



DILLON
CONSULTING

CITY OF GREATER SUDBURY

Kingsway Sports and Entertainment Complex

Traffic Impact Study

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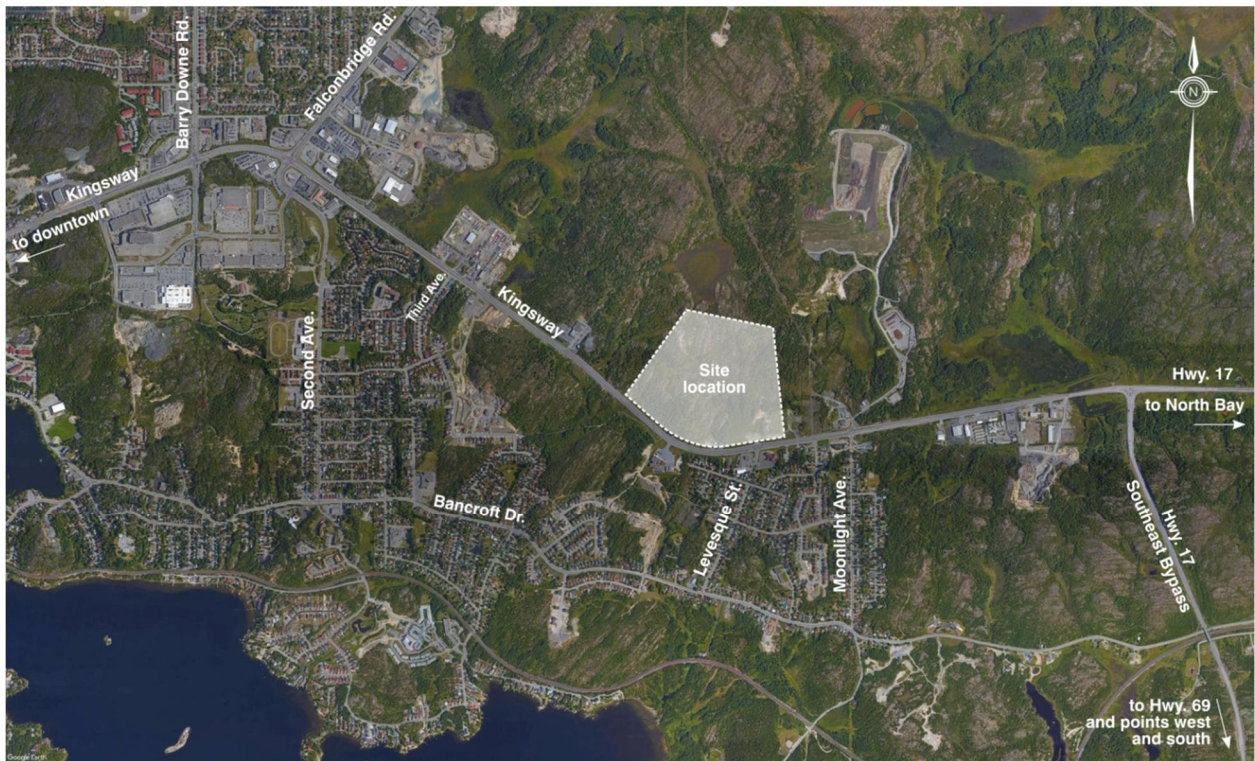
- A Proposed Site Plan
- B Level of Service Definitions
- C Synchro Analysis Worksheets
- D Historical OHL and Sudbury Wolves Attendance Data
- E Hourly Variation in Trip Generation for Office and Residential Land Uses

1.0 Introduction

1.1 Purpose

Dillon Consulting Limited has been retained by the City of Greater Sudbury to undertake a traffic impact study for a proposed multi-function sports and entertainment complex on the north side of the Kingsway, opposite Levesque Street, in the City of Greater Sudbury. The site location is illustrated in *Figure 1*.

Figure 1: Site Location



The site is proposed to include the following functions:

- A 5,800-seat arena that will serve as the new home of the Sudbury Wolves Ontario Hockey League (OHL) team, as well as concerts and other similar events;
- A casino with approximately 780 gaming positions, as well as ancillary restaurant space; and
- A 200-room hotel with meeting space.

In addition, an allowance has been made for a subsequent expansion within the site that would see a twin pad arena (or comparable recreation facility) south of the main arena.

The proposed site plan is presented in *Appendix A*.

In addition, the site is located in the midst of a previously approved industrial subdivision, with an additional 93.67 acres available for future business park development after discounting land required to serve the proposed sports and entertainment complex.

The arena component of the site was the subject of a prior report undertaken by WSP Canada Inc. in June 2017 ("Traffic Operational Assessment, Greater Sudbury Arena") at the site selection stage. The current report builds upon the earlier WSP report and analyses, with additional detail to reflect the additional uses on site and other updated parameters.

This report was prepared for Cumulus Architects Inc. and the City of Greater Sudbury for the Kingsway Entertainment District Integrated Site Plan, and is intended for use by each of the stakeholders the City of Greater Sudbury, Gateway Casinos and Entertainment LTD and 1777223 Ontario Limited for the purpose of supporting material required for zoning applications related to the lands referenced herein.

1.2 Scope of Analyses

The traffic analyses have considered the following intersections:

- Lasalle Boulevard at Barry Downe Road;
- Lasalle Boulevard at Falconbridge Road;
- Kingsway at Barry Downe Road;
- Kingsway at Falconbridge Road / Second Avenue;
- Kingsway at Third Avenue;
- Kingsway at proposed Street A;
- Kingsway at Levesque Street;
- Kingsway at Moonlight Avenue;
- Bancroft Drive at Second Avenue;
- Bancroft Drive at Levesque Street; and
- Bancroft Drive at Moonlight Avenue.

At all intersections listed above, two design hours have been assessed: the typical weekday PM peak hour, and a weekday "pre-game" peak hour that accounts for higher volumes of traffic traveling to an event, offset by lower baseline traffic volumes at the conclusion of the PM peak period. On event nights, traffic conditions at the subject site are anticipated to be governed by the arena, which will be the largest traffic generator on days when a game or other major event is scheduled. Wolves games primarily occur on Friday evenings at 7:05 PM; accordingly, the weekday evening pre-game peak hour will occur between 6:00 and 7:00 PM. Some games may also occur on Saturday evenings (7:05 PM) or Sunday afternoons (2:00 PM), although Saturday and Sunday games would be fewer in number.

A subset of intersections (along the Kingsway between Third Avenue and Levesque Street) was also assessed for post-game peak hour conditions to determine the local impacts of the surge in traffic following an event at the arena, and the time required to clear post-event traffic from the study area.

The weekday evening post-game peak hour will vary but will typically occur between approximately 10:00 and 11:00 PM.

In addition, the City of Greater Sudbury has requested that Saturday midday peak hour analyses be undertaken at the Kingsway and Barry Downe Road given the higher volumes of traffic on Saturday generated by surrounding commercial districts.

The sports and entertainment complex is anticipated to be built out and operational by 2020. The timing for the surrounding business park is unknown and will depend on market conditions. The traffic analyses have considered a five-year horizon (2022).

2.0 Existing Conditions

2.1 Road Network Characteristics

The following roadways are located within the study area.

The *Kingsway* is an east-west primary arterial road that was formerly the route of Highway 17 entering Sudbury from the east, but is now under municipal jurisdiction. It has a four- to five-lane cross-section throughout the study area (including sections with two-way left turn lanes). There is a sidewalk on the south side of the road between Falconbridge Road and Third Avenue. There are no other dedicated active transportation (pedestrian or cyclist) facilities within the corridor, although pedestrians and cyclists can make use of a 2.0-metre paved shoulder. The posted speed limit varies within the corridor: 50 km/h west of Falconbridge Road, 60 km/h between Falconbridge Road and Third Avenue (approximately), and 80 km/h east of Third Avenue and in the vicinity of the subject site.

Bancroft Drive is an east-west secondary arterial road that is approximately 1 kilometre south of the Kingsway, providing an alternate route between the central city and points to the east. It has a two-lane cross-section and a posted speed limit of 50 km/h. In addition, there are bicycle lanes in each direction, and there is a sidewalk or curb-separated asphalt boulevard on both sides of the road.

Levesque Street is a north-south residential collector road extending between Bancroft Drive and the Kingsway opposite the future easterly site access (Street C). It has a two-lane cross-section within a pavement width of approximately 10.8 metres, and has a sidewalk along the east side of the road. The posted speed limit is 50 km/h.

Other roadways were considered within the study area, in the context of their intersections with the Kingsway and/or Bancroft Drive.

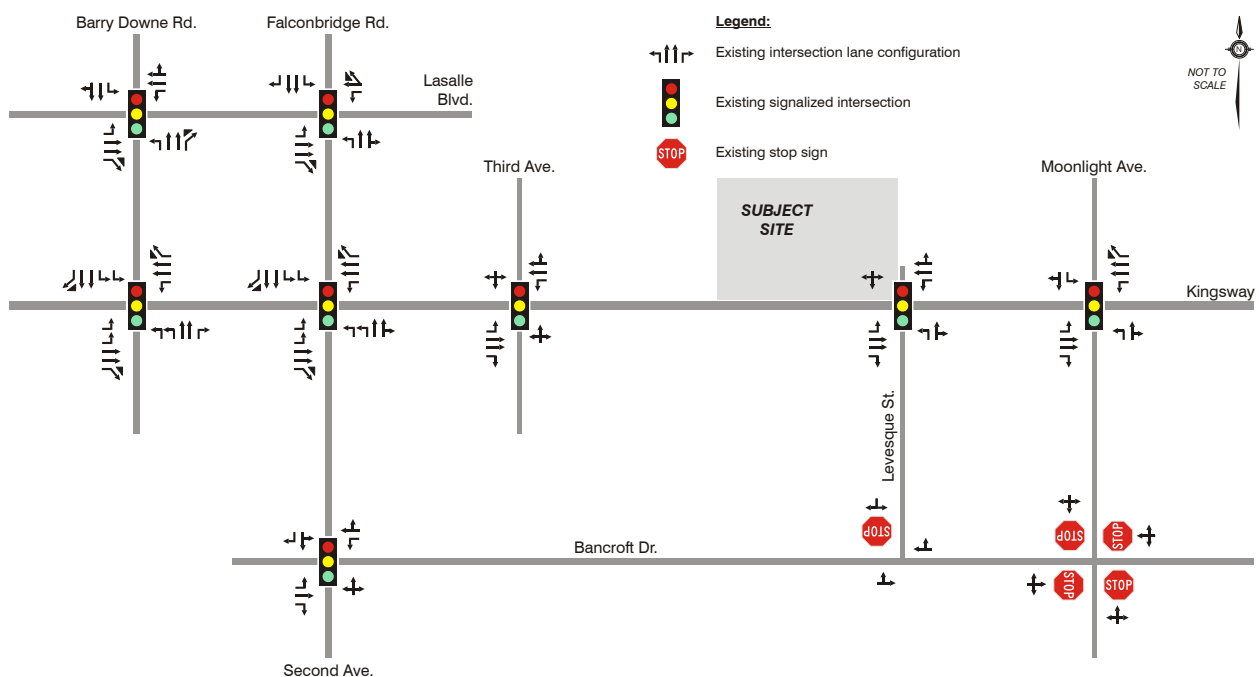
- *Falconbridge Road* is a primary arterial extending northeast from the Kingsway and providing access to the northeast part of the city;
- *Lasalle Boulevard* is a secondary arterial extending from primarily Falconbridge Road to Elm Street. East of Falconbridge Road, Lasalle Boulevard is a collector roadway;
- *Barry Downe Road* is a secondary arterial that extends from Maley Drive in the north to Kingsway in the south;
- *Second Avenue* is a secondary arterial that is a southerly extension of Falconbridge Road south of the Kingsway;
- *Third Avenue* is a residential collector road providing access to the residential community east of Second Avenue; and
- *Moonlight Avenue* is a residential collector road serving the residential area east of Levesque Street, and providing connections to the municipal landfill to the north and Moonlight Beach to the south.

The signalized intersections within the study area have a mixture of fully protected and protected + permissive left turn operations:

- Lasalle Boulevard at Barry Downe Road: fully protected left turns in all directions
- Lasalle Boulevard at Falconbridge Road: protected + permissive left turn phasing northbound, eastbound and southbound
- Kingsway at Barry Downe Road: fully protected left turns in all directions
- Kingsway at Falconbridge Road: fully protected left turns in all directions
- Kingsway at Third Avenue: fully protected eastbound and westbound left turns
- Kingsway at Levesque Street: protected + permissive left turn phasing westbound
- Kingsway at Moonlight Avenue: fully protected eastbound and westbound left turns
- Bancroft Drive at Second Avenue: protected + permissive phasing eastbound and southbound

Figure 2 illustrates the existing intersection control measures and lane configurations throughout the study area.

Figure 2: Existing Intersection Traffic Control and Lane Configurations



2.2 Transit Network Characteristics

Sudbury Transit provides local transit service to the surrounding area. The Sudbury Transit network is a predominantly radial system that is oriented around two major hubs:

- The Sudbury Transit Centre, terminal, an off-street terminal located downtown near Elm Street and Paris Street.
- The New Sudbury terminus, a point where several routes converge at the intersection of Lasalle Boulevard and Barry Downe Road.

There are four routes that operate near the subject site.

Routes 101 (Howey / Moonlight) and 102 (Howey / Third) operate between the downtown terminal and Moonlight Avenue, predominantly via the Howey / Bellevue / Bancroft corridor, looping via Moonlight Avenue and Levesque Street. Both routes use Donald Street and Yollie Street to bypass the intersection of the Kingsway and Levesque Street, and therefore the closest stop to the site is on Levesque Street approximately 150 metres south of the Kingsway.

- Route 101 operates at hourly intervals Monday through Saturday until 10:00 PM.
- Route 102 operates at hourly intervals during weekday peak periods only, with departures staggered halfway between Route 101 departures. The majority of the route is similar to Route 101, and therefore it serves as a de facto alternate branch providing additional peak period service.

Route 241 (Howey / Moonlight / Shopping Centre) serves as a Sunday replacement service for routes 101 and 102, operating a counterclockwise route linking Moonlight Avenue, New Sudbury Centre and the downtown Sudbury terminal. It stops at the intersection of the Kingsway and Levesque Street. It operates at hourly intervals on Sundays only.

Route 103 (Coniston) provides service along the Kingsway between Coniston and the Sudbury urban area. It generally operates every two to three hours, seven days a week, although the route changes depending on the time of day and/or the day of the week (i.e., travel to downtown, the New Sudbury Centre terminus, or both). It stops at the intersection of the Kingsway and Levesque Street.

2.3 Existing Traffic Volumes

Intersection turning movement counts were provided by the City of Greater Sudbury. *Table 1* lists the intersection turning movement counts that were provided and the date that the surveys were undertaken.

Table 1: Intersection Turning Movement Count Survey Dates

Intersection	Date
Lasalle Boulevard at Barry Downe Road	Wednesday, September 21, 2011
Lasalle Boulevard at Falconbridge Road	Thursday, August 6, 2015
Kingsway at Barry Downe Road	Tuesday, May 26, 2015 Saturday, October 7, 2017
Kingsway at Falconbridge Road	Monday, June 18, 2012
Kingsway at Third Avenue	Friday, March 24, 2017
Kingsway at Levesque Street	Friday, March 24, 2017
Kingsway at Moonlight Avenue	Wednesday, April 12, 2017
Bancroft Drive at Second Avenue	Wednesday, July 8, 2015
Bancroft Drive at Levesque Street	Friday, March 31, 2017
Bancroft Drive at Moonlight Avenue	Wednesday, April 12, 2017

The traffic counts at most intersections collected eight hours of data (6:30–9:30 AM; 11:30 AM–1:30 PM; 3:00–6:00 PM). At two intersections along the Kingsway (Third Avenue; Levesque Street), the survey period was extended into the evening until 11:00 PM.

The Friday pre-game peak hour occurs between 6:00 and 7:00 PM, while the eight-hour counts ended at 6:00 PM. The counts that extended beyond 6:00 PM indicated a decrease in traffic demand after 6:00 PM; west of Third Avenue, a decrease of 200 vph was observed westbound, and a decrease of 345 vph was observed eastbound, compared to volumes recorded in the preceding hour. At intersections where traffic data were unavailable after 6:00 PM, a 25% reduction was applied to the traffic volumes between 5:00 and 6:00 PM to account for reduced traffic on the road network following the conclusion of the evening commuter peak period. (An exception was at the Kingsway and Moonlight Avenue, where the eastbound and westbound through volumes were adjusted to balance with the adjacent intersection at Kingsway and Levesque Street.)

The Friday post-game peak hour occurs between approximately 10:00 and 11:00 PM. Only two existing intersections are assessed for post-game conditions (Kingsway at Third Avenue; Kingsway at Levesque Street), and traffic volumes during that hour were collected as part of the extended traffic surveys at both of those intersections.

Figure 3 illustrates the intersection turning movement volumes during the weekday PM peak hour and the Saturday peak hour. *Figure 4* illustrates the Friday pre- and post-game turning movement volumes.

Figure 3: Existing Weekday PM / Saturday Midday Peak Hour Intersection Traffic Volumes

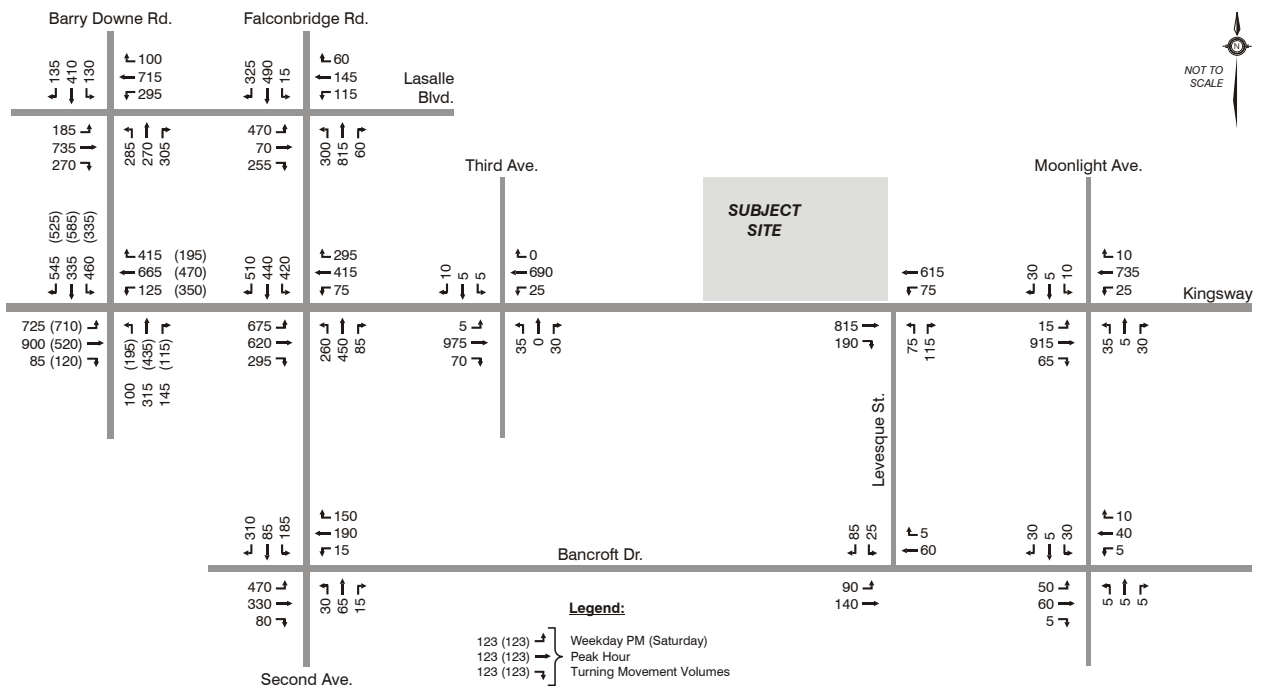
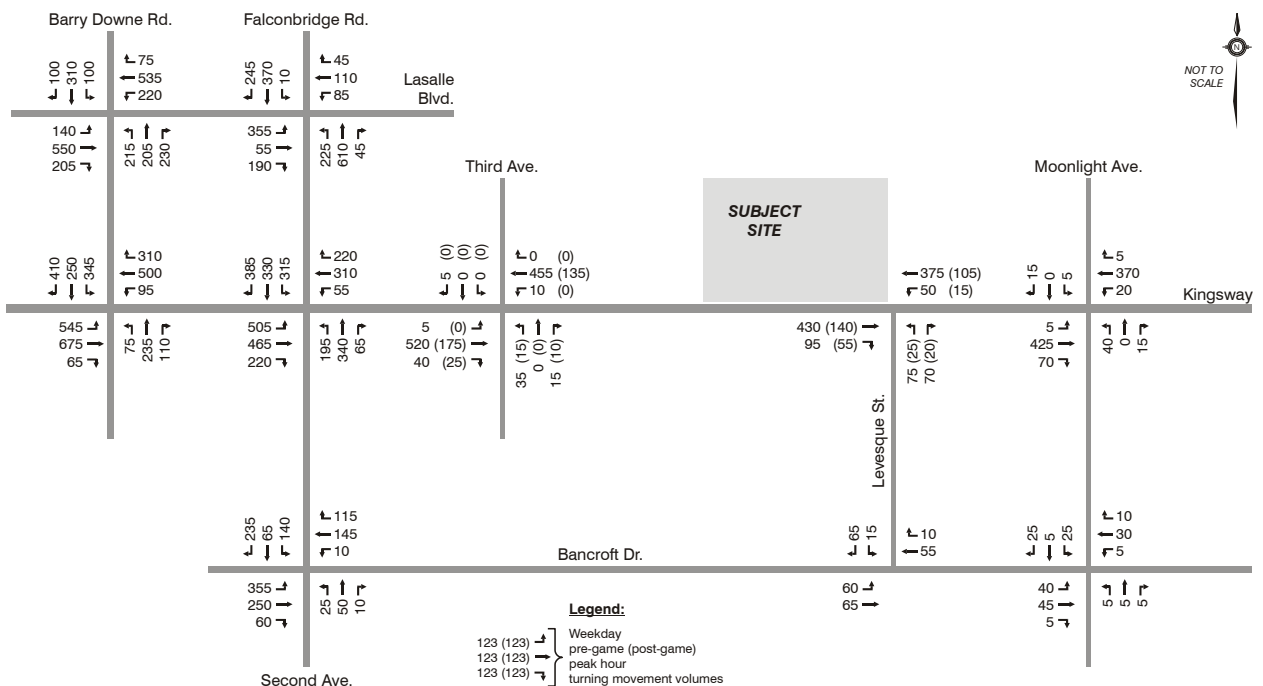


Figure 4: Existing Friday Pre-Game / Post-Game Peak Hour Intersection Traffic Volumes



2.4 Existing Intersection Operations

Existing peak hour operations were based on the methodology outlined in the *Highway Capacity Manual* (HCM), 2000 edition, facilitated using Synchro analysis software. Existing lane configurations and traffic signal timings were applied. At each signalized intersection, the overall level of service¹ and average vehicle delay were noted. In addition, any critical movements² were identified, along with their volume-to-capacity ratio, level of service, average delay and 95th percentile queue. At unsignalized intersections, operational measures were noted for all stop-controlled movements, and for the intersection overall (all-way stop controlled intersections only). Analysis worksheets are provided in *Appendix C*.

Table 2 summarizes the signalized intersection operations under existing peak hour traffic volumes.

The signalized intersections in the west end of the study area (from Falconbridge Road / Second Avenue and to the west) are operating at a reasonable overall level of service (LOS C to D), although with several critical movements. Most of the critical movements at these intersections are fully protected left turns that are experiencing high levels of delay and thereby operate at LOS E or F. Movements operating at 95% of capacity or higher during the PM peak hour are the northbound left turn at Lasalle Boulevard and Barry Downe Road; and the southbound left turn at the Kingsway and Barry Downe Road. Other movements operate within capacity but may be identified as being critical due to LOS / delay constraints, or due to queues extending beyond available storage.

The signalized intersections east of Falconbridge Road are operating at good levels of service (LOS A) with no critical movements.

¹ Level of Service (LOS), applied to an intersection, is a measure qualifying the amount of delay experienced by motorists, expressed either for specific turning movements or for the intersection as a whole. A more detailed explanation of LOS is provided in *Appendix B*.

² For this assessment, critical movements have been defined as any through movement operating at a v/c ratio of 0.85 or greater; any dedicated turning lane operating at a v/c ratio of 0.85 or greater; any movement operating at LOS E or F; and any turning movement where the calculated 95th percentile queue exceeds the available storage length.

Table 2: Existing Peak Hour Signalized Intersection Operations

Intersection	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour							
Lasalle Blvd. at Barry Downe Rd.	D	48.1	EB left	0.76	E	68.2	71
			WB left	0.91	E	77.6	126
			NB left	0.96	F	90.8	131
			SB left	0.65	E	64.0	51
Lasalle Blvd. at Falconbridge Rd.	C	27.8	EB left	0.90	D	46.1	171
			SB right	0.58	B	11.7	37
Kingsway at Barry Downe Rd.	D	43.1	EB left	0.86	D	54.3	130
			WB left	0.72	E	77.5	69
			NB left	0.42	E	62.4	25
			NB through	0.68	E	59.0	66
			NB right	0.68	E	68.7	68
			SB left	0.98	F	89.4	121
Kingsway at Falconbridge Rd.	D	37.4	EB left	0.88	E	57.5	134
			WB left	0.50	E	62.0	35
			NB left	0.67	E	57.9	49
			SB left	0.80	E	58.3	79
Kingsway at Third Ave.	A	7.5	N/A	—	—	—	—
Kingsway at Levesque St.	A	8.6	N/A	—	—	—	—
Kingsway at Moonlight Ave.	A	9.1	N/A	—	—	—	—
Bancroft Dr. at Second Ave.	C	25.5	EB left	0.94	D	44.2	125
			SB right	0.50	B	10.3	37
Pre-game peak hour							
Lasalle Blvd. at Barry Downe Rd.	D	38.1	EB left	0.65	E	55.5	53
			WB left	0.80	E	61.7	89
			NB left	0.89	E	78.7	105
			SB left	0.58	E	57.0	42
Lasalle Blvd. at Falconbridge Rd.	C	23.5	N/A	—	—	—	—
Kingsway at Barry Downe Rd.	C	32.7	WB left	0.54	E	57.9	45
			NB right	0.53	D	52.7	49
Kingsway at Falconbridge Rd.	C	31.4	N/A	—	—	—	—
Kingsway at Third Ave.	A	5.4	N/A	—	—	—	—
Kingsway at Levesque St.	A	7.9	N/A	—	—	—	—
Kingsway at Moonlight Ave.	A	7.4	N/A	—	—	—	—
Bancroft Dr. at Second Ave.	C	21.5	N/A	—	—	—	—
Post-game peak hour							
Kingsway at Third Ave.	A	3.6	N/A	—	—	—	—
Kingsway at Levesque St.	A	4.8	N/A	—	—	—	—

Table 2: Existing Peak Hour Signalized Intersection Operations (cont'd)

Intersection	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Saturday peak hour							
Kingsway at Barry Downe Rd.	D	42.2	WB left	1.03	F	101	179
			NB left	0.53	D	52.6	38
			NB right	0.40	D	46.7	48

Table 3 summarizes the unsignalized intersection operations under existing peak hour traffic volumes.

Table 3: Existing Peak Hour Unsignalized Intersection Operations

Intersection	Overall		Individual movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour							
Bancroft Dr. at Levesque St.	[n/a]	[n/a]	SB approach	0.16	B	10.2	5
Bancroft Dr. at Moonlight Ave.	A	7.8	EB approach	0.17	A	8.0	[n/a]
			WB approach	0.07	A	7.5	
			NB approach	0.02	A	7.4	
			SB approach	0.09	A	7.7	
Pre-game peak hour							
Bancroft Dr. at Levesque St.	[n/a]	[n/a]	SB approach	0.10	A	9.4	2.7
Bancroft Dr. at Moonlight Ave.	A	7.6	EB approach	0.13	A	7.8	[n/a]
			WB approach	0.06	A	7.4	
			NB approach	0.02	A	7.3	
			SB approach	0.08	A	7.5	

The two unsignalized intersections in the study area currently operate at a good level of service (LOS A) during the PM and pre-game peak hours, and well under capacity.

3.0 Future Background Conditions

3.1 Future Background Transportation Network Changes

The *Sudbury Transportation Master Plan* (TMP) was completed in December 2016. It identifies the following future road network modifications in the vicinity of the subject site:

- An extension of Levesque Street / Street C northerly to Lasalle Boulevard via Elisabella Street;
- An east-west connection from Street C westerly to Falconbridge Road and Auger Avenue; and
- A bypass road extending northerly from the Highway 17 bypass to Maley Drive.

All three roads are identified as “potential roads for future consideration (after 2031).” These additional road links would provide alternate access routes to and from the site, decreasing site traffic pressure on the Kingsway. They could also disperse some background trips away from congested intersections in the western part of the study area. However, given that the timing of construction for any of these links is uncertain and likely beyond the study horizon, they were not considered in the analyses.

A cycling and pedestrian master plan is included as a subset of the overall TMP. The master plan does not specifically identify any pedestrian or cyclist infrastructure within the vicinity of the site, other than the bicycle lanes already existing on Bancroft Drive.

In addition to the measures identified in the TMP, Sudbury Transit is in the process of completing a review of its transit system. While the study is not yet completed, it is understood that part of the new system route concept will include adjustments to an existing route to provide direct service to the site. This route would operate with a minimum of 60-minute headways, potentially served by 30-minute headways during peak periods.

3.2 Future Background Traffic Volumes

Future growth in traffic volumes under background conditions (i.e., without the subject development in place) is typically made up of two components:

- General background traffic growth as a result of changes in conditions or growth elsewhere in the region; and
- Traffic generated by other background developments in the vicinity of the site.

In this case, there were no other background developments known that would substantially affect traffic volumes in the study area. Accordingly, background traffic volumes were projected by applying an annual growth rate of 1.5% per year, established based on discussions with City staff. By comparison, the traffic modeling undertaken for the TMP identified a total growth of 12% in trips within the Sudbury urban area between 2011 and 2031, and a total growth of 14% in trips between Sudbury and Nickel Centre. As such, the growth rates applied in this study can be considered to be conservatively high.

Future background volumes are presented in the following figures:

- **Figure 5** illustrates weekday PM and Saturday peak hour volumes; and
- **Figure 6** illustrates weekday pre-game / post-game peak hour volumes.

Figure 5: Future Background (2022) Intersection Volumes, Weekday PM / Saturday Peak Hour

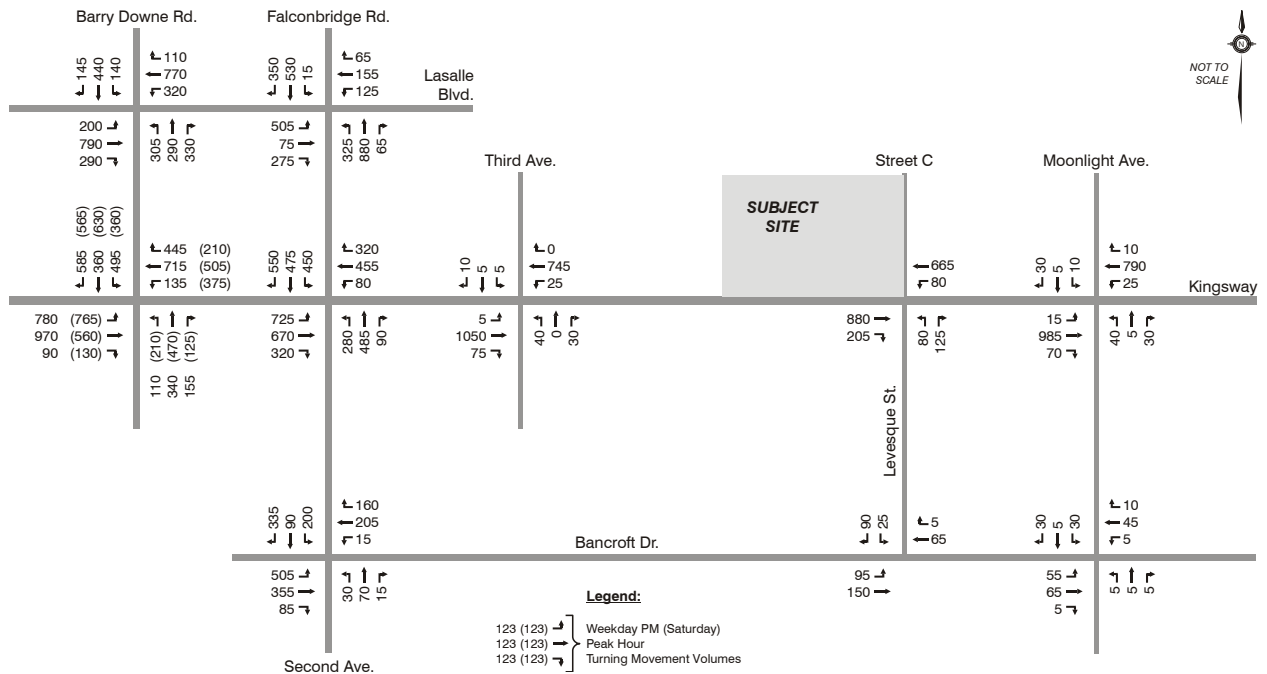
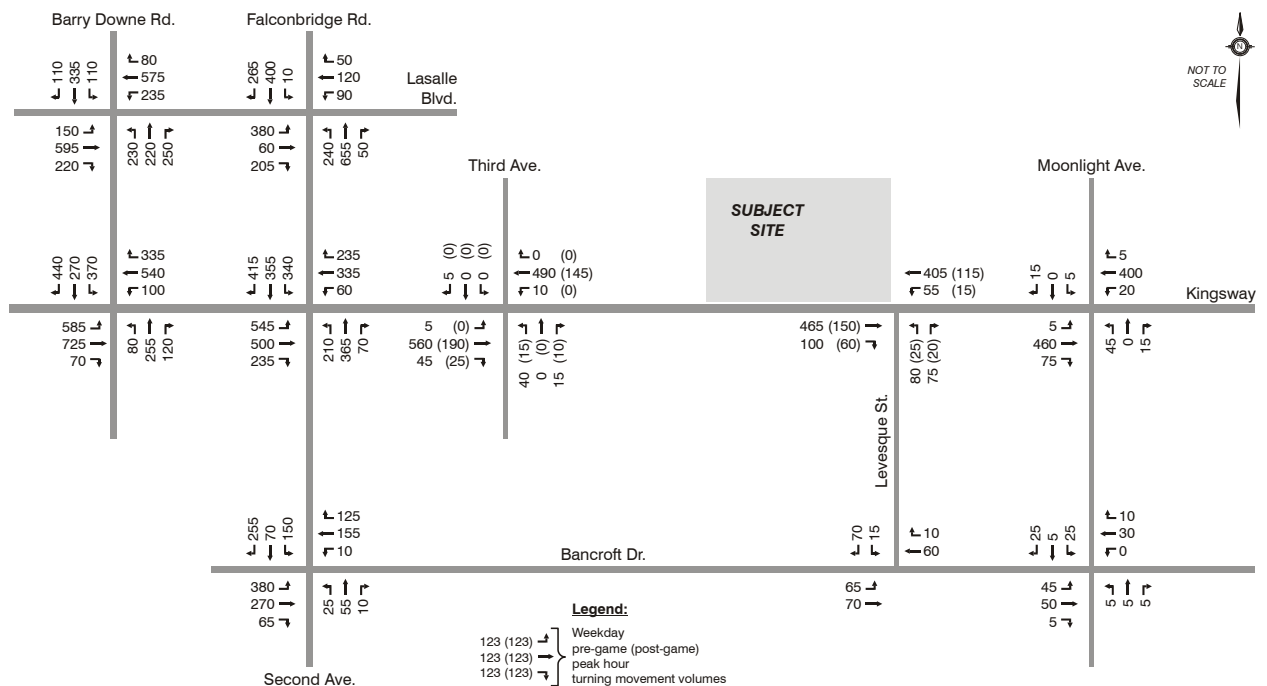


Figure 6: Future Background (2022) Intersection Volumes, Pre-Game / Post-Game Peak Hour



3.3 Future Background Intersection Operations

Future background intersection operations were assessed using the same methodology as the existing conditions analyses. Existing signal timings and lane configurations were applied to all analyses except as described otherwise.

3.3.1 Lasalle Boulevard at Barry Downe Road

Table 4 summarizes the PM and pre-game peak hour intersection operations at Lasalle Boulevard and Barry Downe Road under future background conditions.

Table 4: Future Background Peak Hour Intersection Operations, Lasalle Boulevard at Barry Downe Road

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	D	53.3	EB left	0.80	E	71.4	80
			EB through	0.88	D	54.3	136
			WB left	0.96	F	86.5	141
			WB through	0.85	D	47.5	153
			NB left	1.04	F	112.2	143
			SB left	0.67	E	64.8	54
			SB through	0.88	E	58.6	101
Pre-game peak hour	D	40.7	EB left	0.67	E	57.1	56
			WB left	0.83	E	64.9	97
			NB left	0.97	F	94.6	113
			SB left	0.62	E	58.8	45

Under future background volumes, the intersection of Lasalle Boulevard and Barry Downe Road is projected operate at LOS D during the PM peak hour. The left turn movements are all identified as critical due to a combination of capacity limitations, level of service / delay, and/or storage limitations. The eastbound, westbound and southbound through movements are also identified as critical on the basis of their v/c ratios and/or levels of service. Notwithstanding, nearly all movements are anticipated to operate within capacity (the northbound left turn is expected to be slightly above capacity).

During the pre-game peak hour, the intersection is expected to operate at LOS D. The northbound left turn is expected to be near capacity and at LOS F, while the other left turn movements are expected to be within capacity but operating at LOS E due to delays associated with the fully protected left turn signal phases.

All left turn movements at this intersection currently operate under fully protected phasing. For left turn movements operating in single lanes, protected / permissive phasing typically results in lower delays and higher capacity, since left-turning motorists can continue to make use of gaps in oncoming traffic once the protected phase has concluded, and because one to two additional vehicles can turn during the

amber and all-red intervals. An initial review of protected / permissive left turn phasing indicated potential to reduce delays and address critical movements. However, City of Greater Sudbury staff have indicated that the fully protected phasing was specifically implemented to address a collision pattern at this intersection, and as such it is recommended that the existing fully protected left turn phases be retained.

The potential for other signal timing adjustments was reviewed. During the PM peak hour, no timing adjustments were recommended, because changes to increase capacity on the northbound and westbound left turn movements would adversely affect other critical movements (southbound and eastbound through movements), and because the only capacity deficiency is relatively minor (approximately 15 vph on the northbound left turn). During the pre-game peak hour, there is more flexibility to adjust the off-peak timing plan, and a scenario was tested that increases the northbound left turn phase by 5 seconds and reduces the southbound phase by 2 seconds (to the minimum required for pedestrian crossings). The intersection operations with these timing adjustments in place are summarized in *Table 5*.

Table 5: Future Background Peak Hour Intersection Operations, Lasalle Boulevard at Barry Downe Road (Protected / Permissive Left Turns)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Pre-game peak hour	D	40.6	EB left	0.68	E	59.5	58
			WB left	0.84	E	69.0	101
			NB left	0.84	E	68.4	98
			SB left	0.62	E	61.3	47

The timing adjustments would not affect the overall intersection delay or level of service, but would allow the northbound left turn phase to operate at less than 85% of capacity without substantial adverse impacts to other movements.

3.3.2 Lasalle Boulevard at Falconbridge Road

Table 6 summarizes the Friday PM and pre-game peak hour intersection operations at Lasalle Boulevard and Falconbridge Road under future background conditions.

Table 6: Future Background Peak Hour Intersection Operations, Lasalle Boulevard at Falconbridge Road

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	33.0	EB left SB right	1.03 0.61	E B	74.2 13.5	208 45
Pre-game peak hour	C	23.6	N/A	—	—	—	—

Under future background volumes, the intersection of Lasalle Boulevard and Falconbridge Road is projected to continue operating at a reasonable level of service (LOS C) during both peak hours. The eastbound left turn movement is expected to be slightly above capacity during the PM peak hour, operating at LOS E and with a 95th percentile queue extending beyond Diane Street. (Anecdotal evidence suggests that the capacity analysis may be understating capacity on the eastbound left turn, in which case the future background volumes may be able to operate within capacity.) The southbound right turn is also identified as critical due to storage limitations, but otherwise would operate at a reasonable level of service and within capacity.

The eastbound left turn is the highest-volume movement during the east-west phase. The eastbound and westbound through volumes are comparatively low. Similarly, pedestrian activity is also relatively low (fewer than 10 pedestrians per hour per crosswalk, and typically in the order of 5 or fewer). Two signal timing adjustments were tested:

- Increasing the eastbound left turn phase length by 10 seconds to 32 seconds; and
- Decreasing the east-west through green interval to 15 seconds. (The east-west phase would be extended to allow sufficient pedestrian crossing time when a pedestrian presses the push-button.)

The results of these adjustments are presented in Table 7.

Table 7: Future Background Peak Hour Intersection Operations, Lasalle Boulevard at Falconbridge Road (with Traffic Signal Adjustments)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	32.6	EB left NB left SB right	0.92 0.80 0.63	D C B	47.6 34.7 15.6	164 78 49
Pre-game peak hour	C	24.3	N/A	—	—	—	—

The timing adjustments would increase capacity on the eastbound left turn movement, but would also result in increased queue lengths on the northbound left turn and southbound right turn movements. Consideration could be given to implementing adjustments on a trial basis and monitoring the effects of those adjustments on key movements.

3.3.3 Kingsway at Barry Downe Road

Table 8 summarizes the peak hour intersection operations at the Kingsway and Barry Downe Road under future background conditions.

Table 8: Future Background Peak Hour Intersection Operations, Kingsway at Barry Downe Road

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	D	49.0	EB left	0.89	E	58.1	142
			WB left	0.78	F	85.5	77
			NB left	0.46	E	65.0	27
			NB through	0.73	E	63.1	71
			NB right	0.73	E	73.5	76
			SB left	1.11	F	125.6	133
Pre-game peak hour	C	34.9	WB left	0.59	E	63.2	50
			NB left	0.34	E	55.5	21
			NB right	0.58	E	57.6	56
			SB left	0.74	E	55.0	87
Saturday peak hour	D	48.0	WB left	1.17	F	144.7	202
			NB left	0.56	E	55.5	41
			NB right	0.44	D	50.4	54
			SB left	0.71	E	55.2	66

Under future background volumes, the intersection of the Kingsway and Barry Downe Road is projected to operate at LOS D during the PM peak hour. The southbound left turn is projected to be 11% above capacity; all left turn movements are critical based on level of service, in addition to the northbound through and right turn movements. The southbound left turn and northbound right turn will exceed the available storage.

During the pre-game peak hour, the intersection is projected to operate at LOS C. All movements are projected to operate within capacity, although most left turn movements and the northbound right turn are expected to operate at LOS E, and the northbound right turn queue is expected to exceed the available storage.

During the Saturday peak hour, the intersection is projected to operate at LOS D. The primary capacity constraint is the westbound left turn movement, which is currently at capacity and thus would exceed capacity with further traffic growth, and which is also projected to substantially exceed its available

storage capacity. Similar to the other peak hours, most left turn movements and the northbound right turn are expected to operate at LOS E, and the northbound right turn queue is expected to exceed the available storage.

Signal timing adjustments were reviewed to determine whether opportunities may exist to increase capacity on key movements — in particular, the left turn movements leading to and from the north (eastbound and southbound left turns).

A typical mitigation strategy would be to increase the length of certain phases. In this case, the traffic signals already have a long cycle (close to 140 seconds) to accommodate high-volume left turn movements. Additional green time on the southbound left turn phase would also be counter-productive beyond 24 seconds, because the southbound left turn storage can only accommodate 10 to 12 vehicles per lane before reducing to a single lane. Similarly, the westbound left turn phase would experience reduced efficiency beyond 24 seconds of green (12 vehicles that can be stored within the left turn lane). The timing changes assumed for mitigation purposes reflect those constraints, and are as follows:

- Southbound left turn phase increased by 3 seconds (20 seconds of green time);
- Westbound left turn phase increased by 10 seconds (24 seconds of green time); and
- Eastbound left turn phase decreased by 5 seconds..

Two other adjustments are suggested to improve the efficiency of the intersection:

- The gap and extension times for the eastbound and westbound phases are currently set at 5 seconds; consideration should be given to reducing the gap times (e.g., to 3.6 seconds) to allow for more responsive turnover to subsequent phases.
- The northbound right turn movement currently has a signed “no right turn on red” prohibition. This means that right-turning motorists queued in the northbound right turn lane are legally not permitted to proceed during the overlapping westbound left turn phase. Consideration should be given to replacing the northbound signal heads to allow for an overlapping northbound right turn phase concurrent with the westbound left turn phase.

Consideration was also given to the potential of implementing a dual westbound left turn lane; however, the feasibility of this change would be limited by geometric constraints (e.g., the turning paths for the eastbound and westbound left turn movements would overlap; the median on the east leg is not wide enough to accommodate a second left turn lane).

The effects of the modifications outlined above are summarized in *Table 9*.

Table 9: Future Background Peak Hour Intersection Operations, Kingsway at Barry Downe Road (with Traffic Signal Adjustments)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	D	45.1	EB left	0.92	E	62.7	161
			WB left	0.67	E	70.8	61
			NB left	0.46	E	64.4	27
			NB through	0.73	E	62.9	70
			SB left	0.95	F	81.7	119
Pre-game peak hour	C	34.1	WB left	0.55	E	58.3	48
Saturday peak hour	D	42.6	EB left	0.85	D	49.6	124
			WB left	0.90	E	70.2	171
			NB left	0.57	E	55.9	40
			NB through	0.78	E	55.8	93
			SB left	0.72	E	55.7	64

The traffic signal modifications would result in reduced overall intersection delay, and would improve conditions for most critical movements while still maintaining reasonable operations for other conflicting movements. Most left turn movements would continue to operate at LOS E, primarily as a function of a long cycle length and fully protected left turn phasing.

The westbound left turn queue is still projected exceed the available storage length during the Saturday peak hour (although the queue would be reduced compared to the unmitigated scenario). This condition reflects growth on a movement that primarily consists of traffic destined to the adjacent commercial areas. Although this will continue to be a constrained movement, there are other streets available to accommodate growth to this commercial area (Second Avenue; Silver Hills Drive).

3.3.4 Kingsway at Falconbridge Road

Table 10 summarizes the peak hour intersection operations at the Kingsway and Falconbridge Road under future background conditions.

Table 10: Future Background Peak Hour Intersection Operations, Kingsway at Falconbridge Road

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	D	41.3	EB left	0.98	E	73.3	151
			WB left	0.52	E	63.5	37
			NB left	0.72	E	61.1	53
			SB left	0.84	E	62.7	89
Pre-game peak hour	C	33.2	WB Left	0.44	E	56.8	30

Under future background traffic volumes, the intersection of the Kingsway and Falconbridge Road is projected to operate at a reasonable level of service (LOS D) during the PM peak hour. All left turn movements are identified as being critical based on reaching LOS E, but only the eastbound left turn is anticipated to be near or at capacity.

During the pre-game peak hour, the intersection is projected to operate at LOS C; the only critical movement is the westbound left turn, based on reaching LOS E.

The following signal timing adjustments were tested as mitigation for the left turn movements:

- The eastbound and southbound left turn phase lengths were increased slightly to their practical maximums based on the available storage length (28 seconds of eastbound left turn green time; 24 seconds of southbound left turn green time).
- The through phase lengths were reduced to the minimum required for pedestrian signal timings, since the through movements were generally found to be well under capacity.

In addition, the eastbound and westbound gap / extension intervals were reduced to 3.6 seconds for more responsive turnover (similar to at the Kingsway and Barry Downe Road).

Table 11 summarizes the peak hour future background intersection operations at the Kingsway and Falconbridge Road with the signal timing adjustments outlined above.

Table 11: Future Background Peak Hour Intersection Operations, Kingsway at Falconbridge Road (with Traffic Signal Adjustments)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	D	39.9	EB left	0.91	E	61.0	141
			WB left	0.53	E	65.4	37
			NB left	0.72	E	62.5	54
			SB left	0.80	E	58.2	79
Pre-game peak hour	C	33.4	WB left	0.45	E	58.1	31

The signal timing adjustments would have little impact during the pre-game peak hour, but during the PM peak hour they would reduce delays for the intersection and would increase capacity and decrease queue lengths on the high-volume eastbound and southbound left turn movements.

3.3.5 Kingsway at Third Avenue

Table 12 summarizes the peak hour intersection operations at the Kingsway and Third Avenue under future background conditions.

Table 12: Future Background Peak Hour Intersection Operations, Kingsway at Third Avenue

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	A	7.4	N/A	—	—	—	—
Pre-game peak hour	A	6.4	N/A	—	—	—	—
Post-game peak hour	A	3.1	N/A	—	—	—	—

Under future background traffic volumes, the intersection of the Kingsway and Third Avenue is projected to continue operating at a good level of service (LOS A) with no critical movements during all peak hours.

3.3.6 Kingsway at Levesque Street

Table 13 summarizes the peak hour intersection operations at the Kingsway and Levesque Street under future background conditions.

Table 13: Future Background Peak Hour Intersection Operations, Kingsway at Levesque Street

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	A	9.0	NB left	0.40	C	29.8	21
Pre-game peak hour	A	8.1	NB left	0.42	C	29.5	22
Post-game peak hour	A	4.7	—	—	—	—	—

Under future background traffic volumes, the intersection of the Kingsway and Levesque Street is projected to continue operating at a good level of service (LOS A to B) during all peak hours. The northbound left turn queue is projected to exceed the designated storage length of 15 metres during the PM and pre-game peak hours; however, the northbound portion of the roadway is wide enough to accommodate two lanes of traffic for approximately 35 metres, which can accommodate the projected queues.

3.3.7 Kingsway at Moonlight Avenue

Table 14 summarizes the peak hour intersection operations at the Kingsway and Moonlight Avenue under future background conditions.

Table 14: Future Background Peak Hour Intersection Operations, Kingsway at Moonlight Avenue

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	A	9.2	N/A	—	—	—	—
Pre-game peak hour	A	7.6	N/A	—	—	—	—

Under future background volumes, the intersection of the Kingsway and Moonlight Avenue is projected to continue operating at a good level of service (LOS A) during both peak hours.

3.3.8 Bancroft Drive at Second Avenue

Table 15 summarizes the Friday pre-game peak hour intersection operations at Bancroft Drive and Second Avenue under future background conditions.

Table 15: Future Background Peak Hour Intersection Operations, Bancroft Drive at Second Avenue

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	33.4	EB left	1.05	E	72.8	154
			SB right	0.54	B	11.7	44
Pre-game peak hour	C	21.0	EB left	0.94	D	45.4	90

Under future background volumes, the intersection of Bancroft Drive and Second Avenue is projected to continue operating at a reasonable level of service (LOS C) during the PM peak hour. The primary constraint at this intersection is the eastbound left turn, which is expected to exceed capacity by 5%, operating at LOS E and with a queue exceeding the available storage. The southbound right turn is also identified as being critical due to its queue exceeding the available storage, but is expected to operate at a good level of service and within capacity.

During the pre-game peak hour, the intersection is expected to operate at LOS C. The eastbound left turn is also expected to be critical, but operating within capacity.

Signal timing adjustments were considered as a means of increasing capacity on the eastbound left turn movement. The following changes were made:

- The eastbound left turn phase was increased by 4 seconds (16 seconds of green time); and
- The southbound left turn phase was decreased by 5 seconds (7 seconds of green time).

Table 16 summarizes the peak hour future background intersection operations at Bancroft Drive and Second Avenue with the signal timing adjustments outlined above.

Table 16: Future Background Peak Hour Intersection Operations, Bancroft Drive at Second Avenue (with Traffic Signal Adjustments)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	25.4	EB left SB right	0.90 0.61	C B	32.6 15.2	118 50
Pre-game peak hour	C	21.8	SB right	0.57	B	13.4	31

The proposed signal timing adjustments would increase capacity and reduce delays on the eastbound left turn movement, and would have a neutral to positive impact on overall intersection delays.

3.3.9 Bancroft Drive at Levesque Street

Table 17 summarizes the peak hour intersection operations at Bancroft Drive and Levesque Street under future background conditions.

Table 17: Future Background Peak Hour Intersection Operations, Bancroft Drive at Levesque Street

Peak hour	Individual movements				
	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	SB approach	0.17	B	10.3	5
Pre-game peak hour	SB approach	0.11	A	9.4	3

Under future background volumes, the stop-controlled southbound approach at Bancroft Drive and Levesque Street is projected to continue operating at a good level of service (LOS A to B) and well within capacity during both peak hours.

3.3.10 Bancroft Drive at Moonlight Avenue

Table 18 summarizes the peak hour intersection operations at Bancroft Drive and Moonlight Avenue under future background conditions.

Table 18: Future Background Peak Hour Intersection Operations, Bancroft Drive at Moonlight Avenue

Peak hour	Overall		Individual movements			
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)
PM peak hour	A	7.9	EB approach	0.17	A	8.1
			WB approach	0.08	A	7.5
			NB approach	0.02	A	7.4
			SB approach	0.09	A	7.7
Pre-game peak hour	A	7.7	EB approach	0.15	A	7.9
			WB approach	0.06	A	7.4
			NB approach	0.02	A	7.3
			SB approach	0.08	A	7.6

Under future background volumes, the intersection of Bancroft Drive and Moonlight Avenue is projected to continue operating at a good level of service (LOS A) and well within capacity on all approaches during both peak hours.

4.0 Site Traffic and Parking Generation

4.1 Trip Generation

The amount of traffic that will be generated by the site was estimated from a combination of sources:

- Trip generation and auto occupancy surveys undertaken at existing sites;
- Trip generation equations published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual* (9th edition); and
- First principles calculations based on anticipated site operations.

4.1.1 Arena

Trips generated by the arena were calculated from first principles.

Typically the doors will open one hour prior to the start of a game (or other event). The majority of spectators are projected to arrive within this one-hour period. Prior analyses undertaken by WSP Canada in June 2017 (i.e., the traffic report undertaken during the site selection process) assumed 88% (seven-eighths) of traffic would arrive within this one-hour period, with the remainder arriving either before this period or after it (i.e., arriving late). This figure was compared against typical arrival and departure patterns published by ITE in *Traffic Considerations for Special Events*, which indicated approximately 79% of traffic would arrive within the peak hour (see breakdown by 10-minute intervals shown in *Table 19*). The lower 79% figure has been applied to the analyses, reflecting the greater potential for restaurants and other amenities to draw event goers to the site ahead of time as the business park develops.

Following the conclusion of a game or event, all spectators are assumed to depart within a one-hour period.

An auto occupancy of 2.19 spectators per vehicle has been applied. This occupancy level was determined through surveys undertaken by City staff prior to the start of two Wolves games in 2017 (Friday, September 29; Sunday, October 1). The survey results are summarized in *Table 20*.

Table 19: Temporal Distribution of Attendees Arriving At / Departing From Special Events

Time before event (minutes)	Proportion of attendees arriving in interval	Time after event (minutes)	Proportion of attendees departing in interval
110–100	4%	0–10	19%
100–90	4%	10–20	11%
90–80	4%	20–30	25%
80–70	4%	30–40	25%
70–60	5%	40–50	10%
60–50	7%	50–60	6%
50–40	10%	60–70	4%
40–30	15%		
30–20	17%		
20–10	16%		
10–0	14%		
Peak hour	79%	Peak hour	96%

Source: Traffic Considerations for Special Events, ITE, 1976. Data published in "Traffic Impact Study of the Arena / Convention Center and Downtown Events Center Sites." City of Sioux Falls Traffic Engineering, April 2011.

Table 20: Auto Occupancy Survey Results at 2017 Sudbury Wolves Games

Auto occupancy	Number of vehicles	
	Friday	Sunday
1 spectator	41	32
2 spectators	75	50
3 spectators	27	19
4 spectators	12	16
5 spectators	7	1
Total vehicles	162	118
Total spectators	355	258
Avg. spectators/vehicle	2.19	2.19

An adjustment was made to account for trips made by non-auto modes. Given the site's distance from the urban area, it is assumed that the majority of non-auto trips will be made by transit. For an estimate of the potential level of transit ridership, modal split data from the most recent census were reviewed (the 2011 National Household Survey). Over the Sudbury Census Metropolitan Area, 4.5% of respondents reported commuting to work via public transit in the 2011 NHS; in the 2006 census, the percentage was 5.2%. The modal split varies within the City; the central portion of the city experiences transit modal splits of 10% or more, whereas the modal split in the eastern part of the city is generally closer to 5%. It was assumed that 5% of spectators would travel to and from the site via public transit.

It is possible that some spectators may be dropped off prior to the start of an event and then picked up afterward. No adjustment was made for this scenario. There would be no impact on the number of peak direction trips, although there could be an increase in the number of counter-peak direction trips. It was assumed that the proportion of pick-up and drop-off traffic would be low enough as to not substantially affect intersection operations.

The analyses assumed attendance equivalent to the seating capacity for a hockey game (5,800 seats). The capacity for concerts could be higher, potentially in the order of 6,500 spectators, depending on parameters such as the configuration of the stage and temporary seating on the arena floor. However, it was assumed that this type of event would be infrequent enough that the hockey capacity would govern the analyses.

Given that the analyses are based on a sold-out event at the arena, they can be considered to be conservative. As a check, historical attendance figures were reviewed at two levels:

- Attendance for all OHL teams in the 2016-17 season; and
- Attendance for the Wolves over the past six seasons.

Attendance figures were obtained for each game³ and sorted from highest to lowest attendance. The attendance data are illustrated graphically in *Appendix D*. The attendance data for the Wolves were reviewed as a percentage of the existing Sudbury Community Arena seating capacity, to illustrate the variability in attendance from one game to another and from one season to another. The attendance data for the other teams were reviewed both at an absolute level (to provide context as to how the proposed increased seating capacity at the new arena would compare to the existing attendance for other teams across the league) and at a percentage level (to determine the variability in attendance from one game to another).

Wolves games have typically drawn approximately 3,000 to 4,000 spectators over the past six seasons, or approximately 65–85% of the current arena's seating capacity. Approximately 25% of games in the 2011–12 through 2014–15 seasons attracted attendance in excess of this level, and typically 5–10% of games per season draw a capacity crowd.

Across the league, the majority of teams experienced typical attendance levels between 2,500 and 4,000 spectators per game for most of the 2016–17 season. Attendance in London and Kitchener was typically in the order of 7,000 per game or higher, and five other teams also had games with attendance levels of 5,800 or more (Windsor; Ottawa; Hamilton; Oshawa; Erie), but in most cases those higher-attendance games were only approximately 25% to 35% of the season, and attendance for the rest of the season was around 5,000 spectators per game or fewer.

³ All attendance figures obtained from *The Internet Hockey Database* (<http://www.hockeydb.com>).

Most teams have experienced levels of variation in game-to-game attendance similar to the pattern in Wolves attendance. Six teams experienced near-maximum attendance for at least one-third to one-half of the season (London, Kitchener, Niagara, Barrie, Oshawa, Owen Sound). The majority of teams (including the Wolves) experienced greater level of variability, with approximately 75% of games having attendance 85% or less of their highest-attendance game.

The review of historical Wolves and OHL attendance figures indicates that basing the analyses on a sold-out game can be considered conservative from two perspectives:

- Current Wolves attendance is typically in the range of 3,000 to 4,000 spectators, and most other OHL teams typically draw similar attendance levels; and
- Most teams draw 5 to 10 near-capacity crowds, but attendance at the majority of games is usually 85% of capacity or less.

Table 21 summarizes the number of vehicle trips generated by the arena before and after an event and outlines how those numbers were derived.

Table 21: Arena Trip Generation

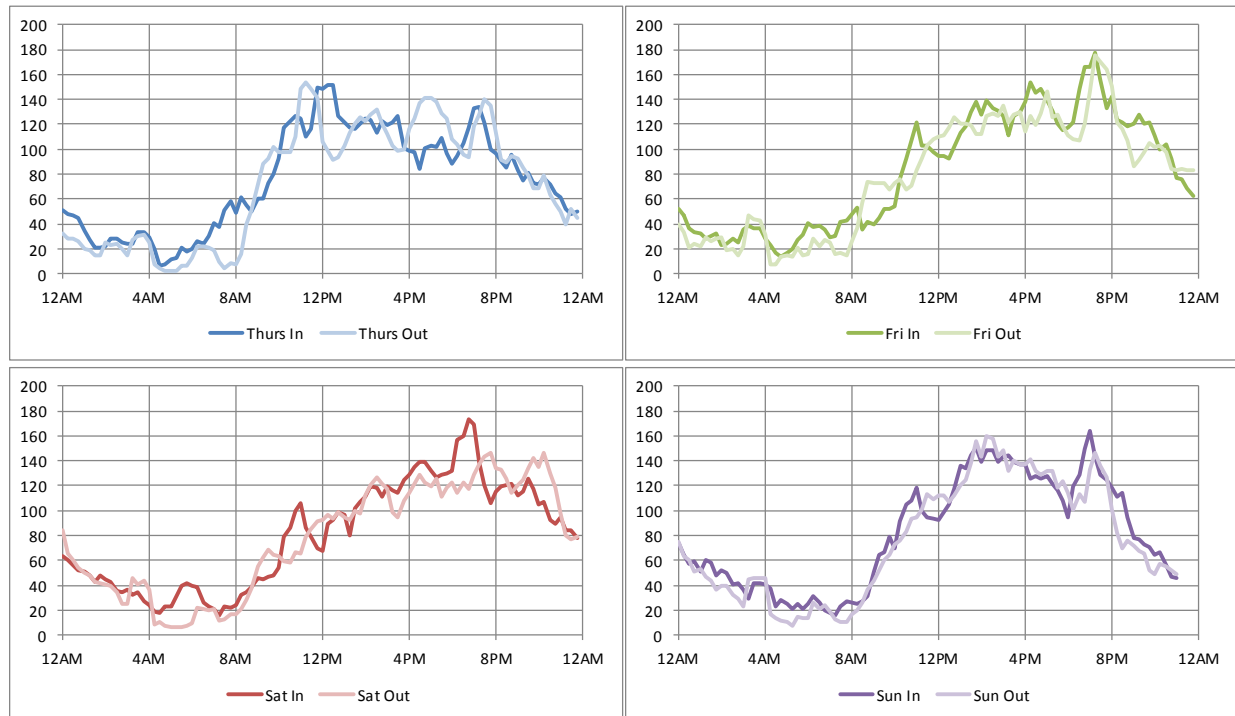
	Peak direction, peak hour trips	
	Pre-game inbound	Post-game outbound
Number of spectators	5,800	5,800
% traveling via transit	5%	5%
# traveling via transit	290	290
% traveling via auto	95%	95%
# traveling via auto	5,510	5,510
Average auto occupancy	2.19	2.19
# of auto trips	2,515	2,515
% traveling during peak hour	79%	100%
Peak hour auto trips	1,985	2,515

While the arena will primarily impact traffic volumes during the pre-game and post-game periods (or before and after other similar special events), the ice surface would likely be rented out for other purposes at other times (as is the case with the existing Sudbury Community Arena). It would therefore generate some traffic during the weekday PM and Saturday peak hours, although at a substantially lower level than pre- and post-game periods. The weekday PM and Saturday peak hour trip generation for the arena is discussed in *Section 4.1.4*.

