

# TRAFFIC IMPACT ASSESSMENT FOR 2950-2960 BANK STREET, BLOSSOM PARK CENTRE STEP 4 – ANALYSIS REPORT



Project No.: OCP-17-0565 2950-2960 Bank Street, Blossom Park Centre

**Prepared for:**

Allan Goulding  
Realty Works Ltd.  
Realtyworksltd.al@gmail.com  
416-385-3648 ext.221

**Prepared by:**

McIntosh Perry Consulting Engineers Ltd.  
115 Walgreen Road  
Carp, ON  
K0A 1L0

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## 1.0 SCREENING FORM

The following section describes the initial assessment of the proposal with respect to the Traffic Impact Assessment (TIA) Screening Form and will provide reasoning for potential triggers. The TIA screening form has been attached in [Appendix A](#).

### 1.1 Trip Generation Triggers

Trip generation was calculated in accordance with the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10<sup>th</sup> Edition. The client provided clarification regarding the various land use types that is expected in the development. Preliminary calculations suggested that the development would generate 134 trips in the AM peak and 155 trips in the PM peak hour. This satisfies the 60-trip end threshold outlined in the City's TIA guidelines. As such, the criteria for a trip generation trigger has been met. Furthermore, the development is anticipated to exceed the minimum development size threshold for fast-food restaurant, 100m<sup>2</sup>, as well as destination retail, 1000m<sup>2</sup>, as listed in the Screening Form. As such, the criteria for a trip generation trigger has been met.

Further detailed trip generation calculations that include on-site synergy reductions, and pass-by trips was performed. [Section 7.1](#) summarizes the calculations and assumptions used in the trip generation.

### 1.2 Location Triggers

The development is in a General Urban area and is deemed to be a Design Priority Area (DPA) due to its location on an Arterial Mainstreet as identified on Schedule B of the City of Ottawa's Official Plan. The development falls within the South Keys to Blossom Park, Bank Street Secondary Plan area. As such, the criteria for a location trigger has been met.

### 1.3 Safety Trigger

The development is expected to make use of three existing entrances. Two fronting onto a side street, Queensdale Avenue, which shares a signalized intersection with the adjacent arterial, Bank Street, at the northeast corner of the development. The third entrance is currently a right-in, right-out (RIRO) entrance that fronts onto Bank Street, approximately 130m to the south of the signalized intersection at Bank Street and Queensdale Avenue. The development also plans to have two drive-throughs for fast-food restaurants. As such, the criteria for a safety trigger has been met.

## 2.0 DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development will be located at 2950-2960 Bank Street. The date of build-out is expected to be 2021, and full occupancy for this proposed development is anticipated to occur in 2021, with the build-out



expected to be completed in a single phase. Figure 2.1 below, shows the location of the proposed development subject lands and surrounding area.

Figure 2.1: Proposed Development Site



The proposed development is situated on a 58,674m<sup>2</sup> lot, which is zoned as an Arterial Mainstreet with subzone code of AM1 H(30) according to Ottawa's zoning by-law 2008-250. Permitted uses include retail, service commercial, offices, residential and institutional uses. Other provisions regarding setback, building height and landscaped area can be found in [Appendix B](#). (Ottawa Official Plan, Volume 1, Section 3.6.3)

There are two buildings proposed, with the total building area expected to be 1,668 m<sup>2</sup> (17,950 ft<sup>2</sup>). The breakdown of specific uses in each building is summarized in [Table 2.1](#). A site plan has been provided in [Appendix C](#). The total lot will provide 544 parking spaces, with 21 accessible parking spots, and 46 bicycle parking spots.



The site is to be serviced by the three existing entrances. There are neither proposed changes to existing entrances, nor any new proposed entrances. Two full-moves accesses are located along Queensdale Avenue, and one RIRO entrance is located along Bank Street, approximately 130m south of the signalized intersection at Bank Street and Queensdale Avenue.

**Table 2.1: Proposed Land Use Breakdowns**

BUILDING A			
Description	Development Area (ft <sup>2</sup> )	Associated ITE Land Use Description	Land Use Code (LUC)
Drive-Through Facility	1,490	Fast-Food Restaurant with Drive-Through Window	933
Retail Use (4 storefronts)	5,960	Shopping Center	820
Building A TOTAL	7,450 ft <sup>2</sup>		
BUILDING B			
Description	Development Area (ft <sup>2</sup> )	Associated ITE Land Use Description	Land Use Code (LUC)
Drive-Through Facility	1,500	Fast-Food Restaurant with Drive-Through Window	933
Retail Use (6 storefronts)	9,000	Shopping Center	820
Building B TOTAL	10,500 ft <sup>2</sup>		
Development TOTAL	17,950 ft <sup>2</sup>		

The site is expected to generate 68 trips during the AM peak hour, and 78 trips during the PM peak hour. Both on-site synergy and pass-by trips have been considered. Further details on the trip generation calculations and assumptions can be found in [Section 7.1 – Trip Generation](#).

## 3.0 EXISTING ROADWAYS

The following outlines the existing site characteristics and a summary of the expected development transportation conditions.

### 3.1 Roadways

This section documents the existing roadways in the study area, their jurisdiction, classification, number of lanes and speed limits.

- Bank Street is an existing north-south arterial roadway which extends from downtown Ottawa to the north, becoming County Road 31 to the south in the United Counties of Stormont, Dundas and Glengarry. South of Queensdale Avenue, Bank Street has a 4-lane cross section including auxiliary lanes, and paved asphalt shoulders. North of Queensdale Avenue, Bank Street has a 5-lane cross section including a center two-way left turn lane, and pedestrian sidewalks on both sides of Bank Street with an asphalt boulevard. The speed limit of Bank Street is 60km/h, which has a transition to 80km/h at the southern limit of the lot in question.
- Albion Road is an existing north-south collector roadway which extends from Johnston Road to the north, where it is cut off by the Walkley Yard, currently owned by Canadian Pacific (CP) Railway. To the south, the roadway terminates at Mitch Owens Road, along the northern limit of Greely. Albion Road has a two lane cross section with paved shoulder for cyclists on both sides and pedestrian sidewalks on both sides. The speed limit of Albion Road is a posted 50km/h.
- St. Bernard Street / D'Aoust Avenue is an existing east-west collector roadway which extends from Albion Road to the west, and Sixth Street to the east. St. Bernard Street is located to the east of Bank Street, has a two lane cross section with asphalt boulevard on the south side only. St. Bernard Street has a posted 40km/h speed limit. D'Aoust Avenue is located to the west of Bank Street, has a two lane cross section with pedestrian sidewalks on both sides. D'Aoust Avenue has a posted speed limit of 40km/h.
- Rosebella Avenue is an existing east-west local roadway which extends from Albion Road in the west to Conroy Road in the east. The roadway serves two-way, two-lane traffic and has speed humps along its length. There is no sidewalk, however there is an asphalt boulevard. The speed limit of Rosebella Avenue is 40km/h.
- Kingsdale Avenue is an existing east-west local roadway which extends from Albion Road in the west to Conroy Road in the east. The roadway serves two-way, two-lane traffic and has speed humps along its length. There is no sidewalk, however there is an asphalt boulevard. The speed limit of Kingsdale Avenue is 40km/h.
- Queensdale Avenue is an existing east-west local roadway which extends from Albion Road in the west to Conroy Road in the east. The roadway serves two-way, two-lane traffic and has speed humps along its length. To the west of the proposed site, there are sidewalks on both sides of Queensdale Avenue. To the east, there is no sidewalk, but there is an asphalt boulevard. The speed limit of Queensdale Avenue is 40km/h.
- Lester Road is an existing east-west arterial-collector roadway which extends from Uplands Drive to the west, and Conroy Road to the east. The road is classified as an arterial roadway to the west of Bank Street, and a collector roadway to the east. The roadway serves two-lane, two-way traffic with auxiliary lanes at intersections. The roadway does not have any sidewalks, but only paved asphalt shoulders of varying widths. The speed limit of Lester Road is 80km/h.

### 3.2 Intersections

This section documents the existing intersections within the study area, their control type, lane configurations, turning restrictions, and any other relevant data. The following three intersections were identified within the study area:

- Bank Street & St. Bernard Street / D'Aoust Avenue
- Bank Street & Rosebella Avenue
- Bank Street & Kingsdale Avenue
- Bank Street & Queensdale Avenue
- Albion Road & Queensdale Avenue
- Bank Street & Lester Road

Bank Street & St. Bernard Street / D'Aoust Avenue is a four-leg, signalized intersection. **Figure 3.2.1** illustrates the intersection.

*Figure 3.2.1: Bank Street & D'Aoust Avenue / St. Bernard Street*



- Auxiliary lanes for left turns from Bank Street onto St. Bernard Street / D'Aoust Avenue
- Pedestrian pushbuttons and crosswalks on all approaches.

Bank Street and Rosebella Road is a four-leg, signalized intersection. **Figure 3.2.2** illustrates the intersection.



Figure 3.2.2: Bank Street & Rosebella Avenue



- Auxiliary lanes for left turns from Bank Street onto Rosebella Avenue.
- Pedestrian signals and crosswalks on all intersection approaches. Pushbuttons provided for crossing Bank Street.

Bank Street and Kingsdale Avenue is a four-leg, unsignalized, two-way stop controlled (TWSC) intersection. Figure 3.2.3 illustrates the intersection.

Figure 3.2.3: Bank Street & Kingsdale Avenue



- Auxiliary lanes for left turns from Bank Street onto Kingsdale Avenue.



Bank Street and Queensdale Avenue is a four-leg, signalized intersection. Figure 3.2.4 illustrates the intersection.

Figure 3.2.4: Bank Street & Queensdale Avenue



- Auxiliary lanes for left turns from Bank Street onto Queensdale Avenue. Channelized right turn on southbound Bank Street onto westbound Queensdale Avenue.
- Pedestrian signals and crosswalks on all intersection approaches. Pushbuttons for all approaches.

Albion Road and Queensdale Avenue is a three-leg, unsignalized T-intersection. Traffic on all approaches are stop-controlled. Figure 3.2.5 illustrates the intersection.

Figure 3.2.5: Albion Road & Queensdale Avenue





- Pedestrian crosswalks on the north leg across Albion Road, and the east leg across Queensdale Avenue.
- No auxiliary lanes

Bank Street and Lester Road is a four-leg, signalized intersection. Figure 3.2.6 illustrates the intersection.

Figure 3.2.6: Bank Street & Lester Road



- Auxiliary left turn lanes on all approaches. Auxiliary right turn lanes only on Bank Street.
- Pedestrian signals and crosswalks on all intersection approaches. Pushbuttons provided for crossing Bank Street.

### 3.3 Existing Driveways

This section documents the existing driveway entrances within 200m of the proposed site access. Review of the local area identifies four commercial driveways and nine private residential driveways. Figure 3.3.1 illustrates the driveway locations.

Of the four commercial driveways, three front onto Bank Street, and one fronts onto Queensdale Avenue. The three driveways fronting onto Bank Street are for a self storage facility, a Tim Hortons, and an automotive dealership. The commercial driveway on Queensdale Avenue is an entrance to the Blossom Park pharmacy. There are currently no turning restrictions at any of the identified driveways.

Figure 3.3.1: Adjacent Driveways

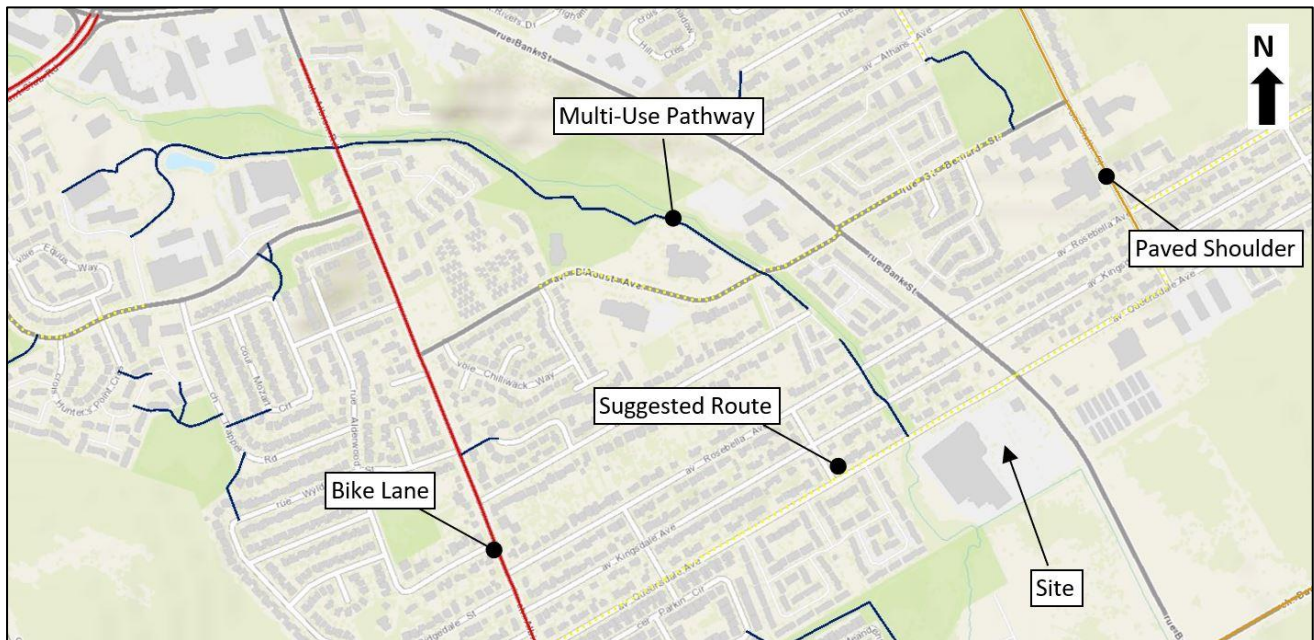


### 3.4 Existing Multi-Use Pathway Networks

Within the study area, there is a multi-use pathway that runs parallel with Bank Street to the west from Queensdale Avenue up to Hunt Club Road. Furthermore, Bank Street itself is classified as a spine route in the City's official plan. Queensdale Avenue from Albion Road to Sixth Street, east of Bank Street, is a suggested route under the City's existing cycling network. Similarly, Rosebella Avenue is also defined as a suggested route from Sixth Street easterly to Conroy Road. To the west, Albion Road has bike lanes and sidewalks on both sides of the roadway. To the east, Sixth Street has a paved shoulder to accommodate both cyclists and pedestrians.



Figure 3.4.1: Multi-use Pathways Near Site

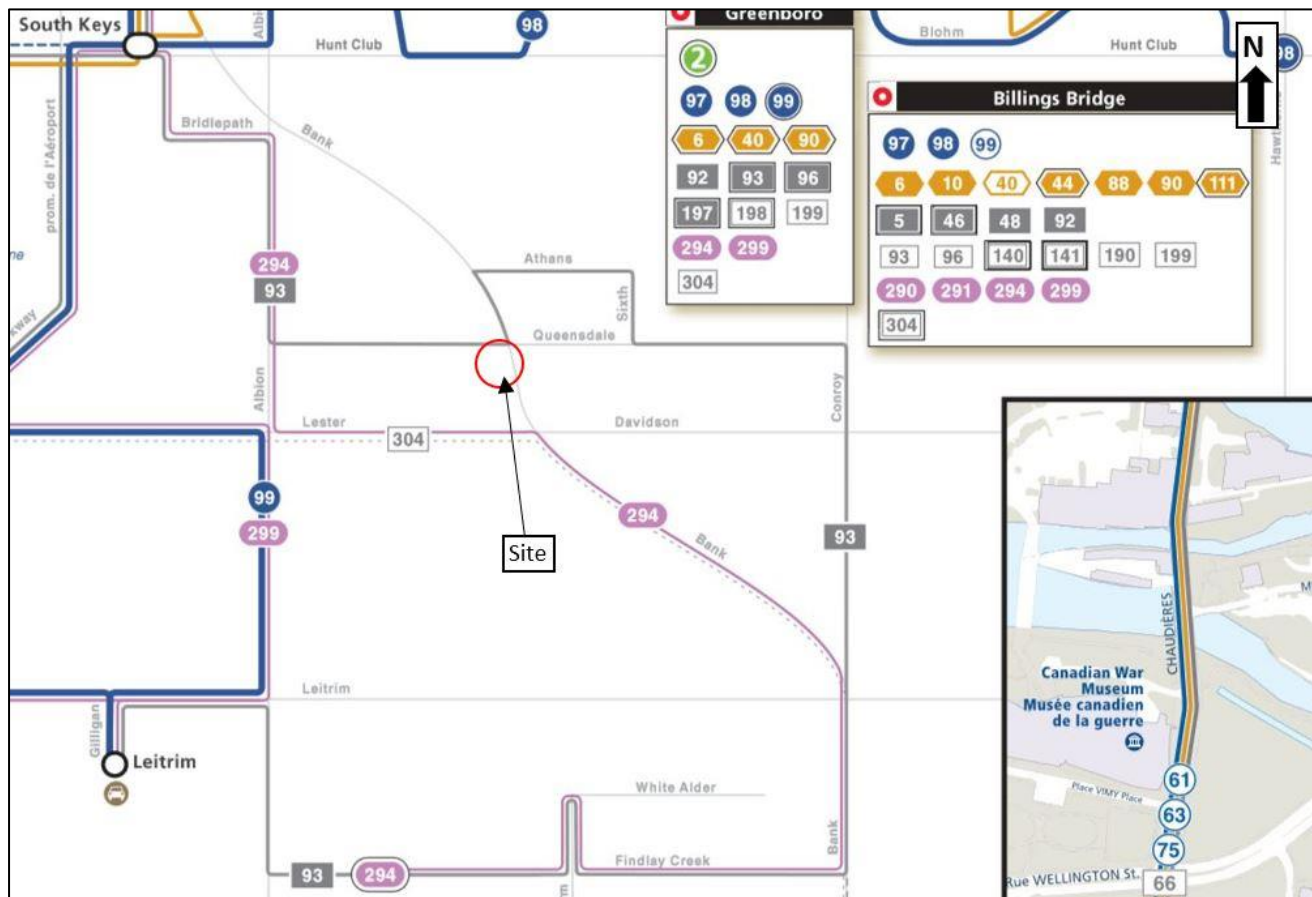


### 3.5 Existing Transit System

This section documents the existing transit network within the surrounding area. Figure 3.5.1 illustrates the existing bus routes that operate within the vicinity of the proposed site.

