traffic, this left-turn restriction is recommended to be reinforced by installing a "No Left Turn" signpost at the central island facing the outgoing lane from the site to restrict outgoing left turns. For incoming left turns, a "No Entry" signpost may be installed on the central island facing the incoming traffic from Bayly Street. The Brock Rd. entrance is not channelized with a central triangular island; however, left-turn movements are inherently restricted by the raised centre median on Brock Road.

According to the Transportation Association of Canada (TAC) Design Guide, a minimum corner clearance<sup>3</sup> of 70 metres is recommended between a driveway and a signalized intersection, for driveways located on an arterial road. The existing driveways on Bayly St. and Brock Rd. is located approximately 105 metres and 71 metres respectively from the Bayly St./Brock Rd. intersection and satisfies the TAC recommended minimum corner clearance requirement.

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<sup>3</sup> Based on Chapter 8, Figure 8.8.2 of TAC Manual

## 5.2 Vehicle Movement Diagrams

The site access and the internal circulation is carried out based on the Transportation Association, Canada (TAC) Design Vehicle Standards. In particular, the assessments are based on TAC Passenger vehicle (5.6 metres), standard Front Loading Garbage truck(10m), and a standard Fire Truck. The vehicle movement diagrams (see **Appendix C**) indicate that

- a standard fire truck can safely access/egress the existing driveways on Bayly Street and Brock Road.
- a 10 metre-long front-loading garbage truck can safely manoeuvre in and out of the site and easily access the garbage enclosure located at the southern limits of the site.
- a TAC standard large passenger car of 5.6 metres long has safe access/egress from/to all the proposed parking spaces when tested using rear-in configuration.
- a 20 metre long car carrier truck can fairly access the site from west of Bayly Street and egress the site from the Brock Road driveway. The truck is assumed to unload cars along the southwest limits of the site, and as the vehicle path may interfere with the existing curbs located to the west side of the existing building, it is recommended that this curb be removed or modified as to accommodate the smooth flow of carrier truck internally.

## 6.0 PRINCIPAL FINDINGS AND RECOMMENDATIONS

This traffic impact study was carried out in support of the proposed building addition at the existing Bessada Kia showroom, located at 1675 & 1695 Bayly Street, in Pickering. The traffic operational analyses described in this report have provided a detailed examination of the anticipated impacts of future background and site-generated traffic on the adjacent study road network. The following are the principal findings from the study.

### 6.1 Existing Condition

- Under the existing traffic levels, the study intersection is operating at acceptable overall levels of service during all peak periods. The eastbound left turn movement and westbound through movement on Bayly St. was identified to operate at critical levels during the PM peak hour.

### 6.2 Background Traffic Condition

- For planning purposes, the existing traffic volumes were projected ahead to 2028 and 2033 planning horizons based on an average growth rate of 2% per annum for the roads in the study area.
- At the background traffic levels, the overall intersection operations would continue to operate at acceptable levels of service "D" or below during all peak periods of the planning horizons.
- During weekday morning peak hour, the eastbound through/shared through-right turn movement is expected to fall to critical levels of service.
- During weekday evening peak hour, multiple individual turning movements of the intersection are expected to operate at critical levels

of service, increased delays and v/c ratio over 0.85.

- During weekend mid-day peak hour, the eastbound left turn movement would operate at poor levels of service "F" and v/c ratio over 1.0.

### 6.3 Site Traffic

- The proposed development with the building addition is projected to generate approximately 20 vehicle trips in the AM peak hour, 22 vehicle trips in the PM peak hour, and 24 vehicle trips in the weekend mid-day peak hour and is summarized below.

### 6.4 Total Traffic Volumes

- The critical movements of Bayly St./Brock Rd. intersection, identified at the background traffic levels would continue to operate at critical levels of service with the addition of site traffic.
- The addition of site generated traffic, however, has only minor impact on the study area intersections. The only critical movement impacted by the addition of site traffic is the eastbound left turn movement on Bayly Street, with highest additional delays of approximately 13.8 seconds per vehicle in the PM peak hour.
- The overall intersection operations are expected to improve to some extent by adjusting the existing signal timing plan (optimized cycle length).

### 6.5 Site Plan Review

- The showroom after expansion will operate with two driveways, the existing westerly entrance on Bayly St. and south entrance on Brock Road. The existing easterly entrance on Bayly St. will be closed and

removed.

- The site driveways will function as right-in right-out driveways as required by Durham Region. Additionally, the left turn restriction is recommended to be reinforced at the Bayly St. entrance by installing “No Left Turn” and “No Entry” signposts at appropriate locations.
- The locations of both the driveways satisfy the TAC minimum corner clearance standard of 70 metres from the signalized intersection of Bayly Street/Brock Road.
- The internal circulation review indicates acceptable manoeuvring of a standard fire truck, garbage truck, and TAC standard large passenger car at the site driveways and internal site areas. To accommodate the smooth internal flow of car carrier truck, the existing curbs located along west side of existing building is recommended to be modified or removed.

The following are the study recommendations.

- 6.6 The critical movements at Bayly Street/Brock Road intersection may be improved by optimising the current signal timing plan (optimised cycle lengths). It is recommended that the existing signal timing at this intersection be monitored and reviewed for improvements by 2033.
- 6.7 It is recommended that the left turn restrictions on Bayly St. entrance be strictly implemented by installing signposts such as “No Left Turn” to alert outgoing traffic and “No Entry” to alert incoming left turning traffic from Bayly Street.
- 6.8 No other physical mitigation measures or off-site road improvements are considered necessary at the study intersection to accommodate traffic from the proposed building addition.

# **TECHNICAL APPENDIX**

**APPENDIX A1**  
**Study Terms of Reference**  
**Municipality Comments**  
**Region Comments**



February 13, 2026

**Proposed Building Addition  
Bessada Kia  
1675/1695 Bayly Street  
Pickering**

Attention:

Nadeem Zahoor  
Manager, Transportation and Traffic  
City of Pickering

**Re: Terms of Reference of a Traffic Impact Study for the Proposed Building Addition located at Bessada Kia, 1675 Bayly Street, Pickering.**

Please find below the suggested Traffic Impact Study scope of work for your review and comments for the proposed development project located at 1675/1695 Bayly Street, Pickering.

1. The study will follow the Durham Region Traffic Impact Study Guidelines and will be based on Transportation Association Canada (TAC) standards using Institute of Transportation Engineers (ITE) and Highway Capacity Manual (HCM) methodologies.
2. Enclosed Site plan indicates that the proposal is to construct a 1,360.9 sq.m. (14,648.6 sq.ft.) GFA addition to the existing showroom building. The expanded showroom will facilitate sale/service of electric vehicles. A parking area is also proposed on the currently vacant land of 1695 Bayly Street.
3. The trip generation forecast will be based on comparison of observed trip rates developed from the existing operations and ITE trip rates generated from ITE Trip Generation Manual, 12<sup>th</sup> Edition, land use code LU 840 (Automobile Sales-New).



4. The following are the study intersection(s) proposed for intersection capacity analysis:
  - Bayly Street / Brock Street
  - Existing Site Driveways on Bayly Street and Brock Street
5. Turning movement counts for Brock Street and Bayly Road intersection, dated September 19 2024 (Thursday) are available from the Durham Region Traffic Volume Count Map. Please confirm if these volumes, projected to 2026 traffic levels (by applying an annual growth rate of 2%) can be used as the base for study analysis.
6. The assessments will be carried out for typical weekday AM, PM peak hours. Please advise if a Saturday mid-day peak hour assessment is to be included.
7. The planning horizons considered for the study background and total traffic are 2028 (full build-out year) and 2033 (5 years from build-out).
8. The background traffic growth rate for future planning horizons will be at 2% per annum (compounded) for the study intersections unless otherwise specified.
9. Background Developments: If there are any nearby background development applications in the planning approval stage, kindly request City/Region to provide details of the development and necessary documents for inclusion in this study.
10. The directional orientation of the site traffic will be estimated on the basis of the observed traffic patterns at the study intersections.
11. Synchro 12 software will be used for the intersection capacity analyses with the observed/forecast volumes. The City of Pickering/ Durham Region will be consulted for any infrastructure improvements, that required to be applied to the analysis.



12. The impact of additional site traffic will be assessed at the study intersections.
13. Site Plan Review including assessment of internal site circulation using AutoTURN based on suitable design vehicles (e.g. passenger car, waste collection trucks, fire trucks) will be carried out.
14. Site Access Review to ensure that the existing site access conforms to TAC standards in terms of corner clearances, clear throat lengths, sight lines and any safety issues associated with the driveways will be identified.
15. The traffic study findings, conclusions, including any mitigation measure will be clearly identified and will be provided with recommendations.
16. Other concerns/issues raised by the staff from the City will be addressed.

Please feel free to suggest any items of concern which we may not have addressed in this study scope.

Yours truly,

Sreelakshmi Changaradil, P.Eng.  
Tranplan Associates



Sree Venugopal &lt;sree@tranplan.com&gt;

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**Traffic Study Terms of Reference- 1675 Bayly Street-Pickering**

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**Dave Shaw** <daves@kirbystructures.com>  
To: Sree Venugopal <sree@tranplan.com>

Fri, Mar 6, 2026 at 11:51 AM

Good morning Sree,

We received these comments back from the City, I'm guessing you've received them also but figured I would forward them to you in the event you hadn't yet.

Regards,

Dave Shaw | Project Manager



P:905 723-2223 x228 | C:905 259-4706 | [www.kirbystructures.com](http://www.kirbystructures.com)

---

**From:** Steve Edwards <[Steve.edwards1909@outlook.com](mailto:Steve.edwards1909@outlook.com)>  
**Sent:** Thursday, March 5, 2026 10:28 AM  
**To:** Zahoor, Nadeem <[nzahoor@pickering.ca](mailto:nzahoor@pickering.ca)>; [richard.szarek@durham.ca](mailto:richard.szarek@durham.ca)  
**Cc:** Dean Taylor <[dean@kirbystructures.com](mailto:dean@kirbystructures.com)>; Dave Shaw <daves@kirbystructures.com>  
**Subject:** Re: Traffic Study Terms of Reference- [1675 Bayly Street-Pickering](#)

Nadeem thank-you for the quick response. Steve

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**From:** Zahoor, Nadeem <[nzahoor@pickering.ca](mailto:nzahoor@pickering.ca)>  
**Sent:** March 4, 2026 1:23 PM  
**To:** [Steve.edwards1909@outlook.com](mailto:Steve.edwards1909@outlook.com) <[Steve.edwards1909@outlook.com](mailto:Steve.edwards1909@outlook.com)>; [richard.szarek@durham.ca](mailto:richard.szarek@durham.ca) <[richard.szarek@durham.ca](mailto:richard.szarek@durham.ca)>  
**Cc:** Dean Taylor <[dean@kirbystructures.com](mailto:dean@kirbystructures.com)>; Lima, Isabel <[lilima@pickering.ca](mailto:lilima@pickering.ca)>  
**Subject:** FW: Traffic Study Terms of Reference- [1675 Bayly Street-Pickering](#)

Hi Steve,

Thank you for providing the terms of reference for the city review. The proposed development is on Brock and Bayly intersection which is under the jurisdiction of the Region. However, we have couple of below comments:

- Please include traffic operational analysis for the Saturday mid-day peak hour.
- Please include a list of background development list in the traffic report as well.

Thanks Nad

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**From:** Steve Edwards <[Steve.edwards1909@outlook.com](mailto:Steve.edwards1909@outlook.com)>

**Sent:** March 4, 2026 10:26 AM

**To:** Zahoor, Nadeem <[nzahoor@pickering.ca](mailto:nzahoor@pickering.ca)>; [richard.szarek@durham.ca](mailto:richard.szarek@durham.ca)

**Cc:** Dean Taylor <[dean@kirbystructures.com](mailto:dean@kirbystructures.com)>; [sree@tranplan.com](mailto:sree@tranplan.com); Dave Shaw <[daves@kirbystructures.com](mailto:daves@kirbystructures.com)>;  
Lima, Isabel <[ilima@pickering.ca](mailto:ilima@pickering.ca)>

**Subject:** Fw: Traffic Study Terms of Reference- [1675 Bayly Street-Pickering](#)

**EXTERNAL EMAIL:** This message originated from outside your organization. Exercise caution when replying, opening attachments or clicking links.

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[Quoted text hidden]



Sree Venugopal &lt;sree@tranplan.com&gt;

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**Re: Bessada Kia traffic study**

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**Steve Edwards** <Steve.edwards1909@outlook.com>

Tue, Mar 17, 2026 at 12:05 PM

To: Sree Venugopal &lt;sree@tranplan.com&gt;

Cc: Dean Taylor &lt;dean@kirbystructures.com&gt;, Dave Shaw &lt;daves@kirbystructures.com&gt;

Sree, here are the comments I received back from Region Traffic on the terms of reference. I have not reviewed it. Hopefully you find the direction clear and there's nothing onerous. Please let us know if there are any issues, thank-you. Steve

Steve Edwards R.P.P.  
289-387-0026

---

**From:** Arash Olia <[Arash.Olia@durham.ca](mailto:Arash.Olia@durham.ca)>**Sent:** March 17, 2026 11:58 AM**To:** Lino Trombino <[Lino.Trombino@Durham.ca](mailto:Lino.Trombino@Durham.ca)>**Cc:** Doug Robertson <[Doug.Robertson@Durham.ca](mailto:Doug.Robertson@Durham.ca)>; Steve Edwards <[Steve.edwards1909@outlook.com](mailto:Steve.edwards1909@outlook.com)>; Chris Leitch <[Chris.Leitch@Durham.ca](mailto:Chris.Leitch@Durham.ca)>**Subject:** RE: Bessada Kia traffic study

Hi Lino,

Thanks for sharing the ToR. We have reviewed it and provide the following comments:

1. The most current intersection Turning Movement Counts (TMC), Automatic Traffic Recorder (ATR) counts, and AADT data available from the Region can be downloaded from the interactive [traffic counts map](#) on our website. Any TMC and ATR data utilized shall be from 2024 or later.
2. Other traffic data, including signal timings, are available for purchase from our Traffic Engineering & Operations Division ([traffic@durham.ca](mailto:traffic@durham.ca) 905-666-8116).
3. The study is to include a site visit to observe existing infrastructure and operations for all travel modes. Key observations are to be included in the report, including any observed operational or safety issues. Observations of existing traffic operations (e.g., queue lengths) should be used to validate the existing conditions Synchro analysis results.
4. Bayly Street is classified as a Type "A" Arterial Road. In accordance with the Regional Official Plan (ROP), Table 5, Type "A" Arterial Roads are subject to the highest level of access control, with private accesses generally required to be located a minimum of 200 m from adjacent intersections or other accesses. The proposed concept site plan identifies two access points to Bayly Street and one to Brock Road. The easterly access on Bayly Street, which also corresponds to an existing access, is located within the functional area of the intersection and in close proximity to the existing westerly access. As such, the Region cannot support this access remaining operational (it appears to currently be gated). Accordingly, the Region will require this access to be closed and removed, and the site is to be evaluated based on one right-in/right-out (RI/RO) access each to Bayly Street and Brock Road, at the west and south limits of the site, respectively.

5. Assuming 2% as an annual growth rate is acceptable. The City of Pickering can advise on any background developments that should be incorporated.
6. Please ensure that the trip distribution assumptions are also thoroughly documented.
7. Please ensure that your study includes sufficient documentation to justify the trip generation rates used, whether derived from the ITE manual, first-principles calculations, or a combination of these sources.
8. The study should include dedicated sections on transit and active transportation, documenting both existing and planned networks and services. It should also provide recommendations to ensure safe and effective connectivity to the site for non-auto travel modes.

Should you have any questions or require any clarification, please feel free to contact me.

Thanks,



**Arash Olia, Ph.D., PMP, P.Eng. | Project Manager**  
Works Department | Transportation Infrastructure Management Division

The Regional Municipality of Durham

Arash.Olia@durham.ca | 905-668-4113 extension 2774 | [durham.ca](https://www.durham.ca)

My pronouns are he/him.



---

**From:** Steve Edwards <[Steve.edwards1909@outlook.com](mailto:Steve.edwards1909@outlook.com)>

**Sent:** March 16, 2026 3:52 PM

**To:** Doug Robertson <[Doug.Robertson@Durham.ca](mailto:Doug.Robertson@Durham.ca)>; Lino Trombino <[Lino.Trombino@Durham.ca](mailto:Lino.Trombino@Durham.ca)>; Chris Leitch <[Chris.Leitch@Durham.ca](mailto:Chris.Leitch@Durham.ca)>

**Cc:** Arash Olia <[Arash.Olia@durham.ca](mailto:Arash.Olia@durham.ca)>

**Subject:** Re: Bessada Kia traffic study

Some people who received this message don't often get email from [steve.edwards1909@outlook.com](mailto:steve.edwards1909@outlook.com). [Learn why this is important](#)

⚠ **CAUTION:** This email is from an external source. Verify sender before opening links and attachments. ⚠

**APPENDIX A2**  
**Traffic Data**  
**Signal Timing Plans**  
**Transit Data**



TMC 15 Min Report

Brock Rd (R.R.01) @ Bayly St (R.R.22) (233)

TMC No: 0010900000 Intersection ID: 10263 Count ID: 35702073123 Count Date: 09/30/2025, Tue

Time	NORTH APPROACH										EAST APPROACH										SOUTH APPROACH										WEST APPROACH										Total
	Left	Cars Thru	Right	Left	Trucks Thru	Right	Left	Heavies Thru	Right	Ped	Left	Cars Thru	Right	Left	Trucks Thru	Right	Left	Heavies Thru	Right	Ped	Left	Cars Thru	Right	Left	Trucks Thru	Right	Left	Heavies Thru	Right	Ped	Left	Cars Thru	Right	Left	Trucks Thru	Right	Left	Heavies Thru	Right	Ped	
Period 1																																									
05:00	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*	0*	0*	0*	0*	0*	0*	0*	0*	
05:15	27*	70*	6*	1*	2*	1*	0*	0*	0*	0*	16*	10*	21*	0*	1*	3*	0*	0*	0*	0*	2*	5*	2*	0*	1*	6*	1*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	0*	
05:30	31*	145*	8*	2*	0*	1*	0*	0*	0*	0*	21*	7*	19*	0*	0*	6*	0*	0*	0*	0*	0*	6*	0*	1*	5*	0*	0*	0*	0*	0*	15*	14*	12*	2*	3*	2*	0*	0*	0*	0*	
05:45	52*	207*	21*	0*	2*	0*	0*	0*	0*	0*	36*	20*	16*	0*	0*	6*	0*	0*	0*	1*	2*	16*	3*	0*	1*	0*	0*	0*	0*	0*	19*	23*	28*	0*	2*	0*	0*	0*	0*	1*	
06:00	66	274	25	1	3	1	0	0	0	0	1	43	13	30	0	3	3	0	0	1	1	9	2	0	7	1	0	0	0	1	15	34	58	1	2	4	0	0	0	599	
06:15	55	258	24	1	0	0	0	0	0	0	0	43	25	43	1	1	18	0	0	0	2	6	30	6	1	5	0	0	0	1	22	45	50	1	1	2	0	0	0	641	
06:30	51	205	42	4	5	0	0	0	0	0	1	39	32	37	1	5	21	0	0	1	2	40	3	0	2	0	0	0	0	0	34	44	64	2	6	0	0	0	0	641	
06:45	83	229	40	3	5	3	0	0	0	0	0	53	32	24	2	3	16	0	0	0	0	5	33	6	1	14	2	0	0	0	48	49	65	0	3	2	0	0	0	723	
07:00	84	296	63	0	6	0	0	0	0	0	2	39	40	32	1	7	14	0	0	0	2	6	73	8	0	12	0	0	0	0	45	69	89	2	1	0	0	0	0	892	
07:15	49	211	60	3	5	3	0	0	0	0	0	29	61	43	2	1	16	0	0	0	1	5	68	10	1	9	0	0	0	3	48	47	74	2	1	2	0	0	0	755	
07:30	61	198	80	4	3	2	0	0	0	1	26	62	63	1	1	7	0	0	0	0	7	61	10	0	10	2	0	0	0	1	44	51	63	3	5	1	0	0	0	768	
07:45	67	204	92	5	5	1	0	0	0	3	44	69	43	3	0	13	0	0	0	0	3	3	39	11	1	12	0	0	0	2	84	83	90	1	1	2	0	0	0	887	
08:00	79	222	71	2	4	0	0	0	0	0	39	63	53	4	2	11	0	0	0	0	8	58	15	0	10	2	0	0	0	0	80	95	104	3	4	4	0	0	0	934	
08:15	83	206	64	4	8	1	0	0	0	1	55	71	53	3	1	10	0	0	0	3	22	72	19	1	9	2	0	0	0	5	52	99	81	1	3	2	0	0	0	935	
08:30	64	172	65	3	8	6	0	0	0	3	27	84	61	3	0	6	0	0	0	3	13	46	9	0	8	0	0	0	0	1	70	115	62	3	5	3	0	0	0	842	
08:45	105	154	56	5	5	0	0	0	0	0	16	64	54	4	2	12	0	0	0	0	15	46	9	0	8	1	0	0	0	3	89	89	70	4	3	1	0	0	0	818	
09:00	84	168	83	2	4	8	0	0	0	1	32	81	51	2	1	14	0	0	0	0	16	52	17	0	16	4	0	0	0	0	62	107	91	0	3	4	0	0	0	905	
09:15	85	165	71	5	7	4	0	0	0	2	22	74	93	3	1	10	0	0	0	2	17	46	15	1	10	2	0	0	0	0	84	122	64	4	4	3	0	0	0	917	
09:30	86	99	52	5	10	1	0	0	0	2	22	84	84	1	1	11	0	0	0	2	18	72	14	0	14	1	0	0	0	1	62	106	62	5	4	1	0	0	0	821	
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10:00	103	97	66	5	7	3	0	0	0	0	43	98	84	2	1	19	0	0	0	0	20	62	25	0	6	1	0	0	0	2	59	96	53	2	6	3	0	0	0	866	
10:15	95	65	60	3	8	2	0	0	0	0	23	71	69	2	2	9	0	0	0	1	17	71	20	2	15	3	0	0	0	1	67	94	42	2	2	3	0	0	0	749	
10:30	76	68	48	2	6	4	0	0	0	2	23	81	65	2	1	12	0	0	0	0	23	72	19	2	9	3	0	0	0	0	76	102	44	5	3	5	0	0	0	755	
10:45	90	63	49	5	4	3	0	0	0	1	27	75	64	1	0	12	0	0	0	0	17	69	31	1	15	0	0	0	0	0	66	82	44	2	2	5	0	0	0	729	
Period 2																																									
11:00	84	85	42	1	7	2	0	0	0	0	31	103	82	0	1	7	0	0	0	0	24	64	34	1	14	2	0	0	0	1	78	123	34	4	5	1	0	0	0	831	
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11:30	95	74	55	7	11	1	0	0	0	0	35	72	79	2	2	9	0	0	0	4	30	85	32	1	13	1	0	0	0	2	61	120	42	2	1	1	0	0	0	840	
11:45	105	94	62	5	12	1	0	0	0	0	40	97	72	3	3	7	0	0	0	1	32	100	24	0	11	3	0	0	0	1	81	123	34	2	7	3	0	0	0	923	
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13:30	92*	87*	51*	3*	6*	0*	0*	0*	0*	2*	19*	99*	84*	4*	2*	9*	0*	0*	0*	2*	34*	104*	25*	2*	8*	1*	0*	0*	0*	0*	61*	123*	51*	4*	2*	7*	0*	0*	0*	882*	
13:45	100*	77*	66*	2*	10*	2*	0*	0*	0*	2*	28*	94*	93*	2*	5*	7*	0*	0*	0*	1*	26*	80*	39*	4*	7*	5*	0*	0*	0*	1*	76*	137*	48*	0*	7*	5*	0*	0*	0*	925*	
Period 3																																									
14:00	95	68	49	4	9	5	0	0	0	1	23	116	87	2	2	2	0	0	0	0	43	92	12	5	13	1	0	0	0	0	70	123	41	1	3	3	0	0	0	870	
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15:00	111	80	74	4	3	4	0	0	0	2	19	115	91	7	0	11	0	0	0	0	73	168	54	1	10	3	0	0	0	1	47	130	28	0	9	7	0	0	0	1055	
15:15	108	78	64	2	5	0	0	0	0	1	12	133	93	1	2	7	0	0	0	0	98	185	42	0	6	0	0	0	0	0	55	149	25	1	7	4	0	0	0	1079	
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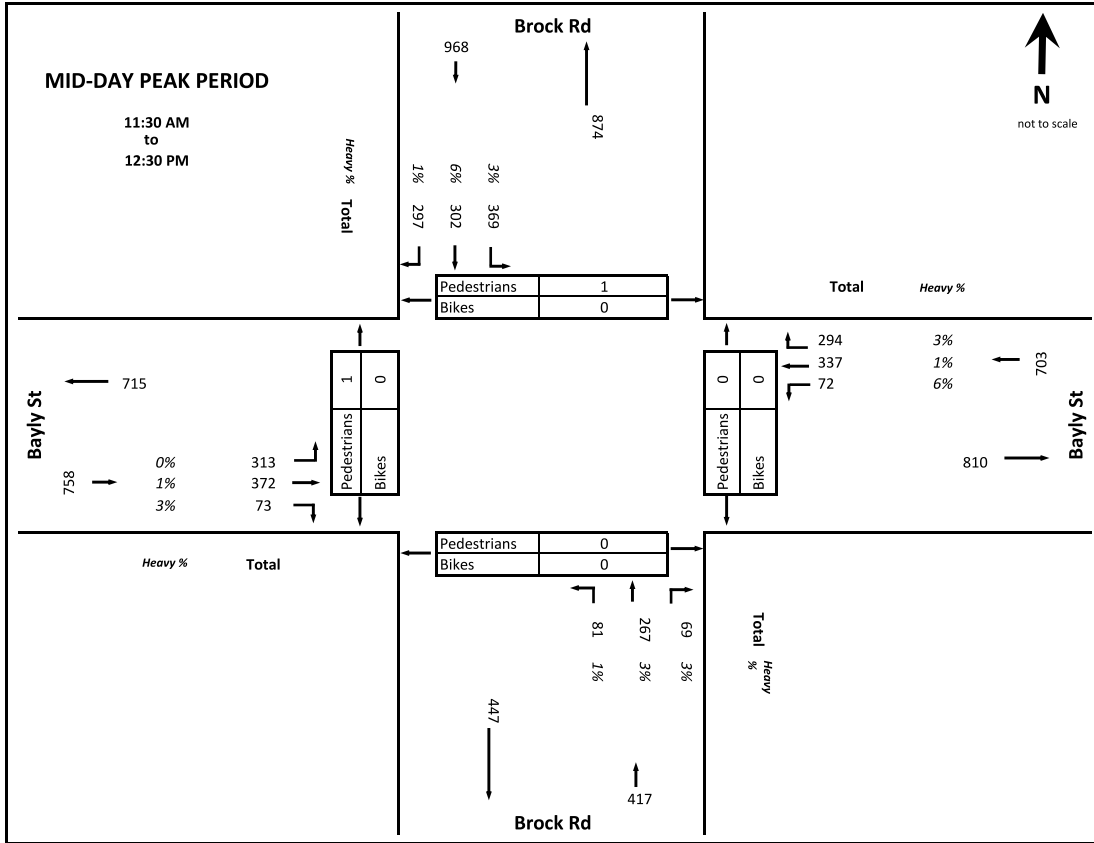
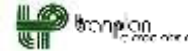