4.1.2 Casino

Trip generation surveys were undertaken at the Point Edward Casino in Sarnia between Thursday, September 28 and Sunday, October 1, 2017. This site was selected as a comparable proxy to the proposed development, and includes 576 gaming positions (slot machines and table games) as well as restaurant space. The number of vehicles entering and exiting each parking lot was surveyed continuously over a four-day period using automatic traffic recorders (ATRs). **Figure 7** illustrates the variation in hourly traffic volumes entering and exiting the site throughout the survey period.

Figure 7: Variation in Surveyed Hourly Traffic Volumes at Point Edward Casino



Note: Curves illustrate hourly volumes in rolling 15-minute intervals.

The busiest one-hour interval was on Friday evening between 7:15 and 8:15, when a total of 353 vehicles entered and exited the site.

Trip generation rates were derived by correlating the number of trips with the number of gaming positions. Since the arena will govern traffic conditions on the approach routes on days when a game or other event is scheduled, trip generation rates were calculated for the pre-game and post-game peak hours rather than for the specific casino peak hours. At Point Edward, there are currently 576 gaming positions. Applying this number to the surveyed demand profile results in the following trip generation rates:

- 0.49 trips per gaming position during the weekday PM peak hour;
- 0.40 trips per gaming position during the weekday pre-game peak hour;
- 0.37 trips per gaming position during the weekday post-game peak hour; and
- 0.34 trips per gaming position during the Saturday midday peak hour.

Although the trip generation rates are correlated to the number of gaming positions on site, they also include trips generated by restaurant space within the casino.

Table 22 outlines the trip generation rates applied to the casino component of the site, and the resulting number of trips generated during each analysis hour.

Table 22: Casino Trip Generation

	Weekday PM peak hour			Weekday pre-game peak hour			Weekday post-game peak hour			Saturday peak hour		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Trip generation rate (trips per gaming position)	0.49	0.24	0.25	0.40	0.21	0.19	0.37	0.19	0.18	0.34	0.17	0.17
Trips generated (780 gaming positions)	380	185	195	310	160	150	290	150	140	265	135	130

4.1.3

Hotel

Trips were generated for the hotel based on ITE trip generation rates (ITE land use code 310) as follows:

- The ITE PM peak hour trip generation rate was assumed to be applicable to the weekday pre-game peak hour.
- The ITE Saturday peak hour trip generation rate was applied to the Saturday peak hour analyses.
- For the weekday post-game peak hour, no ITE data were available. Instead, it was assumed that the inbound peak hour trip generation rate would be one half of the PM peak hour inbound trip generation rate, and the number of outbound trips would be negligible.

Table 23 outlines the trip generation rates applied to the hotel component of the site, and the resulting number of trips generated during each analysis hour.

Table 23: Hotel Trip Generation

	Weekday PM and pre-game peak hours			Weekday post-game peak hour			Saturday peak hour		
	Total	In	Out	Total	In	Out	Total	In	Out
Trip generation rate (trips per room)	0.60	0.31	0.29	0.15	0.15	0.00	0.72	0.40	0.32
Trips generated (200 rooms)	120	60	60	30	30	0	145	80	65

4.1.4 Twin Pad Arena

As a subsequent development phase, consideration has been given to the potential for an additional twin pad arena on the subject lands. The site trip generation accounts for the twin pad arena being in place by the 2022 horizon.

For the PM peak hour, the City of Greater Sudbury provided a weekday PM peak period traffic count undertaken at the driveway to the Countryside Sports Complex twin pad arena as a comparable proxy site. The Countryside arenas generated 65 trips during the weekday PM peak hour (25 inbound trips and 40 outbound trips). A similar volume of traffic was applied to the twin pad arena within the subject site.

For other peak hours, the following assumptions and parameters were applied:

- There are two rinks, each of which will accommodate two teams;
- Each team will have 20 vehicles (including a small allowance for coaching staff and additional attendees);
- Ice time will be scheduled in one-hour increments (i.e., the analysis hour will include teams leaving from the preceding hour and teams arriving for the following hour);
- The weekday pre-game peak hour will include inbound trips generated from first principles, and 25 outbound trips (i.e., the inbound trips from the PM peak hour);
- The weekday post-game peak hour will include outbound trips but no inbound trips (no ice time scheduled after 11:00 PM);
- The Saturday peak hour will include both inbound and outbound trips.

On this basis, the twin pad arena will generate the following number of trips:

- 80 inbound trips and 25 outbound trips during the weekday pre-game peak hour;
- 80 outbound trips during the weekday post-game peak hour; and
- 80 inbound trips and 80 outbound trips during the Saturday peak hour.

Further, it is anticipated that the main arena would be rented at times when not required for a major event. City of Greater Sudbury staff indicated that similar assumptions about type and magnitude of use could be assumed as for the twin pad arena based on typical practice at the existing Sudbury Community Arena, although the volume would be reduced by half given that only one ice surface is available.

On this basis, the main arena would generate the following trips during non-event times:

- 15 inbound and 20 outbound trips during the weekday PM peak hour; and
- 40 inbound and 40 outbound trips during the Saturday peak hour.

4.1.5 Business Park

The remaining industrial subdivision blocks to the north and west of Street A and to the east of Street C are anticipated to eventually develop for a range of employment uses. However, the specific uses and timeline for development are unknown at this time and will be dependent on what the market will support. Given the uncertainty surrounding the eventual nature of the surrounding blocks, trips were generated based on rates for a generic business park rather than for more specific land uses. The ITE trip generation rates for business parks reflect larger sites containing multiple blocks and a range of employment uses, and therefore are a reasonably good representation of the subject lands.

The ITE trip generation data are presented in terms of trips generated during the full weekday; trips generated during the weekday PM peak hour (based on the peak hour on the surrounding street network); and trips generated during the Saturday peak hour. The weekday rates overstate traffic volumes generated by the business park during the weekday pre- and post-game peak hours, which will occur after the commuter peak hours. To derive traffic volumes generated during these off-peak hours, an hourly distribution of traffic for office uses (i.e., employment) published in the January 2015 edition of *ITE Journal* was referenced. The hourly distributions published in *ITE Journal* are reproduced in *Table 24*; the full article is presented in *Appendix E*.

Table 25 summarizes the trip generation rates estimated for the subject site during each analysis period and how they were derived.

Table 26 outlines the trip generation rates applied to the business park component of the site, and the resulting number of trips generated during each analysis hour.

Table 24: Typical Hourly Distribution of Trips Generated by Office Uses

Time	Average weekday		Average Saturday		Average Sunday	
	% of 24-hour entering traffic	% of 24-hour exiting traffic	% of 24-hour entering traffic	% of 24-hour exiting traffic	% of 24-hour entering traffic	% of 24-hour exiting traffic
6–7 a.m.	4.6	0.7	4.1	1.4	1.8	2.4
7–8 a.m.	14.9	1.9	5.4	2.5	3.8	1.2
8–9 a.m.	20.7	3	9.1	1.5	6	2.9
9–10 a.m.	8.2	3.2	7.2	3.9	6.6	3.8
10–11 a.m.	5	3.9	6.8	4.6	9.7	7.5
11–12 p.m.	5.1	8.6	7.1	11.3	8.9	9.6
12–1 p.m.	8.7	10.5	8.1	14	6.9	9.1
1–2 p.m.	10	6.6	7.3	8.3	8.6	12
2–3 p.m.	5.9	6.3	7.6	7.7	6.6	8.2
3–4 p.m.	4.3	9.5	6	9.6	4.6	6.3
4–5 p.m.	3.4	15.4	3.1	7.9	5.5	7.5
5–6 p.m.	2.5	16.5	3.2	6.9	3.1	6.7
6–7 p.m.	1.4	5.5	2.5	3.2	3.5	4.1
7–8 p.m.	0.9	2.5	2	2.2	2.7	2.9
8–9 p.m.	0.7	1.6	2.4	2.1	3.3	4.3
9–10 p.m.	0.6	1.1	1.4	1.4	3.1	3.1
10 p.m.–6 a.m.	3.2	3.2	16.9	11.4	15.3	8.4

Source: Aaron T. Zimmerman, PTP. "Hourly Variation in Trip Generation for Office and Residential Land Uses." ITE Journal, January 2015, pp. 20-22.

Table 25: Development of Business Park Peak Hour Trip Generation Rates

	Weekday PM peak hour			Weekday pre-game peak hour			Weekday post-game peak hour			Saturday peak hour		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
24-hour rate (Trip Generation Manual)	n/a			149.8	74.9	74.9	149.8	74.9	74.9	32.6	16.3	16.3
Design hour (ITE Journal)				6-7 PM			9-10 PM			Noon-1 PM		
% of traffic during design hour (ITE Journal)				3.5%	1.4%	5.5%	0.8%	0.5%	1.0%	11.1%	8.1%	14.0%
Design hour rate (calculated)*	16.84	3.37	13.47	5.17	1.05	4.12	1.12	0.37	0.75	3.60	1.32	2.28

Note: Trip generation rates presented as trips per acre (net of road rights-of-way and other undevelopable blocks).

*PM peak hour rates obtained from Trip Generation Manual; all other peak hour rates calculated.

Table 26: Business Park Trip Generation

	Weekday PM peak hour			Weekday pre-game peak hour			Weekday post-game peak hour			Saturday peak hour		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Trip generation rate (trips per acre)	16.84	3.37	13.47	5.17	1.05	4.12	1.12	0.37	0.75	3.60	1.32	2.28
Trips generated (93.67 acres)	1,575	315	1,260	485	100	385	105	35	70	340	125	215

4.1.6 Interaction Between Complementary Land Uses

It is anticipated that some of the trips generated by one use within the site may originate at another use also within the site. The following potential forms of interaction between complementary land uses were considered:

Business Park to Arena:

It was assumed that approximately 10% of event goers would be drawn from the surrounding business park. It was also assumed that approximately 10% of business park traffic would be diverted to the arena (including employees that would otherwise leave the study area prior to 6:00 PM, but remain on-site to attend a game or other event). Both types of interaction have been accounted for in a reduction in the pre-game peak hour trips generated by the business park (outbound) and by the arena (inbound).

Business Park to Casino:

It was assumed that approximately 5% of business park traffic would be destined to the casino. This interaction has been accounted for in a 5% reduction of outbound business park traffic during the PM and pre-game peak hours. A corresponding reduction has not been applied to inbound casino trips because it is assumed that the increase in daytime population within the study area would result in an increase in activity at the casino, rather than displacing other users.

Casino to Arena:

While it is expected that there will be interaction between these two uses, a reduction has not been applied because it is assumed that there would be additional activity at the casino on event nights. The casino and associated uses could result in event goers traveling to the study area prior to the pre-game peak hour; this has been accounted for explicitly in the arena trip generation forecasts.

4.1.7 Trip Generation Summary

Table 27 summarizes the number of trips generated by the subject site (including the surrounding business park).

Table 27: Trip Generation Summary

	Weekday PM peak hour			Weekday pre-game peak hour			Weekday post-game peak hour			Saturday peak hour		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Arena	35	15	20	1,985	1,985	0	2,515	0	2,515	80	40	40
Casino	380	185	195	310	160	150	290	150	140	265	135	130
Hotel	120	60	60	120	60	60	30	30	0	145	80	65
Twin pad arena	65	25	40	105	80	25	80	0	80	160	80	80
Business park	1,575	315	1,260	485	100	385	105	35	70	340	125	215
Subtotal:	2,175	600	1,575	3,005	2,385	620	3,020	215	2,805	990	460	530
<i>Interaction reductions:</i>												
Business park to arena	0	0	0	-75	0	-40	0	0	0	0	0	0
Arena from business park	0	0	0	-200	-200	0	0	0	0	0	0	0
Business park to casino	-65	0	-65	-40	0	-20	0	0	0	0	0	0
Total net site trips:	2,110	600	1,510	2,690	2,185	560	3,020	215	2,805	990	460	530

The site is anticipated to generate approximately 1,510 trips during a typical (non-event) PM peak hour; 2,690 trips in the hour before a Friday evening game; 3,020 trips in the hour following a Friday evening game; and 990 trips during the Saturday peak hour. These estimates are subject to change depending on the eventual land uses and magnitude of development in the business park.

4.2 Parking Generation

The anticipated parking requirements for the site were calculated for each use, and these requirements were then used to identify the approximate area required for parking lots within the site. The approximate location and size of these individual parking lots, along with the anticipated access points to Streets A and C, were then used to inform the assignment of vehicle trips entering and exiting the site from the Kingsway.

Parking requirements were determined through a review of the City's Zoning By-Law 2010-100Z ("the ZBL"), as well as through a first principles assessment.

4.2.1 Arena

Parking requirements for the arena were calculated from first principles using the same data from the trip generation calculations.

The analyses assumed attendance equivalent to the seating capacity for a hockey game (5,800 seats). The capacity for concerts could be higher, potentially in the order of 6,500 spectators, depending on parameters such as the configuration of the stage and temporary seating on the arena floor. However, it was assumed that this type of event would be infrequent enough that the hockey capacity would govern the analyses. As noted in *Section 4.1.1*, this is anticipated to represent a conservatively high level of attendance for a hockey game, since current Wolves attendance is typically in the area of 3,000 to 4,000 spectators per game, and typically only 25% of games per season experience attendance levels greater than 85% of seating capacity.

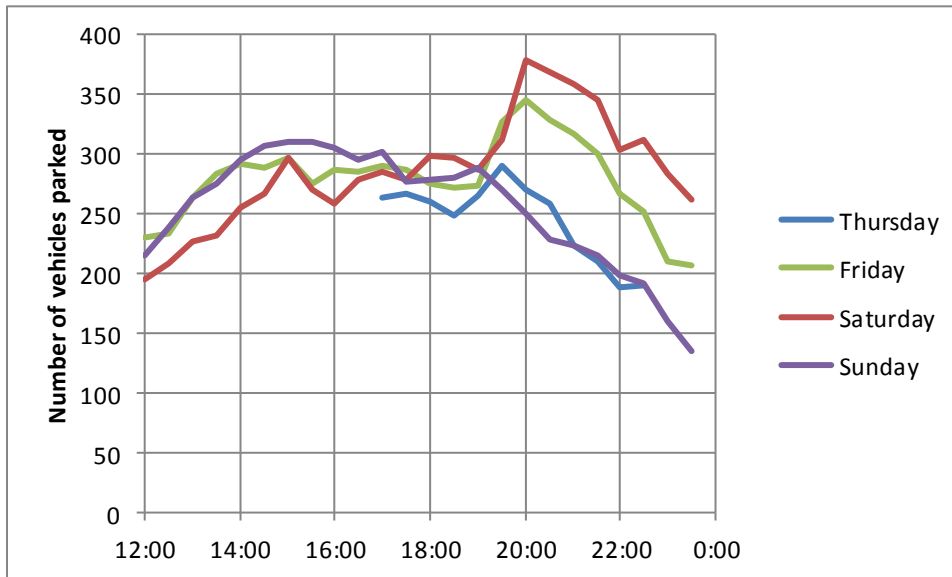
If 5% of spectators arrive via transit or other non-auto modes, and the average vehicle occupancy of the remaining trips is 2.19 spectators per vehicle, a capacity crowd would generate 2,515 vehicles. An additional allowance of 100 vehicles has been assumed to account for staff, for a total of 2,615 vehicles.

The parking requirements specified by the ZBL were also identified. The ZBL specifies a parking rate of 1 space per 6 persons of capacity for an arena (or stadium). The ZBL defines “capacity” as “the maximum capacity of any building or structure pertaining to such use, as determined by the Ontario Building Code, relevant fire safety regulations or, where applicable, the Liquor Licensing Board or Ontario or other public agency having jurisdiction, whichever capacity is the lesser.” For the purpose of this assessment, the capacity of the arena has been assumed to include additional temporary seats for a concert that would increase the number of attendees to 6,500, and that there would be a further 10% increase for staff (approximately 7,150 total). This would result in a parking requirement of 1,192 spaces. As such, the first principles assessment will govern the parking provision for the arena.

4.2.2 Casino

The ZBL does not specify a parking rate for a casino. A casino could be considered to be a “place of amusement,” with a parking rate of one space per 20 m² of net floor area. The net floor area is estimated to be 5,854 m² (including restaurant space within the casino), which would correspond to a parking requirement of 293 spaces under the ZBL.

To get a better understanding of the parking requirements specifically associated with a casino, a parking utilization study was undertaken at the Point Edward Casino in Sarnia at the same time as the trip generation surveys (discussed in *Section 4.1.2*). The total number of vehicles parked on site was counted every 30 minutes between noon and midnight on all four dates (except only between 5:00 and 11:00 PM on Thursday). The survey results are shown in *Figure 8*.

Figure 8: Parking Occupancy Survey Results, Point Edward Casino

Survey dates: Thursday, September 28 through Sunday, October 1, 2017

The peak parking demand was observed on Saturday evening at 8:00, when 379 vehicles were observed on the site. This is equivalent to 0.66 vehicles per gaming position. (Similar to the trip generation rates, while the parking generation rates are correlated to the number of gaming positions on site, they also include parking demand associated with restaurant space within the casino.)

On the subject site, Saturday evenings would not typically govern parking requirements, because the site would have a large surplus of spaces on dates when there are no events underway at the arena. Peak parking demand within the site overall would normally be experienced on Friday evening. The maximum parking demand observed at Point Edward on Friday evening was 345 vehicles at 8:00 PM, equivalent to 0.60 vehicles per gaming position.

The casino proposed at the subject site is anticipated to have a capacity of 780 gaming positions. If the Friday evening parking generation rate governs the casino parking supply, it would need a total supply of approximately 470 parking spaces. (By comparison, on Saturday evening the proposed casino would be expected to require 515 spaces.)

It is common for parking lots at larger commercial land uses to be designed for a maximum occupancy of 85% to 90% to make it easier for motorists to find vacant spaces when the lot is nearly full, particularly when vacant spaces may be dispersed throughout the parking area and considerable circulation through the lot would be required to find a vacant space. A parking supply of 520 to 550 spaces would allow for a vacancy rate of 10% to 15% at most times, and would accommodate the parking demand expected on Saturday evening with no vacancy (but with unused arena parking available for overflow).

4.2.3 Hotel

The ZBL specifies that a hotel requires one parking space per guest room, plus “one space per 10 m² of net floor area of any restaurant, dining room, lounge, tavern, banquet hall, meeting room, retail store or any other area, used to accommodate the public.”

The proposed hotel is anticipated to have 200 guest rooms. It is also likely to include space for meeting space or other similar facilities, with the total non-suite area estimated to be 2,233 m². This corresponds to a total of 423 spaces required under the ZBL.

For the purpose of site design, it is recommended that 200 spaces be provided for the hotel (one per guest room). Additional spaces will be available at most times (i.e., when there is not a game or event underway at the arena) for other public uses. This may require that the hotel schedule meetings and other such bookings to avoid conflicts with major events at the arena.

4.2.4 Twin Pad Arena

Similar to the main arena, the ZBL identifies a parking requirement of 1 space per 6 persons capacity. The person capacity within the building is estimated to be approximately 1,300 persons, corresponding to a parking requirement of 217 spaces under the ZBL.

A first-principles estimate of parking requirements was also undertaken. It was assumed that the twin pad arena would be used for hockey practice on Friday nights. At any given time there would be up to two teams present at each rink (one team on the ice; one team in the dressing room). The parking demand was estimated at approximately 20 vehicles for each team, corresponding to a total demand of up to 80 vehicles at any given time. This was increased to 100 vehicles to provide an allowance for staff and other ancillary users. A further 50 spaces was assumed to account for use of an associated wellness centre, bringing the total supply to 150 spaces.

It is anticipated that the arena could generate a greater parking demand at some times of the day, but that events or reservations involving a greater number of users would be scheduled for other times when the twin pads can make use of unused parking for the main arena.

4.2.5 Business Park

Parking requirements were not specifically identified for the business park component. Parking for individual blocks would be contained on site, and the specific requirements for each block would be determined through typical site plan application processes.

4.2.6 Parking Generation Summary

Based on the parking requirements of the ZBL, the site would require a total supply of 1,908 spaces at initial build-out, comprised of the following:

- 293 spaces for the casino;
- 423 spaces for the hotel; and
- 1,192 spaces for the arena.

With a twin pad arena or similar complementary use subsequently added to the site, additional parking would be required — estimated at 217 spaces for a twin pad arena. This would bring the ZBL parking requirement to 2,125 spaces.

At times when a hockey game is scheduled at the arena, the site (not including the surrounding business park) would require a parking supply of approximately 3,335 to 3,365 spaces:

- 2,615 spaces for the main arena;
- 520 to 550 spaces for the casino; and
- 200 spaces for the hotel.

The twin pad arena would increase this practical requirement by approximately 100 vehicles on evenings when a game is underway at the main arena, and the overall site parking requirement would increase to approximately 3,435 to 3,465 spaces.

4.2.7 Proposed Parking Supply

Two schematic parking layouts have been developed for the site (subject to adjustments during the detailed design stage), illustrating the proposed parking configuration at initial build-out and the modifications proposed to accommodate the subsequent addition of a twin pad arena.

At initial build-out, the parking layout reflects a total parking supply of 2,142 spaces. This parking supply exceeds the ZBL requirement of 1,908 spaces and will easily accommodate parking demand at most times, but will not be sufficient to accommodate parking demand during games or other major events at the arena. To accommodate overflow parking for Wolves games and other special events at the arena, approximately 1,400 parking spaces will be provided in temporary lots within the surrounding business park blocks.

The addition of a twin pad arena will displace some of the parking spaces in the southeast corner of the site; this displacement is proposed to be offset by the construction of an additional lot to the south. This change will increase the on-site parking supply to 2,359 spaces. This would exceed the ZBL requirement of 2,125 spaces. Similar to the short-term site plan, the proposed parking supply will easily accommodate parking demand at most times, but will not be sufficient to accommodate parking demand during games or other major events at the arena, with overflow parking continuing to be accommodated off-site.

As the surrounding lands develop, it is possible that overflow parking may make use of parking lots required for the surrounding business park lands, since events at the arena will typically occur at times

when parking is underutilized within the business park. It is recommended that parking demand associated with major arena events be monitored in advance of the business park lands being built out to allow a strategy for shared parking to be refined if necessary.

Recognizing that the arena will require more parking that can be provided on the site itself, there will be a need for parking management measures to be in place to ensure that sufficient parking is reserved for other uses (i.e., so that visitors to the casino and hotel will be able to park on-site).

4.3 Trip Distribution

Three different trip distributions were developed reflecting different catchment areas anticipated for the various proposed land uses.

- The trip distribution for the *arena* was developed based on an approximate distribution of Wolves fans, as provided by Wolves staff (illustrated in *Figure 9*).
- The trip distribution for the *hotel* assumed that the majority of trips would be made by hotel guests traveling to/from major provincial highways, with a smaller proportion traveling to/from central Sudbury and a minor amount from other urban areas.
- The trip distribution for *other uses* (business park; casino; twin pad rinks) assumed that those uses would draw primarily from the urban area of Sudbury, and trips were distributed based on the 2016 population in census tracts within the urban area.

Figure 9: Estimated Geographic Distribution of Wolves Fans

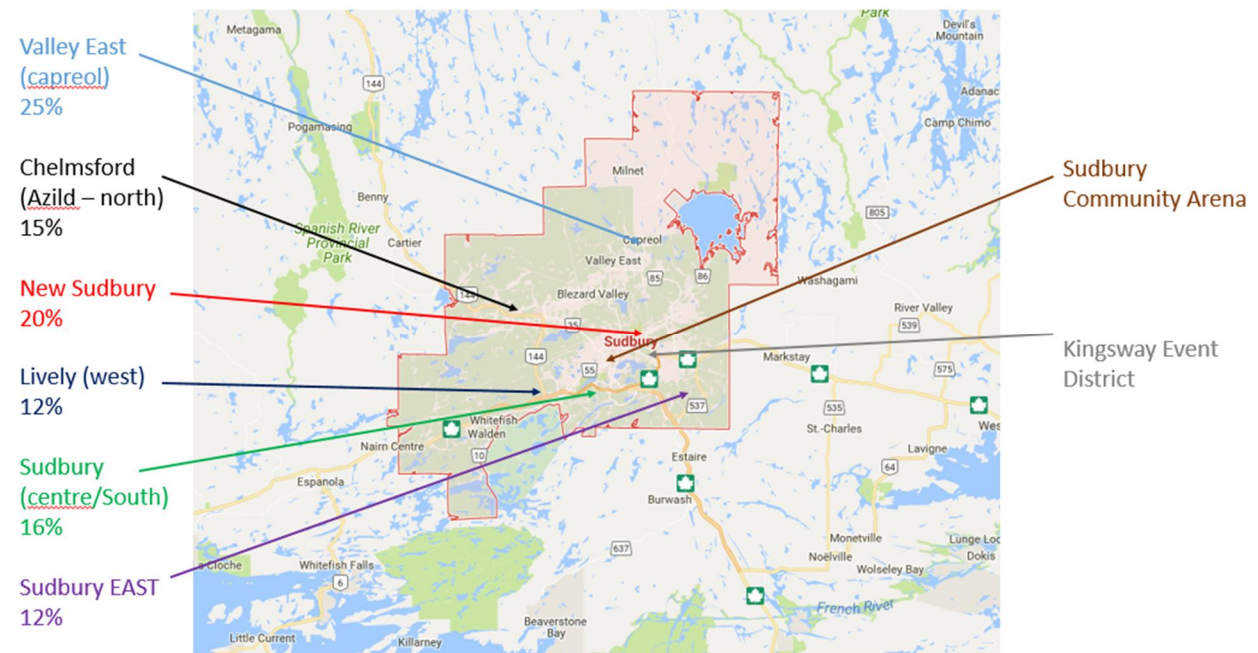


Table 28 summarizes the distribution applied to site trips for the different proposed land uses.

Table 28: Site Traffic Directional Distribution

To/from:	Trip distribution		
	Arena	Hotel	Other
West via Kingsway	41.5%	30.0%	45.0%
West via Bancroft Drive	9.0%	0.0%	11.5%
North via Falconbridge Road	18.5%	5.0%	9.0%
Local via Third Avenue	2.0%	0.0%	5.0%
East via Kingsway	26.0%	65.0%	26.5%
East via Bancroft Drive	3.0%	0.0%	3.0%

The proportion of traffic entering and exiting the site from/to the east includes some motorists traveling to/from areas at the far west side of the urban area, who would have a faster trip bypassing the city via Highways 69 and 17.

West- and east-oriented trips can travel to and from the site via either the Kingsway or Bancroft Drive.

For west-oriented trips originating west of Barry Downe Road, approximately two-thirds were assumed to use the Kingsway, and one-third assumed to use Bancroft Drive. (In some cases some of the Bancroft Drive traffic was reassigned to the Kingsway if it would result in a more direct trip — e.g., trips to the west side of the business park would not have a direct connection to Streets A and B from Bancroft Drive, and would need to backtrack from Levesque Street.) This distribution serves as an initial assumption based on the relative cross-section on the two roads (two lanes per direction on the Kingsway; one lane per direction on Bancroft Drive), although qualitative consideration was given to potential impacts of alternate route choices in the event that one route or the other was found to exhibit greater levels of congestion under total future traffic conditions. This results in Bancroft Drive being assigned a somewhat higher proportion of trips than the Kingsway when comparing their relative daily traffic volumes; this reflects the expectation that motorists will use Bancroft Drive as an alternate route to avoid congestion on the Kingsway.

Of east-oriented trips, approximately 10% were assumed to use Bancroft Drive, and 90% were assumed to use the Kingsway.

Trips were assigned to the Street A and C accesses based on the distribution of parking facilities within the site (e.g., casino visitors would predominantly use Street A, since casino parking will be in the western portion of the site).

4.4 Site Traffic Volumes

Figure 10 illustrates the intersection traffic volumes projected to be generated by the site (including the surrounding business park lands) during the weekday PM peak hour and the Saturday peak hour, on non-

event days. **Figure 11** illustrates the site trips for these uses during the Friday pre- and post-game peak hours.

Figure 10: Site Traffic Volumes (2022) — Weekday PM / Saturday Peak Hours

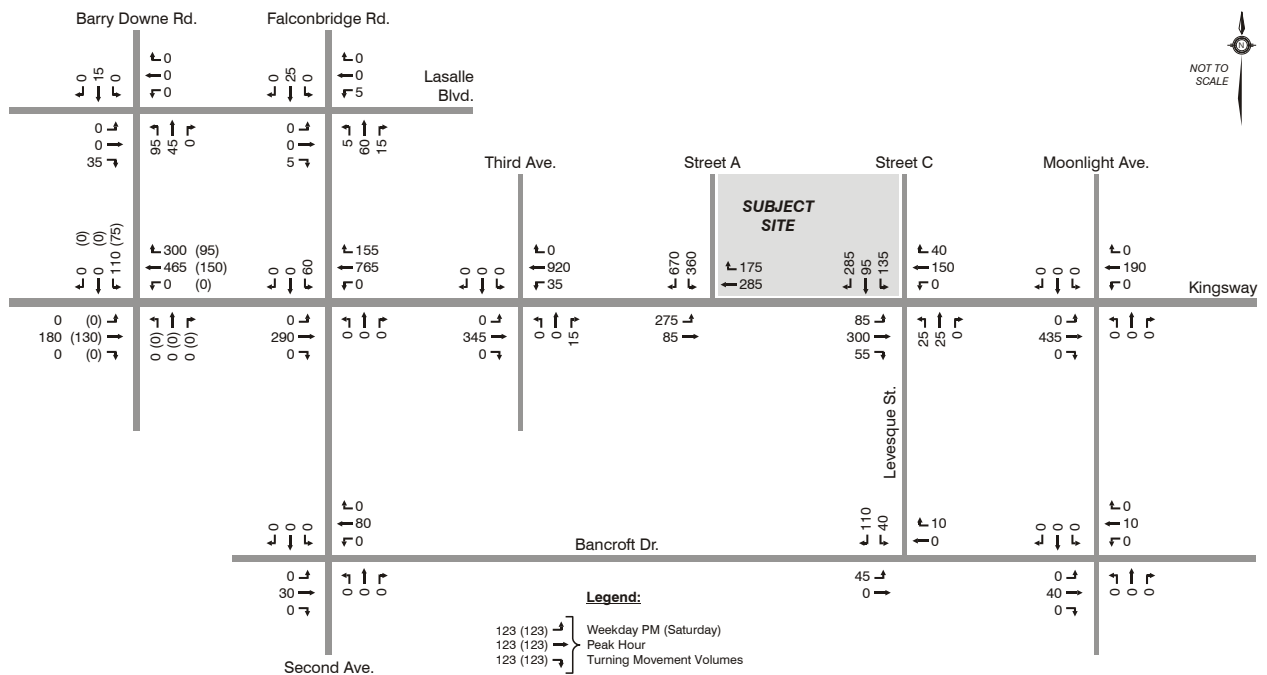
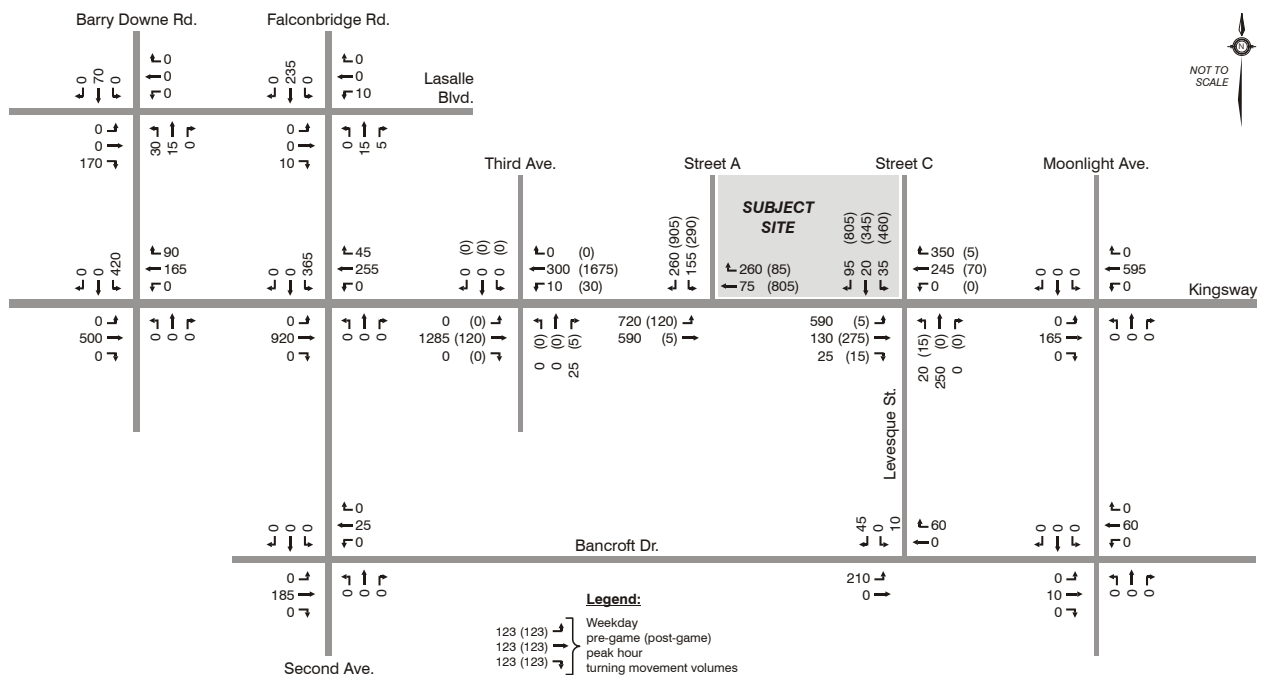


Figure 11: Site Traffic Volumes (2022) — Friday Pre-Game / Post-Game Peak Hours



5.0 Total Future Conditions

5.1 Total Future Traffic Volumes

Total future traffic volumes represent the level of traffic that would be anticipated with the development of the site, and are calculated by adding future background traffic volumes to the volumes projected to be generated by the subject site.

Total future volumes during the Friday pre-game and post-game peak hours are presented in the following figures:

- *Figure 12* illustrates weekday PM and Saturday peak hour volumes; and
- *Figure 13* illustrates weekday pre-game / post-game peak hour volumes.

Figure 12: Total Future (2022) Intersection Volumes, Weekday PM / Saturday Peak Hour

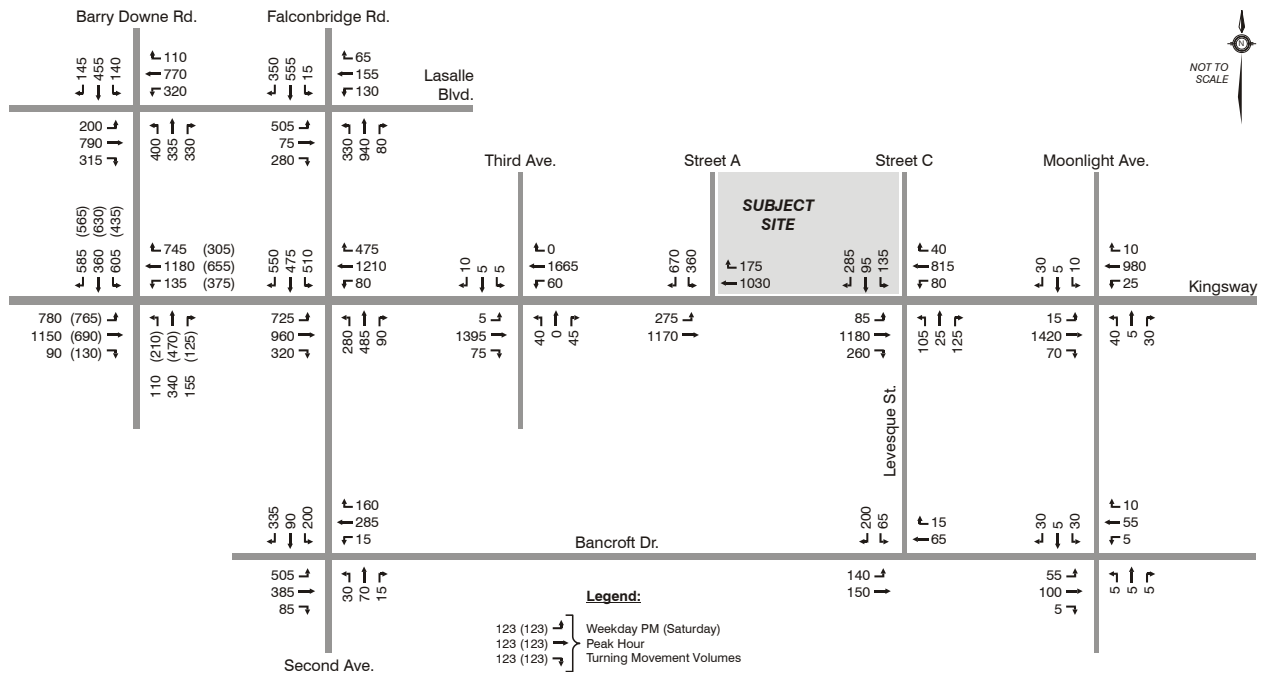
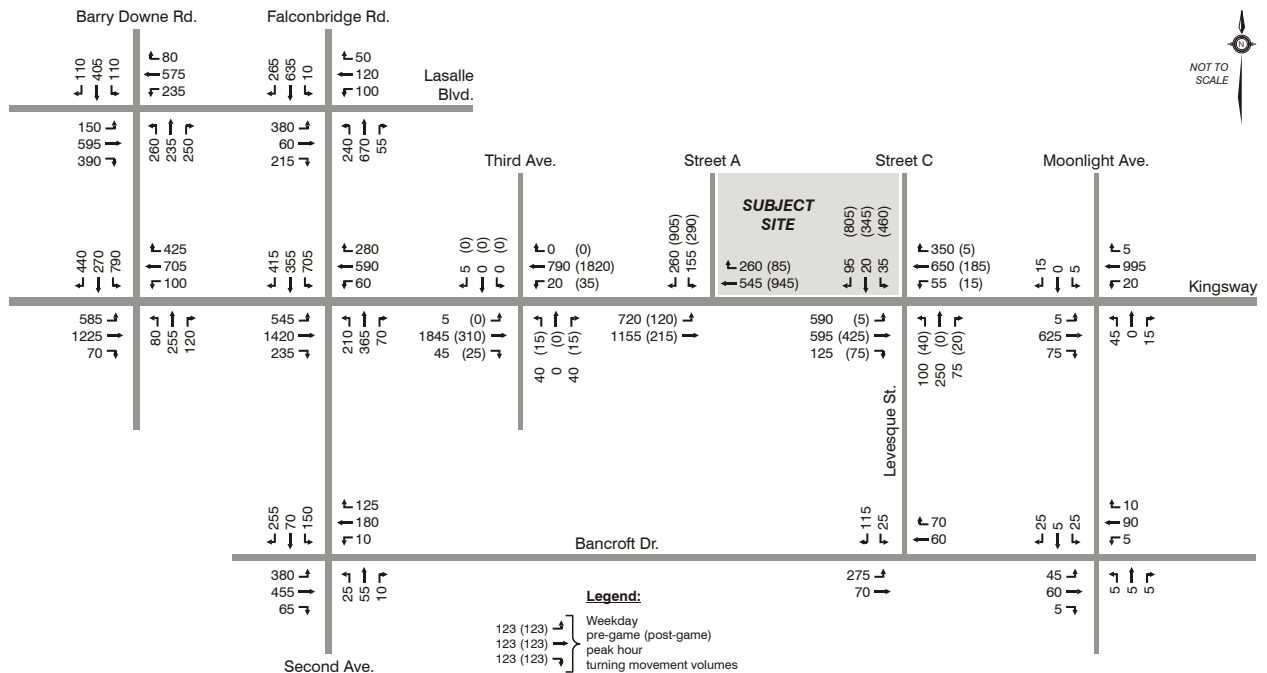


Figure 13: Total Future (2022) Intersection Volumes, Pre-Game / Post-Game Peak Hour



5.2 Total Future Intersection Operations

Total future intersection operations were assessed using the same methodology as the existing and future background conditions analyses. Existing signal timings and lane configurations were applied to all analyses, except that signal timing and phasing adjustments identified under future background conditions were carried forward to total future analyses. Peak hour factors were increased to 0.95 for movements serving substantial volumes of traffic generated by the arena, reflecting a full hour of continuous demand.

5.2.1 Lasalle Boulevard at Barry Downe Road

Table 29 summarizes the peak hour intersection operations at Lasalle Boulevard and Barry Downe Road under total future conditions.

Table 29: Total Future Peak Hour Intersection Operations, Lasalle Boulevard at Barry Downe Road

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	E	62.3	EB left	0.80	E	71.8	80
			EB through	0.90	E	57.5	140
			WB left	0.96	F	88.5	141
			WB through	0.87	D	50.1	157
			NB left	1.26	F	179	192
			SB left	0.67	E	65.2	54
			SB through	0.92	E	64.7	110
Pre-game peak hour	D	42.3	EB left	0.69	E	61.1	58
			WB left	0.86	E	72.1	101
			NB left	0.91	E	78.2	117
			SB left	0.63	E	62.8	47

During the PM peak hour, the intersection is projected to operate at a poor level of service (LOS E). While most movements are identified as being critical, only one movement is anticipated to exceed capacity (the northbound left turn, at 26% above capacity). The other critical movements are either close to (but still below) capacity, and/or are experiencing delays above the LOS E threshold. The intersection should be monitored for further signal timing adjustments in the event that growth materializes as projected, particularly on the northbound left turn.

During the pre-game peak hour, the intersection is projected to operate at a better level of service (LOS D). All left turn movements are identified as critical, primarily due to delays associated with the long cycle and fully protected left turns.

The intersection was reviewed for further signal timing adjustments to mitigate the anticipated PM peak hour capacity constraint on the northbound left turn phase. The intersection operates at a fixed 120-

second cycle during the PM peak period, and the through phases are already at minimum levels. Opportunity is therefore limited to adjust timings without changing the cycle length at this intersection and other intersections within the coordinated area. Additional capacity could be provided to the northbound left turn phase by reducing the duration of the westbound left turn phase. Transferring 3 seconds of green time from the westbound to the northbound left turn phase would balance the v/c ratios on both of those movements at 11% over capacity (equivalent to approximately 45 vph on the northbound left turn, and 35 vph on the westbound left turn).

Table 30: Total Future Peak Hour Intersection Operations, Lasalle Boulevard at Barry Downe Road (with Traffic Signal Adjustments)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	E	62.5	EB left	0.80	E	71.8	80
			EB through	0.90	E	57.5	140
			WB left	1.11	F	130	153
			WB through	0.95	E	62.0	169
			NB left	1.11	F	123	181
			SB left	0.67	E	65.1	54
			SB through	0.92	E	64.7	110

The PM peak hour signal timing adjustments would not change average delay; it would reduce the extent of the capacity deficiency on the northbound left turn movement, but would decrease capacity and increase delays on other critical movements. The intersection should be monitored to determine whether flows materialize as projected and to determine whether the signals should be retimed to prioritize some movements over others. Consideration may also be given to reviewing coordination in the vicinity of this intersection, and whether a different cycle length (including half cycles at minor intersections) would improve operations.

5.2.2 Lasalle Boulevard at Falconbridge Road

Table 31 summarizes the peak hour intersection operations at Lasalle Boulevard and Falconbridge Road under total future conditions.

Table 31: Total Future Peak Hour Intersection Operations, Lasalle Boulevard at Falconbridge Road

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	33.5	EB left	0.93	D	49.1	165
			WB through	0.87	E	74.2	96
			NB left	0.83	D	37.4	85
			SB right	0.63	B	16.8	53
Pre-game peak hour	C	28.4	SB right	0.54	B	18.3	50

Under total future volumes, the intersection is projected to operate at LOS C. The eastbound left turn and westbound through movements are projected to be critical in terms of their v/c ratios during the PM peak hour, although both are expected to be within capacity. The northbound left turn and southbound right turns are both operating at acceptable levels but with queues exceeding storage. No mitigation is recommended beyond the timing adjustments recommended for background conditions.

5.2.3 Kingsway at Barry Downe Road

Table 32 summarizes the peak hour intersection operations at the Kingsway and Barry Downe Road under total future conditions.

Table 32: Total Future Peak Hour Intersection Operations, Kingsway at Barry Downe Road

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	F	82.3	EB left	0.97	E	77.5	169
			WB left	0.70	E	77.4	62
			WB through	1.24	F	158	285
			WB right	1.15	F	112	283
			NB left	0.49	E	69.8	28
			NB through	0.76	E	70.1	72
			NB right	0.35	D	40.5	55
			SB left	1.07	F	111	147
Pre-game peak hour	E	68.7	EB through	0.91	D	44.9	213
			WB left	0.59	E	66.0	49
			NB left	0.37	E	60.5	21
			NB through	0.61	E	56.6	55
			SB left	1.41	F	230	219
Saturday peak hour	D	48.0	EB left	0.88	E	57.6	144
			WB left	0.99	F	93.8	188
			NB left	0.60	E	61.8	43
			NB through	0.84	E	66.1	103
			SB left	0.83	E	65.7	91
			SB through	0.84	E	59.1	142

The Kingsway and Barry Downe Road intersection is anticipated to operate at a poor level of service during the pm and pre-game peak hours (LOS E to F) and an acceptable level of service (LOS D) overall during the Saturday peak hour. The poor level of service is a reflection of high existing volumes, particularly on the eastbound and southbound left turn movements; five years of background growth; and the addition of site traffic on movements between the east and the north and west. This intersection is anticipated to be a major focal point where west- and north-oriented site traffic converges onto the Kingsway. During the PM peak hour, the westbound through and right turn movements are projected to exceed capacity (traffic leaving the site); during the pre-game peak hour, the southbound left turn movement is expected to be substantially over capacity (traffic destined to the site). The

eastbound through movement is expected to remain within capacity, primarily because it operates concurrently with the high-volume eastbound left turn phase. The southbound left turn and westbound through movements have less capacity to accommodate site traffic.

In addition to the localized intersection constraints, several upstream and downstream links in the vicinity of the intersection are anticipated to exceed the typical planning-level capacity of an arterial road (850 vph per lane):

- West leg: 1,010 vph/lane eastbound; 940 vph/lane westbound
- East leg: 955 vph/lane eastbound; 1,030 vph/lane westbound
- North leg: 935 vph/lane northbound

There is more capacity to mitigate the southbound left turn constraint during the pre-game peak hour. The following timing adjustments were tested:

- Additional 4 seconds on the southbound left turn phase; and
- Reducing the maximum eastbound and westbound green times to the minimum required to accommodate pedestrians (29 seconds eastbound; 26 seconds westbound).

The results of the pre-game peak hour timing adjustments are summarized in *Table 33*.

Table 33: Total Future Peak Hour Intersection Operations, Kingsway at Barry Downe Road (with Traffic Signal Adjustments)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
Pre-game peak hour	E	60.3	EB through	1.04	E	74.3	245
			WB left	0.59	E	62.5	46
			WB through	0.95	E	66.4	157
			NB left	0.37	E	57.1	20
			SB left	1.13	F	118	182

The pre-game peak hour timing adjustments would not change the overall level of service, but would reduce overall delays and would reduce the extent of the southbound left turn capacity deficiency. Further adjustments may be feasible but would necessitate the strategic prioritization of some movements over others, and would not likely include the ability to further extend the southbound or westbound left turn phases, which have already been assessed at their practical maximums given the available storage length.

The City's TMP identifies a number of new road links in the study area (a northerly extension of Levesque Street / Street C to Lasalle Boulevard; an east-west road linking Street C with Falconbridge Road; a bypass road around the east side of New Sudbury from Highway 17 to Maley Drive). Given that the timing of these new roadway links is uncertain, they have not been accounted for in the traffic

assignments or intersection analyses. The operational constraints identified at the Kingsway and Barry Downe Road, and the mid-block planning capacity constraints, suggest that there may be a need to accelerate construction of these road links to divert traffic away from the Kingsway and Barry Downe Road intersection.

5.2.4 Kingsway at Falconbridge Road

Table 34 summarizes the peak hour intersection operations at the Kingsway and Falconbridge Road under total future conditions.

Table 34: Total Future Peak Hour Intersection Operations, Kingsway at Falconbridge Road

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	F	111	EB left	0.95	E	69.2	141
			WB left	0.54	E	67.9	37
			WB through	1.76	F	378	303
			WB right	0.94	D	50.1	138
			NB left	0.75	E	66.2	54
			NB through	0.83	E	57.5	98
			SB left	0.86	E	64.5	94
Pre-game peak hour	E	71.4	EB left	0.85	E	58.1	100
			EB through	1.20	F	131	320
			WB left	0.48	E	65.3	32
			WB through	0.89	E	61.9	124
			NB left	0.64	E	60.0	44
			SB left	1.05	F	92.6	157

During the PM peak hour, the intersection is projected to operate at LOS F overall, primarily due to the westbound through movement operating substantially over capacity ($v/c = 1.76$) under the timing plan implemented to mitigate background conditions. Other movements are projected to operate at LOS E, but all are expected to be at or below capacity.

During the pre-game peak hour, the intersection is projected to operate at LOS E overall, and the eastbound and southbound left turns are expected to be above capacity (more so the eastbound through movement, at 20% over capacity). The southbound left turn queue would extend beyond the end of the dual left turn lanes. It is possible that the eastbound v/c ratio would be lower because of upstream capacity constraints (at the Kingsway and Barry Downe Road) metering the flow of eastbound traffic west of Falconbridge Road.

Mitigation focused on the PM peak hour, given the magnitude of the westbound capacity deficiency projected during that time period. The maximum westbound green time was increased by 20 seconds (to 45 seconds) during the PM peak hour, and the maximum eastbound green time was increased by 23

seconds (to 47 seconds) during the pre-game peak hour; all other timings were maintained. These would be time-of-day plans effective during the respective peak periods only. The effects of the peak hour timing adjustments are summarized in *Table 35*.

Table 35: Total Future Peak Hour Intersection Operations, Kingsway at Falconbridge Road (with Traffic Signal Adjustments)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	E	73.2	EB left	1.12	F	125	176
			WB left	0.59	F	82.6	43
			WB through	1.17	F	132	283
			NB left	0.84	F	86.5	68
			NB through	0.92	E	78.1	127
			SB left	0.95	F	89.2	119
Pre-game peak hour	E	65.8	EB left	0.87	E	62.4	114
			EB through	1.12	F	100	318
			WB left	0.50	E	69.6	34
			NB left	0.65	E	64.1	47
			NB through	0.76	E	56.5	85
			SB left	1.10	F	111	172

The PM peak hour timing adjustments would improve the overall level of service to LOS E and would substantially reduce the magnitude of the westbound capacity deficiency to a v/c ratio of 1.17, more closely matching the PM peak hour capacity available downstream on the westbound Kingsway at Barry Downe Road. This would be offset by reduced capacity on the eastbound left turn phase, which would bring the v/c ratio for that movement up to 1.12. The adjustments would also increase the length of the southbound left turn queue to exceed the length of the dual left turn lane.

The pre-game peak hour timing adjustments would not affect the overall level of service, but would reduce overall intersection delays and would provide increased capacity for the eastbound through movement, balancing the v/c ratios between the eastbound through movement and the southbound left turn.

Similar to the results at the Kingsway and Barry Downe Road, the operational constraints identified at the Kingsway and Falconbridge Road suggest that there may be a need to accelerate construction of road links identified in the TMP to divert traffic away from the Kingsway and Falconbridge Road intersection.

5.2.5 Kingsway at Third Avenue

Table 36 summarizes the peak hour intersection operations at the Kingsway and Third Avenue under total future conditions.

Table 36: Total Future Peak Hour Intersection Operations, Kingsway at Third Avenue

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	B	12.1	N/A	—	—	—	—
Pre-game peak hour	B	11.9	N/A	—	—	—	—
Post-game peak hour	A	5.5	N/A	—	—	—	—

The intersection of the Kingsway and Third Avenue is projected to continue operating at a good level of service (LOS A to B) during the PM, pre-game and post-game peak hours.

5.2.6 Kingsway at Street A

The intersection of the Kingsway and Street A was assessed with the following lane configuration and signal phasing plan:

- A single exclusive eastbound left turn lane;
- An exclusive westbound right turn lane;
- A two-lane southbound approach (comprised of a left turn lane and a right turn lane);
- Fully actuated traffic signal operations at all times; and
- Protected + permissive operations on the eastbound left turn movement, with up to 40 seconds of green time provided on the protected left turn phase.

Table 37 summarizes the peak hour intersection operations at the Kingsway and Street A under total future conditions.

Table 37: Total Future Peak Hour Intersection Operations, Kingsway at Street A

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	22.2	WB through	0.88	D	36.0	149
Pre-game peak hour	B	19.1	EB left	0.86	C	26.2	194
Post-game peak hour	C	32.5	SB right	1.00	D	42.1	180

Given the parameters and assumptions outlined above, the intersection of the Kingsway and Street A is projected to operate at LOS B to C overall during all peak hours.

During the PM peak hour, the westbound through movement is identified as critical. This relates to growth in traffic on the southbound and westbound approaches, associated with development of the business park.

During the pre-game peak hour, the eastbound left turn is anticipated to attract a very high volume of traffic (720 vehicles). The analyses indicate that sufficient capacity will be available, with the left turn operating at LOS C, at 86% of capacity and with a projected queue of approximately 195 metres. The conflicting westbound through movement would be at 57% of capacity with a queue of 80 metres. A westbound right turn lane storage length of at least 80 metres would permit westbound right turning motorists to bypass the projected queue in the westbound through lanes.

During the post-game peak hour, the southbound right turn movement is projected to be at capacity, while the southbound left turn movement is projected to be at 51% of capacity, indicating that it would take approximately one hour to fully serve the southbound right turn demand, and half an hour to fully serve the southbound left turn demand. The southbound queues are projected to reach 180 metres in the right turn lane, and 75 metres in the southbound left turn lane, although this will depend on how quickly spectators exit the arena and how quickly vehicles can be processed exiting the parking lots. The analyses assume a relatively constant flow of post-event traffic arriving at the Kingsway intersection, which would be the case if on-site elements meter the rate at which spectators can exit the site (e.g., some will take longer than others to exit the arena and/or to reach their vehicles, depending on where their seats are within the arena and the walking distance to their parking space; parking manoeuvres and other areas of friction within the parking lots may meter the flow of traffic onto the road network). If such elements are not limiting factors, the surge in post-game traffic would be condensed into a shorter period, and vehicles would enter Street A more quickly than the Kingsway intersection can process them. It would still take the same length of time to serve all vehicles, but there would be longer queues of traffic on Street A.

The relative difference in demand and queues between the southbound left and right turn movements may encourage some motorists to turn left out of the site and travel via an alternate route (e.g., motorists destined for the west end of the urban area may elect to travel around the city via Highway 17 rather than traveling through the city along the Kingsway).

Sensitivity testing was undertaken to determine the effect of widening the Kingsway to provide a dual eastbound left turn lane for traffic entering the site. *Table 38* summarizes the intersection operations with a dual left turn lane in place.

Table 38: Total Future Peak Hour Intersection Operations with Eastbound Dual Left Turn Lanes, Kingsway at Street A

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	26.4	WB through	0.90	D	39.0	159
Pre-game peak hour	B	19.1	N/A	—	—	—	—
Post-game peak hour	D	38.1	SB right	1.05	E	57.7	193

The addition of dual left turn lanes would address anticipated capacity constraints on the eastbound left turn entering the site during the pre-game period and would permit more capacity to be allocated to conflicting movements. It would also provide more flexibility to account for uneven arrivals prior to the start of an event.

With dual left turn lanes in place, the eastbound left turn queue is projected to reach approximately 90 metres per lane during the pre-game peak hour, and the westbound through movement queue is projected to reach slightly more than 70 metres per lane. A westbound right turn lane storage length of at least 75 metres would permit westbound right turning motorists to bypass the projected queue in the westbound through lanes.

The dual left turn lanes would provide increased flexibility for pre-game conditions, as well as serving high traffic volumes traveling to the business park during the AM peak hour. However, the fully protected left turn phasing would result in longer delays for the eastbound left turn movement at other times of the day when the additional left turn capacity is not required. As a result, the cycle length should be kept as short as possible to allow the minor phases to be served more frequently.

5.2.7 Kingsway at Levesque Street

The intersection of the Kingsway and Levesque Street was assessed with the following lane configuration and signal phasing plan:

- Single exclusive eastbound and westbound left turn lanes;
- An exclusive westbound right turn lane;
- A three-lane southbound approach (comprised of a left turn lane, a dedicated through lane and a right turn lane);
- Maintenance of the existing two-lane northbound approach (including a dedicated left turn lane);
- Fully actuated traffic signal operations at all times;
- Protected + permissive operations on the eastbound and westbound left turn movements, with up to 35 seconds of green time provided on the protected eastbound left turn phase during the pre-game peak hour and a nominal 5 seconds of green time (mirroring the westbound left turn phase) during the PM peak hour and the post-game peak hour; and

- Extension of the maximum north/south green interval by 10 seconds during the post-game peak hour to better accommodate the surge in outbound traffic.

There is an existing right turn taper on the westbound approach. As part of intersection reconstruction to accommodate the site, the westbound right turn taper would be reconstructed as a standard right turn lane including parallel lane / storage.

Table 39 summarizes the peak hour intersection operations at the Kingsway and Levesque Street under total future conditions.

Table 39: Total Future Peak Hour Intersection Operations, Kingsway at Levesque Street

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	B	17.0	NB left	0.41	C	27.6	27
Pre-game peak hour	C	28.7	NB left	0.39	D	40.5	38
			NB through	0.92	E	69.0	126
Post-game peak hour	C	32.2	SB left	0.88	D	41.9	142
			SB right	0.86	B	17.8	135

During the PM peak hour, the intersection is projected to operate at a good level of service (LOS B). The only critical movement identified is the northbound left turn, which is projected to slightly exceed the designated turn lane length.

During the pre-game peak hour, the intersection is expected to operate at LOS C. The only critical movements are the northbound left turn and through movements; the left turn queue will slightly exceed the designated storage length, while the through movement will be near capacity and operating at LOS E. The northbound pre-game queues are projected to extend nearly to Raymond Street, 155 metres to the south, and may reach Raymond Street when considering left-turning vehicles that form part of the queue prior to the start of the left turn lane.

The eastbound left turn movement is expected to be at 84% of capacity, with a queue length of up to 130 metres. The opposing westbound through movement is expected to have a queue in the order of 90 metres, while the westbound right turn has a projected queue length of 70 metres. A westbound right turn storage length of at least 90 metres would permit westbound right turning motorists to bypass the projected queue in the westbound through lanes.

During the post-game peak hour, the intersection is expected to operate at LOS C. The southbound left and right turn movements are identified as critical, operating at approximately 85% to 90% of capacity, while the southbound through movement is expected to be at approximately 50% of capacity. However, the level of service on both movements is expected to be reasonable because of the low level of

background traffic on the Kingsway at that time of the evening. The southbound queues are projected to reach approximately 140 metres in the left and right turn lanes, and 75 metres in the through lane. The v/c ratios indicate that it would take approximately 50 to 55 minutes to fully serve the southbound right and left turn demand, and 30 minutes to fully serve the southbound through demand. Similar to conditions at Street A, the queue lengths and service times noted above will depend on how quickly spectators exit the arena and how quickly vehicles can be processed exiting the parking lots. If there is a short but substantial surge in post-game traffic flow, the queues will be longer and may extend well into the subdivision. If the surge in exiting traffic flow is metered by upstream constraints, the queues on the road network will be closer to the projected values.

Also similar to the conditions at Street A, the post-game conditions outlined above are based on an event ending in the night when there is relatively little background traffic on the road network. The volume of background traffic on the Kingsway would be greater following a daytime event on the weekend (e.g., a Sunday afternoon Wolves game). This would result in increased time to clear traffic exiting the site following an event, and increased delays and queues, compared to the Friday night conditions.

Sensitivity testing was undertaken to determine the effect of widening the Kingsway to provide a dual eastbound left turn lane for traffic entering the site. Similar timings were assumed, except that the dual eastbound left turn lanes would operate under fully protected phasing, and as such a slightly longer maximum green time (up to 11 seconds) was assumed on the eastbound left turn phase for PM and post-game conditions. *Table 40* summarizes the intersection operations with a dual eastbound left turn lane in place.

Table 40: Total Future Peak Hour Intersection Operations with Eastbound Dual Left Turn Lanes, Kingsway at Levesque Street

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	B	17.5	N/A	—	—	—	—
Pre-game peak hour	C	27.3	NB left	0.39	D	35.7	36
Post-game peak hour	C	21.9	SB left	0.88	D	41.8	144
			SB right	0.86	B	17.3	135

As at Street A, the addition of dual left turn lanes would address anticipated capacity constraints on the eastbound left turn entering the site and permit more capacity to be allocated to conflicting movements. It would also provide more flexibility to account for uneven arrivals prior to the start of an event.

With dual left turn lanes in place, the eastbound left turn queues are projected to reach 75 metres during the pre-game peak hour, and the westbound through movement queues are projected to reach 85 metres.

The dual left turn lanes would provide increased flexibility for pre-game conditions, as well as serving high traffic volumes traveling to the business park during the AM peak hour. However, the fully protected left turn phasing would result in longer delays for the eastbound left turn movement at other times of the day when the additional left turn capacity is not required. As a result, the cycle length should be kept as short as possible to allow the minor phases to be served more frequently.

5.2.8 Kingsway at Moonlight Avenue

Table 41 summarizes the peak hour intersection operations at the Kingsway and Moonlight Avenue under total future conditions.

Table 41: Total Future Peak Hour Intersection Operations, Kingsway at Moonlight Avenue

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	B	10.8	N/A	—	—	—	—
Pre-game peak hour	A	8.5	N/A	—	—	—	—

Under total future volumes, the intersection of the Kingsway and Moonlight Avenue is projected to continue operating at a good level of service (LOS A to B) during both peak hours.

5.2.9 Bancroft Drive at Second Avenue

Table 42 summarizes the peak hour intersection operations at Bancroft Drive and Second Avenue under total future conditions.

Table 42: Total Future Peak Hour Intersection Operations, Bancroft Drive at Second Avenue

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	32.0	EB left	0.98	D	53.3	143
			SB right	0.62	B	16.7	54
Pre-game peak hour	C	22.6	SB right	0.57	B	13.9	32

Under total future volumes, the intersection of Bancroft Drive and Second Avenue is projected to operate at a reasonable level of service (LOS C) during both the PM peak hour and the pre-game peak hour.

During the PM peak hour, the eastbound left turn movement is expected to be near or at capacity and with a queue that extends beyond the available storage. Given that there is only one through lane, this would have the potential to affect the eastbound through movement capacity.

During both peak hours, the southbound right turn movement is also identified as critical due to the queue extending beyond the available storage, but is otherwise projected to operate within capacity and at a good level of service.

Two potential mitigation measures were identified in the event that the PM peak hour traffic conditions materialize:

- The east/west phases operate under capacity, and therefore the east/west phase lengths could be reduced. They were tested at 26 seconds of green, matching the minimum requirements for the pedestrian crossings. This would allow the left turn phase to receive proportionally more time within the cycle without increasing its green time above what the left turn lane storage can accommodate.
- Consideration could be given to deactivating the southbound advance left turn phase, given the comparatively low opposing volumes on the northbound approach, and either allocating that green time to the north/south phase, or reducing the cycle length to allow movements to be served more frequently and to allow for more left turns on intergreen. More frequent cycling would also reduce the potential for a stationary eastbound left turn queue to block the through lane, although this effect would not be observed in the capacity analyses.