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Figure 3.5.1: Bus Routes within the Development Boundary

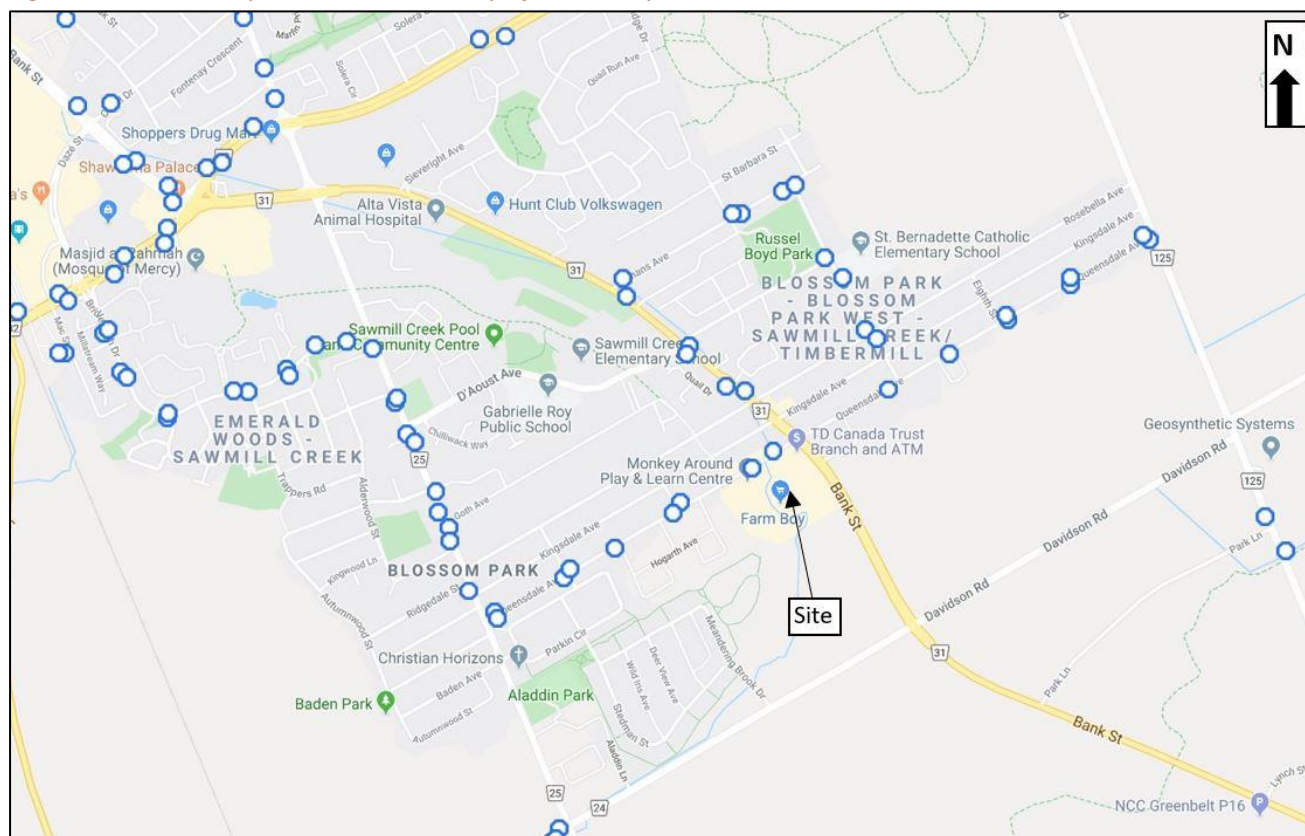


Route 93 Leitrim to Greenboro/Hurdman is the only route that serves the development. The route provides service between the Greensboro O-Train station and the Leitrim transit station.

Figure 3.5.2 illustrates the locations of bus stops within the vicinity of the proposed development.

The closest bus stops to the proposed development are located at the intersection of Bank Street and Queensdale Avenue. As such, there is potential for the development to generate trips using local transit.

Figure 3.5.2: Bus Stop Locations (Courtesy of OC Transpo)



### 3.6 Existing Area Traffic Management Measures

The entrance on Bank Street is a right-in, right-out (RIRO) entrance only, which forces traffic seeking to enter the development to utilize the existing signalized intersection at Queensdale Avenue. There are no other traffic management measures identified.

### 3.7 Existing Peak Hour Travel Demand by Mode

The proposed site is in Ottawa's inner suburb of Hunt Club Upper – Blossom Park - Timbermill. The 2013 Transit mode shares leaving the inner suburbs to other areas in the City accounts for 24% of all morning peak trips. The 2031 target for the transit mode share is 28%. Trips arriving in the inner suburbs had a 16% transit mode share, with a 2031 target of 21%. Internally, walking and cycling modes account for 17% of all trips within the inner suburb. It is noted that the relatively low rates of walking mode share for internal trips, 14%, is reflective of the large size of the inner suburb district. Individual neighbourhoods will have higher mode shares for walking and cycling.



The observed 2011 mode shares city-wide was 45% for sustainable modes (walking, cycling, transit and automobile passenger). The transit component was observed to be 22.4% city-wide. The inner suburbs had a morning peak mode choice of 49% auto driver, 13% auto passenger, 25% transit, 10% walking, and 3% cycling.

### 3.8 Existing Collision History

Collision data was provided by the City for the years 2014-2018. The data was reviewed for boundary roads located within the study area, as identified in Section 3.0.

- Along Bank Street
- At Intersections
- Along Queensdale Avenue (near the property entrances)

The data was analyzed with respect to collision severity, road surface, light conditions, and impact type and summarized. The summary is illustrated in [Table 3.8.1](#). The data included GPS coordinates. [Figure 3.8.1](#) plots the collision locations on an aerial of the surrounding area.

*Figure 3.8.1 Plotted Collisions (2014-2018)*



Table 3.8.1: Summary of Historical Collision Data

		Intersection of Queensdale Avenue and Bank Street	Bank Street Between Queensdale Avenue and Lester Road	Queensdale Avenue between Bank Street and Mavis Street
Number of Collisions	2014	5	2	0
	2015	8	5	3
	2016	5	1	0
	2017	6	2	2
	2018	1	5	1
	Total	25	15	6
Collision Type	P.D only	9 (36%)	12 (80%)	5 (83.3%)
	Injury Only	16 (64%)	3 (20%)	1 (16.7%)
	Fatal	0%	0%	0%
Impact Type	Angle	5 (20%)	7 (46.7%)	3 (50%)
	Rear End	4 (16%)	4 (26.7%)	0%
	Turning Movement	11 (44%)	1 (6.7)%	1 (16.7)%
	SMV Other	2 (8%)	2 (13.3%)	1 (16.7)%
	Other	3 (12%)	1 (6.7)%	1 (16.7)%
Light Condition	Daylight	19 (76%)	12 (80%)	5 (83.3%)
	Dusk	1 (4%)	1 (6.7)%	1 (16.7)%
	Dawn	0%	1 (6.7)%	0%
	Dark	5 (20%)	1 (6.7)%	0%
Road Surface	Dry	19 (76%)	12 (80%)	5 (83.3%)
	Wet	2 (8%)	1 (6.7)%	1 (16.7)%
	Winter Conditions*	4 (16%)	2 (13.3%)	0%
* Winter conditions includes all: snow, slush, ice				

The conclusions of the analysis are as follows:

- There was a total of 46 collisions that occurred within the vicinity of the development. 15 collisions happened along Bank Street between Queensdale Avenue and Lester Road, 25 collisions occurred at the intersection of Bank Street and Queensdale Avenue, and 6 collisions occurred along Queensdale Avenue between Bank Street and Mavis Street.
- Of the 46 total collisions, 20 resulted in non-fatal injuries, 26 resulted in property damage only, and zero fatalities were documented.

- Of the 46 total collisions, 7 were documented in 2014; 16 in 2015; 6 in 2016; 10 in 2017; and 7 in 2018.
- Two collisions involved pedestrians, resulting in non-fatal injuries, occurring at the intersection of Bank Street and Queensdale Avenue.
- The most common impact type were angle collisions, followed by turning movement and rear end collisions. This is not uncommon for signalized intersections, and intersections that are closely spaced.

Based on a field review conducted by MP and the collision data provided by the City of Ottawa the following anticipated problem areas and potential mitigation measures are explored below.

As illustrated above, the majority of collisions at the intersection of Bank Street and Queensdale Avenue are turning movement and angle collisions. This indicates a potential issue with the sightlines involved in the left turning movements at the intersection. As shown in [Figure 3.8.2](#) and [Figure 3.8.3](#) the left turning lanes in the north south direction (Bank Street) seem to show an offset resulting in potential problems with the sight lines from the left-turn stopping point to oncoming traffic. It is shown that the left turning lanes line up with the opposing median. The impact of this was seen during the field review as vehicles would have to move partially into the opposing lane when an opposing left-turning vehicle was present in order to have the necessary sightlines. This results in a potential for mitigation measures to be applied to the turning movements. This can be achieved by adding a protected left turning movement phase during the signal timing cycle. This could have the ability to reduce the amount of turning movement collisions. Another potential mitigation measure would be to realign the left-turning lanes to improve the sightlines for oncoming traffic.

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*Figure 3.8.2 Northbound Left-turn  
Movement Sightline*



*Figure 3.8.3 Southbound Left-turn  
Movement Sightline*



It was also noted that the majority of collision that occur on Bank Street between Queensdale Avenue and Lester Street, occur around the Tim Horton's on the east side of Bank Street. This may be caused due to the fact that the driveway of the Tim Horton's allows for both right and left turns in and out of the Tim Hortons. A potential mitigation measure could be to restrict the access of the Tim Hortons to being only a right in, right out (RIRO). There is an access to the rear of the Tim Hortons from Queensdale Avenue, which would provide appropriate access to the Tim Hortons. As such it is anticipated that the accessibility of the Tim Hortons should not be impacted.

### 3.9 Existing Traffic Volume

Traffic data provided by the City of Ottawa included Turning Movement Counts (TMC) as described below:

- Bank Street & St. Bernard Street / D'Aoust Avenue (2016)
- Bank Street & Rosebella Avenue (2015)
- Bank Street & Kingsdale Avenue (2019)
- Bank Street & Queensdale Avenue (2015)
- Albion Road & Queensdale Avenue (2016)
- Bank Street & Lester Road (2015)

Analysis of the existing traffic volumes and patterns indicate a strong commuter pattern along Bank Street, with a higher volume travelling north towards the City centre in the mornings, and a higher volume travelling southward during the afternoon. The directional distribution along Bank Street was calculated to be 31-69 (SB-NB) in the morning, and 65-35 (SB-NB) in the afternoon. The PM peak hour showed greater traffic volumes compared to the AM peak hour by 36% on average. The several industrial land uses along Queensdale Avenue east of Bank Street appear to generate a significant amount of heavy vehicle traffic during the AM peak hour, however is avoided during the PM peak hour. This illustrates that the majority of traffic along this corridor is made up of residential commuters, as opposed to commercial and industrial commuters.

Volume information was projected to a 2019 baseline scenario. A background growth value of 2% per year was applied to capture background traffic growth due to population increases, as well as any of the proposed developments that have not yet been captured by the TMCs. The 2019 baseline traffic volume scenario for the AM and PM Peak are illustrated in [Figure 3.9.1](#) and [Figure 3.9.2](#).

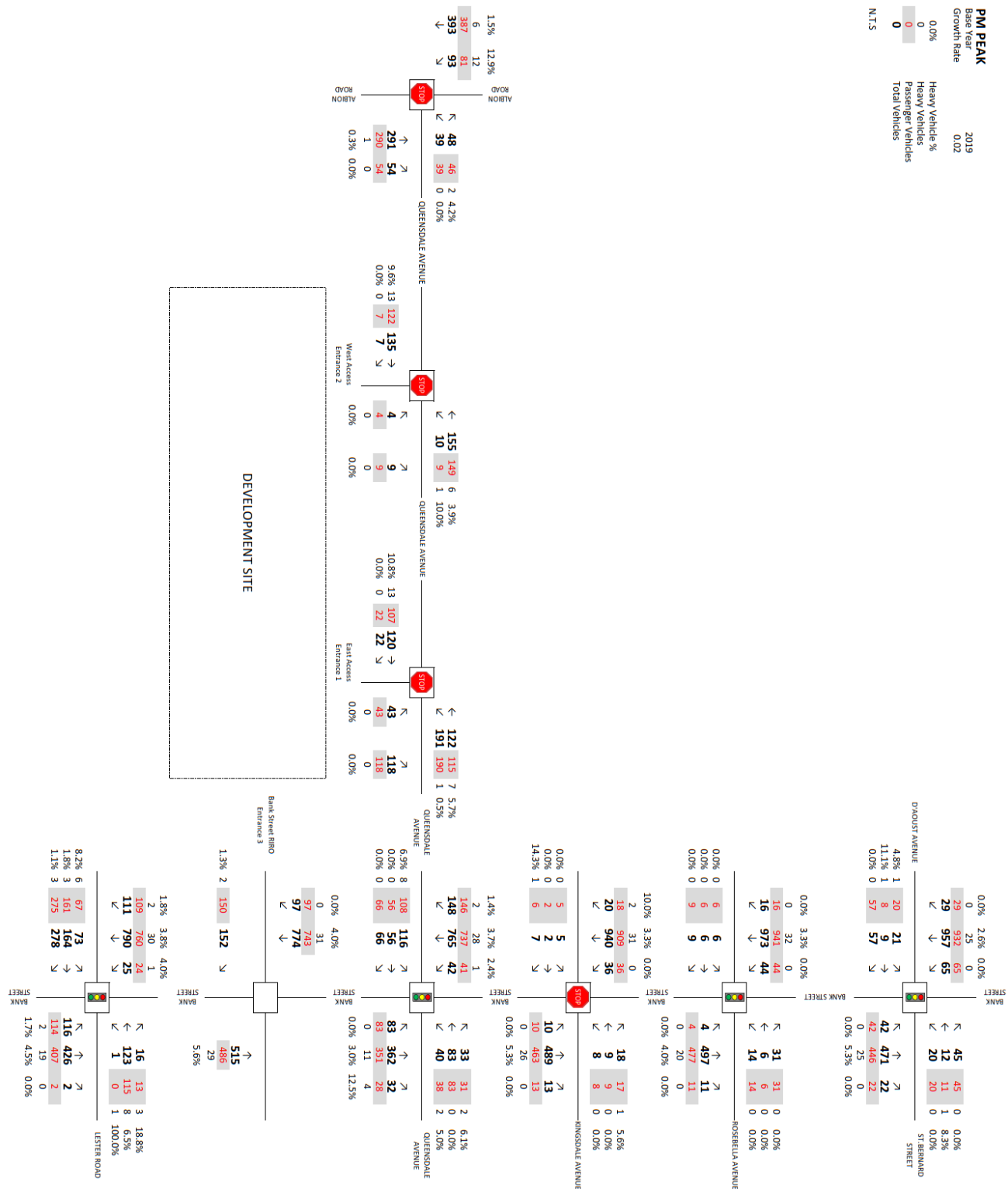
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AM PEAK	2019
Base Year	0.02
Growth Rate	
0.0%	
0	
0	
Heavy Vehicle %	
Heavy Vehicles	
Passenger Vehicles	
Total Vehicles	
N.T.S	



Figure 3.9.2 2019 PM Peak Baseline Scenario



### 3.10 Existing Traffic Operations

Level of service determinations from Synchro software are based on the control delay for each movement and aggregated to obtain approach and intersection delays and levels of service. Level of service criteria for signalized and unsignalized intersections are illustrated in Table 3.10.1 and Table 3.10.2, respectively.

**Table 3.10.1: LOS Criteria for Signalized Intersections**

LOS	V/C
A	0 – 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

**Table 3.10.2: LOS Criteria for Unsignalized Intersections**

Control Delay Per Vehicle (s)	LOS	V/C
≤ 10	A	< 1.0
10 – 15	B	< 1.0
15 – 25	C	< 1.0
25 – 35	D	< 1.0
35 – 50	E	< 1.0
> 50	F	> 1.0, include V/C gap analysis

Existing traffic operations analysis is performed using Synchro 10 software. Signal timing information for the three intersections was provided by the City and input into the Synchro models. Table 3.10.3 summarizes the existing conditions analysis.