# TURNING MOVEMENT DIAGRAMS

North-South Road: Brock Rd  
 East-West Road: Bayly St

Municipality: Pickering  
 Weather: AM: Mainly Clear

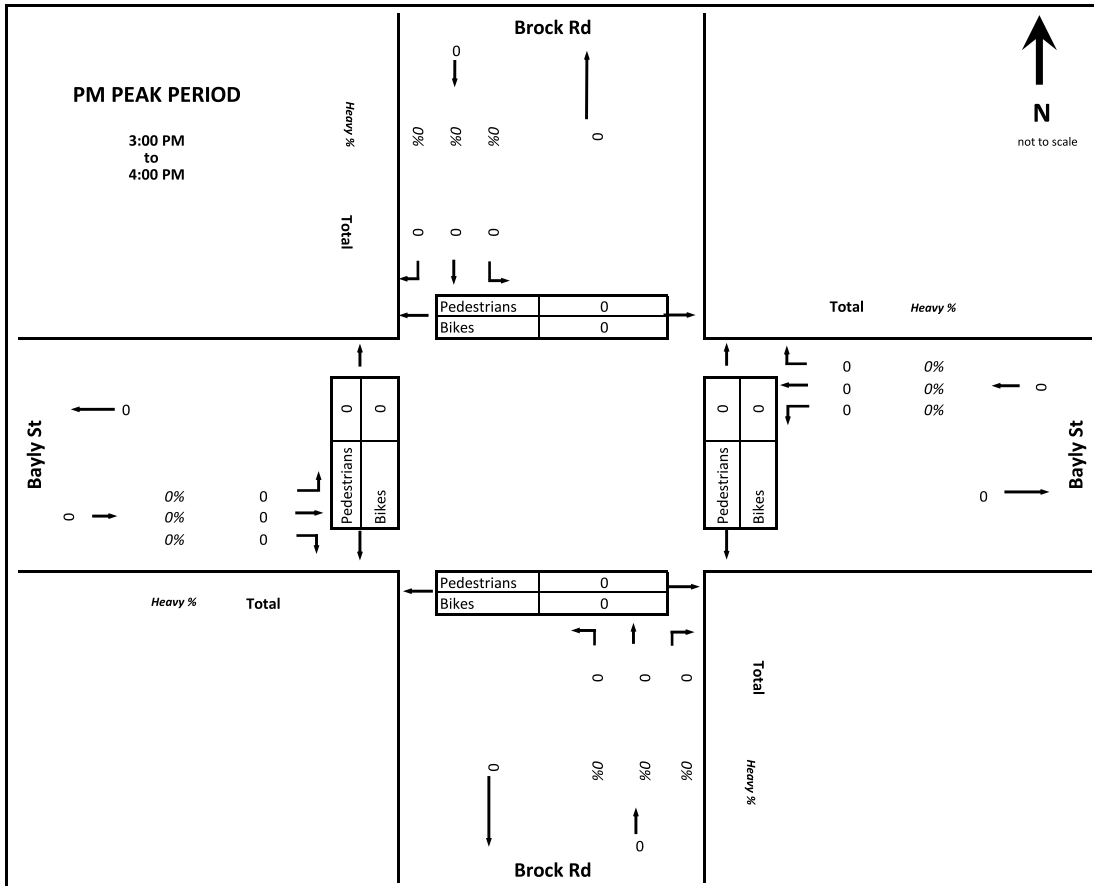
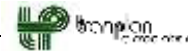
Day: Saturday  
 Survey Date: March 14, 2026



South Road: Brock Rd  
 East-West Road: Bayly St

Municipality: Pickering  
 Weather: PM: Mainly Clear

Day: Saturday  
 Survey Date: March 14, 2026



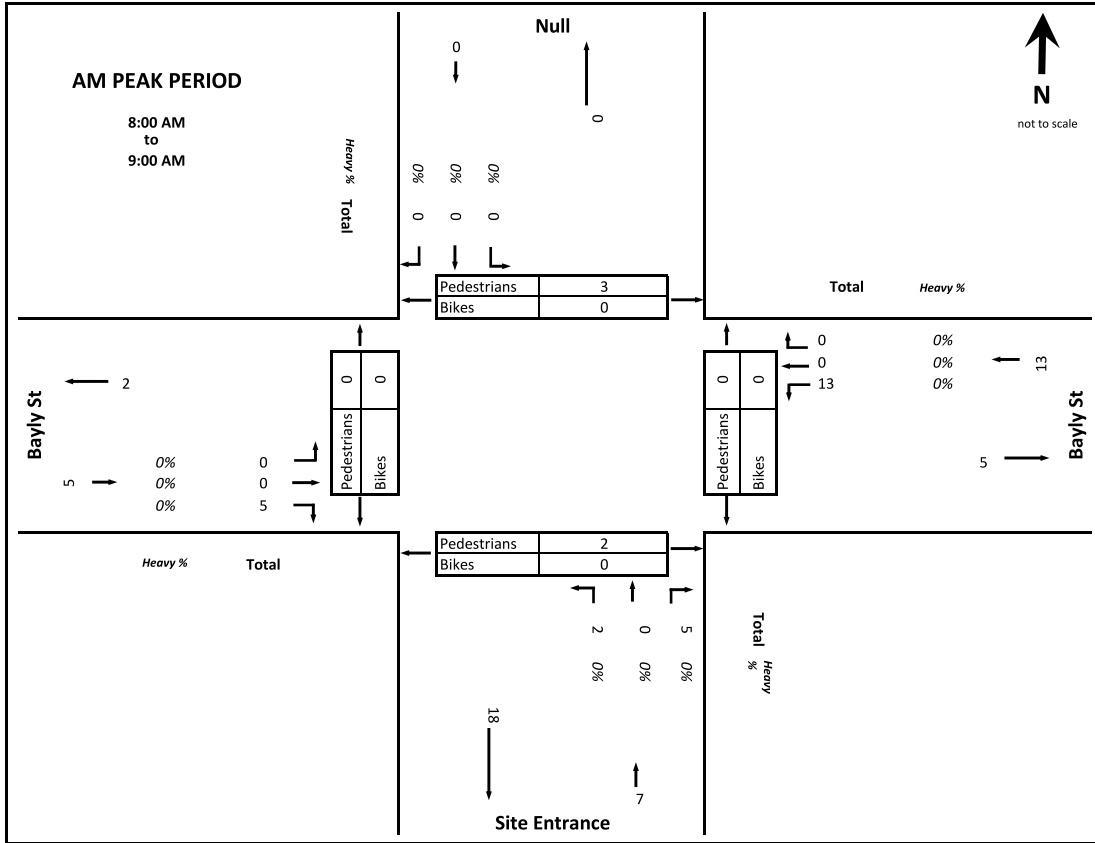
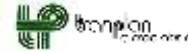


# TURNING MOVEMENT DIAGRAMS

North-South Road: Null / Site Entrance  
 East-West Road: Bayly St

Municipality: Pickering  
 Weather: AM: Mainly Clear

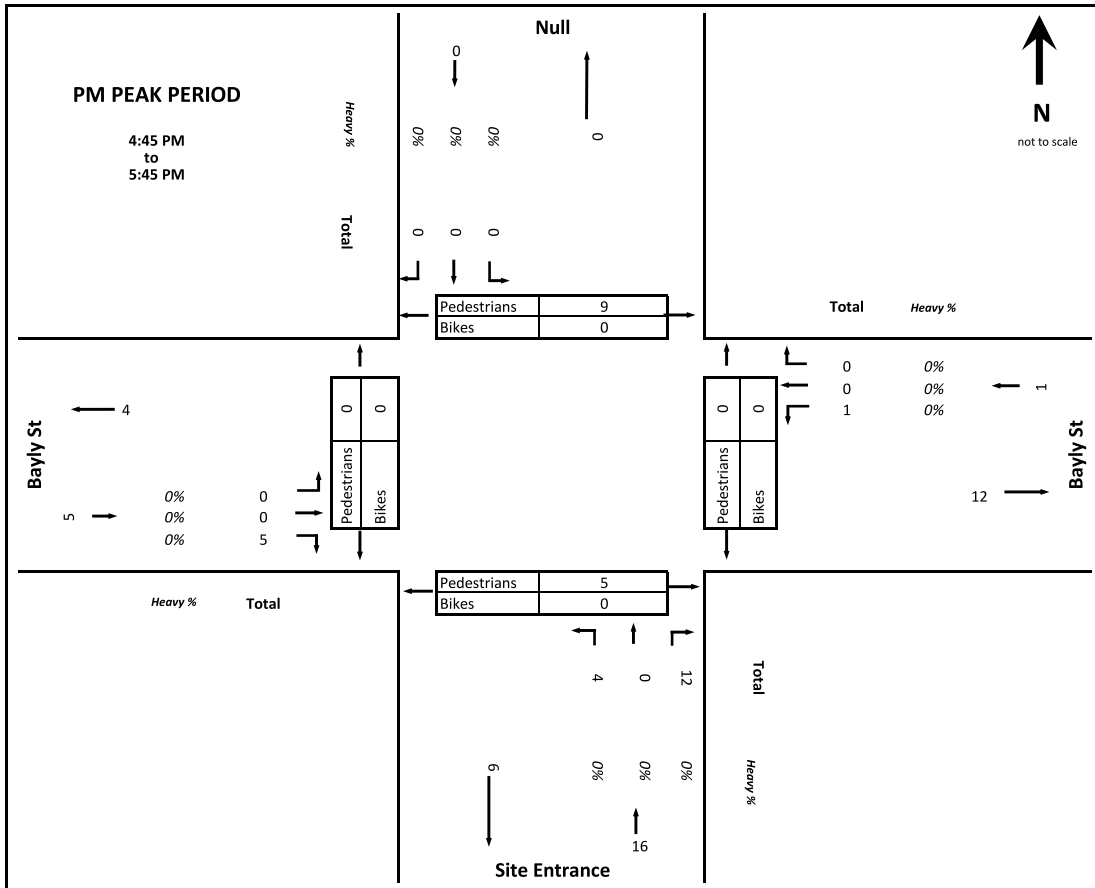
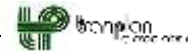
Day: Thursday  
 Survey Date: February 26, 2026



South Road: Null / Site Entrance  
 East-West Road: Bayly St

Municipality: Pickering  
 Weather: PM: Mainly Clear

Day: Thursday  
 Survey Date: February 26, 2026



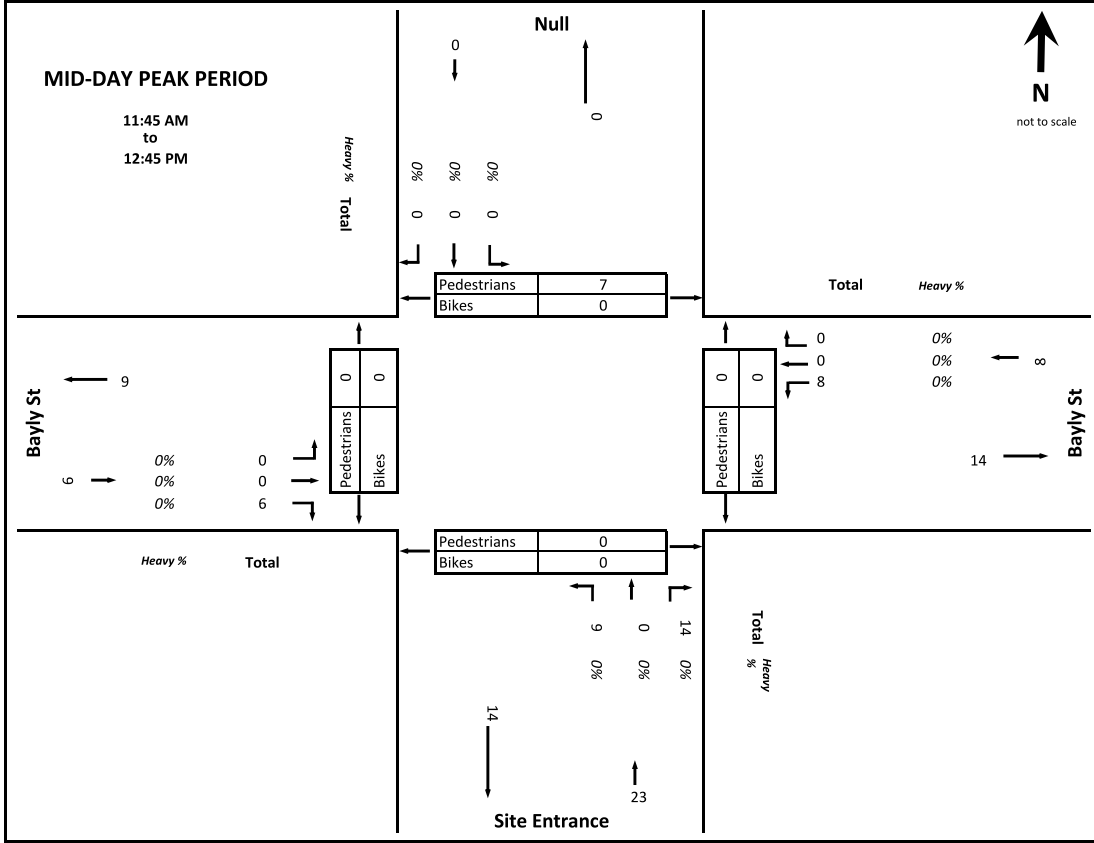
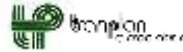


# TURNING MOVEMENT DIAGRAMS

North-South Road: Null / Site Entrance  
 East-West Road: Bayly St

Municipality: Pickering  
 Weather: AM: Mainly Clear

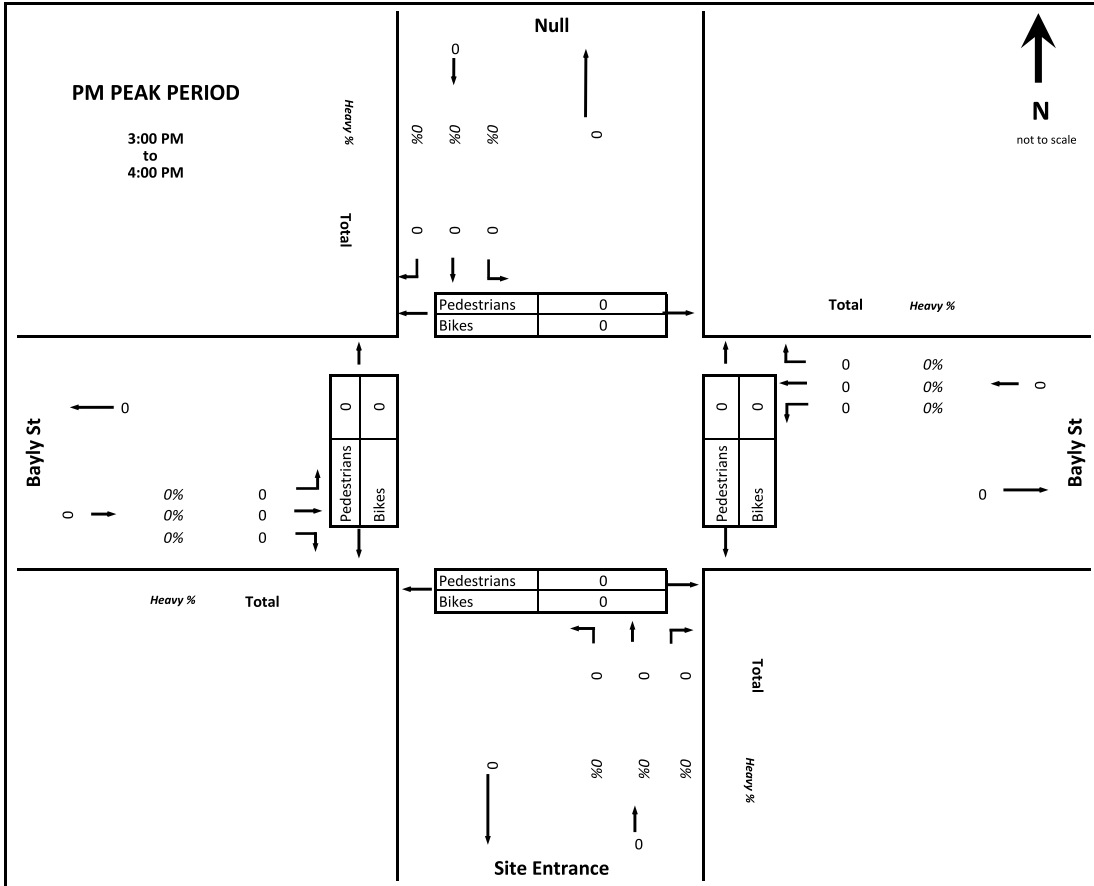
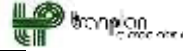
Day: Saturday  
 Survey Date: March 14, 2026



South Road: Null / Site Entrance  
 East-West Road: Bayly St

Municipality: Pickering  
 Weather: PM: Mainly Clear

Day: Saturday  
 Survey Date: March 14, 2026



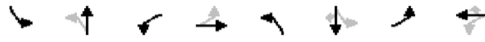


# INTERSECTION SIGNAL TIMING REPORT

Location	Brock Rd. (RR 1) and Bayly St. (RR 22)			
Date	March-03-2026	C&E No.	82812392	
Prepared for	Tranplan Associates		Prepared by	M. FARAZIAN

AM Peak (5:30-9:00)

02-02-2026

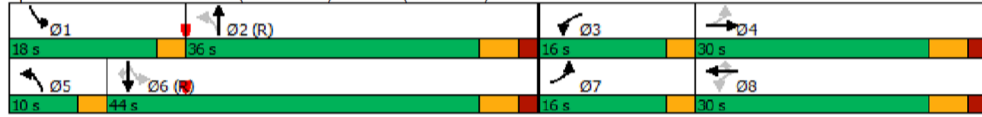


Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	18	36	16	30	10	44	16	30
Maximum Split (%)	18.0%	36.0%	16.0%	30.0%	10.0%	44.0%	16.0%	30.0%
Minimum Split (s)	8	24.1	8	26.2	8	24.1	8	26.2
Yellow Time (s)	3	4	3	3.9	3	4	3	3.9
All-Red Time (s)	0	2.1	0	2.3	0	2.1	0	2.3
Minimum Initial (s)	5	15	5	15	5	15	5	15
Vehicle Extension (s)	3	3	3	3	3	3	3	3
Minimum Gap (s)	3	0.2	3	0.2	3	0.2	3	0.2
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		13		15		13		15
Flash Dont Walk (s)		5		5		5		5

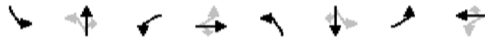
**Intersection Summary**

Cycle Length: 100  
 Control Type: Actuated-Coordinated  
 Natural Cycle: 75  
 Offset: 11 (11%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Splits and Phases: 233: RR 1 (BROCK RD) & RR 22 (BAYLY ST)



PM Peak (14:00-20:00)



Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	40.3	39	9.1	41.6	19.5	59.8	18.2	32.5
Maximum Split (%)	31.0%	30.0%	7.0%	32.0%	15.0%	46.0%	14.0%	25.0%
Minimum Split (s)	8	24.1	8	26.2	8	24.1	8	26.2
Yellow Time (s)	3	4	3	3.9	3	4	3	3.9
All-Red Time (s)	0	2.1	0	2.3	0	2.1	0	2.3
Minimum Initial (s)	5	15	5	15	5	15	5	15
Vehicle Extension (s)	3	0.2	3	0.2	3	0.2	3	0.2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		13		15		13		15
Flash Dont Walk (s)		5		5		5		5

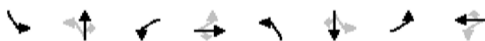
**Intersection Summary**

Cycle Length: 130  
 Control Type: Actuated-Coordinated  
 Natural Cycle: 80  
 Offset: 54.6 (42%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Splits and Phases: 233: RR 1 (BROCK RD) & RR 22 (BAYLY ST)



Weekend Peak (8:00-21:00)

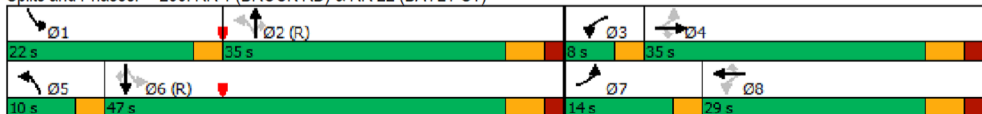


Phase Number	1	2	3	4	5	6	7	8
Movement	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	Max	None	C-Max	None	Max
Maximum Split (s)	22	35	8	35	10	47	14	29
Maximum Split (%)	22.0%	35.0%	8.0%	35.0%	10.0%	47.0%	14.0%	29.0%
Minimum Split (s)	8	24.1	8	26.2	8	24.1	8	26.2
Yellow Time (s)	3	4	3	3.9	3	4	3	3.9
All-Red Time (s)	0	2.1	0	2.3	0	2.1	0	2.3
Minimum Initial (s)	5	15	5	15	5	15	5	15
Vehicle Extension (s)	3	0.2	3	0.2	3	0.2	3	0.2
Minimum Gap (s)	3	3	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0	0	0
Walk Time (s)		13		15		13		15
Flash Dont Walk (s)		5		5		5		5

**Intersection Summary**

Cycle Length: 100  
 Control Type: Actuated-Coordinated  
 Natural Cycle: 90  
 Offset: 70 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Splits and Phases: 233: RR 1 (BROCK RD) & RR 22 (BAYLY ST)



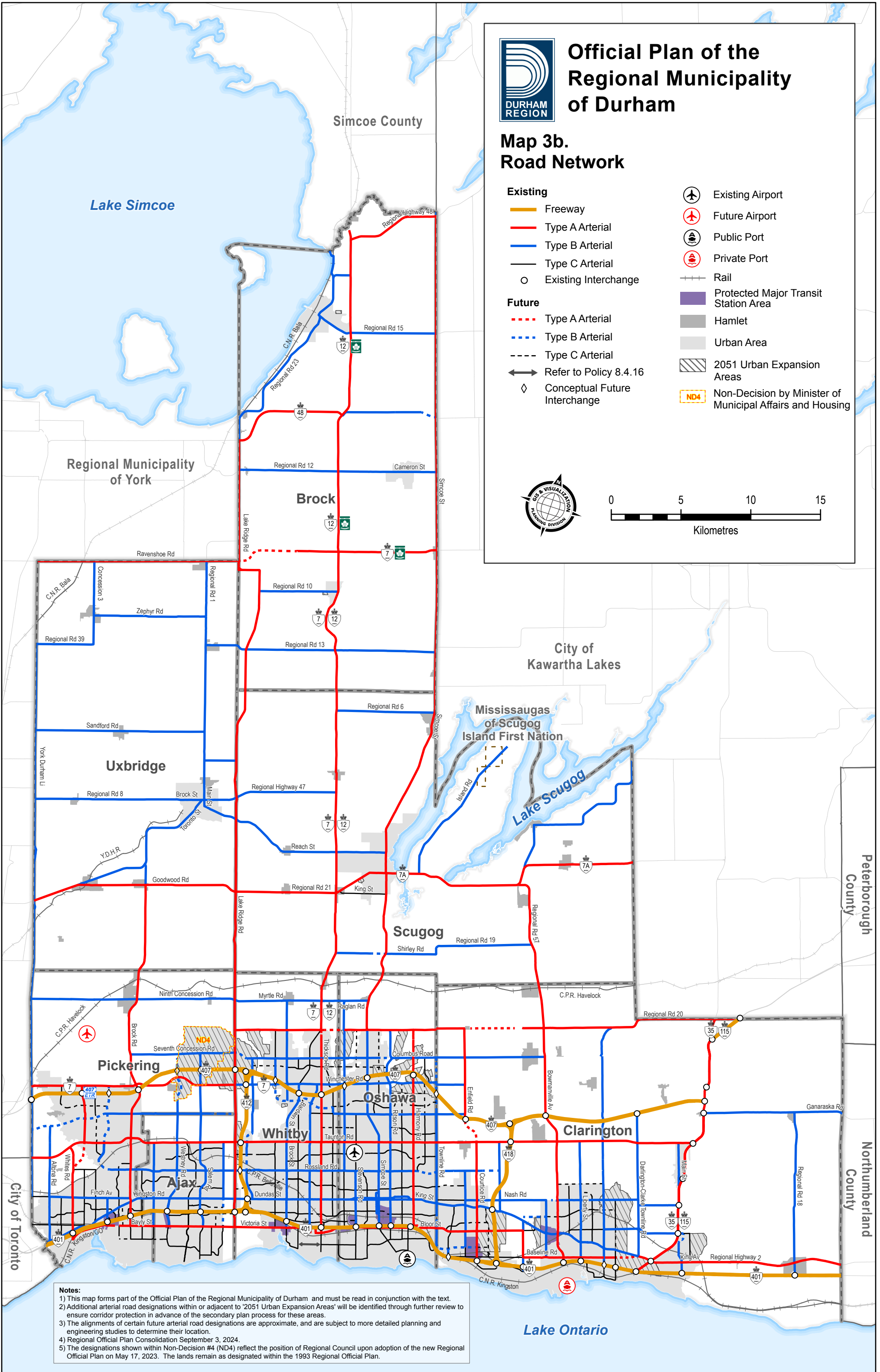
*\*Please note a concerted effort has been made to ensure the accuracy and completeness of the data provided, however, inadvertent errors or omissions can still occur. Please bring any errors or omissions to the Region's attention.*



# Official Plan of the Regional Municipality of Durham

## Map 3b. Road Network

- |                               |                            |   |
|-------------------------------|----------------------------|---|
| <b>Existing</b>               | Freeway                    | Existing Airport  |
| Type A Arterial               | Type B Arterial            | Future Airport  |
| Type C Arterial               | Existing Interchange       | Public Port   |
| Existing Interchange          | Future Type A Arterial     | Private Port  |
| <b>Future</b>                 | Future Type B Arterial     | Rail  |
| Future Type C Arterial        | Refer to Policy 8.4.16     | Protected Major Transit Station Area                      |
| Conceptual Future Interchange | Hamlet                     | Urban Area  |
|                               | 2051 Urban Expansion Areas | Non-Decision by Minister of Municipal Affairs and Housing |



**Notes:**

- 1) This map forms part of the Official Plan of the Regional Municipality of Durham and must be read in conjunction with the text.
- 2) Additional arterial road designations within or adjacent to '2051 Urban Expansion Areas' will be identified through further review to ensure corridor protection in advance of the secondary plan process for these areas.
- 3) The alignments of certain future arterial road designations are approximate, and are subject to more detailed planning and engineering studies to determine their location.
- 4) Regional Official Plan Consolidation September 3, 2024.
- 5) The designations shown within Non-Decision #4 (ND4) reflect the position of Regional Council upon adoption of the new Regional Official Plan on May 17, 2023. The lands remain as designated within the 1993 Regional Official Plan.

Effective September 2, 2025



**24 Hour Service**

Service is available 24 hours a day. Provided by On Demand or alternate Scheduled Route. See [DurhamRegionTransit.com](http://DurhamRegionTransit.com) for more information.



**Visit [DurhamRegionTransit.com](http://DurhamRegionTransit.com)**

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**Speak with us**

Call 1-866-247-0055.



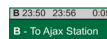
**Download public transit apps**

Download the DRT On Demand or Transit App to plan trips.