Table 43 illustrates the effect of a potential scenario that reduces the eastbound and westbound phases to the minimum length, and disables the southbound left turn phase. These changes would result in lower overall delay, and increased capacity and shorter queues in the eastbound left turn lane, with reduced likelihood of eastbound through traffic being blocked by left turn queues. These benefits would be offset by slightly reduced capacity in the southbound shared through / left turn lane, but operations would continue to be at a reasonable level particularly for a side street approach.

Table 43: Total Future Peak Hour Intersection Operations, Bancroft Drive at Second Avenue (with Traffic Signal Adjustments)

Peak hour	Overall		Critical movement(s)				
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	C	27.9	EB left	0.94	D	42.0	112
			SB through/left	0.85	D	50.3	86
			SB right	0.61	B	12.5	37
Pre-game peak hour	B	19.8	N/A	—	—	—	—

5.2.10 Bancroft Drive at Levesque Street

Table 44 summarizes the peak hour intersection operations at Bancroft Drive and Levesque Street under total future conditions.

Table 44: Total Future Peak Hour Intersection Operations, Bancroft Drive at Levesque Street

Peak hour	Individual movements				
	Movement	v/c	LOS	Delay (s/veh)	95 th %ile queue (m)
PM peak hour	SB approach	0.44	B	13.7	18
Pre-game peak hour	SB approach	0.24	B	11.9	7

Under total future volumes, the stop-controlled southbound approach at Bancroft Drive and Levesque Street is projected to continue operating at a good level of service (LOS A to C) and well within capacity during both peak hours.

5.2.11 Bancroft Drive at Moonlight Avenue

Table 45 summarizes the peak hour intersection operations at Bancroft Drive and Moonlight Avenue under total future conditions.

Table 45: Total Future Peak Hour Intersection Operations, Bancroft Drive at Moonlight Avenue

Peak hour	Overall		Individual movements			
	LOS	Delay (s/veh)	Movement	v/c	LOS	Delay (s/veh)
PM peak hour	A	8.1	EB approach	0.23	A	9
			WB approach	0.10	A	8
			NB approach	0.02	A	8
			SB approach	0.09	A	8
Pre-game peak hour	A	8.0	EB approach	0.16	A	8
			WB approach	0.15	A	8
			NB approach	0.02	A	8
			SB approach	0.08	A	8

Under total future volumes, the intersection of Bancroft Drive and Moonlight Avenue is projected to continue operating at a good level of service (LOS A) and well within capacity on all approaches during both peak hours.

5.3 Summary of Site Access Operations

The capacity of the approach routes to and from the site was considered at two levels:

- The localized capacity of the Street A and Street C accesses to the Kingsway; and
- The broader capacity of the approach route more distant from the site.

5.3.1 Pre-Game Conditions

Pre-game conditions have been assessed based on a sold-out hockey game. A review of historical Wolves and OHL attendance data suggests that this is only likely to occur on a subset of the Wolves games, with the majority likely to have attendance at 85% of capacity or less. As such, the analyses can be considered to be conservative for typical pre-game conditions. Conversely, some events (such as concerts) that make use of temporary seating on the arena floor could experience higher attendance, although these would be infrequent, occasional events.

The majority of site traffic is anticipated to approach the site from the west via the Kingsway, with a substantial portion approaching from the north via Falconbridge Road and/or Barry Downe Road and also using the Kingsway to access the site. Based on the assumed trip distribution, over 1,300 vehicles are projected to approach the site via eastbound Kingsway during the pre-game peak hour, a figure that is close to the planning-level capacity of one and a half lanes (typically in the order of 850 vph per lane). The pre-game analyses found that the eastbound through movement and southbound left turn would be at or above capacity at the Kingsway intersections with Barry Downe Road and Falconbridge Road.

An opportunity may exist for some west-oriented site traffic to divert to Bancroft Drive, which has surplus eastbound capacity available at Second Avenue. However, this would result in additional traffic pressure on residential collector roads, and also would result in the northbound direction exceeding capacity at Levesque Street and the Kingsway.

An opportunity may also exist for some west-oriented site traffic to approach the site from the east, by traveling around the city via Highway 17 instead of traveling through the city via the Kingsway. This route choice has already been assumed for trips from the far west side of the urban area (and points farther west), but may become a relatively more attractive route for a greater proportion of travelers, despite being less direct, if the Kingsway begins to reach or exceed capacity.

More locally, the eastbound left turn movements at Streets A and C are anticipated to operate at approximately 85% of capacity during the pre-game peak hours. The left turn movements at these intersections will be high-volume movements, projected to attract approximately 600 to 700 vehicles during the pre-game hour. It is possible that these conditions may not fully materialize given other downstream constraints that will limit the flow of traffic that can reach the site during the pre-game peak hour. Notwithstanding, consideration should be given to widening the Kingsway to accommodate dual left turn lanes entering the site to allow for fluctuations in arrivals within the peak hour. Specifically, the following measures are recommended:

- Dual eastbound left turn lanes at Street A, with a storage length of 100 metres;
- Dual eastbound left turn lanes at Street C, with a storage length of 75 metres;
- A westbound right turn lane at Street A, with a storage length of at least 75 metres;
- An extension of the westbound right taper at Street C, to provide a storage length of at least 85 metres; and
- Widening of the east legs of the Street A and Street C intersections to align with the widening on the west side of those intersections.

5.3.2 Post-Game Conditions

During post-game conditions, the analyses did not extend beyond the immediate vicinity of the site. It is anticipated that the downstream intersections would be able to accommodate site traffic during the weekday post-game peak hour, given lower background volumes on the road network in the nighttime. Based on the applied distribution, approximately 1,710 vehicles are projected to be added to the westbound Kingsway during the weekday post-game peak hour, a figure that is close to the typical planning-level capacity of two arterial lanes (approximately 850 vph per lane).

Similar to pre-game conditions, there may be some surplus capacity available to the east via the Kingsway and to the west via Bancroft Drive, both at the local level and farther away from the study area. It is possible that some motorists that were otherwise anticipated to prefer the westbound Kingsway may be attracted to alternate routes.

Based on the anticipated driveway assignment, the southbound right turn from Street A is expected to be approximately 45 vph over capacity. The alternate route via Street C is expected to have approximately 130 vph of capacity available and may attract a greater proportion of exiting traffic than would be the case under unconstrained conditions. Overall, the time to process outbound traffic to the west is estimated to be in the order of 55 to 65 minutes (depending on the level, if any, of traffic reassignment).

Based on the anticipated driveway assignment, the southbound left turn from Street C is expected to be approximately 60 vph under capacity. The alternate route via Street A is expected to have approximately 290 vph of capacity available and may attract a greater proportion of exiting traffic than would be the case under unconstrained conditions. Overall, the time to process outbound traffic to the east is estimated to be in the order of 30 to 55 minutes (depending on the level, if any, of traffic reassignment).

No mitigation is recommended to increase capacity exiting the site to the west at Street A or Street C. Increasing the capacity in the vicinity of the site would increase the risk of overloading the road network farther downstream. Additionally, queues on the southbound right turn movements exiting the site may encourage more motorists to select alternate routes that have more downstream capacity available (e.g., the Highway 17 bypass).

5.3.3 Weekday (Non-Event) PM Peak Hour

Conditions during the PM peak hour are primarily affected by traffic leaving the business park. Similar to the event traffic, the majority of site traffic is destined to the west and northwest, requiring that it travel through the Kingsway intersections with Falconbridge Road and/or Barry Downe Road. While the volume of traffic added to the Kingsway in the peak direction is lower than event conditions (approximately 950 vph westbound), these trips would be added to the road network during a busier time of the day when there is less capacity available to accommodate growth. The Street A and Street C accesses to the Kingsway can accommodate the projected site traffic, but there would be capacity deficiencies of approximately 15% to 25% farther to the west (the westbound through movement and eastbound left turn at the Kingsway and Falconbridge Road; the westbound through movement, westbound right turn and southbound left turn at the Kingsway and Barry Downe Road).

Like the pre- and post-game conditions, there is surplus capacity east of the site that may encourage some additional motorists destined to the west part of the city to exit to the east and travel around the city using the Highway 17 bypass instead of traveling through the city via the Kingsway. This route choice has already been assumed for trips from the far west side of the urban area (and points farther west), but may become a relatively more attractive route for a greater proportion of travelers, despite being less direct, if the Kingsway begins to reach or exceed capacity.

Signal timing adjustments and other short-term mitigation would partly mitigate PM peak hour capacity constraints, but fully accommodating the additional volume of site traffic generated during the PM peak hour would require more substantial infrastructure modifications. Rather than providing additional capacity within the Kingsway “bottleneck” area, it is recommended that the capacity constraint be mitigated by the new roadway links identified in the TMP (the northerly extension of Street C and westerly connection to Falconbridge Road; bypass around New Sudbury from Highway 17 to Maley Drive) so that alternate routes to and from the site are available that allow site traffic to avoid major intersections on the Kingsway west of the site.

The PM peak hour conditions are largely governed by the business park. The business park will be built out incrementally, and the forecasted volumes would not materialize until full build-out. Further, the forecasted volumes are based on a generic “business park” trip generation rate, while the actual traffic volumes will depend on the specific land uses (and magnitude) that are developed within the individual lots. The incremental development will allow conditions to be monitored as additional lots are developed and occupied.

5.4 Recommended Internal Road Network Configuration

5.4.1 Street A and Street C

On Street A, two northbound lanes will be required north of the Kingsway to accommodate the recommended dual eastbound left turn lanes at the Kingsway signalized intersection, and a minimum of

two southbound lanes will be required so that separate southbound left and right turn lanes can be provided at the Kingsway signalized intersection.

On Street C, two northbound lanes will be required north of the Kingsway to accommodate the recommended dual eastbound left turn lanes at the Kingsway signalized intersection, and a three-lane cross-section is recommended consisting of separate right turn, through, and left turn lanes. The post-game queues are projected at 145 metres in the left turn lane, and 75 metres in the adjacent through lane. At a minimum, it is therefore recommended that a left turn storage length of at least 75 metres be provided. This distance would also allow the left turn lane to be developed downstream from the southernmost site access. The left turn queues would extend beyond the available storage during the post-game peak hour, but this is not unreasonable for occasional events.

It is recommended that the two southbound lanes on both Streets A and C be continuous for the full length of the street to maximize the ability to accommodate outbound queues following the conclusion of an event. On Street C, it is recommended that the two northbound lanes extend all the way to Street A, with the left lane functioning as a *de facto* left turn lane at site accesses. On Street A, the two northbound lanes would need to extend at least as far as Street B, and preferably to Street C; having two inbound lanes would allow vehicles to bypass queues of vehicles waiting to turn right at the site accesses, and/or to turn left into the overflow parking / business park properties.

5.4.2 Internal Driveways

The site has been subdivided into four separate areas from the perspective of parking access and vehicular circulation.

The area north and west of the casino and hotel will be accessed via a four-lane driveway intersecting with Street A opposite the Street B intersection. This driveway will provide access to four parking lots serving the casino and hotel, as well as drop-off facilities for those uses.

The area north and east of the arena will be accessed by two driveways: one to the north (Street A) and one to the east (Street C). These driveways will have four-lane cross-sections to accommodate queuing during peak-volume pre- and post-game periods.

The northwest and northeast parking areas are physically separated by a pick-up and drop-off loop for buses and shuttles in front of Festival Square, operating in a one-way counter-clockwise direction. The interior of the drop-off loop will contain additional parking area that is suggested to be designated on event nights as “four-plus” spaces, for use by vehicles with at least four occupants, to encourage higher vehicle occupancy rates traveling to the site. The drop-off loop does not accommodate connectivity between the northwest and northeast parking areas (except for emergency access), as a means of prioritizing bus circulation so that buses are not impeded by general vehicular traffic and queues within the site during peak pre- and post-game periods. Installation of traffic signals at the exit from the bus

loop is suggested as a measure to further prioritize bus flows onto Street A over other vehicles exiting from site driveways farther to the east, and to provide a controlled crossing location for pedestrians walking to and from the off-site overflow parking lots.

The fourth parking area is located on the south side of the arena and will be accessed via a driveway from Street C.

Parking areas for the arena have been designed to load from the rear of the lot where possible, in part for increased efficiency (reducing the need for visitors to circulate to look for a space) and in part to reduce vehicle–pedestrian conflict points during the pre-game period.

In addition to the parking areas and driveways described above, two service accesses are proposed. Service access will be provided via an extension of the access to the south parking lot, leading to a loading and circulation area for service vehicles underneath Festival Square. A second service access is proposed for the arena, via a dedicated driveway from Street C north of the south parking lot.

5.5 Transportation Demand Management

Given the volume of traffic generated by the site prior to and following an event, as well as other traffic constraints in the west end of the study area, consideration should be given to implementing measures to encourage a reduction in the number of vehicles being driven to the site. This could include measures to encourage spectators to travel via non-auto modes, and measures to encourage increased vehicle occupancy (more spectators per vehicle). In addition to reducing traffic pressure on the road network and decreasing the time required to clear the site after an event, reduced auto travel would reduce the required parking supply and potentially free up additional land for development within the business park.

5.5.1 Increased Non-Auto Travel

The primary non-auto mode that is likely to attract riders is transit, given the site's distance from the majority of the urban area. There are two considerations in effect: whether the service is at a level that will attract sufficient riders to use it; and whether the service provides sufficient capacity to accommodate those riders that wish to use it. The site trip generation assumed a 5% transit modal split, which would be equivalent to 290 passengers, or approximately six full busloads (including standees). While Sudbury Transit's ongoing network study is likely to recommend route restructuring to serve the site, the base service frequency is unlikely to be greater than hourly headways at times when riders are traveling to and from events. Instead, service to and from events at the arena should be provided by express shuttles to the downtown terminal (and potentially also to the New Sudbury Centre terminus), providing connections to other routes. Consideration should be given to operating "extra" trips on key connecting local routes serving those terminals to minimize transfer times during lower-frequency periods. Consideration may also be given to allowing spectators holding valid tickets to ride Sudbury

Transit to and from the site for free or for a reduced fare, and including travel information with tickets, as a further incentive to attract passengers that are not normally frequent riders.

A pick-up and drop-off loop is proposed adjacent to the main arena and casino entrances that will allow for staging of shuttle buses. The proximity of the shuttle loop to the main entrance is intended to prioritize shuttle service over private vehicle traffic, both by reducing walking distances and by insulating shuttles from queues of vehicles waiting to exit the parking areas. Installation of traffic signals at the exit from the bus loop would further prioritize bus flows onto Street A over other vehicles exiting from site driveways farther to the east, and would also provide a controlled crossing location for pedestrians walking to and from the off-site overflow parking lots.

It should be noted that, while spectators that are picked up and dropped off (rather than parking at the site) would be a TDM measure from the perspective of parking supply, they would not reduce the number of peak direction vehicle trips traveling to the site, and would result an overall increase in traffic when considering the additional counter-peak direction trip.

5.5.2 Increase in Vehicle Occupancy

The number of peak hour vehicle trips traveling to and from the site could also be reduced by increasing the average number of spectators traveling per vehicle. A small (approx. 75-spaces) parking area is proposed within the centre of the drop-off / shuttle loop adjacent to the arena entrance, and is likely to be attractive both because of the proximity to the entrance and because the lower capacity will likely decrease the time required to exit the lot after the event. On event days, these spaces could be designated as preferential spaces for vehicles carrying more than a specified number of spectators (e.g., a “four-plus” lot). Other measures may be explored that would increase the size of groups attending games and other events (e.g., measures to encourage sales to groups of 4 or more).

5.5.3 Active Transportation

There are currently no sidewalks along the Kingsway within the immediate vicinity of the site; the closest sidewalk begins in the vicinity of Third Avenue, approximately 2 kilometres to the west. There is a sidewalk on the east side of Levesque Street, and a sidewalk on the west side of Moonlight Avenue.

Given the site's separation from the urban area of the city, it is not anticipated that a substantial number of pedestrian trips will be generated from the west. Sidewalks should be provided along Streets A and C to allow for a connection to built-up areas south of the site, to provide a walking connection to transit stops, and to accommodate pedestrian trips between different uses as the surrounding business park develops.

On event days, overflow parking is proposed to be accommodated in the surrounding blocks. Protected pedestrian crossings should be provided across Street A to accommodate pedestrians traveling between off-site parking and the arena entrance. Two crossing locations have been identified: one at the east

side of the exit from the pick-up / drop-off loop, leading directly to Festival Square and the arena entrance; and one on the west side of the Street A access to the east parking lots, with a pedestrian corridor along the west side of this driveway that minimizes the number of vehicular crossing points. The installation of traffic signals at the bus loop exit as a transit priority measure (discussed in *Section 5.5.1*) would also provide a controlled crossing for pedestrians.

While there are no cycling routes proposed in the TMP, there is an opportunity to connect to the bicycle lanes on Bancroft Drive, 750 metres to the south. The Street C cross-section should include an allowance for cycling infrastructure. Consideration should also be given to the feasibility of extending this cycling route farther to the south along Levesque Street. One possible means of achieving an extended cycling route could be to mark bicycle lanes along Levesque Street, given that the existing pavement width (approximately 10.5 metres) can accommodate two traffic lanes and two bicycle lanes for the majority of the distance between the Kingsway and Bancroft Drive.

6.0

Summary

6.1

Proposed Development

This report has been prepared to document the findings of a traffic impact assessment of the proposed Kingsway Sports and Entertainment Complex, located on the north side of the Kingsway near Levesque Street in the eastern portion of the City of Greater Sudbury.

In the short term, the proposed development will consist of the following components:

- A 5,800-seat arena that will serve as the new home of the Sudbury Wolves Ontario Hockey League (OHL) team, as well as concerts and other similar events;
- A casino with approximately 780 gaming positions, as well as ancillary restaurant space; and
- A 200-room hotel with meeting space.

By 2022, a twin pad arena is envisioned to be added at the southeast corner of the main arena.

Two street connections are proposed to the Kingsway. Street C will be the easternmost access, located opposite Levesque Street; Street A will be the westernmost access, approximately 615 metres to the west. Both streets have been established through a previously approved plan of subdivision.

Beyond the site boundary, the surrounding lands on the west side of Street A and the east side of Street C are designated for employment uses. After accounting for lands required for the sports and entertainment complex, an estimated 93.67 acres are expected to be available for future business park development.

6.2

Analysis Horizon and Peak Hours

Traffic volumes and operations have been assessed at a five-year (2022) horizon year.

At all study area intersections, two design hours have been assessed: the typical weekday PM peak hour, and a weekday “pre-game” peak hour that accounts for higher volumes of traffic traveling to an event, offset by lower baseline traffic volumes at the conclusion of the PM peak period. On event nights, traffic conditions at the subject site are anticipated to be governed by the arena, which will be the largest traffic generator on days when a game or other major event is scheduled. Wolves games primarily occur on Friday evenings at 7:05 PM; accordingly, the weekday evening pre-game peak hour will occur between 6:00 and 7:00 PM. Some games may also occur on Saturday evenings (7:05 PM) or Sunday afternoons (2:00 PM), although Saturday and Sunday games would be fewer in number.

A subset of intersections (along the Kingsway between Third Avenue and Levesque Street) was also assessed for post-game peak hour conditions to determine the local impacts of the surge in traffic

following an event at the arena, and the time required to clear post-event traffic from the study area. The weekday evening post-game peak hour will vary but will typically occur between approximately 10:00 and 11:00 PM.

In addition, the City of Greater Sudbury requested that Saturday midday peak hour analyses be undertaken at the Kingsway and Barry Downe Road given the higher volumes of traffic on Saturday generated by surrounding commercial districts.

6.3 Existing Traffic Operations

Under existing volumes, the signalized intersections in the west end of the study area (from Falconbridge Road / Second Avenue and to the west) are operating at a reasonable overall level of service (LOS C to D), although with several critical movements. Most of the critical movements at these intersections are fully protected left turns that are experiencing high levels of delay and thereby operate at LOS E or F. Movements operating at 95% of capacity or higher during the PM peak hour are the northbound left turn at Lasalle Boulevard and Barry Downe Road; and the southbound left turn at the Kingsway and Barry Downe Road. Other movements operate within capacity but may be identified as being critical due to LOS / delay constraints, or due to queues extending beyond available storage.

The signalized and unsignalized intersections east of Falconbridge Road are operating at good levels of service (LOS A) with no critical movements.

6.4 Future Background Traffic Operations

No other developments have been identified that would substantially contribute to traffic volumes in the study area. Therefore, future background traffic volumes have been projected by applying an annual 1.5% growth rate to existing volumes.

No major transportation network changes are currently anticipated before the 2022 horizon, other than potential adjustments to the transit route structure (including rerouting of an existing route to serve the site). Additional road connections north of the site are envisioned in the city's TMP, but those are identified as long-term potential links beyond the horizon of this study.

Under future background conditions (i.e., without the proposed development in place), the intersections in the western part of the study area (involving Barry Downe Road and Falconbridge Road) are anticipated to have capacity, level of service and/or storage constraints on some movements. In particular, the Kingsway intersections with Falconbridge Road and Barry Downe Road are key focal points with substantial volumes on left turn movements to and from the north. Other intersections closer to the site are expected to operate at good levels of service.

Measures identified to mitigate critical movements under future background conditions include traffic signal timing adjustments at the following intersections:

- Lasalle Boulevard and Barry Downe Road;
- Lasalle Boulevard and Falconbridge Road;
- Kingsway and Barry Downe Road (along with the introduction of a northbound right turn overlap phase and adjustments to gap / extension parameters);
- Kingsway and Falconbridge Road (plus adjustments to gap / extension parameters); and
- Bancroft Drive and Second Avenue.

6.5 Trip Generation

Including the surrounding business park lands, the subject site is anticipated to generate 2,110 trips during the weekday PM peak hour; 2,690 trips during the weekday pre-game peak hour, 3,020 trips during the weekday post-game peak hour; and 990 trips during the Saturday peak hour. On event nights, the largest contributor to this total is the arena, which is projected to generate 1,985 inbound trips during the hour before an event, and 2,515 outbound trips during the hour after an event. The volume of arena traffic accounts for a transit modal split reduction of 5%, and an average vehicle occupancy rate of 2.19 spectators per vehicle.

A review of historical Wolves and OHL attendance figures indicates that basing the analyses on a sold-out game can be considered conservative from two perspectives:

- Current Wolves attendance is typically in the range of 3,000 to 4,000 spectators, and most other OHL teams typically draw similar attendance levels; and
- Most teams draw 5 to 10 near-capacity crowds, but attendance at the majority of games is usually 85% of capacity or less.

The business park also contributes a significant volume of traffic to the road network during the PM peak hour (approximately 1,575 vehicles per hour), although business park traffic will have dropped off substantially by the time that event attendees will be traveling to the site on event nights. The trip generation forecasts are based on a generic “business park” rate and as such the forecasts may vary depending on the ultimate land uses (and magnitudes) that are developed within the business park.

6.6 Parking

The parking supply required on the subject site has been calculated in two ways:

- Based on parking rates specified in the City's Zoning By-Law; and
- From first principles for each of the proposed uses (other than the surrounding business park blocks, for which parking will be provided on-site and determined through the typical rezoning and/or site plan application process).

Based on the parking requirements of the ZBL, the site would require a total supply of 1,908 spaces, comprised of the following:

- 293 spaces for the casino;
- 423 spaces for the hotel; and
- 1,192 spaces for the arena.

The subsequent addition of a twin pad arena would increase the ZBL parking requirements by 217 spaces, for a total requirement of 2,125 spaces.

Based on actual time-of-day usage of the site, the following parking requirements are anticipated during the peak Friday evening time period:

- 2,615 spaces for the main arena
- 520 to 550 spaces for the casino
- 200 spaces for the hotel
- 3,335 to 3,365 spaces in total.

By 2022, the addition of a twin pad arena would increase the Friday evening parking requirement by 100 spaces, for a total requirement of 3,435 to 3,465 spaces.

The anticipated parking demand is predominantly governed by the arena, and as such the parking supply for the other uses within the site assumes a reasonable level of use but not a peak level of use (e.g., the casino parking supply is based on Friday night conditions rather than busier Saturday conditions; the hotel parking supply assumes that any meeting room space is not booked while an event is underway at the arena).

A schematic parking layout has been developed for the site (subject to adjustments during the detailed design stage). At initial build-out, the parking layout reflects a total parking supply of 2,142 spaces. This parking supply exceeds the ZBL requirement of 1,908 spaces and will easily accommodate parking demand at most times, but will not be sufficient to accommodate parking demand during games or other major events at the arena. To accommodate overflow parking for Wolves games and other special events at the arena, approximately 1,400 parking spaces will be provided in temporary lots within the surrounding business park blocks.

By 2022, the twin pad arena will displace some of the parking spaces in the southeast corner of the site; this displacement is proposed to be offset by the construction of an additional lot to the south. This change will increase the on-site parking supply to 2,359 spaces. This would exceed the ZBL requirement of 2,125 spaces. Overflow parking would continue to be required during games or major events at the main arena.

As the surrounding lands develop, it is possible that overflow parking may make use of parking lots required for the surrounding business park lands, since events at the arena will typically occur at times when parking is underutilized within the business park. It is recommended that parking demand associated with major arena events be monitored in advance of the business park lands being built out to allow a strategy for shared parking to be refined if necessary.

6.7 Total Future Traffic Operations

Total future traffic conditions assume the following road modifications at the Kingsway intersections with Streets A and C (at a minimum) to accommodate traffic generated by the site:

- Single eastbound left turn lanes at both Streets A and C, with advance (protected+permitted) left turn phases capable of being extended to up to 40 seconds of advance green time.
- Dedicated westbound right turn lanes at both Streets A and C.
- A two-lane southbound approach on Street A at the Kingsway (separate left and right turn lanes).
- A three-lane southbound approach on Street C at the Kingsway (separate left turn, through, and right turn lanes).

6.7.1 Pre-Game Conditions

Pre-game conditions have been assessed based on a sold-out hockey game. A review of historical Wolves and OHL attendance data suggests that this is only likely to occur on a subset of the Wolves games, with the majority likely to have attendance at 85% of capacity or less. As such, the analyses can be considered to be conservative for typical pre-game conditions. Conversely, some events (such as concerts) that make use of temporary seating on the arena floor could experience higher attendance, although these would be infrequent, occasional events.

The majority of site traffic is anticipated to approach the site from the west via the Kingsway, with a substantial portion approaching from the north via Falconbridge Road and/or Barry Downe Road and also using the Kingsway to access the site. Based on the assumed trip distribution, over 1,300 vehicles are projected to approach the site via eastbound Kingsway during the pre-game peak hour, a figure that is close to the planning-level capacity of one and a half lanes (typically in the order of 850 vph per lane). The pre-game analyses found that the eastbound through movement and southbound left turn would be at or above capacity at the Kingsway intersections with Barry Downe Road and Falconbridge Road.

An opportunity may exist for some west-oriented site traffic to divert to Bancroft Drive, which has surplus eastbound capacity available at Second Avenue. However, this would result in additional traffic pressure on residential collector roads, and also would result in the northbound direction exceeding capacity at Levesque Street and the Kingsway.

An opportunity may also exist for some west-oriented site traffic to approach the site from the east, by traveling around the city via Highway 17 instead of traveling through the city via the Kingsway. This route choice has already been assumed for trips from the far west side of the urban area (and points

farther west), but may become a relatively more attractive route for a greater proportion of travelers, despite being less direct, if the Kingsway begins to reach or exceed capacity.

More locally, the eastbound left turn movements at Streets A and C are anticipated to operate at approximately 85% of capacity during the pre-game peak hours. The left turn movements at these intersections will be high-volume movements, projected to attract approximately 600 to 700 vehicles during the pre-game hour. It is possible that these conditions may not fully materialize given other downstream constraints that will limit the flow of traffic that can reach the site during the pre-game peak hour. Notwithstanding, consideration should be given to widening the Kingsway to accommodate dual left turn lanes entering the site to allow for fluctuations in arrivals within the peak hour. Specifically, the following measures are recommended:

- Dual eastbound left turn lanes at Street A, with a storage length of 100 metres;
- Dual eastbound left turn lanes at Street C, with a storage length of 75 metres;
- A westbound right turn lane at Street A, with a storage length of at least 75 metres;
- An extension of the westbound right taper at Street C, to provide a storage length of at least 85 metres; and
- Widening of the east legs of the Street A and Street C intersections to align with the widening on the west side of those intersections.

6.7.2 Post-Game Conditions

During post-game conditions, the analyses did not extend beyond the immediate vicinity of the site. It is anticipated that the downstream intersections would be able to accommodate site traffic during the weekday post-game peak hour, given lower background volumes on the road network in the nighttime. However, this would not be the case for weekend post-event conditions (e.g., a Sunday afternoon game ending near 5:00 PM). Based on the applied distribution, approximately 1,710 vehicles are projected to be added to the westbound Kingsway during the weekday post-game peak hour, a figure that is close to the typical planning-level capacity of two arterial lanes (approximately 850 vph per lane).

Similar to pre-game conditions, there may be some surplus capacity available to the east via the Kingsway and to the west via Bancroft Drive, both at the local level and farther away from the study area. It is possible that some motorists that were otherwise anticipated to prefer the westbound Kingsway may be attracted to alternate routes.

Based on the anticipated driveway assignment, the southbound right turn from Street A is expected to be approximately 45 vph over capacity. The alternate route via Street C is expected to have approximately 130 vph of capacity available and may attract a greater proportion of exiting traffic than would be the case under unconstrained conditions. Overall, the time to process outbound traffic to the west is estimated to be in the order of 55 to 65 minutes (depending on the level, if any, of traffic reassignment).

Based on the anticipated driveway assignment, the southbound left turn from Street C is expected to be approximately 60 vph under capacity. The alternate route via Street A is expected to have approximately 290 vph of capacity available and may attract a greater proportion of exiting traffic than would be the case under unconstrained conditions. Overall, the time to process outbound traffic to the east is estimated to be in the order of 30 to 55 minutes (depending on the level, if any, of traffic reassignment).

No mitigation is recommended to increase capacity exiting the site to the west at Street A or Street C. Increasing the capacity in the vicinity of the site would increase the risk of overloading the road network farther downstream. Additionally, queues on the southbound right turn movements exiting the site may encourage more motorists to select alternate routes that have more downstream capacity available (e.g., the Highway 17 bypass).

6.7.3 Weekday (Non-Event) PM Peak Hour

Conditions during the PM peak hour are primarily affected by traffic leaving the business park. Similar to the event traffic, the majority of site traffic is destined to the west and northwest, requiring that it travel through the Kingsway intersections with Falconbridge Road and/or Barry Downe Road. While the volume of traffic added to the Kingsway in the peak direction is lower than event conditions (approximately 950 vph westbound), these trips would be added to the road network during a busier time of the day when there is less capacity available to accommodate growth. The Street A and Street C accesses to the Kingsway can accommodate the projected site traffic, but there would be capacity deficiencies of approximately 15% to 25% farther to the west (the westbound through movement and eastbound left turn at the Kingsway and Falconbridge Road; the westbound through movement, westbound right turn and southbound left turn at the Kingsway and Barry Downe Road).

Like the pre- and post-game conditions, there is surplus capacity east of the site that may encourage some additional motorists destined to the west part of the city to exit to the east and travel around the city using the Highway 17 bypass instead of traveling through the city via the Kingsway. This route choice has already been assumed for trips from the far west side of the urban area (and points farther west), but may become a relatively more attractive route for a greater proportion of travelers, despite being less direct, if the Kingsway begins to reach or exceed capacity.

Signal timing adjustments and other short-term mitigation would partly mitigate PM peak hour capacity constraints, but fully accommodating the additional volume of site traffic generated during the PM peak hour would require more substantial infrastructure modifications. Rather than providing additional capacity within the Kingsway “bottleneck” area, it is recommended that the capacity constraint be mitigated by the new roadway links identified in the TMP (the northerly extension of Street C and westerly connection to Falconbridge Road; bypass around New Sudbury from Highway 17 to Maley Drive) so that alternate routes to and from the site are available that allow site traffic to avoid major intersections on the Kingsway west of the site.

The PM peak hour conditions are largely governed by the business park. The business park will be built out incrementally, and the forecasted volumes would not materialize until full build-out. Further, the forecasted volumes are based on a generic “business park” trip generation rate, while the actual traffic volumes will depend on the specific land uses (and magnitude) that are developed within the individual lots. The incremental development will allow conditions to be monitored as additional lots are developed and occupied.

6.7.4 Recommended Mitigation

A two-staged approach to mitigating traffic capacity constraints has been identified, consisting of measures that can be implemented using existing infrastructure (or that can be coordinated with site construction), and measures that would involve more substantial planning, design and/or construction.

The first set of mitigation consists of maximizing capacity at existing intersections to the west of the site through signal timing and/or phasing adjustments, along with localized road modifications on the Kingsway at the new Street A and Street C (Levesque Street) intersections. This would include the following:

- Signal timing adjustments at the Kingsway and Lasalle Boulevard intersections with Barry Downe Road and with Falconbridge Road, as well as at Bancroft Drive and Second Avenue;
- New signal heads at the Kingsway and Barry Downe Road to accommodate a northbound right turn overlap phase;
- Consideration of deactivating the southbound left turn phase at Bancroft Drive and Second Avenue; and
- Provision of eastbound dual left turn lanes (operating under fully protected phasing) and westbound right turn lanes on the Kingsway at Streets A and C.

These adjustments would result in some movements remaining over capacity at the busy Kingsway intersections with Barry Downe Road and Falconbridge Road during the PM peak hour, but this would not materialize until a substantial portion of the business park has been built out. There would also be capacity constraints at those intersections during the pre-game peak hour, but those would be less frequent occurrences and the traffic volumes would be lower than forecast for the majority of games that are not sold out.

Mitigation through optimization of existing infrastructure would support the development of the main site (arena, casino, hotel and twin pads) and part of the business park. However, the traffic generated by full build-out of the business park would require more substantial infrastructure modifications to mitigate constraints on the Kingsway and on Barry Downe Road west of the site. The City’s TMP identifies new roadway links (the northerly extension of Street C and westerly connection to Falconbridge Road; bypass around New Sudbury from Highway 17 to Maley Drive) that would provide alternate routes to and from the site and allow site traffic to avoid major intersections on the Kingsway west of the site. Traffic conditions on the surrounding road network should be regularly monitored as

the business park is incrementally developed to confirm that timing required for these new roadway links.

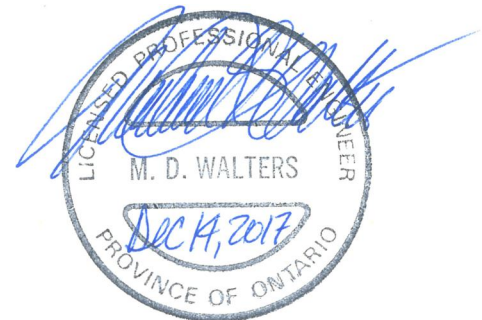
6.8 Transportation Demand Management

Given the volume of traffic generated by the site prior to and following an event, as well as other traffic constraints in the west end of the study area, consideration should be given to implementing measures to encourage a reduction in the number of vehicles being driven to the site. This could include measures to encourage spectators to travel via non-auto modes, and measures to encourage increased vehicle occupancy (more spectators per vehicle). In addition to reducing traffic pressure on the road network and decreasing the time required to clear the site after an event, reduced auto travel would reduce the required parking supply and potentially free up additional land for development within the business park.

A pick-up and drop-off loop is proposed in front of the main entrances to the arena and casino. It is recommended that this loop be used for staging of shuttle buses before and after major events. The loop would be physically separated from other parking areas to insulate shuttle movements from traffic queues within the site; installation of traffic signals at the bus loop exit would further prioritize bus movements onto Street A over other vehicles exiting from site driveways farther to the east.

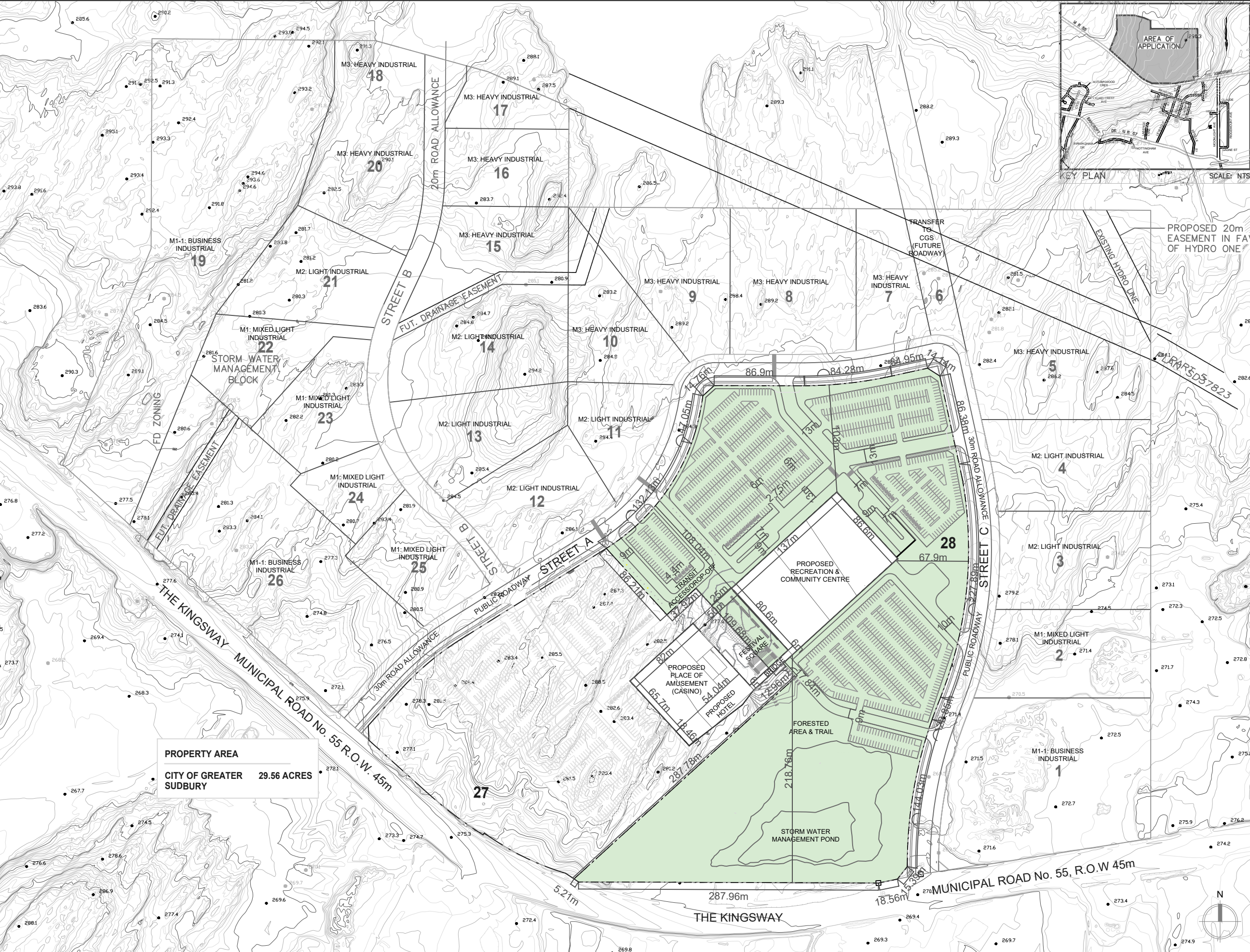
Shuttles would provide direct connections to the downtown Sudbury Transit terminal, and potentially also to the New Sudbury Centre terminus. Riders would be able to connect to and from other local routes converging at those two hubs. Consideration should be given to operating “extra” runs on key local routes serving those terminals, both to provide increased capacity for the additional riders and to reduce the waiting time to transfer between the local routes and the express shuttle. Consideration should also be given to allowing ticketholders to travel for free or a reduced fare.

It is also recommended that measures be explored to encourage increased vehicle occupancy, such as the designation of preferred parking areas for vehicles carrying a certain number of spectators (e.g., a “four-plus” parking area).

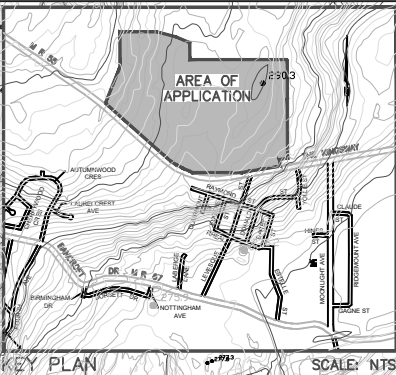


Appendix A

Proposed Site Plan



PROPERTY AREA
CITY OF GREATER SUDBURY 29.56 ACRES



CLIENT:
Sudbury
200 Rue Brady Street
Sudbury, Ontario
P3A 6P3
PO Box 5000/ CP 5000
www.greatersudbury.ca

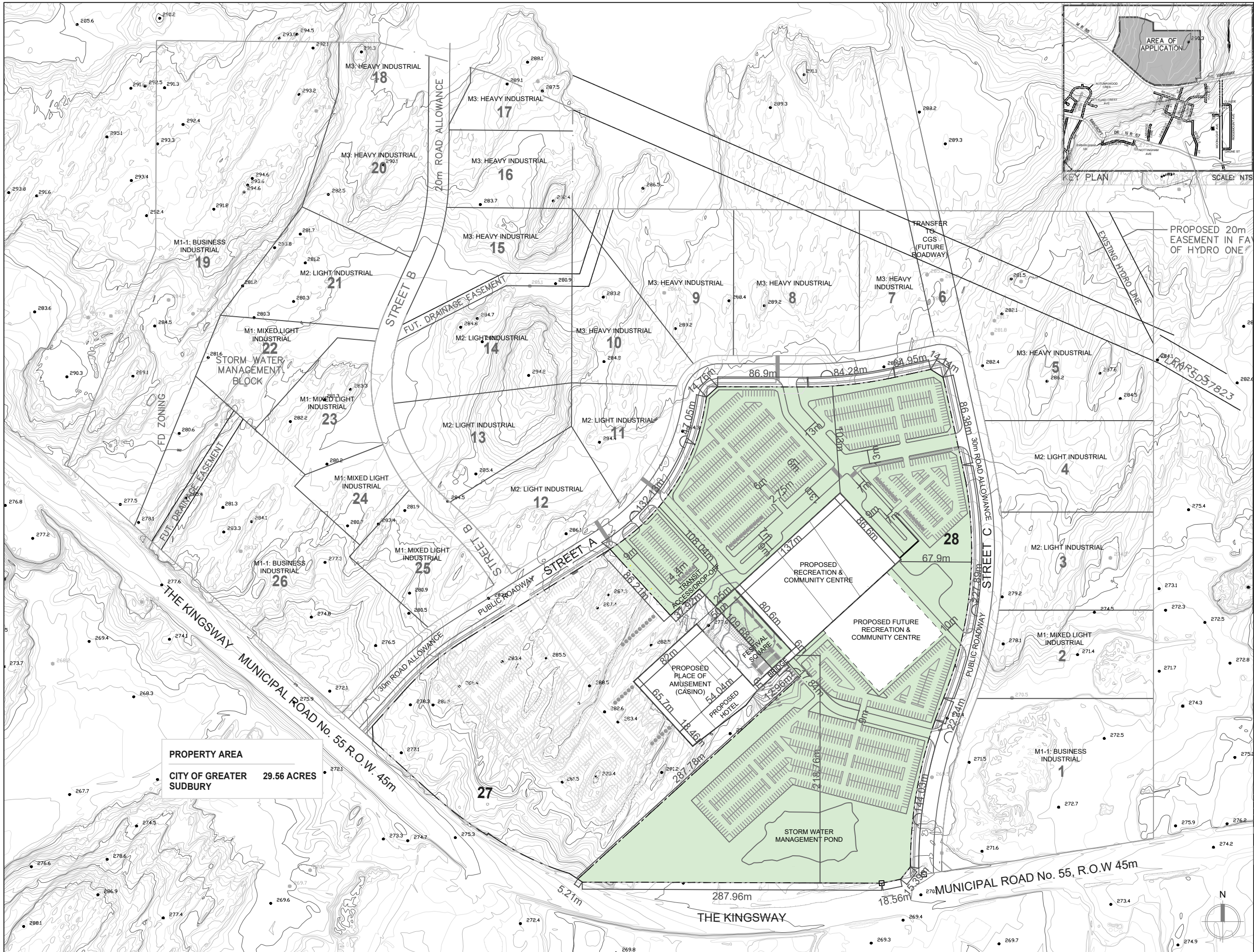
ARCHITECT:
CUMULUS ARCHITECTS INC.
Suite 412, 160 Pears Ave.
Toronto, ON M5R 3P8
416-539-0763
www.cumulusarch.com



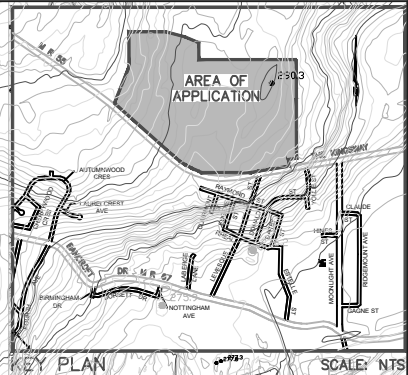
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No.	Description	Date
1	ZONING BY-LAW AMENDMENT	15/11/2017

PROJECT:
SUDBURY, ONTARIO
TITLE:
CONCEPTUAL KINGSWAY INTEGRATED SITE PLAN
scale: 1:3500
PROJECT NO:
17056
DRAWING NO:
A110



PROPERTY AREA
CITY OF GREATER SUDBURY 29.56 ACRES



CLIENT:
Sudbury
 200 Rue Brady Street
 Sudbury, Ontario
 P3A 6P3
 PO Box 5000/ CP 5000
 www.greatersudbury.ca

ARCHITECT:
CUMULUS ARCHITECTS INC.
 Suite 412, 160 Pears Ave.
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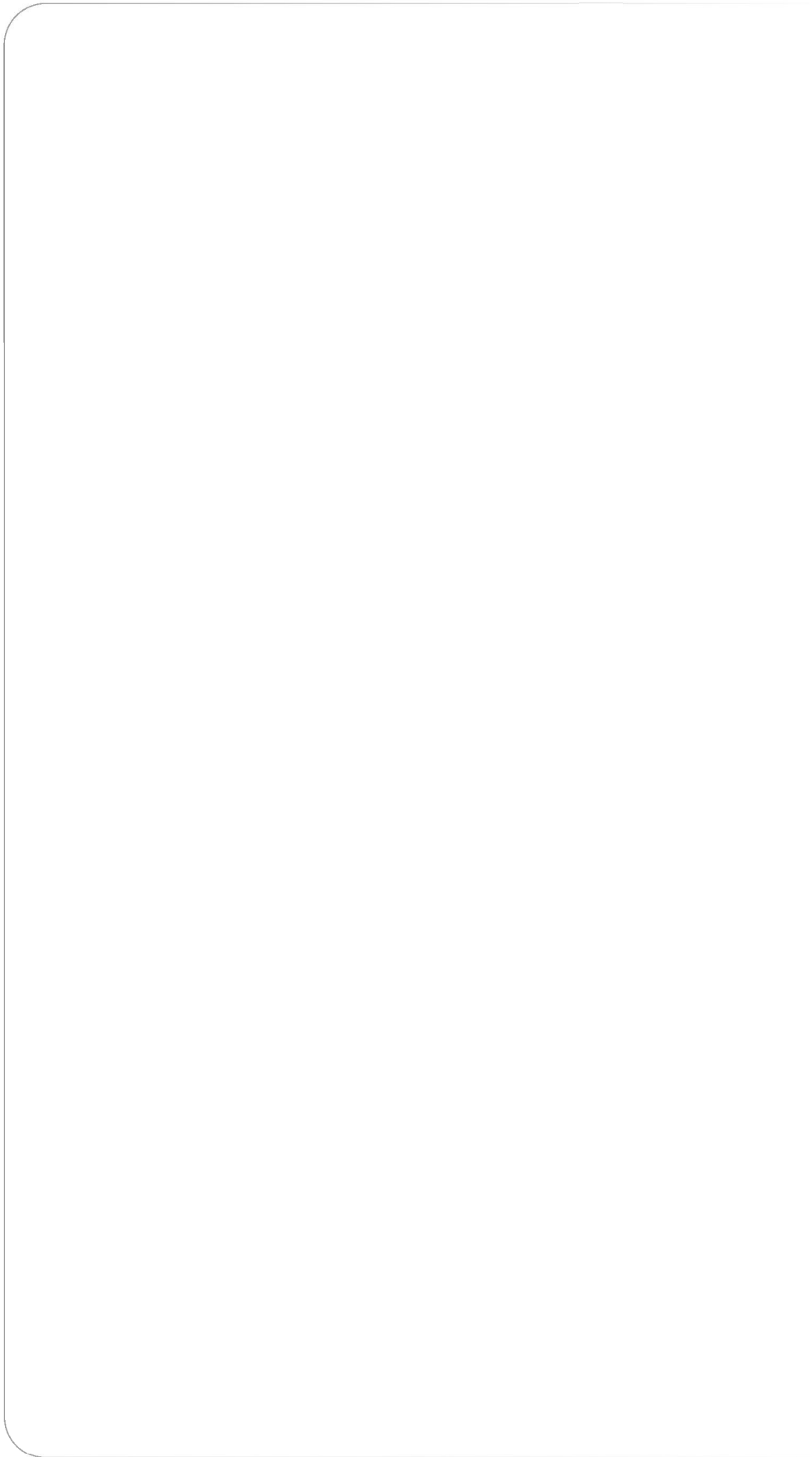
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No.	Description	Date
1	ZONING BY-LAW AMENDMENT	15/11/2017

PROJECT:
SUDBURY, ONTARIO
 TITLE:
CONCEPTUAL KINGSWAY INTEGRATED SITE PLAN-PHASE 2
 scale: 1:3500
 PROJECT NO.: 17056
 DRAWING NO.: **A120**
 CHECKED:

Appendix B

Level of Service Definitions



LEVEL OF SERVICE¹

Level of Service (LOS) is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. This concept was introduced in the 1965 *Highway Capacity Manual* as a criteria for interrupted flow conditions. The 2000 *Highway Capacity Manual* changed the basis for measuring Level of Service at intersections to control delay².

Six Levels of Service are defined with LOS A representing the best operating conditions, and LOS F the worst (briefly described below). It should be noted that there is often significant variability in the amount of delay experienced by individual drivers.

- LOS A:** This Level of Service describes the highest quality of traffic flow and is referred to as free flow. The approach appears open, turning movements are easily made and drivers have freedom of operation. Control delay is less than 10 seconds/vehicle.
- LOS B:** This Level of Service is referred to as a stable flow. Drivers feel somewhat restricted and occasionally may have to wait to complete the minor movement. Control delay is 10-15 seconds/vehicle for unsignalized intersections and 10-20 seconds/vehicle for signalized intersections.
- LOS C:** At this level, the operation is stable. Drivers feel more restricted and may have to wait, with queues developing for short periods. Control delay is 15-25 seconds/vehicle at unsignalized intersections and 20-35 seconds/vehicle at signalized intersections.
- LOS D:** At this level, traffic is approaching unstable flow. The motorist experiences increasing restriction and instability of flow. There are substantial delays to approaching vehicles during short peaks within the peak period, but there are enough gaps to lower demand to permit occasional clearance of developing queues and prevent excessive back-ups. Control delay is 25-35 seconds/vehicle at unsignalized intersections and 35-55 seconds/vehicle at signalized intersections.
- LOS E:** At this level capacity occurs. Long queues of vehicles exist and delays to vehicles may extend. Control delay is 35-50 seconds/vehicle at unsignalized intersections and 55-80 seconds/vehicle at signalized intersections.
- LOS F:** At this Level of Service, the intersection has failed. Capacity of the intersection has been exceeded. Control delay exceeds 50 seconds/vehicle at unsignalized intersections and exceeds 80 seconds/vehicle at signalized intersections.

¹

Transportation Research Board: Highway Capacity Manual 1965, 2000

²

Control delay is defined as the component of delay that results when a control signal causes a lane group to reduce speed or to stop; it is measured by comparison with the uncontrolled condition.












Appendix C

Synchro Analysis Worksheets

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.













Weekday PM peak hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	735	270	295	715	100	285	270	305	130	410	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99						0.99	
Frt			0.850		0.982				0.850		0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1787	3428	0	1787	3539	1568	1770	3383	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1787	3428	0	1787	3539	1568	1770	3383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278		13				314		33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Confl. Peds. (#/hr)						40						25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	1%	3%	0%	1%	2%	3%	2%	1%	3%
Adj. Flow (vph)	191	758	278	304	737	103	294	278	314	134	423	139
Shared Lane Traffic (%)												
Lane Group Flow (vph)	191	758	278	304	840	0	294	278	314	134	562	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	37.0	37.0	28.0	40.0	0.0	25.0	30.0	30.0	25.0	30.0	0.0
Total Split (%)	20.8%	30.8%	30.8%	23.3%	33.3%	0.0%	20.8%	25.0%	25.0%	20.8%	25.0%	0.0%
Maximum Green (s)	20.0	31.3	31.3	23.0	34.3		20.0	24.3	24.3	20.0	24.3	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	16.5	31.0	31.0	21.9	36.4		20.0	28.7	28.7	13.6	22.3	
Actuated g/C Ratio	0.14	0.27	0.27	0.19	0.31		0.17	0.25	0.25	0.12	0.19	
v/c Ratio	0.76	0.81	0.45	0.91	0.78		0.96	0.32	0.50	0.65	0.83	
Control Delay	68.2	48.3	6.5	77.6	42.9		90.8	38.4	7.4	64.0	54.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	68.2	48.3	6.5	77.6	42.9		90.8	38.4	7.4	64.0	54.6	
LOS	E	D	A	E	D		F	D	A	E	D	
Approach Delay		41.9			52.1			44.8			56.4	
Approach LOS		D			D			D			E	
Queue Length 50th (m)	45.8	93.3	0.0	74.1	99.1		73.5	29.5	0.0	32.2	66.2	
Queue Length 95th (m)	70.7	117.6	21.1	#125.7	#128.6		#131.1	44.8	24.9	51.3	87.6	
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)	35.0			100.0			100.0		45.0	50.0		
Base Capacity (vph)	295	948	624	350	1077		307	872	623	288	720	
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	0.65	0.80	0.45	0.87	0.78		0.96	0.32	0.50	0.47	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 116.7

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 48.1

Intersection LOS: D

Intersection Capacity Utilization 92.9%

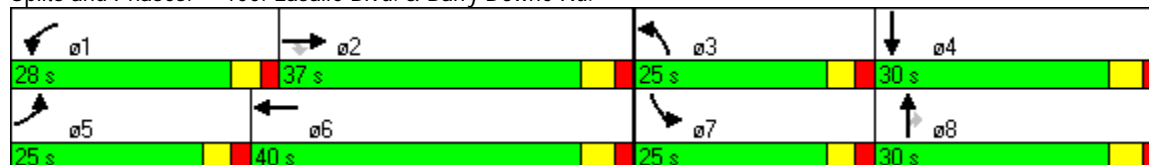
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.























Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.



Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.













Weekday PM peak hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	70	255	115	145	60	300	815	60	15	490	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.956			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1881	1509	1719	1776	0	1736	3504	0	1444	3505	1568
Flt Permitted	0.434			0.710			0.288			0.316		
Satd. Flow (perm)	808	1881	1509	1285	1776	0	526	3504	0	480	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			263		15			9				272
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.4			295.5			253.8			227.6	
Travel Time (s)		16.3			21.3			18.3			16.4	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	1%	7%	5%	2%	3%	4%	2%	2%	25%	3%	3%
Adj. Flow (vph)	485	72	263	119	149	62	309	840	62	15	505	335
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	72	263	119	211	0	309	902	0	15	505	335
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	22.0	28.4	28.4	16.0	28.4	0.0	22.0	46.8	0.0	46.8	46.8	46.8
Total Split (%)	18.5%	23.8%	23.8%	13.4%	23.8%	0.0%	18.5%	39.3%	0.0%	39.3%	39.3%	39.3%
Maximum Green (s)	18.0	22.0	22.0	12.0	22.0		18.0	40.0		40.0	40.0	40.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0

Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)	46.6	33.3	33.3	33.7	22.1		47.8	45.0		24.3	24.3	24.3
Actuated g/C Ratio	0.46	0.33	0.33	0.32	0.22		0.47	0.44		0.24	0.24	0.24
v/c Ratio	0.90	0.12	0.39	0.26	0.53		0.70	0.58		0.13	0.61	0.58
Control Delay	46.1	29.5	6.0	20.5	40.0		26.5	22.9		33.5	38.1	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	46.1	29.5	6.0	20.5	40.0		26.5	22.9		33.5	38.1	11.7
LOS	D	C	A	C	D		C	C		C	D	B
Approach Delay		31.8			33.0			23.8			27.7	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	74.7	11.0	0.0	14.3	36.7		40.4	71.9		2.5	50.5	10.7
Queue Length 95th (m)	#170.7	25.1	20.7	29.4	66.3		61.0	90.7		8.3	67.6	36.9
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)	90.0			40.0			55.0			40.0		30.0
Base Capacity (vph)	537	613	669	485	395		453	1827		163	1190	712
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	0.90	0.12	0.39	0.25	0.53		0.68	0.49		0.09	0.42	0.47

Intersection Summary

Area Type: Other

Cycle Length: 119.2

Actuated Cycle Length: 102.4

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 27.8

Intersection LOS: C

Intersection Capacity Utilization 98.4%

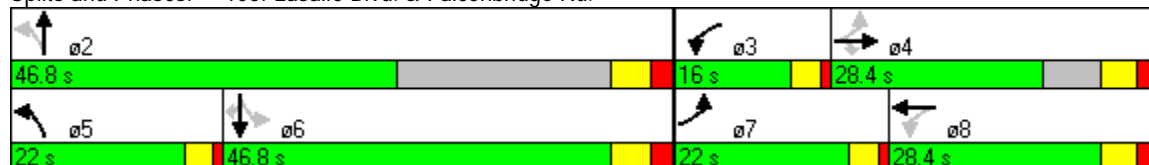
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

























Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.



Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.













Weekday PM peak hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	725	900	85	125	665	415	100	315	145	460	335	545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Friction			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			89			290						574
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	763	947	89	132	700	437	105	332	153	484	353	574
Shared Lane Traffic (%)												
Lane Group Flow (vph)	763	947	89	132	700	437	105	332	153	484	353	574
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	34.1	10.4	34.1	
Total Split (s)	44.4	48.4	48.4	19.4	46.4	46.4	22.4	26.1	26.1	22.4	26.1	0.0
Total Split (%)	31.9%	34.7%	34.7%	13.9%	33.3%	33.3%	16.1%	18.7%	18.7%	16.1%	18.7%	0.0%
Maximum Green (s)	39.0	42.0	42.0	14.0	40.0	40.0	17.0	20.0	20.0	17.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	6.1	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5	3.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effect Green (s)	31.3	51.3	51.3	12.5	32.6	32.6	8.7	16.8	16.8	17.3	25.5	121.7
Actuated g/C Ratio	0.26	0.42	0.42	0.10	0.27	0.27	0.07	0.14	0.14	0.14	0.21	1.00
v/c Ratio	0.86	0.63	0.12	0.72	0.75	0.69	0.42	0.68	0.68	0.98	0.47	0.36
Control Delay	54.3	29.8	4.5	77.5	47.0	19.7	62.4	59.0	68.7	89.4	47.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	29.8	4.5	77.5	47.0	19.7	62.4	59.0	68.7	89.4	47.0	0.6
LOS	D	C	A	E	D	B	E	E	E	F	D	A
Approach Delay		38.9			40.7			62.1			42.7	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	95.5	99.8	0.0	32.8	86.1	32.6	13.5	42.7	37.5	~65.8	41.9	0.0
Queue Length 95th (m)	130.3	124.9	9.8	#69.3	118.5	77.1	25.2	65.8	67.6	#120.7	66.4	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	1053	1708	732	206	1094	636	464	574	262	493	747	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.55	0.12	0.64	0.64	0.69	0.23	0.58	0.58	0.98	0.47	0.36

Intersection Summary

Area Type: Other

Cycle Length: 139.3

Actuated Cycle Length: 121.7

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 43.1

Intersection LOS: D

Intersection Capacity Utilization 80.3%

ICU Level of Service D

Analysis Period (min) 15

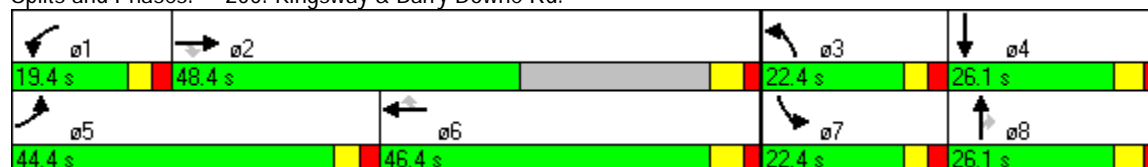
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.
























Splits and Phases: 200: Kingsway & Barry Downe Rd.



Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.













Weekday PM peak hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	675	620	295	75	415	295	260	450	85	420	440	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Fr't			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			301			293			16			520
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	1%	5%	5%	2%	1%	2%	5%	2%	2%
Adj. Flow (vph)	689	633	301	77	423	301	265	459	87	429	449	520
Shared Lane Traffic (%)												
Lane Group Flow (vph)	689	633	301	77	423	301	265	546	0	429	449	520
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	30.0	40.7	40.7	20.0	35.7	35.7	20.0	35.7	0.0	25.0	35.7	0.0
Total Split (%)	23.7%	32.2%	32.2%	15.8%	28.2%	28.2%	15.8%	28.2%	0.0%	19.8%	28.2%	0.0%
Maximum Green (s)	25.0	34.0	34.0	15.0	29.0	29.0	15.0	29.0		20.0	29.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	25.2	40.5	40.5	9.8	22.6	22.6	12.8	22.7		18.0	27.9	112.1
Actuated g/C Ratio	0.22	0.36	0.36	0.09	0.20	0.20	0.11	0.20		0.16	0.25	1.00
v/c Ratio	0.88	0.50	0.39	0.50	0.61	0.55	0.67	0.76		0.80	0.51	0.33
Control Delay	57.5	32.1	5.1	62.0	45.7	9.4	57.9	48.7		58.3	38.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	57.5	32.1	5.1	62.0	45.7	9.4	57.9	48.7		58.3	38.8	0.6
LOS	E	C	A	E	D	A	E	D		E	D	A
Approach Delay		37.9			33.6			51.7			30.6	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	79.2	62.6	0.0	17.1	47.7	1.5	30.2	60.7		48.4	46.1	0.0
Queue Length 95th (m)	#134.4	93.2	20.8	35.2	69.1	26.9	49.2	86.7		#79.1	68.2	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	779	1293	764	225	845	544	453	869		588	1022	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.88	0.49	0.39	0.34	0.50	0.55	0.58	0.63		0.73	0.44	0.33

Intersection Summary

Area Type: Other

Cycle Length: 126.4

Actuated Cycle Length: 112.1

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 37.4

Intersection LOS: D

Intersection Capacity Utilization 82.6%

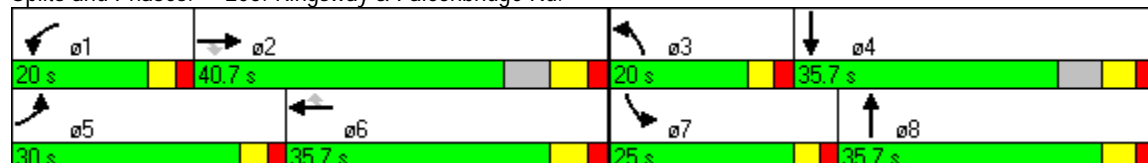
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.






