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Table 3.10.3: Existing Conditions 2019 Operational Analysis

INTERSECTIONS	Intersection LOS		Approach	Approach LOS		Approach Delay (s)		Queue <sup>1</sup> (m)		Volume-to-Capacity	
	AM	PM		AM	PM	AM	PM	AM	PM	AM	PM
Bank Street (NB / SB) & D'Aoust Avenue (EB / WB)	A	A	EB	B	A	31.1	22.4	41	21	0.66	0.44
			WB	A	A	13.6	23.5	21	20	0.39	0.40
			SB	A	A	4.9	3.8	19	45	0.16	0.36
			NB	A	A	4.8	2.0	27	10	0.39	0.20
Bank Street (NB / SB) & Rosebella Avenue (EB / WB)	A	A	EB	A	A	31.3	25.9	11	10	0.17	0.15
			WB	A	A	19.2	24.0	14	16	0.30	0.33
			SB	A	A	1.8	2.7	9	33	0.13	0.35
			NB	A	A	2.6	2.5	28	22	0.27	0.21
Bank Street (NB / SB) & Kingsdale Avenue (EB / WB)	A	A	EB	A	A	23.1	28.9	7	7	0.06	0.09
			WB	A	A	13.4	26.2	7	7	0.05	0.18
			SB	A	A	11.2	0.3	0	0	0.10	0.04
			NB	A	A	8.0	0.2	0	0	0.37	0.02
Bank Street (NB / SB) & Queensdale Avenue (EB / WB)	B	B	EB	B	C	38.0	39.4	41	61	0.63	0.74
			WB	A	A	19.2	25.7	21	39	0.37	0.45
			SB	A	A	5.1	8.6	16	66	0.12	0.39
			NB	A	A	6.2	9.0	40	31	0.29	0.26
Albion Road (NB / SB) & Queensdale Avenue (EB/WB)	B	C	WB	A	A	9.3	9.8	7	1	0.15	0.15
			SB	A	C	10.6	19.5	14	49	0.36	0.71
			NB	A	A	14.1	12.2	32	21	0.59	0.49
Bank Street (NB / SB) & Lester Road (EB / WB)	A	C	EB	A	C	13.9	21.4	30	104	0.44	0.73
			WB	A	A	14.4	16.6	28	34	0.37	0.25
			SB	A	A	11.7	15.0	34	37	0.48	0.55
			NB	A	A	7.7	13.6	14	79	0.20	0.60
Entrance 1 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.3	0.4	0	0	0.08	0.07
			WB	A	A	3.0	4.8	8	17	0.03	0.11
			NB	A	A	3.4	4.9	14	18	0.04	0.19
Entrance 2 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.2	0.2	0	0	0.08	0.07
			WB	A	A	0.5	0.6	3	4	0.01	0.01
			NB	A	A	3.1	3.2	12	9	0.02	0.01
Entrance 3 (EB) & Bank Street (NB / SB) <sup>2</sup>	A	A	EB	A	A	0.9	1.4	0	9	0.01	0.09
			SB	A	A	2.1	1.7	0	0	0.01	0.22
			NB	A	A	0.9	1.9	0	0	0.02	0.14
<sup>1</sup> Queues shown are the 95 <sup>th</sup> percentile maximum queues on the approach											
<sup>2</sup> Delav and Queue results obtained through SimTraffic simulation.											

The existing traffic operations indicates that the three signalized intersections all operate well during both the AM and PM peak hours. At the unsignalized intersection at Kingsdale Avenue, the intersection also operates well. At each of these intersections, traffic along Bank Street is well served, while delays to sideroad traffic is slightly greater. Traffic along Bank Street typically is observed to operate at a level of service B or better, with average delays no greater than 20 seconds. The maximum queues observed are also expected to be no greater than 80 meters along Bank Street, which allows traffic from the driveways to continue moving. Sideroad traffic is observed to operate at level of service C or better, which is typical for a suburban intersection. The sideroads see delays ranging from 10 to 40 seconds, and maximum queues no greater than 100 meters. The development accesses are also expected to operate well, at a LOS A, with delays that do not exceed 10 seconds. There are also no queuing issues anticipated at the accesses in both the morning and afternoon peak hours. The Synchro and SimTraffic v. 10 output reports are provided in [Appendix E](#).

Signal timing plans were shown to utilize offsets and a cycle length of 80 seconds. No other special timing considerations, such as advance green turning arrows or overlaps, were used. This suggests that there are several timing modifications that can be made to accommodate increased traffic volume, which will increase the ability for these intersections to handle additional traffic volume. The existing civil infrastructure, such as turn lanes and channelization, appear to be sufficient to handle any future timing modifications.

Preliminary review of the existing traffic operations suggests that the corridor is operating well as a primary north-south commuter route, with reasonable delays to the sideroad traffic. The existing infrastructure and timing plans also suggest that the intersections currently operate well under capacity. Minor modifications can be made to increase intersection capacities at the signalized intersections, which can handle increased traffic volumes resulting from future growth as well as the proposed development.

## 4.0 PLANNED CONDITIONS

### 4.1 Roadway Network Modifications

Lester Road from Airport Parkway to Bank Street is planned to be widened between 2020 and 2025, as documented within the City's Transportation Master Plan.

There are no transit improvements proposed within the vicinity of the proposed development.

### 4.2 Other Study Area Developments

Other study area developments have been identified within the vicinity of the proposed development. [Figure 4.2.1](#) illustrates the other developments with respect to the proposed site.



Figure 4.2.1 Background Area Developments



- 2928 Bank Street: An application for the construction of a three-storey addition to an existing one-storey pharmacy. Proposed is a ground floor expansion of the existing pharmacy with commercial offices above, including a partial mezzanine area. Construction has begun for this development.
- 195 Meandering Brook Drive: Application for draft plan of subdivision, Deerfield Village, which will include ninety-six (96) townhouse dwellings, sixty (60) apartment units in five (5) building and three (3) new private streets. Construction has begun for this development.

## 5.0 STUDY AREA AND TIME PERIODS

### 5.1 Study Area

The proposed study area is limited to the following intersections:

- Bank Street & St. Bernard Street / D'Aoust Avenue
- Bank Street & Rosebella Avenue
- Bank Street & Kingsdale Avenue
- Bank Street & Queensdale Avenue

- Albion Road & Queensdale Avenue
- Bank Street & Lester Road
- Three (3) Entrances to the proposed development site.

## 5.2 Time Periods

The proposed time periods for analysis are:

- AM peak hour of adjacent roadway; and
- PM peak hour of adjacent roadway

## 5.3 Horizon Years

The proposed horizon years for analysis are:

- 2019 Existing Conditions
- 2021 Total Traffic (Full Build Out)
- 2026 Horizon Year (Full Build Out + Five Years)

## 6.0 EXEMPTION REVIEW

Table 6.1 summarizes the exemptions review in accordance with the TIA Guidelines.

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**Table 6.1: Exemptions Review**

Module	Element	Exemption Considerations	Exempted?
<b>Design Review Component</b>			
4.1 Development Design	4.1.2 Circulation and Access	<ul style="list-style-type: none"> <li>Only required for site plans</li> </ul>	No
	4.1.3 New Street Networks	<ul style="list-style-type: none"> <li>Only required for plans of subdivision</li> </ul>	Yes
4.2 Parking	4.2.1 Parking Supply	<ul style="list-style-type: none"> <li>Only required for site plans</li> </ul>	No
	4.2.2 Spillover Parking	<ul style="list-style-type: none"> <li>Only required for site plans where parking supply is 15% below unconstrained demand</li> </ul>	Yes
<b>Network Impact Component</b>			
4.5 Transportation Demand Management	All Elements	<ul style="list-style-type: none"> <li>Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time</li> </ul>	No
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	<ul style="list-style-type: none"> <li>Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds</li> </ul>	Yes
4.8 Network Concept		<ul style="list-style-type: none"> <li>Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning</li> </ul>	Yes

## 7.0 FORECASTING OF DEVELOPMENT IMPACTS

This section will develop and identify the impacts associated with the development of trips on network performance. The goal of this section is to determine if a network modification is required to offset the impacts of the development.

### 7.1 Trip Generation

Trip generation is performed utilizing Institute of Transportation Engineers (ITE) Trip Generation 10<sup>th</sup> Edition, and the ITE Trip Generation Handbook 3<sup>rd</sup> Edition. Based on the proposed development type, we anticipate the following ITE land use codes (LUC) to be included in the analysis:

- Fast Food Restaurant with Drive Through Window (LUC 934)
- Shopping Center (LUC 820)

The trip generation rates reviewed in Table 7.1.1.

**Table 7.1.1: ITE Trip Generation Rates**

	ITE Trip Generation Rates							
	Average		Fitted Curve Equation		Low Rate		High Rate	
	AM	PM	AM	PM	AM	PM	AM	PM
Shopping Center	0.94	3.81	$0.5X+151.78$	$0.74X+EXP(2.89)$	0.18	0.74	23.74	18.69
Restaurant with DTW	40.19	32.67	-	-	0.38	8.17	164.25	117.22

It is recommended to utilize the average ITE trip generation rates. The fitted curve appears to overestimate the generated trips and only applies to the shopping center land use. Both the low and high rates generated were not applicable for the proposed size of development.

Table 7.1.2 summarizes the trip generation of the proposed development.

**Table 7.1.2: Trip Generation Calculations**

	Square Footage (ft²)	Trip Generation Rates		Calculated Trips	
		AM	PM	AM	PM
Building A (5 Storefronts)					
Shopping Center	5960	0.94	3.81	6	23
Restaurant with DTW	1490	40.19	32.67	60	49
Building A Subtotals	7450			66	72
Building B (7 Storefronts)					
Shopping Center	9000	0.94	3.81	8	34
Restaurant with DTW	1500	40.19	32.67	60	49
Building B Subtotals	10500			68	83
Development Totals	17950			134	155

Based on ITE trip generation rates, the site will generate 134 new vehicle trips in the morning peak hour, and 155 new vehicle trips in the afternoon peak hour.



### Trip Reductions

The development is an addition to an existing site. The existing uses will be maintained during and after construction. Since it is not a total redevelopment scenario, reductions of existing development trips are not applicable.

**Site-synergy or Internalization** is applicable to the proposed development. On-site synergy rates were obtained from ITE Trip Generation Handbook. The proposed on-site synergy reduction rates are summarized in **Table 7.1.3**.

**Table 7.1.3: On-Site Synergy Rates**

On Site Synergy Reductions		Reductions	
Categories	Proposed Land Use	AM	PM
Retail	Shopping Center	10%	10%
Restaurant	Restaurant with DTW	10%	10%

The total vehicle trip generation considering the on-site synergy is summarized in **Table 7.1.4**.

**Table 7.1.4: Trip Generation with On-Site Synergy Reductions**

	Trips from Table 7.1.2		Reductions		Calculated Trips	
	AM	PM	AM	PM	AM	PM
<b>Building A (5 Storefronts)</b>						
Shopping Center	6	23	1	2	5	21
Restaurant with DTW	60	49	6	5	54	44
Building A Subtotals	66	72	7	7	59	65
<b>Building B (7 Storefronts)</b>						
Shopping Center	8	34	1	3	7	31
Restaurant with DTW	60	49	6	5	54	44
Building B Subtotals	68	83	7	8	61	75
<b>Development Totals</b>						
	<b>134</b>	<b>155</b>	<b>14</b>	<b>15</b>	<b>120</b>	<b>140</b>

The total trips generated after considering on-site synergy considerations results in 120 vehicle trips in the AM peak hour, and 140 vehicle trips in the PM peak hour.

**Pass-by trips** are applicable to the proposed development. Pass-by trip reduction rates were obtained from ITE Trip Generation Handbook. The proposed pass-by trip reduction rates are summarized in Table 7.1.5.

**Table 7.1.5: Pass-by Reduction Rates**

Pass-by Reductions			
ITE Land Use Code	Proposed Land Uses	AM	PM
820	Shopping Center	-	34%
934	Restaurant with DTW	49%	50%

The total vehicle trip generation considering both on-site synergy and pass-by reductions are summarized in Table 7.1.6.

**Table 7.1.6: Trip Generation Calculations with On-Site Synergy and Pass-by Reductions**

	Trips from Table 7.1.4		Reductions		Calculated Trips with Pass-By Reductions	
	AM	PM	AM	PM	AM	PM
<b>Building A (5 Storefronts)</b>						
Shopping Center	5	21	-	7	5	14
Restaurant with DTW	54	44	26	22	28	22
Building A Subtotals	59	65	26	29	33	36
<b>Building B (7 Storefronts)</b>						
Shopping Center	7	31	-	11	7	20
Restaurant with DTW	54	44	26	22	28	22
Building B Subtotals	61	75	26	33	35	42
<b>Development Totals</b>	<b>120</b>	<b>140</b>	<b>52</b>	<b>62</b>	<b>68</b>	<b>78</b>

The total trips generated after considering both on-site synergy and pass-by considerations result in 68 vehicle trips in the AM peak hour and 78 vehicle trips in the PM peak hour.

To convert the vehicle trips into person trips, a factor of 1.28 is applied to account for the default 10% non-auto mode share and average vehicle occupancy of 1.15 in accordance with the City's TIA guidelines. Applying this factor results in 87 person-trips in the AM peak hour, and 100 person-trips in the PM peak hour.

## 7.2 Mode Shares

The most recent Origin-Destination (O-D) Survey performed was completed in 2011 by the multi-agency TRANS Committee. The study summarizes the National Capital Region (NCR) Household Origin-Destination Survey. The survey divided all data into the 26 TRANS districts, as illustrated in the 2011 O-D Survey. Based on the mapping, the proposed development site falls within the Hunt Club urban/suburban district. The mode shares for this district are summarized below in Table 7.2.1. The values summarize all surveyed trips to, from and within the district for the specified time period.

**Table 7.2.1: Mode Shares for Hunt Club TRANS District**

Travel Mode	Am Peak				PM Peak			
	To	Within	Total	%	From	Within	Total	%
Auto Driver	8350	3700	12050	61%	10960	5340	16300	64%
Auto Passenger	1080	1190	2270	12%	2590	1880	4470	18%
Transit	710	270	980	5%	1330	270	1600	6%
Bicycle	130	100	230	1%	120	80	200	1%
Walk	20	1720	1740	9%	30	1710	1740	7%
Other	760	1570	2330	12%	360	580	940	4%

Based on these values, it can be observed that the AM peak hour has a higher transit mode share compared to the PM peak hour. In addition to a higher transit mode share, there is also a higher 'Other' mode share in the AM peak hour. This mode share includes, but is not limited to, motorcycles, taxis, intercity buses, school buses, airplanes, VIA rail, and ferries.

Based on the City's Official Plan, the proposed development falls within the South Keys to Blossom Park Secondary Plan area. The development is located at the southern tip of the plan area. The Community Development Plan (CDP) for this area indicates an emphasis on increasing transit options and making Bank Street more pedestrian and cyclist friendly. Reviewing the area, there are currently existing transit options just outside the development along Queensdale Avenue. Furthermore, the cycling facilities within the area are primarily shared facilities. Through this review, it is concluded that there is more opportunity to increase cycling and walking trips compared to transit. In order to achieve this, the existing modes of Auto Driver and Passenger are expected to be reduced through the provision of dedicated cycling facilities and pedestrian sidewalks offset by a roadway boulevard. The Official Plan states that Bank Street will continue to develop its multiple roles for

commerce, living and social interaction, as well as a primary Arterial providing north-south goods movement and transit service. The proposed future mode share targets are summarized in [Table 7.2.2](#).

**Table 7.2.2: Future Mode Share Targets for the Development**

	FUTURE TARGETS FOR HORIZON YEAR OF 2026						Rationale
	AM PEAK HOUR			PM PEAK HOUR			
	Existing	Future	% (+/-)	Existing	Future	% (+/-)	
Auto Driver	61%	59%	-2%	64%	62%	-2%	Reductions in both AM and PM Peak hour due to type of development and improved service and facilities for other modes.
Auto Passenger	12%	10%	-2%	18%	16%	-2%	Reductions in both AM and PM Peak hour due to type of development and improved service and facilities for other modes.
Transit	5%	6%	1%	6%	7%	1%	The type of development and existing transit service along Queensdale Avenue supports increased transit trips.
Bicycle	1%	3%	2%	1%	2%	1%	The type of development will include bicycle parking, therefore is projected to encourage increased cycling trips.
Walk	9%	10%	1%	7%	8%	1%	The type of development will include connections to existing sidewalks, therefore encouraging increased walking trips.
Other	12%	12%	0%	4%	5%	1%	Increased ridesharing and taxi services due to global trends.

The development is projected to generate 87 person trips in the AM peak and 100 person trips in the PM peak. [Table 7.2.3](#) summarizes the estimated number of trips per travel mode. The values in the table are derived from the projected person-trips, and the future mode share targets.



**Table 7.2.3: Generated Trips by Travel Mode**

	AM PEAK HOUR	PM PEAK HOUR
<b>Total Person Trips</b>	<b>87</b>	<b>100</b>
Auto Driver	51	62
Auto Passenger	9	16
Transit	5	7
Bicycle	3	2
Walk	9	8
Other	10	5

### 7.3 Trip Distribution

The distribution of trips is derived by considering the proposed development, the existing traffic patterns on the adjacent roadways, and the origin-destination matrices from the 2011 O-D survey. The proposed development is an addition to an existing development with similar land use types.

The types of services proposed is aimed at serving the local populace. Therefore, the majority of trips are expected to originate within the Hunt Club district and immediate surrounding districts, such as Alta Vista and South Gloucester / Leitrim.

Since the existing development and the proposed development will be providing similar services, it is reasonable to assume that the existing traffic patterns along the adjacent roadways will also remain the same post-construction. The impact to traffic will be an increase in the traffic volume, with little to no change in the traffic pattern.

Existing traffic patterns on the adjacent roadways indicate a significant commuter component heading north and west during the AM peak hour and south and east during the PM peak hour. The 2011 O-D Survey suggests that most trips arriving within the Hunt Club district are from the Hunt Club district. Review of the Hunt Club district indicates that the proposed development is at the south end of the district, with most of the residential areas to the north and west of the development location. Also, to the north and west are Airport Parkway, the Greenboro Train Station, and the east-west Hunt Club Road arterial. From this basis, we assume the following distribution of trips summarized in [Table 7.3.1](#).