**Reading the schedule**

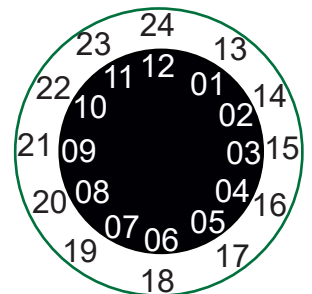
Dashes indicate the stop is not served by a trip.



Trip notes are indicated by a letter or symbol and explained at the bottom of each timetable.



Schedule times are shown in 24-hour clock.



Weekday		Clockwise		
Pickering Station <b>Stop #2549</b>	Squires Beach @ Clements <b>Stop #93501</b>	Montgomery Park @ OPG Pickering <b>Stop #93519</b>	Krosno @ Modlin <b>Stop #93512</b>	Pickering Station <b>Stop #2549</b>
<b>A</b> 06:03	06:08	06:13	06:17	06:22
<b>A</b> 06:27	06:33	06:38	06:42	06:47
<b>A</b> 06:55	07:01	07:06	07:10	07:15
<b>A</b> 07:25	07:31	07:36	07:40	07:45
<b>A</b> 07:55	08:01	08:06	08:10	08:15
<b>A</b> 08:25	08:31	08:36	08:40	08:45
<b>A</b> 08:55	09:01	09:06	09:10	09:15
<b>A</b> 09:25	09:31	09:36	09:40	09:45

**A: 101A clockwise loop**

Weekday		Counter-clockwise		
Pickering Station <b>Stop #2549</b>	725 Krosno <b>Stop #1832</b>	Montgomery Park @ Brook Road <b>Stop #1707</b>	Clements @ Brook Road <b>Stop #1716</b>	Pickering Station <b>Stop #2549</b>
<b>B</b> 14:55	14:59	15:06	15:12	15:18
<b>B</b> 15:25	15:29	15:36	15:42	15:48
<b>B</b> 15:55	15:59	16:06	16:12	16:18
<b>B</b> 16:25	16:29	16:36	16:42	16:48
<b>B</b> 16:55	16:59	17:06	17:12	17:18
<b>B</b> 17:25	17:29	17:35	17:40	17:44
<b>B</b> 17:55	17:59	18:05	18:10	18:14
<b>B</b> 18:25	18:29	18:35	18:40	18:44

**B: 101B counter-clockwise loop**

Effective January 5, 2026



### 24 Hour Service

Service is available 24 hours a day. Provided by On Demand or alternate Scheduled Route. See [DurhamRegionTransit.com](http://DurhamRegionTransit.com) for more information.



### Visit [DurhamRegionTransit.com](http://DurhamRegionTransit.com)

Get schedules, fare information, service alerts and more.



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If you require this information in an accessible format, please contact Customer Service at 1-866-247-0055.



### Speak with us

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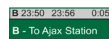
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Download the DRT On Demand or Transit App to plan trips.



### Reading the schedule

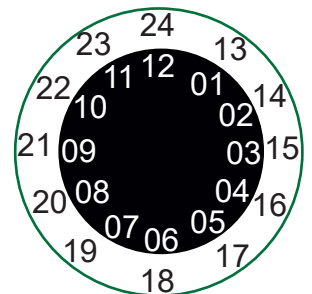
Dashes indicate the stop is not served by a trip.



Trip notes are indicated by a letter or symbol and explained at the bottom of each timetable.



Schedule times are shown in 24-hour clock.



Weekday										West
Oshawa Centre Terminal Stop #2595	Stellar Westbound @ Champlain (Durham College) Stop #94371	Whitby Station Platform 7 Stop #2576	Victoria Westbound @ Jeffery Stop #93554	Bayly Westbound @ Audley Stop #93518	Bayly Westbound @ Harwood Stop #2316	Ajax Station Platform 14 - Arrival Sm00top #2569	Ajax Station Platform 14- Depart Stop #2569	Bayly Westbound @ Brock Road Stop #1766	Pickering Parkway Terminal Platform B13 Stop # 94125	
-	-	04:05	04:10	04:14	04:19	04:31	04:35	04:42	04:50	
-	-	04:35	04:40	04:44	04:49	05:01	05:05	05:12	05:20	
04:47	04:54	05:05	05:10	05:14	05:19	05:31	05:35	05:42	05:50	
05:23	05:30	05:41	05:46	05:50	05:55	06:07	06:11	06:18	06:26	
05:53	06:00	06:11	06:16	06:20	06:25	06:37	06:41	06:48	06:56	
06:23	06:30	06:41	06:46	06:50	06:55	07:07	07:11	07:18	07:26	
06:57	07:04	07:15	07:20	07:24	07:29	07:41	07:45	07:52	08:00	
07:27	07:34	07:45	07:50	07:54	07:59	08:11	08:15	08:22	08:30	
07:57	08:04	08:15	08:20	08:24	08:29	08:41	08:45	08:52	09:00	
08:36	08:43	08:54	08:59	09:03	09:08	09:20	09:24	09:31	09:39	
09:06	09:13	09:24	09:29	09:33	09:38	09:50	09:54	10:01	10:09	
09:43	09:50	09:59	10:03	10:07	10:12	10:23	10:25	10:32	10:39	
10:13	10:20	10:29	10:33	10:37	10:42	10:53	10:55	11:02	11:09	
10:40	10:49	10:59	11:04	11:08	11:13	11:23	11:25	11:33	11:42	
11:15	11:24	11:34	11:39	11:43	11:48	11:58	12:00	12:08	12:17	
11:45	11:54	12:04	12:09	12:13	12:18	12:28	12:30	12:38	12:47	
12:11	12:20	12:30	12:35	12:39	12:44	12:54	12:56	13:04	13:13	
12:51	13:00	13:10	13:15	13:19	13:24	13:34	13:36	13:44	13:53	
13:21	13:30	13:40	13:45	13:49	13:54	14:04	14:06	14:14	14:23	
13:51	14:00	14:10	14:15	14:19	14:24	14:34	14:36	14:44	14:53	
14:21	14:30	14:40	14:45	14:49	14:54	15:04	15:06	15:14	15:23	
14:46	14:55	15:05	15:10	15:14	15:19	15:29	15:34	15:42	15:51	
15:16	15:25	15:35	15:40	15:44	15:49	15:59	16:04	16:12	16:21	
15:46	15:55	16:05	16:10	16:14	16:19	16:29	16:34	16:42	16:51	
16:16	16:25	16:35	16:40	16:44	16:49	16:59	17:04	17:12	17:21	
16:38	16:47	16:59	17:07	17:11	17:15	17:24	17:29	17:37	17:46	
17:19	17:26	17:35	17:40	17:43	17:47	18:02	18:07	18:14	18:21	
17:49	17:56	18:05	18:10	18:13	18:17	18:32	18:37	18:44	18:51	
18:19	18:26	18:35	18:40	18:43	18:47	19:02	19:07	19:14	19:21	
18:49	18:56	19:05	19:10	19:13	19:17	19:32	19:37	19:44	19:51	
19:19	19:26	19:35	19:40	19:43	19:47	20:02	20:07	20:14	20:21	
19:51	19:58	20:07	20:12	20:15	20:19	20:34	20:37	20:44	20:51	
20:21	20:28	20:37	20:42	20:45	20:49	21:04	21:07	21:14	21:21	
20:51	20:58	21:07	21:12	21:15	21:19	21:34	21:37	21:44	21:51	
21:21	21:28	21:37	21:42	21:45	21:49	22:04	22:07	22:14	22:21	
21:51	21:58	22:07	22:12	22:15	22:19	22:34	22:37	22:44	22:51	
22:21	22:27	22:36	22:41	22:45	22:49	22:58	23:00	23:06	23:12	
22:51	22:57	23:06	23:11	23:15	23:19	23:28	23:30	23:36	23:42	
A23:21	23:27	23:36	23:41	23:45	23:49	23:58	-	-	-	
A23:51	23:57	0:06	0:11	0:15	0:19	0:28	-	-	-	

**A: 917A to Ajax Station**

Weekday									East
Pickering Parkway Terminal Platform B13 Stop #94125	Bayly Eastbound @ Brock Road Stop #1763	Ajax Station Platform 9 - Arrival Stop #2569	Ajax Station Platform 9 - Depart Stop #2569	Harwood Southbound @ Harwood Plaza Stop #93622	Bayly Eastbound @ Audley Stop #3061	Victoria Eastbound @ Seaboard Gate Stop #93559	Whitby Station Platform 7 - Arrival Stop #2576	Stellar Eastbound @ Champlain (Durham College) Stop #94372	Oshawa Centre Terminal Stop #2595
-	-	-	04:39	04:45	04:52	04:55	05:02	05:11	05:18
04:50	04:56	05:05	05:08	05:14	05:21	05:24	05:31	05:40	05:47
05:20	05:26	05:35	05:38	05:44	05:51	05:54	06:01	06:10	06:17
05:50	05:56	06:05	06:08	06:14	06:21	06:24	06:31	06:40	06:47
06:26	06:32	06:41	06:44	06:50	06:57	07:00	07:07	07:16	07:23
06:56	07:02	07:11	07:14	07:20	07:27	07:30	07:37	07:46	07:53
07:26	07:32	07:41	07:44	07:50	07:57	08:00	08:07	08:16	08:23
08:00	08:06	08:15	08:18	08:24	08:31	08:34	08:41	08:50	08:57
08:30	08:36	08:45	08:48	08:54	09:01	09:04	09:11	09:20	09:27
09:00	09:06	09:15	09:18	09:24	09:31	09:34	09:41	09:50	09:57
09:39	09:45	09:54	09:57	10:03	10:10	10:13	10:20	10:29	10:36
10:09	10:15	10:24	10:27	10:33	10:40	10:43	10:50	10:59	11:06
10:39	10:45	10:54	10:57	11:03	11:10	11:13	11:20	11:29	11:36
11:09	11:15	11:27	11:29	11:36	11:42	11:45	11:52	12:02	12:09
11:42	11:48	12:00	12:02	12:09	12:15	12:18	12:25	12:35	12:42
12:17	12:23	12:35	12:37	12:44	12:50	12:53	13:00	13:10	13:17
12:47	12:53	13:05	13:07	13:14	13:20	13:23	13:30	13:40	13:47
13:13	13:19	13:31	13:33	13:40	13:46	13:49	13:56	14:06	14:13
13:41	13:47	13:59	14:01	14:08	14:14	14:17	14:24	14:34	14:41
13:53	14:01	14:15	14:20	14:27	14:34	14:38	14:47	14:58	15:05
14:23	14:31	14:45	14:50	14:57	15:04	15:08	15:17	15:28	15:35
14:53	15:01	15:15	15:20	15:27	15:34	15:38	15:47	15:58	16:05
15:23	15:31	15:45	15:50	15:57	16:04	16:08	16:17	16:28	16:35
15:51	15:59	16:13	16:18	16:25	16:32	16:36	16:45	16:56	17:03
16:21	16:29	16:43	16:48	16:55	17:02	17:06	17:15	17:26	17:33
16:51	16:59	17:13	17:18	17:25	17:32	17:36	17:45	17:56	18:03
17:21	17:27	17:35	17:35	17:40	17:46	17:49	17:56	18:05	18:12
17:51	17:57	18:05	18:05	18:10	18:16	18:19	18:26	18:35	18:42
18:21	18:27	18:35	18:35	18:40	18:46	18:49	18:56	19:05	19:12
18:51	18:57	19:05	19:05	19:10	19:16	19:19	19:26	19:35	19:42
19:21	19:27	19:35	19:35	19:40	19:46	19:49	19:56	20:05	20:12
19:51	19:57	20:05	20:05	20:10	20:16	20:19	20:26	20:35	20:42
20:21	20:27	20:35	20:35	20:40	20:46	20:49	20:56	21:05	21:12
20:51	20:57	21:05	21:05	21:10	21:16	21:19	21:26	21:35	21:42
21:21	21:27	21:35	21:35	21:40	21:46	21:49	21:56	22:05	22:12
21:51	21:57	22:05	22:05	22:10	22:16	22:19	22:26	22:35	22:42
22:21	22:27	22:35	22:35	22:40	22:46	22:49	22:56	23:05	23:12
22:51	22:57	23:05	23:05	23:10	23:16	23:19	23:26	23:35	23:42
23:21	23:27	23:35	23:35	23:40	23:46	23:49	23:56	0:05	0:12
23:51	23:57	0:05	0:05	0:10	0:16	0:19	0:26	0:35	0:42

Saturday and Sunday										West
Oshawa Centre Terminal <b>Stop #2595</b>	Stellar Westbound @ Champlain <b>Stop #94371</b>	Whitby Station Platform 7 - Arrival <b>Stop #2576</b>	Whitby Station Platform 7 - Depart <b>Stop #2576</b>	Victoria Westbound @ Jeffery <b>Stop #93554</b>	Bayly Westbound @ Audley <b>Stop #93518</b>	Bayly Westbound @ Harwood <b>Stop # 2316</b>	Ajax Station Platform 14 - Arrival <b>Stop #2569</b>	Ajax Station Platform 14- Depart <b>Stop #2569</b>	Bayly Westbound @ Brock Road <b>Stop #1766</b>	Pickering Parkway Terminal Platform B13 <b>Stop #94125</b>
-	-	-	-	-	-	-	-	05:09	05:15	05:21
05:25	05:30	05:39	05:41	05:44	05:47	05:50	05:58	06:03	06:09	06:14
-	-	-	-	-	-	-	-	05:36	05:42	05:48
06:20	06:27	06:36	06:36	06:40	06:44	06:48	06:56	07:01	07:07	07:14
-	-	-	-	-	-	-	-	06:36	06:42	06:50
06:50	06:57	07:06	07:06	07:10	07:14	07:18	07:26	07:31	07:37	07:44
07:20	07:27	07:36	07:36	07:40	07:44	07:48	07:54	07:57	08:04	08:12
07:50	07:57	08:06	08:06	08:10	08:14	08:18	08:24	08:27	08:34	08:42
08:20	08:27	08:36	08:36	08:40	08:44	08:48	08:54	08:57	09:04	09:12
08:50	08:57	09:06	09:06	09:10	09:14	09:18	09:24	09:27	09:34	09:42
09:20	09:27	09:36	09:36	09:40	09:44	09:48	09:54	09:57	10:04	10:12
09:50	09:57	10:06	10:06	10:10	10:14	10:18	10:24	10:27	10:34	10:42
10:20	10:27	10:36	10:36	10:40	10:44	10:48	10:54	10:57	11:04	11:12
10:50	10:57	11:06	11:06	11:10	11:14	11:18	11:24	11:27	11:34	11:42
11:20	11:27	11:36	11:36	11:40	11:44	11:48	11:54	11:57	12:04	12:12
11:50	11:57	12:06	12:06	12:10	12:14	12:18	12:24	12:27	12:34	12:42
12:20	12:27	12:36	12:36	12:40	12:44	12:48	12:54	12:57	13:04	13:12
12:50	12:57	13:06	13:06	13:10	13:14	13:18	13:24	13:27	13:34	13:42
13:20	13:27	13:36	13:36	13:40	13:44	13:48	13:54	13:57	14:04	14:12
13:50	13:57	14:06	14:06	14:10	14:14	14:18	14:24	14:27	14:34	14:42
14:20	14:27	14:36	14:36	14:40	14:44	14:48	14:54	14:57	15:04	15:12
14:50	14:57	15:06	15:06	15:10	15:14	15:18	15:24	15:27	15:34	15:42
15:20	15:27	15:36	15:36	15:40	15:44	15:48	15:54	15:57	16:04	16:12
15:50	15:57	16:06	16:06	16:10	16:14	16:18	16:24	16:27	16:34	16:42
16:20	16:27	16:36	16:36	16:40	16:44	16:48	16:54	16:57	17:04	17:12
16:50	16:57	17:06	17:06	17:10	17:14	17:18	17:24	17:27	17:34	17:42
17:20	17:27	17:36	17:36	17:40	17:44	17:48	17:54	17:57	18:04	18:12
17:50	17:57	18:06	18:06	18:10	18:14	18:18	18:24	18:27	18:34	18:42
18:20	18:27	18:36	18:36	18:40	18:44	18:48	18:54	18:57	19:04	19:12
18:50	18:57	19:06	19:06	19:10	19:14	19:18	19:24	19:27	19:34	19:42
19:20	19:26	19:35	19:40	19:44	19:47	19:51	19:59	20:05	20:11	20:17
19:50	19:56	20:05	20:10	20:14	20:17	20:21	20:29	20:35	20:41	20:47
20:20	20:26	20:35	20:40	20:44	20:47	20:51	20:59	21:05	21:11	21:17
20:50	20:56	21:05	21:05	21:09	21:12	21:16	21:24	21:30	21:36	21:42
21:20	21:26	21:35	21:35	21:39	21:42	21:46	21:54	22:00	22:06	22:12
21:50	21:55	22:04	22:06	22:09	22:12	22:15	22:23	22:28	22:34	22:39
22:20	22:25	22:34	22:36	22:39	22:42	22:45	22:53	22:58	23:04	23:09
22:45	22:50	22:59	23:01	23:04	23:07	23:10	23:18	23:23	23:29	23:34
A23:15	23:20	23:29	23:31	23:34	23:37	23:40	23:47	-	-	-

**A: 917A to Ajax Station**
























Saturday and Sunday									East
Pickering Parkway Terminal Platform B13 Stop # 94125	Bayly Eastbound @ Brock Road Stop #1763	Ajax Station Platform 9 - Arrival Stop #2569	Ajax Station Platform 9 - Depart Stop #2569	Harwood Southbound @ Harwood Plaza Stop #93622	Bayly Eastbound @ Audley Stop #3061	Victoria Eastbound @ Seaboard Gate Stop #93559	Whitby Station Platform 7 - Depart Stop #2576	Stellar Eastbound @ Champlain Stop #94372	Oshawa Centre Terminal Stop #2595
-	-	-	04:45	04:51	04:56	04:59	05:07	05:16	05:23
-	-	-	05:40	05:46	05:51	05:54	06:02	06:11	06:18
-	-	-	06:10	06:16	06:21	06:24	06:32	06:41	06:48
06:20	06:25	06:33	06:38	06:44	06:49	06:52	07:00	07:09	07:16
06:50	06:55	07:03	07:08	07:14	07:19	07:22	07:30	07:39	07:46
07:20	07:25	07:33	07:38	07:44	07:49	07:52	08:00	08:09	08:16
07:50	07:55	08:03	08:08	08:14	08:19	08:22	08:30	08:39	08:46
08:17	08:22	08:30	08:38	08:44	08:49	08:52	09:00	09:09	09:16
08:47	08:52	08:58	09:02	09:10	09:15	09:18	09:27	09:36	09:42
09:17	09:22	09:28	09:32	09:40	09:45	09:48	09:57	10:06	10:12
09:47	09:52	09:58	10:02	10:10	10:15	10:18	10:27	10:36	10:42
10:17	10:22	10:28	10:32	10:40	10:45	10:48	10:57	11:06	11:12
10:47	10:52	10:58	11:02	11:10	11:15	11:18	11:27	11:36	11:42
11:17	11:22	11:28	11:32	11:40	11:45	11:48	11:57	12:06	12:12
11:47	11:52	11:58	12:02	12:10	12:15	12:18	12:27	12:36	12:42
12:16	12:21	12:27	12:31	12:39	12:44	12:47	12:56	13:05	13:11
12:46	12:51	12:57	13:01	13:09	13:14	13:17	13:26	13:35	13:41
13:16	13:21	13:27	13:31	13:39	13:44	13:47	13:56	14:05	14:11
13:46	13:51	13:57	14:01	14:09	14:14	14:17	14:26	14:35	14:41
14:16	14:21	14:27	14:31	14:39	14:44	14:47	14:56	15:05	15:11
14:46	14:51	14:57	15:01	15:09	15:14	15:17	15:26	15:35	15:41
15:16	15:21	15:27	15:31	15:39	15:44	15:47	15:56	16:05	16:11
15:46	15:51	15:57	16:01	16:09	16:14	16:17	16:26	16:35	16:41
16:16	16:21	16:27	16:31	16:39	16:44	16:47	16:56	17:05	17:11
16:47	16:52	16:58	17:02	17:10	17:15	17:18	17:27	17:36	17:42
17:17	17:22	17:28	17:32	17:40	17:45	17:48	17:57	18:06	18:12
17:47	17:52	17:58	18:02	18:10	18:15	18:18	18:27	18:36	18:42
18:17	18:22	18:28	18:32	18:40	18:45	18:48	18:57	19:06	19:12
18:47	18:52	18:58	19:02	19:10	19:15	19:18	19:27	19:36	19:42
19:17	19:22	19:28	19:32	19:40	19:45	19:48	19:57	20:06	20:12
19:48	19:53	19:59	20:03	20:11	20:16	20:19	20:28	20:37	20:43
20:18	20:23	20:29	20:33	20:41	20:46	20:49	20:58	21:07	21:13
20:52	20:57	21:05	21:10	21:16	21:21	21:24	21:32	21:41	21:48
21:22	21:27	21:35	21:40	21:46	21:51	21:54	22:02	22:11	22:18
21:47	21:52	22:00	22:05	22:11	22:16	22:19	22:27	22:36	22:43
22:17	22:22	22:30	22:35	22:41	22:46	22:49	22:57	23:06	23:13
A22:42	22:47	22:55	-	-	-	-	-	-	-
A23:12	23:17	23:25	-	-	-	-	-	-	-
A23:37	23:42	23:50	-	-	-	-	-	-	-
A0:05	0:10	0:18	-	-	-	-	-	-	-

**A: 917A to Ajax Station**

**APPENDIX B**  
**Synchro Reports**

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St/Bayly St

Existing 2026 Traffic Condition  
Weekday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	292	400	344	168	293	214	47	219	55	299	820	298
Future Volume (vph)	292	400	344	168	293	214	47	219	55	299	820	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.98	1.00	0.99		0.99		0.97
Fr <sub>t</sub>		0.931				0.850		0.970				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1665	3227	0	1687	3539	1392	1736	4413	0	1719	3505	1568
Fl <sub>t</sub> Permitted	0.493			0.167			0.253			0.513		
Satd. Flow (perm)	858	3227	0	296	3539	1361	460	4413	0	920	3505	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		203				233		60				324
Link Speed (k/h)		60			60			60				60
Link Distance (m)		135.0			379.1			92.6				213.4
Travel Time (s)		8.1			22.7			5.6				12.8
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Adj. Flow (vph)	317	435	374	183	318	233	51	238	60	325	891	324
Shared Lane Traffic (%)												
Lane Group Flow (vph)	317	809	0	183	318	233	51	298	0	325	891	324
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6				3.6
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St/Bayly St

Existing 2026 Traffic Condition  
Weekday AM Peak Hour

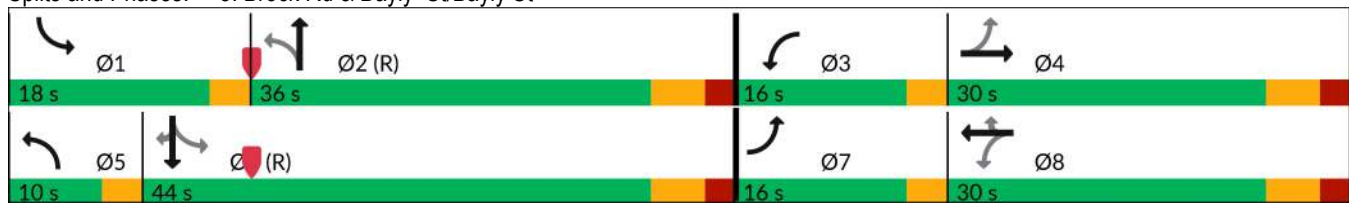


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	16.0	30.0		16.0	30.0	30.0	10.0	36.0		18.0	44.0	44.0
Total Split (%)	16.0%	30.0%		16.0%	30.0%	30.0%	10.0%	36.0%		18.0%	44.0%	44.0%
Maximum Green (s)	13.0	23.8		13.0	23.8	23.8	7.0	29.9		15.0	37.9	37.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	41.2	25.3		38.6	23.9	23.9	40.4	30.7		51.0	40.1	40.1
Actuated g/C Ratio	0.41	0.25		0.39	0.24	0.24	0.40	0.31		0.51	0.40	0.40
v/c Ratio	0.69	0.83		0.67	0.38	0.46	0.19	0.21		0.56	0.64	0.40
Control Delay (s/veh)	30.2	35.6		31.8	33.4	7.6	14.9	21.1		19.1	27.3	4.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	30.2	35.6		31.8	33.4	7.6	14.9	21.1		19.1	27.3	4.1
LOS	C	D		C	C	A	B	C		B	C	A
Approach Delay (s/veh)		34.1			24.8			20.2			20.7	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 92 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.83  
 Intersection Signal Delay (s/veh): 25.5      Intersection LOS: C  
 Intersection Capacity Utilization 81.3%      ICU Level of Service D  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St/Bayly St



Queues  
5: Brock Rd & Bayly St/Bayly St

Existing 2026 Traffic Condition  
Weekday AM Peak Hour





























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	317	809	183	318	233	51	298	325	891	324
v/c Ratio	0.69	0.83	0.67	0.38	0.46	0.19	0.21	0.56	0.64	0.40
Control Delay (s/veh)	30.2	35.6	31.8	33.4	7.6	14.9	21.1	19.1	27.3	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	30.2	35.6	31.8	33.4	7.6	14.9	21.1	19.1	27.3	4.1
Queue Length 50th (m)	46.2	63.1	22.6	28.4	0.0	4.9	12.2	37.5	77.3	0.0
Queue Length 95th (m)	71.2	#97.6	39.0	41.4	18.1	10.9	19.1	57.6	99.3	17.2
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	458	969	299	846	502	277	1397	589	1403	801
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.83	0.61	0.38	0.46	0.18	0.21	0.55	0.64	0.40

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St/Bayly St

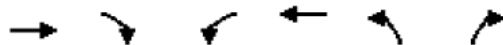
Existing 2026 Traffic Condition  
Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	292	400	344	168	293	214	47	219	55	299	820	298
Future Volume (vph)	292	400	344	168	293	214	47	219	55	299	820	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1660	3226		1686	3539	1361	1734	4413		1711	3505	1516
Flt Permitted	0.49	1.00		0.17	1.00	1.00	0.25	1.00		0.51	1.00	1.00
Satd. Flow (perm)	861	3226		297	3539	1361	461	4413		923	3505	1516
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	317	435	374	183	318	233	51	238	60	325	891	324
RTOR Reduction (vph)	0	152	0	0	0	177	0	42	0	0	0	196
Lane Group Flow (vph)	317	657	0	183	318	56	51	256	0	325	891	128
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	38.2	25.3		35.4	23.9	23.9	36.1	30.7		47.9	39.5	39.5
Effective Green, g (s)	38.2	25.3		35.4	23.9	23.9	36.1	30.7		47.9	39.5	39.5
Actuated g/C Ratio	0.38	0.25		0.35	0.24	0.24	0.36	0.31		0.48	0.40	0.40
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	431	816		264	845	325	235	1354		554	1384	598
v/s Ratio Prot	c0.09	c0.20		0.08	0.09		0.01	0.06		c0.08	c0.25	
v/s Ratio Perm	0.19			0.17		0.04	0.07			0.20		0.08
v/c Ratio	0.74	0.81		0.69	0.38	0.17	0.22	0.19		0.59	0.64	0.21
Uniform Delay, d1	24.1	35.0		24.9	31.8	30.2	21.3	25.5		16.8	24.5	20.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.4	8.3		7.6	1.3	1.1	0.5	0.3		1.6	2.3	0.8
Delay (s)	30.5	43.4		32.6	33.1	31.3	21.7	25.8		18.4	26.9	20.8
Level of Service	C	D		C	C	C	C	C		B	C	C
Approach Delay (s/veh)		39.7			32.4			25.2			23.8	
Approach LOS		D			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			30.4									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			100.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			81.3%									ICU Level of Service D
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St/Bayly St
