Splits and Phases: 205: Kingsway & Falconbridge Rd.



Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.













Weekday PM peak hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	975	70	25	690	0	35	0	30	5	5	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950				0.950			0.976	
Satd. Flow (prot)	1504	3539	1615	1805	3505	0	0	1685	1507	0	1731	1507
Flt Permitted	0.950			0.950				0.751			0.822	
Satd. Flow (perm)	1504	3539	1615	1805	3505	0	0	1332	1507	0	1458	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			75						32			11
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	20%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	5	1048	75	27	742	0	38	0	32	5	5	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1048	75	27	742	0	0	38	32	0	10	11
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)	6.3	58.5	58.5	7.2	61.4			9.8	9.8		9.8	9.8
Actuated g/C Ratio	0.07	0.74	0.74	0.08	0.78			0.12	0.12		0.12	0.12
v/c Ratio	0.05	0.40	0.06	0.18	0.27			0.25	0.16		0.06	0.06
Control Delay	37.0	7.4	2.3	34.7	4.8			33.1	14.2		30.7	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	37.0	7.4	2.3	34.7	4.8			33.1	14.2		30.7	18.1
LOS	D	A	A	C	A			C	B		C	B
Approach Delay		7.2			5.9			24.4			24.1	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.5	25.4	0.0	2.3	16.1			3.2	0.0		0.8	0.0
Queue Length 95th (m)	4.4	71.5	5.4	12.5	43.7			15.6	8.2		6.3	4.8
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)	100.0		90.0	30.0								
Base Capacity (vph)	174	2741	1268	253	2815			301	365		329	349
Starvation Cap Reductn	0	0	0	0	0			0	0		0	0
Spillback Cap Reductn	0	0	0	0	0			0	0		0	0
Storage Cap Reductn	0	0	0	0	0			0	0		0	0
Reduced v/c Ratio	0.03	0.38	0.06	0.11	0.26			0.13	0.09		0.03	0.03

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 78.9

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 55.4%

ICU Level of Service B






















Analysis Period (min) 15

Splits and Phases: 210: Kingsway & 3rd Ave.















Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	815	190	75	615	0	75	0	115	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		0.1	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	60.0		65.0	95.0		35.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1900	3539	1583	1736	3438	0	1805	1568	0	1900	1900	0
Flt Permitted				0.275			0.757					
Satd. Flow (perm)	1900	3539	1583	502	3438	0	1438	1568	0	1900	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202					208				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	2%	4%	5%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	0	867	202	80	654	0	80	0	122	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	867	202	80	654	0	80	122	0	0	0	0
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	30.0	30.0	30.0	5.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	37.9	37.9	37.9	9.0	37.9		27.8	27.8		27.8	27.8	
Total Split (s)	37.9	37.9	37.9	9.0	37.9	0.0	27.8	27.8	0.0	27.8	27.8	0.0
Total Split (%)	50.7%	50.7%	50.7%	12.0%	50.7%	0.0%	37.2%	37.2%	0.0%	37.2%	37.2%	0.0%
Maximum Green (s)	30.0	30.0	30.0	5.0	30.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	4.0	7.9	4.0	6.8	6.8	4.0	6.8	6.8	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	2.5	5.0		3.5	3.5		3.5	3.5	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0		16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effect Green (s)		42.2	42.2	53.7	50.5		10.7	10.7				
Actuated g/C Ratio		0.58	0.58	0.72	0.69		0.14	0.14				
v/c Ratio		0.43	0.20	0.18	0.28		0.40	0.31				
Control Delay		11.4	2.4	4.7	5.8		29.8	2.6				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		11.4	2.4	4.7	5.8		29.8	2.6				
LOS		B	A	A	A		C	A				
Approach Delay		9.7			5.7			13.4				
Approach LOS		A			A			B				
Queue Length 50th (m)		36.3	0.0	2.6	17.0		9.0	0.0				
Queue Length 95th (m)		57.3	10.1	7.4	29.4		20.3	2.4				
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)			90.0	30.0			20.0					
Base Capacity (vph)		2037	997	447	2366		367	555				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.43	0.20	0.18	0.28		0.22	0.22				

Intersection Summary

Area Type: Other

Cycle Length: 74.7

Actuated Cycle Length: 73.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 8.6

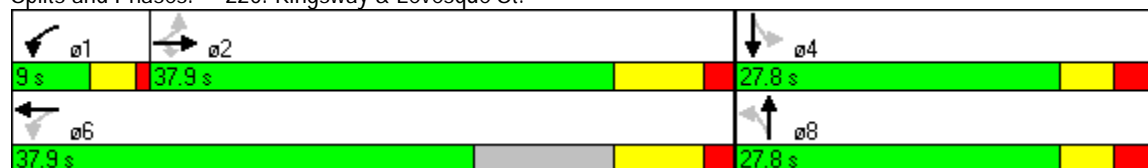
Intersection LOS: A

Intersection Capacity Utilization 76.0%

ICU Level of Service D

Analysis Period (min) 15


Splits and Phases: 220: Kingsway & Levesque St.



Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.













Weekday PM peak hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	915	65	25	735	10	35	5	30	10	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		20.0	50.0		75.0	20.0		0.0	20.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	100.0		40.0	100.0		95.0	30.0		7.5	15.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.870			0.870	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3471	1583	1736	3438	1615	1805	1653	0	1530	1521	0
Flt Permitted	0.950			0.950			0.732			0.732		
Satd. Flow (perm)	1687	3471	1583	1736	3438	1615	1391	1653	0	1179	1521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			28			11			33			33
Link Speed (k/h)		80			80			50				50
Link Distance (m)		457.8			1178.3			983.3				168.8
Travel Time (s)		20.6			53.0			70.8				12.2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	7%	4%	2%	4%	5%	0%	0%	0%	0%	18%	0%	10%
Adj. Flow (vph)	16	1005	71	27	808	11	38	5	33	11	5	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1005	71	27	808	11	38	38	0	11	38	0
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
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	10.0	37.9	37.9	10.0	37.9	37.9	30.7	30.7		30.7	30.7	
Total Split (s)	23.0	67.9	67.9	20.0	67.9	67.9	31.7	31.7	0.0	31.7	31.7	0.0
Total Split (%)	18.8%	55.4%	55.4%	16.3%	55.4%	55.4%	25.9%	25.9%	0.0%	25.9%	25.9%	0.0%
Maximum Green (s)	18.0	60.0	60.0	15.0	60.0	60.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.9	7.9	5.0	7.9	7.9	6.7	6.7	4.0	6.7	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0		4.0	4.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	

Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)	7.0	51.6	51.6	7.5	54.4	54.4	10.2	10.2		10.2	10.2	
Actuated g/C Ratio	0.09	0.71	0.71	0.09	0.75	0.75	0.13	0.13		0.13	0.13	
v/c Ratio	0.11	0.41	0.06	0.16	0.31	0.01	0.21	0.16		0.07	0.17	
Control Delay	34.8	9.0	6.2	32.6	6.4	4.3	30.1	14.4		28.7	14.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	34.8	9.0	6.2	32.6	6.4	4.3	30.1	14.4		28.7	14.7	
LOS	C	A	A	C	A	A	C	B		C	B	
Approach Delay		9.2			7.2			22.2			17.8	
Approach LOS		A			A			C			B	
Queue Length 50th (m)	1.5	28.1	1.7	2.5	21.0	0.0	3.4	0.4		1.0	0.4	
Queue Length 95th (m)	8.4	74.7	9.8	11.8	55.1	2.3	14.5	9.2		6.2	9.2	
Internal Link Dist (m)		433.8			1154.3			959.3			144.8	
Turn Bay Length (m)	30.0		20.0	50.0		75.0	20.0			20.0		
Base Capacity (vph)	352	2760	1265	323	2779	1307	399	498		338	460	
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	0.05	0.36	0.06	0.08	0.29	0.01	0.10	0.08		0.03	0.08	

Intersection Summary

Area Type: Other

Cycle Length: 122.6

Actuated Cycle Length: 72.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 9.1







Intersection LOS: A

Intersection Capacity Utilization 52.2%

ICU Level of Service A





















Analysis Period (min) 15

Splits and Phases: 225: Kingsway & Moonlight Ave.

 ø1	 ø2	 ø4
20 s	67.9 s	31.7 s
 ø5	 ø6	 ø8
23 s	67.9 s	31.7 s


Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	330	80	15	190	150	30	65	15	185	85	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95	0.98	0.99			0.99			0.99	0.94
Frt			0.850		0.934			0.982				0.850
Flt Protected	0.950			0.950				0.986			0.967	
Satd. Flow (prot)	1787	1881	1615	1805	1726	0	0	1829	0	0	1800	1583
Flt Permitted	0.322			0.556				0.812			0.616	
Satd. Flow (perm)	604	1881	1539	1038	1726	0	0	1496	0	0	1134	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		45			7				214
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	2%	1%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	485	340	82	15	196	155	31	67	15	191	88	320
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	340	82	15	351	0	0	113	0	0	279	320
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	16.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	16.0	25.7	25.7
Total Split (%)	15.5%	44.2%	44.2%	44.2%	44.2%	0.0%	24.9%	24.9%	0.0%	15.5%	24.9%	24.9%
Maximum Green (s)	12.0	40.0	40.0	40.0	40.0		20.0	20.0		12.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)	41.4	39.6	39.6	23.3	23.3			11.4			25.1	25.1
Actuated g/C Ratio	0.54	0.52	0.52	0.31	0.31			0.14			0.33	0.33
v/c Ratio	0.94	0.35	0.10	0.05	0.63			0.51			0.59	0.50
Control Delay	44.2	13.0	3.1	20.6	26.3			38.1			26.5	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	44.2	13.0	3.1	20.6	26.3			38.1			26.5	10.3
LOS	D	B	A	C	C			D			C	B
Approach Delay		28.8			26.0			38.1			17.8	
Approach LOS		C			C			D			B	
Queue Length 50th (m)	45.4	29.9	0.0	1.6	40.6			14.7			30.7	10.6
Queue Length 95th (m)	#125.1	54.1	6.8	6.3	74.0			34.3			61.8	36.6
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	517	1140	965	449	773			348			686	745
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.94	0.30	0.08	0.03	0.45			0.32			0.41	0.43

Intersection Summary

Area Type: Other

Cycle Length: 103.4

Actuated Cycle Length: 76.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 25.5

Intersection LOS: C

Intersection Capacity Utilization 79.9%

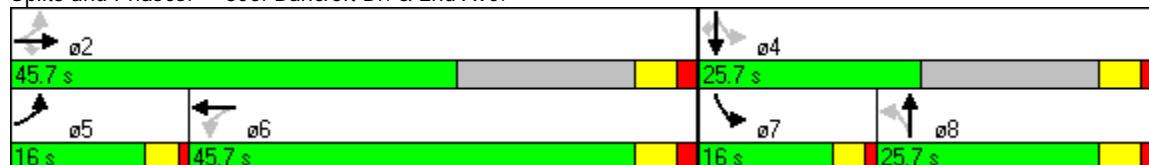
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 305: Bancroft Dr. & 2nd Ave.

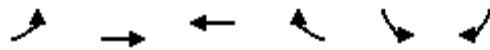





HCM Unsignalized Intersection Capacity Analysis

320: Bancroft Dr. & Levesque St.

Weekday PM peak hour

















Existing volumes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	90	140	60	5	25	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	108	169	72	6	30	102
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	78				461	75
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	78				461	75
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				94	90
cM capacity (veh/h)	1514				522	992
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	277	78	133			
Volume Left	108	0	30			
Volume Right	0	6	102			
cSH	1514	1700	823			
Volume to Capacity	0.07	0.05	0.16			
Queue Length 95th (m)	1.8	0.0	4.6			
Control Delay (s)	3.3	0.0	10.2			
Lane LOS	A		B			
Approach Delay (s)	3.3	0.0	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay		4.7				
Intersection Capacity Utilization		32.3%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 325: Bancroft Dr. & Moonlight Ave.




























Weekday PM peak hour
Existing volumes

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	50	60	5	5	40	10	5	5	5	30	5	30
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	58	70	6	6	47	12	6	6	6	35	6	35
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	134	64	17	76								
Volume Left (vph)	58	6	6	35								
Volume Right (vph)	6	12	6	35								
Hadj (s)	0.06	-0.09	-0.13	-0.11								
Departure Headway (s)	4.2	4.2	4.3	4.3								
Degree Utilization, x	0.16	0.07	0.02	0.09								
Capacity (veh/h)	827	838	790	807								
Control Delay (s)	8.0	7.5	7.4	7.7								
Approach Delay (s)	8.0	7.5	7.4	7.7								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay				7.8								
HCM Level of Service				A								
Intersection Capacity Utilization				25.2%	ICU Level of Service	A						
Analysis Period (min)				15								

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.













Friday pre-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	140	550	205	220	535	75	215	205	230	100	310	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99						0.99	
Frt			0.850		0.981				0.850		0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1787	3426	0	1787	3539	1568	1770	3386	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1787	3426	0	1787	3539	1568	1770	3386	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			223		14				250		36	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Confl. Peds. (#/hr)						40						25
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%	2%	1%	3%	0%	1%	2%	3%	2%	1%	3%
Adj. Flow (vph)	152	598	223	239	582	82	234	223	250	109	337	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	598	223	239	664	0	234	223	250	109	446	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	35.7	35.7	25.0	35.7	0.0	20.0	30.7	30.7	20.0	30.7	0.0
Total Split (%)	22.4%	32.0%	32.0%	22.4%	32.0%	0.0%	18.0%	27.6%	27.6%	18.0%	27.6%	0.0%
Maximum Green (s)	20.0	30.0	30.0	20.0	30.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Friday pre-game hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	13.6	30.2	30.2	17.2	33.8		15.1	22.5	22.5	10.9	18.3	
Actuated g/C Ratio	0.13	0.30	0.30	0.17	0.33		0.15	0.22	0.22	0.11	0.18	
v/c Ratio	0.65	0.57	0.36	0.80	0.58		0.89	0.29	0.46	0.58	0.70	
Control Delay	55.6	34.3	6.0	61.4	31.6		78.1	35.4	7.6	56.8	42.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	55.6	34.3	6.0	61.4	31.6		78.1	35.4	7.6	56.8	42.7	
LOS	E	C	A	E	C		E	D	A	E	D	
Approach Delay		31.1			39.5			39.7			45.4	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	31.0	56.9	0.0	48.3	58.7		49.5	21.0	0.0	22.3	43.5	
Queue Length 95th (m)	52.8	83.0	18.7	#88.5	92.2		#104.3	33.8	20.7	41.7	61.4	
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)	35.0			100.0			100.0		45.0	50.0		
Base Capacity (vph)	327	1044	624	341	1141		264	848	540	251	807	
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	0.46	0.57	0.36	0.70	0.58		0.89	0.26	0.46	0.43	0.55	

Intersection Summary

Area Type: Other

Cycle Length: 111.4

Actuated Cycle Length: 102.2

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 38.0

Intersection LOS: D

Intersection Capacity Utilization 83.1%









ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.























Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.

			
ø1	ø2	ø3	ø4
25 s	35.7 s	20 s	30.7 s
			
ø5	ø6	ø7	ø8
25 s	35.7 s	20 s	30.7 s

Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.













Friday pre-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	355	55	190	85	110	45	225	610	45	10	370	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.957			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1727	1509	1719	1778	0	1736	3462	0	1444	3505	1568
Flt Permitted	0.544			0.718			0.361			0.381		
Satd. Flow (perm)	1013	1727	1509	1299	1778	0	660	3462	0	579	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			207		15			9				266
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.4			295.5			253.8			227.6	
Travel Time (s)		16.3			21.3			18.3			16.4	
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%	10%	7%	5%	2%	3%	4%	2%	20%	25%	3%	3%
Adj. Flow (vph)	386	60	207	92	120	49	245	663	49	11	402	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	386	60	207	92	169	0	245	712	0	11	402	266
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	22.0	28.4	28.4	16.0	28.4	0.0	22.0	46.8	0.0	46.8	46.8	46.8
Total Split (%)	18.5%	23.8%	23.8%	13.4%	23.8%	0.0%	18.5%	39.3%	0.0%	39.3%	39.3%	39.3%
Maximum Green (s)	18.0	22.0	22.0	12.0	22.0		18.0	40.0		40.0	40.0	40.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0

Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Friday pre-game hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)	40.6	30.0	27.3	35.9	22.0		43.5	40.7		21.5	21.5	21.5
Actuated g/C Ratio	0.41	0.30	0.28	0.36	0.22		0.44	0.42		0.22	0.22	0.22
v/c Ratio	0.69	0.12	0.36	0.17	0.41		0.53	0.49		0.09	0.52	0.48
Control Delay	29.6	29.7	6.1	17.3	34.1		22.0	21.9		33.2	36.8	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	29.6	29.7	6.1	17.3	34.1		22.0	21.9		33.2	36.8	7.3
LOS	C	C	A	B	C		C	C		C	D	A
Approach Delay		22.1			28.2			22.0			25.1	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	49.2	8.2	0.0	9.7	26.0		30.7	53.0		1.8	37.8	0.0
Queue Length 95th (m)	85.8	20.5	17.4	21.5	50.1		48.2	69.0		6.8	54.1	20.2
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)	90.0			40.0			55.0			40.0		30.0
Base Capacity (vph)	559	556	570	568	412		478	1805		199	1205	714
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	0.11	0.36	0.16	0.41		0.51	0.39		0.06	0.33	0.37

Intersection Summary

Area Type: Other

Cycle Length: 119.2

Actuated Cycle Length: 98

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 23.5

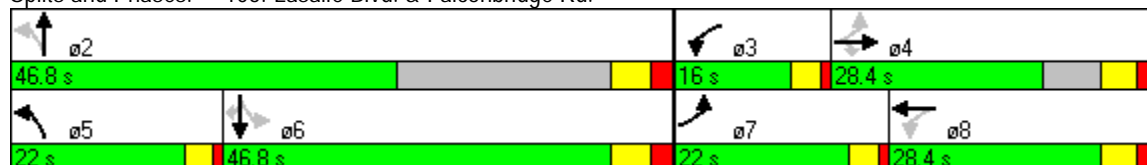
Intersection LOS: C

Intersection Capacity Utilization 83.2%

ICU Level of Service E

Analysis Period (min) 15

























Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.



Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.













Friday pre-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	675	65	95	500	310	75	235	110	345	250	410
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			71			323						446
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
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 (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	592	734	71	103	543	337	82	255	120	375	272	446
Shared Lane Traffic (%)												
Lane Group Flow (vph)	592	734	71	103	543	337	82	255	120	375	272	446
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	34.1	10.4	34.1	
Total Split (s)	44.4	48.4	48.4	19.4	46.4	46.4	22.4	26.1	26.1	22.4	26.1	0.0
Total Split (%)	31.9%	34.7%	34.7%	13.9%	33.3%	33.3%	16.1%	18.7%	18.7%	16.1%	18.7%	0.0%
Maximum Green (s)	39.0	42.0	42.0	14.0	40.0	40.0	17.0	20.0	20.0	17.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	6.1	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5	3.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Friday pre-game hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effect Green (s)	22.8	36.5	36.5	10.7	24.4	24.4	7.5	14.1	14.1	15.8	25.2	101.0
Actuated g/C Ratio	0.23	0.36	0.36	0.11	0.24	0.24	0.07	0.14	0.14	0.16	0.25	1.00
v/c Ratio	0.76	0.57	0.11	0.54	0.64	0.54	0.32	0.52	0.53	0.69	0.31	0.28
Control Delay	44.3	28.3	5.9	57.9	39.3	8.2	52.2	46.3	52.7	50.1	35.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	28.3	5.9	57.9	39.3	8.2	52.2	46.3	52.7	50.1	35.4	0.4
LOS	D	C	A	E	D	A	D	D	D	D	D	A
Approach Delay		33.9			30.6			49.0			26.2	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	58.9	63.8	0.0	20.3	53.0	2.2	8.4	26.0	23.3	37.3	24.5	0.0
Queue Length 95th (m)	91.9	93.1	9.5	44.9	84.0	27.8	19.0	46.0	49.0	#71.2	45.2	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	1167	1789	629	244	1215	627	535	673	307	588	891	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.41	0.11	0.42	0.45	0.54	0.15	0.38	0.39	0.64	0.31	0.28

Intersection Summary

Area Type: Other

Cycle Length: 139.3

Actuated Cycle Length: 101

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 32.7

Intersection LOS: C

Intersection Capacity Utilization 65.3%









ICU Level of Service C

Analysis Period (min) 15

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
























Queue shown is maximum after two cycles.

Splits and Phases: 200: Kingsway & Barry Downe Rd.

			
ø1	ø2	ø3	ø4
19.4 s	48.4 s	22.4 s	26.1 s
			
ø5	ø6	ø7	ø8
44.4 s	46.4 s	22.4 s	26.1 s













Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	465	220	55	310	220	195	340	65	315	330	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Fr't			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			242			242		16				423
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	2%	4%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	555	511	242	60	341	242	214	374	71	346	363	423
Shared Lane Traffic (%)												
Lane Group Flow (vph)	555	511	242	60	341	242	214	445	0	346	363	423
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	30.0	40.7	40.7	20.0	35.7	35.7	20.0	35.7	0.0	25.0	35.7	0.0
Total Split (%)	23.7%	32.2%	32.2%	15.8%	28.2%	28.2%	15.8%	28.2%	0.0%	19.8%	28.2%	0.0%
Maximum Green (s)	25.0	34.0	34.0	15.0	29.0	29.0	15.0	29.0		20.0	29.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	21.1	35.9	35.9	8.5	20.9	20.9	11.2	18.3		14.9	22.0	98.9
Actuated g/C Ratio	0.21	0.36	0.36	0.08	0.21	0.21	0.11	0.19		0.15	0.22	1.00
v/c Ratio	0.77	0.40	0.33	0.41	0.46	0.46	0.55	0.68		0.66	0.46	0.26
Control Delay	45.7	27.1	5.1	54.2	38.4	8.1	48.6	42.5		47.3	35.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	45.7	27.1	5.1	54.2	38.4	8.1	48.6	42.5		47.3	35.8	0.4
LOS	D	C	A	D	D	A	D	D		D	D	A
Approach Delay		30.9			28.5			44.5			26.1	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	53.8	41.4	0.0	11.6	32.1	0.0	21.2	42.6		34.1	33.3	0.0
Queue Length 95th (m)	85.5	69.0	18.4	27.6	53.8	21.6	37.5	66.7		55.4	52.7	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	825	1361	729	244	958	528	511	941		673	1104	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.67	0.38	0.33	0.25	0.36	0.46	0.42	0.47		0.51	0.33	0.26

Intersection Summary

Area Type: Other

Cycle Length: 126.4

Actuated Cycle Length: 98.9

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 31.4

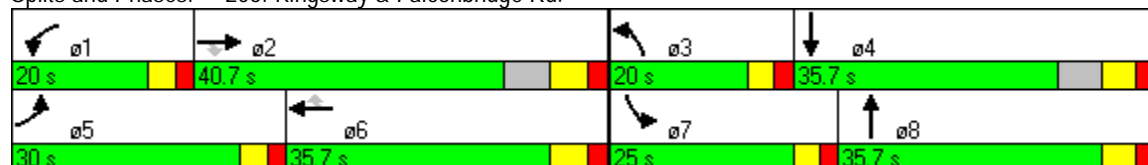
Intersection LOS: C

Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15
























Splits and Phases: 205: Kingsway & Falconbridge Rd.



Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Friday pre-game hour













Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	5	520	40	10	455	0	35	0	15	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1504	3505	1615	1805	3505	0	0	1685	1507	0	1773	1507
Flt Permitted	0.950			0.950				0.816				
Satd. Flow (perm)	1504	3505	1615	1805	3505	0	0	1447	1507	0	1773	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			42						16			459
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	3%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	5	547	42	11	479	0	37	0	16	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	547	42	11	479	0	0	37	16	0	0	5
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Friday pre-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)	6.8	64.1	64.1	7.0	64.2			10.1	10.1			10.1
Actuated g/C Ratio	0.08	0.81	0.81	0.08	0.81			0.12	0.12			0.12
v/c Ratio	0.04	0.19	0.03	0.08	0.17			0.22	0.08			0.01
Control Delay	26.0	4.5	3.0	25.8	4.4			24.2	12.1			0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	26.0	4.5	3.0	25.8	4.4			24.2	12.1			0.0
LOS	C	A	A	C	A			C	B			A
Approach Delay		4.6			4.8			20.6				
Approach LOS		A			A			C				
Queue Length 50th (m)	0.3	0.0	0.0	0.7	0.0			2.2	0.0			0.0
Queue Length 95th (m)	3.5	31.5	4.5	5.5	27.1			11.7	4.8			0.0
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)	100.0		90.0	30.0								
Base Capacity (vph)	189	3016	1396	266	3030			338	364			704
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	0.03	0.18	0.03	0.04	0.16			0.11	0.04			0.01

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 78.9

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.22

Intersection Signal Delay: 5.4

Intersection LOS: A

Intersection Capacity Utilization 53.4%

ICU Level of Service A

Analysis Period (min) 15


Splits and Phases: 210: Kingsway & 3rd Ave.



Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday pre-game hour













Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	430	95	50	375	0	75	0	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		0.1	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	60.0		65.0	95.0		35.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1900	3539	1583	1736	3438	0	1805	1568	0	1900	1900	0
Flt Permitted				0.440			0.757					
Satd. Flow (perm)	1900	3539	1583	804	3438	0	1438	1568	0	1900	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104					357				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	2%	4%	5%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	0	473	104	55	412	0	82	0	77	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	473	104	55	412	0	82	77	0	0	0	0
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	30.0	30.0	30.0	5.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	37.9	37.9	37.9	9.0	37.9		27.8	27.8		27.8	27.8	
Total Split (s)	37.9	37.9	37.9	9.0	37.9	0.0	27.8	27.8	0.0	27.8	27.8	0.0
Total Split (%)	50.7%	50.7%	50.7%	12.0%	50.7%	0.0%	37.2%	37.2%	0.0%	37.2%	37.2%	0.0%
Maximum Green (s)	30.0	30.0	30.0	5.0	30.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	4.0	7.9	4.0	6.8	6.8	4.0	6.8	6.8	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	2.5	5.0		3.5	3.5		3.5	3.5	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday pre-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0		16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effect Green (s)		43.4	43.4	52.9	49.6		11.0	11.0				
Actuated g/C Ratio		0.59	0.59	0.69	0.68		0.14	0.14				
v/c Ratio		0.23	0.11	0.09	0.18		0.39	0.14				
Control Delay		9.1	2.8	4.5	5.4		29.2	0.6				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		9.1	2.8	4.5	5.4		29.2	0.6				
LOS		A	A	A	A		C	A				
Approach Delay		8.0			5.3			15.3				
Approach LOS		A			A			B				
Queue Length 50th (m)		17.2	0.0	1.8	9.8		9.2	0.0				
Queue Length 95th (m)		29.3	7.3	5.6	18.2		20.7	0.0				
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)			90.0	30.0			20.0					
Base Capacity (vph)		2095	979	618	2365		375	673				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.23	0.11	0.09	0.17		0.22	0.11				

Intersection Summary

Area Type: Other

Cycle Length: 74.7

Actuated Cycle Length: 73.4

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 7.9

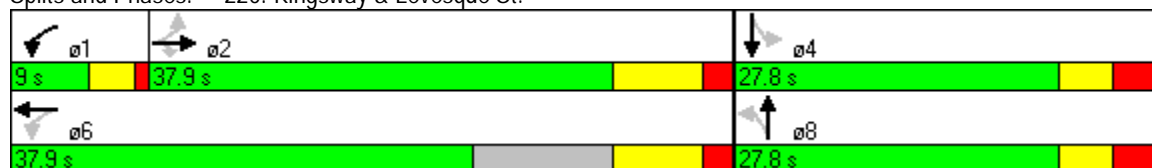
Intersection LOS: A

Intersection Capacity Utilization 60.5%

ICU Level of Service B

Analysis Period (min) 15























Splits and Phases: 220: Kingsway & Levesque St.



Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.













Friday pre-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	425	70	20	370	5	40	0	15	5	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		20.0	50.0		75.0	20.0		0.0	20.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	100.0		40.0	100.0		95.0	30.0		7.5	15.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3505	1599	1736	3438	1615	1805	1615	0	1612	1468	0
Flt Permitted	0.950			0.950			0.746			0.746		
Satd. Flow (perm)	1687	3505	1599	1736	3438	1615	1417	1615	0	1266	1468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			66			6		465			494	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		457.8			1178.3			983.3			168.8	
Travel Time (s)		20.6			53.0			70.8			12.2	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	7%	3%	1%	4%	5%	0%	0%	0%	0%	12%	0%	10%
Adj. Flow (vph)	6	500	82	24	435	6	47	0	18	6	0	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	500	82	24	435	6	47	18	0	6	18	0
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
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	10.0	37.9	37.9	10.0	37.9	37.9	30.7	30.7		30.7	30.7	
Total Split (s)	23.0	67.9	67.9	20.0	67.9	67.9	31.7	31.7	0.0	31.7	31.7	0.0
Total Split (%)	18.8%	55.4%	55.4%	16.3%	55.4%	55.4%	25.9%	25.9%	0.0%	25.9%	25.9%	0.0%
Maximum Green (s)	18.0	60.0	60.0	15.0	60.0	60.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.9	7.9	5.0	7.9	7.9	6.7	6.7	4.0	6.7	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0		4.0	4.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	

Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.

Friday pre-game hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)	6.3	50.3	50.3	7.0	50.6	50.6	10.2	10.2		10.2	10.2	
Actuated g/C Ratio	0.08	0.71	0.71	0.09	0.72	0.72	0.13	0.13		0.13	0.13	
v/c Ratio	0.04	0.20	0.07	0.16	0.18	0.01	0.25	0.03		0.04	0.03	
Control Delay	28.4	6.5	3.7	29.3	6.2	5.6	25.4	0.1		22.4	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	28.4	6.5	3.7	29.3	6.2	5.6	25.4	0.1		22.4	0.1	
LOS	C	A	A	C	A	A	C	A		C	A	
Approach Delay		6.4			7.4			18.4			5.6	
Approach LOS		A			A			B			A	
Queue Length 50th (m)	0.6	11.6	0.6	2.2	10.0	0.0	4.2	0.0		0.5	0.0	
Queue Length 95th (m)	3.8	30.1	7.3	9.0	25.3	1.7	13.6	0.0		3.5	0.0	
Internal Link Dist (m)		433.8			1154.3			959.3			144.8	
Turn Bay Length (m)	30.0		20.0	50.0		75.0	20.0			20.0		
Base Capacity (vph)	352	2859	1316	314	2789	1311	415	802		371	780	
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	0.02	0.17	0.06	0.08	0.16	0.00	0.11	0.02		0.02	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 122.6

Actuated Cycle Length: 70.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 7.4

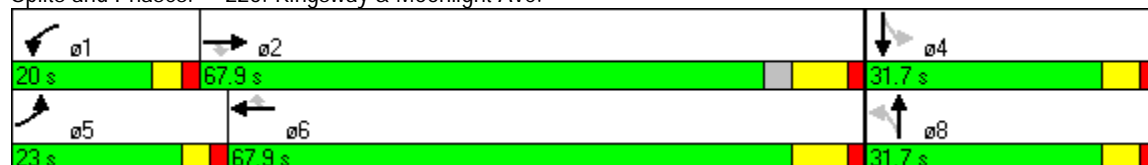
Intersection LOS: A

Intersection Capacity Utilization 52.2%

ICU Level of Service A





















Analysis Period (min) 15

Splits and Phases: 225: Kingsway & Moonlight Ave.



Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.


Friday pre-game hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	355	250	60	10	145	115	25	50	10	140	65	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95	0.98	0.99			0.99			0.99	0.94
Frt			0.850		0.934			0.985				0.850
Flt Protected	0.950			0.950				0.985			0.967	
Satd. Flow (prot)	1736	1827	1615	1805	1683	0	0	1834	0	0	1800	1583
Flt Permitted	0.351			0.571				0.809			0.640	
Satd. Flow (perm)	639	1827	1539	1065	1683	0	0	1495	0	0	1178	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			75		45			6				215
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	4%	4%	0%	0%	5%	3%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	444	312	75	12	181	144	31	62	12	175	81	294
Shared Lane Traffic (%)												
Lane Group Flow (vph)	444	312	75	12	325	0	0	105	0	0	256	294
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	16.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	16.0	25.7	25.7
Total Split (%)	15.5%	44.2%	44.2%	44.2%	44.2%	0.0%	24.9%	24.9%	0.0%	15.5%	24.9%	24.9%
Maximum Green (s)	12.0	40.0	40.0	40.0	40.0		20.0	20.0		12.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Friday pre-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)	40.6	38.8	38.8	22.6	22.6			11.0			24.2	24.2
Actuated g/C Ratio	0.54	0.52	0.52	0.30	0.30			0.14			0.32	0.32
v/c Ratio	0.84	0.33	0.09	0.04	0.60			0.48			0.54	0.47
Control Delay	30.7	12.8	3.2	20.5	25.5			37.1			24.6	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	30.7	12.8	3.2	20.5	25.5			37.1			24.6	8.7
LOS	C	B	A	C	C			D			C	A
Approach Delay		21.5			25.3			37.1			16.1	
Approach LOS		C			C			D			B	
Queue Length 50th (m)	40.1	26.7	0.0	1.3	36.3			13.6			27.5	7.7
Queue Length 95th (m)	#71.0	42.2	5.0	4.7	56.5			27.6			47.5	21.1
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	526	1117	970	465	760			352			709	751
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.84	0.28	0.08	0.03	0.43			0.30			0.36	0.39

Intersection Summary

Area Type: Other

Cycle Length: 103.4

Actuated Cycle Length: 74.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization 67.6%

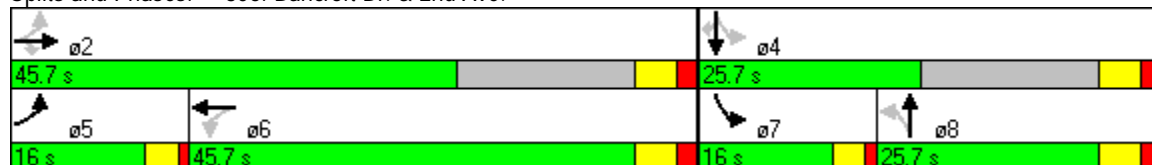
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 305: Bancroft Dr. & 2nd Ave.

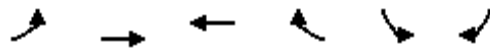





HCM Unsignalized Intersection Capacity Analysis

320: Bancroft Dr. & Levesque St.

Friday pre-game hour

















Existing volumes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	60	65	55	10	15	65
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	70	76	64	12	17	76
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	76				285	70
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	76				285	70
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				97	92
cM capacity (veh/h)	1517				677	999
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	145	76	93			
Volume Left	70	0	17			
Volume Right	0	12	76			
cSH	1517	1700	917			
Volume to Capacity	0.05	0.04	0.10			
Queue Length 95th (m)	1.2	0.0	2.7			
Control Delay (s)	3.8	0.0	9.4			
Lane LOS	A		A			
Approach Delay (s)	3.8	0.0	9.4			
Approach LOS			A			
Intersection Summary						
Average Delay		4.5				
Intersection Capacity Utilization		24.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 325: Bancroft Dr. & Moonlight Ave.






















Friday pre-game hour
Existing volumes

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	40	45	5	5	30	10	5	5	5	25	5	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	50	56	6	6	38	12	6	6	6	31	6	31
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	113	56	19	69								
Volume Left (vph)	50	6	6	31								
Volume Right (vph)	6	13	6	31								
Hadj (s)	0.06	-0.11	-0.13	-0.10								
Departure Headway (s)	4.2	4.1	4.2	4.2								
Degree Utilization, x	0.13	0.06	0.02	0.08								
Capacity (veh/h)	834	853	809	824								
Control Delay (s)	7.8	7.4	7.3	7.5								
Approach Delay (s)	7.8	7.4	7.3	7.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.6									
HCM Level of Service			A									
Intersection Capacity Utilization			23.0%	ICU Level of Service		A						
Analysis Period (min)			15									

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.













Friday post-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	175	25	5	135	0	15	0	10	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected				0.950				0.950				
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	0	1652	1478	0	1739	1739
Flt Permitted				0.950								
Satd. Flow (perm)	1863	3539	1583	1770	3539	0	0	1739	1478	0	1739	1739
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			30						12			
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	0	213	30	6	165	0	18	0	12	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	213	30	6	165	0	0	18	12	0	0	0
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Friday post-game hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)		75.5	75.5	6.7	78.6			9.2	9.2			
Actuated g/C Ratio		0.90	0.90	0.07	0.93			0.10	0.10			
v/c Ratio		0.07	0.02	0.05	0.05			0.11	0.08			
Control Delay		2.9	2.5	23.2	1.3			22.5	13.2			
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0			
Total Delay		2.9	2.5	23.2	1.3			22.5	13.2			
LOS		A	A	C	A			C	B			
Approach Delay		2.9			2.0			18.8				
Approach LOS		A			A			B				
Queue Length 50th (m)		0.0	0.0	0.9	0.0			2.5	0.0			
Queue Length 95th (m)		10.9	3.1	3.4	5.0			6.4	3.6			
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)			90.0	30.0								
Base Capacity (vph)		3262	1462	241	3337			360	316			
Starvation Cap Reductn		0	0	0	0			0	0			
Spillback Cap Reductn		0	0	0	0			0	0			
Storage Cap Reductn		0	0	0	0			0	0			
Reduced v/c Ratio		0.07	0.02	0.02	0.05			0.05	0.04			

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 84.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.11

Intersection Signal Delay: 3.6

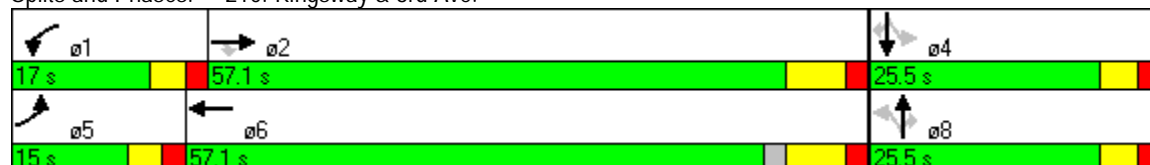
Intersection LOS: A

Intersection Capacity Utilization 42.2%

ICU Level of Service A

Analysis Period (min) 15






















Splits and Phases: 210: Kingsway & 3rd Ave.



Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday post-game hour













Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	140	55	15	105	0	25	0	20	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		0.1	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	60.0		65.0	95.0		35.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	1770	1583	0	1863	1863	0
Flt Permitted				0.608			0.833					
Satd. Flow (perm)	1863	3539	1583	1133	3539	0	1552	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			64					712				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	163	64	17	122	0	29	0	23	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	64	17	122	0	29	23	0	0	0	0
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	30.0	30.0	30.0	5.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	37.9	37.9	37.9	9.0	37.9		27.8	27.8		27.8	27.8	
Total Split (s)	37.9	37.9	37.9	9.0	37.9	0.0	27.8	27.8	0.0	27.8	27.8	0.0
Total Split (%)	50.7%	50.7%	50.7%	12.0%	50.7%	0.0%	37.2%	37.2%	0.0%	37.2%	37.2%	0.0%
Maximum Green (s)	30.0	30.0	30.0	5.0	30.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	4.0	7.9	4.0	6.8	6.8	4.0	6.8	6.8	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	2.5	5.0		3.5	3.5		3.5	3.5	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday post-game hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	16.0	16.0	16.0		16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effect Green (s)		64.6	64.6	65.8	66.9		9.8	9.8				
Actuated g/C Ratio		0.81	0.81	0.76	0.84		0.11	0.11				
v/c Ratio		0.06	0.05	0.02	0.04		0.17	0.03				
Control Delay		4.4	2.6	3.9	3.0		23.7	0.1				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		4.4	2.6	3.9	3.0		23.7	0.1				
LOS		A	A	A	A		C	A				
Approach Delay		3.9			3.1			13.3				
Approach LOS		A			A			B				
Queue Length 50th (m)		0.0	0.0	0.2	0.0		2.0	0.0				
Queue Length 95th (m)		9.4	4.8	1.9	5.0		9.3	0.0				
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)			90.0	30.0			20.0					
Base Capacity (vph)		2864	1293	900	3010		366	917				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.06	0.05	0.02	0.04		0.08	0.03				

Intersection Summary

Area Type: Other

Cycle Length: 74.7

Actuated Cycle Length: 79.8

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.17

Intersection Signal Delay: 4.8






Intersection LOS: A

Intersection Capacity Utilization 43.9%

ICU Level of Service A

Analysis Period (min) 15

























Splits and Phases: 220: Kingsway & Levesque St.

	ø1		ø2		ø4
9 s		37.9 s		27.8 s	
	ø6				ø8
37.9 s				27.8 s	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.













Saturday peak hour

Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	710	520	120	350	470	195	195	435	115	335	585	525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			121			197						530
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	717	525	121	354	475	197	197	439	116	338	591	530
Shared Lane Traffic (%)												
Lane Group Flow (vph)	717	525	121	354	475	197	197	439	116	338	591	530
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	34.1	10.4	34.1	
Total Split (s)	44.4	48.4	48.4	23.4	46.4	46.4	25.4	26.1	26.1	25.4	26.1	0.0
Total Split (%)	31.2%	34.0%	34.0%	16.4%	32.6%	32.6%	17.8%	18.3%	18.3%	17.8%	18.3%	0.0%
Maximum Green (s)	39.0	42.0	42.0	18.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	3.4	6.4	6.4	5.4	6.1	6.1	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	3.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Saturday peak hour
Existing volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effect Green (s)	27.2	29.2	29.2	20.4	20.4	20.4	11.3	19.3	19.3	15.5	23.5	106.1
Actuated g/C Ratio	0.26	0.28	0.28	0.19	0.19	0.19	0.11	0.18	0.18	0.15	0.22	1.00
v/c Ratio	0.81	0.54	0.23	1.03	0.71	0.43	0.53	0.68	0.40	0.67	0.75	0.33
Control Delay	45.4	34.3	6.0	101.1	47.5	8.7	52.6	48.9	46.7	51.5	47.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	34.3	6.0	101.1	47.5	8.7	52.6	48.9	46.7	51.5	47.1	0.6
LOS	D	C	A	F	D	A	D	D	D	D	D	A
Approach Delay		37.6			58.5			49.5			31.2	
Approach LOS		D			E			D			C	
Queue Length 50th (m)	75.6	51.2	0.0	-84.7	51.6	0.0	21.2	47.1	22.3	36.3	62.9	0.0
Queue Length 95th (m)	110.1	70.5	13.0	#179.3	79.7	20.3	38.2	#80.1	48.4	60.1	#109.2	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	1157	1578	533	344	1125	463	618	672	307	635	790	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.33	0.23	1.03	0.42	0.43	0.32	0.65	0.38	0.53	0.75	0.33

Intersection Summary

Area Type: Other

Cycle Length: 142.3

Actuated Cycle Length: 106.1

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 42.2

Intersection LOS: D

Intersection Capacity Utilization 74.4%

ICU Level of Service D

Analysis Period (min) 15









~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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























Queue shown is maximum after two cycles.

Splits and Phases: 200: Kingsway & Barry Downe Rd.

			
23.4 s	48.4 s	25.4 s	26.1 s
			
44.4 s	46.4 s	25.4 s	26.1 s


Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	790	290	320	770	110	305	290	330	140	440	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99							0.99
Frt			0.850		0.981				0.850		0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1787	3424	0	1787	3539	1568	1770	3383	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1787	3424	0	1787	3539	1568	1770	3383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			299		13				340		33	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Confl. Peds. (#/hr)						40						25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	1%	3%	0%	1%	2%	3%	2%	1%	3%
Adj. Flow (vph)	206	814	299	330	794	113	314	299	340	144	454	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	814	299	330	907	0	314	299	340	144	603	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	37.0	37.0	28.0	40.0	0.0	25.0	30.0	30.0	25.0	30.0	0.0
Total Split (%)	20.8%	30.8%	30.8%	23.3%	33.3%	0.0%	20.8%	25.0%	25.0%	20.8%	25.0%	0.0%
Maximum Green (s)	20.0	31.3	31.3	23.0	34.3		20.0	24.3	24.3	20.0	24.3	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	17.5	32.2	32.2	23.0	37.7		20.0	28.9	28.9	14.5	23.4	
Actuated g/C Ratio	0.15	0.27	0.27	0.19	0.31		0.17	0.24	0.24	0.12	0.20	
v/c Ratio	0.80	0.86	0.47	0.96	0.84		1.05	0.35	0.53	0.67	0.88	
Control Delay	71.8	52.3	6.5	88.5	46.6		115.2	39.9	7.6	65.2	59.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	71.8	52.3	6.5	88.5	46.6		115.2	39.9	7.6	65.2	59.2	
LOS	E	D	A	F	D		F	D	A	E	E	
Approach Delay		45.0			57.8			53.2			60.4	
Approach LOS		D			E			D			E	
Queue Length 50th (m)	49.3	102.2	0.0	81.9	111.7		~85.2	32.2	0.0	34.7	72.5	
Queue Length 95th (m)	#79.7	#136.4	22.1	#141.2	#152.6		#143.4	48.6	25.9	54.4	#101.3	
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)	35.0			100.0			100.0		45.0	50.0		
Base Capacity (vph)	295	948	643	343	1085		298	852	636	295	711	
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	0.70	0.86	0.47	0.96	0.84		1.05	0.35	0.53	0.49	0.85	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 28 (23%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 53.2

Intersection LOS: D

Intersection Capacity Utilization 95.8%

ICU Level of Service F

Analysis Period (min) 15

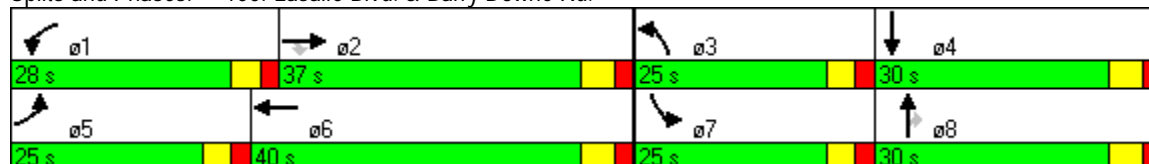
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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























Queue shown is maximum after two cycles.

Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.















Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	75	275	125	155	65	325	880	65	15	530	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.956			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1881	1509	1719	1776	0	1736	3504	0	1444	3505	1568
Flt Permitted	0.399			0.707			0.266			0.294		
Satd. Flow (perm)	743	1881	1509	1279	1776	0	486	3504	0	447	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			284		16			9				272
Link Speed (k/h)		50			50			50				50
Link Distance (m)		226.4			295.5			253.8				227.6
Travel Time (s)		16.3			21.3			18.3				16.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	1%	7%	5%	2%	3%	4%	2%	2%	25%	3%	3%
Adj. Flow (vph)	521	77	284	129	160	67	335	907	67	15	546	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	521	77	284	129	227	0	335	974	0	15	546	361
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	22.0	28.4	28.4	16.0	28.4	0.0	22.0	46.8	0.0	46.8	46.8	46.8
Total Split (%)	18.5%	23.8%	23.8%	13.4%	23.8%	0.0%	18.5%	39.3%	0.0%	39.3%	39.3%	39.3%
Maximum Green (s)	18.0	22.0	22.0	12.0	22.0		18.0	40.0		40.0	40.0	40.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0

Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)	46.6	33.0	33.0	34.0	22.1		50.0	47.2		26.1	26.1	26.1
Actuated g/C Ratio	0.45	0.32	0.32	0.32	0.21		0.48	0.45		0.25	0.25	0.25
v/c Ratio	1.03	0.13	0.42	0.29	0.59		0.77	0.61		0.14	0.62	0.61
Control Delay	74.0	31.0	6.2	21.8	42.8		30.3	23.2		33.1	38.2	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	74.0	31.0	6.2	21.8	42.8		30.3	23.2		33.1	38.2	13.5
LOS	E	C	A	C	D		C	C		C	D	B
Approach Delay		48.4			35.2			25.0			28.5	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	~92.0	12.3	0.0	16.4	41.3		44.7	80.0		2.5	55.4	15.4
Queue Length 95th (m)	#208.4	27.3	21.9	32.9	73.1		#67.0	100.0		8.3	73.0	44.5
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)	90.0			40.0			55.0			40.0		30.0
Base Capacity (vph)	508	594	671	475	388		444	1827		151	1185	710
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	1.03	0.13	0.42	0.27	0.59		0.75	0.53		0.10	0.46	0.51

Intersection Summary

Area Type: Other

Cycle Length: 119.2

Actuated Cycle Length: 104.6

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 32.9

Intersection LOS: C

Intersection Capacity Utilization 103.2%

ICU Level of Service G

Analysis Period (min) 15

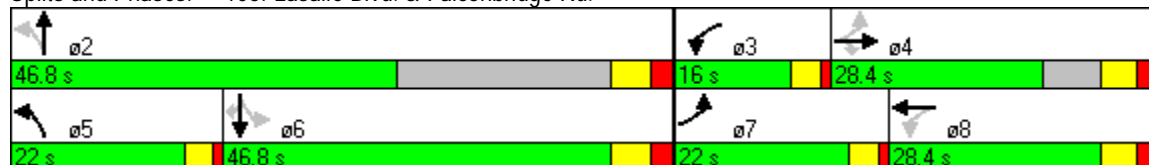
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

























Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.



Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.













Weekday PM peak hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	780	970	90	135	715	445	110	340	155	495	360	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			95			283						589
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	821	1021	95	142	753	468	116	358	163	521	379	616
Shared Lane Traffic (%)												
Lane Group Flow (vph)	821	1021	95	142	753	468	116	358	163	521	379	616
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	34.1	10.4	34.1	
Total Split (s)	44.4	48.4	48.4	19.4	46.4	46.4	22.4	26.1	26.1	22.4	26.1	0.0
Total Split (%)	31.9%	34.7%	34.7%	13.9%	33.3%	33.3%	16.1%	18.7%	18.7%	16.1%	18.7%	0.0%
Maximum Green (s)	39.0	42.0	42.0	14.0	40.0	40.0	17.0	20.0	20.0	17.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	6.1	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5	3.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effect Green (s)	33.9	55.7	55.7	13.0	34.8	34.8	9.2	17.7	17.7	17.2	25.7	127.3
Actuated g/C Ratio	0.27	0.44	0.44	0.10	0.27	0.27	0.07	0.14	0.14	0.14	0.20	1.00
v/c Ratio	0.89	0.66	0.12	0.78	0.79	0.73	0.46	0.73	0.72	1.11	0.52	0.39
Control Delay	58.0	30.5	4.3	85.4	50.0	23.9	65.0	63.1	73.3	125.6	50.4	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	30.5	4.3	85.4	50.0	23.9	65.0	63.1	73.3	125.6	50.4	0.7
LOS	E	C	A	F	D	C	E	E	E	F	D	A
Approach Delay		40.9			44.7			66.0			56.0	
Approach LOS		D			D			E			E	
Queue Length 50th (m)	113.0	114.0	0.0	39.3	101.7	47.6	16.3	50.7	43.9	~90.3	50.2	0.0
Queue Length 95th (m)	142.4	137.6	10.1	#77.1	129.0	93.0	27.1	70.7	#76.4	#133.1	71.7	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	1028	1691	760	197	1064	638	445	551	251	469	722	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.60	0.13	0.72	0.71	0.73	0.26	0.65	0.65	1.11	0.52	0.39

Intersection Summary

Area Type: Other

Cycle Length: 139.3

Actuated Cycle Length: 127.3

Natural Cycle: 135

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 49.0

Intersection LOS: D

Intersection Capacity Utilization 85.0%

ICU Level of Service E

Analysis Period (min) 15









~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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
























Queue shown is maximum after two cycles.

Splits and Phases: 200: Kingsway & Barry Downe Rd.

			
ø1	ø2	ø3	ø4
19.4 s	48.4 s	22.4 s	26.1 s
			
ø5	ø6	ø7	ø8
44.4 s	46.4 s	22.4 s	26.1 s













Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	725	670	320	80	445	320	280	485	90	450	475	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Frt			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			318			285		16				561
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	1%	5%	5%	2%	1%	2%	5%	2%	2%
Adj. Flow (vph)	740	684	327	82	454	327	286	495	92	459	485	561
Shared Lane Traffic (%)												
Lane Group Flow (vph)	740	684	327	82	454	327	286	587	0	459	485	561
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	30.0	40.7	40.7	20.0	35.7	35.7	20.0	35.7	0.0	25.0	35.7	0.0
Total Split (%)	23.7%	32.2%	32.2%	15.8%	28.2%	28.2%	15.8%	28.2%	0.0%	19.8%	28.2%	0.0%
Maximum Green (s)	25.0	34.0	34.0	15.0	29.0	29.0	15.0	29.0		20.0	29.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	25.2	41.0	41.0	10.2	23.5	23.5	13.3	24.1		18.8	29.5	115.1
Actuated g/C Ratio	0.22	0.36	0.36	0.09	0.20	0.20	0.12	0.21		0.16	0.26	1.00
v/c Ratio	0.98	0.55	0.43	0.53	0.65	0.60	0.72	0.79		0.84	0.53	0.35
Control Delay	73.1	34.0	5.8	64.0	47.3	12.8	61.1	50.8		62.7	39.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	73.1	34.0	5.8	64.0	47.3	12.8	61.1	50.8		62.7	39.7	0.6
LOS	E	C	A	E	D	B	E	D		E	D	A
Approach Delay		45.2			35.8			54.2			32.1	
Approach LOS		D			D			D			C	
Queue Length 50th (m)	91.7	71.7	1.5	19.1	53.2	8.4	34.1	68.5		54.9	52.6	0.0
Queue Length 95th (m)	#150.9	102.2	23.8	37.0	74.1	37.9	53.2	94.7		#89.2	74.5	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	758	1265	769	220	830	541	443	857		576	1010	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.98	0.54	0.43	0.37	0.55	0.60	0.65	0.68		0.80	0.48	0.35

Intersection Summary

Area Type: Other

Cycle Length: 126.4

Actuated Cycle Length: 115.1

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 41.2

Intersection LOS: D

Intersection Capacity Utilization 86.0%

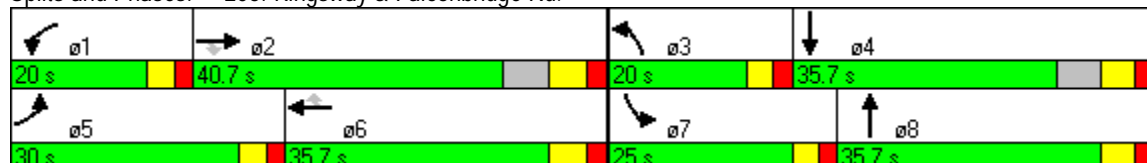
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.






















Splits and Phases: 205: Kingsway & Falconbridge Rd.



Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Weekday PM peak hour













Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	1050	75	25	745	0	40	0	30	5	5	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950				0.950			0.976	
Satd. Flow (prot)	1504	3539	1615	1805	3505	0	0	1685	1507	0	1731	1507
Flt Permitted	0.950			0.950				0.751			0.848	
Satd. Flow (perm)	1504	3539	1615	1805	3505	0	0	1332	1507	0	1504	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81						32			11
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	20%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	5	1129	81	27	801	0	43	0	32	5	5	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1129	81	27	801	0	0	43	32	0	10	11
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Weekday PM peak hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)	6.2	56.4	56.4	7.2	59.3			9.9	9.9		9.9	9.9
Actuated g/C Ratio	0.07	0.69	0.69	0.08	0.72			0.12	0.12		0.12	0.12
v/c Ratio	0.05	0.46	0.07	0.18	0.32			0.28	0.16		0.06	0.06
Control Delay	38.2	8.5	2.3	36.5	5.7			34.6	14.4		31.4	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	38.2	8.5	2.3	36.5	5.7			34.6	14.4		31.4	18.4
LOS	D	A	A	D	A			C	B		C	B
Approach Delay		8.2			6.7			26.0			24.6	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.5	28.3	0.0	2.5	17.7			3.9	0.0		0.9	0.0
Queue Length 95th (m)	4.4	80.4	5.8	12.6	48.7			17.0	8.1		6.3	4.8
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)	100.0		90.0	30.0								
Base Capacity (vph)	167	2529	1177	243	2624			299	363		338	347
Starvation Cap Reductn	0	0	0	0	0			0	0		0	0
Spillback Cap Reductn	0	0	0	0	0			0	0		0	0
Storage Cap Reductn	0	0	0	0	0			0	0		0	0
Reduced v/c Ratio	0.03	0.45	0.07	0.11	0.31			0.14	0.09		0.03	0.03

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 81.9

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 8.4

Intersection LOS: A

Intersection Capacity Utilization 57.4%

ICU Level of Service B

Analysis Period (min) 15






















Splits and Phases: 210: Kingsway & 3rd Ave.



Lanes, Volumes, Timings
220: Kingsway & Levesque St.













Weekday PM peak hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	880	205	80	665	0	80	0	125	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		0.1	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	60.0		65.0	95.0		35.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1900	3539	1583	1736	3438	0	1805	1568	0	1900	1900	0
Flt Permitted				0.246			0.757					
Satd. Flow (perm)	1900	3539	1583	449	3438	0	1438	1568	0	1900	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218					197				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	2%	4%	5%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	0	936	218	85	707	0	85	0	133	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	936	218	85	707	0	85	133	0	0	0	0
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	30.0	30.0	30.0	5.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	37.9	37.9	37.9	9.0	37.9		27.8	27.8		27.8	27.8	
Total Split (s)	37.9	37.9	37.9	9.0	37.9	0.0	27.8	27.8	0.0	27.8	27.8	0.0
Total Split (%)	50.7%	50.7%	50.7%	12.0%	50.7%	0.0%	37.2%	37.2%	0.0%	37.2%	37.2%	0.0%
Maximum Green (s)	30.0	30.0	30.0	5.0	30.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	4.0	7.9	4.0	6.8	6.8	4.0	6.8	6.8	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	2.5	5.0		3.5	3.5		3.5	3.5	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0		16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effect Green (s)		38.3	38.3	48.2	45.7		10.2	10.2				
Actuated g/C Ratio		0.58	0.58	0.70	0.69		0.15	0.15				
v/c Ratio		0.46	0.22	0.21	0.30		0.40	0.33				
Control Delay		12.0	2.4	5.2	6.0		29.8	3.7				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		12.0	2.4	5.2	6.0		29.8	3.7				
LOS		B	A	A	A		C	A				
Approach Delay		10.2			6.0			13.9				
Approach LOS		B			A			B				
Queue Length 50th (m)		40.5	0.0	2.8	19.0		9.6	0.0				
Queue Length 95th (m)		63.8	10.4	7.9	32.6		21.3	5.3				
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)			90.0	30.0			20.0					
Base Capacity (vph)		2033	1002	412	2361		381	560				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.46	0.22	0.21	0.30		0.22	0.24				

Intersection Summary

Area Type: Other

Cycle Length: 74.7

Actuated Cycle Length: 66.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 9.0

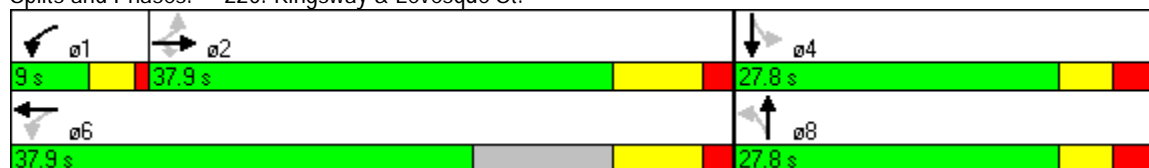
Intersection LOS: A

Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15























Splits and Phases: 220: Kingsway & Levesque St.



Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.













Weekday PM peak hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	985	70	25	790	10	40	5	30	10	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		20.0	50.0		75.0	20.0		0.0	20.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	100.0		40.0	100.0		95.0	30.0		7.5	15.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.870			0.870	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3471	1583	1736	3438	1615	1805	1653	0	1530	1521	0
Flt Permitted	0.950			0.950			0.732			0.732		
Satd. Flow (perm)	1687	3471	1583	1736	3438	1615	1391	1653	0	1179	1521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			29			11		33			33	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		457.8			1178.3			983.3			168.8	
Travel Time (s)		20.6			53.0			70.8			12.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	7%	4%	2%	4%	5%	0%	0%	0%	0%	18%	0%	10%
Adj. Flow (vph)	16	1082	77	27	868	11	44	5	33	11	5	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1082	77	27	868	11	44	38	0	11	38	0
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
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	10.0	37.9	37.9	10.0	37.9	37.9	30.7	30.7		30.7	30.7	
Total Split (s)	23.0	67.9	67.9	20.0	67.9	67.9	31.7	31.7	0.0	31.7	31.7	0.0
Total Split (%)	18.8%	55.4%	55.4%	16.3%	55.4%	55.4%	25.9%	25.9%	0.0%	25.9%	25.9%	0.0%
Maximum Green (s)	18.0	60.0	60.0	15.0	60.0	60.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.9	7.9	5.0	7.9	7.9	6.7	6.7	4.0	6.7	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0		4.0	4.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	

Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)	7.1	54.4	54.4	7.6	57.1	57.1	10.6	10.6		10.6	10.6	
Actuated g/C Ratio	0.08	0.72	0.72	0.09	0.76	0.76	0.13	0.13		0.13	0.13	
v/c Ratio	0.11	0.43	0.07	0.17	0.33	0.01	0.24	0.16		0.07	0.17	
Control Delay	37.5	9.1	6.1	35.2	6.4	4.2	32.4	15.2		30.6	15.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.5	9.1	6.1	35.2	6.4	4.2	32.4	15.2		30.6	15.5	
LOS	D	A	A	D	A	A	C	B		C	B	
Approach Delay		9.3			7.3			24.4			18.9	
Approach LOS		A			A			C			B	
Queue Length 50th (m)	1.6	31.9	1.9	2.6	23.6	0.0	4.1	0.5		1.0	0.5	
Queue Length 95th (m)	8.9	84.2	10.5	12.6	61.5	2.3	17.2	9.6		6.6	9.6	
Internal Link Dist (m)		433.8			1154.3			959.3			144.8	
Turn Bay Length (m)	30.0		20.0	50.0		75.0	20.0			20.0		
Base Capacity (vph)	344	2750	1260	315	2768	1302	389	487		330	450	
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	0.05	0.39	0.06	0.09	0.31	0.01	0.11	0.08		0.03	0.08	

Intersection Summary

Area Type: Other

Cycle Length: 122.6

Actuated Cycle Length: 75.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 9.2







Intersection LOS: A

Intersection Capacity Utilization 52.2%

ICU Level of Service A





















Analysis Period (min) 15

Splits and Phases: 225: Kingsway & Moonlight Ave.