**Table 7.3.1: High-Level Trip Distribution**

Cardinal Direction	Features	Distribution To/From
North	Downtown Ottawa, Gatineau, Hunt Club Road east-west arterial which provides crossing of Rideau River and access to Highway 417, Greenboro Train Station via Bank Street	60%
South	South Gloucester, Leitrim, Greely, Metcalfe	5%
East	Highway 417	5%
West	Ottawa International Airport, Greenboro Train Station via Albion Road, Airport Parkway	30%

Furthermore, directional distribution rates of trips are obtained from ITE Trip Generation Manual for the different land uses. The rates, and distribution of vehicle trips going into, and going out of the development are summarized in [Table 7.3.2](#).

**Table 7.3.2: Directional Distribution of Vehicle Trips In and Out of Development**

Land Use	Vehicle Trips		Directional Distribution Rates				Directional Distribution of Vehicle Trips					
							AM Peak Hour			PM Peak Hour		
	AM Peak	PM Peak	In	Out	In	Out	In	Out	Total	In	Out	Total
Shopping Center	9	27	0.62	0.38	0.48	0.52	6	3	9	13	14	27
QSR with DTW	42	35	0.51	0.49	0.52	0.48	21	21	42	18	17	35
Subtotals:							27	24	51	31	31	62

The distribution of trips going in and out of the development during both AM and PM peak hours are dispersed according to the trip distribution plan provided in [Appendix D](#).

## 7.4 Trip Assignment

Assignment of trips will be performed based on review of the local traffic patterns and made to ensure they follow the high-level distribution. As discussed, the proposed development is not expected to change the local traffic patterns but increase the traffic volume. The assignment of trips is illustrated [Appendix D](#).

## 7.5 Background Travel Demand

### Transportation Network Plans

As documented in the Scoping report, Lester Road from Airport Parkway to Bank Street is planned to be widened from two to four lanes between 2020 and 2025.

No transit improvements are proposed within the vicinity of the development.

There is currently a Traffic Study that is underway for Albion Road between Bank Street and Lester Road. The study was initiated October 1, 2019 and is currently ongoing.

#### Background Growth

Review of historical Census Profile data for the City Ottawa shows an annual growth rate from 2011-2016 of approximately 1.2%. Previous census estimates, from 2006 to 2011, illustrate a population growth for the Hunt Club area of approximately 1% per year. Review of the Hunt Club sub-area using the City's own Census estimates, indicate an increase from 65,487 (2016) to 65,780 (2019). This represents an annual growth rate of approximately 0.1% indicating that there has been little to no growth over the past three years. Review of this data suggests that a 1% background traffic growth is appropriate for this study. However, in order to include the impact of the other developments and continued growth along Lester Road to the south, a background growth rate of 2% is used.

#### Other Developments

As documented within the Scoping report, two adjacent study area developments are identified within the vicinity of the proposed development. Namely:

- 2928 Bank Street: three-storey addition to existing one-storey pharmacy.
- 195 Meandering Brook Drive: subdivision consisting of 96 townhouses and 60 apartment units.

Construction has begun for both named study area developments. The impact of both developments is expected to be captured within the proposed 2% background growth rate.

### **7.6 Demand Rationalization**

The one-directional peak hour volume in the 2026 horizon year ranged from 900 – 1100 vehicles per hour in both the AM and PM peaks along Bank Street. Along Queensdale Avenue, the one-directional peak hour volume in the 2026 horizon year ranges from 150-350 vehicles per hour. The combined total auto demand will not exceed the capacity of the roadway network based on a typical saturated flow rate of 1800 vehicles per hour per lane. Therefore, capacity issues are not anticipated and adjustments to the demand are not required.

### **7.7 Development Impacts – Traffic Operations**

The traffic analysis was performed using Synchro and SimTraffic 10 software.

#### **7.7.1 Background Growth Only (2021)**

Table 7.7.1.1 summarizes the traffic analysis results for the 2021 Background Growth Only scenario.

**Table 7.7.1.1: Traffic Operations Analysis for Background Growth Only Scenario (2021)**

INTERSECTIONS	Intersection LOS		Approach	Approach LOS		Approach Delay (s)		Queue <sup>1</sup> (m)		Volume-to-Capacity	
	AM	PM		AM	PM	AM	PM	AM	PM	AM	PM
Bank Street (NB / SB) & D'Aoust Avenue (EB / WB)	A	A	EB	B	A	32.1	22.3	42	21	0.68	0.45
			WB	A	A	13.2	23.5	21	20	0.39	0.41
			SB	A	A	5.2	3.8	21	47	0.17	0.37
			NB	A	A	4.2	2.0	21	10	0.41	0.19
Bank Street (NB / SB) & Rosebella Avenue (EB / WB)	A	A	EB	A	A	31.8	26.0	12	10	0.19	0.15
			WB	A	A	18.0	23.6	15	16	0.35	0.32
			SB	A	A	2.2	2.7	10	33	0.16	0.35
			NB	A	A	3.9	2.5	44	19	0.38	0.18
Bank Street (NB / SB) & Kingsdale Avenue (EB / WB)	A	A	EB	A	A	26.6	34.6	7	7	0.11	0.11
			WB	A	A	13.9	30.0	7	7	0.08	0.21
			SB	A	A	0.2	0.3	0	0	0.01	0.04
			NB	A	A	0.0	0.2	0	0	0.01	0.01
Bank Street (NB / SB) & Queensdale Avenue (EB / WB)	B	B	EB	B	C	37.1	38.9	46	60	0.64	0.74
			WB	A	A	16.0	26.0	22	38	0.38	0.45
			SB	A	A	6.1	8.5	22	63	0.16	0.38
			NB	A	A	8.0	8.6	63	29	0.40	0.23
Albion Road (NB / SB) & Queensdale Avenue (EB/WB)	B	C	WB	A	A	9.4	10.0	7	7	0.16	0.16
			SB	A	C	10.8	21.7	14	56	0.38	0.75
			NB	B	A	15.1	12.8	35	21	0.62	0.52
Bank Street (NB / SB) & Lester Road (EB / WB)	B	B	EB	A	C	16.5	20.7	34	101	0.47	0.73
			WB	A	A	16.3	15.5	32	33	0.40	0.25
			SB	A	B	7.6	14.2	17	78	0.23	0.61
			NB	A	A	12.4	16.0	50	39	0.60	0.59
Entrance 1 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.3	0.6	-	3	0.10	0.09
			WB	A	A	3.3	5.5	8	27	0.03	0.14
			NB	A	A	3.8	6.1	16	24	0.05	0.26
Entrance 2 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.2	0.2	-	-	0.09	0.09
			WB	A	A	0.5	0.7	4	5	0.01	0.01
			NB	A	A	3.1	3.3	11	10	0.02	0.02
Entrance 3 (EB) & Bank Street (NB / SB) <sup>2</sup>	A	A	EB	A	A	0.9	1.4	-	11	0.02	0.19
			SB	-	-	1.0	1.7	-	-	-	-
			NB	-	-	2.8	2.0	-	-	-	-
<sup>1</sup> Queues shown are the 95 <sup>th</sup> percentile maximum queues on the approach											
<sup>2</sup> Delay and Queue results obtained through SimTraffic simulation.											



It is observed that the roadway network continues to operate well under capacity at a LOS C or better. Approach delays do not exceed 40 seconds per vehicle, and the largest queue 95<sup>th</sup> percentile queue is 101 meters, observed on the EB movement at the intersection of Bank St and Lester Road.

#### 7.7.2 Background Growth Only (2026)

Table 7.7.2.1 summarizes the traffic analysis results for the 2026 Background Growth Only scenario.

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**Table 7.7.2.1: Traffic Operations Analysis for Background Growth Only Scenario (2026)**

INTERSECTIONS	Intersection LOS		Approach	Approach LOS		Approach Delay (s)		Queue <sup>1</sup> (m)		Volume-to-Capacity	
	AM	PM		AM	PM	AM	PM	AM	PM	AM	PM
Bank Street (NB / SB) & D'Aoust Avenue (EB / WB)	A	A	EB	C	A	33.9	22.8	47	23	0.71	0.47
			WB	A	A	17.3	23.4	26	21	0.42	0.44
			SB	A	A	5.9	4.2	24	56	0.19	0.41
			NB	A	A	4.9	2.1	23	11	0.46	0.21
Bank Street (NB / SB) & Rosebella Avenue (EB / WB)	A	A	EB	A	A	31.3	26.2	13	10	0.21	0.16
			WB	A	A	21.4	23.3	18	17	0.39	0.35
			SB	A	A	2.3	2.8	11	36	0.18	0.38
			NB	A	A	4.4	2.6	53	22	0.42	0.20
Bank Street (NB / SB) & Kingsdale Avenue (EB / WB)	A	A	EB	A	A	32.4	47.0	7	7	0.14	0.17
			WB	A	A	14.9	40.4	7	14	0.09	0.30
			SB	A	A	0.2	0.3	0	0	0.02	0.05
			NB	A	A	0.0	0.2	0	0	0.01	0.02
Bank Street (NB / SB) & Queensdale Avenue (EB / WB)	B	B	EB	B	C	37.2	40.2	50	66	0.66	0.77
			WB	A	A	15.1	25.2	23	40	0.38	0.46
			SB	A	A	6.8	9.9	25	76	0.18	0.43
			NB	A	A	9.1	9.8	75	34	0.45	0.30
Albion Road (NB / SB) & Queensdale Avenue (EB/WB)	C	C	WB	A	A	9.8	10.5	7	7	0.18	0.18
			SB	A	D	11.7	14.6	14	91	0.43	0.84
			NB	B	A	18.2	32.0	49	28	0.70	0.58
Bank Street (NB / SB) & Lester Road (EB / WB)	B	B	EB	A	C	18.4	26.7	41	145	0.51	0.79
			WB	A	A	17.8	17.8	38	39	0.44	0.27
			SB	A	B	7.7	15.1	20	88	0.24	0.63
			NB	B	C	13.1	19.9	61	56	0.63	0.73
Entrance 1 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.4	0.8	5	8	0.11	0.10
			WB	A	A	3.6	6.1	9	28	0.03	0.15
			NB	A	A	3.6	6.9	15	22	0.05	0.26
Entrance 2 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.3	0.2	-	-	0.10	0.10
			WB	A	A	0.6	0.9	5	7	0.01	0.01
			NB	A	A	3.2	3.4	12	11	0.02	0.02
Entrance 3 (EB) & Bank Street (NB / SB) <sup>2</sup>	A	A	EB	A	A	0.9	1.5	-	12	0.03	0.20
			SB	-	-	1.1	1.9	-	-	-	-
			NB	-	-	3.2	2.0	-	-	-	-
<sup>1</sup> Queues shown are the 95 <sup>th</sup> percentile maximum queues on the approach											
<sup>2</sup> Delay and Queue results obtained through SimTraffic simulation.											

It is observed that the roadway network generally continues to operate well at a LOS C or better. However, the all-way, stop-controlled intersection of Albion Road and Queensdale Avenue begins to see a LOS D in the SB direction, with a v/c ratio of 0.84, vehicle delays of 14.6 seconds and 95<sup>th</sup> percentile queues of 91 meters. This operation is due to the standard commuter pattern in this area, resulting in a larger southbound movement in the PM peak hour. The intersection currently does not have auxiliary lanes. A LOS D meets the City's minimum acceptable LOS targets.

### 7.7.3 Total Traffic (2021)

Table 7.7.3.1 summarizes the traffic analysis results for the 2021 Total Traffic scenario, which includes background growth, site generated trips, and pass-by trips. This scenario was modeled using existing signal timing parameters.

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**Table 7.7.3.1: Traffic Operations Analysis for Total Traffic Scenario (2021)**

INTERSECTIONS	Intersection LOS		Approach	Approach LOS		Approach Delay (s)		Queue <sup>1</sup> (m)		Volume-to-Capacity	
	AM	PM		AM	PM	AM	PM	AM	PM	AM	PM
Bank Street (NB / SB) & D'Aoust Avenue (EB / WB)	A	A	EB	B	A	32.2	22.3	43	21	0.69	0.45
			WB	A	A	13.3	23.5	21	20	0.40	0.41
			SB	A	A	5.2	3.8	21	47	0.17	0.37
			NB	A	A	4.3	2.7	21	10	0.41	0.19
Bank Street (NB / SB) & Rosebella Avenue (EB / WB)	A	A	EB	A	A	31.8	26.3	12	9	0.19	0.14
			WB	A	A	18.0	23.6	15	16	0.35	0.32
			SB	A	A	2.2	2.7	11	33	0.17	0.35
			NB	A	A	4.0	2.5	45	19	0.39	0.18
Bank Street (NB / SB) & Kingsdale Avenue (EB / WB)	A	A	EB	A	A	27.2	35.8	7	7	0.11	0.12
			WB	A	A	13.9	31.3	7	7	0.08	0.22
			SB	A	A	0.2	0.3	0	0	0.02	0.04
			NB	A	A	0.0	0.2	0	0	0.01	0.02
Bank Street (NB / SB) & Queensdale Avenue (EB / WB)	B	B	EB	B	C	37.6	39.2	52	64	0.67	0.75
			WB	A	A	14.3	24.2	21	36	0.34	0.42
			SB	A	A	6.9	10.5	24	67	0.16	0.39
			NB	A	A	9.0	12.8	66	30	0.40	0.28
Albion Road (NB / SB) & Queensdale Avenue (EB/WB)	B	C	WB	A	A	9.5	10.1	7	7	0.17	0.17
			SB	A	C	11.1	22.7	14	56	0.39	0.76
			NB	B	A	15.4	13.0	35	21	0.63	0.52
Bank Street (NB / SB) & Lester Road (EB / WB)	B	B	EB	A	C	16.6	21.8	34	103	0.47	0.74
			WB	A	A	16.3	15.8	32	34	0.40	0.26
			SB	A	B	7.6	12.6	18	79	0.23	0.60
			NB	A	A	12.4	15.7	51	39	0.60	0.61
Entrance 1 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.7	0.9	3	8	0.10	0.09
			WB	A	A	3.5	5.8	18	25	0.05	0.16
			NB	A	A	6.7	7.5	119	29	0.09	0.31
Entrance 2 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.3	0.2	-	-	0.10	0.09
			WB	A	A	0.4	0.8	4	4	0.01	0.01
			NB	A	A	5.6	3.4	13	10	0.02	0.02
Entrance 3 (EB) & Bank Street (NB / SB) <sup>2</sup>	A	A	EB	A	A	0.9	1.6	-	15	0.03	0.22
			SB	-	-	1.0	1.9	-	-	-	-
			NB	-	-	2.8	1.9	-	-	-	-

<sup>1</sup>Queues shown are the 95<sup>th</sup> percentile maximum queues on the approach

<sup>2</sup>Delay and Queue results obtained through SimTraffic simulation.



It is observed that the roadway network operates similarly to the 2021 background growth only scenario. The road network continues to operate well under capacity at a LOS C or better. Approach delays and queues are slightly higher in this scenario. However, there are no major changes to the traffic operations.

Review of the traffic operation results for the 2021 total traffic scenario, which includes generated trips, indicate that the impact of the proposed development on the adjacent road network is minimal, and that the existing road infrastructure and traffic control parameters can adequately service the proposed development. Therefore, mitigation measures are not required at the proposed development build out.

#### 7.7.4 Horizon (2026)

Table 7.7.4.1 summarizes the traffic analysis results for the 2026 Horizon scenario, which includes background growth, site generated trips, and pass-by trips. This scenario was modeled using existing signal timing parameters.

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Table 7.7.4.1: Traffic Operations Analysis for Horizon Scenario (2026)

INTERSECTIONS	Intersection LOS		Approach	Approach LOS		Approach Delay (s)		Queue <sup>1</sup> (m)		Volume-to-Capacity	
	AM	PM		AM	PM	AM	PM	AM	PM	AM	PM
Bank Street (NB / SB) & D'Aoust Avenue (EB / WB)	A	A	EB	C	A	33.6	22.8	47	23	0.71	0.47
			WB	A	A	17.5	23.4	27	21	0.43	0.44
			SB	A	A	8.7	4.2	25	56	0.20	0.41
			NB	A	A	5.0	3.0	23	11	0.46	0.21
Bank Street (NB / SB) & Rosebella Avenue (EB / WB)	A	A	EB	A	A	31.2	26.2	13	10	0.21	0.16
			WB	A	A	21.7	23.3	18	17	0.39	0.35
			SB	A	A	2.3	2.9	11	36	0.18	0.39
			NB	A	A	4.1	3.0	54	22	0.43	0.20
Bank Street (NB / SB) & Kingsdale Avenue (EB / WB)	A	A	EB	A	A	33.7	48.5	7	7	0.15	0.17
			WB	A	A	15.1	42.2	7	14	0.09	0.31
			SB	A	A	0.2	0.3	0	0	0.02	0.05
			NB	A	A	0.0	0.2	0	0	0.01	0.02
Bank Street (NB / SB) & Queensdale Avenue (EB / WB)	B	B	EB	B	C	37.5	40.8	56	71	0.69	0.79
			WB	A	A	13.5	23.7	22	39	0.35	0.44
			SB	A	A	10.3	12.2	28	79	0.19	0.45
			NB	A	A	10.4	16.0	80	35	0.46	0.36
Albion Road (NB / SB) & Queensdale Avenue (EB/WB)	C	D	WB	A	A	10.0	10.7	7	7	0.19	0.20
			SB	A	D	12.0	34.6	14	105	0.44	0.86
			NB	B	A	18.8	15.3	49	28	0.71	0.59
Bank Street (NB / SB) & Lester Road (EB / WB)	B	B	EB	A	C	21.6	28.4	42	146	0.51	0.79
			WB	A	A	17.8	18.0	38	39	0.44	0.27
			SB	A	B	9.2	17.0	21	90	0.24	0.63
			NB	B	C	15.0	46.3	62	56	0.63	0.74
Entrance 1 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.4	1.2	1	12	0.11	0.10
			WB	A	A	3.9	6.5	13	27	0.05	0.17
			NB	A	A	3.9	8.3	17	32	0.10	0.36
Entrance 2 (NB) & Queensdale Avenue (EB/WB)	A	A	EB	A	A	0.2	0.2	-	-	0.11	0.10
			WB	A	A	0.7	0.9	4	7	0.01	0.01
			NB	A	A	3.5	3.9	12	11	0.03	0.02
Entrance 3 (EB) & Bank Street (NB / SB) <sup>2</sup>	A	A	EB	A	A	0.9	1.8	-	19	0.04	0.23
			SB	-	-	1.3	2.0	-	2	-	-
			NB	-	-	3.1	2.0	-	-	-	-

<sup>1</sup>Queues shown are the 95<sup>th</sup> percentile maximum queues on the approach

<sup>2</sup>Delay and Queue results obtained through SimTraffic simulation.