Existing 2026 Traffic Condition  
 Weekday AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (veh/h)	1030	5	13	625	2	5
Future Volume (Veh/h)	1030	5	13	625	2	5
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1120	5	14	679	2	5
Pedestrians					2	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)					135	
pX, platoon unblocked					0.93	
vC, conflicting volume			1127		1492	565
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1127		1380	565
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	99
cM capacity (veh/h)			615		123	468
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	747	378	240	453	7	
Volume Left	0	0	14	0	2	
Volume Right	0	5	0	0	5	
cSH	1700	1700	615	1700	260	
Volume to Capacity	0.44	0.22	0.02	0.27	0.03	
Queue Length 95th (m)	0.0	0.0	0.6	0.0	0.7	
Control Delay (s/veh)	0.0	0.0	0.9	0.0	19.3	
Lane LOS	A			C		
Approach Delay (s/veh)	0.0		0.3		19.3	
Approach LOS					C	
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			38.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

Existing 2026 Traffic Condition  
Weekday PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	557	122	66	508	356	354	664	207	429	311	257
Future Volume (vph)	223	557	122	66	508	356	354	664	207	429	311	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00	1.00		1.00		0.97	0.99	1.00				0.97
Frt		0.973				0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3321	0	1556	3539	1509	1770	4785	0	1752	3471	1583
Flt Permitted	0.199			0.246			0.548			0.155		
Satd. Flow (perm)	351	3321	0	402	3539	1468	1010	4785	0	286	3471	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				387		58				279
Link Speed (k/h)		60			60			60				60
Link Distance (m)		135.0			379.1			92.6				213.4
Travel Time (s)		8.1			22.7			5.6				12.8
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Adj. Flow (vph)	242	605	133	72	552	387	385	722	225	466	338	279
Shared Lane Traffic (%)												
Lane Group Flow (vph)	242	738	0	72	552	387	385	947	0	466	338	279
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6				3.6
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

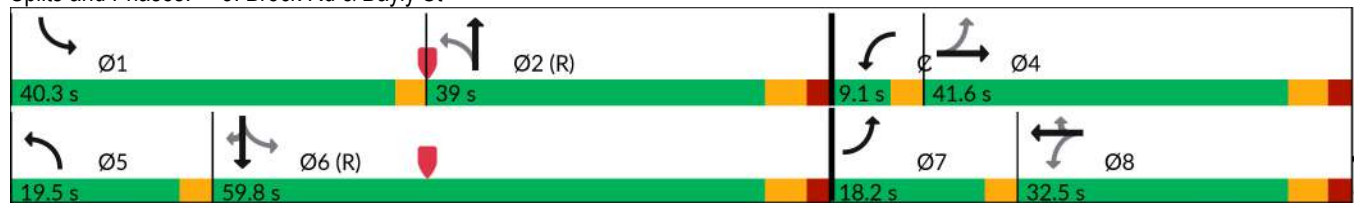
Existing 2026 Traffic Condition  
Weekday PM Peak Hour

	↖		→		↗		↖		↗		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	18.2	41.6		9.1	32.5	32.5	19.5	39.0		40.3	59.8	59.8
Total Split (%)	14.0%	32.0%		7.0%	25.0%	25.0%	15.0%	30.0%		31.0%	46.0%	46.0%
Maximum Green (s)	15.2	35.4		6.1	26.3	26.3	16.5	32.9		37.3	53.7	53.7
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	47.7	37.2		35.7	26.4	26.4	57.5	38.3		76.3	54.1	54.1
Actuated g/C Ratio	0.37	0.29		0.27	0.20	0.20	0.44	0.29		0.59	0.42	0.42
v/c Ratio	0.86	0.77		0.44	0.77	0.64	0.71	0.65		0.88	0.23	0.35
Control Delay (s/veh)	59.0	47.9		37.6	57.1	9.6	26.9	41.0		46.9	25.2	4.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	59.0	47.9		37.6	57.1	9.6	26.9	41.0		46.9	25.2	4.0
LOS	E	D		D	E	A	C	D		D	C	A
Approach Delay (s/veh)		50.7			37.5			36.9			29.1	
Approach LOS		D			D			D			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 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): 38.2      Intersection LOS: D  
 Intersection Capacity Utilization 87.3%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

Existing 2026 Traffic Condition  
Weekday PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	242	738	72	552	387	385	947	466	338	279
v/c Ratio	0.86	0.77	0.44	0.77	0.64	0.71	0.65	0.88	0.23	0.35
Control Delay (s/veh)	59.0	47.9	37.6	57.1	9.6	26.9	41.0	46.9	25.2	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	59.0	47.9	37.6	57.1	9.6	26.9	41.0	46.9	25.2	4.0
Queue Length 50th (m)	50.0	93.7	11.9	74.0	0.0	51.8	77.4	89.2	30.2	0.0
Queue Length 95th (m)	#88.5	118.2	22.6	95.3	28.9	73.3	97.1	131.5	41.4	17.1
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	284	964	164	717	606	546	1450	588	1443	802
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.77	0.44	0.77	0.64	0.71	0.65	0.79	0.23	0.35




























Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 5: Brock Rd & Bayly St

Existing 2026 Traffic Condition  
Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  			 	
Traffic Volume (vph)	223	557	122	66	508	356	354	664	207	429	311	257
Future Volume (vph)	223	557	122	66	508	356	354	664	207	429	311	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1680	3320		1556	3539	1468	1760	4786		1752	3471	1537
Flt Permitted	0.20	1.00		0.25	1.00	1.00	0.55	1.00		0.16	1.00	1.00
Satd. Flow (perm)	351	3320		402	3539	1468	1016	4786		286	3471	1537
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	242	605	133	72	552	387	385	722	225	466	338	279
RTOR Reduction (vph)	0	14	0	0	0	307	0	41	0	0	0	164
Lane Group Flow (vph)	242	724	0	72	552	80	385	906	0	466	338	115
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	45.1	37.2		31.9	27.0	27.0	53.8	37.7		72.6	53.5	53.5
Effective Green, g (s)	45.1	37.2		31.9	27.0	27.0	53.8	37.7		72.6	53.5	53.5
Actuated g/C Ratio	0.35	0.29		0.25	0.21	0.21	0.41	0.29		0.56	0.41	0.41
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	276	950		142	735	304	512	1387		519	1428	632
v/s Ratio Prot	c0.10	0.22		0.02	0.16		0.09	0.19		c0.22	0.10	
v/s Ratio Perm	c0.20			0.11		0.05	0.22			c0.28		0.07
v/c Ratio	0.88	0.76		0.51	0.75	0.26	0.75	0.65		0.90	0.24	0.18
Uniform Delay, d1	33.9	42.4		39.2	48.3	43.2	29.0	40.4		31.3	24.9	24.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	25.3	5.8		2.8	7.0	2.1	6.2	2.4		18.0	0.4	0.6
Delay (s)	59.2	48.1		42.0	55.3	45.3	35.2	42.8		49.4	25.3	25.0
Level of Service	E	D		D	E	D	D	D		D	C	C
Approach Delay (s/veh)		50.8			50.5			40.6			35.6	
Approach LOS		D			D			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			43.9			HCM 2000 Level of Service						D
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)						18.3
Intersection Capacity Utilization			87.3%			ICU Level of Service						E
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

Existing 2026 Traffic Condition  
 Weekday PM Peak Hour


























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (veh/h)	891	5	1	1118	4	12
Future Volume (Veh/h)	891	5	1	1118	4	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	968	5	1	1215	4	13
Pedestrians					5	
Lane Width (m)					3.6	
Walking Speed (m/s)					1.2	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)					135	
pX, platoon unblocked					0.86	
vC, conflicting volume				978	1585	492
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				978	1346	492
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	97	98
cM capacity (veh/h)				698	121	521
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	645	328	406	810	17	
Volume Left	0	0	1	0	4	
Volume Right	0	5	0	0	13	
cSH	1700	1700	698	1700	293	
Volume to Capacity	0.38	0.19	0.00*	0.48	0.06	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.5	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	18.0	
Lane LOS				A	C	
Approach Delay (s/veh)	0.0	0.0		18.0		
Approach LOS					C	
Intersection Summary						
Average Delay				0.1		
Intersection Capacity Utilization				41.6%	ICU Level of Service	A
Analysis Period (min)	15					

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

Existing 2026 Traffic Condition  
Weekend Mid-day Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	372	73	72	337	294	81	267	69	369	302	297
Future Volume (vph)	313	372	73	72	337	294	81	267	69	369	302	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00					0.99	1.00					0.99
Frt		0.975				0.850		0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3445	0	1703	3539	1568	1770	4880	0	1752	3406	1583
Flt Permitted	0.413			0.476			0.554			0.478		
Satd. Flow (perm)	730	3445	0	853	3539	1547	1031	4880	0	882	3406	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				320		64				323
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Adj. Flow (vph)	340	404	79	78	366	320	88	290	75	401	328	323
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	483	0	78	366	320	88	365	0	401	328	323
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

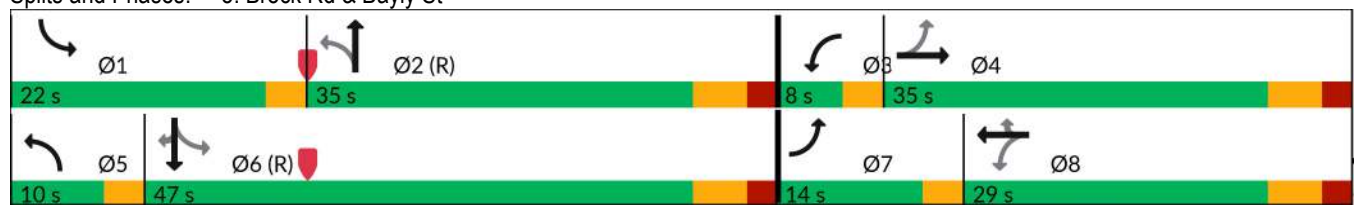
Existing 2026 Traffic Condition  
Weekend Mid-day Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	14.0	35.0		8.0	29.0	29.0	10.0	35.0		22.0	47.0	47.0
Total Split (%)	14.0%	35.0%		8.0%	29.0%	29.0%	10.0%	35.0%		22.0%	47.0%	47.0%
Maximum Green (s)	11.0	28.8		5.0	22.8	22.8	7.0	28.9		19.0	40.9	40.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	40.0	30.4		31.0	22.8	22.8	40.5	30.6		54.0	42.9	42.9
Actuated g/C Ratio	0.40	0.30		0.31	0.23	0.23	0.41	0.31		0.54	0.43	0.43
v/c Ratio	0.86	0.45		0.25	0.45	0.53	0.19	0.24		0.64	0.22	0.38
Control Delay (s/veh)	46.7	28.9		21.9	35.4	7.4	13.4	22.1		19.1	19.2	3.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	46.7	28.9		21.9	35.4	7.4	13.4	22.1		19.1	19.2	3.6
LOS	D	C		C	D	A	B	C		B	B	A
Approach Delay (s/veh)		36.3			22.3			20.4			14.4	
Approach LOS		D			C			C			B	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 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: 0.86  
 Intersection Signal Delay (s/veh): 23.0      Intersection LOS: C  
 Intersection Capacity Utilization 83.9%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

Existing 2026 Traffic Condition  
Weekend Mid-day Peak Hour


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	340	483	78	366	320	88	365	401	328	323
v/c Ratio	0.86	0.45	0.25	0.45	0.53	0.19	0.24	0.64	0.22	0.38
Control Delay (s/veh)	46.7	28.9	21.9	35.4	7.4	13.4	22.1	19.1	19.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	46.7	28.9	21.9	35.4	7.4	13.4	22.1	19.1	19.2	3.6
Queue Length 50th (m)	53.3	40.2	9.6	33.7	0.0	8.2	16.7	45.6	21.9	0.0
Queue Length 95th (m)	#103.0	56.0	19.1	48.1	22.0	15.8	24.9	68.4	31.8	16.2
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	396	1063	306	806	599	471	1538	641	1461	854
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.45	0.25	0.45	0.53	0.19	0.24	0.63	0.22	0.38

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

Existing 2026 Traffic Condition  
Weekend Mid-day Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	313	372	73	72	337	294	81	267	69	369	302	297
Future Volume (vph)	313	372	73	72	337	294	81	267	69	369	302	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	3447		1703	3539	1547	1769	4881		1752	3406	1562
Flt Permitted	0.41	1.00		0.48	1.00	1.00	0.55	1.00		0.48	1.00	1.00
Satd. Flow (perm)	730	3447		854	3539	1547	1031	4881		882	3406	1562
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	340	404	79	78	366	320	88	290	75	401	328	323
RTOR Reduction (vph)	0	16	0	0	0	245	0	45	0	0	0	188
Lane Group Flow (vph)	340	467	0	78	366	75	88	320	0	401	328	135
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	37.4	30.4		27.4	23.4	23.4	35.6	30.0		50.3	41.7	41.7
Effective Green, g (s)	37.4	30.4		27.4	23.4	23.4	35.6	30.0		50.3	41.7	41.7
Actuated g/C Ratio	0.37	0.30		0.27	0.23	0.23	0.36	0.30		0.50	0.42	0.42
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	377	1047		267	828	361	408	1464		594	1420	651
v/s Ratio Prot	c0.10	0.14		0.01	0.10		0.01	0.07		c0.12	0.10	
v/s Ratio Perm	c0.24			0.07		0.05	0.06			c0.22		0.09
v/c Ratio	0.90	0.45		0.29	0.44	0.21	0.22	0.22		0.68	0.23	0.21
Uniform Delay, d1	27.2	28.0		27.6	32.7	30.8	21.8	26.2		16.1	18.8	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	23.9	1.4		0.6	1.7	1.3	0.3	0.3		3.0	0.4	0.7
Delay (s)	51.1	29.4		28.2	34.4	32.1	22.1	26.6		19.1	19.2	19.3
Level of Service	D	C		C	C	C	C	C		B	B	B
Approach Delay (s/veh)		38.4			32.8			25.7			19.2	
Approach LOS		D			C			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			28.6	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				18.3				
Intersection Capacity Utilization			83.9%	ICU Level of Service				E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

Existing 2026 Traffic Condition  
 Weekend Mid-day Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↑↑	
Traffic Volume (veh/h)	744	6	8	707	9	14
Future Volume (Veh/h)	744	6	8	707	9	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	809	7	9	768	10	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	135					
pX, platoon unblocked					0.92	
vC, conflicting volume			816	1215	408	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			816	1053	408	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			99	95	97	
cM capacity (veh/h)			807	201	593	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	539	277	265	512	25	
Volume Left	0	0	9	0	10	
Volume Right	0	7	0	0	15	
cSH	1700	1700	807	1700	333	
Volume to Capacity	0.32	0.16	0.01	0.30	0.08	
Queue Length 95th (m)	0.0	0.0	0.3	0.0	1.9	
Control Delay (s/veh)	0.0	0.0	0.4	0.0	16.7	
Lane LOS	A			C		
Approach Delay (s/veh)	0.0		0.2		16.7	
Approach LOS	C					
Intersection Summary						
Average Delay	0.3					
Intersection Capacity Utilization			35.2%	ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway
























2028 Background Traffic Condition  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↓	
Traffic Volume (veh/h)	0	0	0	334	1372	13
Future Volume (Veh/h)	0	0	0	334	1372	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	363	1491	14
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					93	
pX, platoon unblocked	0.78	0.78	0.78			
vC, conflicting volume	1680	753	1505			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1310	124	1087			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	118	706	498			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	0	182	182	994	511	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	14	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.11	0.11	0.58	0.30	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	0.0	0.0		0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	41.7%			ICU Level of Service	A	
Analysis Period (min)	15					

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	304	418	358	175	305	223	49	228	57	311	853	310
Future Volume (vph)	304	418	358	175	305	223	49	228	57	311	853	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.98	1.00	0.99		0.99		0.97
Fr <sub>t</sub>		0.931				0.850		0.970				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1665	3227	0	1687	3539	1392	1736	4413	0	1719	3505	1568
Fl <sub>t</sub> Permitted	0.477			0.168			0.232			0.506		
Satd. Flow (perm)	831	3227	0	298	3539	1361	422	4413	0	907	3505	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		204				242		61				337
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Adj. Flow (vph)	330	454	389	190	332	242	53	248	62	338	927	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	330	843	0	190	332	242	53	310	0	338	927	337
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
AM Peak Hour

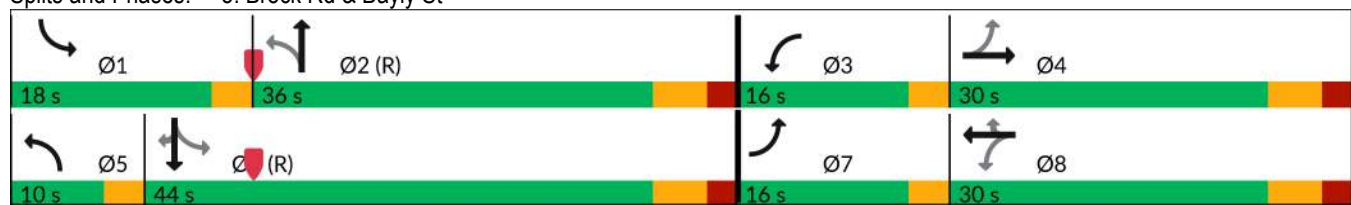


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	16.0	30.0		16.0	30.0	30.0	10.0	36.0		18.0	44.0	44.0
Total Split (%)	16.0%	30.0%		16.0%	30.0%	30.0%	10.0%	36.0%		18.0%	44.0%	44.0%
Maximum Green (s)	13.0	23.8		13.0	23.8	23.8	7.0	29.9		15.0	37.9	37.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	41.1	25.2		38.6	23.8	23.8	40.2	30.5		51.0	40.0	40.0
Actuated g/C Ratio	0.41	0.25		0.39	0.24	0.24	0.40	0.31		0.51	0.40	0.40
v/c Ratio	0.73	0.87		0.69	0.39	0.48	0.21	0.22		0.58	0.66	0.42
Control Delay (s/veh)	32.8	38.8		32.9	33.7	7.6	15.2	21.3		19.7	27.9	4.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	32.8	38.8		32.9	33.7	7.6	15.2	21.3		19.7	27.9	4.1
LOS	C	D		C	C	A	B	C		B	C	A
Approach Delay (s/veh)		37.1			25.3			20.4			21.1	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 92 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay (s/veh): 26.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 82.7%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
AM Peak Hour


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	330	843	190	332	242	53	310	338	927	337
v/c Ratio	0.73	0.87	0.69	0.39	0.48	0.21	0.22	0.58	0.66	0.42
Control Delay (s/veh)	32.8	38.8	32.9	33.7	7.6	15.2	21.3	19.7	27.9	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	32.8	38.8	32.9	33.7	7.6	15.2	21.3	19.7	27.9	4.1
Queue Length 50th (m)	48.5	67.8	23.6	29.7	0.0	5.1	12.8	39.4	81.6	0.0
Queue Length 95th (m)	#79.2	#105.6	40.7	43.1	18.4	11.4	20.0	60.0	104.5	17.4
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	449	965	299	842	508	263	1390	584	1403	808
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.87	0.64	0.39	0.48	0.20	0.22	0.58	0.66	0.42

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

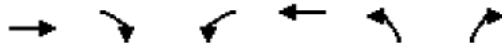
2028 Background Traffic Condition  
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	304	418	358	175	305	223	49	228	57	311	853	310	
Future Volume (vph)	304	418	358	175	305	223	49	228	57	311	853	310	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1660	3226		1686	3539	1361	1734	4413		1712	3505	1516	
Flt Permitted	0.48	1.00		0.17	1.00	1.00	0.23	1.00		0.51	1.00	1.00	
Satd. Flow (perm)	834	3226		298	3539	1361	424	4413		912	3505	1516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	330	454	389	190	332	242	53	248	62	338	927	337	
RTOR Reduction (vph)	0	153	0	0	0	184	0	42	0	0	0	204	
Lane Group Flow (vph)	330	690	0	190	332	58	53	268	0	338	927	133	
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13	
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4			8		8	2			6		6	
Actuated Green, G (s)	38.2	25.2		35.4	23.8	23.8	36.0	30.5		47.9	39.4	39.4	
Effective Green, g (s)	38.2	25.2		35.4	23.8	23.8	36.0	30.5		47.9	39.4	39.4	
Actuated g/C Ratio	0.38	0.25		0.35	0.24	0.24	0.36	0.31		0.48	0.39	0.39	
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	425	812		266	842	323	224	1345		552	1380	597	
v/s Ratio Prot	c0.10	c0.21		0.08	0.09		0.01	0.06		c0.09	c0.26		
v/s Ratio Perm	0.20			0.17		0.04	0.07			0.21		0.09	
v/c Ratio	0.78	0.85		0.71	0.39	0.18	0.24	0.20		0.61	0.67	0.22	
Uniform Delay, d1	24.5	35.6		25.3	32.0	30.3	21.4	25.7		17.0	25.0	20.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	8.6	10.8		8.8	1.4	1.2	0.5	0.3		2.0	2.6	0.9	
Delay (s)	33.2	46.4		34.0	33.4	31.5	22.0	26.0		19.0	27.6	21.0	
Level of Service	C	D		C	C	C	C	C		B	C	C	
Approach Delay (s/veh)		42.7			33.0			25.5			24.4		
Approach LOS		D			C			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			31.7									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	18.3
Intersection Capacity Utilization			82.7%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2028 Background Traffic Condition  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	1072	5	0	663	0	7
Future Volume (Veh/h)	1072	5	0	663	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1165	5	0	721	0	8
Pedestrians						2
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						135
pX, platoon unblocked					0.93	
vC, conflicting volume			1172	1530	587	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1172	1414	587	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	98	
cM capacity (veh/h)			591	119	452	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	777	393	361	361	8	
Volume Left	0	0	0	0	0	
Volume Right	0	5	0	0	8	
cSH	1700	1700	1700	1700	452	
Volume to Capacity	0.46	0.23	0.21	0.21	0.02	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.4	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.1	
Lane LOS						B
Approach Delay (s/veh)	0.0		0.0		13.1	
Approach LOS						B
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			39.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway

2028 Background Traffic Condition  
Weekend Mid-day Peak Hour


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↓	
Traffic Volume (veh/h)	0	1	0	434	457	8
Future Volume (Veh/h)	0	1	0	434	457	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	472	497	9
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						93
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	738	253	506			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	596	81	350			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	409	906	1135			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	1	236	236	331	175	
Volume Left	0	0	0	0	0	
Volume Right	1	0	0	0	9	
cSH	906	1700	1700	1700	1700	
Volume to Capacity	0.00*	0.14	0.14	0.19	0.10	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	9.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	9.0	0.0		0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	22.9%			ICU Level of Service	A	
Analysis Period (min)	15					

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
Weekend Mid-day Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	395	76	75	351	306	84	278	72	384	314	309
Future Volume (vph)	326	395	76	75	351	306	84	278	72	384	314	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00					0.99	1.00					0.99
Frt		0.976				0.850		0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3449	0	1703	3539	1568	1770	4880	0	1752	3406	1583
Flt Permitted	0.397			0.463			0.547			0.471		
Satd. Flow (perm)	702	3449	0	830	3539	1547	1018	4880	0	869	3406	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				333		65				336
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Adj. Flow (vph)	354	429	83	82	382	333	91	302	78	417	341	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	354	512	0	82	382	333	91	380	0	417	341	336
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
Weekend Mid-day Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	14.0	35.0		8.0	29.0	29.0	10.0	35.0		22.0	47.0	47.0
Total Split (%)	14.0%	35.0%		8.0%	29.0%	29.0%	10.0%	35.0%		22.0%	47.0%	47.0%
Maximum Green (s)	11.0	28.8		5.0	22.8	22.8	7.0	28.9		19.0	40.9	40.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	40.0	30.4		31.0	22.8	22.8	40.3	30.4		54.0	42.9	42.9
Actuated g/C Ratio	0.40	0.30		0.31	0.23	0.23	0.40	0.30		0.54	0.43	0.43
v/c Ratio	0.91	0.48		0.27	0.47	0.55	0.20	0.25		0.67	0.23	0.39
Control Delay (s/veh)	55.1	29.4		22.3	35.7	7.4	13.5	22.5		20.0	19.3	3.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	55.1	29.4		22.3	35.7	7.4	13.5	22.5		20.0	19.3	3.6
LOS	E	C		C	D	A	B	C		B	B	A
Approach Delay (s/veh)		39.9			22.5			20.7			14.7	
Approach LOS		D			C			C			B	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 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: 0.91  
 Intersection Signal Delay (s/veh): 24.3      Intersection LOS: C  
 Intersection Capacity Utilization 85.4%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
Weekend Mid-day Peak Hour


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	354	512	82	382	333	91	380	417	341	336
v/c Ratio	0.91	0.48	0.27	0.47	0.55	0.20	0.25	0.67	0.23	0.39
Control Delay (s/veh)	55.1	29.4	22.3	35.7	7.4	13.5	22.5	20.0	19.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	55.1	29.4	22.3	35.7	7.4	13.5	22.5	20.0	19.3	3.6
Queue Length 50th (m)	56.2	43.2	10.1	35.3	0.0	8.5	17.5	48.1	22.8	0.0
Queue Length 95th (m)	#114.3	59.6	19.8	50.1	22.5	16.2	25.9	71.8	33.0	16.5
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	388	1064	300	806	609	464	1527	637	1461	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.48	0.27	0.47	0.55	0.20	0.25	0.65	0.23	0.39

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
Weekend Mid-day Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	395	76	75	351	306	84	278	72	384	314	309
Future Volume (vph)	326	395	76	75	351	306	84	278	72	384	314	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	3448		1703	3539	1547	1769	4881		1752	3406	1562
Flt Permitted	0.40	1.00		0.46	1.00	1.00	0.55	1.00		0.47	1.00	1.00
Satd. Flow (perm)	703	3448		830	3539	1547	1018	4881		868	3406	1562
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	354	429	83	82	382	333	91	302	78	417	341	336
RTOR Reduction (vph)	0	16	0	0	0	255	0	46	0	0	0	196
Lane Group Flow (vph)	354	496	0	82	382	78	91	334	0	417	341	140
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	37.4	30.4		27.4	23.4	23.4	35.4	29.8		50.3	41.7	41.7
Effective Green, g (s)	37.4	30.4		27.4	23.4	23.4	35.4	29.8		50.3	41.7	41.7
Actuated g/C Ratio	0.37	0.30		0.27	0.23	0.23	0.35	0.30		0.50	0.42	0.42
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	370	1048		262	828	361	402	1454		591	1420	651
v/s Ratio Prot	c0.11	0.14		0.01	0.11		0.01	0.07		c0.12	0.10	
v/s Ratio Perm	c0.25			0.07		0.05	0.07			c0.23		0.09
v/c Ratio	0.96	0.47		0.31	0.46	0.22	0.23	0.23		0.71	0.24	0.22
Uniform Delay, d1	28.2	28.3		27.7	32.9	30.9	22.0	26.5		16.3	18.9	18.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	35.2	1.5		0.7	1.8	1.4	0.3	0.4		3.8	0.4	0.8
Delay (s)	63.4	29.8		28.4	34.7	32.3	22.3	26.8		20.1	19.3	19.4
Level of Service	E	C		C	C	C	C	C		C	B	B
Approach Delay (s/veh)		43.6			33.0			25.9			19.6	
Approach LOS		D			C			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			30.3									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			100.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			85.4%									ICU Level of Service E
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2028 Background Traffic Condition  
 Weekend Mid-day Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	775	6	0	744	0	22
Future Volume (Veh/h)	775	6	0	744	0	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	842	7	0	809	0	24
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	135					
pX, platoon unblocked					0.91	
vC, conflicting volume	849			1250	425	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	849			1082	425	
tC, single (s)	4.1			6.8	6.9	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	100			100	96	
cM capacity (veh/h)	785			194	578	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	561	288	405	405	24	
Volume Left	0	0	0	0	0	
Volume Right	0	7	0	0	24	
cSH	1700	1700	1700	1700	578	
Volume to Capacity	0.33	0.17	0.24	0.24	0.04	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.0	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	11.5	
Lane LOS						B
Approach Delay (s/veh)	0.0		0.0		11.5	
Approach LOS						B
<b>Intersection Summary</b>						
Average Delay	0.2					
Intersection Capacity Utilization	31.6%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway
