 ø1	 ø2	 ø4
20 s	67.9 s	31.7 s
 ø5	 ø6	 ø8
23 s	67.9 s	31.7 s


Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	355	85	15	205	160	30	70	15	200	90	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95	0.98	0.99			0.99			0.99	0.94
Frt			0.850		0.934			0.983				0.850
Flt Protected	0.950			0.950				0.987			0.967	
Satd. Flow (prot)	1787	1881	1615	1805	1726	0	0	1833	0	0	1800	1583
Flt Permitted	0.298			0.543				0.812			0.599	
Satd. Flow (perm)	559	1881	1539	1014	1726	0	0	1498	0	0	1103	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88		44			6				216
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	2%	1%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	521	366	88	15	211	165	31	72	15	206	93	345
Shared Lane Traffic (%)												
Lane Group Flow (vph)	521	366	88	15	376	0	0	118	0	0	299	345
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	16.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	16.0	25.7	25.7
Total Split (%)	15.5%	44.2%	44.2%	44.2%	44.2%	0.0%	24.9%	24.9%	0.0%	15.5%	24.9%	24.9%
Maximum Green (s)	12.0	40.0	40.0	40.0	40.0		20.0	20.0		12.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)	42.4	40.7	40.7	24.4	24.4			11.8			25.7	25.7
Actuated g/C Ratio	0.54	0.52	0.52	0.31	0.31			0.15			0.33	0.33
v/c Ratio	1.05	0.37	0.10	0.05	0.66			0.53			0.64	0.54
Control Delay	72.8	13.4	3.0	20.5	27.5			39.7			28.8	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	72.8	13.4	3.0	20.5	27.5			39.7			28.8	11.7
LOS	E	B	A	C	C			D			C	B
Approach Delay		44.2			27.2			39.7			19.7	
Approach LOS		D			C			D			B	
Queue Length 50th (m)	~59.0	33.2	0.0	1.7	45.3			15.9			34.5	13.6
Queue Length 95th (m)	#153.8	59.5	7.0	6.3	81.1			36.5			69.0	43.8
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	497	1132	961	436	767			343			665	740
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	1.05	0.32	0.09	0.03	0.49			0.34			0.45	0.47

Intersection Summary

Area Type: Other

Cycle Length: 103.4

Actuated Cycle Length: 78

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 33.4

Intersection LOS: C

Intersection Capacity Utilization 84.2%

ICU Level of Service E

Analysis Period (min) 15

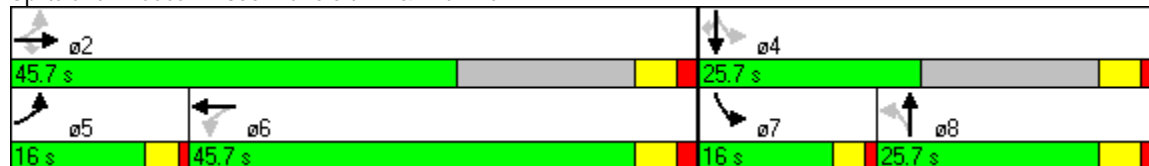
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

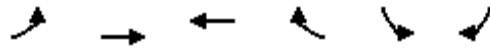
Splits and Phases: 305: Bancroft Dr. & 2nd Ave.






HCM Unsignalized Intersection Capacity Analysis

320: Bancroft Dr. & Levesque St.

















Weekday PM peak hour
Future background volumes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	95	150	65	5	25	90
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	114	181	78	6	30	108
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	84				491	81
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84				491	81
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				94	89
cM capacity (veh/h)	1506				499	984
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	295	84	139			
Volume Left	114	0	30			
Volume Right	0	6	108			
cSH	1506	1700	813			
Volume to Capacity	0.08	0.05	0.17			
Queue Length 95th (m)	2.0	0.0	4.9			
Control Delay (s)	3.3	0.0	10.3			
Lane LOS	A		B			
Approach Delay (s)	3.3	0.0	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay		4.7				
Intersection Capacity Utilization		33.4%		ICU Level of Service	A	
Analysis Period (min)		15				
























HCM Unsignalized Intersection Capacity Analysis 325: Bancroft Dr. & Moonlight Ave.

Weekday PM peak hour
Future background volumes

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	55	65	5	5	45	10	5	5	5	30	5	30
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	64	76	6	6	52	12	6	6	6	35	6	35
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	145	70	17	76								
Volume Left (vph)	64	6	6	35								
Volume Right (vph)	6	12	6	35								
Hadj (s)	0.06	-0.08	-0.13	-0.11								
Departure Headway (s)	4.2	4.2	4.3	4.3								
Degree Utilization, x	0.17	0.08	0.02	0.09								
Capacity (veh/h)	825	834	779	787								
Control Delay (s)	8.1	7.5	7.4	7.7								
Approach Delay (s)	8.1	7.5	7.4	7.7								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay				7.9								
HCM Level of Service				A								
Intersection Capacity Utilization				25.8%	ICU Level of Service	A						
Analysis Period (min)				15								













Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	595	220	235	575	80	230	220	250	110	335	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99						0.99	
Frt			0.850		0.982				0.850		0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1787	3429	0	1787	3539	1568	1770	3385	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1787	3429	0	1787	3539	1568	1770	3385	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			239		13				272		37	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Confl. Peds. (#/hr)						40						25
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%	2%	1%	3%	0%	1%	2%	3%	2%	1%	3%
Adj. Flow (vph)	163	647	239	255	625	87	250	239	272	120	364	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	647	239	255	712	0	250	239	272	120	484	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	35.7	35.7	25.0	35.7	0.0	20.0	30.7	30.7	20.0	30.7	0.0
Total Split (%)	22.4%	32.0%	32.0%	22.4%	32.0%	0.0%	18.0%	27.6%	27.6%	18.0%	27.6%	0.0%
Maximum Green (s)	20.0	30.0	30.0	20.0	30.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	14.2	30.1	30.1	17.9	33.8		15.1	22.9	22.9	11.4	19.3	
Actuated g/C Ratio	0.14	0.29	0.29	0.17	0.33		0.15	0.22	0.22	0.11	0.19	
v/c Ratio	0.67	0.63	0.38	0.83	0.63		0.97	0.31	0.49	0.62	0.73	
Control Delay	56.9	36.3	6.0	64.8	33.7		94.0	36.0	7.6	58.8	44.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	56.9	36.3	6.0	64.8	33.7		94.0	36.0	7.6	58.8	44.0	
LOS	E	D	A	E	C		F	D	A	E	D	
Approach Delay		32.6			41.9			44.9			46.9	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	34.1	64.8	0.0	52.9	66.4		54.9	23.2	0.0	25.2	48.7	
Queue Length 95th (m)	56.3	90.7	19.2	#97.2	100.5		#113.5	36.1	21.5	45.3	66.9	
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)	35.0			100.0			100.0		45.0	50.0		
Base Capacity (vph)	324	1026	629	338	1124		259	837	558	248	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	0.50	0.63	0.38	0.75	0.63		0.97	0.29	0.49	0.48	0.60	

Intersection Summary

Area Type: Other

Cycle Length: 111.4

Actuated Cycle Length: 103.9

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 40.6

Intersection LOS: D

Intersection Capacity Utilization 85.2%









ICU Level of Service E

Analysis Period (min) 15

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























Queue shown is maximum after two cycles.

Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.

			
ø1	ø2	ø3	ø4
25 s	35.7 s	20 s	30.7 s
			
ø5	ø6	ø7	ø8
25 s	35.7 s	20 s	30.7 s













Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	60	205	90	120	50	240	655	50	10	400	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.956			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1727	1509	1719	1776	0	1736	3457	0	1444	3505	1568
Flt Permitted	0.489			0.715			0.337			0.361		
Satd. Flow (perm)	911	1727	1509	1294	1776	0	616	3457	0	549	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			223		15			10				272
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.4			295.5			253.8			227.6	
Travel Time (s)		16.3			21.3			18.3			16.4	
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%	10%	7%	5%	2%	3%	4%	2%	20%	25%	3%	3%
Adj. Flow (vph)	413	65	223	98	130	54	261	712	54	11	435	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	65	223	98	184	0	261	766	0	11	435	288
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	22.0	28.4	28.4	16.0	28.4	0.0	22.0	46.8	0.0	46.8	46.8	46.8
Total Split (%)	18.5%	23.8%	23.8%	13.4%	23.8%	0.0%	18.5%	39.3%	0.0%	39.3%	39.3%	39.3%
Maximum Green (s)	18.0	22.0	22.0	12.0	22.0		18.0	40.0		40.0	40.0	40.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0

Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)	46.5	33.9	33.9	33.0	22.1		44.6	41.8		22.2	22.2	22.2
Actuated g/C Ratio	0.47	0.34	0.34	0.33	0.22		0.45	0.42		0.22	0.22	0.22
v/c Ratio	0.71	0.11	0.34	0.21	0.45		0.58	0.52		0.09	0.55	0.51
Control Delay	27.6	27.4	5.7	18.5	35.9		22.8	22.2		32.9	37.3	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	27.6	27.4	5.7	18.5	35.9		22.8	22.2		32.9	37.3	8.5
LOS	C	C	A	B	D		C	C		C	D	A
Approach Delay		20.6			29.8			22.4			25.9	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	54.7	9.1	0.0	10.6	29.1		33.1	58.0		1.8	41.8	2.6
Queue Length 95th (m)	#99.2	22.4	18.5	23.5	55.8		51.3	74.9		6.8	58.4	24.3
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)	90.0			40.0			55.0			40.0		30.0
Base Capacity (vph)	584	591	663	499	407		470	1803		188	1200	716
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	0.71	0.11	0.34	0.20	0.45		0.56	0.42		0.06	0.36	0.40

Intersection Summary

Area Type: Other

Cycle Length: 119.2

Actuated Cycle Length: 99.2

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 86.8%

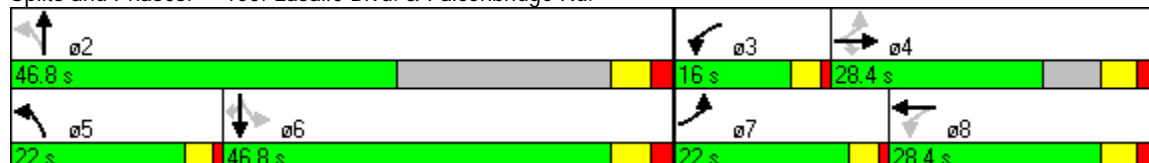
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

























Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.



Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.













Friday pre-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	585	725	70	100	540	335	80	255	120	370	270	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			76			311						478
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
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 (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	636	788	76	109	587	364	87	277	130	402	293	478
Shared Lane Traffic (%)												
Lane Group Flow (vph)	636	788	76	109	587	364	87	277	130	402	293	478
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	34.1	10.4	34.1	
Total Split (s)	44.4	48.4	48.4	19.4	46.4	46.4	22.4	26.1	26.1	22.4	26.1	0.0
Total Split (%)	31.9%	34.7%	34.7%	13.9%	33.3%	33.3%	16.1%	18.7%	18.7%	16.1%	18.7%	0.0%
Maximum Green (s)	39.0	42.0	42.0	14.0	40.0	40.0	17.0	20.0	20.0	17.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	6.1	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5	3.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effect Green (s)	25.2	40.9	40.9	11.1	26.8	26.8	7.8	14.9	14.9	16.8	26.7	107.6
Actuated g/C Ratio	0.23	0.38	0.38	0.10	0.25	0.25	0.07	0.14	0.14	0.16	0.25	1.00
v/c Ratio	0.78	0.59	0.12	0.59	0.67	0.58	0.35	0.57	0.58	0.74	0.33	0.30
Control Delay	47.1	28.6	5.4	63.1	41.4	11.0	55.7	50.1	57.5	55.0	38.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.1	28.6	5.4	63.1	41.4	11.0	55.7	50.1	57.5	55.0	38.2	0.5
LOS	D	C	A	E	D	B	E	D	E	E	D	A
Approach Delay		35.3			33.2			53.0			28.6	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	67.9	72.1	0.0	23.0	61.1	9.0	9.5	30.3	27.1	43.8	28.7	0.0
Queue Length 95th (m)	103.0	100.2	9.5	49.5	94.2	40.7	20.8	52.7	55.6	#86.9	52.1	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	1126	1759	660	231	1173	628	506	638	292	558	887	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.45	0.12	0.47	0.50	0.58	0.17	0.43	0.45	0.72	0.33	0.30

Intersection Summary

Area Type: Other

Cycle Length: 139.3

Actuated Cycle Length: 107.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 35.0

Intersection LOS: C

Intersection Capacity Utilization 68.6%

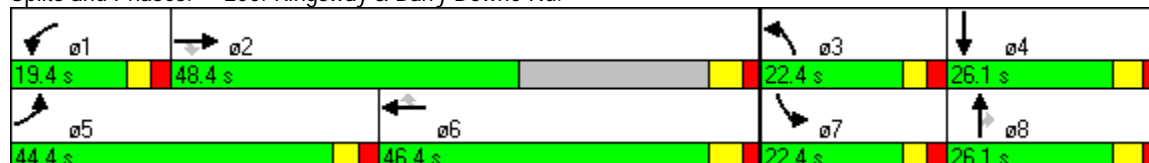
ICU Level of Service C

Analysis Period (min) 15

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
























Queue shown is maximum after two cycles.

Splits and Phases: 200: Kingsway & Barry Downe Rd.















Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	500	235	60	335	235	210	365	70	340	355	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Frt			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			258			258		16				456
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	2%	4%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	599	549	258	66	368	258	231	401	77	374	390	456
Shared Lane Traffic (%)												
Lane Group Flow (vph)	599	549	258	66	368	258	231	478	0	374	390	456
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	30.0	40.7	40.7	20.0	35.7	35.7	20.0	35.7	0.0	25.0	35.7	0.0
Total Split (%)	23.7%	32.2%	32.2%	15.8%	28.2%	28.2%	15.8%	28.2%	0.0%	19.8%	28.2%	0.0%
Maximum Green (s)	25.0	34.0	34.0	15.0	29.0	29.0	15.0	29.0		20.0	29.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	22.8	37.5	37.5	9.0	21.2	21.2	11.7	19.9		15.8	23.9	103.3
Actuated g/C Ratio	0.22	0.36	0.36	0.09	0.21	0.21	0.11	0.19		0.15	0.23	1.00
v/c Ratio	0.81	0.43	0.35	0.45	0.51	0.48	0.59	0.70		0.71	0.47	0.29
Control Delay	48.8	28.8	5.1	57.2	41.0	8.2	51.5	44.2		50.5	36.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.8	28.8	5.1	57.2	41.0	8.2	51.5	44.2		50.5	36.7	0.4
LOS	D	C	A	E	D	A	D	D		D	D	A
Approach Delay		33.0			30.3			46.6			27.4	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	61.0	47.2	0.0	13.6	37.5	0.0	24.4	49.0		39.3	38.0	0.0
Queue Length 95th (m)	#104.0	77.6	19.4	30.4	59.3	22.5	41.7	72.8		62.4	57.2	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	804	1334	739	235	922	533	492	917		650	1078	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.75	0.41	0.35	0.28	0.40	0.48	0.47	0.52		0.58	0.36	0.29

Intersection Summary

Area Type: Other

Cycle Length: 126.4

Actuated Cycle Length: 103.3

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 33.2

Intersection LOS: C

Intersection Capacity Utilization 73.7%

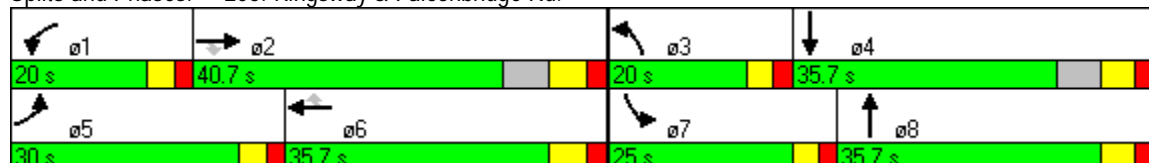
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.






















Splits and Phases: 205: Kingsway & Falconbridge Rd.



Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.













Friday pre-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	560	45	10	490	0	40	0	15	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1504	3505	1615	1805	3505	0	0	1685	1507	0	1773	1507
Flt Permitted	0.950			0.950				0.757				
Satd. Flow (perm)	1504	3505	1615	1805	3505	0	0	1342	1507	0	1773	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			47						16			434
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	3%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	5	589	47	11	516	0	42	0	16	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	589	47	11	516	0	0	42	16	0	0	5
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)	6.5	56.6	56.6	6.6	56.7			10.0	10.0			10.0
Actuated g/C Ratio	0.08	0.73	0.73	0.08	0.73			0.12	0.12			0.12
v/c Ratio	0.04	0.23	0.04	0.08	0.20			0.26	0.08			0.01
Control Delay	26.8	5.6	3.0	27.1	5.5			25.1	12.1			0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	26.8	5.6	3.0	27.1	5.5			25.1	12.1			0.0
LOS	C	A	A	C	A			C	B			A
Approach Delay		5.6			5.9			21.5				
Approach LOS		A			A			C				
Queue Length 50th (m)	0.5	12.1	0.0	1.0	10.3			3.5	0.0			0.0
Queue Length 95th (m)	3.4	34.4	4.7	5.6	29.6			12.9	4.8			0.0
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)	100.0		90.0	30.0								
Base Capacity (vph)	184	2809	1304	258	2828			323	374			692
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	0.03	0.21	0.04	0.04	0.18			0.13	0.04			0.01

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 77.6

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.26

Intersection Signal Delay: 6.5

Intersection LOS: A

Intersection Capacity Utilization 53.4%

ICU Level of Service A

Analysis Period (min) 15






















Splits and Phases: 210: Kingsway & 3rd Ave.



Lanes, Volumes, Timings
220: Kingsway & Levesque St.













Friday pre-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	465	100	55	405	0	80	0	75	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		0.1	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	60.0		65.0	95.0		35.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1900	3539	1583	1736	3438	0	1805	1568	0	1900	1900	0
Flt Permitted				0.424			0.757					
Satd. Flow (perm)	1900	3539	1583	775	3438	0	1438	1568	0	1900	1900	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110					333				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	2%	4%	5%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	0	511	110	60	445	0	88	0	82	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	511	110	60	445	0	88	82	0	0	0	0
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	30.0	30.0	30.0	5.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	37.9	37.9	37.9	9.0	37.9		27.8	27.8		27.8	27.8	
Total Split (s)	37.9	37.9	37.9	9.0	37.9	0.0	27.8	27.8	0.0	27.8	27.8	0.0
Total Split (%)	50.7%	50.7%	50.7%	12.0%	50.7%	0.0%	37.2%	37.2%	0.0%	37.2%	37.2%	0.0%
Maximum Green (s)	30.0	30.0	30.0	5.0	30.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	4.0	7.9	4.0	6.8	6.8	4.0	6.8	6.8	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	2.5	5.0		3.5	3.5		3.5	3.5	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0	16.0		16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effect Green (s)		43.5	43.5	52.9	49.6		11.3	11.3				
Actuated g/C Ratio		0.59	0.59	0.69	0.67		0.15	0.15				
v/c Ratio		0.24	0.11	0.10	0.19		0.42	0.16				
Control Delay		9.4	2.8	4.6	5.6		29.5	0.7				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		9.4	2.8	4.6	5.6		29.5	0.7				
LOS		A	A	A	A		C	A				
Approach Delay		8.2			5.5			15.6				
Approach LOS		A			A			B				
Queue Length 50th (m)		19.1	0.0	2.0	10.9		10.0	0.0				
Queue Length 95th (m)		32.1	7.6	6.1	20.0		22.0	0.0				
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)			90.0	30.0			20.0					
Base Capacity (vph)		2089	980	598	2358		375	655				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.24	0.11	0.10	0.19		0.23	0.13				

Intersection Summary

Area Type: Other

Cycle Length: 74.7

Actuated Cycle Length: 73.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 8.1

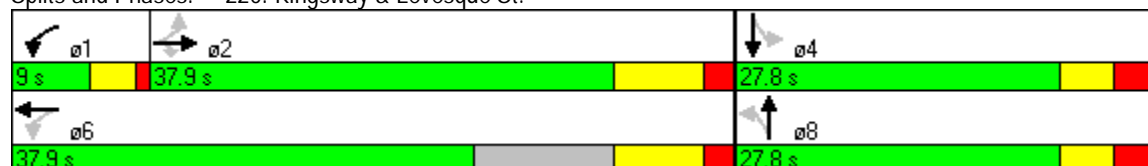
Intersection LOS: A

Intersection Capacity Utilization 64.6%

ICU Level of Service C























Analysis Period (min) 15

Splits and Phases: 220: Kingsway & Levesque St.















Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	460	75	20	400	5	45	0	15	5	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		20.0	50.0		75.0	20.0		0.0	20.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	100.0		40.0	100.0		95.0	30.0		7.5	15.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3505	1599	1736	3438	1615	1805	1615	0	1612	1468	0
Flt Permitted	0.950			0.950			0.746			0.746		
Satd. Flow (perm)	1687	3505	1599	1736	3438	1615	1417	1615	0	1266	1468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			6		440			469	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		457.8			1178.3			983.3			168.8	
Travel Time (s)		20.6			53.0			70.8			12.2	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	7%	3%	1%	4%	5%	0%	0%	0%	0%	12%	0%	10%
Adj. Flow (vph)	6	541	88	24	471	6	53	0	18	6	0	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	541	88	24	471	6	53	18	0	6	18	0
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
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	10.0	37.9	37.9	10.0	37.9	37.9	30.7	30.7		30.7	30.7	
Total Split (s)	23.0	67.9	67.9	20.0	67.9	67.9	31.7	31.7	0.0	31.7	31.7	0.0
Total Split (%)	18.8%	55.4%	55.4%	16.3%	55.4%	55.4%	25.9%	25.9%	0.0%	25.9%	25.9%	0.0%
Maximum Green (s)	18.0	60.0	60.0	15.0	60.0	60.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.9	7.9	5.0	7.9	7.9	6.7	6.7	4.0	6.7	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0		4.0	4.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	

Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)	6.3	49.7	49.7	7.0	50.0	50.0	10.4	10.4		10.4	10.4	
Actuated g/C Ratio	0.08	0.71	0.71	0.09	0.71	0.71	0.14	0.14		0.14	0.14	
v/c Ratio	0.04	0.22	0.08	0.15	0.19	0.01	0.27	0.03		0.03	0.03	
Control Delay	28.6	6.7	3.9	29.4	6.4	5.8	25.7	0.1		22.2	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	28.6	6.7	3.9	29.4	6.4	5.8	25.7	0.1		22.2	0.1	
LOS	C	A	A	C	A	A	C	A		C	A	
Approach Delay		6.6			7.5			19.2			5.6	
Approach LOS		A			A			B			A	
Queue Length 50th (m)	0.6	12.9	0.9	2.2	11.0	0.0	4.7	0.0		0.5	0.0	
Queue Length 95th (m)	3.8	33.0	8.2	8.9	27.7	1.7	14.8	0.0		3.5	0.0	
Internal Link Dist (m)		433.8			1154.3			959.3			144.8	
Turn Bay Length (m)	30.0		20.0	50.0		75.0	20.0			20.0		
Base Capacity (vph)	355	2854	1314	318	2783	1309	419	788		375	765	
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	0.02	0.19	0.07	0.08	0.17	0.00	0.13	0.02		0.02	0.02	

Intersection Summary

Area Type: Other

Cycle Length: 122.6

Actuated Cycle Length: 70

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.27

Intersection Signal Delay: 7.6

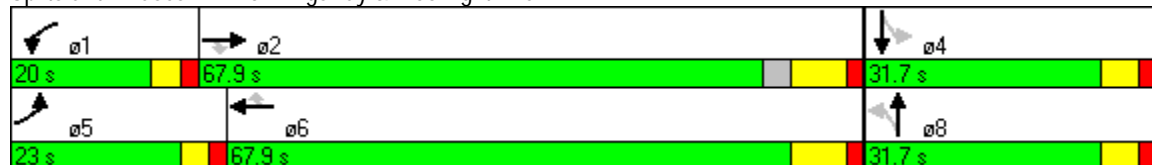
Intersection LOS: A

Intersection Capacity Utilization 52.2%

ICU Level of Service A

Analysis Period (min) 15





















Splits and Phases: 225: Kingsway & Moonlight Ave.



Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.













Friday pre-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	270	65	10	155	125	25	55	10	150	70	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.96	0.98	0.99			0.99			0.99	0.95
Frt			0.850		0.933			0.986				0.850
Flt Protected	0.950			0.950				0.986			0.967	
Satd. Flow (prot)	1736	1827	1615	1805	1682	0	0	1839	0	0	1801	1583
Flt Permitted	0.344			0.557				0.821			0.668	
Satd. Flow (perm)	626	1827	1543	1042	1682	0	0	1522	0	0	1231	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81		55			6				216
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	4%	4%	0%	0%	5%	3%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	475	338	81	12	194	156	31	69	12	188	88	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	475	338	81	12	350	0	0	112	0	0	276	319
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	16.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	5.0	25.7	25.7
Total Split (%)	17.3%	49.5%	49.5%	49.5%	49.5%	0.0%	27.8%	27.8%	0.0%	5.4%	27.8%	27.8%
Maximum Green (s)	12.0	40.0	40.0	40.0	40.0		20.0	20.0		1.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Friday pre-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)	39.6	37.9	37.9	21.8	21.8			13.6			18.7	18.7
Actuated g/C Ratio	0.58	0.56	0.56	0.32	0.32			0.19			0.28	0.28
v/c Ratio	0.85	0.33	0.09	0.04	0.61			0.38			0.76	0.56
Control Delay	26.1	9.5	2.2	16.3	21.6			26.9			39.6	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	26.1	9.5	2.2	16.3	21.6			26.9			39.6	11.9
LOS	C	A	A	B	C			C			D	B
Approach Delay		17.7			21.4			26.9			24.7	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	34.5	23.5	0.0	1.1	33.4			11.8			32.7	10.2
Queue Length 95th (m)	#50.2	32.6	3.9	3.9	48.6			24.6			#66.0	26.7
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	561	1189	1032	484	812			401			470	649
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.85	0.28	0.08	0.02	0.43			0.28			0.59	0.49

Intersection Summary

Area Type: Other

Cycle Length: 92.4

Actuated Cycle Length: 68

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 69.8%

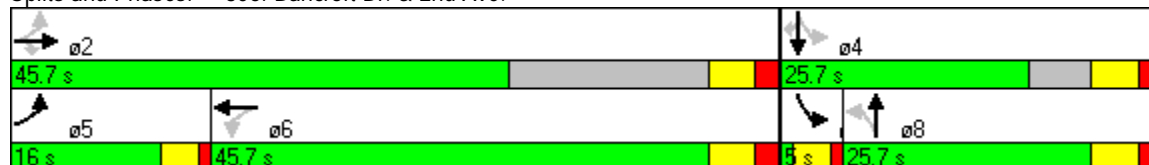
ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

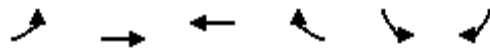
Splits and Phases: 305: Bancroft Dr. & 2nd Ave.






HCM Unsignalized Intersection Capacity Analysis

320: Bancroft Dr. & Levesque St.

















Friday pre-game hour
Future background volumes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	65	70	60	10	15	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	76	81	70	12	17	81
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	81				308	76
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	81				308	76
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				97	92
cM capacity (veh/h)	1510				654	991
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	157	81	99			
Volume Left	76	0	17			
Volume Right	0	12	81			
cSH	1510	1700	909			
Volume to Capacity	0.05	0.05	0.11			
Queue Length 95th (m)	1.3	0.0	2.9			
Control Delay (s)	3.8	0.0	9.4			
Lane LOS	A		A			
Approach Delay (s)	3.8	0.0	9.4			
Approach LOS			A			
Intersection Summary						
Average Delay		4.5				
Intersection Capacity Utilization		25.8%		ICU Level of Service		A
Analysis Period (min)		15				























HCM Unsignalized Intersection Capacity Analysis 325: Bancroft Dr. & Moonlight Ave.

Friday pre-game hour
Future background volumes

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	45	50	5	5	30	10	5	5	5	25	5	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	56	62	6	6	38	12	6	6	6	31	6	31
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	125	56	19	69								
Volume Left (vph)	56	6	6	31								
Volume Right (vph)	6	13	6	31								
Hadj (s)	0.06	-0.11	-0.13	-0.10								
Departure Headway (s)	4.2	4.1	4.2	4.2								
Degree Utilization, x	0.15	0.06	0.02	0.08								
Capacity (veh/h)	833	849	801	816								
Control Delay (s)	7.9	7.4	7.3	7.6								
Approach Delay (s)	7.9	7.4	7.3	7.6								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay				7.7								
HCM Level of Service				A								
Intersection Capacity Utilization				23.5%	ICU Level of Service	A						
Analysis Period (min)				15								













Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Friday post-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Frt												
Flt Protected												
Satd. Flow (prot)	1863	3539	1863	1863	3539	0	1863	3539	1863	1863	3539	0
Flt Permitted												
Satd. Flow (perm)	1863	3539	1863	1863	3539	0	1863	3539	1863	1863	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	35.7	35.7	25.0	35.7	0.0	20.0	30.7	30.7	20.0	30.7	0.0
Total Split (%)	22.4%	32.0%	32.0%	22.4%	32.0%	0.0%	18.0%	27.6%	27.6%	18.0%	27.6%	0.0%
Maximum Green (s)	20.0	30.0	30.0	20.0	30.0		15.0	25.0	25.0	15.0	25.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.









Friday post-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (m)												
Queue Length 95th (m)												
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary























Area Type:	Other
Cycle Length: 111.4	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.00	
Intersection Signal Delay: 0.0	Intersection LOS: A
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.

 ø1	 ø2	 ø3	 ø4
25 s	35.7 s	20 s	30.7 s
 ø5	 ø6	 ø7	 ø8
25 s	35.7 s	20 s	30.7 s

Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Friday post-game hour
Future background volumes













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	1863	1863	1863	1863	1863	0	1863	3539	0	1863	3539	1863
Flt Permitted												
Satd. Flow (perm)	1863	1863	1863	1863	1863	0	1863	3539	0	1863	3539	1863
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.4			295.5			253.8			227.6	
Travel Time (s)		16.3			21.3			18.3			16.4	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	22.0	28.4	28.4	16.0	28.4	0.0	22.0	46.8	0.0	46.8	46.8	46.8
Total Split (%)	18.5%	23.8%	23.8%	13.4%	23.8%	0.0%	18.5%	39.3%	0.0%	39.3%	39.3%	39.3%
Maximum Green (s)	18.0	22.0	22.0	12.0	22.0		18.0	40.0		40.0	40.0	40.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0

Lanes, Volumes, Timings

105: Lasalle Blvd. & Falconbridge Rd.

Friday post-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (m)												
Queue Length 95th (m)												
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary

Area Type: Other

Cycle Length: 119.2

Actuated Cycle Length: 120

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.00

Intersection Signal Delay: 0.0

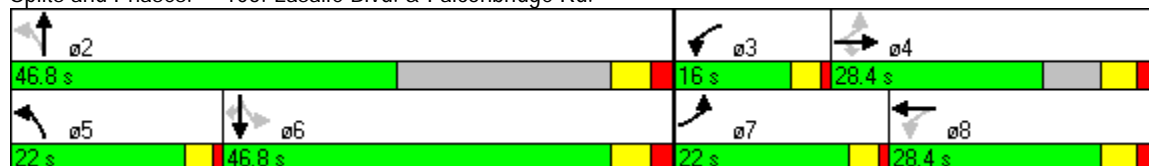
Intersection LOS: A

Intersection Capacity Utilization 0.0%

ICU Level of Service A

Analysis Period (min) 15

























Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.



Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.













Friday post-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	3614	3539	1863	1863	3539	1863	3614	3539	1863	3614	3539	1863
Flt Permitted												
Satd. Flow (perm)	3614	3539	1863	1863	3539	1863	3614	3539	1863	3614	3539	1863
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	34.1	10.4	34.1	
Total Split (s)	44.4	48.4	48.4	19.4	46.4	46.4	22.4	26.1	26.1	22.4	26.1	0.0
Total Split (%)	31.9%	34.7%	34.7%	13.9%	33.3%	33.3%	16.1%	18.7%	18.7%	16.1%	18.7%	0.0%
Maximum Green (s)	39.0	42.0	42.0	14.0	40.0	40.0	17.0	20.0	20.0	17.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	6.1	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5	3.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0	21.0		21.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.









Friday post-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effect Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (m)												
Queue Length 95th (m)												
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary

Area Type:	Other
Cycle Length: 139.3	
Actuated Cycle Length: 120	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.00	
Intersection Signal Delay: 0.0	Intersection LOS: A
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	
























Splits and Phases: 200: Kingsway & Barry Downe Rd.

 ø1	 ø2	 ø3	 ø4
19.4 s	48.4 s	22.4 s	26.1 s
 ø5	 ø6	 ø7	 ø8
44.4 s	46.4 s	22.4 s	26.1 s

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

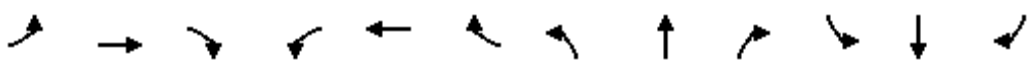
Friday post-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	3614	3539	1863	1863	3539	1863	3614	3539	0	3614	3539	1863
Flt Permitted												
Satd. Flow (perm)	3614	3539	1863	1863	3539	1863	3614	3539	0	3614	3539	1863
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	30.0	40.7	40.7	20.0	35.7	35.7	20.0	35.7	0.0	25.0	35.7	0.0
Total Split (%)	23.7%	32.2%	32.2%	15.8%	28.2%	28.2%	15.8%	28.2%	0.0%	19.8%	28.2%	0.0%
Maximum Green (s)	25.0	34.0	34.0	15.0	29.0	29.0	15.0	29.0		20.0	29.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0	5.0	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

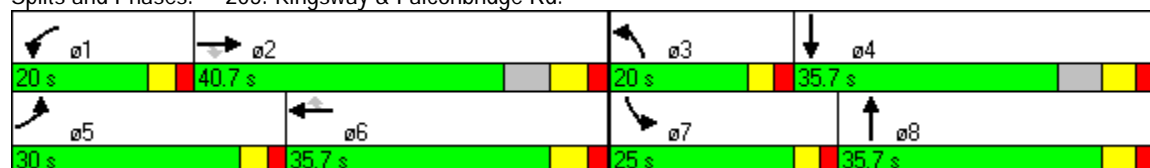
Friday post-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (m)												
Queue Length 95th (m)												
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary

Area Type:	Other
Cycle Length: 126.4	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.00	
Intersection Signal Delay: 0.0	Intersection LOS: A
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	






















Splits and Phases: 205: Kingsway & Falconbridge Rd.



Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.













Friday post-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	190	25	5	145	0	15	0	10	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected				0.950				0.950				
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	0	1652	1478	0	1739	1739
Flt Permitted				0.950								
Satd. Flow (perm)	1863	3539	1583	1770	3539	0	0	1739	1478	0	1739	1739
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			30						12			
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	0	232	30	6	177	0	18	0	12	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	232	30	6	177	0	0	18	12	0	0	0
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Friday post-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)		75.5	75.5	6.7	78.6			9.2	9.2			
Actuated g/C Ratio		0.90	0.90	0.07	0.93			0.10	0.10			
v/c Ratio		0.07	0.02	0.05	0.05			0.11	0.08			
Control Delay		2.9	2.5	23.2	1.3			22.5	13.2			
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0			
Total Delay		2.9	2.5	23.2	1.3			22.5	13.2			
LOS		A	A	C	A			C	B			
Approach Delay		2.9			2.0			18.8				
Approach LOS		A			A			B				
Queue Length 50th (m)		0.0	0.0	0.9	0.0			2.5	0.0			
Queue Length 95th (m)		11.7	3.1	3.4	5.3			6.4	3.6			
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)			90.0	30.0								
Base Capacity (vph)		3262	1462	241	3337			360	316			
Starvation Cap Reductn		0	0	0	0			0	0			
Spillback Cap Reductn		0	0	0	0			0	0			
Storage Cap Reductn		0	0	0	0			0	0			
Reduced v/c Ratio		0.07	0.02	0.02	0.05			0.05	0.04			

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 84.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.11

Intersection Signal Delay: 3.5

Intersection LOS: A

Intersection Capacity Utilization 42.2%

ICU Level of Service A

Analysis Period (min) 15























Splits and Phases: 210: Kingsway & 3rd Ave.



Lanes, Volumes, Timings
220: Kingsway & Levesque St.













Friday post-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	150	60	15	115	0	25	0	20	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		0.1	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (m)	60.0		65.0	95.0		35.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850					0.850				
Flt Protected				0.950			0.950					
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	1770	1583	0	1863	1863	0
Flt Permitted				0.602			0.833					
Satd. Flow (perm)	1863	3539	1583	1121	3539	0	1552	1583	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			70					693				
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	0	174	70	17	134	0	29	0	23	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	174	70	17	134	0	29	23	0	0	0	0
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm		Perm	pm+pt			Perm			Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	30.0	30.0	30.0	5.0	30.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	37.9	37.9	37.9	9.0	37.9		27.8	27.8		27.8	27.8	
Total Split (s)	37.9	37.9	37.9	9.0	37.9	0.0	27.8	27.8	0.0	27.8	27.8	0.0
Total Split (%)	50.7%	50.7%	50.7%	12.0%	50.7%	0.0%	37.2%	37.2%	0.0%	37.2%	37.2%	0.0%
Maximum Green (s)	30.0	30.0	30.0	5.0	30.0		21.0	21.0		21.0	21.0	
Yellow Time (s)	5.9	5.9	5.9	3.0	5.9		3.6	3.6		3.6	3.6	
All-Red Time (s)	2.0	2.0	2.0	1.0	2.0		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.9	7.9	7.9	4.0	7.9	4.0	6.8	6.8	4.0	6.8	6.8	4.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0	5.0	2.5	5.0		3.5	3.5		3.5	3.5	
Recall Mode	Min	Min	Min	None	Min		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0		7.0		7.0	7.0		7.0	7.0	

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday post-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	16.0	16.0	16.0		16.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)	0	0	0		0		0	0		0	0	
Act Effect Green (s)		64.6	64.6	65.8	66.9		9.8	9.8				
Actuated g/C Ratio		0.81	0.81	0.76	0.84		0.11	0.11				
v/c Ratio		0.06	0.05	0.02	0.05		0.17	0.03				
Control Delay		4.4	2.5	3.9	3.0		23.7	0.1				
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0				
Total Delay		4.4	2.5	3.9	3.0		23.7	0.1				
LOS		A	A	A	A		C	A				
Approach Delay		3.9			3.1			13.3				
Approach LOS		A			A			B				
Queue Length 50th (m)		0.0	0.0	0.2	0.0		2.0	0.0				
Queue Length 95th (m)		10.0	5.0	1.9	5.3		9.3	0.0				
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)			90.0	30.0			20.0					
Base Capacity (vph)		2864	1294	891	3010		366	903				
Starvation Cap Reductn		0	0	0	0		0	0				
Spillback Cap Reductn		0	0	0	0		0	0				
Storage Cap Reductn		0	0	0	0		0	0				
Reduced v/c Ratio		0.06	0.05	0.02	0.04		0.08	0.03				

Intersection Summary

Area Type: Other

Cycle Length: 74.7

Actuated Cycle Length: 79.8

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.17

Intersection Signal Delay: 4.7






Intersection LOS: A

Intersection Capacity Utilization 43.9%

ICU Level of Service A

Analysis Period (min) 15























Splits and Phases: 220: Kingsway & Levesque St.

	ø1		ø2		ø4
9 s		37.9 s		27.8 s	
	ø6				ø8
37.9 s				27.8 s	

Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.













Friday post-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		20.0	50.0		75.0	20.0		0.0	20.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	100.0		40.0	100.0		95.0	30.0		7.5	15.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	1863	3539	1863	1863	3539	1863	1863	1863	0	1863	1863	0
Flt Permitted												
Satd. Flow (perm)	1863	3539	1863	1863	3539	1863	1863	1863	0	1863	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		457.8			1178.3			983.3			168.8	
Travel Time (s)		20.6			53.0			70.8			12.2	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	10.0	37.9	37.9	10.0	37.9	37.9	30.7	30.7		30.7	30.7	
Total Split (s)	23.0	67.9	67.9	20.0	67.9	67.9	31.7	31.7	0.0	31.7	31.7	0.0
Total Split (%)	18.8%	55.4%	55.4%	16.3%	55.4%	55.4%	25.9%	25.9%	0.0%	25.9%	25.9%	0.0%
Maximum Green (s)	18.0	60.0	60.0	15.0	60.0	60.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.9	7.9	5.0	7.9	7.9	6.7	6.7	4.0	6.7	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0		4.0	4.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		17.0	17.0		17.0	17.0	17.0	17.0		17.0	17.0	

Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.







Friday post-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (m)												
Queue Length 95th (m)												
Internal Link Dist (m)		433.8			1154.3			959.3			144.8	
Turn Bay Length (m)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary

Area Type:	Other
Cycle Length: 122.6	
Actuated Cycle Length: 120	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.00	
Intersection Signal Delay: 0.0	Intersection LOS: A
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	





















Splits and Phases: 225: Kingsway & Moonlight Ave.

 ø1	 ø2	 ø4
20 s	67.9 s	31.7 s
 ø5	 ø6	 ø8
23 s	67.9 s	31.7 s

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.













Friday post-game hour

Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	1863	1863	1863	1863	1863	0	0	1863	0	0	1863	1863
Flt Permitted												
Satd. Flow (perm)	1863	1863	1863	1863	1863	0	0	1863	0	0	1863	1863
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	16.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	16.0	25.7	25.7
Total Split (%)	15.5%	44.2%	44.2%	44.2%	44.2%	0.0%	24.9%	24.9%	0.0%	15.5%	24.9%	24.9%
Maximum Green (s)	12.0	40.0	40.0	40.0	40.0		20.0	20.0		12.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

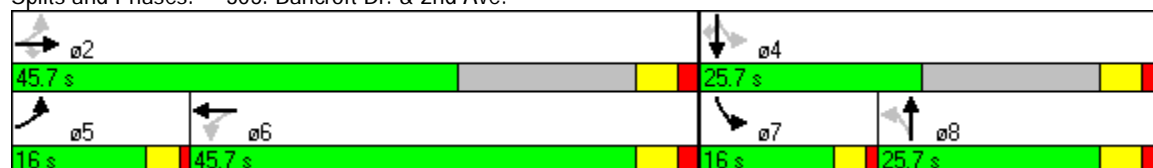
Friday post-game hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)												
Actuated g/C Ratio												
v/c Ratio												
Control Delay												
Queue Delay												
Total Delay												
LOS												
Approach Delay												
Approach LOS												
Queue Length 50th (m)												
Queue Length 95th (m)												
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)												
Base Capacity (vph)												
Starvation Cap Reductn												
Spillback Cap Reductn												
Storage Cap Reductn												
Reduced v/c Ratio												

Intersection Summary

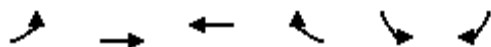
Area Type:	Other
Cycle Length: 103.4	
Actuated Cycle Length: 120	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.00	
Intersection Signal Delay: 0.0	Intersection LOS: A
Intersection Capacity Utilization 0.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 305: Bancroft Dr. & 2nd Ave.



Lanes, Volumes, Timings
320: Bancroft Dr. & Levesque St.

Friday post-game hour
Future background volumes



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		↰↱	
Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1863	1863	0	1863	0
Flt Permitted						
Satd. Flow (perm)	0	1863	1863	0	1863	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		303.6	517.2		763.1	
Travel Time (s)		21.9	37.2		54.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.2	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		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
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

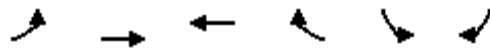
Intersection Capacity Utilization 0.0% ICU Level of Service A




Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

320: Bancroft Dr. & Levesque St.

Friday post-game hour
Future background volumes



















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	0	0	0	0	0
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)	0	0	0	0	0	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	0				0	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1623				1023	1085
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	0	0	0			
Volume Left	0	0	0			
Volume Right	0	0	0			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.00	0.00			
Queue Length 95th (m)	0.0	0.0	0.0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	0.0			
Approach LOS			A			
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		0.0%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings
325: Bancroft Dr. & Moonlight Ave.

Friday post-game hour

















Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt												
Flt Protected												
Satd. Flow (prot)	0	1863	0	0	1863	0	0	1863	0	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	1863	0	0	1863	0	0	1863	0
Link Speed (k/h)	50				50				50			
Link Distance (m)	238.9				270.7				236.1			
Travel Time (s)	17.2				19.5				17.0			
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
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)	0.0				0.0				3.6			
Link Offset(m)	0.0				0.0				0.0			
Crosswalk Width(m)	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
Sign Control	Stop				Stop				Stop			
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization 0.0%	ICU Level of Service A											
Analysis Period (min) 15												

HCM Unsignalized Intersection Capacity Analysis

























325: Bancroft Dr. & Moonlight Ave.

Friday post-game hour
Future background volumes

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	0	0	0	0								
Volume Left (vph)	0	0	0	0								
Volume Right (vph)	0	0	0	0								
Hadj (s)	0.00	0.00	0.00	0.00								
Departure Headway (s)	3.9	3.9	3.9	3.9								
Degree Utilization, x	0.00	0.00	0.00	0.00								
Capacity (veh/h)	917	917	917	917								
Control Delay (s)	6.9	6.9	6.9	6.9								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			0.0									
HCM Level of Service			A									
Intersection Capacity Utilization			0.0%	ICU Level of Service					A			
Analysis Period (min)			15									













Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Saturday peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	765	560	130	375	505	210	210	470	125	360	630	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			131			212						555
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	773	566	131	379	510	212	212	475	126	364	636	571
Shared Lane Traffic (%)												
Lane Group Flow (vph)	773	566	131	379	510	212	212	475	126	364	636	571
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	34.1	10.4	34.1	
Total Split (s)	44.4	48.4	48.4	23.4	46.4	46.4	25.4	26.1	26.1	25.4	26.1	0.0
Total Split (%)	31.2%	34.0%	34.0%	16.4%	32.6%	32.6%	17.8%	18.3%	18.3%	17.8%	18.3%	0.0%
Maximum Green (s)	39.0	42.0	42.0	18.0	40.0	40.0	20.0	20.0	20.0	20.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	3.4	6.4	6.4	5.4	6.1	6.1	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	3.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Saturday peak hour
Future background volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0	21.0		21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effect Green (s)	29.8	33.3	33.3	20.4	21.8	21.8	12.0	19.8	19.8	16.5	24.3	111.7
Actuated g/C Ratio	0.27	0.30	0.30	0.18	0.20	0.20	0.11	0.18	0.18	0.15	0.22	1.00
v/c Ratio	0.84	0.54	0.23	1.16	0.75	0.44	0.56	0.76	0.44	0.71	0.82	0.36
Control Delay	48.2	34.1	5.6	143.7	50.7	8.6	55.5	54.4	50.4	55.1	52.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	34.1	5.6	143.7	50.7	8.6	55.5	54.4	50.4	55.1	52.9	0.6
LOS	D	C	A	F	D	A	E	D	D	E	D	A
Approach Delay		39.0			74.6			54.1			34.4	
Approach LOS		D			E			D			C	
Queue Length 50th (m)	87.1	57.1	0.0	~106.7	59.1	0.0	24.4	55.6	26.4	41.8	74.0	0.0
Queue Length 95th (m)	122.3	76.0	13.4	#201.7	87.1	20.7	41.4	#97.6	53.8	66.4	#132.4	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	1127	1560	573	326	1088	480	592	642	293	609	778	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.36	0.23	1.16	0.47	0.44	0.36	0.74	0.43	0.60	0.82	0.36

Intersection Summary

Area Type: Other

Cycle Length: 142.3

Actuated Cycle Length: 111.7

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 47.9

Intersection LOS: D

Intersection Capacity Utilization 78.6%

ICU Level of Service D

Analysis Period (min) 15









~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 200: Kingsway & Barry Downe Rd.























			
ø1	ø2	ø3	ø4
23.4 s	48.4 s	25.4 s	26.1 s
			
ø5	ø6	ø7	ø8
44.4 s	46.4 s	25.4 s	26.1 s

Lanes, Volumes, Timings

105: Lasalle Blvd. & Falconbridge Rd.

Weekday PM peak hour

Future background volumes; signal adjustments













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	75	275	125	155	65	325	880	65	15	530	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.956			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1881	1509	1719	1776	0	1736	3504	0	1444	3505	1568
Flt Permitted	0.279			0.707			0.253			0.294		
Satd. Flow (perm)	520	1881	1509	1279	1776	0	462	3504	0	447	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			284		16			9				262
Link Speed (k/h)		50			50			50				50
Link Distance (m)		226.4			295.5			253.8				227.6
Travel Time (s)		16.3			21.3			18.3				16.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	1%	7%	5%	2%	3%	4%	2%	2%	25%	3%	3%
Adj. Flow (vph)	521	77	284	129	160	67	335	907	67	15	546	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	521	77	284	129	227	0	335	974	0	15	546	361
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	32.0	21.4	21.4	16.0	21.4	0.0	22.0	36.8	0.0	36.8	36.8	36.8
Total Split (%)	28.5%	19.1%	19.1%	14.3%	19.1%	0.0%	19.6%	32.8%	0.0%	32.8%	32.8%	32.8%
Maximum Green (s)	28.0	15.0	15.0	12.0	15.0		18.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0

Lanes, Volumes, Timings

105: Lasalle Blvd. & Falconbridge Rd.

Weekday PM peak hour

Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)	49.5	35.9	35.9	27.1	15.0		49.7	46.9		25.6	25.6	25.6
Actuated g/C Ratio	0.46	0.33	0.33	0.25	0.14		0.46	0.44		0.24	0.24	0.24
v/c Ratio	0.92	0.12	0.41	0.36	0.86		0.80	0.63		0.14	0.65	0.63
Control Delay	47.6	29.5	5.7	23.7	73.2		34.7	25.2		35.4	40.8	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	47.6	29.5	5.7	23.7	73.2		34.7	25.2		35.4	40.8	15.6
LOS	D	C	A	C	E		C	C		D	D	B
Approach Delay		32.5			55.2			27.7			30.8	
Approach LOS		C			E			C			C	
Queue Length 50th (m)	87.6	12.4	0.0	16.6	46.9		47.5	84.6		2.6	57.6	17.9
Queue Length 95th (m)	#164.2	25.9	20.5	30.6	#95.6		#77.6	106.1		8.7	76.2	49.4
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)	90.0			40.0			55.0			40.0		30.0
Base Capacity (vph)	567	629	694	384	263		426	1629		121	943	613
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	0.12	0.41	0.34	0.86		0.79	0.60		0.12	0.58	0.59

Intersection Summary

Area Type: Other

Cycle Length: 112.2

Actuated Cycle Length: 107.2

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 32.6

Intersection LOS: C

Intersection Capacity Utilization 103.2%

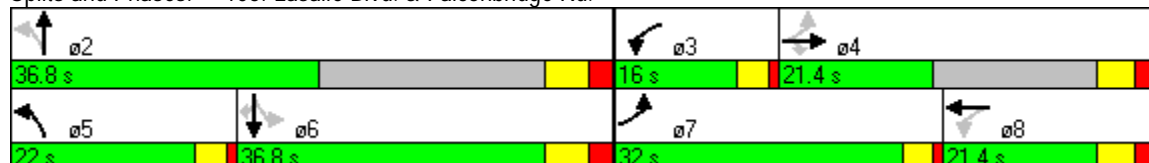
ICU Level of Service G

Analysis Period (min) 15

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

























Queue shown is maximum after two cycles.

Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.















Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Weekday PM peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	780	970	90	135	715	445	110	340	155	495	360	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			95			300						567
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	821	1021	95	142	753	468	116	358	163	521	379	616
Shared Lane Traffic (%)												
Lane Group Flow (vph)	821	1021	95	142	753	468	116	358	163	521	379	616
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	10.4	10.4	34.1	
Total Split (s)	39.4	46.4	46.4	29.4	46.4	46.4	22.4	26.1	29.4	25.4	26.1	0.0
Total Split (%)	28.7%	33.8%	33.8%	21.4%	33.8%	33.8%	16.3%	19.0%	21.4%	18.5%	19.0%	0.0%
Maximum Green (s)	34.0	40.0	40.0	24.0	40.0	40.0	17.0	20.0	24.0	20.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	5.4	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5	2.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Weekday PM peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0			21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	32.8	51.0	51.0	15.0	33.3	33.3	9.2	17.6	38.8	20.1	28.6	127.3
Actuated g/C Ratio	0.26	0.40	0.40	0.12	0.26	0.26	0.07	0.14	0.30	0.16	0.22	1.00
v/c Ratio	0.92	0.72	0.13	0.67	0.82	0.74	0.46	0.73	0.33	0.95	0.47	0.39
Control Delay	62.7	36.3	5.5	70.8	52.8	22.5	64.4	62.9	36.3	81.7	46.6	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	36.3	5.5	70.8	52.8	22.5	64.4	62.9	36.3	81.7	46.6	0.7
LOS	E	D	A	E	D	C	E	E	D	F	D	A
Approach Delay		46.0			44.2			56.4			40.0	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	111.2	119.7	0.0	37.4	101.0	42.1	15.8	49.1	33.9	73.2	46.9	0.0
Queue Length 95th (m)	#160.9	159.4	11.7	60.5	126.6	85.4	26.8	69.6	53.4	#119.0	68.6	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	921	1446	704	316	1049	635	443	548	503	549	803	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.71	0.13	0.45	0.72	0.74	0.26	0.65	0.32	0.95	0.47	0.39

Intersection Summary

Area Type: Other

Cycle Length: 137.3

Actuated Cycle Length: 127.3

Natural Cycle: 135

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 45.1

Intersection LOS: D

Intersection Capacity Utilization 85.0%

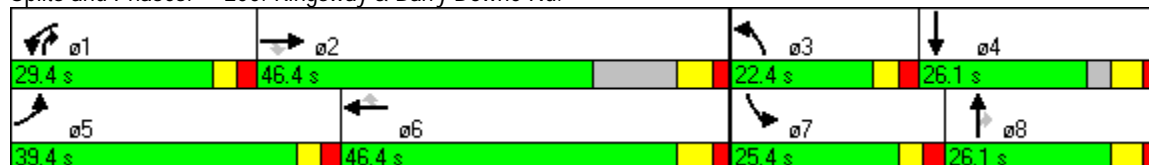
ICU Level of Service E

Analysis Period (min) 15

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
























Queue shown is maximum after two cycles.

Splits and Phases: 200: Kingsway & Barry Downe Rd.















Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Weekday PM peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	725	670	320	80	445	320	280	485	90	450	475	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Fr't			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			311			322			15			561
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	1%	5%	5%	2%	1%	2%	5%	2%	2%
Adj. Flow (vph)	740	684	327	82	454	327	286	495	92	459	485	561
Shared Lane Traffic (%)												
Lane Group Flow (vph)	740	684	327	82	454	327	286	587	0	459	485	561
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	33.0	30.7	30.7	20.0	31.7	31.7	20.0	33.7	0.0	29.0	32.7	0.0
Total Split (%)	25.9%	24.1%	24.1%	15.7%	24.9%	24.9%	15.7%	26.5%	0.0%	22.8%	25.7%	0.0%
Maximum Green (s)	28.0	24.0	24.0	15.0	25.0	25.0	15.0	27.0		24.0	26.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Weekday PM peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	27.5	42.0	42.0	10.3	22.2	22.2	13.5	23.7		20.3	30.5	117.2
Actuated g/C Ratio	0.23	0.36	0.36	0.09	0.19	0.19	0.12	0.20		0.17	0.26	1.00
v/c Ratio	0.91	0.55	0.43	0.53	0.70	0.59	0.72	0.82		0.80	0.53	0.35
Control Delay	61.0	34.6	6.3	65.4	51.7	9.9	62.5	54.5		58.2	39.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	61.0	34.6	6.3	65.4	51.7	9.9	62.5	54.5		58.2	39.7	0.6
LOS	E	C	A	E	D	A	E	D		E	D	A
Approach Delay		40.5			37.2			57.2			30.8	
Approach LOS		D			D			E			C	
Queue Length 50th (m)	92.2	73.9	2.7	19.7	56.3	1.0	35.3	70.9		56.2	53.8	0.0
Queue Length 95th (m)	#141.1	104.7	26.5	37.3	78.0	28.5	53.7	97.8		78.5	73.6	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	829	1255	766	216	720	553	436	795		665	1042	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.89	0.55	0.43	0.38	0.63	0.59	0.66	0.74		0.69	0.47	0.35

Intersection Summary

Area Type: Other

Cycle Length: 127.4

Actuated Cycle Length: 117.2

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 39.9

Intersection LOS: D

Intersection Capacity Utilization 86.0%

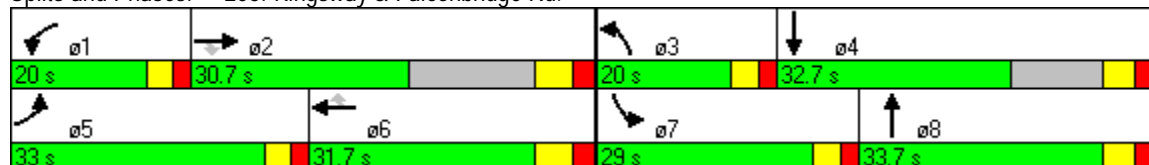
ICU Level of Service E

Analysis Period (min) 15

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





















Queue shown is maximum after two cycles.

Splits and Phases: 205: Kingsway & Falconbridge Rd.















Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	355	85	15	205	160	30	70	15	200	90	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95	0.98	0.99			0.99			0.99	0.94
Frt			0.850		0.934			0.983				0.850
Flt Protected	0.950			0.950				0.987			0.967	
Satd. Flow (prot)	1787	1881	1615	1805	1726	0	0	1833	0	0	1800	1583
Flt Permitted	0.293			0.543				0.812			0.599	
Satd. Flow (perm)	549	1881	1539	1015	1726	0	0	1498	0	0	1103	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88		45			6				204
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	2%	1%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	521	366	88	15	211	165	31	72	15	206	93	345
Shared Lane Traffic (%)												
Lane Group Flow (vph)	521	366	88	15	376	0	0	118	0	0	299	345
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	20.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	11.0	25.7	25.7
Total Split (%)	19.5%	44.6%	44.6%	44.6%	44.6%	0.0%	25.1%	25.1%	0.0%	10.7%	25.1%	25.1%
Maximum Green (s)	16.0	40.0	40.0	40.0	40.0		20.0	20.0		7.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)	46.0	44.3	44.3	24.0	24.0			11.8			22.2	22.2
Actuated g/C Ratio	0.59	0.57	0.57	0.31	0.31			0.15			0.28	0.28
v/c Ratio	0.90	0.34	0.10	0.05	0.67			0.53			0.78	0.61
Control Delay	32.6	10.6	2.4	20.1	27.4			39.4			41.7	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	32.6	10.6	2.4	20.1	27.4			39.4			41.7	15.2
LOS	C	B	A	C	C			D			D	B
Approach Delay		21.6			27.1			39.4			27.5	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	42.4	28.0	0.0	1.6	44.2			15.6			37.4	16.2
Queue Length 95th (m)	#117.7	51.9	6.2	6.3	79.7			36.0			#86.7	49.8
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	581	1206	1018	434	764			343			577	666
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.90	0.30	0.09	0.03	0.49			0.34			0.52	0.52

Intersection Summary

Area Type: Other

Cycle Length: 102.4

Actuated Cycle Length: 78

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 25.4

Intersection LOS: C

Intersection Capacity Utilization 84.2%

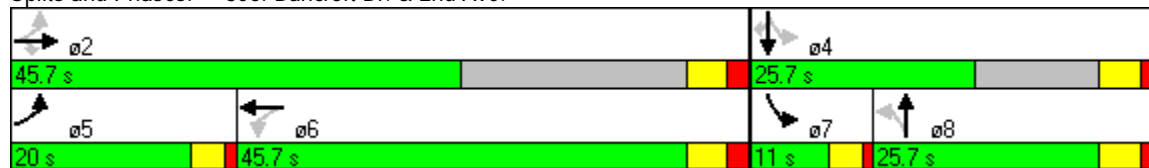
ICU Level of Service E

Analysis Period (min) 15

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

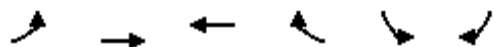
Queue shown is maximum after two cycles.

Splits and Phases: 305: Bancroft Dr. & 2nd Ave.



Lanes, Volumes, Timings
320: Bancroft Dr. & Levesque St.

Weekday PM peak hour
Future background volumes; signal adjustments



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	95	150	65	5	25	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.990		0.894	
Flt Protected		0.981			0.989	
Satd. Flow (prot)	0	1831	1830	0	1680	0
Flt Permitted		0.981			0.989	
Satd. Flow (perm)	0	1831	1830	0	1680	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		303.6	517.2		763.1	
Travel Time (s)		21.9	37.2		54.9	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	3%	1%	3%	0%	0%	0%
Adj. Flow (vph)	114	181	78	6	30	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	295	84	0	138	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		7.2	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		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
Turning Speed (k/h)	25			15	25	15
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

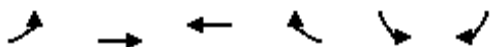
Intersection Capacity Utilization 33.4% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

320: Bancroft Dr. & Levesque St.

















Weekday PM peak hour
Future background volumes; signal adjustments



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↰		↰	
Volume (veh/h)	95	150	65	5	25	90
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	114	181	78	6	30	108
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	84				491	81
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	84				491	81
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				94	89
cM capacity (veh/h)	1506				499	984
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	295	84	139			
Volume Left	114	0	30			
Volume Right	0	6	108			
cSH	1506	1700	813			
Volume to Capacity	0.08	0.05	0.17			
Queue Length 95th (m)	2.0	0.0	4.9			
Control Delay (s)	3.3	0.0	10.3			
Lane LOS	A		B			
Approach Delay (s)	3.3	0.0	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization			33.4%		ICU Level of Service	A
Analysis Period (min)			15			

















Lanes, Volumes, Timings
325: Bancroft Dr. & Moonlight Ave.

Weekday PM peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	65	5	5	45	10	5	5	5	30	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.977			0.955			0.938	
Flt Protected		0.979			0.996			0.984			0.977	
Satd. Flow (prot)	0	1849	0	0	1849	0	0	1785	0	0	1665	0
Flt Permitted		0.979			0.996			0.984			0.977	
Satd. Flow (perm)	0	1849	0	0	1849	0	0	1785	0	0	1665	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		238.9			270.7			236.1			983.3	
Travel Time (s)		17.2			19.5			17.0			70.8	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	7%
Adj. Flow (vph)	64	76	6	6	52	12	6	6	6	35	6	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	146	0	0	70	0	0	18	0	0	76	0
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)		0.0			0.0			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
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.8%											
Analysis Period (min)	15											
	ICU Level of Service A											
























HCM Unsignalized Intersection Capacity Analysis 325: Bancroft Dr. & Moonlight Ave.