It is observed that the roadway network operates similarly to the 2026 background growth only scenario. The road network continues to operate well under capacity at a LOS D or better. Approach delays and queues are slightly higher in this scenario. However, there are no major changes to the traffic operations.

Review of the traffic operation results for the 2026 horizon scenario including generated trips indicate that the impact of the proposed development on the adjacent road network is minimal, and that the existing road infrastructure and traffic control parameters can adequately service the proposed development. Therefore, mitigation measures are not required at the build out plus 5-year planning horizon.

## 8.0 DEVELOPMENT DESIGN

This section will review the proposed development and its transportation network elements in order to ensure a safe and efficient design has been proposed that will encourage walking, cycling, and transit use where applicable. The City of Ottawa's TDM-supportive Development Design and Infrastructure Checklist has been completed and attached in [Appendix F](#) for reference. The TDM-Supportive Development Design and Infrastructure checklist outlines the TDM-elements expected to be included in the proposed development.

### 8.1 Design for Sustainable Modes

The proposed development is expected to have a total of 565 parking spaces including 21 accessible parking spaces. The proposed development will also have 46 bicycle parking spaces provided. All parking spaces are to be provided between the two proposed developments and the existing developments.

As described in [section 3.5](#), the closest transit stops to the proposed developments are located at on the north side of the development on Queensdale Avenue.

### 8.2 Circulation and Access

The proposed development will be using the existing accesses into the site; two on the north end of the site off of Queensdale Avenue and the one RIRO off of Bank street on the east end of the site.

Loading and/or short-stay deliveries are not expected to be accommodated on public streets as the proposed development includes adequate on-site loading spaces. The proposed accesses and on-site parking lot will facilitate circulation throughout the site.

As shown in the site plan, the proposed development is made up of two proposed buildings each with their own drive-through. The city of Ottawa Zoning By-Law 2008-250, section 112 outlines provisions for drive-through operations. For a restaurant with an order board, a minimum of 11 total queue spaces are required, with a minimum of 7 queue spaces at or before the order board. [Figure 8.2.1](#) and [Figure 8.2.2](#) illustrates the number of queue spaces available before impacting on site circulation for the proposed buildings A and B respectively.

Figure 8.2.1 Building “A” Drive Through Queue

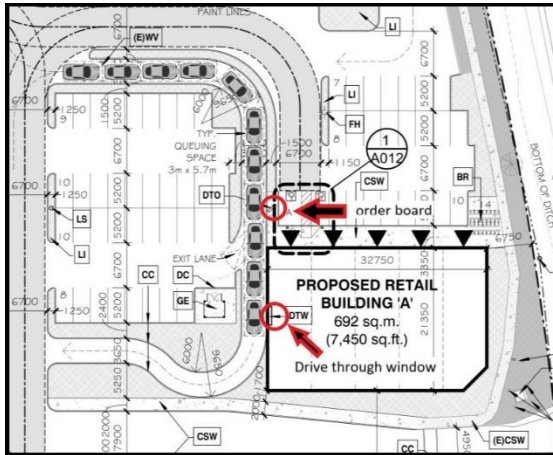
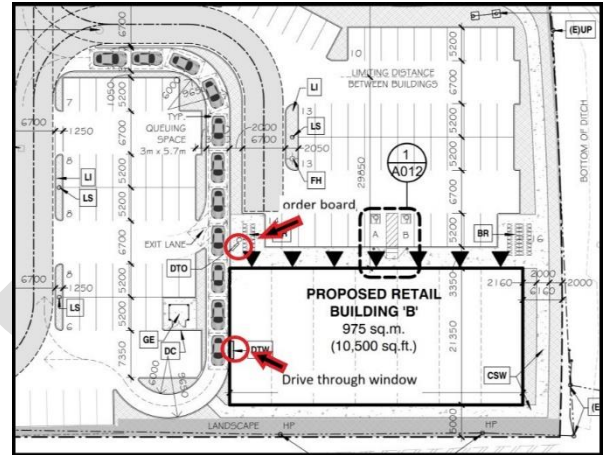


Figure 8.2.2 Building “B” Drive Through Queue



As shown above, there are 8 queue spaces, at/before the order board for the both proposed buildings, totaling 11 queueing spaces for each of the drive through operations. As such, the City of Ottawa by-law requirements for drive through operations have been met.

## 9.0 PARKING

### 9.1 Auto Parking

The site plan shows a total of 565 parking spaces with 21 of those are classified as accessible parking. The City of Ottawa Zoning By-law 2008-250, Section 101, Schedule 1A lists the proposed development as being in Area C (Suburban). Table 101 within the City of Ottawa By-Law gives minimum parking rates for varying land uses. The proposed development is classified as a shopping center, located further than 600m from rapid transit. As such, there is no limit in the number or parking spaces imposed on the development. The required rate of parking spots is 3.6 per 100m<sup>2</sup> of gross leasable floor area. Table 9.1.1 illustrates the City of Ottawa By-law minimum number of parking spaces for the proposed development.

Table 7.7.4.1 City of Ottawa By-Law Parking Requirements

Land Use	Minimum Parking spaces rate	Total (Existing and Proposed) Gross Floor Area (m <sup>2</sup> )	Minimum number of spaces required
Shopping Center	3.6 per 100m <sup>2</sup>	15,112	544



## 9.2 Bicycle Parking

Bicycle parking spaces must be provided in accordance with the City of Ottawa Zoning By-law, Section 111.

Table 9.2.1 Illustrates the bicycle parking spaces required as per the City of Ottawa By-Law.

**Table 7.7.4.1 City of Ottawa By-Law Bicycle Parking Requirements**

Land use	Minimum Bicycle Parking Spaces Rate	Gross Floor Area (m2)	Minimum Number of Spaces Required
library; municipal service centre; personal service business; retail food store 8,000 m2 of gross floor area or greater; retail store 8,000 m2 of gross floor area or greater; service or repair shop; shopping centre	1 per 500 m2	15,112	30

As shown in the table above, a total of 30 bicycle parking spaces are required by law for the proposed development. As stated previously, the proposed development includes 46 bicycle parking spaces. Therefore, the proposed development exceeds all City of Ottawa By-Law requirements for bicycle parking.

## 10.0 BOUNDARY STREETS

This section will examine the design elements of the noted boundary streets and their ability to accommodate the proposed development as well as their alignments with the City of Ottawa's Complete Streets policy and urban design objectives.

The boundary streets for the development are Bank Street and Queensdale Avenue. Currently this section of Bank street does not have a complete street concept, nor does Queensdale Avenue.

### 10.1 Mobility

#### 10.1.1 Pedestrian Level Of Service (PLOS)

PLOS was checked based on The City of Ottawa Multi-Modal Level of Service (MMLOS) Guidelines, exhibits 3 to 4. Table 10.1.1.1 Illustrates the PLOS of each segment of the boundary streets; Bank Street and Queensdale Avenue. The analysis utilized the lowest quality facilities of each segment.

**Table 10.1.1.1 PLOS**

Segments PLOS		
	Bank Street	Queensdale Avenue
Sidewalk Width (m)	1.8	1.8
Boulevard Width (m)	N/A	N/A
AADT	> 3000	> 3000
Presence of Street Parking	No	No
Operating Speed (Km/h)	60	40
PLOS	E	C

Bank Street has a four-lane cross section with a posted speed limit of 60 km/h in the vicinity of the proposed site. Historical Average Annual Daily Traffic (AADT) is not available for this segment of Bank Street, however, based on the TMCs provided by the city it was determined that the AADT would be greater than 3000 veh/day. No on street parking is permitted, as well as there are no sidewalks on either side of the roadway. There are approximately 1.8m wide paved shoulders on each side of the roadway which the methodology for evaluating sidewalks can be used for paved shoulders according to the MMLOS, by reducing the resulting score by one grade. This results in a PLOS of D however due to the paved shoulders, this is reduced to a PLOS of E.

Queensdale Avenue has a two-lane cross section with a posted speed limit of 40 Km/h in the vicinity of the proposed site. Historical Average Annual Daily Traffic (AADT) is not available for this segment of Queensdale Avenue, however, based on the TMCs provided by the city it was determined that the AADT would be greater than 3000 veh/day. No street parking is permitted on the south side of the roadway. There are concrete sidewalks with a width of approximately 1.8m on both sides of the roadway. This results in a PLOS of C.

#### **10.1.2 Bicycle Level of Service (BLOS)**

As described in section 3.4, there are paved shoulders on Bank Street with no posted bike lane signage or pavement markings. On Queensdale Avenue, the roadway is shared by both cyclists and vehicles, with no designated bike lane. Upon review of Exhibit 11 in the MMLOS, the segment of Bank street has a BLOS of F, while Queensdale Avenue has a LOS of A. [Table 10.1.2.1](#) Illustrates the evaluation criteria.

**Table 10.1.2.1 BLOS of Each Approach**

BLOS		
	Bank Street	Queensdale Avenue
Type of Bikeway	Bike lane Not Adjacent Parking Lanes	Mixed
Number of Travel Lanes and Operating Speed	4 lanes; 60 km/h	2 lanes; 40 Km/h
LOS	D	A

### 10.1.3 Transit Level of Service (TLOS)

The TLOS methodology is intended primarily to be used for roadways with existing or planned rapid transit networks / priority measures. However, this segment of roadway does not fall into either of the categories therefore it can be still analysed however at a lesser extent. Both Bank Street and Queensdale Avenue are classified as mixed traffic roadways with moderate parking/driveway friction resulting in an TLOS of E when utilizing Exhibit 15 in the MMLOS.

### 10.1.4 Truck Level of Service (TkLOS)

**Table 10.1.4.1** Illustrates the MMLOS evaluation criteria and the tkLOS for the approached of Bank Street, Queensdale Avenue and the signalized intersection of Bank Street and Queensdale Avenue. Upon review of exhibit 20 and 21, the Approach of Bank Street has a tkLOS of A, Queensdale Avenue had a tkLOS of C.

**Table 10.1.4.1 tkLOS for Each Approach and the Signalized Intersection**

TKLOS		
	Bank Street	Queensdale Avenue
Curb Lane Width	> 3.7	< 3.5
LOS	A	C

### 10.1.5 Vehicular Level of Service (LOS)

The vehicular LOS and associated volume to capacity (v/c) ratio for the study area intersection is presented in **Section 3.10**. The segment LOS for the Boundary Street was taken as the critical v/c ratios for the northbound and southbound movements at the intersection of Bank Street and Queensdale Avenue for the approach of

Bank Street, while the eastbound and westbound movements were analysed for the Queensdale Avenue approach. Table 10.1.5.1 illustrates the LOS of each segment.

**Table 10.1.5.1 Vehicular LOS**

INTERSECTIONS	Approach	Vehicular LOS			
		Approach LOS		Volume-to-Capacity	
		AM	PM	AM	PM
Bank Street & Queensdale Avenue	EB	B	C	0.69	0.79
	WB	A	A	0.35	0.44
	SB	A	A	0.19	0.45
	NB	A	A	0.46	0.35

As shown above all approaches operate at a LOS of C or better through to the 2026 horizon year.

## 10.2 Road Safety

Available collision data within the study area was reviewed and is presented in Section 3.8. As the number of collisions was found to be low for the segment of Queensdale between Bank Street and Mavis Street, no mitigation measures are required at this time. As seen on the segment of Bank street between Queensdale Avenue and Lester road, there was a trend for Angled collisions with the majority occurring around the Tim Horton's on the east side of Bank Street. This may be caused due to the fact that the driveway of the Tim Hortons allows for both right and left turns in and out of the Tim Hortons. A potential mitigation measure could be to restrict the access of the Tim Hortons to being only a right in, right out (RIRO). At the intersection of Queensdale Avenue and Bank Street there was a trend of turning movement collision and angle collision, showing potential for mitigation measures for turning movements. This indicates a potential issue with the sightlines involved in the left turning movements at the intersection. This results in a potential for mitigation measures to be applied to the turning movements. This can be achieved by adding a protected left turning movement phase during the signal timing cycle. Another potential mitigation measure would be to realign the left-turning lanes to improve the sightlines for oncoming traffic.

## 10.3 Neighbourhood Traffic Management

Based on background data, there are speed humps located along Queensdale Avenue to help reduce the operating speed along Queensdale. There are no traffic management measures in place along Bank Street.

## 11.0 ACCESS INTERSECTIONS

This section will examine design elements of the proposed development's access points and assess their alignment with the City of Ottawa's complete streets philosophy, MMLOS Guidelines and urban design objectives.



### 11.1 Location and Design of Access

The site is to be serviced by the three existing entrances. There are neither proposed changes to existing entrances, nor any new proposed entrances. Two full-moves accesses are located along Queensdale Avenue, and one RIRO entrance is located along Bank Street, approximately 130m south of the signalized intersection at Bank Street and Queensdale Avenue. Details are provided in the Site Plan in [Appendix C](#).

### 11.2 Intersection Control

The stop control at all three accesses is expected to adequately accommodate traffic demands, no other traffic control measures are warranted at the proposed site access.

### 11.3 Intersection Design

The proposed development accesses were analyzed under total future traffic conditions for both the 2021 and 2026 horizon years. Results are presented in [Section 7.7](#). No concerns were noted with regards to the approach LOS at the proposed site accesses. All accesses operate at a LOS of A.

## 12.0 TRANSIT

This section will review the potential impacts of the proposed development on the existing and planned transit networks and services in order to ensure the TLOS is not negatively impacted.

### 12.1 Route Capacity

As noted in [Section 7.2](#), it is anticipated that the proposed development will generate a total of approximately 5 new transit trips during the AM peak hour and 7 new transit trips during the PM peak hour. Due to the proposed development generating such a low number of transit trips, it is anticipated that the existing transit network can accommodate all transit travel demand. Furthermore, it is anticipated that the transit trips associated with the proposed development will not warrant any modifications to the existing transit network.

### 12.2 Transit Priority

As noted in [Section 3.5](#), only route 93 provides direct access to the proposed development. It is anticipated that the relatively low number of development-generated transit trips can be accommodated by the existing transit network. It is anticipated that these generated trips will not affect the existing travel time.

As the proposed development is using only existing accesses it is anticipated that the accesses to the proposed development will have no impact on the transit travel times along Bank Street.

## 13.0 INTERSECTION DESIGN

This section will determine the design elements of the study area intersections required to accommodate the proposed development, ensuring they are consistent with the City of Ottawa's Complete Street philosophy and MMLOS practices.

### 13.1 Intersection Control

As discussed in [Section 3.5](#) the study area of the proposed developments includes the following intersections

- Bank Street & St. Bernard Street / D'Aoust Avenue (signalized);
- Bank Street & Rosebella Avenue (signalized);
- Bank Street & Kingsdale Avenue (unsignalized);
- Bank Street & Queensdale Avenue (signalized);
- Albion Road & Queensdale Avenue (unsignalized); and,
- Bank Street & Lester Road (signalized).

All intersections were shown to operate at a LOS of D or better through the 2026 horizon year. As such no modifications to the existing intersections controls are recommended.

### 13.2 Intersection Design

#### 13.2.1 Intersection Pedestrian Level of Service (PLOS)

The Pedestrian Level of Service (PLOS) for the study area was determined based on the City of Ottawa Multi-Modal Level of Service (MMLOS) Guidelines, exhibits 5 to 7. [Table 13.2.1.1](#) Illustrates the most critical approach of each of the Signalized Intersection PLOS by means of the Pedestrian Exposure to Traffic at Signalized Intersections (PETSI), and average delay.

**Table 13.2.1.1 Signalized Intersection PLOS**

Signalized Intersection PLOS					
		Bank Street and St. Bernard Street/ D'Aoust Avenue	Bank Street and Rosebella Avenue	Bank Street and Queednsdale Avenue	Bank Street and Lester Street
Crossing Distance and Conditions	Total Lanes Crossed (#)	5	5	5	6
	Median	75	75	75	55
	Island Refuge	-4	-4	-4	-4
	Points	71	71	71	51
Signal Phasing	Left turn conflict	-8	-8	-8	-8
	Right turn conflict	-5	-5	-5	-5
	Right turns on red	-3	-3	-3	-3
	Leading pedestrian Interval	-2	-2	-2	-2
Corner Radius	Corner Radius (m)	-5	-5	-6	-8
Crosswalk Treatment	Crosswalk Treatment	-7	-7	-7	-7
Point Total		41	41	40	18
Pedestrian Exposure to Traffic LOS	Point Threshold	E	E	E	F
Pedestrian Delay	Delay	B	B	B	N/A

As shown in the table above all signalized intersections have a PLOS of E except for the intersection of Bank Street and Lester Street which has a PLOS of F. Crossing delay did not result in the LOS of any of the signalized intersections.

### 13.2.2 Intersection Bicycle Level of Service (BLOS)

The Bicycle Level of Service (BLOS) for the study area was determined based on The City of Ottawa Multi-Modal Level of Service (MMLOS) Guidelines, exhibits 12. Table 13.2.2.1 Illustrates the most critical approach of each of the Signalized Intersection.