2028 Background Traffic Condition  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↓	
Traffic Volume (veh/h)	0	0	0	1275	519	1
Future Volume (Veh/h)	0	0	0	1275	519	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1386	564	1
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					93	
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	1258	283	565			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1140	99	401			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	182	878	1081			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	0	693	693	376	189	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	1	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.41	0.41	0.22	0.11	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	0.0	0.0		0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	38.6%			ICU Level of Service	A	
Analysis Period (min)	15					

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	583	127	69	528	370	368	691	215	447	324	267
Future Volume (vph)	232	583	127	69	528	370	368	691	215	447	324	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00	1.00		1.00		0.97	0.99	1.00				0.97
Frt		0.973				0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3321	0	1556	3539	1509	1770	4785	0	1752	3471	1583
Flt Permitted	0.179			0.218			0.541			0.132		
Satd. Flow (perm)	316	3321	0	357	3539	1468	997	4785	0	243	3471	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				402		58				290
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Adj. Flow (vph)	252	634	138	75	574	402	400	751	234	486	352	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	252	772	0	75	574	402	400	985	0	486	352	290
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
PM Peak Hour

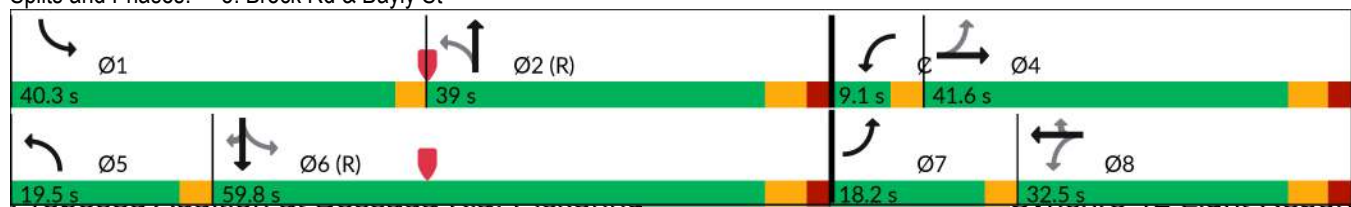


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	18.2	41.6		9.1	32.5	32.5	19.5	39.0		40.3	59.8	59.8
Total Split (%)	14.0%	32.0%		7.0%	25.0%	25.0%	15.0%	30.0%		31.0%	46.0%	46.0%
Maximum Green (s)	15.2	35.4		6.1	26.3	26.3	16.5	32.9		37.3	53.7	53.7
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	47.7	37.2		35.6	26.3	26.3	55.9	36.5		76.3	53.9	53.9
Actuated g/C Ratio	0.37	0.29		0.27	0.20	0.20	0.43	0.28		0.59	0.41	0.41
v/c Ratio	0.92	0.80		0.49	0.80	0.65	0.76	0.71		0.91	0.24	0.36
Control Delay (s/veh)	69.6	49.7		40.2	59.0	9.6	30.1	43.6		53.8	25.4	4.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	69.6	49.7		40.2	59.0	9.6	30.1	43.6		53.8	25.4	4.0
LOS	E	D		D	E	A	C	D		D	C	A
Approach Delay (s/veh)		54.6			38.8			39.7			32.1	
Approach LOS		D			D			D			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 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: 0.92  
 Intersection Signal Delay (s/veh): 40.9      Intersection LOS: D  
 Intersection Capacity Utilization 89.5%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
PM Peak Hour





























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	252	772	75	574	402	400	985	486	352	290
v/c Ratio	0.92	0.80	0.49	0.80	0.65	0.76	0.71	0.91	0.24	0.36
Control Delay (s/veh)	69.6	49.7	40.2	59.0	9.6	30.1	43.6	53.8	25.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.6	49.7	40.2	59.0	9.6	30.1	43.6	53.8	25.4	4.0
Queue Length 50th (m)	52.5	99.6	12.4	77.6	0.0	54.3	84.5	99.4	31.6	0.0
Queue Length 95th (m)	#100.9	125.1	23.3	99.4	29.8	#82.0	102.0	#157.1	43.1	17.1
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	275	964	154	715	617	528	1385	575	1437	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.80	0.49	0.80	0.65	0.76	0.71	0.85	0.24	0.36

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2028 Background Traffic Condition  
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Traffic Volume (vph)	232	583	127	69	528	370	368	691	215	447	324	267	
Future Volume (vph)	232	583	127	69	528	370	368	691	215	447	324	267	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1680	3322		1556	3539	1468	1760	4786		1752	3471	1537	
Flt Permitted	0.18	1.00		0.22	1.00	1.00	0.54	1.00		0.13	1.00	1.00	
Satd. Flow (perm)	317	3322		357	3539	1468	1002	4786		243	3471	1537	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	252	634	138	75	574	402	400	751	234	486	352	290	
RTOR Reduction (vph)	0	14	0	0	0	319	0	42	0	0	0	171	
Lane Group Flow (vph)	252	758	0	75	574	83	400	943	0	486	352	119	
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8	
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4			8		8	2			6		6	
Actuated Green, G (s)	45.1	37.2		31.8	26.9	26.9	52.2	35.9		72.6	53.3	53.3	
Effective Green, g (s)	45.1	37.2		31.8	26.9	26.9	52.2	35.9		72.6	53.3	53.3	
Actuated g/C Ratio	0.35	0.29		0.24	0.21	0.21	0.40	0.28		0.56	0.41	0.41	
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2	
Lane Grp Cap (vph)	269	950		132	732	303	497	1321		526	1423	630	
v/s Ratio Prot	c0.11	0.23		0.02	0.16		0.10	0.20		c0.24	0.10		
v/s Ratio Perm	c0.21			0.12		0.06	0.22			c0.28		0.08	
v/c Ratio	0.94	0.80		0.57	0.78	0.27	0.80	0.71		0.92	0.25	0.19	
Uniform Delay, d1	34.4	42.9		39.6	48.8	43.3	30.8	42.4		34.4	25.2	24.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	37.8	6.9		5.5	8.2	2.2	9.2	3.3		22.0	0.4	0.7	
Delay (s)	72.2	49.9		45.1	57.0	45.6	40.0	45.7		56.5	25.6	25.2	
Level of Service	E	D		D	E	D	D	D		E	C	C	
Approach Delay (s/veh)		55.4			51.8			44.1			38.8		
Approach LOS		E			D			D			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			47.1									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.97										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	18.3
Intersection Capacity Utilization			89.5%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2028 Background Traffic Condition  
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	927	5	0	1164	0	16
Future Volume (Veh/h)	927	5	0	1164	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1008	5	0	1265	0	17
Pedestrians						5
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						135
pX, platoon unblocked						0.85
vC, conflicting volume				1018	1648	512
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1018	1407	512
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	97
cM capacity (veh/h)				674	110	505
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	672	341	633	633	17	
Volume Left	0	0	0	0	0	
Volume Right	0	5	0	0	17	
cSH	1700	1700	1700	1700	505	
Volume to Capacity	0.40	0.20	0.37	0.37	0.03	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.8	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	12.4	
Lane LOS						B
Approach Delay (s/veh)	0.0		0.0		12.4	
Approach LOS						B
Intersection Summary						
Average Delay				0.1		
Intersection Capacity Utilization				35.8%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway
























2033 Background Traffic Condition  
Weekday AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	↙
Traffic Volume (veh/h)	0	0	0	369	1517	13
Future Volume (Veh/h)	0	0	0	369	1517	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	401	1649	14
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						93
pX, platoon unblocked	0.75	0.75	0.75			
vC, conflicting volume	1857	832	1663			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1472	102	1213			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	88	699	427			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	0	201	201	1099	564	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	14	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.12	0.12	0.65	0.33	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	0.0	0.0		0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	45.7%			ICU Level of Service	A	
Analysis Period (min)	15					

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	461	395	193	336	246	54	252	63	343	942	342
Future Volume (vph)	335	461	395	193	336	246	54	252	63	343	942	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99				0.98	1.00	0.99		0.99		0.97
Fr <sub>t</sub>		0.931				0.850		0.970				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1665	3227	0	1687	3539	1392	1736	4413	0	1719	3505	1568
Fl <sub>t</sub> Permitted	0.450			0.168			0.181			0.490		
Satd. Flow (perm)	784	3227	0	298	3539	1361	330	4413	0	879	3505	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		203				267		61				372
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Adj. Flow (vph)	364	501	429	210	365	267	59	274	68	373	1024	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	930	0	210	365	267	59	342	0	373	1024	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekday AM Peak Hour

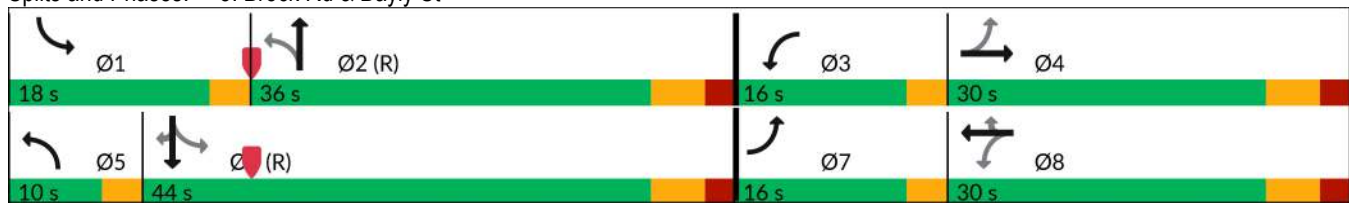


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	16.0	30.0		16.0	30.0	30.0	10.0	36.0		18.0	44.0	44.0
Total Split (%)	16.0%	30.0%		16.0%	30.0%	30.0%	10.0%	36.0%		18.0%	44.0%	44.0%
Maximum Green (s)	13.0	23.8		13.0	23.8	23.8	7.0	29.9		15.0	37.9	37.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	40.8	24.8		39.0	23.8	23.8	40.0	30.3		51.0	40.0	40.0
Actuated g/C Ratio	0.41	0.25		0.39	0.24	0.24	0.40	0.30		0.51	0.40	0.40
v/c Ratio	0.84	0.98		0.74	0.43	0.51	0.26	0.25		0.65	0.73	0.45
Control Delay (s/veh)	41.6	54.7		36.8	34.3	7.7	16.3	22.1		21.8	29.9	4.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	41.6	54.7		36.8	34.3	7.7	16.3	22.1		21.8	29.9	4.2
LOS	D	D		D	C	A	B	C		C	C	A
Approach Delay (s/veh)		51.0			26.5			21.2			22.8	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 92 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay (s/veh): 31.8      Intersection LOS: C  
 Intersection Capacity Utilization 87.4%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekday AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	364	930	210	365	267	59	342	373	1024	372
v/c Ratio	0.84	0.98	0.74	0.43	0.51	0.26	0.25	0.65	0.73	0.45
Control Delay (s/veh)	41.6	54.7	36.8	34.3	7.7	16.3	22.1	21.8	29.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.6	54.7	36.8	34.3	7.7	16.3	22.1	21.8	29.9	4.2
Queue Length 50th (m)	54.9	~82.0	26.4	33.1	0.0	5.7	14.6	44.5	93.6	0.0
Queue Length 95th (m)	#77.1	#126.3	#52.4	47.3	19.4	12.4	22.1	67.4	119.1	18.1
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	434	951	299	842	527	231	1381	574	1401	829
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.98	0.70	0.43	0.51	0.26	0.25	0.65	0.73	0.45

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	461	395	193	336	246	54	252	63	343	942	342
Future Volume (vph)	335	461	395	193	336	246	54	252	63	343	942	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1661	3227		1687	3539	1361	1735	4414		1712	3505	1516
Flt Permitted	0.45	1.00		0.17	1.00	1.00	0.18	1.00		0.49	1.00	1.00
Satd. Flow (perm)	787	3227		298	3539	1361	331	4414		883	3505	1516
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	501	429	210	365	267	59	274	68	373	1024	372
RTOR Reduction (vph)	0	153	0	0	0	203	0	43	0	0	0	225
Lane Group Flow (vph)	364	777	0	210	365	64	59	299	0	373	1024	147
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	37.8	24.8		35.8	23.8	23.8	35.8	30.3		47.9	39.4	39.4
Effective Green, g (s)	37.8	24.8		35.8	23.8	23.8	35.8	30.3		47.9	39.4	39.4
Actuated g/C Ratio	0.38	0.25		0.36	0.24	0.24	0.36	0.30		0.48	0.39	0.39
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	411	800		273	842	323	195	1337		543	1380	597
v/s Ratio Prot	c0.12	c0.24		0.09	0.10		0.02	0.07		c0.10	c0.29	
v/s Ratio Perm	0.22			0.18		0.05	0.09			0.23		0.10
v/c Ratio	0.89	0.97		0.77	0.43	0.20	0.30	0.22		0.69	0.74	0.25
Uniform Delay, d1	26.4	37.3		25.8	32.4	30.5	22.0	26.1		17.4	25.9	20.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	19.8	25.6		12.3	1.6	1.4	0.9	0.4		3.6	3.6	1.0
Delay (s)	46.2	62.9		38.0	34.0	31.8	22.9	26.4		21.0	29.6	21.3
Level of Service	D	E		D	C	C	C	C		C	C	C
Approach Delay (s/veh)		58.2			34.3			25.9			26.0	
Approach LOS		E			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			37.3									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			100.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			87.4%									ICU Level of Service E
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2033 Background Traffic Condition  
 Weekday AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	1185	5	0	732	0	7
Future Volume (Veh/h)	1185	5	0	732	0	7
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1288	5	0	796	0	8
Pedestrians						2
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						135
pX, platoon unblocked						0.92
vC, conflicting volume				1295	1691	649
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1295	1573	649
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	98
cM capacity (veh/h)				530	92	412
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	859	434	398	398	8	
Volume Left	0	0	0	0	0	
Volume Right	0	5	0	0	8	
cSH	1700	1700	1700	1700	412	
Volume to Capacity	0.51	0.26	0.23	0.23	0.02	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.5	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.9	
Lane LOS						B
Approach Delay (s/veh)	0.0		0.0		13.9	
Approach LOS						B
Intersection Summary						
Average Delay				0.1		
Intersection Capacity Utilization				42.9%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway

2033 Background Traffic Condition  
Weekend Mid-day Peak Hour


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↓	
Traffic Volume (veh/h)	0	1	0	479	505	8
Future Volume (Veh/h)	0	1	0	479	505	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	521	549	9
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					93	
pX, platoon unblocked	0.93	0.93	0.93			
vC, conflicting volume	814	279	558			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	657	83	382			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	371	895	1094			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	1	261	261	366	192	
Volume Left	0	0	0	0	0	
Volume Right	1	0	0	0	9	
cSH	895	1700	1700	1700	1700	
Volume to Capacity	0.00*	0.15	0.15	0.22	0.11	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	9.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	9.0	0.0		0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	24.2%			ICU Level of Service	A	
Analysis Period (min)	15					

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekend Mid-day Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	437	84	83	387	338	93	307	79	424	347	341
Future Volume (vph)	360	437	84	83	387	338	93	307	79	424	347	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00					0.99	1.00					0.99
Frt		0.976				0.850		0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3449	0	1703	3539	1568	1770	4880	0	1752	3406	1583
Flt Permitted	0.361			0.428			0.528			0.443		
Satd. Flow (perm)	638	3449	0	767	3539	1547	983	4880	0	817	3406	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22				367		64				371
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Adj. Flow (vph)	391	475	91	90	421	367	101	334	86	461	377	371
Shared Lane Traffic (%)												
Lane Group Flow (vph)	391	566	0	90	421	367	101	420	0	461	377	371
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekend Mid-day Peak Hour

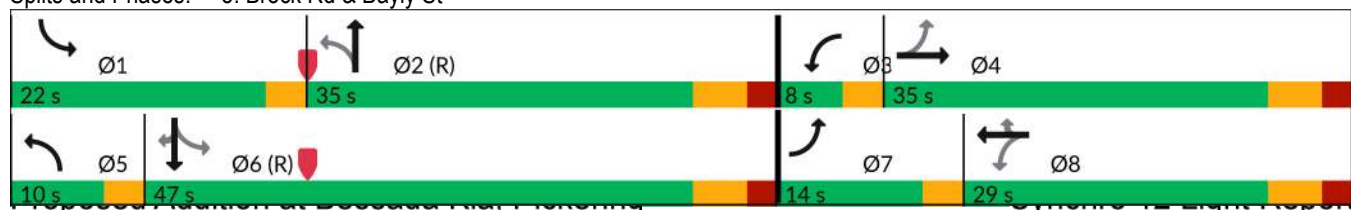


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	14.0	35.0		8.0	29.0	29.0	10.0	35.0		22.0	47.0	47.0
Total Split (%)	14.0%	35.0%		8.0%	29.0%	29.0%	10.0%	35.0%		22.0%	47.0%	47.0%
Maximum Green (s)	11.0	28.8		5.0	22.8	22.8	7.0	28.9		19.0	40.9	40.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	40.0	30.4		31.0	22.8	22.8	39.7	29.7		54.0	42.9	42.9
Actuated g/C Ratio	0.40	0.30		0.31	0.23	0.23	0.40	0.30		0.54	0.43	0.43
v/c Ratio	1.06	0.53		0.32	0.52	0.58	0.23	0.28		0.76	0.26	0.42
Control Delay (s/veh)	91.3	30.4		23.3	36.6	7.5	13.9	23.5		23.8	19.6	3.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	91.3	30.4		23.3	36.6	7.5	13.9	23.5		23.8	19.6	3.7
LOS	F	C		C	D	A	B	C		C	B	A
Approach Delay (s/veh)		55.3			23.1			21.6			16.3	
Approach LOS		E			C			C			B	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 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: 1.06  
 Intersection Signal Delay (s/veh): 29.2      Intersection LOS: C  
 Intersection Capacity Utilization 89.5%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekend Mid-day Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	391	566	90	421	367	101	420	461	377	371
v/c Ratio	1.06	0.53	0.32	0.52	0.58	0.23	0.28	0.76	0.26	0.42
Control Delay (s/veh)	91.3	30.4	23.3	36.6	7.5	13.9	23.5	23.8	19.6	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	91.3	30.4	23.3	36.6	7.5	13.9	23.5	23.8	19.6	3.7
Queue Length 50th (m)	~69.5	49.0	11.1	39.4	0.0	9.4	20.1	54.9	25.6	0.0
Queue Length 95th (m)	#144.6	66.5	21.5	55.1	23.7	17.7	28.9	81.4	36.4	17.2
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	369	1063	284	806	636	446	1496	618	1461	882
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.53	0.32	0.52	0.58	0.23	0.28	0.75	0.26	0.42

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekend Mid-day Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	360	437	84	83	387	338	93	307	79	424	347	341
Future Volume (vph)	360	437	84	83	387	338	93	307	79	424	347	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	3448		1703	3539	1547	1769	4881		1752	3406	1562
Flt Permitted	0.36	1.00		0.43	1.00	1.00	0.53	1.00		0.44	1.00	1.00
Satd. Flow (perm)	639	3448		767	3539	1547	983	4881		817	3406	1562
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	391	475	91	90	421	367	101	334	86	461	377	371
RTOR Reduction (vph)	0	15	0	0	0	281	0	45	0	0	0	216
Lane Group Flow (vph)	391	551	0	90	421	86	101	375	0	461	377	155
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	37.4	30.4		27.4	23.4	23.4	34.7	29.1		50.3	41.7	41.7
Effective Green, g (s)	37.4	30.4		27.4	23.4	23.4	34.7	29.1		50.3	41.7	41.7
Actuated g/C Ratio	0.37	0.30		0.27	0.23	0.23	0.35	0.29		0.50	0.42	0.42
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	353	1048		247	828	361	385	1420		581	1420	651
v/s Ratio Prot	c0.12	0.16		0.01	0.12		0.01	0.08		c0.14	0.11	
v/s Ratio Perm	c0.29			0.09		0.06	0.08			c0.25		0.10
v/c Ratio	1.11	0.53		0.36	0.51	0.24	0.26	0.26		0.79	0.27	0.24
Uniform Delay, d1	28.8	28.8		27.8	33.3	31.1	22.6	27.2		16.9	19.1	18.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	80.2	1.9		0.9	2.2	1.5	0.4	0.5		7.3	0.5	0.9
Delay (s)	108.9	30.7		28.7	35.5	32.6	23.0	27.7		24.2	19.6	19.7
Level of Service	F	C		C	D	C	C	C		C	B	B
Approach Delay (s/veh)		62.7			33.6			26.8			21.4	
Approach LOS		E			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			36.3				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				18.3		
Intersection Capacity Utilization			89.5%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2033 Background Traffic Condition  
 Weekend Mid-day Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	858	6	0	821	0	22
Future Volume (Veh/h)	858	6	0	821	0	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	933	7	0	892	0	24
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	135					
pX, platoon unblocked					0.90	
vC, conflicting volume	940			1383	470	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	940			1205	470	
tC, single (s)	4.1			6.8	6.9	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	100			100	96	
cM capacity (veh/h)	725			159	540	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	622	318	446	446	24	
Volume Left	0	0	0	0	0	
Volume Right	0	7	0	0	24	
cSH	1700	1700	1700	1700	540	
Volume to Capacity	0.37	0.19	0.26	0.26	0.04	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.1	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	12.0	
Lane LOS					B	
Approach Delay (s/veh)	0.0	0.0		12.0		
Approach LOS					B	
<b>Intersection Summary</b>						
Average Delay	0.2					
Intersection Capacity Utilization	33.9%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway
























2033 Background Traffic Condition  
Weekday PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1407	573	1
Future Volume (Veh/h)	0	0	0	1407	573	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	1529	623	1
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					93	
pX, platoon unblocked	0.93	0.93	0.93			
vC, conflicting volume	1388	312	624			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1265	108	443			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	150	860	1034			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	0	765	765	415	209	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	1	
cSH	1700	1700	1700	1700	1700	
Volume to Capacity	0.00	0.45	0.45	0.24	0.12	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	0.0	0.0		0.0		
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	42.2%			ICU Level of Service	A	
Analysis Period (min)	15					

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekday PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	644	141	76	583	409	407	763	238	493	357	295
Future Volume (vph)	257	644	141	76	583	409	407	763	238	493	357	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00		0.97	0.99	1.00				0.97
Frt		0.973				0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3321	0	1556	3539	1509	1770	4784	0	1752	3471	1583
Flt Permitted	0.137			0.152			0.522			0.109		
Satd. Flow (perm)	242	3321	0	249	3539	1468	963	4784	0	201	3471	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				445		58				288
Link Speed (k/h)		60			60			60				60
Link Distance (m)		135.0			379.1			92.6				213.4
Travel Time (s)		8.1			22.7			5.6				12.8
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Adj. Flow (vph)	279	700	153	83	634	445	442	829	259	536	388	321
Shared Lane Traffic (%)												
Lane Group Flow (vph)	279	853	0	83	634	445	442	1088	0	536	388	321
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6				3.6
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekday PM Peak Hour

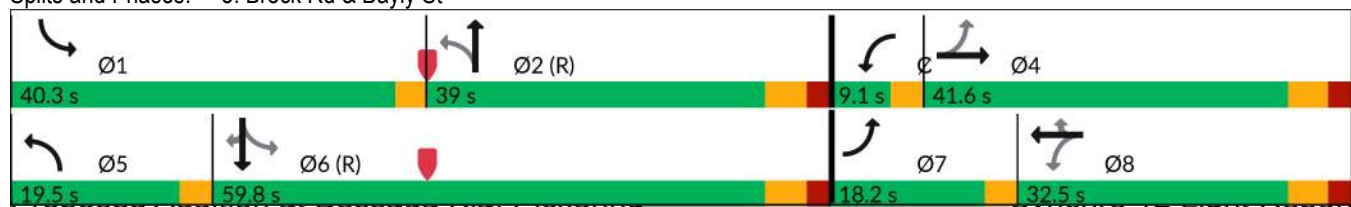


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	18.2	41.6		9.1	32.5	32.5	19.5	39.0		40.3	59.8	59.8
Total Split (%)	14.0%	32.0%		7.0%	25.0%	25.0%	15.0%	30.0%		31.0%	46.0%	46.0%
Maximum Green (s)	15.2	35.4		6.1	26.3	26.3	16.5	32.9		37.3	53.7	53.7
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	47.7	35.4		35.6	26.3	26.3	53.4	33.8		76.3	53.7	53.7
Actuated g/C Ratio	0.37	0.27		0.27	0.20	0.20	0.41	0.26		0.59	0.41	0.41
v/c Ratio	1.09	0.93		0.64	0.89	0.68	0.89	0.85		0.97	0.27	0.40
Control Delay (s/veh)	114.1	62.0		53.2	65.8	9.9	43.1	50.5		67.9	25.9	5.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	114.1	62.0		53.2	65.8	9.9	43.1	50.5		67.9	25.9	5.6
LOS	F	E		D	E	A	D	D		E	C	A
Approach Delay (s/veh)		74.8			43.5			48.4			38.7	
Approach LOS		E			D			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 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: 1.09  
 Intersection Signal Delay (s/veh): 50.8      Intersection LOS: D  
 Intersection Capacity Utilization 95.3%      ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekday PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	279	853	83	634	445	442	1088	536	388	321
v/c Ratio	1.09	0.93	0.64	0.89	0.68	0.89	0.85	0.97	0.27	0.40
Control Delay (s/veh)	114.1	62.0	53.2	65.8	9.9	43.1	50.5	67.9	25.9	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	114.1	62.0	53.2	65.8	9.9	43.1	50.5	67.9	25.9	5.6
Queue Length 50th (m)	~69.8	114.0	13.8	87.5	0.0	62.0	96.7	122.2	35.3	5.2
Queue Length 95th (m)	#131.0	#153.3	#27.2	#119.5	31.7	#112.9	115.4	#194.0	47.5	24.8
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	257	918	129	715	651	498	1287	562	1433	803
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.93	0.64	0.89	0.68	0.89	0.85	0.95	0.27	0.40