Weekday PM peak hour
Future background volumes; signal adjustments

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	55	65	5	5	45	10	5	5	5	30	5	30
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	64	76	6	6	52	12	6	6	6	35	6	35
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	145	70	17	76								
Volume Left (vph)	64	6	6	35								
Volume Right (vph)	6	12	6	35								
Hadj (s)	0.06	-0.08	-0.13	-0.11								
Departure Headway (s)	4.2	4.2	4.3	4.3								
Degree Utilization, x	0.17	0.08	0.02	0.09								
Capacity (veh/h)	825	834	779	787								
Control Delay (s)	8.1	7.5	7.4	7.7								
Approach Delay (s)	8.1	7.5	7.4	7.7								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay				7.9								
HCM Level of Service				A								
Intersection Capacity Utilization				25.8%	ICU Level of Service	A						
Analysis Period (min)				15								













Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Friday pre-game hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	595	220	235	575	80	230	220	250	110	335	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99						0.99	
Frt			0.850		0.982				0.850		0.963	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1787	3429	0	1787	3539	1568	1770	3384	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1787	3429	0	1787	3539	1568	1770	3384	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			239		13				272		35	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Confl. Peds. (#/hr)						40						25
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%	2%	1%	3%	0%	1%	2%	3%	2%	1%	3%
Adj. Flow (vph)	163	647	239	255	625	87	250	239	272	120	364	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	647	239	255	712	0	250	239	272	120	484	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	35.7	35.7	25.0	35.7	0.0	25.0	30.7	30.7	20.0	28.7	0.0
Total Split (%)	21.9%	31.2%	31.2%	21.9%	31.2%	0.0%	21.9%	26.8%	26.8%	17.5%	25.1%	0.0%
Maximum Green (s)	20.0	30.0	30.0	20.0	30.0		20.0	25.0	25.0	15.0	23.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Friday pre-game hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	14.5	30.2	30.2	18.1	33.8		17.9	25.7	25.7	11.7	19.4	
Actuated g/C Ratio	0.14	0.28	0.28	0.17	0.32		0.17	0.24	0.24	0.11	0.18	
v/c Ratio	0.68	0.65	0.39	0.84	0.65		0.84	0.28	0.47	0.62	0.75	
Control Delay	59.5	38.8	6.3	69.0	36.3		68.4	34.9	7.1	61.3	47.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	59.5	38.8	6.3	69.0	36.3		68.4	34.9	7.1	61.3	47.1	
LOS	E	D	A	E	D		E	C	A	E	D	
Approach Delay		34.6			44.9			36.0			49.9	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	36.3	70.3	0.0	56.8	73.1		55.5	23.3	0.0	26.8	52.0	
Queue Length 95th (m)	58.0	93.9	19.6	#101.0	103.9		#98.1	35.8	21.3	46.5	70.9	
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)	35.0			100.0			100.0		45.0	50.0		
Base Capacity (vph)	315	997	617	329	1090		328	910	582	241	733	
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	0.52	0.65	0.39	0.78	0.65		0.76	0.26	0.47	0.50	0.66	

Intersection Summary

Area Type: Other

Cycle Length: 114.4

Actuated Cycle Length: 107.3

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 40.6

Intersection LOS: D

Intersection Capacity Utilization 85.2%

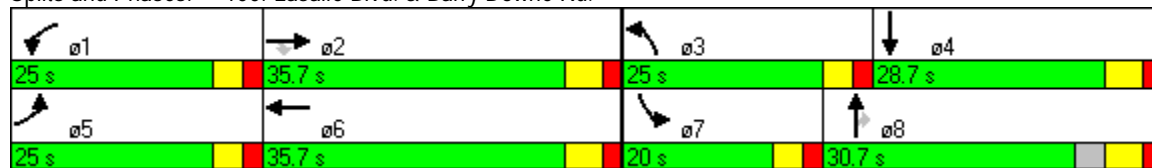
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.

























Lanes, Volumes, Timings

105: Lasalle Blvd. & Falconbridge Rd.

Friday pre-game hour

Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	60	205	90	120	50	240	655	50	10	400	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.956			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1727	1509	1719	1776	0	1736	3457	0	1444	3505	1568
Flt Permitted	0.418			0.715			0.343			0.361		
Satd. Flow (perm)	779	1727	1509	1294	1776	0	627	3457	0	549	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			223		15			9				262
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		226.4			295.5			253.8			227.6	
Travel Time (s)		16.3			21.3			18.3			16.4	
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%	10%	7%	5%	2%	3%	4%	2%	20%	25%	3%	3%
Adj. Flow (vph)	413	65	223	98	130	54	261	712	54	11	435	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	65	223	98	184	0	261	766	0	11	435	288
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	32.0	21.4	21.4	16.0	21.4	0.0	22.0	36.8	0.0	36.8	36.8	36.8
Total Split (%)	28.5%	19.1%	19.1%	14.3%	19.1%	0.0%	19.6%	32.8%	0.0%	32.8%	32.8%	32.8%
Maximum Green (s)	28.0	15.0	15.0	12.0	15.0		18.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0

Lanes, Volumes, Timings

105: Lasalle Blvd. & Falconbridge Rd.

Friday pre-game hour

Future background volumes; signal adjustments

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)	45.3	32.9	32.9	26.1	15.2		44.4	41.6		22.4	22.4	22.4
Actuated g/C Ratio	0.46	0.34	0.34	0.26	0.16		0.45	0.43		0.23	0.23	0.23
v/c Ratio	0.69	0.11	0.34	0.26	0.64		0.57	0.52		0.09	0.54	0.51
Control Delay	25.9	27.1	5.6	20.4	49.1		22.9	22.1		34.0	36.8	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	25.9	27.1	5.6	20.4	49.1		22.9	22.1		34.0	36.8	9.4
LOS	C	C	A	C	D		C	C		C	D	A
Approach Delay		19.6			39.2			22.3			26.0	
Approach LOS		B			D			C			C	
Queue Length 50th (m)	54.3	9.0	0.0	10.5	32.2		33.6	58.9		1.8	42.1	4.3
Queue Length 95th (m)	97.2	22.3	18.4	23.7	#70.3		54.0	79.0		6.9	60.3	27.2
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)	90.0			40.0			55.0			40.0		30.0
Base Capacity (vph)	619	587	655	419	288		476	1671		157	1003	636
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	0.67	0.11	0.34	0.23	0.64		0.55	0.46		0.07	0.43	0.45

Intersection Summary

Area Type: Other

Cycle Length: 112.2

Actuated Cycle Length: 97.8

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 24.3

Intersection LOS: C

Intersection Capacity Utilization 86.8%

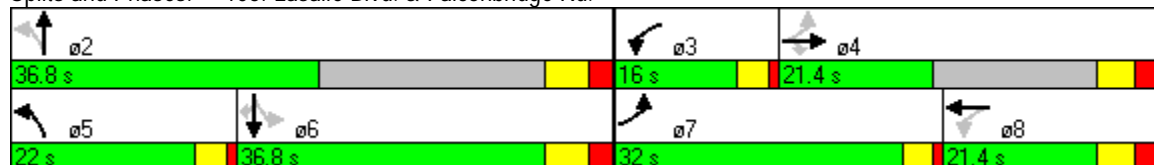
ICU Level of Service E

Analysis Period (min) 15

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

























Queue shown is maximum after two cycles.

Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.















Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Friday pre-game hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	585	725	70	100	540	335	80	255	120	370	270	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			76			324						478
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
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 (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	636	788	76	109	587	364	87	277	130	402	293	478
Shared Lane Traffic (%)												
Lane Group Flow (vph)	636	788	76	109	587	364	87	277	130	402	293	478
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	10.4	10.4	34.1	
Total Split (s)	39.4	46.4	46.4	29.4	46.4	46.4	22.4	26.1	29.4	25.4	26.1	0.0
Total Split (%)	28.7%	33.8%	33.8%	21.4%	33.8%	33.8%	16.3%	19.0%	21.4%	18.5%	19.0%	0.0%
Maximum Green (s)	34.0	40.0	40.0	24.0	40.0	40.0	17.0	20.0	24.0	20.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	5.4	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5	2.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Friday pre-game hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0			21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	24.7	37.7	37.7	11.8	24.8	24.8	7.8	14.6	32.7	17.0	26.8	105.2
Actuated g/C Ratio	0.23	0.36	0.36	0.11	0.24	0.24	0.07	0.14	0.31	0.16	0.25	1.00
v/c Ratio	0.78	0.62	0.12	0.55	0.71	0.59	0.34	0.56	0.26	0.72	0.32	0.30
Control Delay	46.3	30.9	6.3	58.3	43.4	10.6	54.9	49.4	30.7	52.0	36.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	30.9	6.3	58.3	43.4	10.6	54.9	49.4	30.7	52.0	36.4	0.5
LOS	D	C	A	E	D	B	D	D	C	D	D	A
Approach Delay		36.2			33.7			45.5			27.1	
Approach LOS		D			C			D			C	
Queue Length 50th (m)	67.2	73.3	0.0	22.8	61.7	6.8	9.4	30.1	21.3	42.7	28.1	0.0
Queue Length 95th (m)	103.0	110.2	10.4	47.5	96.0	37.5	20.6	52.1	42.5	73.3	49.8	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	1045	1522	628	372	1180	620	518	653	547	655	922	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.52	0.12	0.29	0.50	0.59	0.17	0.42	0.24	0.61	0.32	0.30

Intersection Summary

Area Type: Other

Cycle Length: 137.3

Actuated Cycle Length: 105.2

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 34.1

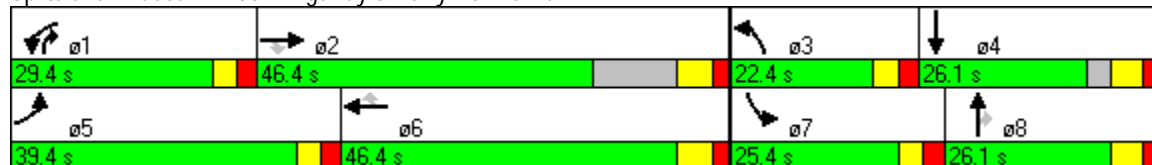
Intersection LOS: C

Intersection Capacity Utilization 68.6%

ICU Level of Service C
























Analysis Period (min) 15

Splits and Phases: 200: Kingsway & Barry Downe Rd.















Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	500	235	60	335	235	210	365	70	340	355	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Fr't			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			258			258		16				456
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	4%	3%	2%	4%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	599	549	258	66	368	258	231	401	77	374	390	456
Shared Lane Traffic (%)												
Lane Group Flow (vph)	599	549	258	66	368	258	231	478	0	374	390	456
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	33.0	30.7	30.7	20.0	31.7	31.7	20.0	33.7	0.0	29.0	32.7	0.0
Total Split (%)	25.9%	24.1%	24.1%	15.7%	24.9%	24.9%	15.7%	26.5%	0.0%	22.8%	25.7%	0.0%
Maximum Green (s)	28.0	24.0	24.0	15.0	25.0	25.0	15.0	27.0		24.0	26.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	23.0	37.5	37.5	9.0	20.9	20.9	11.8	19.9		16.4	24.5	104.0
Actuated g/C Ratio	0.22	0.36	0.36	0.08	0.20	0.20	0.11	0.19		0.16	0.24	1.00
v/c Ratio	0.80	0.43	0.35	0.45	0.52	0.49	0.59	0.70		0.68	0.46	0.29
Control Delay	48.5	29.3	5.2	58.1	42.4	8.7	52.2	45.0		49.4	36.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	48.5	29.3	5.2	58.1	42.4	8.7	52.2	45.0		49.4	36.5	0.4
LOS	D	C	A	E	D	A	D	D		D	D	A
Approach Delay		33.1			31.3			47.3			27.0	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	61.4	47.7	0.0	13.5	37.2	0.0	24.2	48.4		38.9	37.5	0.0
Queue Length 95th (m)	97.3	79.6	19.6	31.2	62.5	23.5	43.0	76.0		62.6	58.1	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	873	1306	736	234	820	527	491	867		753	1122	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.69	0.42	0.35	0.28	0.45	0.49	0.47	0.55		0.50	0.35	0.29

Intersection Summary

Area Type: Other

Cycle Length: 127.4

Actuated Cycle Length: 104

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 33.4

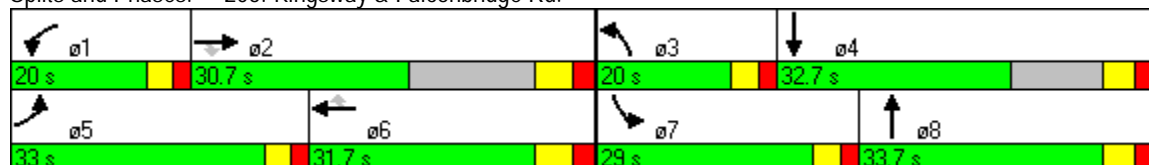
Intersection LOS: C

Intersection Capacity Utilization 73.7%

ICU Level of Service D





















Analysis Period (min) 15

Splits and Phases: 205: Kingsway & Falconbridge Rd.




Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Friday pre-game hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	270	65	10	155	125	25	55	10	150	70	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95	0.98	0.99			0.99			0.99	0.94
Frt			0.850		0.933			0.986				0.850
Flt Protected	0.950			0.950				0.986			0.967	
Satd. Flow (prot)	1736	1827	1615	1805	1682	0	0	1839	0	0	1801	1583
Flt Permitted	0.324			0.557				0.812			0.622	
Satd. Flow (perm)	590	1827	1539	1040	1682	0	0	1503	0	0	1146	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81		46			5				204
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	4%	4%	0%	0%	5%	3%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	475	338	81	12	194	156	31	69	12	188	88	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	475	338	81	12	350	0	0	112	0	0	276	319
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	20.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	11.0	25.7	25.7
Total Split (%)	19.5%	44.6%	44.6%	44.6%	44.6%	0.0%	25.1%	25.1%	0.0%	10.7%	25.1%	25.1%
Maximum Green (s)	16.0	40.0	40.0	40.0	40.0		20.0	20.0		7.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Friday pre-game hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)	45.2	43.5	43.5	23.2	23.2			11.4			20.8	20.8
Actuated g/C Ratio	0.60	0.57	0.57	0.31	0.31			0.15			0.27	0.27
v/c Ratio	0.80	0.32	0.09	0.04	0.64			0.50			0.74	0.57
Control Delay	22.1	10.3	2.5	20.0	26.4			38.1			38.0	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	22.1	10.3	2.5	20.0	26.4			38.1			38.0	13.4
LOS	C	B	A	B	C			D			D	B
Approach Delay		15.8			26.1			38.1			24.9	
Approach LOS		B			C			D			C	
Queue Length 50th (m)	37.3	25.2	0.0	1.3	39.6			14.6			33.3	12.7
Queue Length 95th (m)	#60.6	40.3	4.4	4.7	61.0			29.7			56.8	31.0
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	597	1189	1030	451	756			350			602	671
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.80	0.28	0.08	0.03	0.46			0.32			0.46	0.48

Intersection Summary

Area Type: Other

Cycle Length: 102.4

Actuated Cycle Length: 75.8

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 21.7

Intersection LOS: C

Intersection Capacity Utilization 69.8%

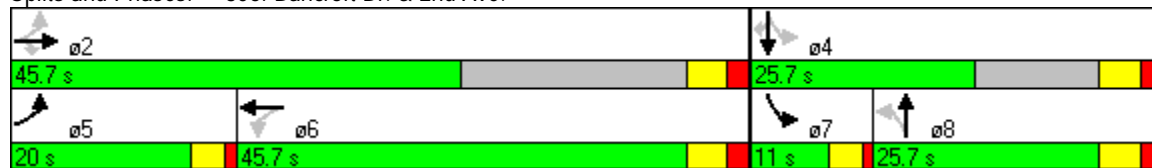
ICU Level of Service C

Analysis Period (min) 15

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

























Queue shown is maximum after two cycles.

Splits and Phases: 305: Bancroft Dr. & 2nd Ave.















Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Saturday peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	765	560	130	375	505	210	210	470	125	360	630	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			131			212						561
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	773	566	131	379	510	212	212	475	126	364	636	571
Shared Lane Traffic (%)												
Lane Group Flow (vph)	773	566	131	379	510	212	212	475	126	364	636	571
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	10.4	10.4	34.1	
Total Split (s)	39.4	46.4	46.4	29.4	46.4	46.4	22.4	26.1	29.4	25.4	26.1	0.0
Total Split (%)	28.7%	33.8%	33.8%	21.4%	33.8%	33.8%	16.3%	19.0%	21.4%	18.5%	19.0%	0.0%
Maximum Green (s)	34.0	40.0	40.0	24.0	40.0	40.0	17.0	20.0	24.0	20.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	3.4	6.4	6.4	5.4	6.1	5.4	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5	2.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Saturday peak hour
Future background volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0			21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	29.7	28.7	28.7	26.3	23.4	23.4	11.9	19.4	49.9	16.4	24.0	112.5
Actuated g/C Ratio	0.26	0.26	0.26	0.23	0.21	0.21	0.11	0.17	0.44	0.15	0.21	1.00
v/c Ratio	0.85	0.63	0.26	0.90	0.70	0.43	0.57	0.78	0.18	0.72	0.83	0.36
Control Delay	49.6	40.2	6.7	70.2	47.9	8.1	55.9	55.8	22.5	55.7	54.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	40.2	6.7	70.2	47.9	8.1	55.9	55.8	22.5	55.7	54.4	0.6
LOS	D	D	A	E	D	A	E	E	C	E	D	A
Approach Delay		42.2			47.9			50.6			35.2	
Approach LOS		D			D			D			D	
Queue Length 50th (m)	87.9	61.7	0.0	88.6	60.0	0.0	25.0	57.0	17.8	42.7	75.8	0.0
Queue Length 95th (m)	124.3	82.5	14.6	#171.0	83.0	20.1	40.3	#92.7	36.6	64.4	#125.0	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	1015	1330	510	419	1092	497	511	632	717	602	779	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.43	0.26	0.90	0.47	0.43	0.41	0.75	0.18	0.60	0.82	0.36

Intersection Summary

Area Type: Other

Cycle Length: 137.3

Actuated Cycle Length: 112.5

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 42.6

Intersection LOS: D

Intersection Capacity Utilization 78.6%

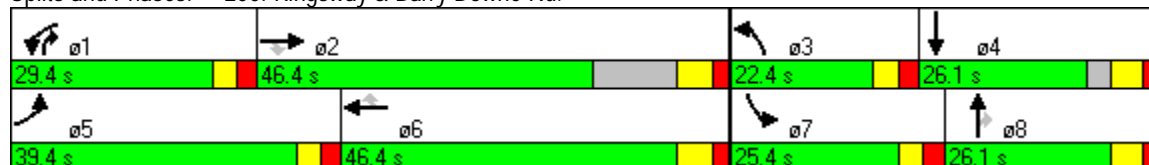
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.


Splits and Phases: 200: Kingsway & Barry Downe Rd.



Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.


Weekday PM peak hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	790	325	320	770	110	400	335	330	140	455	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99						0.99	
Frt			0.850		0.981				0.850		0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1787	3424	0	1787	3539	1568	1770	3388	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1787	3424	0	1787	3539	1568	1770	3388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			335		13				340		32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Confl. Peds. (#/hr)						40						25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	1%	3%	0%	1%	2%	3%	2%	1%	3%
Adj. Flow (vph)	206	814	335	330	794	113	412	345	340	144	469	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	814	335	330	907	0	412	345	340	144	618	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	36.0	36.0	28.0	39.0	0.0	27.0	31.0	31.0	25.0	29.0	0.0
Total Split (%)	20.8%	30.0%	30.0%	23.3%	32.5%	0.0%	22.5%	25.8%	25.8%	20.8%	24.2%	0.0%
Maximum Green (s)	20.0	30.3	30.3	23.0	33.3		22.0	25.3	25.3	20.0	23.3	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	17.5	30.6	30.6	23.0	36.2		22.0	30.4	30.4	14.5	23.0	
Actuated g/C Ratio	0.15	0.26	0.26	0.19	0.30		0.18	0.25	0.25	0.12	0.19	
v/c Ratio	0.80	0.90	0.51	0.96	0.87		1.26	0.38	0.52	0.67	0.92	
Control Delay	71.8	57.5	6.8	88.5	50.1		178.6	39.4	7.3	65.2	64.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	71.8	57.5	6.8	88.5	50.1		178.6	39.4	7.3	65.2	64.7	
LOS	E	E	A	F	D		F	D	A	E	E	
Approach Delay		47.1			60.3			81.7			64.8	
Approach LOS		D			E			F			E	
Queue Length 50th (m)	49.3	103.4	0.0	81.9	113.2		~128.0	37.2	0.0	34.7	75.7	
Queue Length 95th (m)	#79.7	#140.4	23.7	#141.2	#156.6		#192.0	55.0	25.6	54.4	#109.6	
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)	35.0			100.0			100.0		45.0	50.0		
Base Capacity (vph)	295	904	654	343	1042		328	897	651	295	684	
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	0.70	0.90	0.51	0.96	0.87		1.26	0.38	0.52	0.49	0.90	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 28 (23%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.26

Intersection Signal Delay: 62.3

Intersection LOS: E

Intersection Capacity Utilization 101.3%

ICU Level of Service G

Analysis Period (min) 15

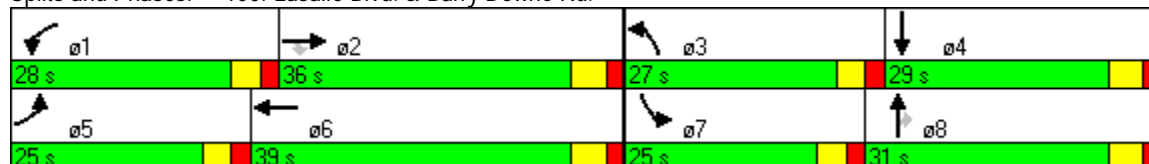
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.












Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.



Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.













Weekday PM peak hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	75	280	130	155	65	330	940	80	15	555	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.956			0.988				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1881	1509	1719	1776	0	1736	3497	0	1444	3505	1568
Flt Permitted	0.276			0.707			0.238			0.272		
Satd. Flow (perm)	514	1881	1509	1279	1776	0	435	3497	0	413	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			289		16			10				249
Link Speed (k/h)		50			50			50				50
Link Distance (m)		226.4			295.5			253.8				227.6
Travel Time (s)		16.3			21.3			18.3				16.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	1%	7%	5%	2%	3%	4%	2%	2%	25%	3%	3%
Adj. Flow (vph)	521	77	289	134	160	67	340	969	82	15	572	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	521	77	289	134	227	0	340	1051	0	15	572	361
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	32.0	21.4	21.4	16.0	21.4	0.0	22.0	36.8	0.0	36.8	36.8	36.8
Total Split (%)	28.5%	19.1%	19.1%	14.3%	19.1%	0.0%	19.6%	32.8%	0.0%	32.8%	32.8%	32.8%
Maximum Green (s)	28.0	15.0	15.0	12.0	15.0		18.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0

Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)	49.5	35.7	35.7	27.2	15.0		50.3	47.5		26.2	26.2	26.2
Actuated g/C Ratio	0.46	0.33	0.33	0.25	0.14		0.47	0.44		0.24	0.24	0.24
v/c Ratio	0.93	0.12	0.42	0.38	0.87		0.83	0.68		0.15	0.67	0.63
Control Delay	49.1	29.8	5.7	24.1	74.2		37.3	26.3		35.9	41.3	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	49.1	29.8	5.7	24.1	74.2		37.3	26.3		35.9	41.3	16.8
LOS	D	C	A	C	E		D	C		D	D	B
Approach Delay		33.3			55.6			29.0			31.9	
Approach LOS		C			E			C			C	
Queue Length 50th (m)	89.5	12.6	0.0	17.5	47.4		48.3	94.3		2.6	60.9	20.5
Queue Length 95th (m)	#164.8	25.9	20.5	31.5	#95.6		#85.3	117.4		8.8	80.2	52.9
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)	90.0			40.0			55.0			40.0		30.0
Base Capacity (vph)	563	623	693	383	261		418	1626		111	943	604
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	0.12	0.42	0.35	0.87		0.81	0.65		0.14	0.61	0.60

Intersection Summary

Area Type: Other

Cycle Length: 112.2

Actuated Cycle Length: 107.8

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 33.5

Intersection LOS: C

Intersection Capacity Utilization 105.3%

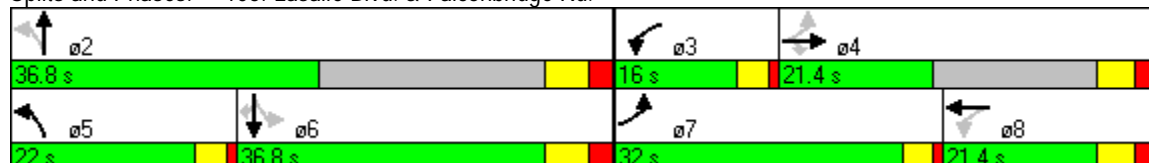
ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

























Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.



Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.













Weekday PM peak hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	780	1150	90	135	1180	745	110	340	155	605	360	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			79			317						561
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	821	1211	95	142	1242	784	116	358	163	637	379	616
Shared Lane Traffic (%)												
Lane Group Flow (vph)	821	1211	95	142	1242	784	116	358	163	637	379	616
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	10.4	10.4	34.1	
Total Split (s)	39.4	46.4	46.4	29.4	46.4	46.4	22.4	26.1	29.4	29.4	26.1	0.0
Total Split (%)	27.9%	32.8%	32.8%	20.8%	32.8%	32.8%	15.9%	18.5%	20.8%	20.8%	18.5%	0.0%
Maximum Green (s)	34.0	40.0	40.0	24.0	40.0	40.0	17.0	20.0	24.0	24.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	5.4	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5	2.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0			21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	34.0	58.1	58.1	15.9	40.0	40.0	9.5	18.5	40.5	24.0	33.0	139.8
Actuated g/C Ratio	0.24	0.42	0.42	0.11	0.29	0.29	0.07	0.13	0.29	0.17	0.24	1.00
v/c Ratio	0.97	0.82	0.13	0.70	1.24	1.15	0.49	0.76	0.35	1.07	0.45	0.39
Control Delay	77.5	42.8	8.5	77.4	157.7	112.4	69.8	70.1	40.5	111.0	48.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.5	42.8	8.5	77.4	157.7	112.4	69.8	70.1	40.5	111.0	48.0	0.7
LOS	E	D	A	E	F	F	E	E	D	F	D	A
Approach Delay		54.7			136.0			62.4			54.7	
Approach LOS		D			F			E			D	
Queue Length 50th (m)	124.7	166.2	2.8	40.9	~239.3	~201.8	17.2	53.6	37.6	~107.6	50.0	0.0
Queue Length 95th (m)	#168.6	#224.5	15.4	62.2	#284.6	#282.5	27.5	72.0	55.2	#147.1	68.3	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	843	1471	718	290	1003	679	404	501	472	595	843	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.82	0.13	0.49	1.24	1.15	0.29	0.71	0.35	1.07	0.45	0.39

Intersection Summary

Area Type: Other

Cycle Length: 141.3

Actuated Cycle Length: 139.8

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.24

Intersection Signal Delay: 82.3

Intersection LOS: F

Intersection Capacity Utilization 100.9%

ICU Level of Service G

Analysis Period (min) 15

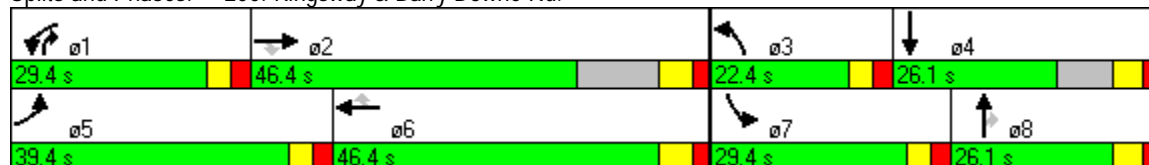
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.
























Splits and Phases: 200: Kingsway & Barry Downe Rd.



Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.













Weekday PM peak hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	725	960	320	80	1210	475	280	485	90	510	475	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Fr't			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			217			256			15			561
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	1%	5%	5%	2%	1%	2%	5%	2%	2%
Adj. Flow (vph)	740	980	327	82	1235	485	286	495	92	520	485	561
Shared Lane Traffic (%)												
Lane Group Flow (vph)	740	980	327	82	1235	485	286	587	0	520	485	561
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	33.0	30.7	30.7	20.0	31.7	31.7	20.0	33.7	0.0	29.0	32.7	0.0
Total Split (%)	25.9%	24.1%	24.1%	15.7%	24.9%	24.9%	15.7%	26.5%	0.0%	22.8%	25.7%	0.0%
Maximum Green (s)	28.0	24.0	24.0	15.0	25.0	25.0	15.0	27.0		24.0	26.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	27.7	44.7	44.7	10.6	25.1	25.1	13.7	24.4		22.2	32.9	122.8
Actuated g/C Ratio	0.23	0.36	0.36	0.08	0.20	0.20	0.11	0.20		0.18	0.27	1.00
v/c Ratio	0.95	0.77	0.46	0.54	1.76	0.94	0.75	0.83		0.86	0.51	0.35
Control Delay	69.1	41.6	13.8	67.9	377.7	50.1	66.2	57.6		64.4	40.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	69.1	41.6	13.8	67.9	377.7	50.1	66.2	57.6		64.4	40.3	0.6
LOS	E	D	B	E	F	D	E	E		E	D	A
Approach Delay		47.1			275.5			60.4			34.1	
Approach LOS		D			F			E			C	
Queue Length 50th (m)	99.8	124.7	20.6	21.0	~257.2	66.3	37.7	75.8		68.2	56.2	0.0
Queue Length 95th (m)	#141.1	#175.1	52.3	37.3	#303.4	#138.1	53.7	97.8		#94.1	73.6	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	790	1276	714	207	702	518	416	763		643	1013	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.94	0.77	0.46	0.40	1.76	0.94	0.69	0.77		0.81	0.48	0.35

Intersection Summary

Area Type: Other

Cycle Length: 127.4

Actuated Cycle Length: 122.8

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.76

Intersection Signal Delay: 111.2

Intersection LOS: F

Intersection Capacity Utilization 104.5%

ICU Level of Service G

Analysis Period (min) 15

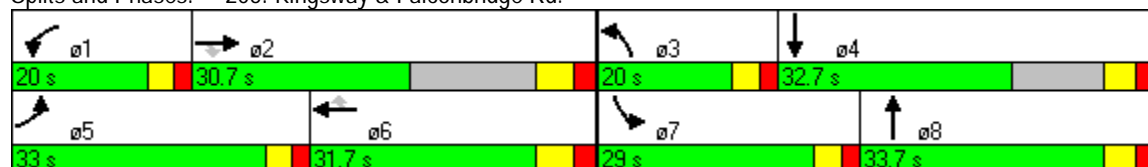
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.
























Splits and Phases: 205: Kingsway & Falconbridge Rd.



Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.













Weekday PM peak hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (vph)	5	1395	75	60	1665	0	40	0	45	5	5	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950				0.950			0.976	
Satd. Flow (prot)	1504	3539	1615	1805	3505	0	0	1685	1507	0	1731	1507
Flt Permitted	0.950			0.950				0.751			0.841	
Satd. Flow (perm)	1504	3539	1615	1805	3505	0	0	1332	1507	0	1491	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81						48			11
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	20%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	5	1500	81	65	1790	0	43	0	48	5	5	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1500	81	65	1790	0	0	43	48	0	10	11
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)	6.0	61.8	61.8	8.9	71.6			9.7	9.7		9.7	9.7
Actuated g/C Ratio	0.06	0.66	0.66	0.09	0.77			0.10	0.10		0.10	0.10
v/c Ratio	0.06	0.64	0.07	0.38	0.66			0.32	0.24		0.07	0.07
Control Delay	42.6	13.5	2.4	42.6	9.1			42.2	14.2		35.8	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	42.6	13.5	2.4	42.6	9.1			42.2	14.2		35.8	19.4
LOS	D	B	A	D	A			D	B		D	B
Approach Delay		13.1			10.3			27.4			27.2	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	0.8	87.2	0.0	10.5	65.2			6.9	0.0		1.6	0.0
Queue Length 95th (m)	4.5	137.5	6.3	23.6	167.2			17.6	10.0		6.5	5.0
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)	100.0		90.0	30.0								
Base Capacity (vph)	144	2346	1098	226	2694			257	329		287	300
Starvation Cap Reductn	0	0	0	0	0			0	0		0	0
Spillback Cap Reductn	0	0	0	0	0			0	0		0	0
Storage Cap Reductn	0	0	0	0	0			0	0		0	0
Reduced v/c Ratio	0.03	0.64	0.07	0.29	0.66			0.17	0.15		0.03	0.04

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 93.2

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.1

Intersection LOS: B

Intersection Capacity Utilization 74.4%

ICU Level of Service D

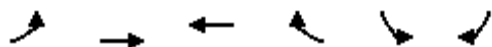
Analysis Period (min) 15

Splits and Phases: 210: Kingsway & 3rd Ave.



Lanes, Volumes, Timings
215: Kingsway & Street A

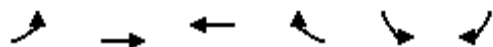
Weekday PM peak hour
Total future volumes



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↱	↰↱	↰↱	↰	↰	↰
Volume (vph)	275	1170	1030	175	360	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	2			1	1	1
Taper Length (m)	60.0			60.0	7.5	7.5
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.117				0.950	
Satd. Flow (perm)	423	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				179		624
Link Speed (k/h)		80	80		50	
Link Distance (m)		514.2	612.8		214.8	
Travel Time (s)		23.1	27.6		15.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	1272	1120	190	391	728
Shared Lane Traffic (%)						
Lane Group Flow (vph)	299	1272	1120	190	391	728
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.2	7.2		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		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
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	11.0	23.9	30.9	30.9	28.6	28.6
Total Split (s)	44.0	37.9	37.9	37.9	35.6	35.6
Total Split (%)	37.4%	32.3%	32.3%	32.3%	30.3%	30.3%
Maximum Green (s)	40.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	5.9	5.9	5.9	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	7.9	5.6	5.6
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			16.0	16.0	16.0	16.0

Lanes, Volumes, Timings
215: Kingsway & Street A

Weekday PM peak hour
Total future volumes



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	48.6	44.7	30.2	30.2	25.5	25.5
Actuated g/C Ratio	0.58	0.53	0.36	0.36	0.30	0.30
v/c Ratio	0.48	0.67	0.88	0.28	0.73	0.79
Control Delay	11.7	17.1	36.0	5.4	34.8	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	17.1	36.0	5.4	34.8	11.8
LOS	B	B	D	A	C	B
Approach Delay		16.1	31.5		19.8	
Approach LOS		B	C		B	
Queue Length 50th (m)	11.6	81.1	94.6	1.2	58.0	12.9
Queue Length 95th (m)	19.2	111.4	#148.7	15.9	93.3	61.0
Internal Link Dist (m)		490.2	588.8		190.8	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	1247	2318	1275	685	603	951
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.55	0.88	0.28	0.65	0.77

Intersection Summary

Area Type: Other

Cycle Length: 117.5

Actuated Cycle Length: 83.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 22.2

Intersection LOS: C

Intersection Capacity Utilization 81.2%

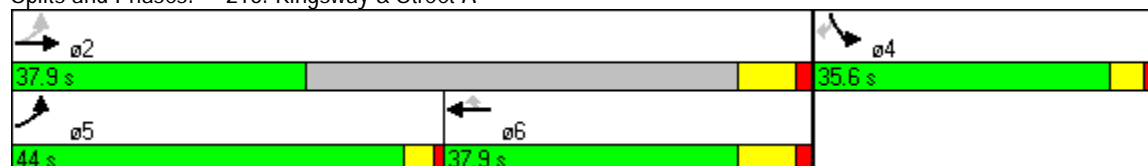
ICU Level of Service D

Analysis Period (min) 15

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
























Queue shown is maximum after two cycles.

Splits and Phases: 215: Kingsway & Street A















Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	1180	260	80	815	40	105	25	125	135	95	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		100.0	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	60.0		65.0	95.0		60.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.875				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3539	1583	1736	3438	1454	1805	1622	0	1805	1900	1615
Flt Permitted	0.280			0.132			0.692			0.656		
Satd. Flow (perm)	532	3539	1583	241	3438	1454	1315	1622	0	1246	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			277			43		133				208
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	2%	4%	5%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	90	1255	277	85	867	43	112	27	133	144	101	303
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	1255	277	85	867	43	112	160	0	144	101	303
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8		27.8	27.8	27.8
Total Split (s)	9.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8	0.0	27.8	27.8	27.8
Total Split (%)	12.0%	50.7%	50.7%	12.0%	50.7%	50.7%	37.2%	37.2%	0.0%	37.2%	37.2%	37.2%
Maximum Green (s)	5.0	30.0	30.0	5.0	30.0	30.0	21.0	21.0		21.0	21.0	21.0
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	3.6	3.6		3.6	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	3.2	3.2		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	4.0	7.9	7.9	6.8	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.5	5.0	5.0	3.5	3.5		3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	None

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		16.0	16.0		16.0	16.0	14.0	14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effect Green (s)	38.0	30.4	30.4	38.0	30.4	30.4	13.7	13.7		13.7	13.7	13.7
Actuated g/C Ratio	0.56	0.46	0.46	0.56	0.46	0.46	0.21	0.21		0.21	0.21	0.21
v/c Ratio	0.23	0.77	0.31	0.35	0.55	0.06	0.41	0.36		0.56	0.26	0.60
Control Delay	7.5	20.9	3.1	10.0	15.9	5.0	27.6	8.9		32.4	23.6	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	7.5	20.9	3.1	10.0	15.9	5.0	27.6	8.9		32.4	23.6	13.7
LOS	A	C	A	B	B	A	C	A		C	C	B
Approach Delay		17.1			14.9			16.6			20.4	
Approach LOS		B			B			B			C	
Queue Length 50th (m)	3.8	70.5	0.0	3.6	42.0	0.0	13.0	2.9		17.3	11.3	10.7
Queue Length 95th (m)	11.3	#129.6	13.5	10.9	71.6	5.7	26.5	16.4		33.7	22.9	32.1
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)	75.0		90.0	30.0		100.0	20.0					
Base Capacity (vph)	393	1634	880	246	1587	694	380	563		360	549	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.23	0.77	0.31	0.35	0.55	0.06	0.29	0.28		0.40	0.18	0.49

Intersection Summary

Area Type: Other

Cycle Length: 74.7

Actuated Cycle Length: 65.9

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 74.8%

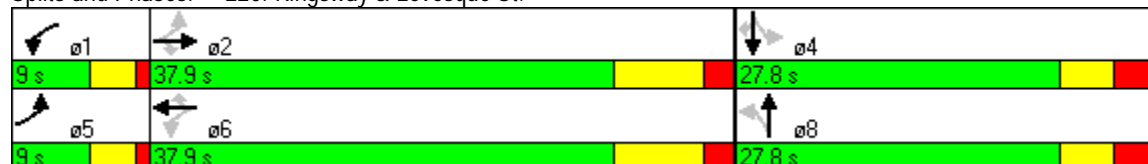
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

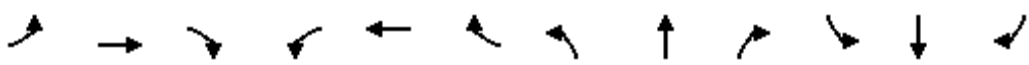
Splits and Phases: 220: Kingsway & Levesque St.



Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.













Weekday PM peak hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	1420	70	25	980	10	40	5	30	10	5	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		20.0	50.0		75.0	20.0		0.0	20.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	100.0		40.0	100.0		95.0	30.0		7.5	15.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.870			0.870	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3471	1583	1736	3438	1615	1805	1653	0	1530	1521	0
Flt Permitted	0.950			0.950			0.732			0.732		
Satd. Flow (perm)	1687	3471	1583	1736	3438	1615	1391	1653	0	1179	1521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			20			11			33			33
Link Speed (k/h)		80			80			50				50
Link Distance (m)		457.8			1178.3			983.3				168.8
Travel Time (s)		20.6			53.0			70.8				12.2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	7%	4%	2%	4%	5%	0%	0%	0%	0%	18%	0%	10%
Adj. Flow (vph)	16	1560	77	27	1077	11	44	5	33	11	5	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1560	77	27	1077	11	44	38	0	11	38	0
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
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	10.0	37.9	37.9	10.0	37.9	37.9	30.7	30.7		30.7	30.7	
Total Split (s)	23.0	67.9	67.9	20.0	67.9	67.9	31.7	31.7	0.0	31.7	31.7	0.0
Total Split (%)	18.8%	55.4%	55.4%	16.3%	55.4%	55.4%	25.9%	25.9%	0.0%	25.9%	25.9%	0.0%
Maximum Green (s)	18.0	60.0	60.0	15.0	60.0	60.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.9	7.9	5.0	7.9	7.9	6.7	6.7	4.0	6.7	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0		4.0	4.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	

Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)	6.7	65.5	65.5	7.3	68.1	68.1	10.3	10.3		10.3	10.3	
Actuated g/C Ratio	0.07	0.71	0.71	0.07	0.74	0.74	0.11	0.11		0.11	0.11	
v/c Ratio	0.14	0.63	0.07	0.21	0.43	0.01	0.29	0.18		0.09	0.20	
Control Delay	47.6	11.3	5.6	45.9	6.9	3.5	43.1	18.6		39.9	18.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	47.6	11.3	5.6	45.9	6.9	3.5	43.1	18.6		39.9	18.9	
LOS	D	B	A	D	A	A	D	B		D	B	
Approach Delay		11.3			7.8			31.7			23.6	
Approach LOS		B			A			C			C	
Queue Length 50th (m)	2.5	59.7	2.4	4.2	33.0	0.0	6.6	0.7		1.6	0.7	
Queue Length 95th (m)	10.0	146.6	10.9	14.0	80.0	2.3	19.4	10.5		7.6	10.5	
Internal Link Dist (m)		433.8			1154.3			959.3			144.8	
Turn Bay Length (m)	30.0		20.0	50.0		75.0	20.0			20.0		
Base Capacity (vph)	277	2559	1172	250	2602	1225	329	416		279	385	
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	0.06	0.61	0.07	0.11	0.41	0.01	0.13	0.09		0.04	0.10	

Intersection Summary

Area Type: Other

Cycle Length: 122.6

Actuated Cycle Length: 92.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 10.8







Intersection LOS: B

Intersection Capacity Utilization 60.3%

ICU Level of Service B

Analysis Period (min) 15





















Splits and Phases: 225: Kingsway & Moonlight Ave.

 ø1	 ø2	 ø4
20 s	67.9 s	31.7 s
 ø5	 ø6	 ø8
23 s	67.9 s	31.7 s

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.













Weekday PM peak hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	385	85	15	285	160	30	70	15	200	90	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95	0.98	0.99			0.99			0.99	0.94
Frt			0.850		0.946			0.983				0.850
Flt Protected	0.950			0.950				0.987			0.967	
Satd. Flow (prot)	1787	1881	1615	1805	1751	0	0	1833	0	0	1800	1583
Flt Permitted	0.229			0.528				0.812			0.589	
Satd. Flow (perm)	430	1881	1539	987	1751	0	0	1498	0	0	1085	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88		32			6				204
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	2%	1%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	521	397	88	15	294	165	31	72	15	206	93	345
Shared Lane Traffic (%)												
Lane Group Flow (vph)	521	397	88	15	459	0	0	118	0	0	299	345
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	20.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	11.0	25.7	25.7
Total Split (%)	19.5%	44.6%	44.6%	44.6%	44.6%	0.0%	25.1%	25.1%	0.0%	10.7%	25.1%	25.1%
Maximum Green (s)	16.0	40.0	40.0	40.0	40.0		20.0	20.0		7.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)	50.1	48.4	48.4	28.0	28.0			12.2			22.6	22.6
Actuated g/C Ratio	0.61	0.59	0.59	0.34	0.34			0.14			0.27	0.27
v/c Ratio	0.98	0.36	0.09	0.04	0.75			0.54			0.81	0.62
Control Delay	53.3	10.5	2.2	19.0	31.0			42.4			48.1	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	53.3	10.5	2.2	19.0	31.0			42.4			48.1	16.7
LOS	D	B	A	B	C			D			D	B
Approach Delay		31.9			30.6			42.4			31.3	
Approach LOS		C			C			D			C	
Queue Length 50th (m)	52.7	31.6	0.0	1.6	61.5			17.2			42.2	18.3
Queue Length 95th (m)	#143.2	57.3	6.0	6.1	105.1			38.6			#98.8	53.8
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	529	1201	1014	420	763			328			546	647
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.98	0.33	0.09	0.04	0.60			0.36			0.55	0.53

Intersection Summary

Area Type: Other

Cycle Length: 102.4

Actuated Cycle Length: 82.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 32.0

Intersection LOS: C

Intersection Capacity Utilization 88.2%

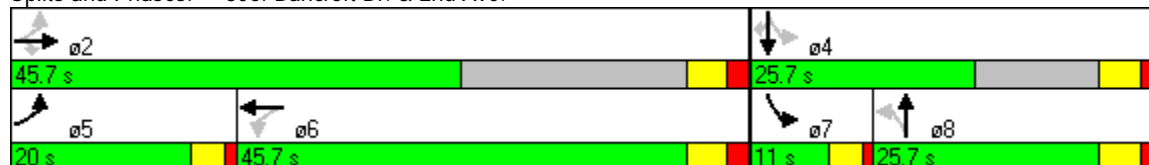
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

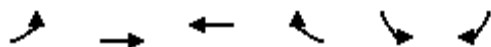
Splits and Phases: 305: Bancroft Dr. & 2nd Ave.






HCM Unsignalized Intersection Capacity Analysis

320: Bancroft Dr. & Levesque St.

















Weekday PM peak hour
Total future volumes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	140	150	65	15	65	200
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	169	181	78	18	78	241
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	96				605	87
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96				605	87
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				81	75
cM capacity (veh/h)	1491				411	977
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	349	96	319			
Volume Left	169	0	78			
Volume Right	0	18	241			
cSH	1491	1700	730			
Volume to Capacity	0.11	0.06	0.44			
Queue Length 95th (m)	3.1	0.0	17.9			
Control Delay (s)	4.2	0.0	13.7			
Lane LOS	A		B			
Approach Delay (s)	4.2	0.0	13.7			
Approach LOS			B			
Intersection Summary						
Average Delay		7.7				
Intersection Capacity Utilization		44.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 325: Bancroft Dr. & Moonlight Ave.




























Weekday PM peak hour
Total future volumes

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	55	105	5	5	55	10	5	5	5	30	5	30
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	64	122	6	6	64	12	6	6	6	35	6	35
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	192	81	17	76								
Volume Left (vph)	64	6	6	35								
Volume Right (vph)	6	12	6	35								
Hadj (s)	0.05	-0.07	-0.13	-0.11								
Departure Headway (s)	4.3	4.2	4.5	4.4								
Degree Utilization, x	0.23	0.10	0.02	0.09								
Capacity (veh/h)	826	819	748	757								
Control Delay (s)	8.5	7.7	7.6	7.9								
Approach Delay (s)	8.5	7.7	7.6	7.9								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay				8.1								
HCM Level of Service				A								
Intersection Capacity Utilization				27.9%	ICU Level of Service	A						
Analysis Period (min)				15								

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.













Friday pre-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	150	595	390	235	575	80	260	235	250	110	405	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99						0.99	
Frt			0.850		0.982				0.850		0.968	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1787	3429	0	1787	3539	1568	1770	3409	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1787	3429	0	1787	3539	1568	1770	3409	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			354		13				272		27	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Confl. Peds. (#/hr)						40						25
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%	2%	1%	3%	0%	1%	2%	3%	2%	1%	3%
Adj. Flow (vph)	163	647	424	255	625	87	283	255	272	120	440	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	163	647	424	255	712	0	283	255	272	120	560	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	35.7	35.7	25.0	35.7	0.0	25.0	30.7	30.7	20.0	28.7	0.0
Total Split (%)	21.9%	31.2%	31.2%	21.9%	31.2%	0.0%	21.9%	26.8%	26.8%	17.5%	25.1%	0.0%
Maximum Green (s)	20.0	30.0	30.0	20.0	30.0		20.0	25.0	25.0	15.0	23.0	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Friday pre-game hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	14.8	30.1	30.1	18.3	33.7		19.3	28.6	28.6	11.8	21.2	
Actuated g/C Ratio	0.13	0.27	0.27	0.17	0.31		0.17	0.26	0.26	0.11	0.19	
v/c Ratio	0.69	0.67	0.62	0.86	0.67		0.91	0.28	0.45	0.63	0.83	
Control Delay	61.1	40.6	11.4	72.1	38.0		78.2	34.4	6.8	62.8	52.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	61.1	40.6	11.4	72.1	38.0		78.2	34.4	6.8	62.8	52.5	
LOS	E	D	B	E	D		E	C	A	E	D	
Approach Delay		33.3			47.0			40.4			54.3	
Approach LOS		C			D			D			D	
Queue Length 50th (m)	37.2	72.6	12.8	58.5	75.9		66.1	25.0	0.0	27.4	63.4	
Queue Length 95th (m)	58.0	93.9	46.1	#101.0	103.9		#116.7	37.9	21.3	46.5	84.4	
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)	35.0			100.0			100.0		45.0	50.0		
Base Capacity (vph)	306	965	689	319	1055		322	929	608	234	721	
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	0.53	0.67	0.62	0.80	0.67		0.88	0.27	0.45	0.51	0.78	

Intersection Summary

Area Type: Other

Cycle Length: 114.4

Actuated Cycle Length: 110.4

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 42.3

Intersection LOS: D

Intersection Capacity Utilization 87.7%

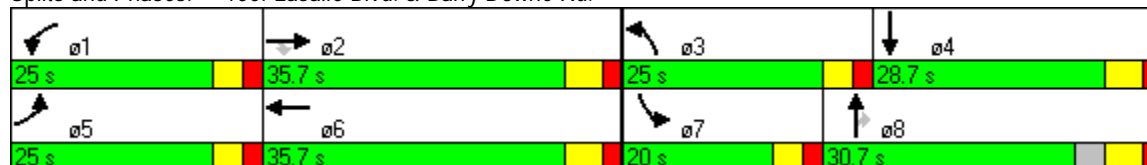
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.












Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.



Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.













Friday pre-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	60	215	100	120	50	240	670	55	10	635	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	90.0		0.0	40.0		0.0	55.0		0.0	40.0		30.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	15.0		7.5	40.0		7.5	70.0		7.5	20.0		30.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.850		0.956			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1727	1509	1719	1776	0	1736	3454	0	1444	3505	1568
Flt Permitted	0.398			0.715			0.190			0.354		
Satd. Flow (perm)	741	1727	1509	1294	1776	0	347	3454	0	538	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			234		15			10				170
Link Speed (k/h)		50			50			50				50
Link Distance (m)		226.4			295.5			253.8				227.6
Travel Time (s)		16.3			21.3			18.3				16.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Heavy Vehicles (%)	2%	10%	7%	5%	2%	3%	4%	2%	20%	25%	3%	3%
Adj. Flow (vph)	413	65	234	109	130	54	261	728	60	11	668	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	65	234	109	184	0	261	788	0	11	668	288
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
Turn Type	pm+pt		Perm	pm+pt			pm+pt			Perm		Perm
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8			2			6		6
Detector Phase	7	4		3	8		5	2		6	6	6
Switch Phase	8											
Minimum Initial (s)	7.0	10.0	10.0	7.0	10.0		7.0	20.0		20.0	20.0	20.0
Minimum Split (s)	11.0	35.4	35.4	11.0	38.4		11.0	33.8		33.8	33.8	33.8
Total Split (s)	32.0	21.4	21.4	16.0	21.4	0.0	22.0	36.8	0.0	36.8	36.8	36.8
Total Split (%)	28.5%	19.1%	19.1%	14.3%	19.1%	0.0%	19.6%	32.8%	0.0%	32.8%	32.8%	32.8%
Maximum Green (s)	28.0	15.0	15.0	12.0	15.0		18.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	4.2		4.2	4.2	4.2
All-Red Time (s)	1.0	2.7	2.7	1.0	2.7		1.0	2.6		2.6	2.6	2.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.4	6.4	4.0	6.4	4.0	4.0	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.5	3.5	2.5	3.5		2.5	4.5		4.5	4.5	4.5
Recall Mode	None	None	None	None	None		None	Min		Min	Min	Min
Walk Time (s)		7.0	7.0		7.0			7.0		7.0	7.0	7.0

Lanes, Volumes, Timings
105: Lasalle Blvd. & Falconbridge Rd.

Friday pre-game hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		25.0			20.0		20.0	20.0	20.0
Pedestrian Calls (#/hr)		0	0		0			0		0	0	0
Act Effect Green (s)	46.3	33.3	33.3	26.6	15.2		49.0	46.2		26.5	26.5	26.5
Actuated g/C Ratio	0.45	0.32	0.32	0.25	0.15		0.47	0.45		0.26	0.26	0.26
v/c Ratio	0.72	0.12	0.36	0.30	0.67		0.70	0.51		0.08	0.74	0.54
Control Delay	29.5	29.9	5.8	22.8	54.0		28.4	21.6		32.9	41.7	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	29.5	29.9	5.8	22.8	54.0		28.4	21.6		32.9	41.7	18.3
LOS	C	C	A	C	D		C	C		C	D	B
Approach Delay		21.8			42.4			23.3			34.6	
Approach LOS		C			D			C			C	
Queue Length 50th (m)	67.0	10.7	0.0	14.5	37.6		35.1	63.8		1.9	73.5	21.7
Queue Length 95th (m)	98.7	22.7	18.9	26.2	#71.0		56.4	81.5		6.9	95.1	49.6
Internal Link Dist (m)		202.4			271.5			229.8			203.6	
Turn Bay Length (m)	90.0			40.0			55.0			40.0		30.0
Base Capacity (vph)	592	559	645	399	274		399	1656		152	990	565
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	0.70	0.12	0.36	0.27	0.67		0.65	0.48		0.07	0.67	0.51

Intersection Summary

Area Type: Other

Cycle Length: 112.2

Actuated Cycle Length: 103.4

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 28.4

Intersection LOS: C

Intersection Capacity Utilization 87.4%

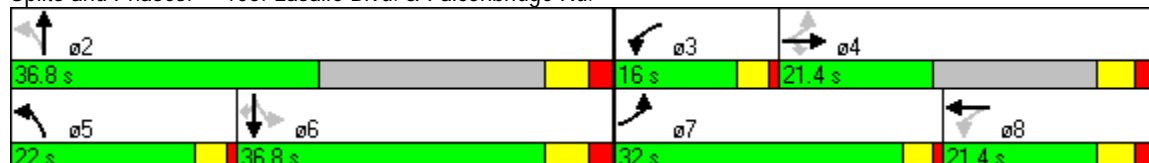
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

























Splits and Phases: 105: Lasalle Blvd. & Falconbridge Rd.



Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Friday pre-game hour













Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	585	1225	70	100	705	425	80	255	120	790	270	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			62			324						478
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	636	1289	76	109	766	462	87	277	130	832	293	478
Shared Lane Traffic (%)												
Lane Group Flow (vph)	636	1289	76	109	766	462	87	277	130	832	293	478
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	10.4	10.4	34.1	
Total Split (s)	39.4	46.4	46.4	29.4	46.4	46.4	22.4	26.1	29.4	25.4	26.1	0.0
Total Split (%)	28.7%	33.8%	33.8%	21.4%	33.8%	33.8%	16.3%	19.0%	21.4%	18.5%	19.0%	0.0%
Maximum Green (s)	34.0	40.0	40.0	24.0	40.0	40.0	17.0	20.0	24.0	20.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	5.4	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5	2.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Friday pre-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0			21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	26.3	47.5	47.5	12.3	33.5	33.5	8.0	15.2	33.6	20.3	27.5	118.8
Actuated g/C Ratio	0.22	0.40	0.40	0.10	0.28	0.28	0.07	0.13	0.28	0.17	0.23	1.00
v/c Ratio	0.83	0.91	0.11	0.59	0.78	0.68	0.37	0.61	0.28	1.41	0.35	0.30
Control Delay	54.8	44.9	8.4	66.0	46.3	17.3	60.5	56.6	35.5	230.0	41.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	44.9	8.4	66.0	46.3	17.3	60.5	56.6	35.5	230.0	41.6	0.5
LOS	D	D	A	E	D	B	E	E	D	F	D	A
Approach Delay		46.6			37.9			51.7			127.1	
Approach LOS		D			D			D			F	
Queue Length 50th (m)	75.8	153.6	2.0	25.6	90.7	28.2	10.6	33.8	24.5	~139.8	31.4	0.0
Queue Length 95th (m)	109.0	213.1	12.7	49.3	129.0	74.9	21.4	54.6	44.8	#218.5	52.6	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	938	1497	682	331	1125	679	470	577	496	591	826	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.86	0.11	0.33	0.68	0.68	0.19	0.48	0.26	1.41	0.35	0.30

Intersection Summary

Area Type: Other

Cycle Length: 137.3

Actuated Cycle Length: 118.8

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.41

Intersection Signal Delay: 68.7

Intersection LOS: E

Intersection Capacity Utilization 88.4%

ICU Level of Service E

Analysis Period (min) 15

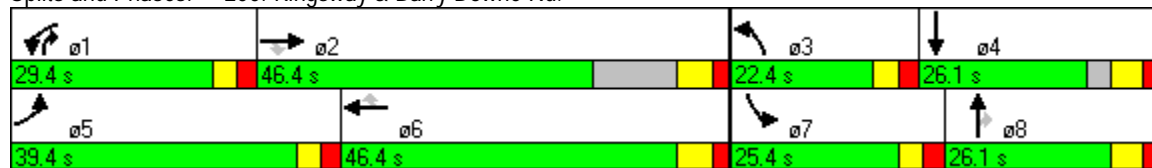
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.
























Splits and Phases: 200: Kingsway & Barry Downe Rd.



Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	1420	235	60	590	280	210	365	70	705	355	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Fr't			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			112			308		16				456
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.91	0.95	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.95	0.91	0.91
Heavy Vehicles (%)	4%	3%	2%	4%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	599	1495	258	66	648	308	231	401	77	742	390	456
Shared Lane Traffic (%)												
Lane Group Flow (vph)	599	1495	258	66	648	308	231	478	0	742	390	456
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	33.0	30.7	30.7	20.0	31.7	31.7	20.0	33.7	0.0	29.0	32.7	0.0
Total Split (%)	25.9%	24.1%	24.1%	15.7%	24.9%	24.9%	15.7%	26.5%	0.0%	22.8%	25.7%	0.0%
Maximum Green (s)	28.0	24.0	24.0	15.0	25.0	25.0	15.0	27.0		24.0	26.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Total future volumes

	↖	→	↗	↖	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	24.6	42.1	42.1	9.5	24.5	24.5	12.4	21.2		24.1	33.0	118.0
Actuated g/C Ratio	0.21	0.36	0.36	0.08	0.21	0.21	0.11	0.18		0.20	0.28	1.00
v/c Ratio	0.85	1.20	0.41	0.48	0.89	0.53	0.64	0.75		1.05	0.39	0.29
Control Delay	58.1	130.9	19.6	65.3	61.9	8.5	60.0	52.4		92.6	36.6	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.1	130.9	19.6	65.3	61.9	8.5	60.0	52.4		92.6	36.6	0.4
LOS	E	F	B	E	E	A	E	D		F	D	A
Approach Delay		100.2			46.0			54.8			52.4	
Approach LOS		F			D			D			D	
Queue Length 50th (m)	73.4	~241.2	26.4	16.0	82.9	0.0	28.7	57.8		~105.4	41.7	0.0
Queue Length 95th (m)	100.1	#320.3	56.1	31.7	#127.1	25.4	44.1	78.0		#157.1	59.0	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	779	1251	637	207	742	576	433	776		709	1067	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.77	1.20	0.41	0.32	0.87	0.53	0.53	0.62		1.05	0.37	0.29

Intersection Summary

Area Type: Other

Cycle Length: 127.4

Actuated Cycle Length: 118

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 71.4

Intersection LOS: E

Intersection Capacity Utilization 95.4%

ICU Level of Service F

Analysis Period (min) 15

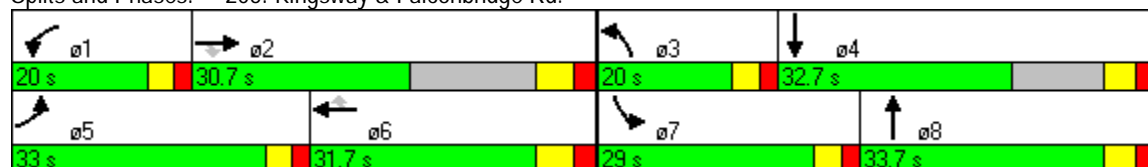
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.






















Splits and Phases: 205: Kingsway & Falconbridge Rd.



Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.













Friday pre-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	1845	45	20	790	0	40	0	40	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1504	3505	1615	1805	3505	0	0	1685	1507	0	1773	1507
Flt Permitted	0.950			0.950				0.757				
Satd. Flow (perm)	1504	3505	1615	1805	3505	0	0	1342	1507	0	1773	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			41						42			293
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	20%	3%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	5	1942	47	21	832	0	42	0	42	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1942	47	21	832	0	0	42	42	0	0	5
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Friday pre-game hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)	6.1	64.8	64.8	6.8	67.6			9.5	9.5			9.5
Actuated g/C Ratio	0.06	0.73	0.73	0.07	0.76			0.10	0.10			0.10
v/c Ratio	0.05	0.76	0.04	0.16	0.31			0.30	0.22			0.01
Control Delay	39.8	14.0	3.1	39.2	5.3			38.6	14.0			0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0	0.0			0.0
Total Delay	39.8	14.0	3.1	39.2	5.3			38.6	14.0			0.0
LOS	D	B	A	D	A			D	B			A
Approach Delay		13.8			6.1			26.3				
Approach LOS		B			A			C				
Queue Length 50th (m)	0.7	75.0	0.3	2.8	18.8			5.5	0.0			0.0
Queue Length 95th (m)	4.4	#227.1	4.8	10.5	50.7			16.6	9.2			0.0
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)	100.0		90.0	30.0								
Base Capacity (vph)	151	2543	1183	220	2662			270	337			538
Starvation Cap Reductn	0	0	0	0	0			0	0			0
Spillback Cap Reductn	0	0	0	0	0			0	0			0
Storage Cap Reductn	0	0	0	0	0			0	0			0
Reduced v/c Ratio	0.03	0.76	0.04	0.10	0.31			0.16	0.12			0.01

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 89.3

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 11.9

Intersection LOS: B

Intersection Capacity Utilization 68.2%

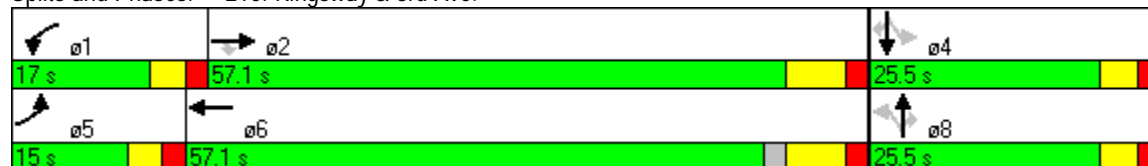
ICU Level of Service C

Analysis Period (min) 15

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

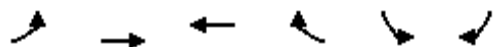
Queue shown is maximum after two cycles.