**Table 13.2.2.1 Bicycle level of Service**

BLOS				
Mixed Traffic	Bank Street and St. Bernard Street/ D'Aoust Avenue	Bank Street and Rosebella Avenue	Bank Street and Queednsdale Avenue	Bank Street and Lester Street
Right turn lane and Turning Speed of Motorists	F	F	F	F
Cyclist Making a Left turn and Operating Speeds of Motorist	F	F	F	F

The table above shows that all intersection have a BLOS of F due to Bank Street having a posted speed limit of minimum 60 km/h and a cyclist must cross 2 lanes in order to enter the left turning lane, as well as right turn lanes being shared through-right turn lanes.

### 13.2.3 Intersection Transit Level of Service (TLOS)

In order to evaluate Transit Level of Service at the study area intersections, the largest delay at each approach was used to for the analysis while the review of Exhibit 16 of the City of Ottawa's MMLOS Guidelines resulted in each intersections TLOS. Table 13.2.3.1 Illustrates the results.

**Table 13.2.3.1 Transit Level of Service**

TLOS				
Mixed Traffic	Bank Street and St. Bernard Street/ D'Aoust Avenue	Bank Street and Rosebella Avenue	Bank Street and Queednsdale Avenue	Bank Street and Lester Street
Delay (s)	34	31	41	27
LOS	E	E	F	D



As shown above the intersections of Bank Street and St. Bernard Street / D'Aoust Avenue and the intersection of Bank Street and Rosebella Avenue both have a TLOS of E. The intersection of Bank Street and Lester Street has a TLOS of D and the intersection of Bank Street and Queensdale Avenue has a TLOS of F.

#### 13.2.4 Intersection Truck Level of Service (TkLOS)

The Truck Level of Service (TkLOS) for the study area intersections was determined in accordance with the City of Ottawa's MMLOS Guidelines. The effective radii, and corresponding levels of service at the signalized intersections is summarized in Table 13.2.4.1.

Table 13.2.4.1 truck Level of Service

TKLOS				
	Bank Street and St. Bernard Street/ D'Aoust Avenue	Bank Street and Rosebella Avenue	Bank Street and Queensdale Avenue	Bank Street and Lester Street
Corner Radii	10 to 15m	10 to 15m	10 to 15m	15m to 25m
LOS	E	E	E	C

Upon Review of Exhibit 21 of the City of Ottawa's MMLOS Guidelines, all intersections have a tkLOS of E except for the intersection of Lester street and Bank Street which has a tkLOS of C.

## 14.0 SUMMARY AND RECOMMENDATIONS

This TIA Analysis Report evaluated the proposed development and its impact on the existing transportation network. Based on the analysis presented, the existing traffic network is currently operating at acceptable levels and is anticipated to remain doing so through to the 2026 horizon year. The proposed development is not expected to be a major contributor to the background traffic growth.

The proposed development site plan meets or exceeds the City of Ottawa's By-Law requirements for both vehicular and bicycle parking spaces. There are no issues with circulation, access or truck movements with the proposed development.

Upon review of the boundary streets, the pedestrian and bicycle levels of service are anticipated to operate at PLOS E / F and a BLOS of F. There is no transit priority present nor rapid transit within the study area of the site, however there is one route that will service the development. There are no issues with the transit capacity for the development generated trips. As a result, to this no improvements are recommending to address existing MMLOS for adjacent study area intersections.

Prepared by,

**William Sherwin,**

Transportation and Traffic Engineering Intern

[w.sherwin@mcintoshperry.com](mailto:w.sherwin@mcintoshperry.com)

613.714.5929

Prepared by,

**Bryan Lee, P.Eng**

Transportation and Traffic Engineer

[b.lee@mcintoshperry.com](mailto:b.lee@mcintoshperry.com)

289.319.2774

Reviewed and Submitted by,

**Thomas Gryz, M.A.Sc., P.Eng**

Transportation and Traffic Engineer

[t.gryz@mcintoshperry.com](mailto:t.gryz@mcintoshperry.com)

613.903.5772

Appendix A

**Traffic Impact Assessment Screening Form**

## City of Ottawa 2017 TIA Guidelines Screening Form

### 1. Description of Proposed Development

Municipal Address	2950 Bank Street
Description of Location	LT LT 9 CON 4RF GLOUCESTER BEING PT OF THE S 1/2 AS IN N433559; GLOUCESTER
Land Use Classification	Arterial Mainstreet Zone, AM1 H(30)
Development Size (units)	Addition of Two Retail Buildings with Drive Thru Windows, Building A and Building B onto existing site.
Development Size (m <sup>2</sup> )	Building A (682m <sup>2</sup> ); Building B (975m <sup>2</sup> ); Total (1657m <sup>2</sup> )
Number of Accesses and Locations	No new proposed accesses.
Phase of Development	Site Plan Application
Buildout Year	2020

If available, please attach a sketch of the development or site plan to this form.

### 2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size	Triggered?
Single-family homes	40 units	<input type="checkbox"/>
Townhomes or apartments	90 units	<input type="checkbox"/>
Office	3,500 m <sup>2</sup>	<input type="checkbox"/>
Industrial	5,000 m <sup>2</sup>	<input type="checkbox"/>
Fast-food restaurant or coffee shop	100 m <sup>2</sup>	<input checked="" type="checkbox"/>
Destination retail	1,000 m <sup>2</sup>	<input checked="" type="checkbox"/>
Gas station or convenience market	75 m <sup>2</sup>	<input type="checkbox"/>

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.



### 3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?		NO
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*	YES	
<b>The development falls within the South Keys to Blossom Park, Bank Street Secondary Plan area as defined in the Official Plan.</b>		

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

### 4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?	YES	
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?		NO
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	YES	
Is the proposed driveway within auxiliary lanes of an intersection?	YES	
Does the proposed driveway make use of an existing median break that serves an existing site?		NO
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	YES	
Does the development include a drive-thru facility?	YES	

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

### 5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	YES	
Does the development satisfy the Location Trigger?	YES	
Does the development satisfy the Safety Trigger?	YES	

If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

## Appendix B

### Zoning Permitted Uses and Provisions

# CITY OF OTTAWA OFFICIAL PLAN, VOLUME 1

## 3.6.3 – Mainstreets

[Amendment #28, July 13, 2005]

The Mainstreet designations identify streets that offer significant opportunities for intensification through medium-density and mixed-use development, along streets that are Transit Priority Corridors or are well-served by transit. Mainstreets are the corridors that traverse long areas of the city, connecting different communities and changing in character along their length. They include nodes of activity at various scales, from high schools and small offices to hospitals and shopping centres. Some segments mark the boundaries of established residential areas, while other segments serve as shopping streets for adjacent communities or larger areas.

Focusing intensification on Mainstreets allows for less disruption and more convenient services for adjacent communities and more efficient use of transit. The objective of the Mainstreet designation is to encourage more dense and mixed-use development that supports, and is supported by, increased walking, cycling and transit use. Intensification is most likely to occur over time through the redevelopment of sites such as vacant lots, aging strip malls, and former automobile sales lots, parking lots and gas stations, as well as through additions to existing buildings. Mainstreets are diverse in character and change and renewal will take into account the character of the street and adjacent areas.

Two general types of Mainstreets are designated in this Plan:

- Mainstreets having pre-1945 characteristics are designated as Traditional Mainstreets. Typically, they are set within a tightly-knit urban fabric, with buildings that are small-scale, with narrow frontages and set close to the street. The development pattern, mix of uses, contiguous storefronts and density create an interesting pedestrian environment and support the use of transit. Residential uses are often located on the upper floors. Traditional Mainstreets generally have on-street parking or the potential to provide it, and limited on-site parking.
- Mainstreets having post-1945 characteristics are designated as Arterial Mainstreets. Typically, they are lined by larger lots and buildings, varied setbacks, and lower street-level densities than Traditional Mainstreets. Arterial Mainstreets are more automobile-oriented, built with four or more lanes. They generally do not provide on-street parking. Parking lots are

typically located between the buildings and the street, and the predominant land use is single-purpose commercial. Over time, it is anticipated that these streets will evolve into more transit-supportive, pedestrian-friendly Mainstreets that support the neighbouring community.

Not all Mainstreets or segments of Mainstreets match these conditions. Some Traditional Mainstreets were built between 1945 and the present, and display a blend of Traditional and Arterial Mainstreet characteristics. For these areas, this Plan promotes redevelopment in a fashion that locates buildings close to the street and is more supportive of walking, cycling and transit.

Within newly developing 'greenfields' areas or within Town Centres, new models of Traditional or Arterial Mainstreets may evolve that are mixed-use and support walking, cycling and transit.

Arterial Mainstreets are expected to change gradually through redevelopment. This means that, over time, residential and employment uses will be introduced at higher densities, potentially through redevelopment of large parking areas. New development and public infrastructure will be designed to improve walking and cycling as well as access to transit. [Amendment #150, October 19, 2018]

## ***Policies***

1. Traditional Mainstreets and Arterial Mainstreets are designated on Schedule B. The former are planned as compact, mixed-use, pedestrian-oriented streets that provide for access by foot, cycle, transit and automobile. The latter also are planned to provide a mix of uses and have the potential to evolve, over time, into more compact, pedestrian-oriented and transit friendly places. To facilitate this evolution, the zoning by-law may define the portion of the street frontage of an Arterial Mainstreet to be occupied by buildings located at or set back minimally from the sidewalk. Both Traditional and Arterial Mainstreets will fulfill and take advantage of their multi-modal transportation corridor function. Additional Mainstreets may be identified in Developing Communities, the policies and designations for which will be found in the appropriate Community Design Plan.
2. New Mainstreets will only be considered during a review of this Plan or through a secondary planning process that recommends an amendment to this Plan. The City will evaluate the appropriateness of a new Mainstreet against all of the following requirements:
  1. It is on a Transit Priority Corridor or within 800 metres walking distance of a Rapid Transit Station on Schedule D (for Arterial Mainstreets only);

2. There are substantial opportunities for new development or redevelopment fronting the roadway segment proposed for designation;
  3. The potential for increased building heights are compatible with adjacent development that is not within the Mainstreet designation;
  4. The street already contains a mix of uses or can introduce a mix of uses in a way that is compatible with adjacent planned development in the case of greenfield areas; and
  5. It has potential to be converted to a pedestrian and cycling friendly environment. [Amendment #150, October 19, 2018]
3. The symbol delineating Traditional and Arterial Mainstreet designations on Schedule B of this Plan is a stand-alone land use designation and not an overlay. The Traditional and Arterial Mainstreet designations generally apply to the whole of those properties fronting on the road, however, for very deep lots, the designations will generally be limited to a depth of 200 metres from a Traditional Mainstreet and to a depth of 400 metres from an Arterial Mainstreet. The boundary may also be varied, depending on site circumstance and lot configuration. For instance, it may also include properties on abutting side streets that exist within the same corridor. A secondary plan may specify a greater or lesser depth. [Amendment #150, LPAT October 22, 2018]
  4. On lots where development has the potential to develop both adjacent to the street and to the rear of the property, the Mainstreet designation will apply to the entire lot and development situated on the rear portions will not be considered to be non-conforming by virtue of not being located adjacent to the street. Where the depth of lots fronting the road is sufficient to enable development to occur both adjacent to the street and to the rear of the property, and where development is initially unlikely to occupy the entire frontage immediately adjacent to the street, the site should be planned in a coordinated fashion that will facilitate:
    1. multi-modal (pedestrian, cycling, transit and vehicular) access between the site and the public street(s),
    2. multi-modal (pedestrian, cycling, transit and vehicular) access between the site and the public street(s),
    3. attractive, safe and usable pedestrian and cycle connections between the site and adjacent communities,
    4. an enhanced interconnected pedestrian environment that links individual uses on the site, transit stops and continuous public sidewalks on the adjoining streets, and which is generally distinct from internal vehicle routes,
    5. measures of sufficient size and quality to relieve the visual impact of surface parking areas,



6. the provision of adequate landscaped areas, particularly trees, along the perimeter of the site and street frontages,
  7. the provision of coordinated signage, and
  8. over time, a development that is oriented to the Mainstreet.
5. A broad range of uses is permitted on Traditional and Arterial Mainstreets, including retail and service commercial uses, offices, residential and institutional uses. Uses may be mixed in individual buildings or occur side by side in separate buildings. Where a Mainstreet abuts an Employment Area, the zoning by-law may prohibit noise-sensitive uses on the Mainstreet where appropriate.
6. Major Urban Facilities are permitted on Arterial Mainstreets as set out in Section 3.6.7.
7. Traditional and Arterial Mainstreets, or portions thereof, represent important areas for the preparation of Community Design Plans in accordance with the policies of Section 2.5.6. Community Design Plans and development proposals on Mainstreets will be evaluated in the context of the policies in this section and the Design Objectives and Principles in Section 2.5.1, and the Compatibility policies set out in Section 4.11.
8. New gas bars, service stations, automobile sales and drive-through facilities will not be permitted on Traditional Mainstreets in order to protect and enhance the pedestrian environment. However, there may be exceptional circumstances where a drive-through facility may be located on a Traditional Mainstreet where the intent of this Official Plan regarding Traditional Mainstreets can otherwise be preserved. In these cases, appropriate means such as coordinated tree planting and landscaping, pedestrian amenities and the dimension, location and number of vehicular accesses will be used to minimize the interruption of the Traditional Mainstreet street frontage and ameliorate the impact on the pedestrian environment. Existing gas bars, service stations, automobile sales and drive-through facilities located on Traditional Mainstreets that are permitted under the zoning existing on the date of adoption of this Plan, will continue to be permitted in the zoning by-law as permitted uses and encouraged to redevelop over time in a manner that achieves the street's planned function and character. New gas bars, service stations, automobile sales, and drive-through facilities are permitted on Arterial Mainstreets and will be evaluated on the basis of the Design Objectives and Principles in Section 2.5.1, any applicable Council-approved design guidelines, and the Compatibility policies set out in Section 4.11. [OMB decision #2649, September 21, 2006]
9. On Traditional Mainstreets surface parking will not be permitted between the building and the street. The location of surface parking will avoid interruption of building continuity along the Traditional Mainstreet street frontage and will minimize impacts on pedestrians. However, there may be exceptional

circumstances, where locating parking adjacent to the street frontage is unavoidable. In these cases, appropriate means such as coordinated tree planting and landscaping, pedestrian amenities and the dimension, location and number of vehicular access will be used to minimize the interruption of the Traditional Mainstreet street frontage and to ameliorate the impact on the pedestrian environment. On Arterial Mainstreets, the location of surface parking will be evaluated in the context of Section 2.5.1 and Section 4.11.

10. Redevelopment and infill are encouraged on Traditional and Arterial Mainstreets in order to optimize the use of land through intensification, in a building format that encloses and defines the street edge with active frontages that provide direct pedestrian access to the sidewalk. [Amendment #150, October 19, 2018]
11. This Plan supports mid-rise building heights on Traditional Mainstreets, but secondary plans may identify circumstances where different building heights may be permitted. In the absence of a secondary plan, the Zoning By-law may establish as-of-right building heights, lower than those permitted above, based upon site conditions, existing character and compatibility. Building heights greater than those specified in this Section will only be permitted through a Secondary Plan. The Zoning By-law will establish a minimum building height equivalent to a two-storey building, except for those existing gas bars, service stations, automobile sales and drive-through facilities identified in policy 8 above. [Amendment #150, LPAT October 22, 2018]
12. On Arterial Mainstreets, unless a secondary plan states otherwise, building heights up to 9 storeys may be permitted as of right but High-rise buildings may only be permitted subject to a zoning amendment and where the building will be located at one or more of the following nodes:
  1. within 400 metres walking distance of a Rapid Transit Station on Schedule D of this Plan; or
  2. directly abutting an intersection of the Mainstreet with another Mainstreet or a Transit Priority Corridor on Schedule D of this Plan; or
  3. directly abutting a Major Urban Facility:

and where the development provides a community amenity and adequate transition is provided to adjacent low-rise.

The Zoning By-law may establish as-of-right building heights lower than nine storeys where site conditions, existing character and compatibility with adjacent development dictate that a lower building form is appropriate. [Amendment #150 LPAT July 18, 2019]

13. Where a building is being demolished on a Mainstreet, and no immediate replacement use is proposed, approval of the demolition will be subject to the

approval of a Site Plan Application that addresses landscaping and associated site improvements that will contribute to the attractiveness of the Mainstreet environment on an interim basis.

14. To achieve the vision for Mainstreets, changes within the public environment as well as within the abutting private property environment may be necessary. The function and design of a road may influence the nature of land use along it and changes to the street may be necessary in order to facilitate a more intense, pedestrian-oriented form of development adjacent to it. Where the City is proposing public works within a Mainstreet's right-of-way, it will consider changes such as the institution of on-street parking, improvements to the pedestrian and cycling environment, streetscape enhancements, lane reductions and measures to enhance transit ridership in the area.
15. In order to demonstrate its commitment to development on Mainstreets, the City will consider them to be priority locations for considering:
  1. New or relocated municipal buildings and facilities or for leasing space for municipal functions;
  2. The assembly of land to ensure an adequate supply that is strategically located for redevelopment or community improvement purposes;
  3. Infrastructure and public facilities improvement strategies, including measures such as those contained in policy 12 of Section 2.5.5;
  4. The creation of comprehensive traffic and parking strategies;
  5. The creation of brownfield redevelopment strategies;
  6. The use of techniques such as increased height and density provisions;
  7. The application of financial and regulatory incentives;
  8. Exploring partnerships between the public and private sectors.
16. Any new construction of buildings, structures or modifications, alterations and additions to existing buildings or structures, which have the effect of altering exterior character along a Stittsville Main Street frontage shall be evaluated in the context of the existing Stittsville Main Street Master Plans and Urban Design Guidelines.