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2033 Background Traffic Condition  
Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	644	141	76	583	409	407	763	238	493	357	295
Future Volume (vph)	257	644	141	76	583	409	407	763	238	493	357	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	3321		1556	3539	1468	1761	4786		1752	3471	1537
Flt Permitted	0.14	1.00		0.15	1.00	1.00	0.52	1.00		0.11	1.00	1.00
Satd. Flow (perm)	242	3321		249	3539	1468	968	4786		201	3471	1537
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	279	700	153	83	634	445	442	829	259	536	388	321
RTOR Reduction (vph)	0	15	0	0	0	355	0	43	0	0	0	169
Lane Group Flow (vph)	279	838	0	83	634	90	442	1045	0	536	388	152
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	44.5	35.4		32.4	26.3	26.3	50.3	33.8		73.2	53.7	53.7
Effective Green, g (s)	44.5	35.4		32.4	26.3	26.3	50.3	33.8		73.2	53.7	53.7
Actuated g/C Ratio	0.34	0.27		0.25	0.20	0.20	0.39	0.26		0.56	0.41	0.41
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	251	904		123	715	296	475	1244		547	1433	634
v/s Ratio Prot	c0.13	0.25		0.03	0.18		0.12	0.22		c0.27	0.11	
v/s Ratio Perm	c0.25			0.14		0.06	0.24			c0.28		0.10
v/c Ratio	1.11	0.93		0.67	0.89	0.30	0.93	0.84		0.98	0.27	0.24
Uniform Delay, d1	36.2	46.1		39.9	50.4	44.1	34.4	45.5		37.8	25.2	24.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	90.0	16.8		13.7	15.2	2.6	25.0	6.9		32.9	0.5	0.9
Delay (s)	126.3	62.9		53.5	65.6	46.7	59.5	52.5		70.7	25.7	25.7
Level of Service	F	E		D	E	D	E	D		E	C	C
Approach Delay (s/veh)		78.5			57.5			54.5			45.1	
Approach LOS		E			E			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			58.2									HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			130.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			95.3%									ICU Level of Service F
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2033 Background Traffic Condition  
 Weekday PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	1025	5	0	1285	0	16
Future Volume (Veh/h)	1025	5	0	1285	0	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1114	5	0	1397	0	17
Pedestrians						5
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						135
pX, platoon unblocked					0.83	
vC, conflicting volume			1124	1820	565	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1124	1574	565	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	96	
cM capacity (veh/h)			615	83	467	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	743	376	699	699	17	
Volume Left	0	0	0	0	0	
Volume Right	0	5	0	0	17	
cSH	1700	1700	1700	1700	467	
Volume to Capacity	0.44	0.22	0.41	0.41	0.04	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.9	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.0	
Lane LOS						B
Approach Delay (s/veh)	0.0	0.0		13.0		
Approach LOS						B
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			38.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway

2028 Total Traffic Condition  
Weekday AM Peak Hour


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	↘
Traffic Volume (veh/h)	0	1	0	334	1373	20
Future Volume (Veh/h)	0	1	0	334	1373	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	363	1492	22
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						93
pX, platoon unblocked	0.78	0.78	0.78			
vC, conflicting volume	1685	757	1514			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1312	123	1094			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	117	706	494			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	1	182	182	995	519	
Volume Left	0	0	0	0	0	
Volume Right	1	0	0	0	22	
cSH	706	1700	1700	1700	1700	
Volume to Capacity	0.00*	0.11	0.11	0.59	0.31	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	10.1	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s/veh)	10.1	0.0		0.0		
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	48.6%			ICU Level of Service	A	
Analysis Period (min)	15					

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	307	419	358	177	305	223	49	228	57	311	858	310
Future Volume (vph)	307	419	358	177	305	223	49	228	57	311	858	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99		1.00		0.98	1.00	0.99		0.99		0.97
Frt		0.931				0.850		0.970				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1665	3227	0	1687	3539	1392	1736	4413	0	1719	3505	1568
Flt Permitted	0.477			0.168			0.229			0.506		
Satd. Flow (perm)	831	3227	0	298	3539	1361	417	4413	0	907	3505	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		202				242		61				337
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Adj. Flow (vph)	334	455	389	192	332	242	53	248	62	338	933	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	334	844	0	192	332	242	53	310	0	338	933	337
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

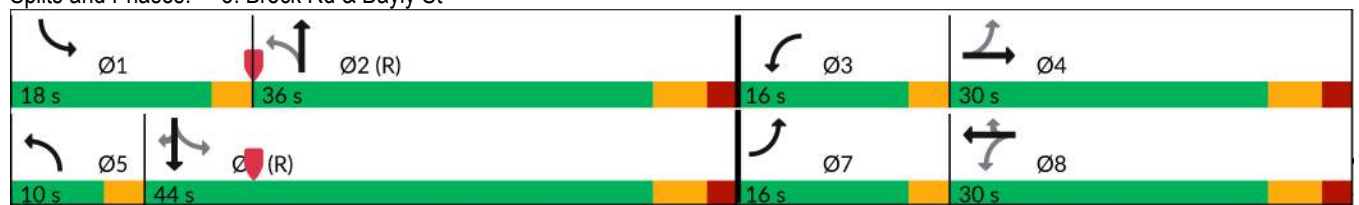
2028 Total Traffic Condition  
Weekday AM Peak Hour

	↖		→		↗		↖		↗		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	16.0	30.0		16.0	30.0	30.0	10.0	36.0		18.0	44.0	44.0
Total Split (%)	16.0%	30.0%		16.0%	30.0%	30.0%	10.0%	36.0%		18.0%	44.0%	44.0%
Maximum Green (s)	13.0	23.8		13.0	23.8	23.8	7.0	29.9		15.0	37.9	37.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	41.1	25.2		38.6	23.8	23.8	40.2	30.5		51.0	40.0	40.0
Actuated g/C Ratio	0.41	0.25		0.39	0.24	0.24	0.40	0.31		0.51	0.40	0.40
v/c Ratio	0.74	0.88		0.70	0.39	0.48	0.21	0.22		0.58	0.67	0.42
Control Delay (s/veh)	33.4	39.3		33.3	33.7	7.6	15.2	21.3		19.7	28.0	4.1
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	33.4	39.3		33.3	33.7	7.6	15.2	21.3		19.7	28.0	4.1
LOS	C	D		C	C	A	B	C		B	C	A
Approach Delay (s/veh)		37.6			25.4			20.4			21.2	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 92 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay (s/veh): 26.9      Intersection LOS: C  
 Intersection Capacity Utilization 82.8%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekday AM Peak Hour


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	334	844	192	332	242	53	310	338	933	337
v/c Ratio	0.74	0.88	0.70	0.39	0.48	0.21	0.22	0.58	0.67	0.42
Control Delay (s/veh)	33.4	39.3	33.3	33.7	7.6	15.2	21.3	19.7	28.0	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	33.4	39.3	33.3	33.7	7.6	15.2	21.3	19.7	28.0	4.1
Queue Length 50th (m)	49.2	68.3	23.8	29.7	0.0	5.1	12.8	39.4	82.3	0.0
Queue Length 95th (m)	#81.8	#106.1	41.4	43.1	18.4	11.4	20.0	60.0	105.3	17.4
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	449	963	299	842	508	262	1390	584	1403	808
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.88	0.64	0.39	0.48	0.20	0.22	0.58	0.67	0.42

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

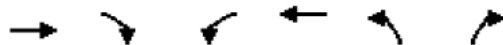
2028 Total Traffic Condition  
Weekday AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	307	419	358	177	305	223	49	228	57	311	858	310	
Future Volume (vph)	307	419	358	177	305	223	49	228	57	311	858	310	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1660	3227		1686	3539	1361	1734	4413		1712	3505	1516	
Flt Permitted	0.48	1.00		0.17	1.00	1.00	0.23	1.00		0.51	1.00	1.00	
Satd. Flow (perm)	834	3227		298	3539	1361	417	4413		912	3505	1516	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	334	455	389	192	332	242	53	248	62	338	933	337	
RTOR Reduction (vph)	0	151	0	0	0	184	0	42	0	0	0	204	
Lane Group Flow (vph)	334	693	0	192	332	58	53	268	0	338	933	133	
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13	
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4			8		8	2			6		6	
Actuated Green, G (s)	38.2	25.2		35.4	23.8	23.8	36.0	30.5		47.9	39.4	39.4	
Effective Green, g (s)	38.2	25.2		35.4	23.8	23.8	36.0	30.5		47.9	39.4	39.4	
Actuated g/C Ratio	0.38	0.25		0.35	0.24	0.24	0.36	0.31		0.48	0.39	0.39	
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	425	813		266	842	323	222	1345		552	1380	597	
v/s Ratio Prot	c0.10	c0.21		0.08	0.09		0.01	0.06		c0.09	c0.27		
v/s Ratio Perm	0.20			0.17		0.04	0.07			0.21		0.09	
v/c Ratio	0.79	0.85		0.72	0.39	0.18	0.24	0.20		0.61	0.68	0.22	
Uniform Delay, d1	24.7	35.6		25.3	32.0	30.3	21.5	25.7		17.0	25.0	20.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	9.2	11.0		9.3	1.4	1.2	0.6	0.3		2.0	2.7	0.9	
Delay (s)	33.9	46.6		34.6	33.4	31.5	22.0	26.0		19.0	27.7	21.0	
Level of Service	C	D		C	C	C	C	C		B	C	C	
Approach Delay (s/veh)		43.0			33.1			25.5			24.5		
Approach LOS		D			C			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			31.8									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	18.3
Intersection Capacity Utilization			82.8%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2028 Total Traffic Condition  
 Weekday AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	1072	12	0	663	0	12
Future Volume (Veh/h)	1072	12	0	663	0	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1165	13	0	721	0	13
Pedestrians						2
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						135
pX, platoon unblocked						0.93
vC, conflicting volume				1180	1534	591
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1180	1419	591
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	97
cM capacity (veh/h)				587	118	449
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	777	401	361	361	13	
Volume Left	0	0	0	0	0	
Volume Right	0	13	0	0	13	
cSH	1700	1700	1700	1700	449	
Volume to Capacity	0.46	0.24	0.21	0.21	0.03	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.7	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.2	
Lane LOS						B
Approach Delay (s/veh)	0.0		0.0		13.2	
Approach LOS						B
Intersection Summary						
Average Delay				0.1		
Intersection Capacity Utilization				40.0%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway

2028 Total Traffic Condition  
Weekend mid-day Peak Hour


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↑↑	↑↑	↘
Traffic Volume (veh/h)	0	2	0	434	457	15
Future Volume (Veh/h)	0	2	0	434	457	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	472	497	16
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					93	
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	741	257	513			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	596	81	354			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	409	905	1129			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	2	236	236	331	182	
Volume Left	0	0	0	0	0	
Volume Right	2	0	0	0	16	
cSH	905	1700	1700	1700	1700	
Volume to Capacity	0.00*	0.14	0.14	0.19	0.11	
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	9.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	9.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	23.1%			ICU Level of Service	A	
Analysis Period (min)	15					

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekend mid-day Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	333	398	76	77	351	306	84	278	72	384	319	309
Future Volume (vph)	333	398	76	77	351	306	84	278	72	384	319	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00					0.99	1.00					0.99
Frt		0.976				0.850		0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3449	0	1703	3539	1568	1770	4880	0	1752	3406	1583
Flt Permitted	0.397			0.461			0.544			0.471		
Satd. Flow (perm)	702	3449	0	826	3539	1547	1012	4880	0	869	3406	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22				333		65				336
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Adj. Flow (vph)	362	433	83	84	382	333	91	302	78	417	347	336
Shared Lane Traffic (%)												
Lane Group Flow (vph)	362	516	0	84	382	333	91	380	0	417	347	336
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

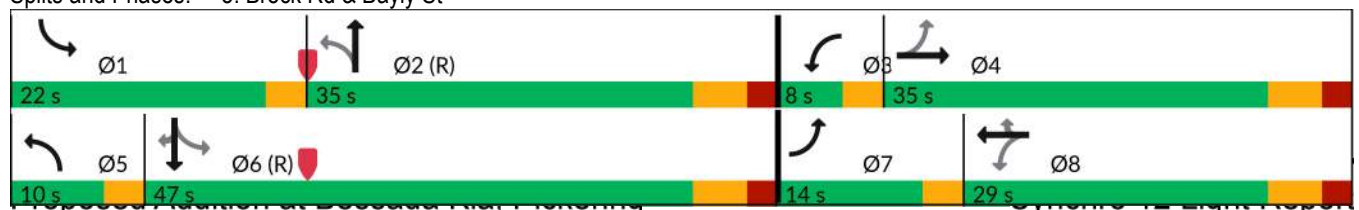
2028 Total Traffic Condition  
Weekend mid-day Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	14.0	35.0		8.0	29.0	29.0	10.0	35.0		22.0	47.0	47.0
Total Split (%)	14.0%	35.0%		8.0%	29.0%	29.0%	10.0%	35.0%		22.0%	47.0%	47.0%
Maximum Green (s)	11.0	28.8		5.0	22.8	22.8	7.0	28.9		19.0	40.9	40.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	40.0	30.4		31.0	22.8	22.8	40.3	30.4		54.0	42.9	42.9
Actuated g/C Ratio	0.40	0.30		0.31	0.23	0.23	0.40	0.30		0.54	0.43	0.43
v/c Ratio	0.93	0.49		0.28	0.47	0.55	0.20	0.25		0.67	0.24	0.39
Control Delay (s/veh)	58.9	29.5		22.5	35.7	7.4	13.5	22.5		20.0	19.3	3.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	58.9	29.5		22.5	35.7	7.4	13.5	22.5		20.0	19.3	3.6
LOS	E	C		C	D	A	B	C		B	B	A
Approach Delay (s/veh)		41.6			22.5			20.7			14.8	
Approach LOS		D			C			C			B	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.93  
 Intersection Signal Delay (s/veh): 24.8      Intersection LOS: C  
 Intersection Capacity Utilization 85.8%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekend mid-day Peak Hour


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	362	516	84	382	333	91	380	417	347	336
v/c Ratio	0.93	0.49	0.28	0.47	0.55	0.20	0.25	0.67	0.24	0.39
Control Delay (s/veh)	58.9	29.5	22.5	35.7	7.4	13.5	22.5	20.0	19.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.9	29.5	22.5	35.7	7.4	13.5	22.5	20.0	19.3	3.6
Queue Length 50th (m)	57.7	43.7	10.3	35.3	0.0	8.5	17.5	48.1	23.3	0.0
Queue Length 95th (m)	#119.3	60.1	20.2	50.1	22.5	16.2	25.9	71.8	33.6	16.5
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	388	1063	299	806	609	462	1527	637	1461	862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.49	0.28	0.47	0.55	0.20	0.25	0.65	0.24	0.39

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekend mid-day Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	333	398	76	77	351	306	84	278	72	384	319	309
Future Volume (vph)	333	398	76	77	351	306	84	278	72	384	319	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	3448		1703	3539	1547	1769	4881		1752	3406	1562
Flt Permitted	0.40	1.00		0.46	1.00	1.00	0.54	1.00		0.47	1.00	1.00
Satd. Flow (perm)	703	3448		827	3539	1547	1012	4881		868	3406	1562
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	362	433	83	84	382	333	91	302	78	417	347	336
RTOR Reduction (vph)	0	15	0	0	0	255	0	46	0	0	0	196
Lane Group Flow (vph)	362	501	0	84	382	78	91	334	0	417	347	140
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	37.4	30.4		27.4	23.4	23.4	35.4	29.8		50.3	41.7	41.7
Effective Green, g (s)	37.4	30.4		27.4	23.4	23.4	35.4	29.8		50.3	41.7	41.7
Actuated g/C Ratio	0.37	0.30		0.27	0.23	0.23	0.35	0.30		0.50	0.42	0.42
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	370	1048		261	828	361	400	1454		591	1420	651
v/s Ratio Prot	c0.11	0.15		0.01	0.11		0.01	0.07		c0.12	0.10	
v/s Ratio Perm	c0.26			0.08		0.05	0.07			c0.23		0.09
v/c Ratio	0.98	0.48		0.32	0.46	0.22	0.23	0.23		0.71	0.24	0.22
Uniform Delay, d1	28.6	28.3		27.7	32.9	30.9	22.0	26.5		16.3	18.9	18.7
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	40.6	1.6		0.7	1.8	1.4	0.3	0.4		3.8	0.4	0.8
Delay (s)	69.2	29.9		28.4	34.7	32.3	22.3	26.8		20.1	19.3	19.4
Level of Service	E	C		C	C	C	C	C		C	B	B
Approach Delay (s/veh)		46.1			33.0			25.9			19.7	
Approach LOS		D			C			C			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			31.0									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			100.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			85.8%									ICU Level of Service E
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2028 Total Traffic Condition  
 Weekend mid-day Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	775	13	0	744	0	32
Future Volume (Veh/h)	775	13	0	744	0	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	842	14	0	809	0	35
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)	135					
pX, platoon unblocked					0.91	
vC, conflicting volume				856	1254	428
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				856	1086	428
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	94
cM capacity (veh/h)				780	192	575
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	561	295	405	405	35	
Volume Left	0	0	0	0	0	
Volume Right	0	14	0	0	35	
cSH	1700	1700	1700	1700	575	
Volume to Capacity	0.33	0.17	0.24	0.24	0.06	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.6	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	11.7	
Lane LOS					B	
Approach Delay (s/veh)	0.0		0.0		11.7	
Approach LOS					B	
<b>Intersection Summary</b>						
Average Delay				0.2		
Intersection Capacity Utilization				31.8%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway

2028 Total Traffic Condition  
Weekday PM Peak Hour


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	↘
Traffic Volume (veh/h)	0	2	0	1275	519	5
Future Volume (Veh/h)	0	2	0	1275	519	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	1386	564	5
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					93	
pX, platoon unblocked	0.94	0.94	0.94			
vC, conflicting volume	1260	285	569			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1141	99	403			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	182	877	1078			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	2	693	693	376	193	
Volume Left	0	0	0	0	0	
Volume Right	2	0	0	0	5	
cSH	877	1700	1700	1700	1700	
Volume to Capacity	0.00*	0.41	0.41	0.22	0.11	
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	9.1	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	9.1	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	38.6%			ICU Level of Service	A	
Analysis Period (min)	15					

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekday PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	586	127	70	528	370	368	691	215	447	327	267
Future Volume (vph)	242	586	127	70	528	370	368	691	215	447	327	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00	1.00		1.00		0.97	0.99	1.00				0.97
Frt		0.973				0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3321	0	1556	3539	1509	1770	4785	0	1752	3471	1583
Flt Permitted	0.179			0.216			0.539			0.132		
Satd. Flow (perm)	316	3321	0	353	3539	1468	993	4785	0	243	3471	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19				402		58				290
Link Speed (k/h)		60			60			60				60
Link Distance (m)		135.0			379.1			92.6				213.4
Travel Time (s)		8.1			22.7			5.6				12.8
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Adj. Flow (vph)	263	637	138	76	574	402	400	751	234	486	355	290
Shared Lane Traffic (%)												
Lane Group Flow (vph)	263	775	0	76	574	402	400	985	0	486	355	290
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6				3.6
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekday PM Peak Hour

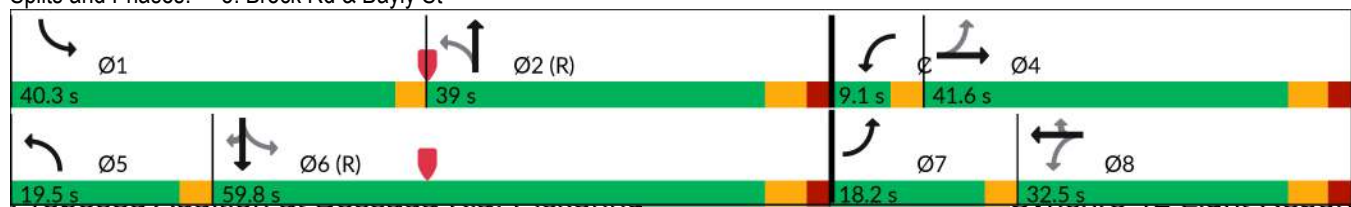


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	18.2	41.6		9.1	32.5	32.5	19.5	39.0		40.3	59.8	59.8
Total Split (%)	14.0%	32.0%		7.0%	25.0%	25.0%	15.0%	30.0%		31.0%	46.0%	46.0%
Maximum Green (s)	15.2	35.4		6.1	26.3	26.3	16.5	32.9		37.3	53.7	53.7
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	47.7	37.2		35.6	26.3	26.3	55.9	36.5		76.3	53.9	53.9
Actuated g/C Ratio	0.37	0.29		0.27	0.20	0.20	0.43	0.28		0.59	0.41	0.41
v/c Ratio	0.96	0.80		0.50	0.80	0.65	0.76	0.71		0.91	0.25	0.36
Control Delay (s/veh)	77.8	49.9		40.9	59.0	9.6	30.2	43.6		53.8	25.5	4.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	77.8	49.9		40.9	59.0	9.6	30.2	43.6		53.8	25.5	4.0
LOS	E	D		D	E	A	C	D		D	C	A
Approach Delay (s/veh)		57.0			38.8			39.7			32.1	
Approach LOS		E			D			D			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 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: 0.96  
 Intersection Signal Delay (s/veh): 41.5      Intersection LOS: D  
 Intersection Capacity Utilization 90.0%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekday PM Peak Hour


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	263	775	76	574	402	400	985	486	355	290
v/c Ratio	0.96	0.80	0.50	0.80	0.65	0.76	0.71	0.91	0.25	0.36
Control Delay (s/veh)	77.8	49.9	40.9	59.0	9.6	30.2	43.6	53.8	25.5	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	77.8	49.9	40.9	59.0	9.6	30.2	43.6	53.8	25.5	4.0
Queue Length 50th (m)	55.2	100.2	12.6	77.6	0.0	54.3	84.5	99.4	31.9	0.0
Queue Length 95th (m)	#108.6	125.6	23.5	99.4	29.8	#82.4	102.0	#157.1	43.5	17.1
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	275	964	153	715	617	527	1385	575	1437	806
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.80	0.50	0.80	0.65	0.76	0.71	0.85	0.25	0.36

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2028 Total Traffic Condition  
Weekday PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	242	586	127	70	528	370	368	691	215	447	327	267	
Future Volume (vph)	242	586	127	70	528	370	368	691	215	447	327	267	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	0.99	1.00		1.00	1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1680	3322		1556	3539	1468	1760	4786		1752	3471	1537	
Flt Permitted	0.18	1.00		0.22	1.00	1.00	0.54	1.00		0.13	1.00	1.00	
Satd. Flow (perm)	317	3322		353	3539	1468	999	4786		243	3471	1537	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	263	637	138	76	574	402	400	751	234	486	355	290	
RTOR Reduction (vph)	0	14	0	0	0	319	0	42	0	0	0	171	
Lane Group Flow (vph)	263	761	0	76	574	83	400	943	0	486	355	119	
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8	
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4			8		8	2			6		6	
Actuated Green, G (s)	45.1	37.2		31.8	26.9	26.9	52.2	35.9		72.6	53.3	53.3	
Effective Green, g (s)	45.1	37.2		31.8	26.9	26.9	52.2	35.9		72.6	53.3	53.3	
Actuated g/C Ratio	0.35	0.29		0.24	0.21	0.21	0.40	0.28		0.56	0.41	0.41	
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2	
Lane Grp Cap (vph)	269	950		131	732	303	496	1321		526	1423	630	
v/s Ratio Prot	c0.11	0.23		0.02	0.16		0.10	0.20		c0.24	0.10		
v/s Ratio Perm	c0.22			0.12		0.06	0.22			c0.28		0.08	
v/c Ratio	0.98	0.80		0.58	0.78	0.27	0.81	0.71		0.92	0.25	0.19	
Uniform Delay, d1	35.3	43.0		39.8	48.8	43.3	30.8	42.4		34.4	25.2	24.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	48.2	7.1		6.4	8.2	2.2	9.3	3.3		22.0	0.4	0.7	
Delay (s)	83.5	50.1		46.2	57.0	45.6	40.1	45.7		56.5	25.6	25.2	
Level of Service	F	D		D	E	D	D	D		E	C	C	
Approach Delay (s/veh)		58.5			51.9			44.1			38.8		
Approach LOS		E			D			D			D		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			47.8									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.99										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	18.3
Intersection Capacity Utilization			90.0%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2028 Total Traffic Condition  
 Weekday PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	927	9	0	1164	0	28
Future Volume (Veh/h)	927	9	0	1164	0	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1008	10	0	1265	0	30
Pedestrians						5
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						135
pX, platoon unblocked					0.85	
vC, conflicting volume			1023		1651	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1023		1409	514
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	94
cM capacity (veh/h)			671		109	503
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	672	346	633	633	30	
Volume Left	0	0	0	0	0	
Volume Right	0	10	0	0	30	
cSH	1700	1700	1700	1700	503	
Volume to Capacity	0.40	0.20	0.37	0.37	0.06	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.5	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	12.6	
Lane LOS						B
Approach Delay (s/veh)	0.0		0.0		12.6	
Approach LOS						B
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			35.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway

2033 Total Traffic Condition  
Weekday AM Peak Hour


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	↘
Traffic Volume (veh/h)	0	1	0	369	1517	20
Future Volume (Veh/h)	0	1	0	369	1517	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	401	1649	22
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						93
pX, platoon unblocked	0.75	0.75	0.75			
vC, conflicting volume	1861	836	1671			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1473	100	1220			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	88	699	424			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	1	201	201	1099	572	
Volume Left	0	0	0	0	0	
Volume Right	1	0	0	0	22	
cSH	699	1700	1700	1700	1700	
Volume to Capacity	0.00*	0.12	0.12	0.65	0.34	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	10.2	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s/veh)	10.2	0.0		0.0		
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	52.6%			ICU Level of Service	A	
Analysis Period (min)	15					

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	339	462	395	195	336	246	54	252	63	343	947	342
Future Volume (vph)	339	462	395	195	336	246	54	252	63	343	947	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	0.99	0.99				0.98	1.00	0.99		0.99		0.97
Fr <sub>t</sub>		0.931				0.850		0.970				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1665	3227	0	1687	3539	1392	1736	4413	0	1719	3505	1568
Fl <sub>t</sub> Permitted	0.452			0.168			0.178			0.490		
Satd. Flow (perm)	787	3227	0	298	3539	1361	324	4413	0	879	3505	1516
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		203				267		61				372
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Adj. Flow (vph)	368	502	429	212	365	267	59	274	68	373	1029	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	368	931	0	212	365	267	59	342	0	373	1029	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday AM Peak Hour