Splits and Phases: 210: Kingsway & 3rd Ave.



Lanes, Volumes, Timings
215: Kingsway & Street A

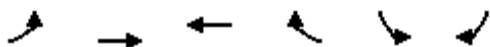
Friday pre-game hour
Total future volumes



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	720	1155	560	260	155	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	60.0			60.0	7.5	7.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.274				0.950	
Satd. Flow (perm)	510	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				274		283
Link Speed (k/h)		80	80		50	
Link Distance (m)		514.2	612.8		214.8	
Travel Time (s)		23.1	27.6		15.5	
Peak Hour Factor	0.95	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	758	1216	609	274	168	283
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	1216	609	274	168	283
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		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
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	11.0	23.9	30.9	30.9	28.6	28.6
Total Split (s)	44.0	37.9	37.9	37.9	35.6	35.6
Total Split (%)	37.4%	32.3%	32.3%	32.3%	30.3%	30.3%
Maximum Green (s)	40.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	5.9	5.9	5.9	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	7.9	5.6	5.6
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			16.0	16.0	16.0	16.0

Lanes, Volumes, Timings
215: Kingsway & Street A

Friday pre-game hour
Total future volumes



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	78.0	74.1	30.0	30.0	15.2	15.2
Actuated g/C Ratio	0.76	0.72	0.29	0.29	0.15	0.15
v/c Ratio	0.86	0.48	0.59	0.42	0.64	0.60
Control Delay	26.2	7.3	34.5	5.8	52.7	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	7.3	34.5	5.8	52.7	10.2
LOS	C	A	C	A	D	B
Approach Delay		14.6	25.6		26.0	
Approach LOS		B	C		C	
Queue Length 50th (m)	91.2	48.5	57.1	0.0	33.6	0.0
Queue Length 95th (m)	#194.1	79.0	82.8	19.9	55.5	22.8
Internal Link Dist (m)		490.2	588.8		190.8	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	878	2550	1034	656	452	615
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.48	0.59	0.42	0.37	0.46

Intersection Summary

Area Type: Other

Cycle Length: 117.5

Actuated Cycle Length: 102.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 19.1

Intersection LOS: B

Intersection Capacity Utilization 78.5%

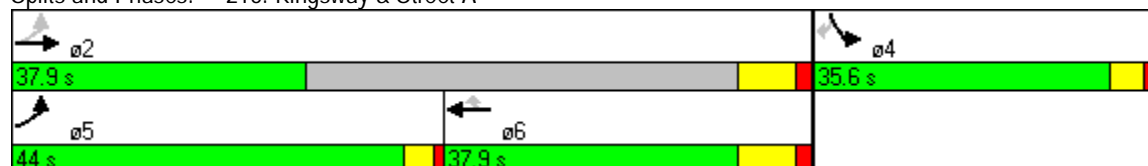
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.
























Splits and Phases: 215: Kingsway & Street A



Lanes, Volumes, Timings
220: Kingsway & Levesque St.













Friday pre-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	590	595	125	55	650	350	100	250	75	35	20	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		100.0	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (m)	60.0		65.0	95.0		60.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.964				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3539	1583	1736	3438	1454	1805	1819	0	1805	1900	1615
Flt Permitted	0.238			0.403			0.743			0.213		
Satd. Flow (perm)	452	3539	1583	736	3438	1454	1412	1819	0	405	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			174		13				104
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.95	0.91	0.91	0.91	0.95	0.95	0.91	0.95	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	2%	4%	5%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	621	654	137	60	684	368	110	263	82	38	22	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	621	654	137	60	684	368	110	345	0	38	22	104
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8		27.8	27.8	27.8
Total Split (s)	39.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8	0.0	27.8	27.8	27.8
Total Split (%)	37.2%	36.2%	36.2%	8.6%	36.2%	36.2%	26.6%	26.6%	0.0%	26.6%	26.6%	26.6%
Maximum Green (s)	35.0	30.0	30.0	5.0	30.0	30.0	21.0	21.0		21.0	21.0	21.0
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	3.6	3.6		3.6	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	3.2	3.2		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	4.0	7.9	7.9	6.8	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.5	5.0	5.0	3.5	3.5		3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	None

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday pre-game hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		16.0	16.0		16.0	16.0	14.0	14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effect Green (s)	69.6	58.7	58.7	38.9	30.1	30.1	20.3	20.3		20.3	20.3	20.3
Actuated g/C Ratio	0.69	0.58	0.58	0.38	0.30	0.30	0.20	0.20		0.20	0.20	0.20
v/c Ratio	0.84	0.32	0.14	0.18	0.67	0.66	0.39	0.92		0.46	0.06	0.25
Control Delay	26.8	11.7	2.1	12.4	35.5	23.1	40.5	69.0		57.3	34.4	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	26.8	11.7	2.1	12.4	35.5	23.1	40.5	69.0		57.3	34.4	8.9
LOS	C	B	A	B	D	C	D	E		E	C	A
Approach Delay		17.4			30.1			62.1			23.5	
Approach LOS		B			C			E			C	
Queue Length 50th (m)	76.0	36.3	0.0	3.9	68.6	36.6	20.6	70.5		7.3	3.8	0.0
Queue Length 95th (m)	#129.0	47.5	8.0	8.2	89.6	71.8	37.9	#125.8		#20.8	10.7	14.2
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)	75.0		90.0	30.0		100.0	20.0					
Base Capacity (vph)	758	2083	988	328	1028	557	293	388		84	394	418
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.82	0.31	0.14	0.18	0.67	0.66	0.38	0.89		0.45	0.06	0.25

Intersection Summary

Area Type: Other

Cycle Length: 104.7

Actuated Cycle Length: 100.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 28.7

Intersection LOS: C

Intersection Capacity Utilization 102.4%

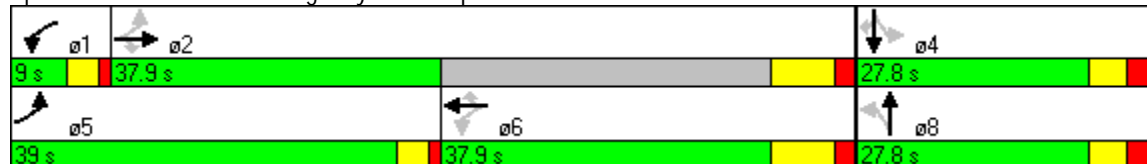
ICU Level of Service G

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.























Splits and Phases: 220: Kingsway & Levesque St.



Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.













Friday pre-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	625	75	20	995	5	45	0	15	5	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		20.0	50.0		75.0	20.0		0.0	20.0		0.0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (m)	100.0		40.0	100.0		95.0	30.0		7.5	15.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1687	3505	1599	1736	3438	1615	1805	1615	0	1612	1468	0
Flt Permitted	0.950			0.950			0.746			0.746		
Satd. Flow (perm)	1687	3505	1599	1736	3438	1615	1417	1615	0	1266	1468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			48			6		352			268	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		457.8			1178.3			983.3			168.8	
Travel Time (s)		20.6			53.0			70.8			12.2	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.95	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	7%	3%	1%	4%	5%	0%	0%	0%	0%	12%	0%	10%
Adj. Flow (vph)	6	735	88	24	1047	6	53	0	18	6	0	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	735	88	24	1047	6	53	18	0	6	18	0
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
Turn Type	Prot		Perm	Prot		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	10.0	37.9	37.9	10.0	37.9	37.9	30.7	30.7		30.7	30.7	
Total Split (s)	23.0	67.9	67.9	20.0	67.9	67.9	31.7	31.7	0.0	31.7	31.7	0.0
Total Split (%)	18.8%	55.4%	55.4%	16.3%	55.4%	55.4%	25.9%	25.9%	0.0%	25.9%	25.9%	0.0%
Maximum Green (s)	18.0	60.0	60.0	15.0	60.0	60.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	4.1	4.1		4.1	4.1	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.9	7.9	5.0	7.9	7.9	6.7	6.7	4.0	6.7	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	4.0	4.0		4.0	4.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	

Lanes, Volumes, Timings
225: Kingsway & Moonlight Ave.

Friday pre-game hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		17.0	17.0	17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)	6.3	52.6	52.6	7.2	55.6	55.6	10.5	10.5		10.5	10.5	
Actuated g/C Ratio	0.08	0.70	0.70	0.09	0.74	0.74	0.13	0.13		0.13	0.13	
v/c Ratio	0.05	0.30	0.08	0.16	0.41	0.01	0.29	0.03		0.04	0.04	
Control Delay	34.0	8.3	5.4	32.2	7.4	5.0	29.9	0.1		26.8	0.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	34.0	8.3	5.4	32.2	7.4	5.0	29.9	0.1		26.8	0.2	
LOS	C	A	A	C	A	A	C	A		C	A	
Approach Delay		8.2			7.9			22.3			6.9	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.6	18.7	1.6	2.2	30.5	0.0	4.7	0.0		0.5	0.0	
Queue Length 95th (m)	4.4	48.1	9.6	10.2	77.9	1.7	17.0	0.0		4.0	0.0	
Internal Link Dist (m)		433.8			1154.3			959.3			144.8	
Turn Bay Length (m)	30.0		20.0	50.0		75.0	20.0			20.0		
Base Capacity (vph)	335	2781	1279	308	2773	1304	394	704		353	602	
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	0.02	0.26	0.07	0.08	0.38	0.00	0.13	0.03		0.02	0.03	

Intersection Summary

Area Type: Other

Cycle Length: 122.6

Actuated Cycle Length: 75

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 8.5







Intersection LOS: A

Intersection Capacity Utilization 52.2%

ICU Level of Service A

Analysis Period (min) 15





















Splits and Phases: 225: Kingsway & Moonlight Ave.

 ø1	 ø2	 ø4
20 s	67.9 s	31.7 s
 ø5	 ø6	 ø8
23 s	67.9 s	31.7 s

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.


Friday pre-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	455	65	10	180	125	25	55	10	150	70	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.95	0.99	0.99			0.99			0.99	0.94
Frt			0.850		0.939			0.986				0.850
Flt Protected	0.950			0.950				0.986			0.967	
Satd. Flow (prot)	1736	1827	1615	1805	1693	0	0	1839	0	0	1801	1583
Flt Permitted	0.296			0.490				0.812			0.617	
Satd. Flow (perm)	539	1827	1539	918	1693	0	0	1503	0	0	1136	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81		40			5				204
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.80	0.95	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	4%	4%	0%	0%	5%	3%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	475	479	81	12	225	156	31	69	12	188	88	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	475	479	81	12	381	0	0	112	0	0	276	319
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			pm+pt		Perm
Protected Phases	5	2			6			8		7	4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		7	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		5.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		9.0	25.7	25.7
Total Split (s)	20.0	45.7	45.7	45.7	45.7	0.0	25.7	25.7	0.0	11.0	25.7	25.7
Total Split (%)	19.5%	44.6%	44.6%	44.6%	44.6%	0.0%	25.1%	25.1%	0.0%	10.7%	25.1%	25.1%
Maximum Green (s)	16.0	40.0	40.0	40.0	40.0		20.0	20.0		7.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.0	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	4.0	5.7	5.7
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		2.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Friday pre-game hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0			13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0			0	0
Act Effect Green (s)	46.7	45.0	45.0	24.7	24.7			11.6			21.2	21.2
Actuated g/C Ratio	0.60	0.58	0.58	0.32	0.32			0.14			0.27	0.27
v/c Ratio	0.83	0.45	0.09	0.04	0.68			0.51			0.74	0.57
Control Delay	24.8	11.7	2.4	19.6	27.8			39.4			39.6	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	24.8	11.7	2.4	19.6	27.8			39.4			39.6	13.9
LOS	C	B	A	B	C			D			D	B
Approach Delay		17.0			27.5			39.4			25.9	
Approach LOS		B			C			D			C	
Queue Length 50th (m)	37.5	39.8	0.0	1.3	45.8			15.0			34.6	13.2
Queue Length 95th (m)	#66.1	71.9	4.4	4.7	68.6			30.5			59.2	32.3
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	574	1184	1026	397	754			344			587	663
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.83	0.40	0.08	0.03	0.51			0.33			0.47	0.48

Intersection Summary

Area Type: Other

Cycle Length: 102.4

Actuated Cycle Length: 77.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 22.6

Intersection LOS: C

Intersection Capacity Utilization 73.5%

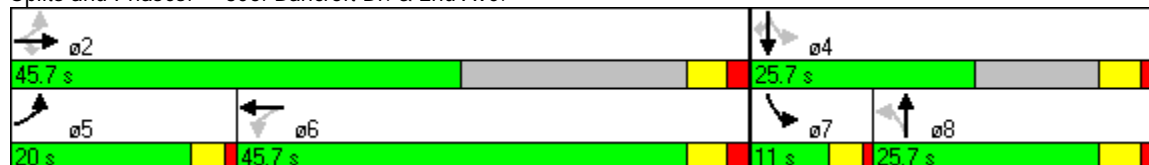
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

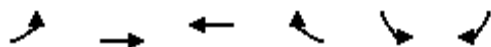
Splits and Phases: 305: Bancroft Dr. & 2nd Ave.



HCM Unsignalized Intersection Capacity Analysis

320: Bancroft Dr. & Levesque St.

















Friday pre-game hour
Total future volumes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	275	70	60	70	25	115
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	289	81	70	81	29	134
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	151				771	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	151				771	110
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				90	86
cM capacity (veh/h)	1424				296	948
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	371	151	163			
Volume Left	289	0	29			
Volume Right	0	81	134			
cSH	1424	1700	680			
Volume to Capacity	0.20	0.09	0.24			
Queue Length 95th (m)	6.1	0.0	7.4			
Control Delay (s)	6.8	0.0	11.9			
Lane LOS	A		B			
Approach Delay (s)	6.8	0.0	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay		6.5				
Intersection Capacity Utilization		44.8%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis 325: Bancroft Dr. & Moonlight Ave.






















Friday pre-game hour
Total future volumes

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	45	60	5	5	90	10	5	5	5	25	5	25
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	56	75	6	6	112	12	6	6	6	31	6	31
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	138	131	19	69								
Volume Left (vph)	56	6	6	31								
Volume Right (vph)	6	13	6	31								
Hadj (s)	0.05	-0.05	-0.13	-0.10								
Departure Headway (s)	4.3	4.2	4.4	4.4								
Degree Utilization, x	0.16	0.15	0.02	0.08								
Capacity (veh/h)	815	834	752	758								
Control Delay (s)	8.1	8.0	7.6	7.8								
Approach Delay (s)	8.1	8.0	7.6	7.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			8.0									
HCM Level of Service			A									
Intersection Capacity Utilization			24.1%	ICU Level of Service					A			
Analysis Period (min)			15									

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.













Friday post-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	310	25	35	1820	0	15	0	10	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.0	3.0	3.6	3.0	3.0
Storage Length (m)	100.0		90.0	30.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (m)	100.0		75.0	40.0		7.5	7.5		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			
Flt Protected				0.950				0.950				
Satd. Flow (prot)	1863	3539	1583	1770	3539	0	0	1652	1478	0	1739	1739
Flt Permitted				0.950				0.976				
Satd. Flow (perm)	1863	3539	1583	1770	3539	0	0	1697	1478	0	1739	1739
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			30						12			
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		974.0			667.8			260.4			172.8	
Travel Time (s)		58.4			30.1			18.7			12.4	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.95	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	0	378	30	43	1916	0	18	0	12	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	378	30	43	1916	0	0	18	12	0	0	0
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			0.0			0.0	
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	1.09	1.09	1.00	1.09	1.09
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	Prot			Perm		Perm	Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2				8		8	4		4
Detector Phase	5	2	2	1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	37.1	37.1	10.0	37.1		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	15.0	57.1	57.1	17.0	57.1	0.0	25.5	25.5	25.5	25.5	25.5	25.5
Total Split (%)	15.1%	57.3%	57.3%	17.1%	57.3%	0.0%	25.6%	25.6%	25.6%	25.6%	25.6%	25.6%
Maximum Green (s)	10.0	50.0	50.0	12.0	50.0		20.0	20.0	20.0	20.0	20.0	20.0
Yellow Time (s)	3.0	5.1	5.1	3.0	5.1		3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.1	7.1	5.0	7.1	4.0	5.5	5.5	5.5	5.5	5.5	5.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	6.0	6.0	3.0	6.0		3.5	3.5	3.5	3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0	7.0	7.0	7.0	7.0

Lanes, Volumes, Timings
210: Kingsway & 3rd Ave.

Friday post-game hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		15.0	15.0		15.0		21.0	21.0	21.0	21.0	21.0	21.0
Pedestrian Calls (#/hr)		0	0		0		0	0	0	0	0	0
Act Effect Green (s)		70.6	70.6	8.1	77.3			8.9	8.9			
Actuated g/C Ratio		0.81	0.81	0.09	0.88			0.09	0.09			
v/c Ratio		0.13	0.02	0.28	0.61			0.11	0.08			
Control Delay		5.1	3.6	33.4	4.6			29.8	16.3			
Queue Delay		0.0	0.0	0.0	0.0			0.0	0.0			
Total Delay		5.1	3.6	33.4	4.6			29.8	16.3			
LOS		A	A	C	A			C	B			
Approach Delay		5.0			5.3			24.4				
Approach LOS		A			A			C				
Queue Length 50th (m)		0.0	0.0	4.7	0.0			1.9	0.0			
Queue Length 95th (m)		19.6	3.2	13.0	102.1			7.3	4.0			
Internal Link Dist (m)		950.0			643.8			236.4			148.8	
Turn Bay Length (m)			90.0	30.0								
Base Capacity (vph)		2963	1330	232	3133			338	304			
Starvation Cap Reductn		0	0	0	0			0	0			
Spillback Cap Reductn		0	0	0	0			0	0			
Storage Cap Reductn		0	0	0	0			0	0			
Reduced v/c Ratio		0.13	0.02	0.19	0.61			0.05	0.04			

Intersection Summary

Area Type: Other

Cycle Length: 99.6

Actuated Cycle Length: 87.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 5.5

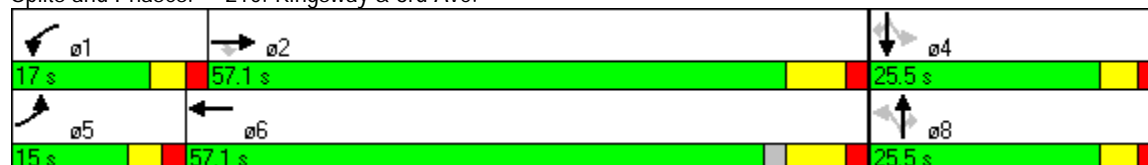
Intersection LOS: A

Intersection Capacity Utilization 67.5%

ICU Level of Service C

Analysis Period (min) 15

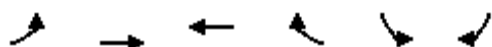
Splits and Phases: 210: Kingsway & 3rd Ave.



Lanes, Volumes, Timings
215: Kingsway & Street A

Friday post-game hour

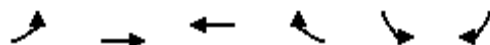
Total future volumes



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	120	215	945	85	290	905
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	60.0			60.0	7.5	7.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.118				0.950	
Satd. Flow (perm)	220	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				92		625
Link Speed (k/h)		80	80		50	
Link Distance (m)		514.2	612.8		214.8	
Travel Time (s)		23.1	27.6		15.5	
Peak Hour Factor	0.92	0.92	0.95	0.92	0.95	0.95
Adj. Flow (vph)	130	234	995	92	305	953
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	234	995	92	305	953
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		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
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	11.0	22.9	30.9	30.9	28.6	28.6
Total Split (s)	44.0	37.9	37.9	37.9	35.6	35.6
Total Split (%)	37.4%	32.3%	32.3%	32.3%	30.3%	30.3%
Maximum Green (s)	40.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	5.9	5.9	5.9	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	7.9	5.6	5.6
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			16.0	16.0	16.0	16.0

Lanes, Volumes, Timings
215: Kingsway & Street A

Friday post-game hour
Total future volumes



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	48.8	44.9	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.55	0.51	0.34	0.34	0.34	0.34
v/c Ratio	0.42	0.13	0.83	0.15	0.51	1.00
Control Delay	13.7	11.6	34.5	5.7	27.5	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.7	11.6	34.5	5.7	27.5	42.1
LOS	B	B	C	A	C	D
Approach Delay		12.3	32.1		38.6	
Approach LOS		B	C		D	
Queue Length 50th (m)	10.5	11.0	84.7	0.0	42.9	~76.6
Queue Length 95th (m)	19.2	17.1	#126.4	10.6	72.4	#180.3
Internal Link Dist (m)		490.2	588.8		190.8	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	619	2229	1202	598	601	950
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.10	0.83	0.15	0.51	1.00

Intersection Summary

Area Type: Other

Cycle Length: 117.5

Actuated Cycle Length: 88.4

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 32.5

Intersection LOS: C

Intersection Capacity Utilization 93.4%

ICU Level of Service F

Analysis Period (min) 15

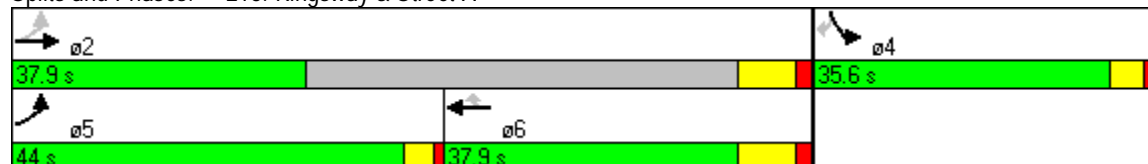
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.























Splits and Phases: 215: Kingsway & Street A



Lanes, Volumes, Timings
220: Kingsway & Levesque St.













Friday post-game hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	425	75	15	185	5	40	0	20	460	345	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		100.0	20.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	1		1
Taper Length (m)	60.0		65.0	95.0		60.0	20.0		7.5	7.5		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.996			0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	3525	0	1770	1583	0	1770	1863	1583
Flt Permitted	0.614			0.462			0.443			0.742		
Satd. Flow (perm)	1144	3539	1583	861	3525	0	825	1583	0	1382	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87		4			306				584
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	6	494	87	17	215	6	47	0	23	484	363	847
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	494	87	17	221	0	47	23	0	484	363	847
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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt		Perm	pm+pt			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	37.9	37.9	9.0	37.9		37.8	37.8		37.8	37.8	37.8
Total Split (s)	9.0	37.9	37.9	9.0	37.9	0.0	37.8	37.8	0.0	37.8	37.8	37.8
Total Split (%)	10.6%	44.7%	44.7%	10.6%	44.7%	0.0%	44.6%	44.6%	0.0%	44.6%	44.6%	44.6%
Maximum Green (s)	5.0	30.0	30.0	5.0	30.0		31.0	31.0		31.0	31.0	31.0
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9		3.6	3.6		3.6	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		3.2	3.2		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	4.0	7.9	4.0	6.8	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.5	5.0		3.5	3.5		3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0		7.0	7.0		7.0	7.0	7.0

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday post-game hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		16.0	16.0		16.0		14.0	14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0		0		0	0		0	0	0
Act Effect Green (s)	34.9	30.1	30.1	34.9	30.1		30.8	30.8		30.8	30.8	30.8
Actuated g/C Ratio	0.41	0.39	0.39	0.41	0.39		0.40	0.40		0.40	0.40	0.40
v/c Ratio	0.01	0.36	0.13	0.04	0.16		0.14	0.03		0.88	0.49	0.86
Control Delay	12.6	18.2	4.9	13.3	16.1		17.3	0.1		41.9	20.7	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	12.6	18.2	4.9	13.3	16.1		17.3	0.1		41.9	20.7	17.8
LOS	B	B	A	B	B		B	A		D	C	B
Approach Delay		16.2			15.9			11.6			25.3	
Approach LOS		B			B			B			C	
Queue Length 50th (m)	0.5	26.6	0.0	1.4	10.7		4.3	0.0		64.1	38.9	32.1
Queue Length 95th (m)	2.3	43.6	8.4	4.3	20.2		12.6	0.0		#141.8	74.4	#135.1
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)	75.0		90.0	30.0			20.0					
Base Capacity (vph)	510	1378	670	410	1375		331	818		554	747	984
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	0.01	0.36	0.13	0.04	0.16		0.14	0.03		0.87	0.49	0.86

Intersection Summary

Area Type: Other

Cycle Length: 84.7

Actuated Cycle Length: 77.2

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 22.0

Intersection LOS: C

Intersection Capacity Utilization 99.4%

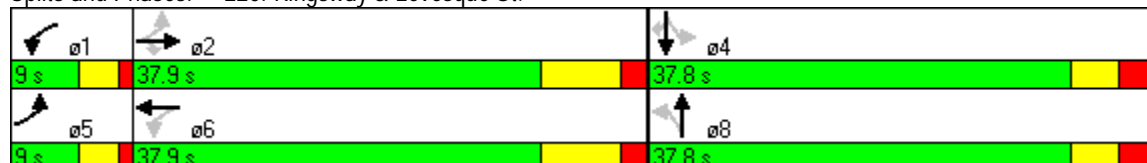
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

























Splits and Phases: 220: Kingsway & Levesque St.



Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.













Saturday peak hour

Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	765	690	130	375	655	305	210	470	125	435	630	565
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			131			293						540
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	773	697	131	379	662	308	212	475	126	439	636	571
Shared Lane Traffic (%)												
Lane Group Flow (vph)	773	697	131	379	662	308	212	475	126	439	636	571
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	10.4	10.4	34.1	
Total Split (s)	39.4	46.4	46.4	29.4	46.4	46.4	22.4	26.1	29.4	25.4	26.1	0.0
Total Split (%)	28.7%	33.8%	33.8%	21.4%	33.8%	33.8%	16.3%	19.0%	21.4%	18.5%	19.0%	0.0%
Maximum Green (s)	34.0	40.0	40.0	24.0	40.0	40.0	17.0	20.0	24.0	20.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	3.4	6.4	6.4	5.4	6.1	5.4	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5	2.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Saturday peak hour
Total future volumes

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0			21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	31.1	36.8	36.8	26.3	30.0	30.0	12.4	19.6	50.0	18.8	26.0	123.0
Actuated g/C Ratio	0.25	0.30	0.30	0.21	0.24	0.24	0.10	0.16	0.41	0.15	0.21	1.00
v/c Ratio	0.88	0.66	0.23	0.99	0.77	0.51	0.60	0.84	0.19	0.83	0.84	0.36
Control Delay	57.6	40.4	5.9	93.8	50.6	8.3	61.8	66.1	27.1	65.7	59.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	40.4	5.9	93.8	50.6	8.3	61.8	66.1	27.1	65.7	59.1	0.6
LOS	E	D	A	F	D	A	E	E	C	E	E	A
Approach Delay		45.9			53.0			58.9			40.6	
Approach LOS		D			D			E			D	
Queue Length 50th (m)	99.8	82.5	0.0	~108.2	87.1	3.1	28.1	65.2	21.7	58.4	85.1	0.0
Queue Length 95th (m)	#144.1	102.7	14.0	#188.2	109.1	26.8	43.0	#103.3	40.5	#90.9	#142.1	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	941	1306	575	382	1059	608	470	578	657	563	755	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.53	0.23	0.99	0.63	0.51	0.45	0.82	0.19	0.78	0.84	0.36

Intersection Summary

Area Type: Other

Cycle Length: 137.3

Actuated Cycle Length: 123

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 48.0

Intersection LOS: D

Intersection Capacity Utilization 84.7%

ICU Level of Service E

Analysis Period (min) 15

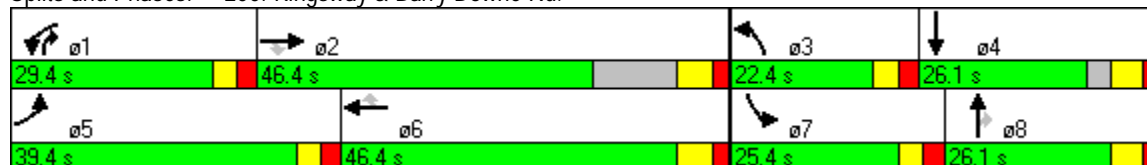
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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




























Queue shown is maximum after two cycles.

Splits and Phases: 200: Kingsway & Barry Downe Rd.



Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Weekday PM peak hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Volume (vph)	200	790	325	320	770	110	400	335	330	140	455	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	35.0		0.0	100.0		0.0	100.0		45.0	50.0		0.0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (m)	25.0		7.5	9.0		7.5	20.0		25.0	45.0		7.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor					0.99						0.99	
Frt			0.850		0.981				0.850		0.964	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1787	3424	0	1787	3539	1568	1770	3388	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	1787	3424	0	1787	3539	1568	1770	3388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			335		12				340		32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		286.9			337.0			317.9			226.1	
Travel Time (s)		20.7			24.3			22.9			16.3	
Confl. Peds. (#/hr)						40						25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	2%	1%	3%	0%	1%	2%	3%	2%	1%	3%
Adj. Flow (vph)	206	814	335	330	794	113	412	345	340	144	469	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	206	814	335	330	907	0	412	345	340	144	618	0
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
Turn Type	Prot		Perm	Prot			Prot		Perm	Prot		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0		5.0	8.0	8.0	5.0	8.0	
Minimum Split (s)	10.0	35.7	35.7	10.0	35.7		10.0	31.7	31.7	10.0	28.7	
Total Split (s)	25.0	36.0	36.0	25.0	36.0	0.0	30.0	33.0	33.0	26.0	29.0	0.0
Total Split (%)	20.8%	30.0%	30.0%	20.8%	30.0%	0.0%	25.0%	27.5%	27.5%	21.7%	24.2%	0.0%
Maximum Green (s)	20.0	30.3	30.3	20.0	30.3		25.0	27.3	27.3	21.0	23.3	
Yellow Time (s)	3.0	3.7	3.7	3.0	3.7		3.0	3.7	3.7	3.0	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.7	5.7	5.0	5.7	4.0	5.0	5.7	5.7	5.0	5.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	2.5	5.0		2.5	3.5	3.5	2.5	3.5	

Lanes, Volumes, Timings
100: Lasalle Blvd. & Barry Downe Rd.

Weekday PM peak hour
Total future volumes; signal adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0			7.0	7.0		7.0	
Flash Dont Walk (s)		17.0	17.0		21.0			19.0	19.0		16.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effect Green (s)	17.5	30.6	30.6	20.0	33.2		25.0	33.4	33.4	14.6	23.0	
Actuated g/C Ratio	0.15	0.26	0.26	0.17	0.28		0.21	0.28	0.28	0.12	0.19	
v/c Ratio	0.80	0.90	0.51	1.11	0.95		1.11	0.35	0.50	0.67	0.92	
Control Delay	71.8	57.5	6.8	130.3	62.0		123.1	36.7	6.6	65.1	64.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	71.8	57.5	6.8	130.3	62.0		123.1	36.7	6.6	65.1	64.7	
LOS	E	E	A	F	E		F	D	A	E	E	
Approach Delay		47.1			80.2			59.8			64.8	
Approach LOS		D			F			E			E	
Queue Length 50th (m)	49.3	103.4	0.0	~93.4	~118.0		~116.5	35.9	0.0	34.7	75.7	
Queue Length 95th (m)	#79.7	#140.4	23.7	#152.7	#168.7		#180.5	53.2	24.5	54.3	#109.6	
Internal Link Dist (m)		262.9			313.0			293.9			202.1	
Turn Bay Length (m)	35.0			100.0			100.0		45.0	50.0		
Base Capacity (vph)	295	904	654	298	956		372	985	682	310	684	
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	0.70	0.90	0.51	1.11	0.95		1.11	0.35	0.50	0.46	0.90	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 28 (23%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 62.5

Intersection LOS: E

Intersection Capacity Utilization 101.3%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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
























Queue shown is maximum after two cycles.

Splits and Phases: 100: Lasalle Blvd. & Barry Downe Rd.

ø1	ø2	ø3	ø4
25 s	36 s	30 s	29 s
ø5	ø6	ø7	ø8
25 s	36 s	26 s	33 s













Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Weekday PM peak hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	725	960	320	80	1210	475	280	485	90	510	475	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Fr't			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3505	1583	1787	3438	1538	3433	3483	0	3335	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			217			256			13			521
Link Speed (k/h)		50			60			50				50
Link Distance (m)		473.7			974.0			320.5				783.8
Travel Time (s)		34.1			58.4			23.1				56.4
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	3%	2%	1%	5%	5%	2%	1%	2%	5%	2%	2%
Adj. Flow (vph)	740	980	327	82	1235	485	286	495	92	520	485	561
Shared Lane Traffic (%)												
Lane Group Flow (vph)	740	980	327	82	1235	485	286	587	0	520	485	561
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)		7.2			7.2			7.2				7.2
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	33.0	30.7	30.7	20.0	51.7	51.7	20.0	33.7	0.0	29.0	32.7	0.0
Total Split (%)	22.4%	20.8%	20.8%	13.6%	35.1%	35.1%	13.6%	22.9%	0.0%	19.7%	22.2%	0.0%
Maximum Green (s)	28.0	24.0	24.0	15.0	45.0	45.0	15.0	27.0		24.0	26.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Weekday PM peak hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	28.0	61.7	61.7	11.3	45.0	45.0	14.6	26.5		24.0	35.9	146.9
Actuated g/C Ratio	0.19	0.42	0.42	0.08	0.31	0.31	0.10	0.18		0.16	0.24	1.00
v/c Ratio	1.12	0.67	0.41	0.59	1.17	0.75	0.84	0.92		0.95	0.56	0.35
Control Delay	125.4	37.6	11.7	82.6	132.3	29.1	86.5	78.1		89.2	51.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	125.4	37.6	11.7	82.6	132.3	29.1	86.5	78.1		89.2	51.6	0.6
LOS	F	D	B	F	F	C	F	E		F	D	A
Approach Delay		65.2			102.2			80.9			45.8	
Approach LOS		E			F			F			D	
Queue Length 50th (m)	~135.0	127.3	21.1	24.8	~238.3	66.7	45.2	92.2		82.8	69.3	0.0
Queue Length 95th (m)	#176.0	158.7	49.4	42.7	#283.2	114.3	#67.8	#126.5		#119.4	88.7	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	661	1472	791	178	1054	648	349	649		545	867	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.12	0.67	0.41	0.46	1.17	0.75	0.82	0.90		0.95	0.56	0.35

Intersection Summary

Area Type: Other

Cycle Length: 147.4

Actuated Cycle Length: 146.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 73.2

Intersection LOS: E

Intersection Capacity Utilization 104.5%

ICU Level of Service G

Analysis Period (min) 15

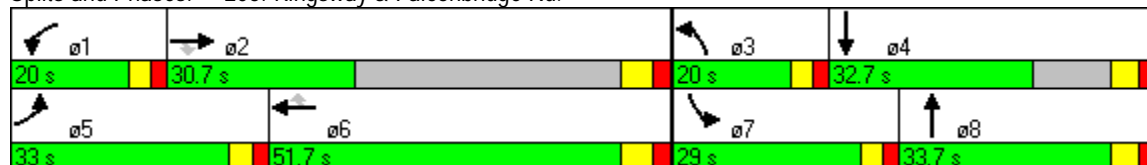
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

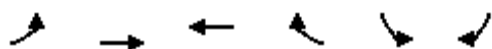
Queue shown is maximum after two cycles.

Splits and Phases: 205: Kingsway & Falconbridge Rd.



Lanes, Volumes, Timings
215: Kingsway & Street A

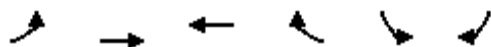
Weekday PM peak hour
Total future volumes; signal adjustments



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	←←	→→	←←	→	←	→
Volume (vph)	275	1170	1030	175	360	670
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	2			1	1	1
Taper Length (m)	60.0			60.0	7.5	7.5
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				190		548
Link Speed (k/h)		80	80		50	
Link Distance (m)		514.2	612.8		214.8	
Travel Time (s)		23.1	27.6		15.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	299	1272	1120	190	391	728
Shared Lane Traffic (%)						
Lane Group Flow (vph)	299	1272	1120	190	391	728
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.2	7.2		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		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
Turning Speed (k/h)	25			15	25	15
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	11.0	23.9	30.9	30.9	28.6	28.6
Total Split (s)	34.0	37.9	37.9	37.9	35.6	35.6
Total Split (%)	31.6%	35.3%	35.3%	35.3%	33.1%	33.1%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	5.9	5.9	5.9	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	7.9	5.6	5.6
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			16.0	16.0	16.0	16.0

Lanes, Volumes, Timings
215: Kingsway & Street A

Weekday PM peak hour
Total future volumes; signal adjustments



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	12.9	47.2	30.3	30.3	25.0	25.0
Actuated g/C Ratio	0.15	0.55	0.35	0.35	0.29	0.29
v/c Ratio	0.58	0.65	0.90	0.28	0.76	0.86
Control Delay	39.4	16.2	39.0	4.8	38.2	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	16.2	39.0	4.8	38.2	18.8
LOS	D	B	D	A	D	B
Approach Delay		20.7	34.1		25.6	
Approach LOS		C	C		C	
Queue Length 50th (m)	25.7	80.7	99.2	0.0	60.9	27.1
Queue Length 95th (m)	40.1	110.5	#158.7	14.9	98.9	#108.0
Internal Link Dist (m)		490.2	588.8		190.8	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	1005	2209	1248	681	587	891
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.58	0.90	0.28	0.67	0.82

Intersection Summary

Area Type: Other

Cycle Length: 107.5

Actuated Cycle Length: 85.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 26.4

Intersection LOS: C

Intersection Capacity Utilization 81.2%

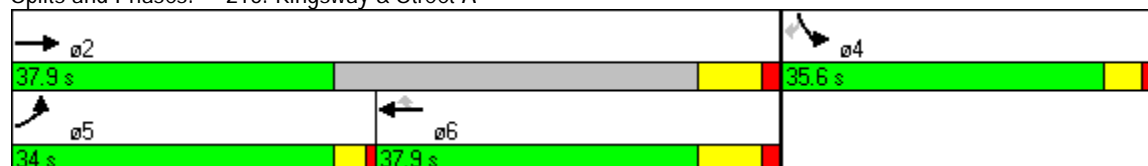
ICU Level of Service D

Analysis Period (min) 15

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
























Queue shown is maximum after two cycles.

Splits and Phases: 215: Kingsway & Street A















Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Weekday PM peak hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	1180	260	80	815	40	105	25	125	135	95	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		100.0	20.0		0.0	0.0		0.0
Storage Lanes	2		1	1		1	1		0	1		1
Taper Length (m)	60.0		65.0	95.0		60.0	20.0		7.5	7.5		7.5
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.875				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3539	1583	1736	3438	1454	1805	1622	0	1805	1900	1615
Flt Permitted	0.950			0.141			0.692			0.656		
Satd. Flow (perm)	3502	3539	1583	258	3438	1454	1315	1622	0	1246	1900	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			277			43		133				245
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	2%	4%	5%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	90	1255	277	85	867	43	112	27	133	144	101	303
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	1255	277	85	867	43	112	160	0	144	101	303
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)		7.2			7.2			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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	pm+pt		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8		27.8	27.8	27.8
Total Split (s)	15.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8	0.0	27.8	27.8	27.8
Total Split (%)	18.6%	47.0%	47.0%	11.2%	47.0%	47.0%	34.4%	34.4%	0.0%	34.4%	34.4%	34.4%
Maximum Green (s)	11.0	30.0	30.0	5.0	30.0	30.0	21.0	21.0		21.0	21.0	21.0
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	3.6	3.6		3.6	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	3.2	3.2		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	4.0	7.9	7.9	6.8	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.5	5.0	5.0	3.5	3.5		3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	None

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Weekday PM peak hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		16.0	16.0		16.0	16.0	14.0	14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effect Green (s)	7.2	32.6	32.6	38.0	30.6	30.6	13.9	13.9		13.9	13.9	13.9
Actuated g/C Ratio	0.10	0.48	0.48	0.54	0.45	0.45	0.20	0.20		0.20	0.20	0.20
v/c Ratio	0.25	0.74	0.31	0.35	0.56	0.06	0.42	0.37		0.57	0.26	0.58
Control Delay	32.1	19.4	2.9	10.3	17.6	5.5	29.5	9.5		34.5	25.2	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	32.1	19.4	2.9	10.3	17.6	5.5	29.5	9.5		34.5	25.2	11.0
LOS	C	B	A	B	B	A	C	A		C	C	B
Approach Delay		17.3			16.5			17.7			19.8	
Approach LOS		B			B			B			B	
Queue Length 50th (m)	5.9	71.1	0.0	3.7	45.4	0.0	13.6	3.1		18.1	11.8	6.7
Queue Length 95th (m)	13.5	115.6	13.1	10.7	78.5	6.1	28.4	17.4		35.9	24.7	27.5
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)	75.0		90.0	30.0		100.0	20.0					
Base Capacity (vph)	523	1788	937	246	1539	675	369	551		350	534	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.17	0.70	0.30	0.35	0.56	0.06	0.30	0.29		0.41	0.19	0.48

Intersection Summary

Area Type: Other

Cycle Length: 80.7

Actuated Cycle Length: 68.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 17.5

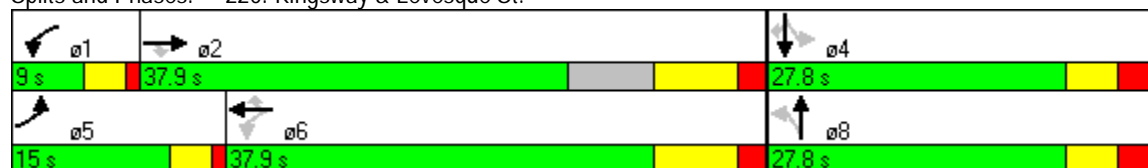
Intersection LOS: B

Intersection Capacity Utilization 74.8%

ICU Level of Service D





















Analysis Period (min) 15

Splits and Phases: 220: Kingsway & Levesque St.















Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	505	385	85	15	285	160	30	70	15	200	90	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.96	0.99	0.99			0.99			0.99	0.95
Frt			0.850		0.946			0.983				0.850
Flt Protected	0.950			0.950				0.987			0.967	
Satd. Flow (prot)	1787	1881	1615	1805	1752	0	0	1835	0	0	1800	1583
Flt Permitted	0.222			0.528				0.797			0.760	
Satd. Flow (perm)	417	1881	1550	991	1752	0	0	1475	0	0	1401	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88		39			9				253
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	0%	0%	2%	1%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	521	397	88	15	294	165	31	72	15	206	93	345
Shared Lane Traffic (%)												
Lane Group Flow (vph)	521	397	88	15	459	0	0	118	0	0	299	345
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			Perm		Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		4	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		25.7	25.7	25.7
Total Split (s)	20.0	31.7	31.7	31.7	31.7	0.0	25.7	25.7	0.0	25.7	25.7	25.7
Total Split (%)	25.8%	41.0%	41.0%	41.0%	41.0%	0.0%	33.2%	33.2%	0.0%	33.2%	33.2%	33.2%
Maximum Green (s)	16.0	26.0	26.0	26.0	26.0		20.0	20.0		20.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7	5.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		3.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Weekday PM peak hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effect Green (s)	45.6	43.9	43.9	23.8	23.8			18.6			18.6	18.6
Actuated g/C Ratio	0.62	0.59	0.59	0.32	0.32			0.25			0.25	0.25
v/c Ratio	0.94	0.36	0.09	0.05	0.78			0.31			0.85	0.61
Control Delay	42.0	9.1	2.0	18.0	31.5			23.8			50.3	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	42.0	9.1	2.0	18.0	31.5			23.8			50.3	12.5
LOS	D	A	A	B	C			C			D	B
Approach Delay		25.5			31.1			23.8			30.0	
Approach LOS		C			C			C			C	
Queue Length 50th (m)	49.1	28.4	0.0	1.5	56.7			13.5			43.4	11.2
Queue Length 95th (m)	#112.0	44.9	5.1	5.5	#96.1			27.6			#85.9	36.9
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	554	1138	973	339	625			399			373	587
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.94	0.35	0.09	0.04	0.73			0.30			0.80	0.59

Intersection Summary

Area Type: Other

Cycle Length: 77.4

Actuated Cycle Length: 74

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.9

Intersection LOS: C

Intersection Capacity Utilization 88.2%

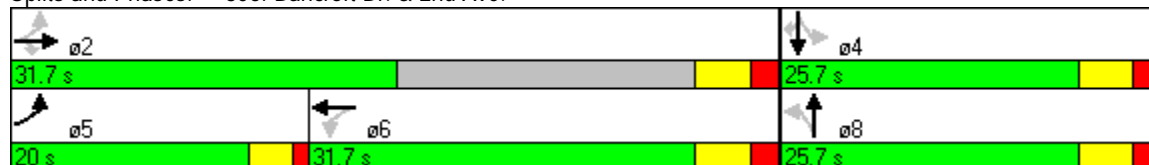
ICU Level of Service E

Analysis Period (min) 15

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

























Queue shown is maximum after two cycles.

Splits and Phases: 305: Bancroft Dr. & 2nd Ave.















Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Friday pre-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	585	1225	70	100	705	425	80	255	120	790	270	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	180.0		100.0	80.0		0.0	35.0		35.0	80.0		95.0
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (m)	35.0		100.0	50.0		7.5	60.0		60.0	50.0		20.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Fr't			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3467	3539	1615	1787	3505	1583	3502	3539	1615	3467	3574	1599
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			60			352						478
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		549.9			473.7			387.7			377.3	
Travel Time (s)		39.6			34.1			27.9			27.2	
Peak Hour Factor	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92
Heavy Vehicles (%)	1%	2%	0%	1%	3%	2%	0%	2%	0%	1%	1%	1%
Adj. Flow (vph)	636	1289	76	109	766	462	87	277	130	832	293	478
Shared Lane Traffic (%)												
Lane Group Flow (vph)	636	1289	76	109	766	462	87	277	130	832	293	478
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot		pm+ov	Prot		Free
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases			2			6			8			Free
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	8.0	5.0	5.0	8.0	
Minimum Split (s)	10.4	35.4	35.4	10.4	32.4	32.4	10.4	34.1	10.4	10.4	34.1	
Total Split (s)	39.4	35.4	35.4	29.4	32.4	32.4	22.4	26.1	29.4	29.4	26.1	0.0
Total Split (%)	31.0%	27.8%	27.8%	23.1%	25.5%	25.5%	17.6%	20.5%	23.1%	23.1%	20.5%	0.0%
Maximum Green (s)	34.0	29.0	29.0	24.0	26.0	26.0	17.0	20.0	24.0	24.0	20.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7	3.0	3.0	3.7	
All-Red Time (s)	2.4	2.2	2.2	2.4	2.2	2.2	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.4	6.4	6.4	5.4	6.4	6.4	5.4	6.1	5.4	5.4	6.1	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5	2.5	2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
200: Kingsway & Barry Downe Rd.

Friday pre-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		22.0	22.0		19.0	19.0		21.0			21.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	25.5	39.8	39.8	11.9	26.1	26.1	7.8	14.7	32.7	24.1	33.5	113.9
Actuated g/C Ratio	0.22	0.35	0.35	0.10	0.23	0.23	0.07	0.13	0.29	0.21	0.29	1.00
v/c Ratio	0.82	1.04	0.13	0.59	0.95	0.73	0.37	0.61	0.28	1.13	0.28	0.30
Control Delay	51.5	74.3	10.4	62.5	66.4	18.4	57.1	53.5	32.9	117.7	33.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	74.3	10.4	62.5	66.4	18.4	57.1	53.5	32.9	117.7	33.8	0.5
LOS	D	E	B	E	E	B	E	D	C	F	C	A
Approach Delay		64.6			49.5			48.7			67.4	
Approach LOS		E			D			D			E	
Queue Length 50th (m)	73.0	~171.5	2.4	24.6	93.2	21.4	10.2	32.5	23.5	~116.4	28.5	0.0
Queue Length 95th (m)	98.6	#245.0	14.1	46.1	#157.4	70.4	20.1	50.5	40.9	#182.4	46.0	0.0
Internal Link Dist (m)		525.9			449.7			363.7			353.3	
Turn Bay Length (m)	180.0		100.0	80.0			35.0		35.0	80.0		95.0
Base Capacity (vph)	966	1237	603	341	804	635	476	596	506	734	1052	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	1.04	0.13	0.32	0.95	0.73	0.18	0.46	0.26	1.13	0.28	0.30

Intersection Summary

Area Type: Other

Cycle Length: 127.3

Actuated Cycle Length: 113.9

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 60.3

Intersection LOS: E

Intersection Capacity Utilization 88.4%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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
























Queue shown is maximum after two cycles.

Splits and Phases: 200: Kingsway & Barry Downe Rd.



Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	545	1420	235	60	590	280	210	365	70	705	355	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	100.0		60.0	115.0		70.0	75.0		0.0	75.0		75.0
Storage Lanes	2		1	1		1	2		0	2		1
Taper Length (m)	100.0		80.0	85.0		70.0	50.0		7.5	75.0		65.0
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	0.95	0.97	0.95	1.00
Fr't			0.850			0.850		0.976				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3505	1583	1736	3505	1599	3467	3488	0	3467	3574	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			112			308		14				456
Link Speed (k/h)		50			60			50			50	
Link Distance (m)		473.7			974.0			320.5			783.8	
Travel Time (s)		34.1			58.4			23.1			56.4	
Peak Hour Factor	0.91	0.95	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.95	0.91	0.91
Heavy Vehicles (%)	4%	3%	2%	4%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	599	1495	258	66	648	308	231	401	77	742	390	456
Shared Lane Traffic (%)												
Lane Group Flow (vph)	599	1495	258	66	648	308	231	478	0	742	390	456
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)		7.2			7.2			7.2			7.2	
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
Turn Type	Prot		Perm	Prot		Perm	Prot			Prot		Free
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						Free
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	8.0		5.0	8.0	
Minimum Split (s)	10.0	30.7	30.7	10.0	31.7	31.7	10.0	33.7		10.0	32.7	
Total Split (s)	33.0	53.7	53.7	20.0	31.7	31.7	20.0	33.7	0.0	29.0	32.7	0.0
Total Split (%)	24.2%	39.4%	39.4%	14.7%	23.2%	23.2%	14.7%	24.7%	0.0%	21.3%	24.0%	0.0%
Maximum Green (s)	28.0	47.0	47.0	15.0	25.0	25.0	15.0	27.0		24.0	26.0	
Yellow Time (s)	3.0	4.2	4.2	3.0	4.2	4.2	3.0	3.7		3.0	3.7	
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	2.5	2.0	3.0		2.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.7	6.7	5.0	6.7	6.7	5.0	6.7	4.0	5.0	6.7	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	3.6	3.6	2.5	3.6	3.6	2.5	3.5		2.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0			7.0	

Lanes, Volumes, Timings
205: Kingsway & Falconbridge Rd.

Friday pre-game hour
Total future volumes; signal adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		17.0	17.0		18.0	18.0		20.0			19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0			0	
Act Effect Green (s)	25.4	47.4	47.4	9.7	29.1	29.1	12.6	21.8		24.2	33.4	124.1
Actuated g/C Ratio	0.20	0.38	0.38	0.08	0.23	0.23	0.10	0.18		0.20	0.27	1.00
v/c Ratio	0.87	1.12	0.38	0.50	0.79	0.50	0.65	0.76		1.10	0.41	0.29
Control Delay	62.4	100.2	18.6	69.6	53.2	7.5	64.1	56.5		111.1	39.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	62.4	100.2	18.6	69.6	53.2	7.5	64.1	56.5		111.1	39.9	0.4
LOS	E	F	B	E	D	A	E	E		F	D	A
Approach Delay		81.6			40.5			59.0			61.8	
Approach LOS		F			D			E			E	
Queue Length 50th (m)	77.3	~241.8	26.8	16.9	85.3	0.0	30.4	61.6		~115.9	44.7	0.0
Queue Length 95th (m)	#113.8	#318.3	55.6	33.7	112.7	24.1	46.9	84.3		#171.7	63.7	0.0
Internal Link Dist (m)		449.7			950.0			296.5			759.8	
Turn Bay Length (m)	100.0		60.0	115.0		70.0	75.0			75.0		75.0
Base Capacity (vph)	747	1338	674	198	927	610	414	743		676	1020	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.80	1.12	0.38	0.33	0.70	0.50	0.56	0.64		1.10	0.38	0.29

Intersection Summary

Area Type: Other

Cycle Length: 136.4

Actuated Cycle Length: 124.1

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 65.8

Intersection LOS: E

Intersection Capacity Utilization 95.4%

ICU Level of Service F

Analysis Period (min) 15

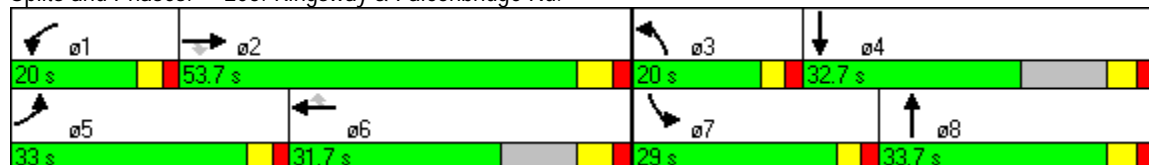
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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


















Queue shown is maximum after two cycles.

Splits and Phases: 205: Kingsway & Falconbridge Rd.



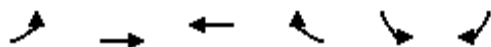
Lanes, Volumes, Timings
215: Kingsway & Street A

Friday pre-game hour
Total future volumes; signal adjustments

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	 	 	 		 	 
Volume (vph)	720	1155	560	260	155	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	2			1	1	1
Taper Length (m)	60.0			60.0	7.5	7.5
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				274		283
Link Speed (k/h)		80	80		50	
Link Distance (m)		514.2	612.8		214.8	
Travel Time (s)		23.1	27.6		15.5	
Peak Hour Factor	0.95	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	758	1216	609	274	168	283
Shared Lane Traffic (%)						
Lane Group Flow (vph)	758	1216	609	274	168	283
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.2	7.2		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		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
Turning Speed (k/h)	25			15	25	15
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	11.0	23.9	30.9	30.9	28.6	28.6
Total Split (s)	34.0	37.9	37.9	37.9	35.6	35.6
Total Split (%)	31.6%	35.3%	35.3%	35.3%	33.1%	33.1%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	5.9	5.9	5.9	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	7.9	5.6	5.6
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Max	Max	Max	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			16.0	16.0	16.0	16.0

Lanes, Volumes, Timings
215: Kingsway & Street A

Friday pre-game hour
Total future volumes; signal adjustments



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	24.0	58.3	30.3	30.3	14.1	14.1
Actuated g/C Ratio	0.28	0.68	0.35	0.35	0.16	0.16
v/c Ratio	0.79	0.51	0.49	0.37	0.58	0.57
Control Delay	35.8	8.0	24.9	4.8	42.4	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.8	8.0	24.9	4.8	42.4	9.2
LOS	D	A	C	A	D	A
Approach Delay		18.7	18.7		21.6	
Approach LOS		B	B		C	
Queue Length 50th (m)	61.5	46.1	43.0	0.0	27.3	0.0
Queue Length 95th (m)	90.5	76.6	71.3	18.1	50.0	21.2
Internal Link Dist (m)		490.2	588.8		190.8	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	1123	2470	1245	735	523	667
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.49	0.49	0.37	0.32	0.42

Intersection Summary

Area Type: Other

Cycle Length: 107.5

Actuated Cycle Length: 86.1

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.1

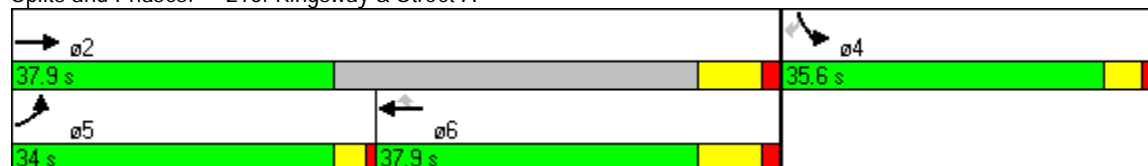
Intersection LOS: B

Intersection Capacity Utilization 59.2%

ICU Level of Service B























Analysis Period (min) 15

Splits and Phases: 215: Kingsway & Street A















Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday pre-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	590	595	125	55	650	350	100	250	75	35	20	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		100.0	20.0		0.0	0.0		0.0
Storage Lanes	2		1	1		1	1		0	1		0
Taper Length (m)	60.0		65.0	95.0		60.0	20.0		7.5	7.5		7.5
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.964			0.876	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3502	3539	1583	1736	3438	1454	1805	1819	0	1805	1664	0
Flt Permitted	0.950			0.403			0.676			0.274		
Satd. Flow (perm)	3502	3539	1583	736	3438	1454	1284	1819	0	521	1664	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			137			134		14			104	
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.95	0.91	0.91	0.91	0.95	0.95	0.91	0.95	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	2%	4%	5%	0%	0%	0%	3%	0%	0%	0%
Adj. Flow (vph)	621	654	137	60	684	368	110	263	82	38	22	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	621	654	137	60	684	368	110	345	0	38	126	0
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)		7.2			7.2			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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2	6		6	8			4		
Detector Phase	5	2	2	1	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	9.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8		27.8	27.8	
Total Split (s)	34.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8	0.0	27.8	27.8	0.0
Total Split (%)	34.1%	38.0%	38.0%	9.0%	38.0%	38.0%	27.9%	27.9%	0.0%	27.9%	27.9%	0.0%
Maximum Green (s)	30.0	30.0	30.0	5.0	30.0	30.0	21.0	21.0		21.0	21.0	
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	3.6	3.6		3.6	3.6	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	4.0	7.9	7.9	6.8	6.8	4.0	6.8	6.8	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.5	5.0	5.0	3.5	3.5		3.5	3.5	
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday pre-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0	16.0		16.0	16.0	14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	
Act Effect Green (s)	21.1	48.3	48.3	39.0	30.2	30.2	19.8	19.8		19.8	19.8	
Actuated g/C Ratio	0.23	0.54	0.54	0.43	0.34	0.34	0.22	0.22		0.22	0.22	
v/c Ratio	0.76	0.34	0.15	0.16	0.59	0.64	0.39	0.84		0.33	0.28	
Control Delay	38.4	13.0	2.4	10.0	28.4	22.6	35.7	51.8		40.1	11.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	38.4	13.0	2.4	10.0	28.4	22.6	35.7	51.8		40.1	11.0	
LOS	D	B	A	A	C	C	D	D		D	B	
Approach Delay		23.2			25.5			47.9			17.8	
Approach LOS		C			C			D			B	
Queue Length 50th (m)	55.1	36.3	0.0	3.6	54.6	35.7	17.0	57.6		5.8	3.2	
Queue Length 95th (m)	73.5	48.1	8.4	7.6	82.0	74.9	36.1	#113.9		17.0	18.6	
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)	75.0		90.0	30.0		100.0	20.0					
Base Capacity (vph)	1066	2019	962	367	1153	577	297	432		121	465	
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	0.58	0.32	0.14	0.16	0.59	0.64	0.37	0.80		0.31	0.27	

Intersection Summary

Area Type: Other

Cycle Length: 99.7

Actuated Cycle Length: 89.9

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 27.3

Intersection LOS: C

Intersection Capacity Utilization 86.5%

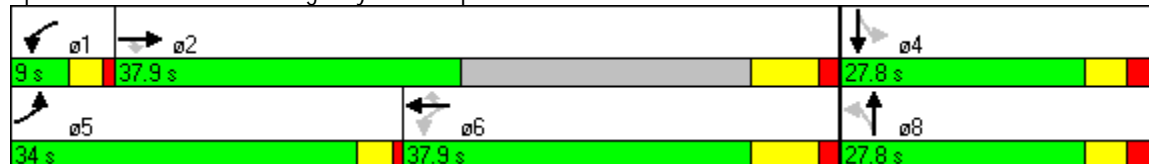
ICU Level of Service E

Analysis Period (min) 15

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





















Queue shown is maximum after two cycles.

Splits and Phases: 220: Kingsway & Levesque St.















Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Friday pre-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	380	455	65	10	180	125	25	55	10	150	70	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	60.0		60.0	50.0		0.0	0.0		0.0	0.0		20.0
Storage Lanes	1		1	1		0	0		0	0		1
Taper Length (m)	35.0		35.0	45.0		7.5	7.5		7.5	7.5		25.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.96	0.99	0.99			0.99			0.99	0.95
Frt			0.850		0.939			0.986				0.850
Flt Protected	0.950			0.950				0.986			0.967	
Satd. Flow (prot)	1736	1827	1615	1805	1694	0	0	1840	0	0	1801	1583
Flt Permitted	0.308			0.490				0.833			0.769	
Satd. Flow (perm)	561	1827	1550	921	1694	0	0	1547	0	0	1418	1507
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			81		49			8				254
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		370.0			420.1			193.2			435.0	
Travel Time (s)		26.6			30.2			13.9			31.3	
Confl. Peds. (#/hr)	4		14	14		4	15		9	9		15
Peak Hour Factor	0.80	0.95	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	4%	4%	0%	0%	5%	3%	0%	0%	0%	3%	0%	2%
Adj. Flow (vph)	475	479	81	12	225	156	31	69	12	188	88	319
Shared Lane Traffic (%)												
Lane Group Flow (vph)	475	479	81	12	381	0	0	112	0	0	276	319
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			0.0			0.0	
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
Turn Type	pm+pt		Perm	Perm			Perm			Perm		Perm
Protected Phases	5	2			6			8			4	
Permitted Phases	2		2	6			8			4		4
Detector Phase	5	2	2	6	6		8	8		4	7 4	4
Switch Phase												
Minimum Initial (s)	5.0	20.0	20.0	20.0	20.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	31.7	31.7	31.7	31.7		25.7	25.7		25.7	25.7	25.7
Total Split (s)	20.0	31.7	31.7	31.7	31.7	0.0	25.7	25.7	0.0	25.7	25.7	25.7
Total Split (%)	25.8%	41.0%	41.0%	41.0%	41.0%	0.0%	33.2%	33.2%	0.0%	33.2%	33.2%	33.2%
Maximum Green (s)	16.0	26.0	26.0	26.0	26.0		20.0	20.0		20.0	20.0	20.0
Yellow Time (s)	3.0	3.7	3.7	3.7	3.7		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.7	5.7	5.7	5.7	4.0	5.7	5.7	4.0	5.7	5.7	5.7
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	5.0	5.0	5.0	5.0		3.5	3.5		3.5	3.5	3.5

Lanes, Volumes, Timings
305: Bancroft Dr. & 2nd Ave.