### **Site-Specific Exceptions**

17. For the lands known municipally as 3730 Innes Road, the Arterial Mainstreet designation shall extend no greater than 475 metres from Innes Road.
18. The Arterial Mainstreet designation on Hazeldean Road, between Iber Road and the Carp Road intersection shall extend no more than 150 metres from Hazeldean Road. Minor variation of this distance may be considered where a clearly recognized physical feature, such as a creek bed or a built boundary, such as an existing residential subdivision provide for a reasonable and small scale adjustment beyond 150 metres. In addition to the foregoing and notwithstanding the provisions of policy 3 of Section 3.6.3, in the case of lots

that extend between Hazeldean Road and the projection of Maple Grove and Rothbourne Road, consideration may be given to extending the Arterial Mainstreet designation more than 150 metres from Hazeldean Road, provided that:

1. a detailed concept plan is prepared that illustrates how the entire lot will be developed;
  2. the concept plan ensures that the intent of the Mainstreet policies is maintained, particularly with respect to the creation of an urban development pattern along the street; and
  3. any retail uses are located and oriented to directly address Hazeldean Road.
19. Despite the provisions of Section 3.6.3, Policy 6, on lands described as 443, 445, and 447 McArthur Avenue, a limited automobile service station is permitted.

# ZONING BY-LAW 2008-250, PART 10

## AM – Arterial Mainstreet Zone (Sections 185-186)

Purpose of the Zone The purpose of the AM – Arterial Mainstreet Zone is to: (1) accommodate a broad range of uses including retail, service commercial, offices, residential and institutional uses in mixed-use buildings or side by side in separate buildings in areas designated Arterial Mainstreet in the Official Plan; and (2) impose development standards that will promote intensification while ensuring that they are compatible with the surrounding uses.

185. In the AM Zone: Permitted Non-Residential Uses (1) The following non-residential uses are permitted subject to: (a) the provisions of subsections 185(3) to (5), and (b) amusement park being located within a building;

## Part 10 – Mixed Use/Commercial Zones (Sections 185-198) 10 - 2 City of Ottawa Zoning By-law 2008-250 Consolidation

amusement centre amusement park animal care establishment animal hospital artist studio automobile dealership automobile rental establishment automobile service station bank bank machine bar broadcasting studio car wash catering establishment cinema click and collect facility (By-law 2016-289) community centre community health and resource centre convenience store day care diplomatic mission, see Part 3, Section 88 drive-through facility emergency service funeral home gas bar hotel instructional facility library medical facility municipal service centre museum nightclub office park parking garage payday loan establishment (By-law 2017-302) personal brewing facility (By-law 2019-41) personal service business place of assembly place of worship post office production studio recreational and athletic facility research and development centre residential care facility (By-law 2011-273) restaurant retail food store retail store school service and repair shop sports arena storefront industry, see Part 3, Section 99 (By-law 2018-171) technology industry theatre training center urban agriculture, see Part 3, Section 82 (By-law 2017-148)

## Part 10 – Mixed Use/Commercial Zones (Sections 185-198) 10 - 3 City of Ottawa Zoning By-law 2008-250 Consolidation

Permitted Residential Uses (2) The following residential uses are permitted: apartment dwelling, low rise apartment dwelling, mid rise (By-law 2014-292) bed and breakfast, see Part 5, Section 121 dwelling unit group home, see Part 5, Section 126 home-based business, see Part 5, Section 127 home-based day care, see Part 5, Section 129 planned unit development, see Part 5, Section 131 retirement home retirement home, converted, see Part 5, Section 122 rooming house stacked dwelling, see Part 5, Section 138 (By-law 2010-307) townhouse dwelling, see Part 5, Section 138 (By-law 2012-334)(By-law 2010-307) (Bylaw 2014-189) (By-law 2018-206) Zone Provisions (3) The zone provisions are set out in Table 185 below.

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TABLE 185 - AM ZONE PROVISIONS I ZONING MECHANISMS

II PROVISIONS

(a) Minimum lot area No minimum

(b) Minimum lot width No minimum

(c) Front yard and corner side yard

(i) non-residential or mixed-use buildings

Minimum No minimum

(ii) residential use building

Minimum 3 m

(d) Minimum interior side yard

(i) abutting a residential zone 7.5 m

(ii) all other cases No minimum

(e) Minimum rear yard

(i) abutting a street 3 m

(ii) rear lot line abutting a residential zone 7.5 m

(iii) for a residential use building 7.5 m

(iv) all other cases No minimum

(f) Maximum building height

(i) in any area up to and including 20 metres from a property line abutting a R1, R2 or R3 residential zone (By-law 2011-124)

11 m

(ii) in any area up to and including 20 metres from a property line abutting a R4 zone (By-law 2011-124)

15 m

(iii) in any area over 20 metres and up to and including 30 metres from a property line abutting a R1, R2, R3 or R4 zone (By-law 2011-124)

20 metres, or as shown on the zoning map

(iv) more than 30 metres from a property line abutting a R1 – R4 zone

30 metres but in no case greater than nine storeys, or as shown on the zoning map (By-law 2015-45)

(v) in all other cases 30 metres but in no case greater than nine storeys, or as shown on the zoning map (By-law 2015-45)

(g) Maximum building height for AM, AM1, AM4 and AM5 zones, on specific street segments as noted below: (Bylaw 2015-45)

25 metres, or as shown on the zoning map

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## I ZONING MECHANISMS

## II PROVISIONS

Street Segments (i) Baseline Road from St. Helen's Place to Merivale Road ii) Merivale Road from Baseline Road to Caldwell Avenue iii) Clyde Avenue from Doheney Street to Highway 417 iv) Bronson Avenue from Carling Avenue to Kippewa Drive v) St. Laurent Blvd. from VIA Rail right-of-way to Queen Mary Street vi) Michael Street from Tremblay Road to Kenaston Street vii) Ogilvie Road from St. Laurent Blvd. to Cyrville Road viii) Brittany Drive from Montreal Road to Kristin Way ix) Montreal Road from Shefford Road to Regional Road 174 x) Innes Road from Page Road to Tenth Line Road xi) Bank Street from VIA Rail right-of-way to Walkley Road xii) Bank Street from Walkey Road to Rail right-of-way (South of Ledbury Ave.) xiii) Bank Street from Rail right-of-way (South of Ledbury Ave.) to Lester Road

(h) Maximum floor space index (Bylaw 2015-45)

(i) for AM, AM1, AM4 and AM5 zones, on specific street segments as noted in clause (g) above

1. if 80% or more of the required parking is provided below grade

3.5

2. in all other cases 2, unless otherwise shown

(ii) in all other cases none

(i) Minimum width of landscaped area around a parking lot see Section 110 – Landscaping Provisions for Parking Lots

(4) Outdoor storage is permitted subject to: (a) being located in an interior side yard or rear yard; (b) being completely enclosed and screened from a public street, and from residential or institutional zone; and (c) the provisions of subsection 185(4) (b) above does not apply to automobile dealership. (5) For other applicable provisions, see Part 2 – General Provisions, Part 3 – Special Use provisions, and Part 4 – Parking and Loading Provisions. (6) (a) Despite the list of permitted residential uses, where the zoning on a lot is accompanied by a H suffix, schedule or exception that permits a height of 30m or greater on part of the lot, the use Apartment Dwelling, High Rise is a permitted use on that lot. (b) Despite the list of permitted residential uses, where the zoning on a lot is accompanied by a H suffix, schedule or exception that restricts building height to less than 15m or to fewer than five storeys, on the entire lot, the use Apartment Dwelling, Mid Rise is a prohibited use on that lot. (By-law 2014-292) AM Subzones 186. In the AM Zone, the following subzones apply:

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AM1 Subzone (1) In the AM1 Subzone: (a) no greater than 50% of the maximum permitted floor space index may be used for the non-residential uses; and (By-law 2012-91) (b) the provisions of subsection 186(1)(a) above do not apply to community centre, community health and resource centre, day care and library.

## Appendix C

### Site Plan

plot scale 1:1

Project Zoning Review/Statistics

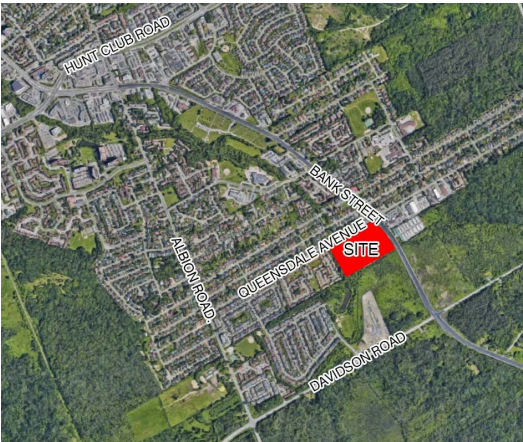
Municipality: City of Ottawa  
Municipal Address: 2950 Bank Street  
Registered Owner: Blossom Park Retail Centre Inc.  
Lot Area: 58,674 sq.m. (631,561 sq.ft.)(14.5 acres)

Zoning Analysis  
Ottawa  
Zoning By-law: 2008-250  
Zone: AM1 H(30)  
Proposed Use: Retail Store; Drive-Through Facility; Restaurant (Shopping Centre)

Building Areas		Gross (out-to-out)	Sq.ft
	Sq.m.		
Existing Shopping Centre	13,022	140,167	
Existing Bank Building	422	4,542	
Existing Development	13,444	144,709	
Proposed Building 'A'	692	7,450	
Proposed Building 'B'	975	10,500	
Proposed Development	1,668	17,950	
Grand Total	15,112	162,659	

Development Standards		
	Required	Provided
Minimum Lot Area	No min.	58,674 sq.m.
Minimum Lot Width	No min.	194.6m
Minimum Required Yard		
Front Yard (min.)	No min.	6m
Corner Side Yard (min.)	No min.	14.5m
Interior Side Yard (min.)	No min.	5m (not abutting residential zone)
Rear Yard (min.)	7.5m	69.3m (abutting residential zone)
Maximum Building Height	30m	10m (Approx. - Existing Building)
Maximum Floor Space Index	2**	0.26 (**FSI no more than 1 for non-residential uses, as per AM1 subzone)

Parking, Loading, Queuing		
Parking Spaces (2.6m x 5.2m)	Required: 544	Area C Schedule 1A
Shopping Centre (3.6 spaces/100 sq.m.)	Provided: 544	
Accessible Parking	Required: 13 (6 Type 'A', 3.4m wide; 7 Type 'B', 2.6m wide)	
	Provided: 21 (17 Existing; plus 2 Type 'A' & 2 Type 'B')	
Bicycle Parking (0.6m x 1.8m)	Required: 30	
(Shopping Centre: 1/500 sq.m.)	Provided: 46	
Loading Spaces (3.5m x 7.0m)	Required: 2 (Table 113A)	
	Provided: 3 (Existing)	



1 LOCATION PLAN  
A010 SCALE N.T.S.

SITE PLAN LEGEND	
ICON	DESCRIPTION
[Symbol]	Existing Concrete
[Symbol]	Proposed Concrete
[Symbol]	Existing Landscape Area
[Symbol]	Proposed Landscape Area
[Symbol]	Existing Paver Walkway
[Symbol]	Parking Lines to be Repainted
[Symbol]	Watercourse
[Symbol]	Existing Buildings
[Symbol]	Proposed Buildings
[Symbol]	Existing Concrete Curb
[Symbol]	Proposed Concrete Curb
[Symbol]	Overhead Wires
[Symbol]	Property Lines
[Symbol]	Road Lanes
[Symbol]	Fence
[Symbol]	Signage
[Symbol]	BF Parking Space
[Symbol]	6m Wide Fire Route (12m centreline radius on all turns, TYP.)
[Symbol]	Principal Entrance Door
[Symbol]	Exterior Door (*O/H* indicates Overhead Door)

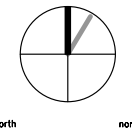
NOTES:

Contractor shall check and verify all dimensions on site and report any discrepancies to the Architect before proceeding.

SITE PLAN NOTES

Note #	Note Text
E/B	Existing Boland
E/BR	Existing Bike Rack
E/CB	Existing Catch Basin / Manhole
E/CB/MH	Existing Catch Basin / Manhole
E/CLF	Existing Chainlink Fence
E/CP	Existing Concrete Pad
E/CSW	Existing Concrete Sidewalk
E/CV	Existing Culvert
E/DS	Existing Directional Sign
E/FDC	Existing Fire Department Connection
E/FH	Existing Fire Hydrant
E/GM	Existing Gas Meter
E/LS	Existing Light Standard
E/MH	Existing Manhole
E/SS	Existing Stop Sign
E/IT	Existing Tree to remain
E/ITC	Existing Trash Compactor
E/ITCB	Existing Traffic Control Box
E/ITF	Existing Transformer
E/ITR	Existing Traffic Light Pole
E/IUP	Existing Utility Pole
E/IWC	Existing Well Cap
E/WV	Existing Water Valve
BR	Bike Rack, See Landscape Plan
BRK1	Brick Veneer 'Williamsburg MKII'
BRK2	Brick Veneer 'Sierra Sandstone'
BSC	Brick Soldier Course, 'Sierra Sandstone'
CC	Concrete Curb
CGL	Clear Vision Glass
CSW	Concrete Sidewalk
CW	Crosswalk, Painted Lines
DC	Depressed Curb
DTO	Drive-Thru Order Board
DTW	Drive-Thru Window
EC	EIFS Cornice, Colour - TBD
EIFS	Exterior Insulating Finish System; Colour - TBD
FH	Fire Hydrant
GE	Garbage Enclosure
LI	Landscape Island
LS	Light Standard
MF	Metal Cap Flashing, Colour Matching EIFS
SB	Illuminated Sign Box
SGL	Spandrel Glass, Colour - TBD
SS	Stop Sign

0	ISSUED FOR COORDINATION	06 NOV 2019
no.	revision	date



**KWC**  
383 Parkdale Avenue, Suite 201  
Ottawa Ontario Canada K1V 4R4  
**KWC ARCHITECTS INC.**  
PHONE (613) 238-2117  
FAX (613) 238-6595  
E MAIL kwc@kwc-arch.com

detail no.	1	détail no.
sheet no.	A1	feuille no.

project  
NEW FREESTAND  
RETAIL BUILDINGS  
BLOSSOM PARK  
SHOPPING CENTRE  
2950-2960 BANK STREET  
OTTAWA, ON.

designed by	KWC	approved by	
drawn by	AK	project no.	1849
date	05 NOVEMBER 2019	scale	as noted
drawing / dessin			

SITE PLAN

revision  
no. de la feuille

A010



## Appendix D

### Origin Destination Survey

# Hunt Club

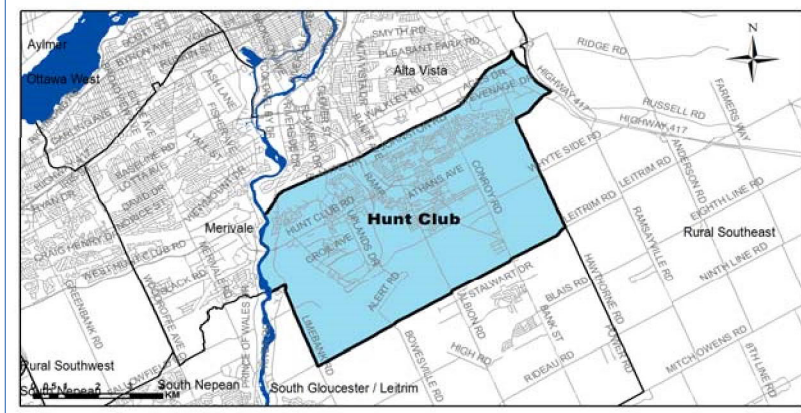
## Demographic Characteristics

Population	56,820	Actively Travelled	45,210
Employed Population	25,400	Number of Vehicles	30,390
Households	22,130	Area (km <sup>2</sup> )	52.3

Occupation Status (age 5+)	Male	Female	Total
Full Time Employed	11,620	10,650	22,280
Part Time Employed	1,130	2,000	3,130
Student	7,910	7,300	15,210
Retiree	3,690	4,680	8,380
Unemployed	730	700	1,430
Homemaker	90	1,950	2,030
Other	420	660	1,080
Total:	25,580	27,950	53,520

Traveller Characteristics	Male	Female	Total
Transit Pass Holders	5,960	7,020	12,980
Licensed Drivers	18,420	19,280	37,700
Telecommuters	80	190	270
Trips made by residents	66,220	74,780	141,000

Selected Indicators	
Daily Trips per Person (age 5+)	2.63
Vehicles per Person	0.53
Number of Persons per Household	2.57
Daily Trips per Household	6.37
Vehicles per Household	1.37
Workers per Household	1.15
Population Density (Pop/km2)	1090

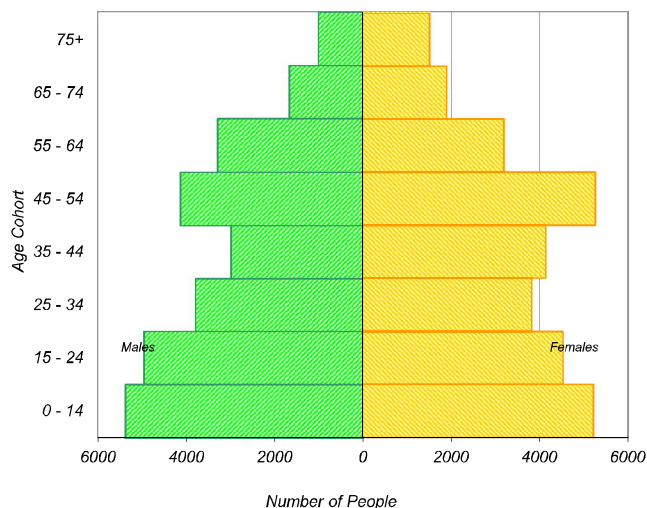


Household Size		
1 person	4,880	22%
2 persons	7,100	32%
3 persons	3,880	18%
4 persons	3,940	18%
5+ persons	2,330	11%
Total:	22,130	100%