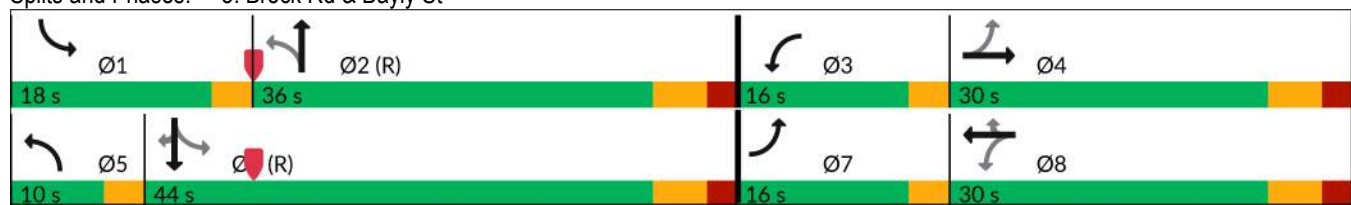


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	16.0	30.0		16.0	30.0	30.0	10.0	36.0		18.0	44.0	44.0
Total Split (%)	16.0%	30.0%		16.0%	30.0%	30.0%	10.0%	36.0%		18.0%	44.0%	44.0%
Maximum Green (s)	13.0	23.8		13.0	23.8	23.8	7.0	29.9		15.0	37.9	37.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	40.8	24.7		39.1	23.8	23.8	40.0	30.3		51.0	40.0	40.0
Actuated g/C Ratio	0.41	0.25		0.39	0.24	0.24	0.40	0.30		0.51	0.40	0.40
v/c Ratio	0.85	0.98		0.75	0.43	0.51	0.27	0.25		0.65	0.73	0.45
Control Delay (s/veh)	42.6	55.4		37.1	34.3	7.7	16.4	22.1		21.8	30.0	4.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	42.6	55.4		37.1	34.3	7.7	16.4	22.1		21.8	30.0	4.2
LOS	D	E		D	C	A	B	C		C	C	A
Approach Delay (s/veh)		51.7			26.6			21.2			22.8	
Approach LOS		D			C			C			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 92 (92%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.98  
 Intersection Signal Delay (s/veh): 32.1  
 Intersection LOS: C  
 Intersection Capacity Utilization 87.6%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday AM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	368	931	212	365	267	59	342	373	1029	372
v/c Ratio	0.85	0.98	0.75	0.43	0.51	0.27	0.25	0.65	0.73	0.45
Control Delay (s/veh)	42.6	55.4	37.1	34.3	7.7	16.4	22.1	21.8	30.0	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.6	55.4	37.1	34.3	7.7	16.4	22.1	21.8	30.0	4.2
Queue Length 50th (m)	55.6	~82.3	26.6	33.1	0.0	5.7	14.6	44.5	94.3	0.0
Queue Length 95th (m)	#78.5	#126.5	#53.2	47.3	19.4	12.4	22.1	67.4	119.8	18.1
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	434	949	299	842	527	229	1381	574	1401	829
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.98	0.71	0.43	0.51	0.26	0.25	0.65	0.73	0.45

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	339	462	395	195	336	246	54	252	63	343	947	342
Future Volume (vph)	339	462	395	195	336	246	54	252	63	343	947	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	0.99		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1661	3227		1687	3539	1361	1735	4414		1712	3505	1516
Flt Permitted	0.45	1.00		0.17	1.00	1.00	0.18	1.00		0.49	1.00	1.00
Satd. Flow (perm)	790	3227		298	3539	1361	326	4414		883	3505	1516
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	368	502	429	212	365	267	59	274	68	373	1029	372
RTOR Reduction (vph)	0	153	0	0	0	203	0	43	0	0	0	225
Lane Group Flow (vph)	368	778	0	212	365	64	59	299	0	373	1029	147
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	37.7	24.7		35.9	23.8	23.8	35.8	30.3		47.9	39.4	39.4
Effective Green, g (s)	37.7	24.7		35.9	23.8	23.8	35.8	30.3		47.9	39.4	39.4
Actuated g/C Ratio	0.38	0.25		0.36	0.24	0.24	0.36	0.30		0.48	0.39	0.39
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	411	797		275	842	323	194	1337		543	1380	597
v/s Ratio Prot	c0.12	c0.24		0.09	0.10		0.02	0.07		c0.10	c0.29	
v/s Ratio Perm	0.22			0.18		0.05	0.09			0.23		0.10
v/c Ratio	0.90	0.98		0.77	0.43	0.20	0.30	0.22		0.69	0.75	0.25
Uniform Delay, d1	26.6	37.4		25.7	32.4	30.5	22.0	26.1		17.4	26.0	20.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	21.3	26.6		12.5	1.6	1.4	0.9	0.4		3.6	3.7	1.0
Delay (s)	47.9	64.0		38.3	34.0	31.8	22.9	26.4		21.0	29.7	21.3
Level of Service	D	E		D	C	C	C	C		C	C	C
Approach Delay (s/veh)		59.4			34.4			25.9			26.1	
Approach LOS		E			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			37.7									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			100.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			87.6%									ICU Level of Service E
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2033 Total Traffic Condition  
 Weekday AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	1185	12	0	732	0	12
Future Volume (Veh/h)	1185	12	0	732	0	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1288	13	0	796	0	13
Pedestrians						2
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						135
pX, platoon unblocked						0.92
vC, conflicting volume				1303	1695	653
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				1303	1577	653
tC, single (s)				4.1	6.8	6.9
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
p0 queue free %				100	100	97
cM capacity (veh/h)				526	92	410
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	859	442	398	398	13	
Volume Left	0	0	0	0	0	
Volume Right	0	13	0	0	13	
cSH	1700	1700	1700	1700	410	
Volume to Capacity	0.51	0.26	0.23	0.23	0.03	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.8	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	14.1	
Lane LOS						B
Approach Delay (s/veh)	0.0		0.0		14.1	
Approach LOS						B
Intersection Summary						
Average Delay				0.1		
Intersection Capacity Utilization				43.1%	ICU Level of Service	A
Analysis Period (min)				15		

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway

2033 Total Traffic Condition  
Weekend Midday Peak Hour


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	↘
Traffic Volume (veh/h)	0	2	0	479	505	15
Future Volume (Veh/h)	0	2	0	479	505	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	521	549	16
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					93	
pX, platoon unblocked	0.93	0.93	0.93			
vC, conflicting volume	818	283	565			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	658	83	387			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	370	894	1089			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	2	261	261	366	199	
Volume Left	0	0	0	0	0	
Volume Right	2	0	0	0	16	
cSH	894	1700	1700	1700	1700	
Volume to Capacity	0.00*	0.15	0.15	0.22	0.12	
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	9.0	0.0	0.0	0.0	0.0	
Lane LOS						
Approach Delay (s/veh)	9.0	0.0		0.0		
Approach LOS						
A						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			24.4%	ICU Level of Service		A
Analysis Period (min)			15			

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekend Midday Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	439	84	85	387	338	93	307	79	424	351	341
Future Volume (vph)	367	439	84	85	387	338	93	307	79	424	351	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00					0.99	1.00					0.99
Frt		0.976				0.850		0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3449	0	1703	3539	1568	1770	4880	0	1752	3406	1583
Flt Permitted	0.361			0.426			0.525			0.443		
Satd. Flow (perm)	638	3449	0	764	3539	1547	977	4880	0	817	3406	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22				367		64				371
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Adj. Flow (vph)	399	477	91	92	421	367	101	334	86	461	382	371
Shared Lane Traffic (%)												
Lane Group Flow (vph)	399	568	0	92	421	367	101	420	0	461	382	371
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

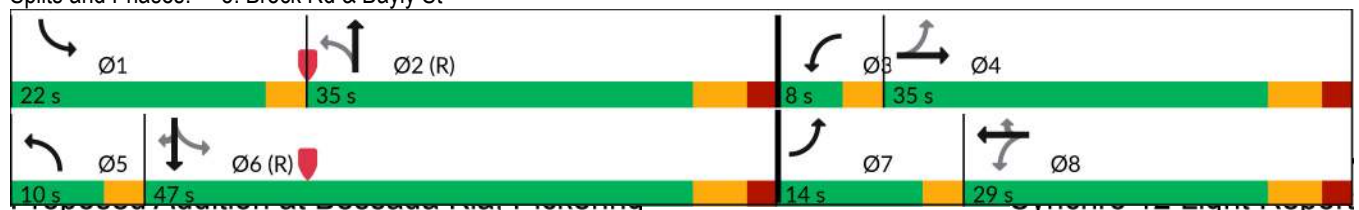
2033 Total Traffic Condition  
Weekend Midday Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	14.0	35.0		8.0	29.0	29.0	10.0	35.0		22.0	47.0	47.0
Total Split (%)	14.0%	35.0%		8.0%	29.0%	29.0%	10.0%	35.0%		22.0%	47.0%	47.0%
Maximum Green (s)	11.0	28.8		5.0	22.8	22.8	7.0	28.9		19.0	40.9	40.9
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	40.0	30.4		31.0	22.8	22.8	39.7	29.7		54.0	42.9	42.9
Actuated g/C Ratio	0.40	0.30		0.31	0.23	0.23	0.40	0.30		0.54	0.43	0.43
v/c Ratio	1.08	0.53		0.33	0.52	0.58	0.23	0.28		0.76	0.26	0.42
Control Delay (s/veh)	98.0	30.5		23.5	36.6	7.5	13.9	23.5		23.8	19.6	3.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	98.0	30.5		23.5	36.6	7.5	13.9	23.5		23.8	19.6	3.7
LOS	F	C		C	D	A	B	C		C	B	A
Approach Delay (s/veh)		58.3			23.1			21.6			16.3	
Approach LOS		E			C			C			B	

Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 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: 1.08  
 Intersection Signal Delay (s/veh): 30.1      Intersection LOS: C  
 Intersection Capacity Utilization 89.9%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekend Midday Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	399	568	92	421	367	101	420	461	382	371
v/c Ratio	1.08	0.53	0.33	0.52	0.58	0.23	0.28	0.76	0.26	0.42
Control Delay (s/veh)	98.0	30.5	23.5	36.6	7.5	13.9	23.5	23.8	19.6	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	98.0	30.5	23.5	36.6	7.5	13.9	23.5	23.8	19.6	3.7
Queue Length 50th (m)	~73.4	49.2	11.4	39.4	0.0	9.4	20.1	54.9	26.0	0.0
Queue Length 95th (m)	#156.3	66.8	21.8	55.1	23.7	17.7	28.9	81.4	36.9	17.2
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	369	1063	283	806	636	444	1496	618	1461	882
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.53	0.33	0.52	0.58	0.23	0.28	0.75	0.26	0.42

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekend Midday Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	367	439	84	85	387	338	93	307	79	424	351	341	
Future Volume (vph)	367	439	84	85	387	338	93	307	79	424	351	341	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1681	3449		1703	3539	1547	1769	4881		1752	3406	1562	
Flt Permitted	0.36	1.00		0.43	1.00	1.00	0.53	1.00		0.44	1.00	1.00	
Satd. Flow (perm)	639	3449		764	3539	1547	978	4881		817	3406	1562	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	399	477	91	92	421	367	101	334	86	461	382	371	
RTOR Reduction (vph)	0	15	0	0	0	281	0	45	0	0	0	216	
Lane Group Flow (vph)	399	553	0	92	421	86	101	375	0	461	382	155	
Confl. Peds. (#/hr)	1					1	1					1	
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4			8		8	2			6		6	
Actuated Green, G (s)	37.4	30.4		27.4	23.4	23.4	34.7	29.1		50.3	41.7	41.7	
Effective Green, g (s)	37.4	30.4		27.4	23.4	23.4	34.7	29.1		50.3	41.7	41.7	
Actuated g/C Ratio	0.37	0.30		0.27	0.23	0.23	0.35	0.29		0.50	0.42	0.42	
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2	
Lane Grp Cap (vph)	353	1048		246	828	361	383	1420		581	1420	651	
v/s Ratio Prot	c0.12	0.16		0.01	0.12		0.01	0.08		c0.14	0.11		
v/s Ratio Perm	c0.30			0.09		0.06	0.08			c0.25		0.10	
v/c Ratio	1.13	0.53		0.37	0.51	0.24	0.26	0.26		0.79	0.27	0.24	
Uniform Delay, d1	28.8	28.8		27.9	33.3	31.1	22.6	27.2		16.9	19.1	18.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	88.1	1.9		1.0	2.2	1.5	0.4	0.5		7.3	0.5	0.9	
Delay (s)	116.9	30.7		28.8	35.5	32.6	23.0	27.7		24.2	19.6	19.7	
Level of Service	F	C		C	D	C	C	C		C	B	B	
Approach Delay (s/veh)		66.3			33.6			26.8			21.4		
Approach LOS		E			C			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)			37.3									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.00										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	18.3
Intersection Capacity Utilization			89.9%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2033 Total Traffic Condition  
 Weekend Midday Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	858	13	0	821	0	32
Future Volume (Veh/h)	858	13	0	821	0	32
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	933	14	0	892	0	35
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage veh						
Upstream signal (m)	135					
pX, platoon unblocked					0.90	
vC, conflicting volume			947	1386	474	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			947	1209	474	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	93	
cM capacity (veh/h)			721	158	537	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>EB 2</b>	<b>WB 1</b>	<b>WB 2</b>	<b>NB 1</b>	
Volume Total	622	325	446	446	35	
Volume Left	0	0	0	0	0	
Volume Right	0	14	0	0	35	
cSH	1700	1700	1700	1700	537	
Volume to Capacity	0.37	0.19	0.26	0.26	0.07	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.7	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	12.2	
Lane LOS					B	
Approach Delay (s/veh)	0.0		0.0		12.2	
Approach LOS					B	
<b>Intersection Summary</b>						
Average Delay			0.2			
Intersection Capacity Utilization			34.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis  
2: Brock Rd & Site Driveway

2033 Total Traffic Condition  
Weekday PM Peak Hour


























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↕	↕	↘
Traffic Volume (veh/h)	0	2	0	1407	573	5
Future Volume (Veh/h)	0	2	0	1407	573	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	0	1529	623	5
<b>Pedestrians</b>						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)					93	
pX, platoon unblocked	0.93	0.93	0.93			
vC, conflicting volume	1390	314	628			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1266	108	446			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	149	859	1031			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>NB 2</b>	<b>SB 1</b>	<b>SB 2</b>	
Volume Total	2	765	765	415	213	
Volume Left	0	0	0	0	0	
Volume Right	2	0	0	0	5	
cSH	859	1700	1700	1700	1700	
Volume to Capacity	0.00*	0.45	0.45	0.24	0.13	
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	
Control Delay (s/veh)	9.2	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s/veh)	9.2	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay	0.0					
Intersection Capacity Utilization	42.2%			ICU Level of Service	A	
Analysis Period (min)	15					

\* Value less than 0.01.

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	647	141	78	583	409	407	763	238	493	360	295
Future Volume (vph)	266	647	141	78	583	409	407	763	238	493	360	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor		1.00		1.00		0.97	0.99	1.00				0.97
Frt		0.973				0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3321	0	1556	3539	1509	1770	4784	0	1752	3471	1583
Flt Permitted	0.137			0.152			0.521			0.109		
Satd. Flow (perm)	242	3321	0	249	3539	1468	961	4784	0	201	3471	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				445		58				288
Link Speed (k/h)		60			60			60				60
Link Distance (m)		135.0			379.1			92.6				213.4
Travel Time (s)		8.1			22.7			5.6				12.8
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Adj. Flow (vph)	289	703	153	85	634	445	442	829	259	536	391	321
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	856	0	85	634	445	442	1088	0	536	391	321
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6				3.6
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday PM Peak Hour

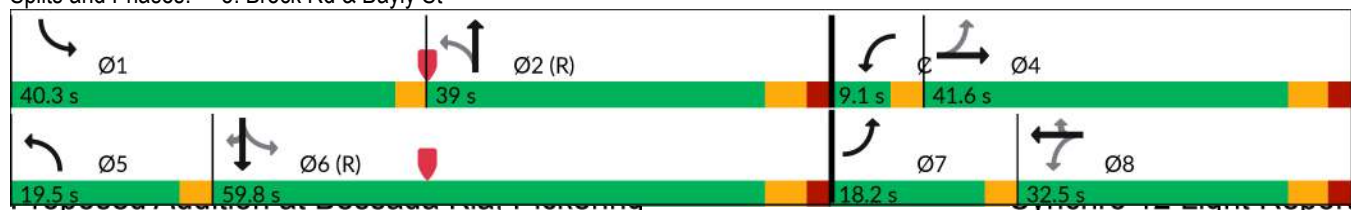


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	18.2	41.6		9.1	32.5	32.5	19.5	39.0		40.3	59.8	59.8
Total Split (%)	14.0%	32.0%		7.0%	25.0%	25.0%	15.0%	30.0%		31.0%	46.0%	46.0%
Maximum Green (s)	15.2	35.4		6.1	26.3	26.3	16.5	32.9		37.3	53.7	53.7
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	47.7	35.4		35.6	26.3	26.3	53.4	33.8		76.3	53.7	53.7
Actuated g/C Ratio	0.37	0.27		0.27	0.20	0.20	0.41	0.26		0.59	0.41	0.41
v/c Ratio	1.12	0.93		0.66	0.89	0.68	0.89	0.85		0.97	0.27	0.40
Control Delay (s/veh)	126.3	62.5		54.7	65.8	9.9	43.3	50.5		67.9	25.9	5.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	126.3	62.5		54.7	65.8	9.9	43.3	50.5		67.9	25.9	5.6
LOS	F	E		D	E	A	D	D		E	C	A
Approach Delay (s/veh)		78.6			43.6			48.4			38.7	
Approach LOS		E			D			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 130  
 Actuated Cycle Length: 130  
 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: 1.12  
 Intersection Signal Delay (s/veh): 51.7      Intersection LOS: D  
 Intersection Capacity Utilization 95.8%      ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	289	856	85	634	445	442	1088	536	391	321
v/c Ratio	1.12	0.93	0.66	0.89	0.68	0.89	0.85	0.97	0.27	0.40
Control Delay (s/veh)	126.3	62.5	54.7	65.8	9.9	43.3	50.5	67.9	25.9	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	126.3	62.5	54.7	65.8	9.9	43.3	50.5	67.9	25.9	5.6
Queue Length 50th (m)	~75.8	114.4	14.2	87.5	0.0	62.0	96.7	122.2	35.6	5.2
Queue Length 95th (m)	#137.0	#154.2	#28.7	#119.5	31.7	#113.2	115.4	#194.0	47.8	24.8
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	257	918	129	715	651	497	1287	562	1433	803
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	0.93	0.66	0.89	0.68	0.89	0.85	0.95	0.27	0.40

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	647	141	78	583	409	407	763	238	493	360	295
Future Volume (vph)	266	647	141	78	583	409	407	763	238	493	360	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.97	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	3322		1556	3539	1468	1761	4786		1752	3471	1537
Flt Permitted	0.14	1.00		0.15	1.00	1.00	0.52	1.00		0.11	1.00	1.00
Satd. Flow (perm)	242	3322		249	3539	1468	965	4786		201	3471	1537
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	289	703	153	85	634	445	442	829	259	536	391	321
RTOR Reduction (vph)	0	15	0	0	0	355	0	43	0	0	0	169
Lane Group Flow (vph)	289	841	0	85	634	90	442	1045	0	536	391	152
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	44.5	35.4		32.4	26.3	26.3	50.3	33.8		73.2	53.7	53.7
Effective Green, g (s)	44.5	35.4		32.4	26.3	26.3	50.3	33.8		73.2	53.7	53.7
Actuated g/C Ratio	0.34	0.27		0.25	0.20	0.20	0.39	0.26		0.56	0.41	0.41
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	251	904		123	715	296	474	1244		547	1433	634
v/s Ratio Prot	c0.13	0.25		0.03	0.18		0.12	0.22		c0.27	0.11	
v/s Ratio Perm	c0.26			0.14		0.06	0.24			c0.28		0.10
v/c Ratio	1.15	0.93		0.69	0.89	0.30	0.93	0.84		0.98	0.27	0.24
Uniform Delay, d1	36.2	46.1		39.9	50.4	44.1	34.4	45.5		37.8	25.2	24.9
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	103.9	17.2		15.4	15.2	2.6	25.4	6.9		32.9	0.5	0.9
Delay (s)	140.1	63.3		55.4	65.6	46.7	59.8	52.5		70.7	25.7	25.7
Level of Service	F	E		E	E	D	E	D		E	C	C
Approach Delay (s/veh)		82.7			57.6			54.6			45.1	
Approach LOS		F			E			D			D	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			59.3									HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			130.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			95.8%									ICU Level of Service F
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 9: Site Driveway & Bayly St

2033 Total Traffic Condition  
 Weekday PM Peak Hour


























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Traffic Volume (veh/h)	1025	9	0	1285	0	28
Future Volume (Veh/h)	1025	9	0	1285	0	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1114	10	0	1397	0	30
Pedestrians						5
Lane Width (m)						3.6
Walking Speed (m/s)						1.2
Percent Blockage						0
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						135
pX, platoon unblocked					0.83	
vC, conflicting volume			1129	1823	567	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1129	1577	567	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			100	100	94	
cM capacity (veh/h)			612	83	465	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	743	381	699	699	30	
Volume Left	0	0	0	0	0	
Volume Right	0	10	0	0	30	
cSH	1700	1700	1700	1700	465	
Volume to Capacity	0.44	0.22	0.41	0.41	0.06	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	1.6	
Control Delay (s/veh)	0.0	0.0	0.0	0.0	13.3	
Lane LOS						B
Approach Delay (s/veh)	0.0		0.0		13.3	
Approach LOS						B
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			38.9%	ICU Level of Service	A	
Analysis Period (min)			15			

**APPENDIX B**

**Synchro Reports-Optimised Cycle  
Lengths**

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	339	462	395	195	336	246	54	252	63	343	947	342
Future Volume (vph)	339	462	395	195	336	246	54	252	63	343	947	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00		0.98	1.00	1.00		0.99		0.97
Fr <sub>t</sub>		0.931				0.850		0.970				0.850
Fl <sub>t</sub> Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1665	3232	0	1687	3539	1392	1736	4416	0	1719	3505	1568
Fl <sub>t</sub> Permitted	0.499			0.200			0.184			0.473		
Satd. Flow (perm)	870	3232	0	355	3539	1365	335	4416	0	850	3505	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		205				267		68				372
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%
Adj. Flow (vph)	368	502	429	212	365	267	59	274	68	373	1029	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	368	931	0	212	365	267	59	342	0	373	1029	372
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

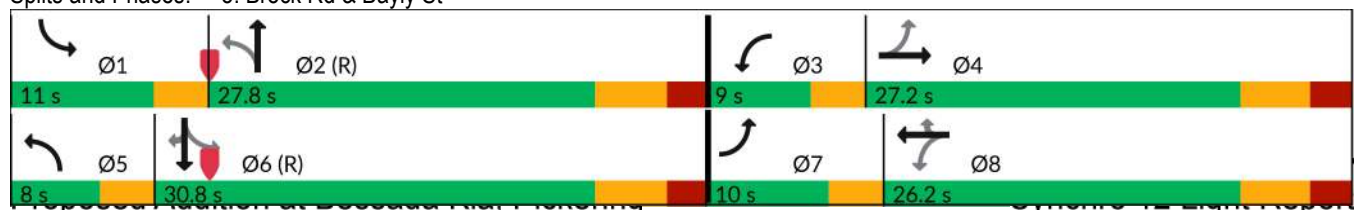
2033 Total Traffic Condition  
Weekday AM Peak Hour

	↖		→		↗		↖		↗		↘	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	10.0	27.2		9.0	26.2	26.2	8.0	27.8		11.0	30.8	30.8
Total Split (%)	13.3%	36.3%		12.0%	34.9%	34.9%	10.7%	37.1%		14.7%	41.1%	41.1%
Maximum Green (s)	7.0	21.0		6.0	20.0	20.0	5.0	21.7		8.0	24.7	24.7
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	31.2	21.0		29.2	20.0	20.0	29.8	21.7		35.8	27.9	27.9
Actuated g/C Ratio	0.42	0.28		0.39	0.27	0.27	0.40	0.29		0.48	0.37	0.37
v/c Ratio	0.84	0.88		0.87	0.39	0.48	0.26	0.26		0.75	0.79	0.47
Control Delay (s/veh)	37.4	32.0		51.3	24.0	6.4	13.9	16.8		25.5	27.8	4.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	37.4	32.0		51.3	24.0	6.4	13.9	16.8		25.5	27.8	4.4
LOS	D	C		D	C	A	B	B		C	C	A
Approach Delay (s/veh)		33.5			25.3			16.4			22.4	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 75  
 Actuated Cycle Length: 75  
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.88  
 Intersection Signal Delay (s/veh): 25.8      Intersection LOS: C  
 Intersection Capacity Utilization 87.6%      ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday AM Peak Hour


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	368	931	212	365	267	59	342	373	1029	372
v/c Ratio	0.84	0.88	0.87	0.39	0.48	0.26	0.26	0.75	0.79	0.47
Control Delay (s/veh)	37.4	32.0	51.3	24.0	6.4	13.9	16.8	25.5	27.8	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	32.0	51.3	24.0	6.4	13.9	16.8	25.5	27.8	4.4
Queue Length 50th (m)	39.0	54.5	18.7	23.1	0.0	4.4	10.5	34.4	74.5	0.0
Queue Length 95th (m)	#83.8	#90.1	#48.2	35.0	15.9	10.4	17.1	#63.1	#111.3	17.5
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	436	1052	244	943	559	226	1326	498	1304	800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.88	0.87	0.39	0.48	0.26	0.26	0.75	0.79	0.47

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St
























2033 Total Traffic Condition  
Weekday AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	339	462	395	195	336	246	54	252	63	343	947	342	
Future Volume (vph)	339	462	395	195	336	246	54	252	63	343	947	342	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.93		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1661	3231		1686	3539	1365	1735	4417		1714	3505	1524	
Flt Permitted	0.50	1.00		0.20	1.00	1.00	0.18	1.00		0.47	1.00	1.00	
Satd. Flow (perm)	873	3231		355	3539	1365	337	4417		853	3505	1524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	368	502	429	212	365	267	59	274	68	373	1029	372	
RTOR Reduction (vph)	0	148	0	0	0	196	0	48	0	0	0	240	
Lane Group Flow (vph)	368	783	0	212	365	71	59	294	0	373	1029	132	
Confl. Peds. (#/hr)	7		8	8		7	13		9	9		13	
Heavy Vehicles (%)	3%	3%	3%	7%	2%	16%	4%	15%	7%	5%	3%	3%	
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4			8		8	2			6		6	
Actuated Green, G (s)	28.0	21.0		26.0	20.0	20.0	24.7	21.7		32.7	26.7	26.7	
Effective Green, g (s)	28.0	21.0		26.0	20.0	20.0	24.7	21.7		32.7	26.7	26.7	
Actuated g/C Ratio	0.37	0.28		0.35	0.27	0.27	0.33	0.29		0.44	0.36	0.36	
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	399	904		229	943	364	166	1277		463	1247	542	
v/s Ratio Prot	c0.09	0.24		0.07	0.10		0.01	0.07		c0.09	c0.29		
v/s Ratio Perm	c0.26			0.25		0.05	0.10			0.26		0.09	
v/c Ratio	0.92	0.87		0.93	0.39	0.20	0.36	0.23		0.81	0.83	0.24	
Uniform Delay, d1	20.8	25.7		21.4	22.5	21.3	18.2	20.3		16.6	22.0	17.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	26.5	10.9		39.3	1.2	1.2	1.3	0.4		9.8	6.3	1.1	
Delay (s)	47.4	36.6		60.7	23.7	22.5	19.5	20.7		26.5	28.3	18.1	
Level of Service	D	D		E	C	C	B	C		C	C	B	
Approach Delay (s/veh)		39.7			32.6			20.5			25.8		
Approach LOS		D			C			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay (s/veh)	30.8			HCM 2000 Level of Service					C				
HCM 2000 Volume to Capacity ratio	0.92												
Actuated Cycle Length (s)	75.0				Sum of lost time (s)				18.3				
Intersection Capacity Utilization	87.6%			ICU Level of Service					E				
Analysis Period (min)	15												

c Critical Lane Group

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekend Mid-day Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	439	84	85	387	338	93	307	79	424	351	341
Future Volume (vph)	367	439	84	85	387	338	93	307	79	424	351	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00					0.99	1.00					0.99
Frt		0.976				0.850		0.969				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3449	0	1703	3539	1568	1770	4880	0	1752	3406	1583
Flt Permitted	0.396			0.439			0.525			0.430		
Satd. Flow (perm)	700	3449	0	787	3539	1547	977	4880	0	793	3406	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28				367		76				371
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	1					1	1					1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Adj. Flow (vph)	399	477	91	92	421	367	101	334	86	461	382	371
Shared Lane Traffic (%)												
Lane Group Flow (vph)	399	568	0	92	421	367	101	420	0	461	382	371
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekend Mid-day Peak Hour