Friday pre-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	None	Min	Min	Min	Min		None	None		None	None	None
Walk Time (s)		7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		19.0	19.0	19.0	19.0		13.0	13.0		13.0	13.0	13.0
Pedestrian Calls (#/hr)		0	0	0	0		0	0		0	0	0
Act Effect Green (s)	43.9	42.2	42.2	22.6	22.6			17.5			17.5	17.5
Actuated g/C Ratio	0.62	0.59	0.59	0.32	0.32			0.25			0.25	0.25
v/c Ratio	0.79	0.44	0.09	0.04	0.67			0.29			0.79	0.57
Control Delay	19.8	10.0	2.0	18.1	25.4			23.0			43.7	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	0.0
Total Delay	19.8	10.0	2.0	18.1	25.4			23.0			43.7	10.5
LOS	B	A	A	B	C			C			D	B
Approach Delay		13.9			25.1			23.0			25.9	
Approach LOS		B			C			C			C	
Queue Length 50th (m)	34.5	36.7	0.0	1.2	42.4			11.5			35.4	7.0
Queue Length 95th (m)	47.1	57.4	3.9	4.3	59.8			22.9			#58.0	20.8
Internal Link Dist (m)		346.0			396.1			169.2			411.0	
Turn Bay Length (m)	60.0		60.0	50.0								20.0
Base Capacity (vph)	607	1122	983	322	625			428			387	596
Starvation Cap Reductn	0	0	0	0	0			0			0	0
Spillback Cap Reductn	0	0	0	0	0			0			0	0
Storage Cap Reductn	0	0	0	0	0			0			0	0
Reduced v/c Ratio	0.78	0.43	0.08	0.04	0.61			0.26			0.71	0.54

Intersection Summary

Area Type: Other

Cycle Length: 77.4

Actuated Cycle Length: 71.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.8

Intersection LOS: B

Intersection Capacity Utilization 73.5%

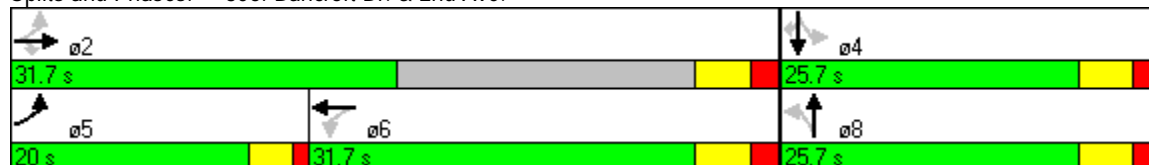
ICU Level of Service D

Analysis Period (min) 15

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


















Queue shown is maximum after two cycles.

Splits and Phases: 305: Bancroft Dr. & 2nd Ave.



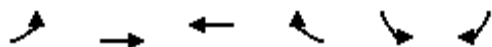
Lanes, Volumes, Timings
215: Kingsway & Street A

Friday post-game hour
Total future volumes; signal adjustments

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	 	 	 		 	 
Volume (vph)	120	215	945	85	290	905
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	150.0			100.0	0.0	0.0
Storage Lanes	2			1	1	1
Taper Length (m)	60.0			60.0	7.5	7.5
Lane Util. Factor	0.97	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	3539	3539	1583	1770	1583
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				92		549
Link Speed (k/h)		80	80		50	
Link Distance (m)		514.2	612.8		214.8	
Travel Time (s)		23.1	27.6		15.5	
Peak Hour Factor	0.92	0.92	0.95	0.92	0.95	0.95
Adj. Flow (vph)	130	234	995	92	305	953
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	234	995	92	305	953
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.2	7.2		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		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
Turning Speed (k/h)	25			15	25	15
Turn Type	Prot			Perm		Perm
Protected Phases	5	2	6		4	
Permitted Phases				6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	7.0	15.0	15.0	15.0	10.0	10.0
Minimum Split (s)	11.0	22.9	30.9	30.9	28.6	28.6
Total Split (s)	34.0	37.9	37.9	37.9	35.6	35.6
Total Split (%)	31.6%	35.3%	35.3%	35.3%	33.1%	33.1%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0	30.0
Yellow Time (s)	3.0	5.9	5.9	5.9	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	7.9	5.6	5.6
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	Min	None	None
Walk Time (s)			7.0	7.0	7.0	7.0
Flash Dont Walk (s)			16.0	16.0	16.0	16.0

Lanes, Volumes, Timings
215: Kingsway & Street A

Friday post-game hour
Total future volumes; signal adjustments



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Pedestrian Calls (#/hr)			0	0	0	0
Act Effect Green (s)	8.7	42.7	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.10	0.50	0.35	0.35	0.35	0.35
v/c Ratio	0.38	0.13	0.81	0.15	0.50	1.05
Control Delay	39.4	11.9	32.0	5.4	25.8	57.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	11.9	32.0	5.4	25.8	57.7
LOS	D	B	C	A	C	E
Approach Delay		21.7	29.8		49.9	
Approach LOS		C	C		D	
Queue Length 50th (m)	11.0	11.0	81.1	0.0	41.0	~113.9
Queue Length 95th (m)	19.7	17.3	110.1	10.1	68.0	#193.1
Internal Link Dist (m)		490.2	588.8		190.8	
Turn Bay Length (m)	150.0			100.0		
Base Capacity (vph)	958	2107	1231	611	616	909
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.11	0.81	0.15	0.50	1.05

Intersection Summary

Area Type: Other

Cycle Length: 107.5

Actuated Cycle Length: 86.2

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 38.1

Intersection LOS: D

Intersection Capacity Utilization 93.4%

ICU Level of Service F

Analysis Period (min) 15

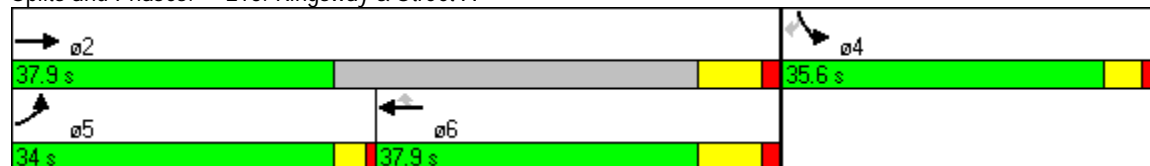
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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
























Queue shown is maximum after two cycles.

Splits and Phases: 215: Kingsway & Street A















Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday post-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	425	75	15	185	5	40	0	20	460	345	805
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (m)	3.6	3.6	3.6	3.6	3.6	2.7	3.6	3.6	3.6	3.6	3.6	3.6
Storage Length (m)	75.0		90.0	30.0		100.0	20.0		0.0	0.0		0.0
Storage Lanes	2		1	1		1	1		0	1		1
Taper Length (m)	60.0		65.0	95.0		60.0	20.0		7.5	7.5		7.5
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.850				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	1770	3539	1425	1770	1583	0	1770	1863	1583
Flt Permitted	0.950			0.464			0.443			0.742		
Satd. Flow (perm)	3433	3539	1583	864	3539	1425	825	1583	0	1382	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87			6		333				590
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		612.8			457.8			763.1			110.6	
Travel Time (s)		27.6			20.6			54.9			8.0	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.95	0.95	0.95
Adj. Flow (vph)	6	494	87	17	215	6	47	0	23	484	363	847
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	494	87	17	215	6	47	23	0	484	363	847
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)		7.2			7.2			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	1.14	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Prot		Perm	pm+pt		Perm	Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2	6		6	8			4		4
Detector Phase	5	2	2	1	6	6	8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	30.0	30.0	5.0	30.0	30.0	8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	9.0	37.9	37.9	9.0	37.9	37.9	27.8	27.8		27.8	27.8	27.8
Total Split (s)	15.0	37.9	37.9	9.0	37.9	37.9	37.8	37.8	0.0	37.8	37.8	37.8
Total Split (%)	16.5%	41.8%	41.8%	9.9%	41.8%	41.8%	41.7%	41.7%	0.0%	41.7%	41.7%	41.7%
Maximum Green (s)	11.0	30.0	30.0	5.0	30.0	30.0	31.0	31.0		31.0	31.0	31.0
Yellow Time (s)	3.0	5.9	5.9	3.0	5.9	5.9	3.6	3.6		3.6	3.6	3.6
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	3.2	3.2		3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.9	7.9	4.0	7.9	7.9	6.8	6.8	4.0	6.8	6.8	6.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	5.0	2.5	5.0	5.0	3.5	3.5		3.5	3.5	3.5
Recall Mode	None	Min	Min	None	Min	Min	None	None		None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0	7.0	7.0		7.0	7.0	7.0

Lanes, Volumes, Timings
220: Kingsway & Levesque St.

Friday post-game hour
Total future volumes; signal adjustments

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		16.0	16.0		16.0	16.0	14.0	14.0		14.0	14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0	0	0		0	0	0
Act Effect Green (s)	5.7	30.3	30.3	34.9	30.1	30.1	31.1	31.1		31.1	31.1	31.1
Actuated g/C Ratio	0.07	0.39	0.39	0.41	0.39	0.39	0.40	0.40		0.40	0.40	0.40
v/c Ratio	0.03	0.36	0.13	0.04	0.16	0.01	0.14	0.03		0.88	0.49	0.86
Control Delay	37.6	18.2	4.8	13.2	16.6	10.6	17.6	0.1		41.8	20.8	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	37.6	18.2	4.8	13.2	16.6	10.6	17.6	0.1		41.8	20.8	17.3
LOS	D	B	A	B	B	B	B	A		D	C	B
Approach Delay		16.4			16.2			11.8			25.1	
Approach LOS		B			B			B			C	
Queue Length 50th (m)	0.4	26.6	0.0	1.4	10.6	0.0	4.3	0.0		64.1	38.9	30.9
Queue Length 95th (m)	2.3	43.5	8.3	4.3	20.4	2.5	12.8	0.0		#144.2	76.1	#135.1
Internal Link Dist (m)		588.8			433.8			739.1			86.6	
Turn Bay Length (m)	75.0		90.0	30.0		100.0	20.0					
Base Capacity (vph)	416	1528	733	408	1370	555	330	833		553	745	987
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.01	0.32	0.12	0.04	0.16	0.01	0.14	0.03		0.88	0.49	0.86

Intersection Summary

Area Type: Other

Cycle Length: 90.7

Actuated Cycle Length: 77.7

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.9

Intersection LOS: C

Intersection Capacity Utilization 99.4%

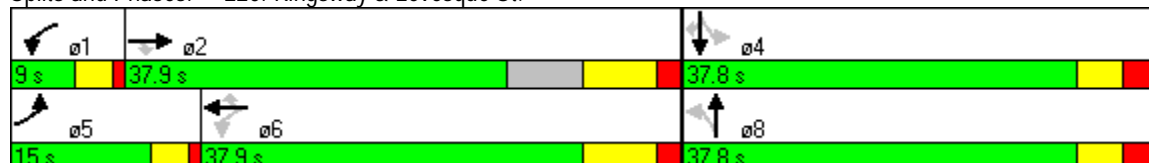
ICU Level of Service F

Analysis Period (min) 15

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

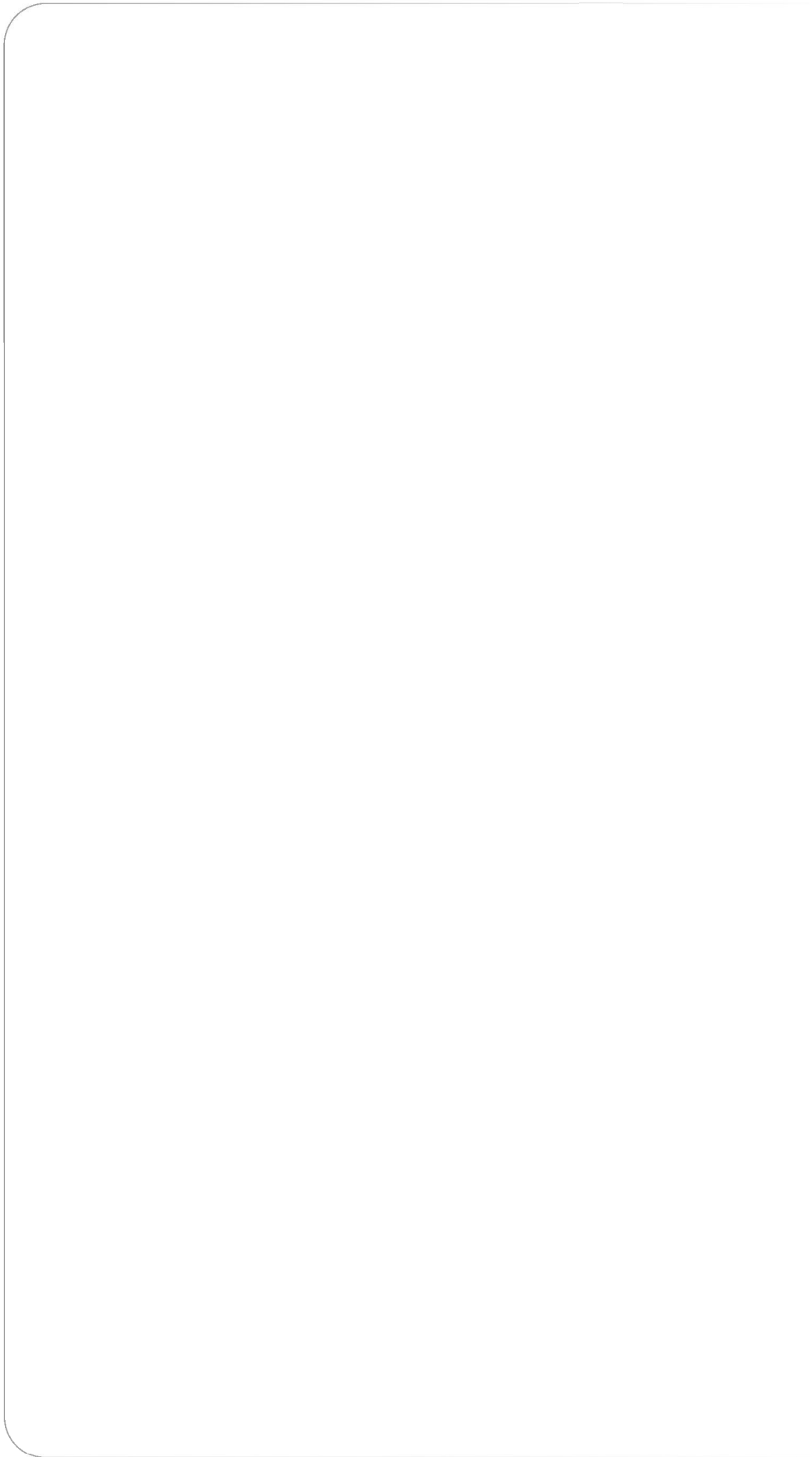
Queue shown is maximum after two cycles.

Splits and Phases: 220: Kingsway & Levesque St.



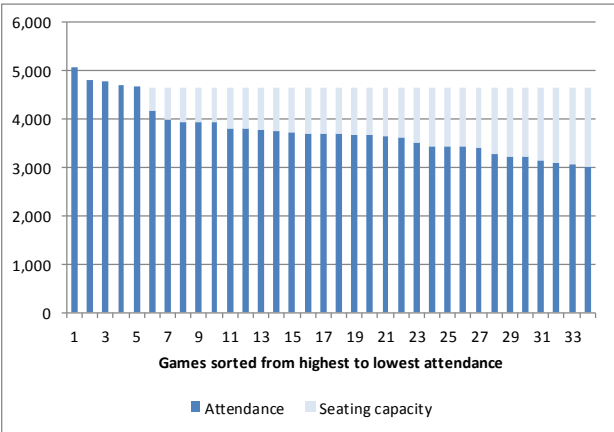
Appendix D

Historical OHL and Sudbury Wolves Attendance Data

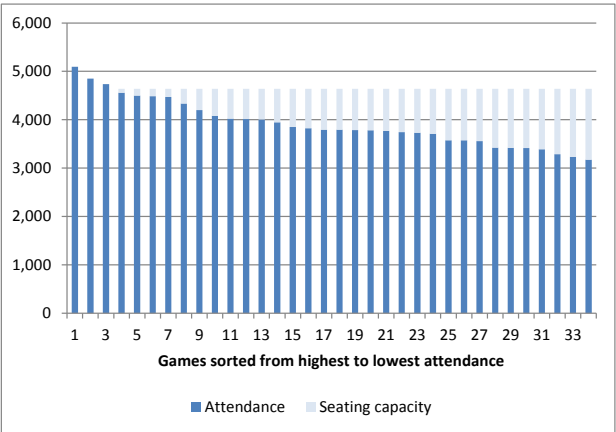


Sudbury Wolves yearly attendance, 2011–12 through 2016–17

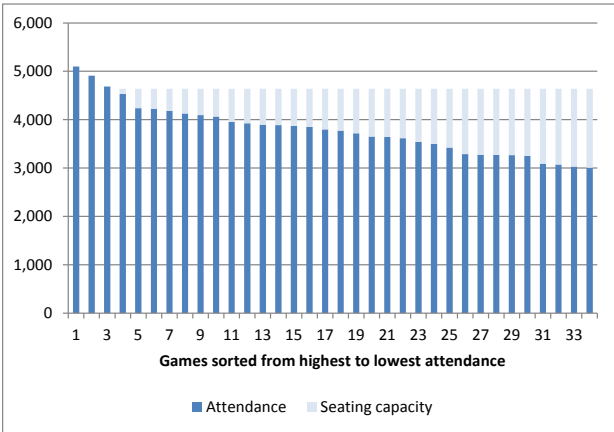
2011-12



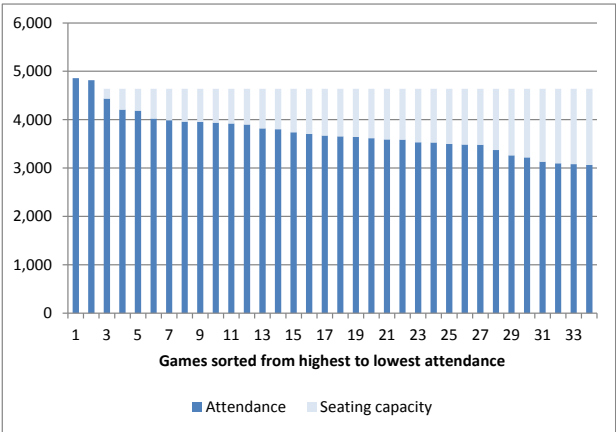
2012-13



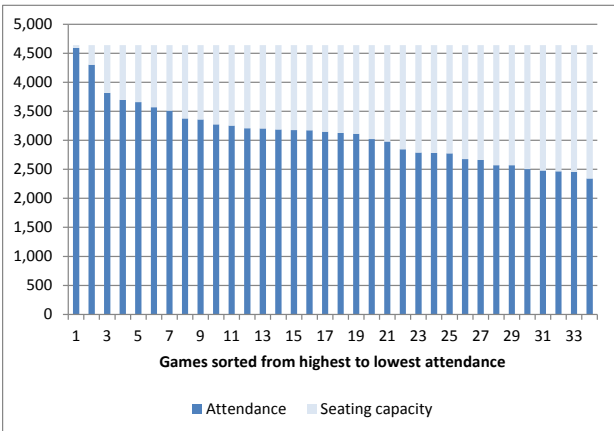
2013-14



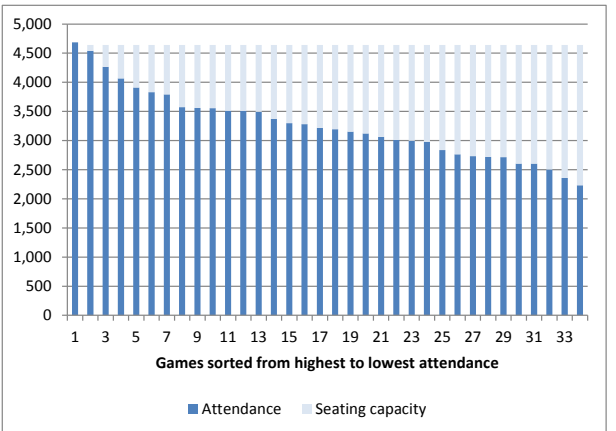
2014-15



2015-16

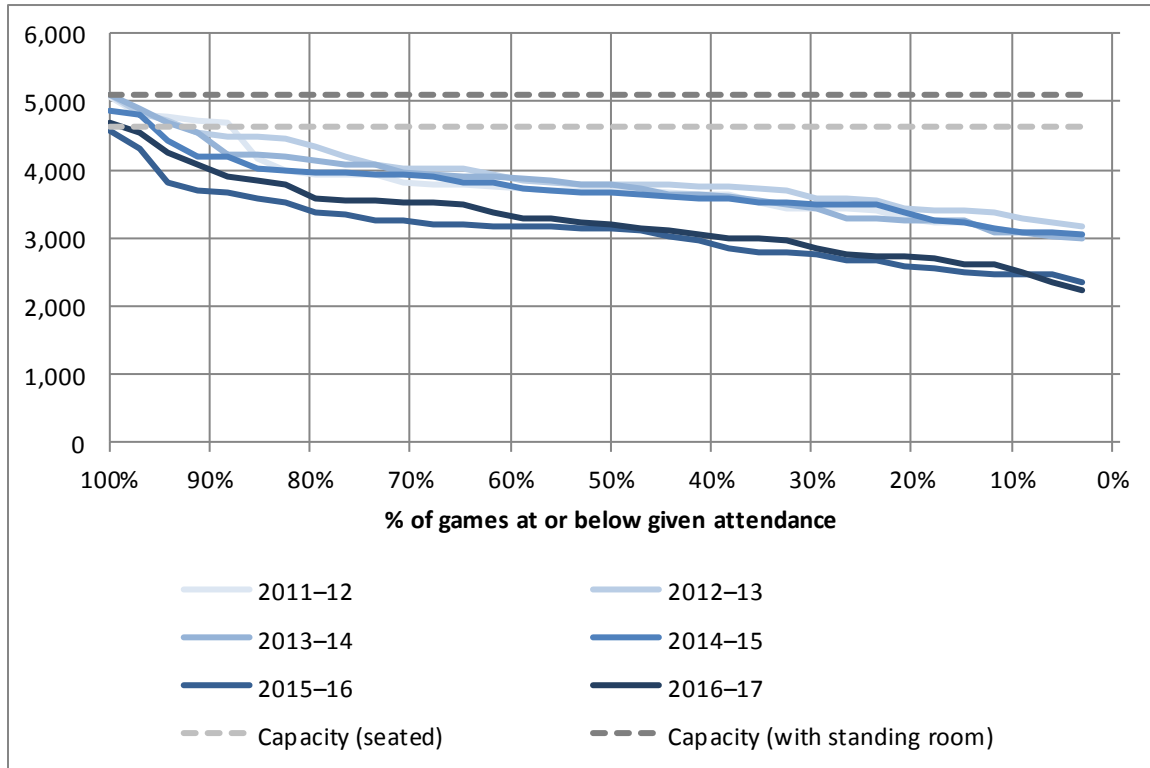


2016-17

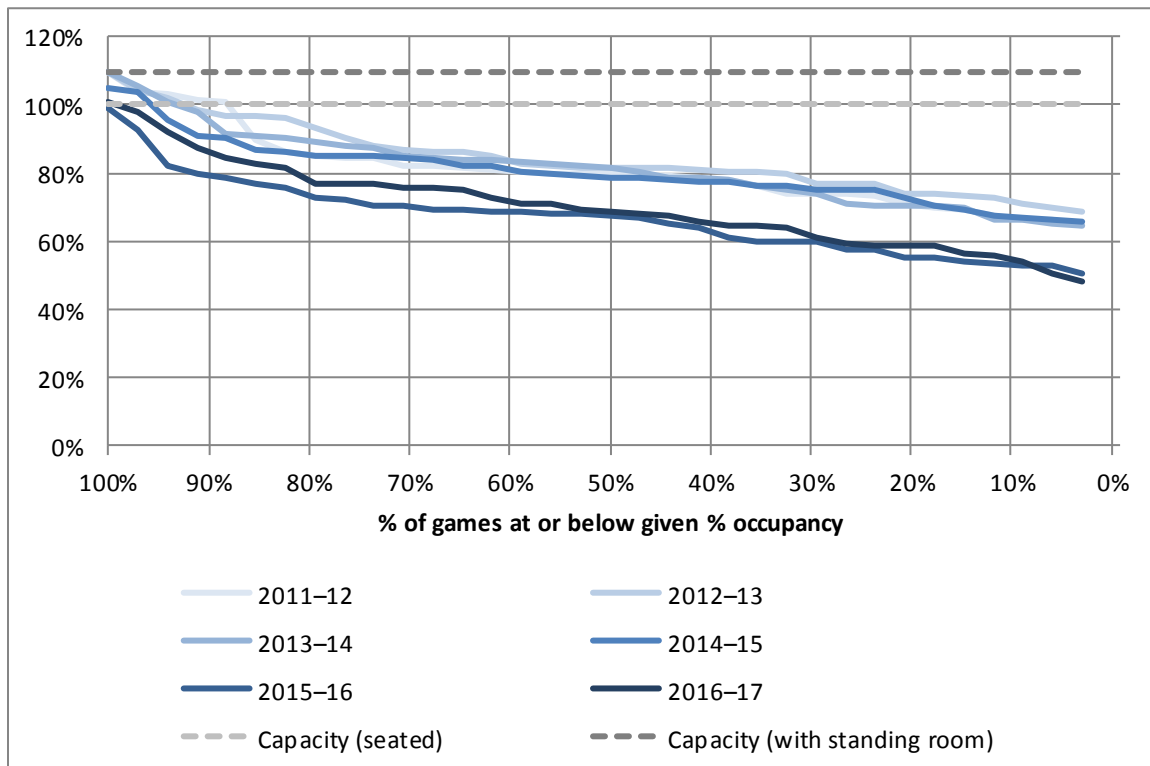


Sudbury Wolves yearly attendance, 2011–12 through 2016–17

Attendance:

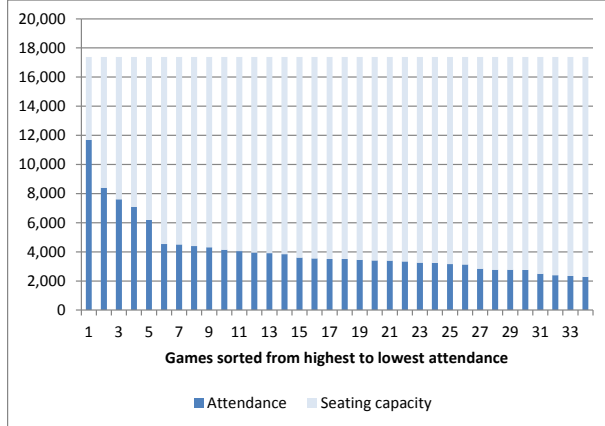


Occupancy (% of seating capacity):

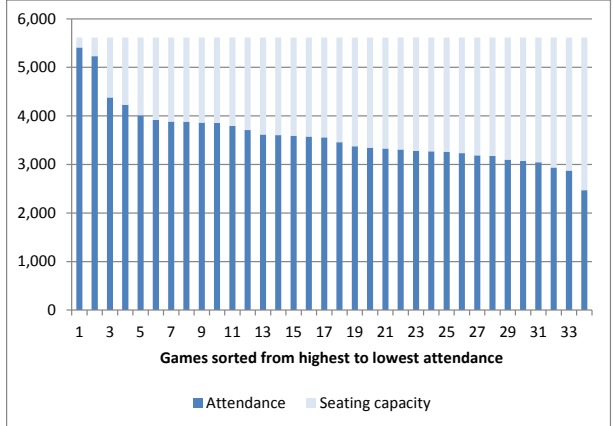


Ontario Hockey League attendance, 2016–17 (East Division)

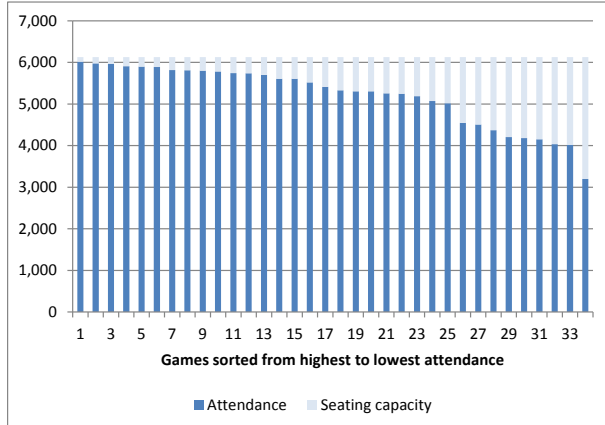
Hamilton Bulldogs



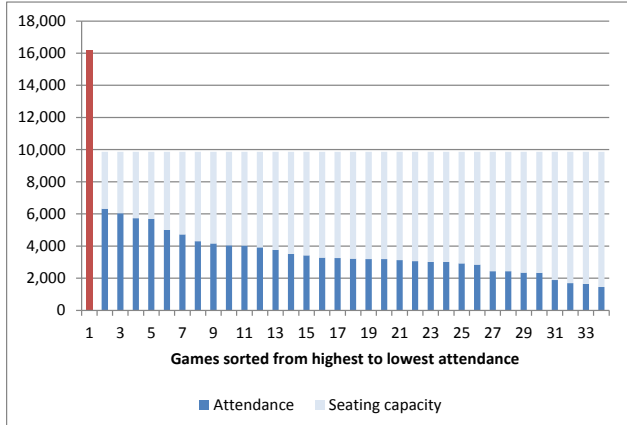
Kingston Frontenacs



Oshawa Generals

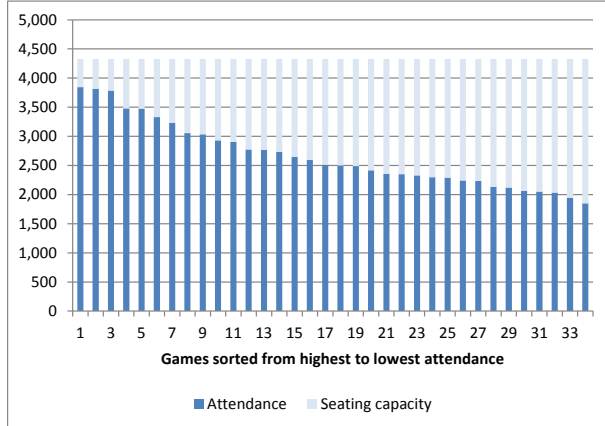


Ottawa 67's



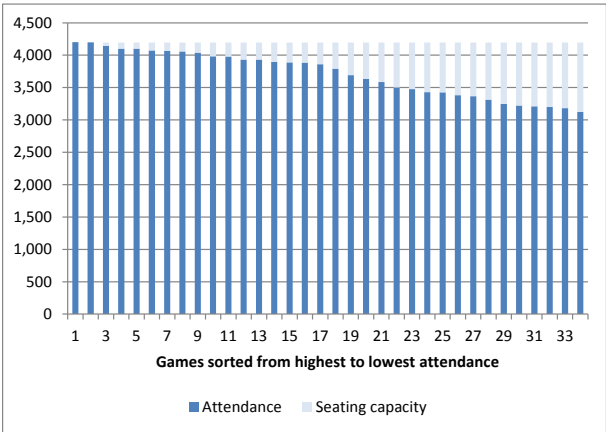
Note: Highest-attendance game was a specially scheduled game played at the Canadian Tire Centre (Ottawa Senators arena).

Peterborough Petes

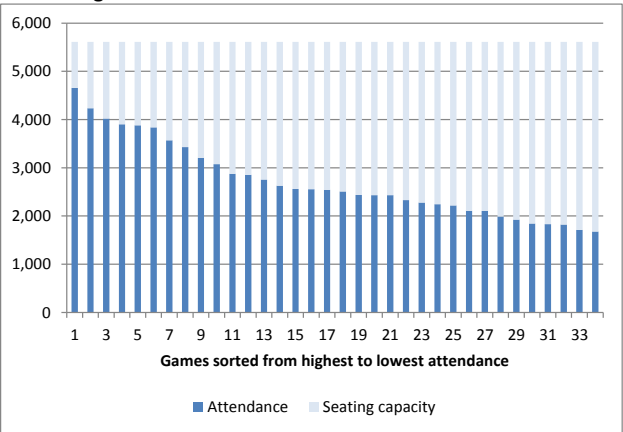


Ontario Hockey League attendance, 2016–17 (Central Division)

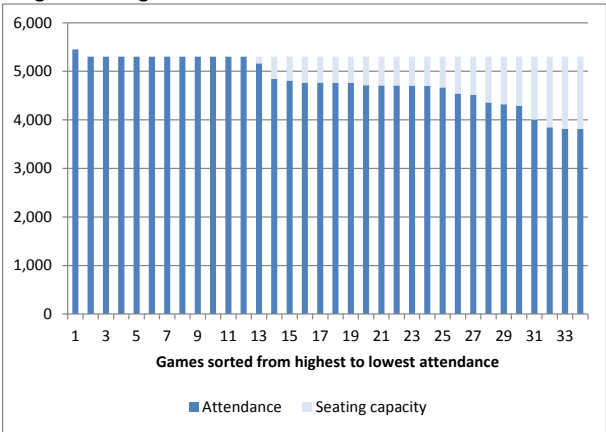
Barrie Colts



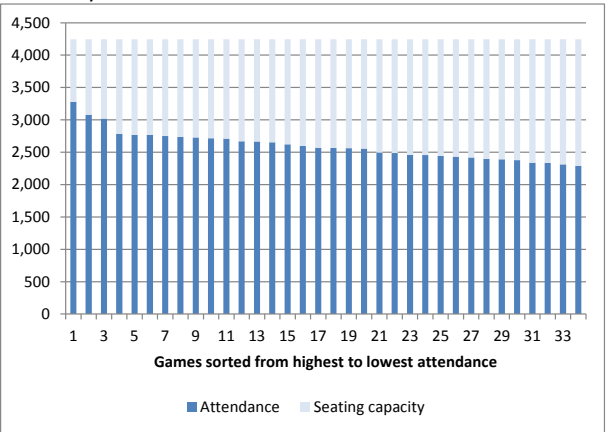
Mississauga Steelheads



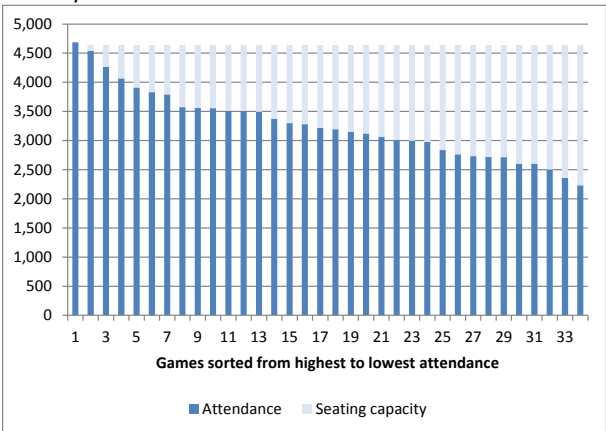
Niagara IceDogs



North Bay Battalion

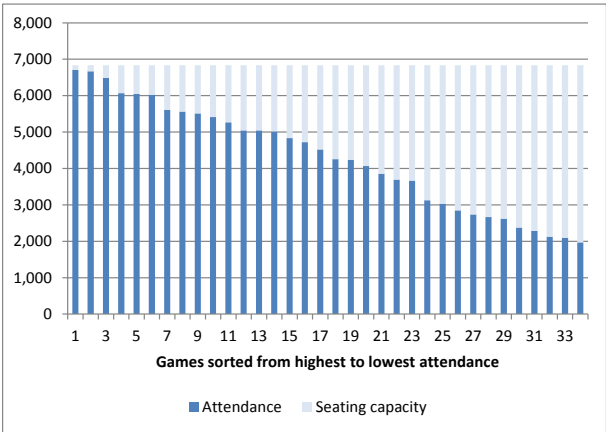


Sudbury Wolves

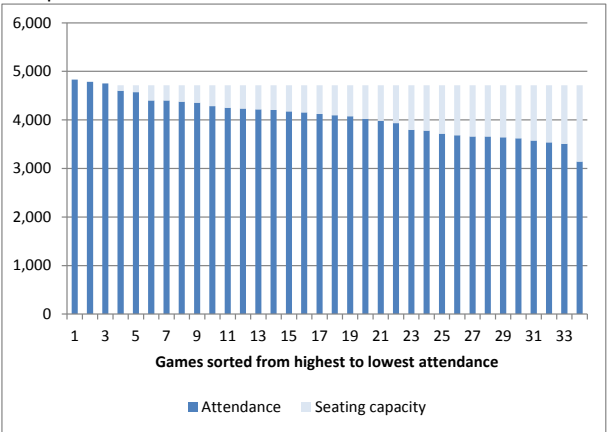


Ontario Hockey League attendance, 2016–17 (Midwest Division)

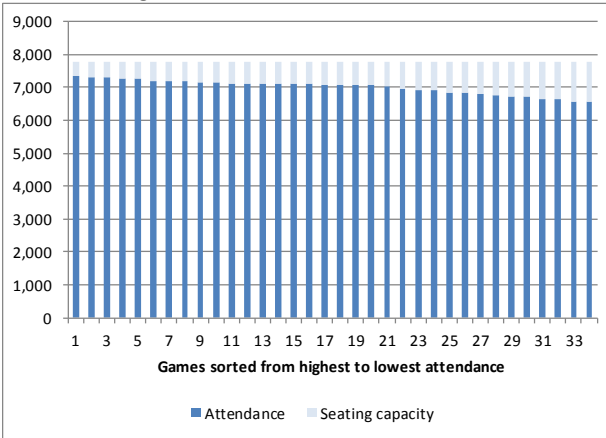
Erie Otters



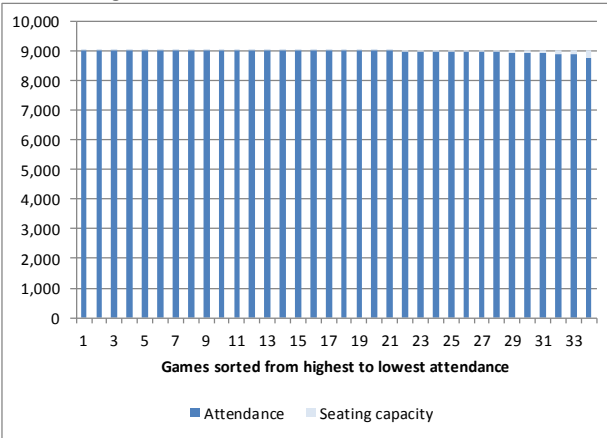
Guelph Storm



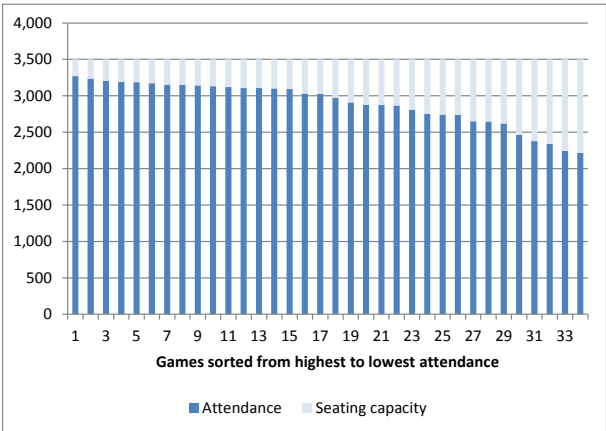
Kitchener Rangers



London Knights

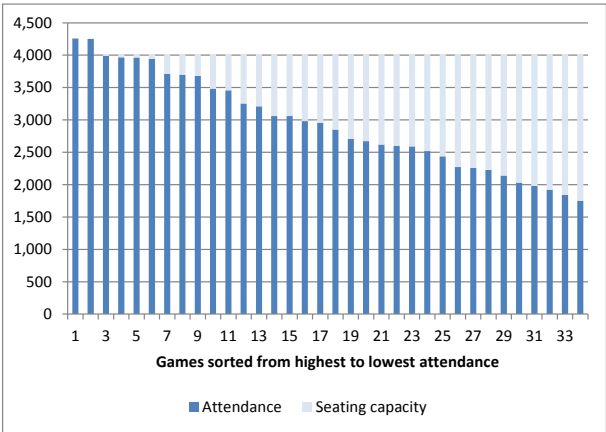


Owen Sound Attack

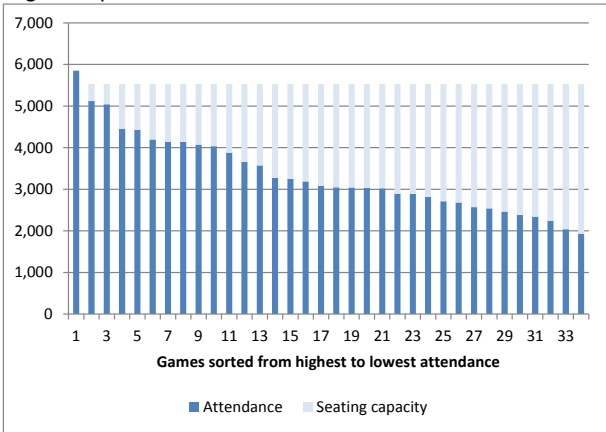


Ontario Hockey League attendance, 2016–17 (West Division)

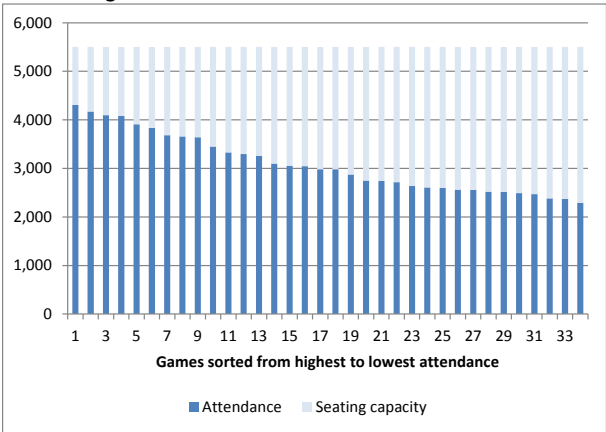
Flint Firebirds



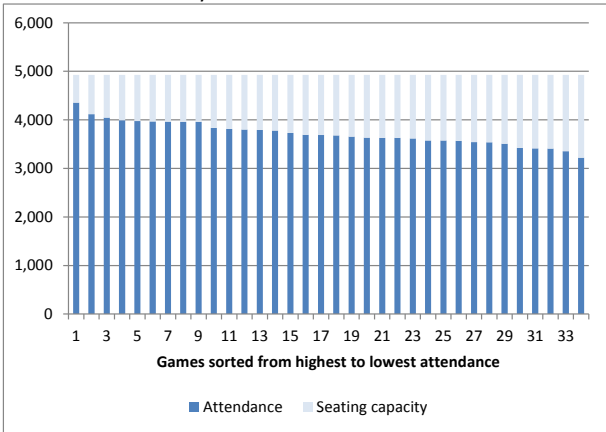
Saginaw Spirit



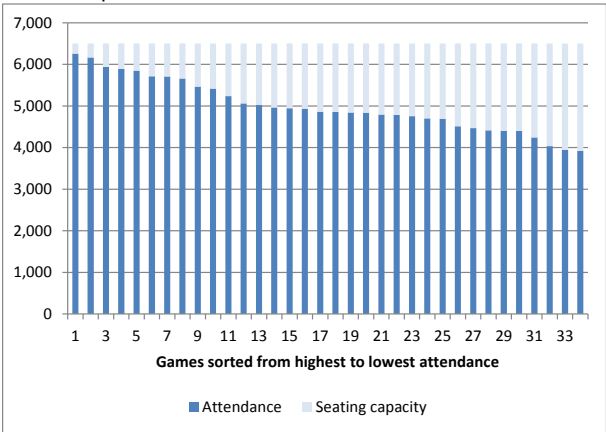
Sarnia Sting



Sault Ste. Marie Greyhounds

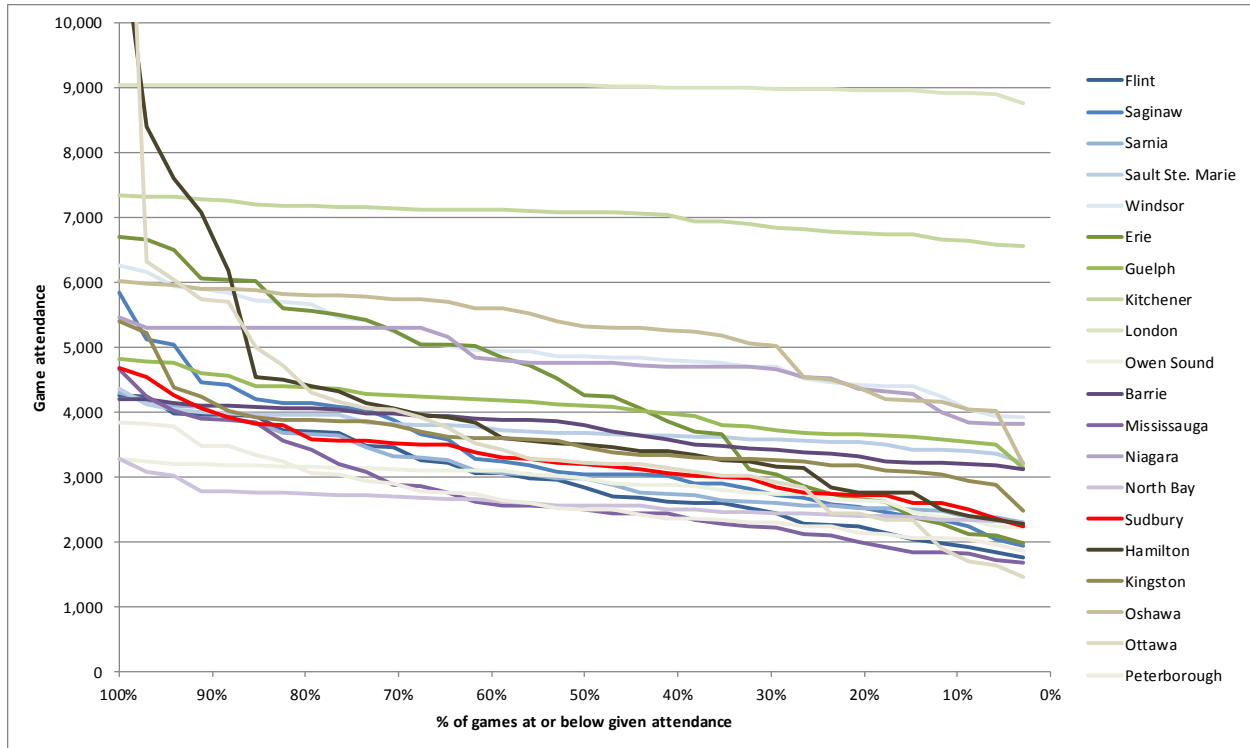


Windsor Spitfires

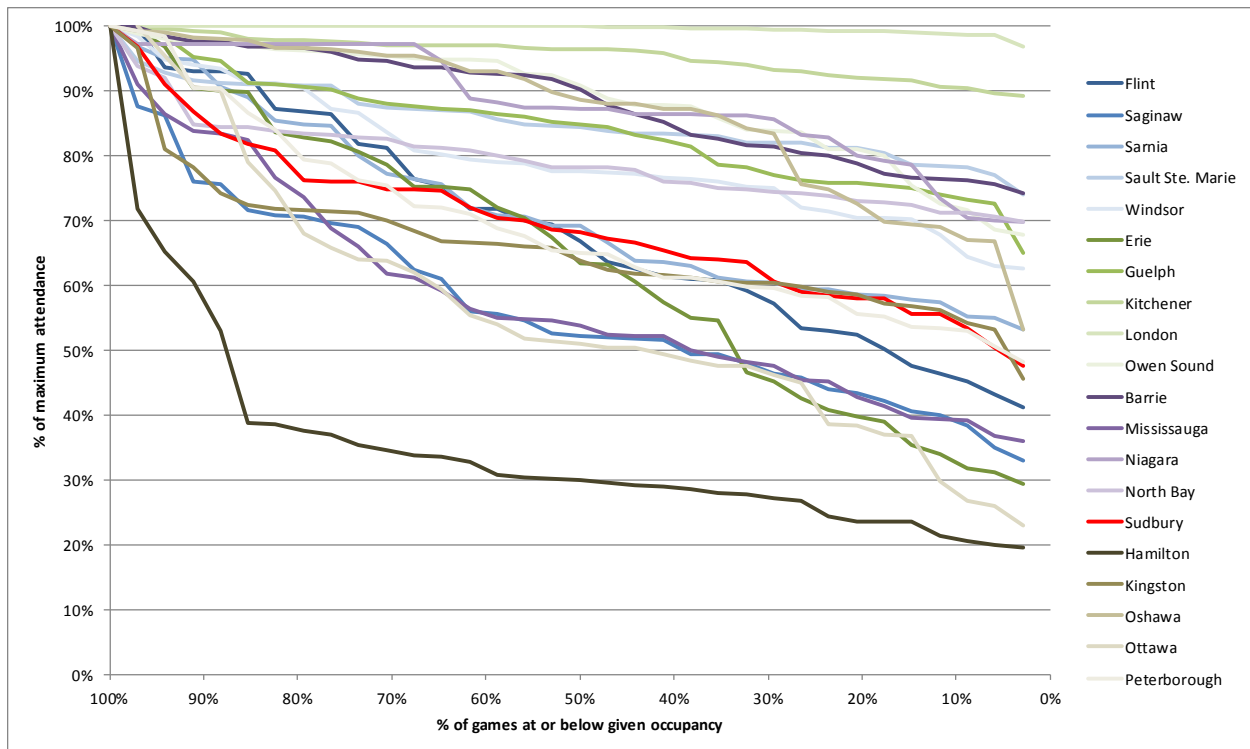


Ontario Hockey League attendance, 2016–17

Attendance:

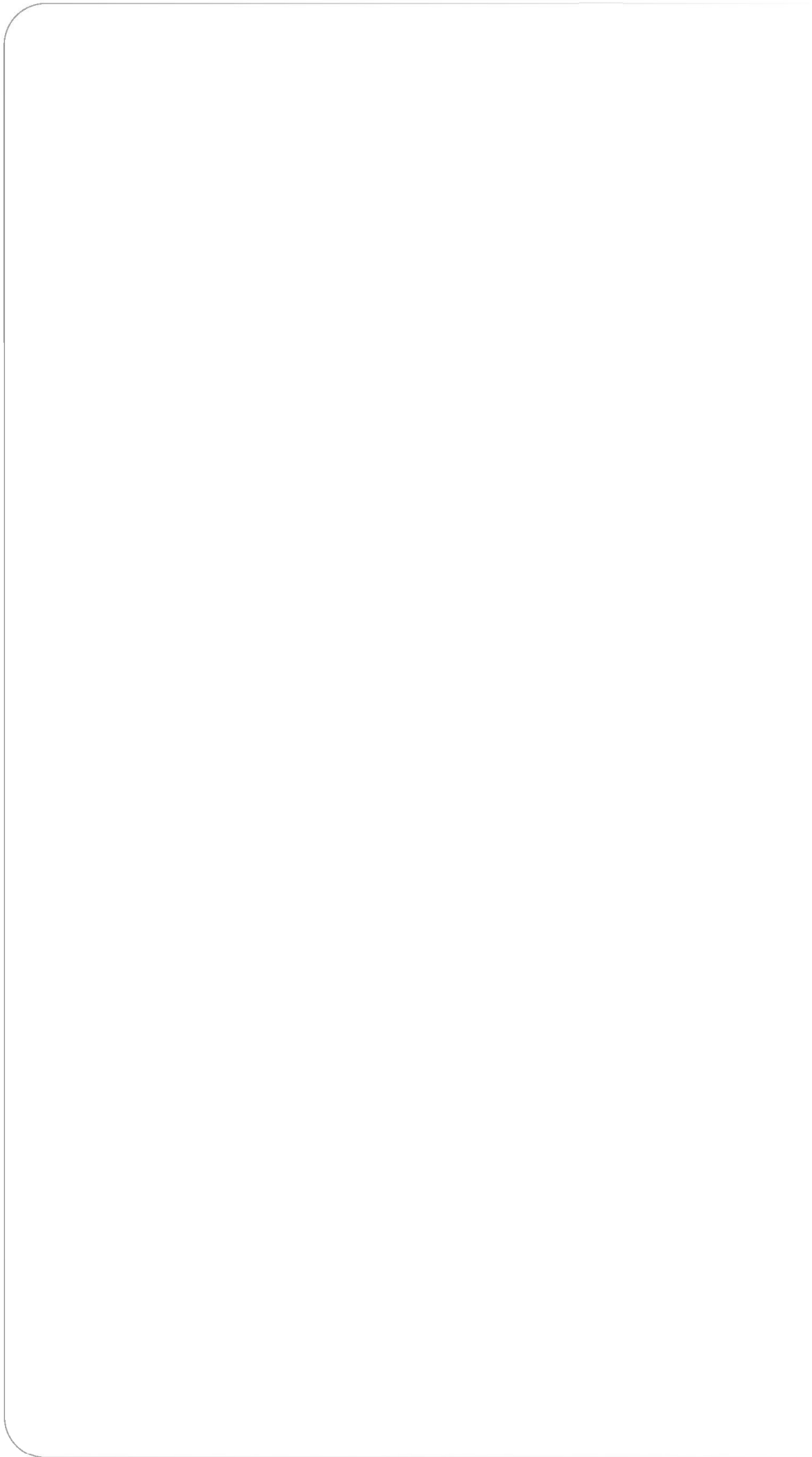


% of highest attendance game:



Appendix E

Hourly Variation in Trip Generation for Office and Residential Land Uses



HOURLY VARIATION IN TRIP GENERATION FOR OFFICE AND RESIDENTIAL LAND USES

By Aaron T. Zimmerman, PTP

Abstract

Following the development of *Trip Generation*, 8th Edition, a call for data was sent out to ITE members soliciting twenty-four hour trip generation data. In response, ITE members submitted hundreds of datasets for not only the land uses discussed in this article, but also for other land uses such as shopping centers, auto dealerships, golf courses, hotels, and daycare centers, among others. Due to the short time frame between completion of the initial data collection portion of this project and development of the most recent edition of *Trip Generation Manual*, twenty-four hour summaries for office and residential land uses were not included in the ninth edition.

This article presents hourly distributions of trip generation for both office and residential land uses. It is intended to supplement the information that is published in the ITE *Trip Generation Manual*, 9th Edition.

Data Collection

This article presents the results of a data collection effort of twenty-four hour trip generation data for office and residential land uses to supplement those currently published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*, 9th Edition. The data reported is intended to assist planners and engineers seeking to project four, eight, twelve, or more than twelve hours of traffic volumes for a signal warrant analysis. Other important uses include conducting trip generation and parking demand analyses of multiple study hours as part of a traffic impact study for multiuse developments. Specifically, developments that are composed of land uses with differing peak hours for entering and exiting traffic, such as office, retail, residential, movie theaters, sports arenas, restaurants, and daycare centers for example. In addition, the hourly variations will be useful for estimating emissions associated with land use developments. The current method for determining hourly traffic distribution for a particular land use typically involves collecting field counts

at a limited number of sites and then making important assumptions about adaptability to the analysis site. The primary goal of this data collection effort was to consolidate twenty-four hour data, collected and submitted for inclusion in ITE's trip generation database, with recently collected datasets. These data were then used to report the average percentage distributions in summary tables making it readily available for all transportation professionals.

Purpose

Most of the hourly datasets analyzed for this study were collected using tube counters and then submitted to ITE on spreadsheets organized in either fifteen-minute or one-hour intervals, typically for each individual driveway serving the site. These newly-collected raw datasets, as well as previously submitted twenty-four hour datasets from the ITE trip generation database, were compiled into spreadsheets in one-hour increments and assigned to the appropriate *Trip Generation Manual* land use codes with guidance from

Table 1: Office Uses Combined

Time	Average Weekday		Average Saturday		Average Sunday	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6–7 a.m.	4.6	0.7	4.1	1.4	1.8	2.4
7–8 a.m.	14.9	1.9	5.4	2.5	3.8	1.2
8–9 a.m.	20.7	3.0	9.1	1.5	6.0	2.9
9–10 a.m.	8.2	3.2	7.2	3.9	6.6	3.8
10–11 a.m.	5.0	3.9	6.8	4.6	9.7	7.5
11–12 p.m.	5.1	8.6	7.1	11.3	8.9	9.6
12–1 p.m.	8.7	10.5	8.1	14.0	6.9	9.1
1–2 p.m.	10.0	6.6	7.3	8.3	8.6	12.0
2–3 p.m.	5.9	6.3	7.6	7.7	6.6	8.2
3–4 p.m.	4.3	9.5	6.0	9.6	4.6	6.3
4–5 p.m.	3.4	15.4	3.1	7.9	5.5	7.5
5–6 p.m.	2.5	16.5	3.2	6.9	3.1	6.7
6–7 p.m.	1.4	5.5	2.5	3.2	3.5	4.1
7–8 p.m.	0.9	2.5	2.0	2.2	2.7	2.9
8–9 p.m.	0.7	1.6	2.4	2.1	3.3	4.3
9–10 p.m.	0.6	1.1	1.4	1.4	3.1	3.1
10 p.m.–6 a.m.	3.2	3.2	16.9	11.4	15.3	8.4

ITE. Once hourly traffic calculations and land use code assignments were verified for accuracy by ITE staff, the average hourly traffic volumes were then summarized into tables as a percentage of the twenty-hour total entering and exiting vehicles from 6:00 a.m. to 10:00 p.m. This range of hours not only represents an expansion of four hours beyond the range of summary data published in previous editions of *Trip Generation* but also the inclusion of the critical morning commuter peak hours. For practical purposes, information was not provided for individual hours in the middle of the night. Instead, percentages for the combined period of 10:00 p.m. to 6:00 a.m. were provided in the last line of the summary tables. Where available, datasets for Saturdays and Sundays were also tabulated and summarized.

Office Land Uses

There were a total of 38 combined site observations for average weekday data, and five sites observed for each of Saturday and Sunday. The datasets were initially analyzed for each of three office land uses

separately—General Office Building (710), Corporate Headquarters (714), and Office Park (750)—but due to the similarities in hourly distributions, it was determined that a combined summary table would provide a more robust and accurate depiction of hourly variations in traffic for general office uses. As expected, ingress traffic tended to be highest in the morning commuter period as office employees arrive for work, while egress traffic tended to be highest during the evening commuter period as office employees leave work for home. There was also a noticeable spike in the middle of the day due to office workers leaving and returning from lunch. The size of office developments analyzed ranged from 10,000 to 903,000 square feet. Based on the analysis conducted, it is noted that size of the office development had no discernible impact on the hourly distribution throughout the day.

Residential Land Uses

There were a total of 40 combined site observations for average weekday data, 36 site

observations for average Saturday data, and 35 site observations for average Sunday data compiled for all residential land uses. Analysis of individual residential uses indicated that the general trip generation characteristics throughout the day were noticeably different between traditional residential uses (i.e., apartment, single family home, townhomes, condominiums) and senior-oriented residential uses (i.e., senior-attached, senior-detached, continuing care). Therefore, two separate and distinct summary tables combining similar types of residential uses (senior-oriented facilities only and non-senior residential only) were developed, as shown in Tables 2 and 3. As expected, the traditional residential uses generate a large egress of traffic during the weekday morning commuter rush hours and a similarly large ingress during the evening commuter peak hours. Contrarily, the largest ingress/egress period for senior-oriented residential uses tended to occur after the morning commuter peak hours and before the evening peak hours. The sizes of traditional residential uses

Table 2: Residential Uses Combined – Excluding Senior-Oriented Facilities

Time	Average Weekday		Average Saturday		Average Sunday	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6–7 a.m.	1.6	5.7	1.1	2.1	0.9	1.9
7–8 a.m.	2.5	9.0	1.8	3.6	1.6	3.3
8–9 a.m.	3.7	9.1	2.8	5.6	2.6	4.7
9–10 a.m.	3.7	6.5	4.4	7.3	3.5	6.8
10–11 a.m.	4.1	5.5	5.6	7.7	6.3	7.5
11–12 p.m.	4.5	5.7	6.9	7.5	6.4	9.5
12–1 p.m.	5.3	5.3	6.6	7.8	6.9	7.6
1–2 p.m.	5.4	5.7	7.1	6.9	7.2	7.4
2–3 p.m.	6.5	5.9	7.1	6.7	7.2	6.6
3–4 p.m.	8.1	6.3	7.4	6.1	7.3	6.6
4–5 p.m.	9.8	6.3	8.5	5.9	8.0	6.7
5–6 p.m.	10.8	6.5	8.6	6.3	7.3	6.9
6–7 p.m.	8.5	5.1	6.4	6.0	5.8	5.1
7–8 p.m.	5.9	4.9	5.2	4.9	5.5	4.1
8–9 p.m.	5.1	3.4	4.2	3.6	4.6	3.3
9–10 p.m.	4.2	2.3	3.8	2.6	4.3	2.7
10 p.m.–6 a.m.	10.3	5.6	12.4	9.3	14.6	9.4

Table 3: Residential Uses Combined—Senior-Oriented Facilities Only

Time	Average Weekday		Average Saturday		Average Sunday	
	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic	Percent of 24-Hour Entering Traffic	Percent of 24-Hour Exiting Traffic
6–7 a.m.	3.6	2.0	4.0	1.3	3.7	1.5
7–8 a.m.	5.4	4.5	3.2	3.8	2.8	3.8
8–9 a.m.	6.5	5.8	3.3	3.6	2.9	4.4
9–10 a.m.	6.0	7.5	5.0	6.1	4.1	5.6
10–11 a.m.	7.3	8.0	7.5	7.1	7.6	6.6
11–12 p.m.	8.2	6.8	8.9	8.1	8.2	5.8
12–1 p.m.	8.2	7.7	8.0	7.3	8.6	6.8
1–2 p.m.	7.7	8.0	7.5	7.3	8.2	7.6
2–3 p.m.	8.8	8.0	8.6	7.7	9.5	9.6
3–4 p.m.	9.9	9.6	11.1	11.3	10.5	11.5
4–5 p.m.	6.7	7.6	6.6	7.3	6.8	7.4
5–6 p.m.	4.7	6.5	4.8	5.1	5.6	6.1
6–7 p.m.	3.9	4.4	4.4	3.9	5.2	4.7
7–8 p.m.	4.0	5.0	5.3	6.5	5.0	6.1
8–9 p.m.	3.0	3.1	3.9	4.6	4.3	4.9
9–10 p.m.	1.7	1.6	2.0	2.7	2.0	2.5
10 p.m.–6 a.m.	4.3	3.9	5.7	6.3	4.9	5.1

ranged from 46 to 1,248 dwelling units, and the sizes of senior-oriented developments analyzed ranged from 28 to 2,238 dwelling units. As with the office land use data, smaller and larger sized residential communities generally had similar hourly distributions.

The time-of-day summary tables reported both in this article and in the ninth edition should be used only as a reference. Professional judgment should be exercised with regard to the limited number of site observations, utilizing data for the hours after 10:00 p.m., and in situations where peak hour data may not fit perfectly with the distributions provided. As explained in *Trip Generation Handbook*, 3rd Edition, time-of-day data should not be used to determine peak hour traffic volumes. Instead, peak hour volumes should be estimated by using the standard regression analysis and data plots presented for each land use code in *Trip Generation Manual*. Also note that the percentages in the summary tables do not add up to 100 percent due to rounding. [itej](#)

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Note

The twenty-four hour distribution of trip generation for office and residential land uses presented in the summary tables contained in this article are the result of an effort to develop and provide a useful tool that can be directly applicable to the work done daily by transportation professionals. Although the summary tables provided in this article and in the ninth edition cover a large share of the land uses most regularly analyzed by transportation professionals, the author strongly encourages readers to submit time-of-day trip generation data to ITE to improve the robustness of exist-

ing twenty-four hour distribution summaries and to allow summaries for additional land use codes to be established in future editions of Trip Generation Manual. Time-of-day trip generation data can be submitted to ITE by completing the “Data Collection Form” located at www.ite.org/tripgeneration/index.asp.



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