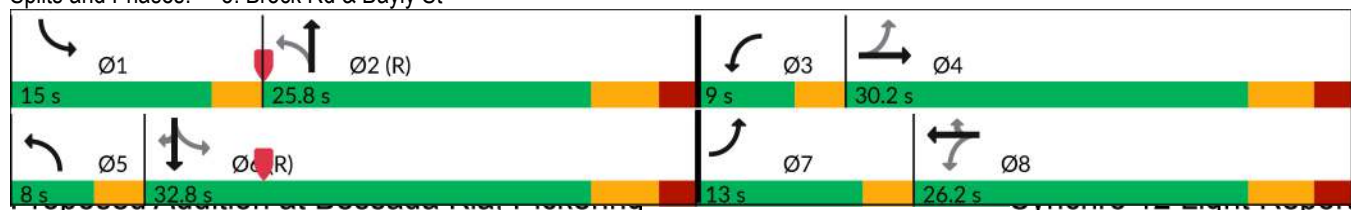


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	13.0	30.2		9.0	26.2	26.2	8.0	25.8		15.0	32.8	32.8
Total Split (%)	16.3%	37.8%		11.3%	32.8%	32.8%	10.0%	32.3%		18.8%	41.0%	41.0%
Maximum Green (s)	10.0	24.0		6.0	20.0	20.0	5.0	19.7		12.0	26.7	26.7
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effect Green (s)	36.2	25.8		29.1	20.0	20.0	27.8	19.7		37.8	28.3	28.3
Actuated g/C Ratio	0.45	0.32		0.36	0.25	0.25	0.35	0.25		0.47	0.35	0.35
v/c Ratio	0.91	0.50		0.26	0.48	0.55	0.26	0.33		0.89	0.32	0.47
Control Delay (s/veh)	45.5	23.3		15.1	27.7	6.5	14.4	21.0		38.8	20.3	4.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	45.5	23.3		15.1	27.7	6.5	14.4	21.0		38.8	20.3	4.5
LOS	D	C		B	C	A	B	C		D	C	A
Approach Delay (s/veh)		32.5			17.5			19.7			22.5	
Approach LOS		C			B			B			C	

Intersection Summary

Area Type: Other  
 Cycle Length: 80  
 Actuated Cycle Length: 80  
 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: 0.91  
 Intersection Signal Delay (s/veh): 23.6  
 Intersection LOS: C  
 Intersection Capacity Utilization 89.9%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekend Mid-day Peak Hour


























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	399	568	92	421	367	101	420	461	382	371
v/c Ratio	0.91	0.50	0.26	0.48	0.55	0.26	0.33	0.89	0.32	0.47
Control Delay (s/veh)	45.5	23.3	15.1	27.7	6.5	14.4	21.0	38.8	20.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	45.5	23.3	15.1	27.7	6.5	14.4	21.0	38.8	20.3	4.5
Queue Length 50th (m)	45.8	37.2	8.0	29.9	0.0	8.5	16.1	49.7	23.2	0.0
Queue Length 95th (m)	#101.1	53.1	16.3	43.6	20.1	17.1	24.5	#103.5	34.4	17.9
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	439	1131	355	884	662	389	1258	518	1204	792
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.50	0.26	0.48	0.55	0.26	0.33	0.89	0.32	0.47

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St
























2033 Total Traffic Condition  
Weekend Mid-day Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	367	439	84	85	387	338	93	307	79	424	351	341
Future Volume (vph)	367	439	84	85	387	338	93	307	79	424	351	341
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frbp, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	3449		1703	3539	1547	1769	4881		1752	3406	1562
Flt Permitted	0.40	1.00		0.44	1.00	1.00	0.53	1.00		0.43	1.00	1.00
Satd. Flow (perm)	700	3449		786	3539	1547	978	4881		793	3406	1562
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	399	477	91	92	421	367	101	334	86	461	382	371
RTOR Reduction (vph)	0	19	0	0	0	272	0	58	0	0	0	245
Lane Group Flow (vph)	399	549	0	92	421	95	101	362	0	461	382	126
Confl. Peds. (#/hr)	1					1	1					1
Heavy Vehicles (%)	2%	2%	3%	6%	2%	3%	2%	3%	3%	3%	6%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	33.6	25.8		25.4	20.6	20.6	23.1	19.1		34.1	27.1	27.1
Effective Green, g (s)	33.6	25.8		25.4	20.6	20.6	23.1	19.1		34.1	27.1	27.1
Actuated g/C Ratio	0.42	0.32		0.32	0.26	0.26	0.29	0.24		0.43	0.34	0.34
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	416	1112		304	911	398	321	1165		481	1153	529
v/s Ratio Prot	c0.12	0.16		0.02	0.12		0.02	0.07		c0.14	0.11	
v/s Ratio Perm	c0.28			0.08		0.06	0.07			c0.26		0.08
v/c Ratio	0.96	0.49		0.30	0.46	0.24	0.31	0.31		0.96	0.33	0.24
Uniform Delay, d1	20.2	21.8		19.7	25.0	23.5	21.5	25.0		19.5	19.7	19.0
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	33.3	1.6		0.6	1.7	1.4	0.6	0.7		30.3	0.8	1.1
Delay (s)	53.5	23.4		20.3	26.7	24.9	22.0	25.7		49.8	20.5	20.1
Level of Service	D	C		C	C	C	C	C		D	C	C
Approach Delay (s/veh)		35.8			25.3			25.0			31.5	
Approach LOS		D			C			C			C	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			30.2									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			80.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			89.9%									ICU Level of Service E
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	647	141	78	583	409	407	763	238	493	360	295
Future Volume (vph)	266	647	141	78	583	409	407	763	238	493	360	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		0.0	110.0		95.0	86.0		125.0	115.0		186.0
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	*0.95	0.95	0.95	1.00	0.95	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Ped Bike Factor	1.00	1.00		1.00		0.98	0.99	1.00		1.00		0.98
Frt		0.973				0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1681	3322	0	1556	3539	1509	1770	4787	0	1752	3471	1583
Flt Permitted	0.192			0.194			0.521			0.173		
Satd. Flow (perm)	339	3322	0	317	3539	1475	964	4787	0	319	3471	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28				445		82				254
Link Speed (k/h)		60			60			60			60	
Link Distance (m)		135.0			379.1			92.6			213.4	
Travel Time (s)		8.1			22.7			5.6			12.8	
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Adj. Flow (vph)	289	703	153	85	634	445	442	829	259	536	391	321
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	856	0	85	634	445	442	1088	0	536	391	321
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	

Lanes, Volumes, Timings  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday PM Peak Hour

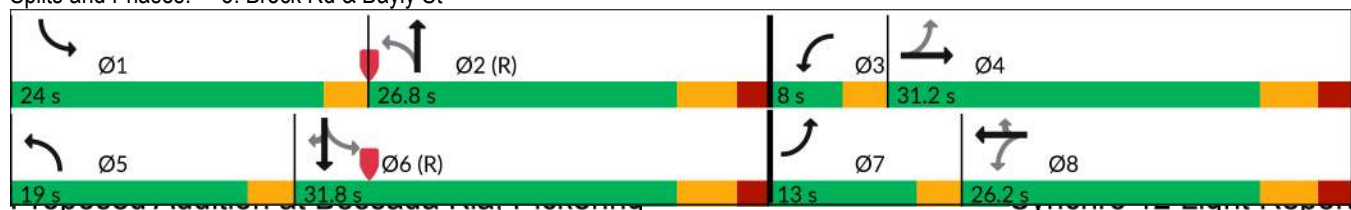


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Detector Phase	7	4		3	8	8	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	15.0		5.0	15.0	15.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	8.0	26.2		8.0	26.2	26.2	8.0	24.1		8.0	24.1	24.1
Total Split (s)	13.0	31.2		8.0	26.2	26.2	19.0	26.8		24.0	31.8	31.8
Total Split (%)	14.4%	34.7%		8.9%	29.1%	29.1%	21.1%	29.8%		26.7%	35.3%	35.3%
Maximum Green (s)	10.0	25.0		5.0	20.0	20.0	16.0	20.7		21.0	25.7	25.7
Yellow Time (s)	3.0	3.9		3.0	3.9	3.9	3.0	4.0		3.0	4.0	4.0
All-Red Time (s)	0.0	2.3		0.0	2.3	2.3	0.0	2.1		0.0	2.1	2.1
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Recall Mode	None	Max		None	Max	Max	None	C-Max		None	C-Max	C-Max
Walk Time (s)		15.0			15.0	15.0		13.0			13.0	13.0
Flash Don't Walk (s)		5.0			5.0	5.0		5.0			5.0	5.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	36.2	26.6		28.2	20.0	20.0	39.4	20.7		47.8	26.1	26.1
Actuated g/C Ratio	0.40	0.30		0.31	0.22	0.22	0.44	0.23		0.53	0.29	0.29
v/c Ratio	1.01	0.86		0.51	0.81	0.66	0.79	0.93		1.07	0.39	0.51
Control Delay (s/veh)	81.8	39.7		29.3	42.5	8.5	26.5	47.0		82.9	27.1	9.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay (s/veh)	81.8	39.7		29.3	42.5	8.5	26.5	47.0		82.9	27.1	9.7
LOS	F	D		C	D	A	C	D		F	C	A
Approach Delay (s/veh)		50.3			28.5			41.1			46.6	
Approach LOS		D			C			D			D	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 90  
 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: 1.07  
 Intersection Signal Delay (s/veh): 41.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 95.8%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 \* User Entered Value

Splits and Phases: 5: Brock Rd & Bayly St



Queues  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	289	856	85	634	445	442	1088	536	391	321
v/c Ratio	1.01	0.86	0.51	0.81	0.66	0.79	0.93	1.07	0.39	0.51
Control Delay (s/veh)	81.8	39.7	29.3	42.5	8.5	26.5	47.0	82.9	27.1	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	81.8	39.7	29.3	42.5	8.5	26.5	47.0	82.9	27.1	9.7
Queue Length 50th (m)	~39.4	75.3	8.9	57.3	0.0	47.0	65.3	~88.8	29.5	9.0
Queue Length 95th (m)	#90.8	#111.5	18.0	#82.3	25.9	#78.1	#93.0	#151.7	42.5	32.1
Internal Link Dist (m)		111.0		355.1			68.6		189.4	
Turn Bay Length (m)	120.0		110.0		95.0	86.0		115.0		186.0
Base Capacity (vph)	285	1001	168	786	673	569	1164	503	1008	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.86	0.51	0.81	0.66	0.78	0.93	1.07	0.39	0.51

Intersection Summary

~ 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.

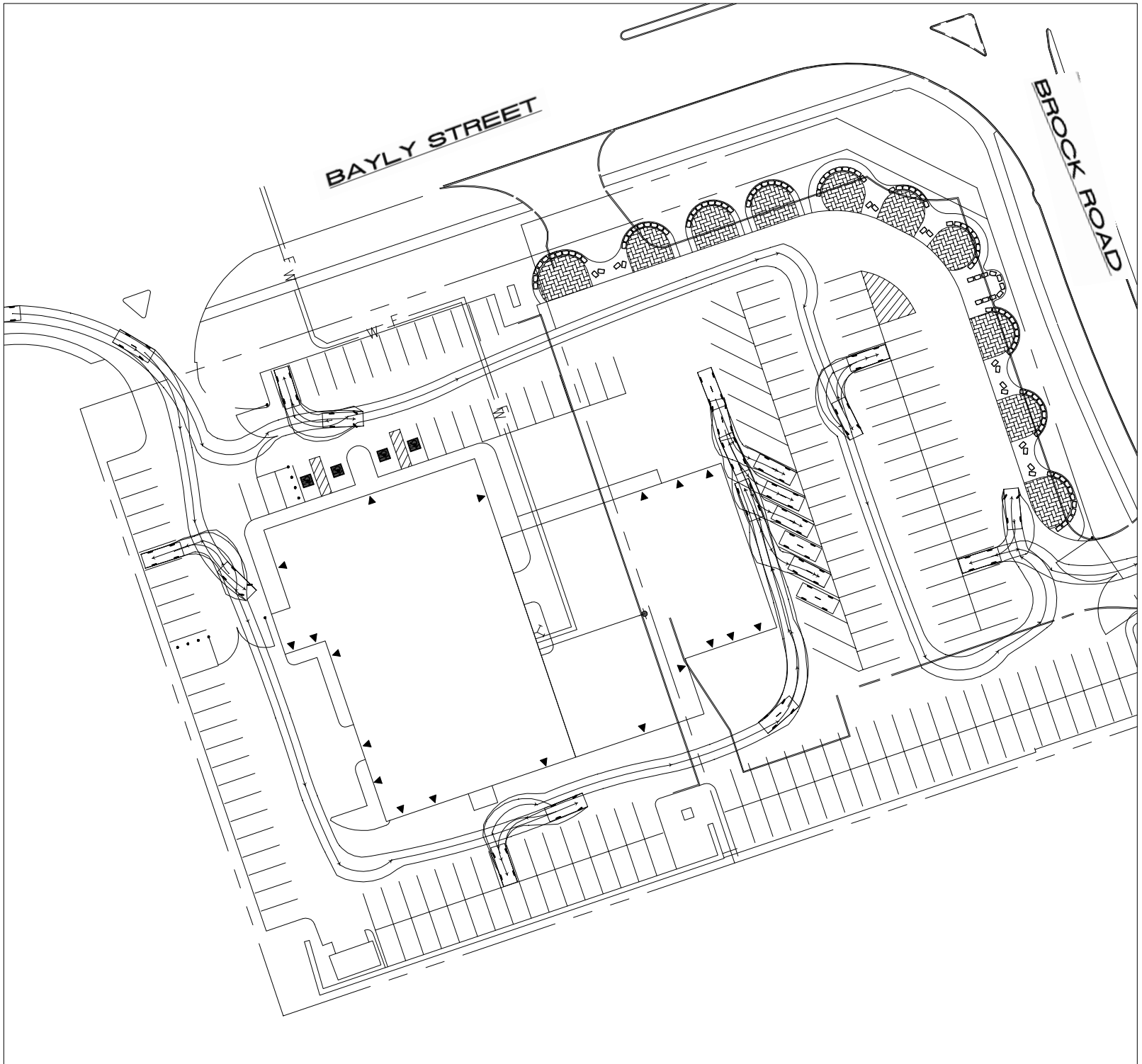
HCM Signalized Intersection Capacity Analysis  
5: Brock Rd & Bayly St

2033 Total Traffic Condition  
Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	266	647	141	78	583	409	407	763	238	493	360	295
Future Volume (vph)	266	647	141	78	583	409	407	763	238	493	360	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Lane Util. Factor	*0.95	0.95		1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1680	3323		1556	3539	1475	1763	4789		1752	3471	1546
Flt Permitted	0.19	1.00		0.19	1.00	1.00	0.52	1.00		0.17	1.00	1.00
Satd. Flow (perm)	339	3323		318	3539	1475	967	4789		319	3471	1546
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	289	703	153	85	634	445	442	829	259	536	391	321
RTOR Reduction (vph)	0	20	0	0	0	343	0	64	0	0	0	182
Lane Group Flow (vph)	289	836	0	85	634	102	442	1024	0	536	391	139
Confl. Peds. (#/hr)	8		3	3		8	8		4	4		8
Heavy Vehicles (%)	2%	4%	12%	16%	2%	7%	2%	4%	4%	3%	4%	2%
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2			6		6
Actuated Green, G (s)	33.6	26.6		24.6	20.6	20.6	35.7	20.1		44.1	25.5	25.5
Effective Green, g (s)	33.6	26.6		24.6	20.6	20.6	35.7	20.1		44.1	25.5	25.5
Actuated g/C Ratio	0.37	0.30		0.27	0.23	0.23	0.40	0.22		0.49	0.28	0.28
Clearance Time (s)	3.0	6.2		3.0	6.2	6.2	3.0	6.1		3.0	6.1	6.1
Vehicle Extension (s)	3.0	0.2		3.0	0.2	0.2	3.0	0.2		3.0	0.2	0.2
Lane Grp Cap (vph)	275	982		141	810	337	521	1069		490	983	438
v/s Ratio Prot	c0.12	0.25		0.03	0.18		0.15	0.21		c0.25	0.11	
v/s Ratio Perm	c0.27			0.14		0.07	0.19			c0.28		0.09
v/c Ratio	1.05	0.85		0.60	0.78	0.30	0.85	0.96		1.09	0.40	0.32
Uniform Delay, d1	23.8	29.8		25.7	32.6	28.7	22.0	34.5		24.5	26.0	25.4
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	68.3	9.2		7.1	7.4	2.3	12.2	19.1		68.6	1.2	1.9
Delay (s)	92.1	39.1		32.7	40.0	31.0	34.2	53.7		93.1	27.3	27.3
Level of Service	F	D		C	D	C	C	D		F	C	C
Approach Delay (s/veh)		52.5			36.1			48.1			55.6	
Approach LOS		D			D			D			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)			48.1									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			90.0									Sum of lost time (s) 18.3
Intersection Capacity Utilization			95.8%									ICU Level of Service F
Analysis Period (min)			15									

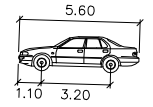
c Critical Lane Group

**APPENDIX C**  
**Vehicle Movement Diagrams**



DESIGN VEHICLE

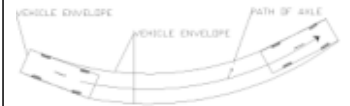
LARGE CAR



P	metres
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 36.2

N.T.S.

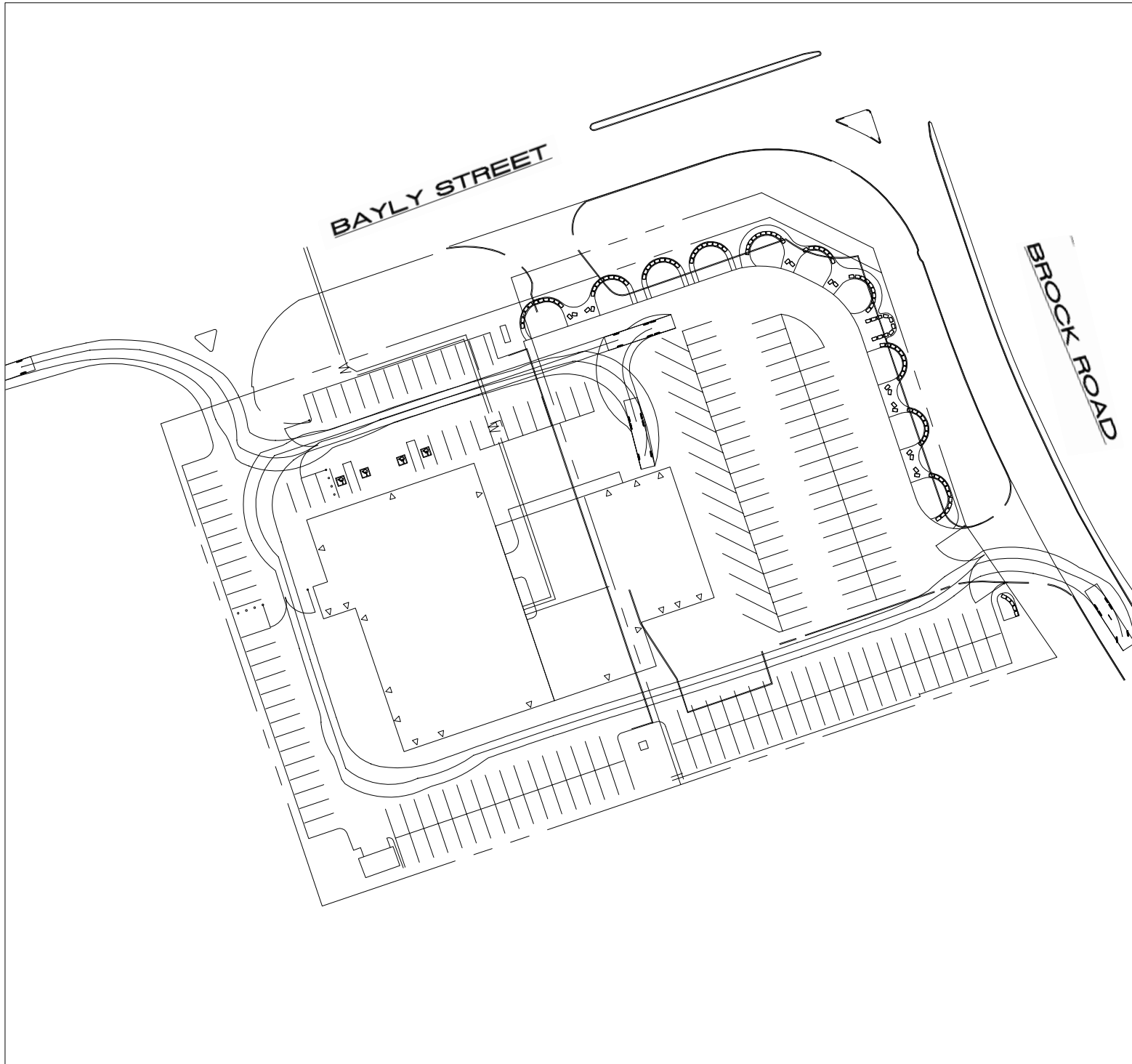
LEGEND



TAC STANDARD PASSENGER  
LARGE CAR (5.60 metres)  
VEHICLE MOVEMENT DIAGRAM

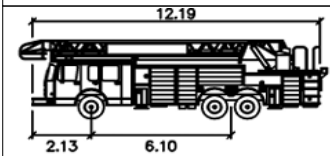
April 2026





DESIGN VEHICLE

FIRE TRUCK



Fire Truck	metres
Width	: 2.44
Track	: 2.44
Lock to Lock Time	: 6.0
Steering Angle	: 31.4

N.T.S.

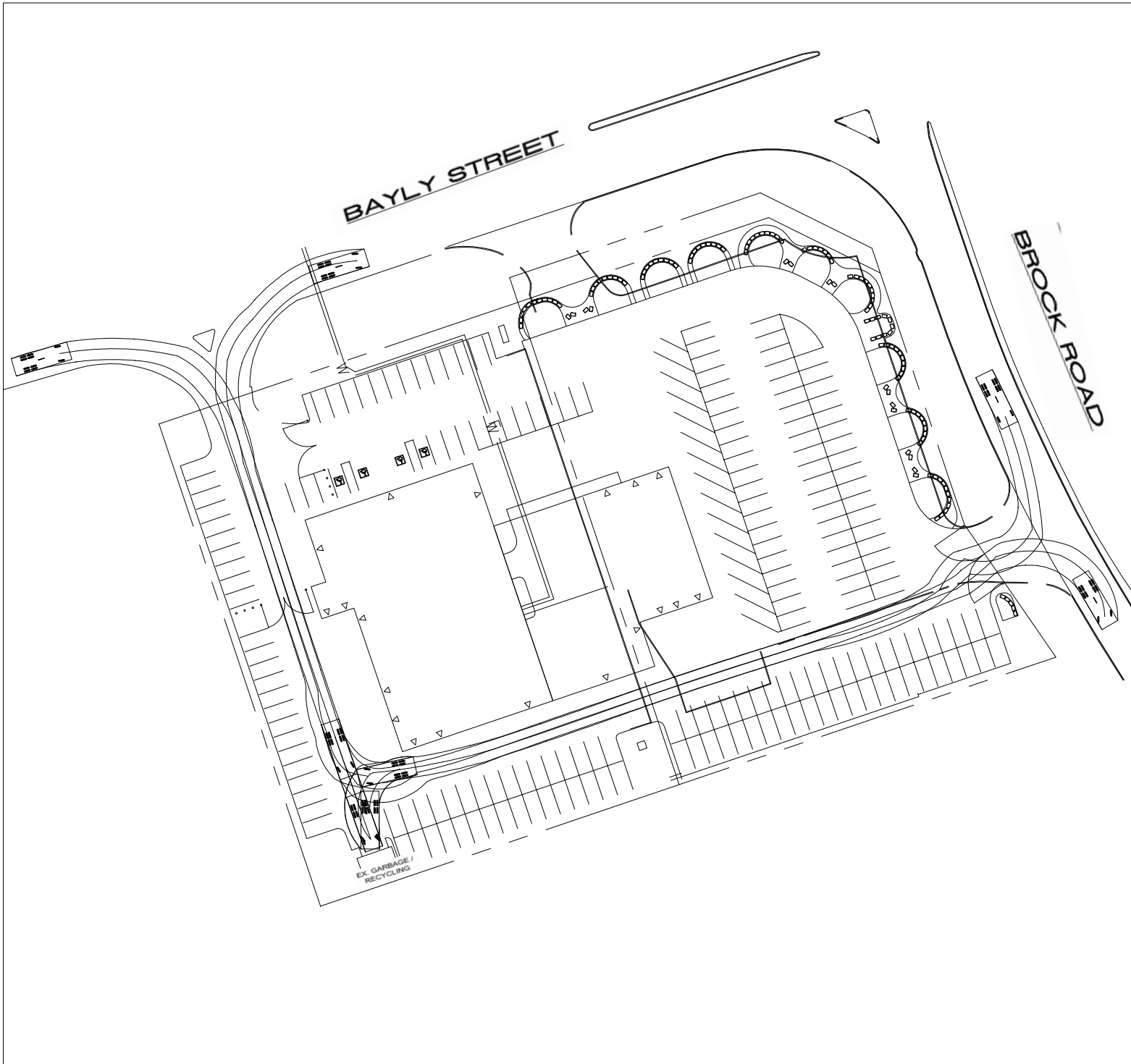
LEGEND



STANDARD FIRE TRUCK  
(12.19 metres)  
VEHICLE MOVEMENT DIAGRAM

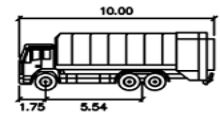
APRIL 2026





DESIGN VEHICLE

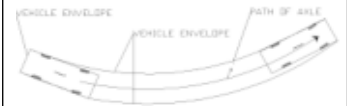
GARBAGE TRUCK



Front Loading Garbage Truck-10m  
 Width : 3.15  
 Track : 2.77  
 Lock to Lock Time : 6.0  
 Steering Angle : 40.0

N.T.S.

LEGEND



FRONT LOADING GARBAGE TRUCK (10.00 metres)  
 VEHICLE MOVEMENT DIAGRAM

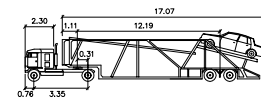
APRIL 2026





DESIGN VEHICLE

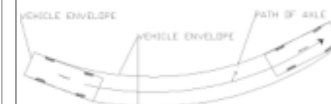
CAR CARRIER TRUCK



Car Carrier (19.77metres)	
Tractor Width	: 2.30
Trailer Width	: 1.11
Tractor Track	: 0.76
Trailer Track	: 5.35
Lock to Lock Time	: 4.0
Steering Angle	: 18.5
Articulating Angle	: 70.0

N.T.S.

LEGEND



CAR CARRIER TRUCK  
(19.77 metres)  
VEHICLE MOVEMENT DIAGRAM

April 2026