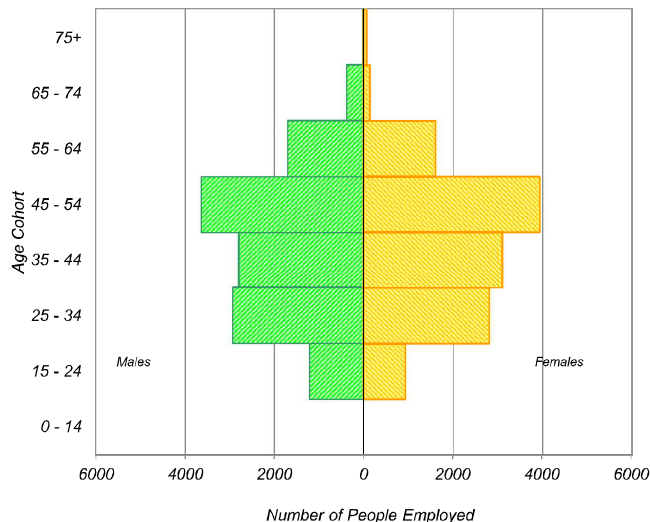
Households by Vehicle Availability		
0 vehicles	2,030	9%
1 vehicle	11,340	51%
2 vehicles	7,400	33%
3 vehicles	1,220	6%
4+ vehicles	140	1%
Total:	22,130	100%

Households by Dwelling Type		
Single-detached	6,980	32%
Semi-detached	2,150	10%
Townhouse	8,900	40%
Apartment/Condo	4,110	19%
Total:	22,130	100%

Population



Employed Population

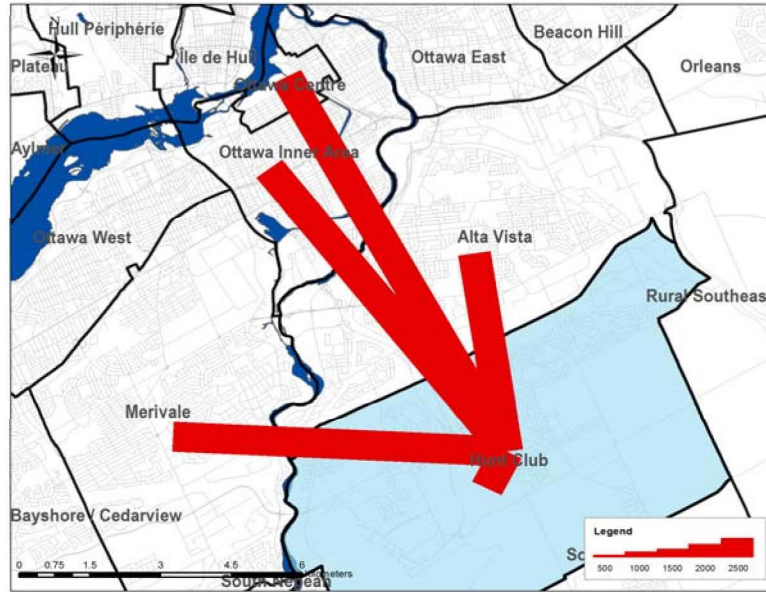


\* In 2005 data was only collected for household members aged 11+ therefore these results cannot be compared to the 2011 data.

## Travel Patterns

### Top Five Destinations of Trips from Hunt Club

#### AM Peak Period



### Summary of Trips to and from Hunt Club

#### AM Peak Period (6:30 - 8:59)

Districts	Destinations of Trips From		Origins of Trips To	
	District	% Total	District	% Total
Ottawa Centre	3,320	10%	180	1%
Ottawa Inner Area	3,060	10%	830	4%
Ottawa East	960	3%	540	3%
Beacon Hill	380	1%	170	1%
Alta Vista	7,990	25%	1,980	10%
Hunt Club	8,550	27%	8,550	44%
Merivale	3,130	10%	960	5%
Ottawa West	580	2%	360	2%
Bayshore / Cedarview	540	2%	230	1%
Orléans	630	2%	950	5%
Rural East	50	0%	140	1%
Rural Southeast	190	1%	1,210	6%
South Gloucester / Leirtrim	870	3%	1,100	6%
South Nepean	440	1%	920	5%
Rural Southwest	180	1%	220	1%
Kanata / Stittsville	420	1%	490	3%
Rural West	60	0%	80	0%
Île de Hull	380	1%	50	0%
Hull Périphérie	170	1%	50	0%
Plateau	0	0%	80	0%
Aylmer	0	0%	160	1%
Rural Northwest	0	0%	110	1%
Pointe Gatineau	70	0%	70	0%
Gatineau Est	80	0%	120	1%
Rural Northeast	30	0%	20	0%
Buckingham / Masson-Angers	0	0%	0	0%
Ontario Sub-Total:	31,350	98%	18,910	97%
Québec Sub-Total:	730	2%	660	3%
Total:	32,080	100%	19,570	100%

### Trips by Trip Purpose

24 Hours	From District		To District		Within District	
Work or related	19,270	25%	12,680	16%	3,720	9%
School	9,690	12%	1,260	2%	3,410	8%
Shopping	6,290	8%	9,030	12%	7,130	17%
Leisure	6,830	9%	5,190	7%	3,880	9%
Medical	2,210	3%	1,090	1%	180	0%
Pick-up / drive passenger	5,400	7%	5,740	7%	3,610	9%
Return Home	25,220	32%	39,090	51%	18,040	43%
Other	3,490	4%	3,100	4%	2,190	5%
Total:	78,400	100%	77,180	100%	42,160	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Work or related	12,470	53%	6,990	63%	1,840	22%
School	7,350	31%	1,150	10%	3,190	37%
Shopping	260	1%	390	4%	330	4%
Leisure	360	2%	340	3%	370	4%
Medical	650	3%	140	1%	20	0%
Pick-up / drive passenger	1,480	6%	880	8%	1,340	16%
Return Home	420	2%	570	5%	670	8%
Other	560	2%	570	5%	780	9%
Total:	23,550	100%	11,030	100%	8,540	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Work or related	460	3%	530	2%	140	1%
School	350	2%	0	0%	50	1%
Shopping	1,370	9%	2,130	10%	1,530	16%
Leisure	1,440	9%	1,230	6%	1,080	11%
Medical	240	2%	120	1%	10	0%
Pick-up / drive passenger	1,420	9%	2,010	9%	930	9%
Return Home	9,130	59%	15,540	70%	5,730	58%
Other	990	6%	780	3%	400	4%
Total:	15,400	100%	22,340	100%	9,870	100%

Peak Period (%)	Total:	% of 24 Hours	Within District (%)
24 Hours	197,740		21%
AM Peak Period	43,120	22%	20%
PM Peak Period	47,610	24%	21%

### Trips by Primary Travel Mode

24 Hours	From District		To District		Within District	
Auto Driver	47,460	61%	47,270	61%	22,130	52%
Auto Passenger	12,000	15%	11,370	15%	6,360	15%
Transit	13,980	18%	13,850	18%	1,660	4%
Bicycle	560	1%	580	1%	360	1%
Walk	310	0%	350	0%	8,370	20%
Other	4,100	5%	3,740	5%	3,290	8%
Total:	78,410	100%	77,160	100%	42,170	100%

AM Peak (06:30 - 08:59)	From District		To District		Within District	
Auto Driver	10,420	44%	8,350	76%	3,700	43%
Auto Passenger	2,740	12%	1,080	10%	1,190	14%
Transit	7,540	32%	710	6%	270	3%
Bicycle	220	1%	130	1%	100	1%
Walk	150	1%	20	0%	1,720	20%
Other	2,490	11%	760	7%	1,570	18%
Total:	23,560	100%	11,050	100%	8,550	100%

PM Peak (15:30 - 17:59)	From District		To District		Within District	
Auto Driver	10,960	71%	12,380	55%	5,340	54%
Auto Passenger	2,590	17%	2,910	13%	1,880	19%
Transit	1,330	9%	5,460	24%	270	3%
Bicycle	120	1%	180	1%	80	1%
Walk	30	0%	40	0%	1,710	17%
Other	360	2%	1,360	6%	580	6%
Total:	15,390	100%	22,330	100%	9,860	100%

Avg Vehicle Occupancy	From District		To District		Within District	
24 Hours	1.25		1.24		1.29	
AM Peak Period	1.26		1.13		1.32	
PM Peak Period	1.24		1.24		1.35	

Transit Modal Split	From District		To District		Within District	
24 Hours	19%		19%		6%	
AM Peak Period	36%		7%		5%	
PM Peak Period	9%		26%		4%	

## Appendix E

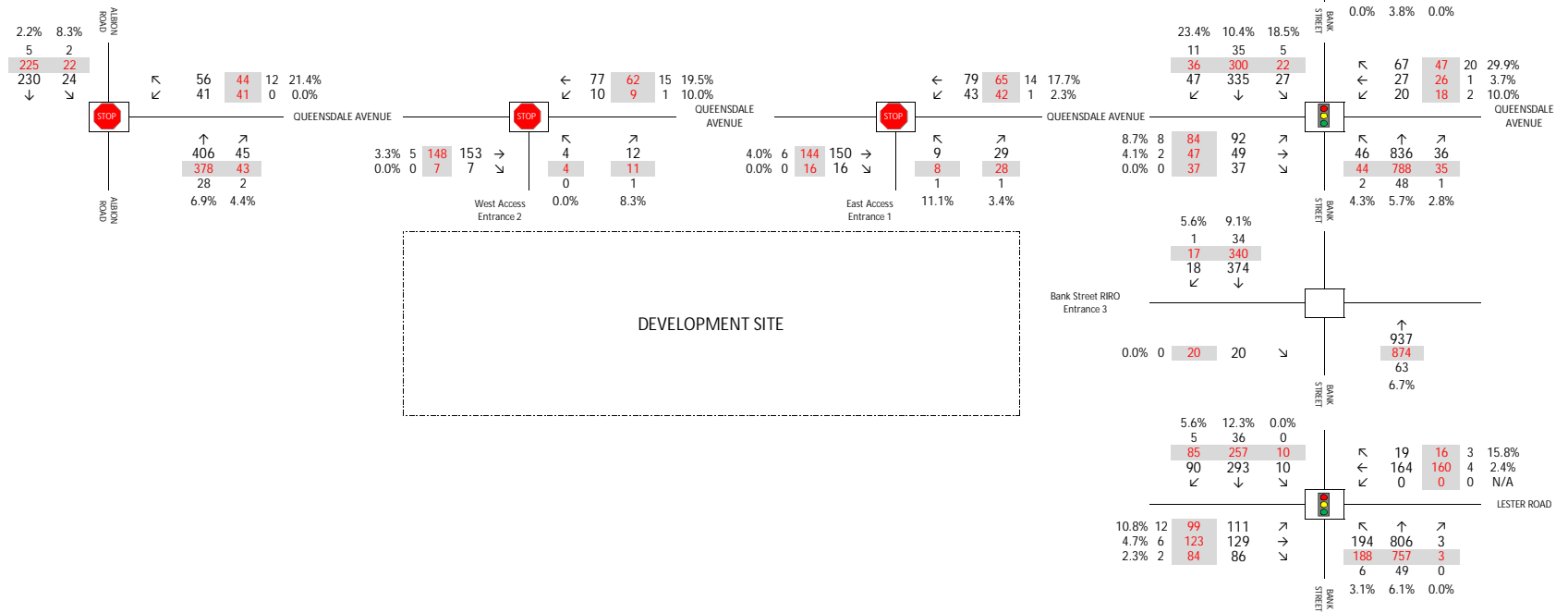
### Trip Distribution Figures

AM PEAK

Year	2021
Growth Rate	0.02

0.0%	Heavy Vehicle %
0	Heavy Vehicles
0	Passenger Vehicles
0	Total Vehicles

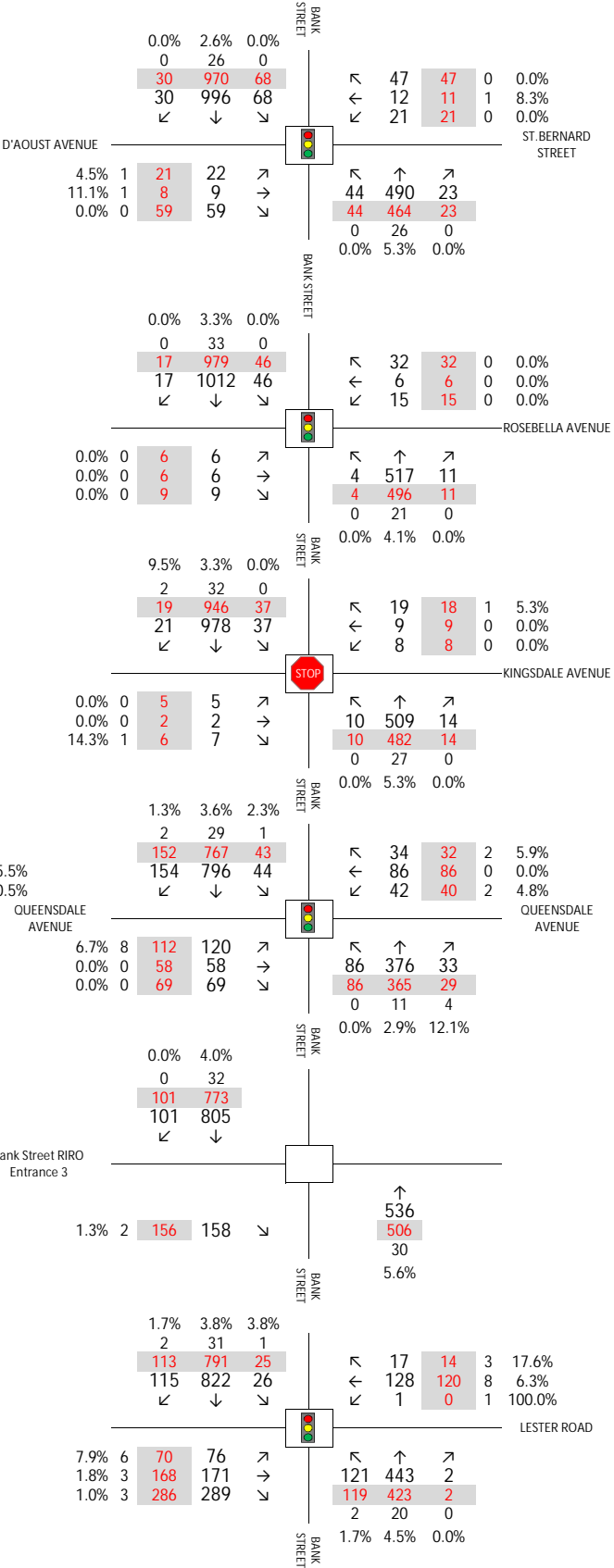
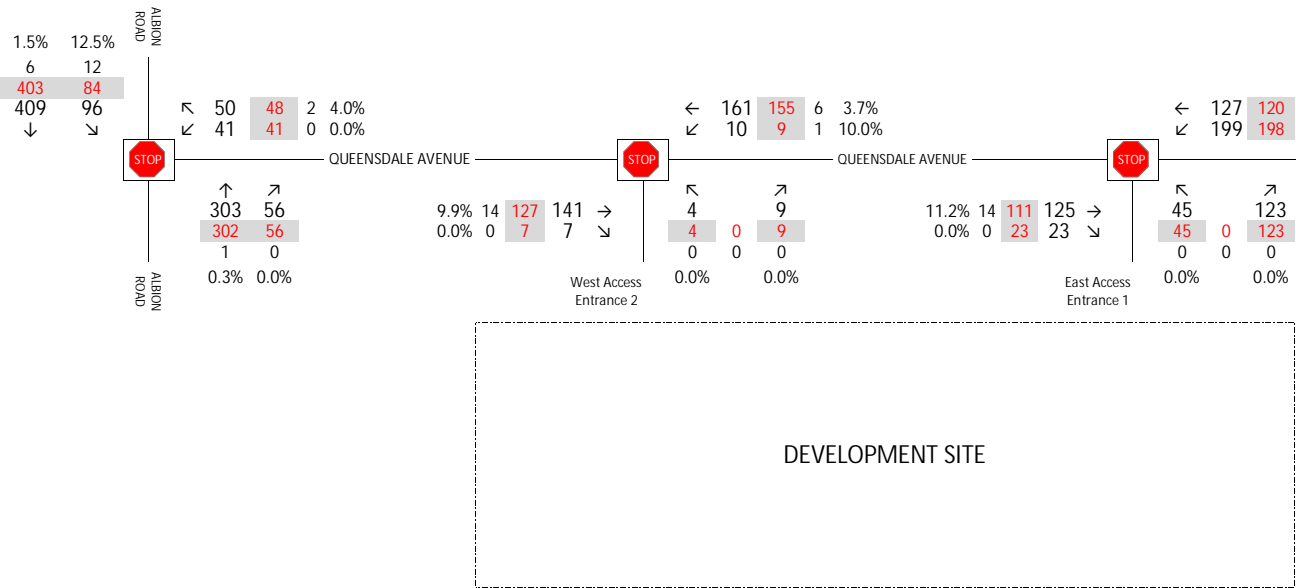
N.T.S





PM PEAK

Year	2021
Growth Rate	0.02
0.0%	Heavy Vehicle %
0	Heavy Vehicles
0	Passenger Vehicles
0	Total Vehicles
N.T.S	

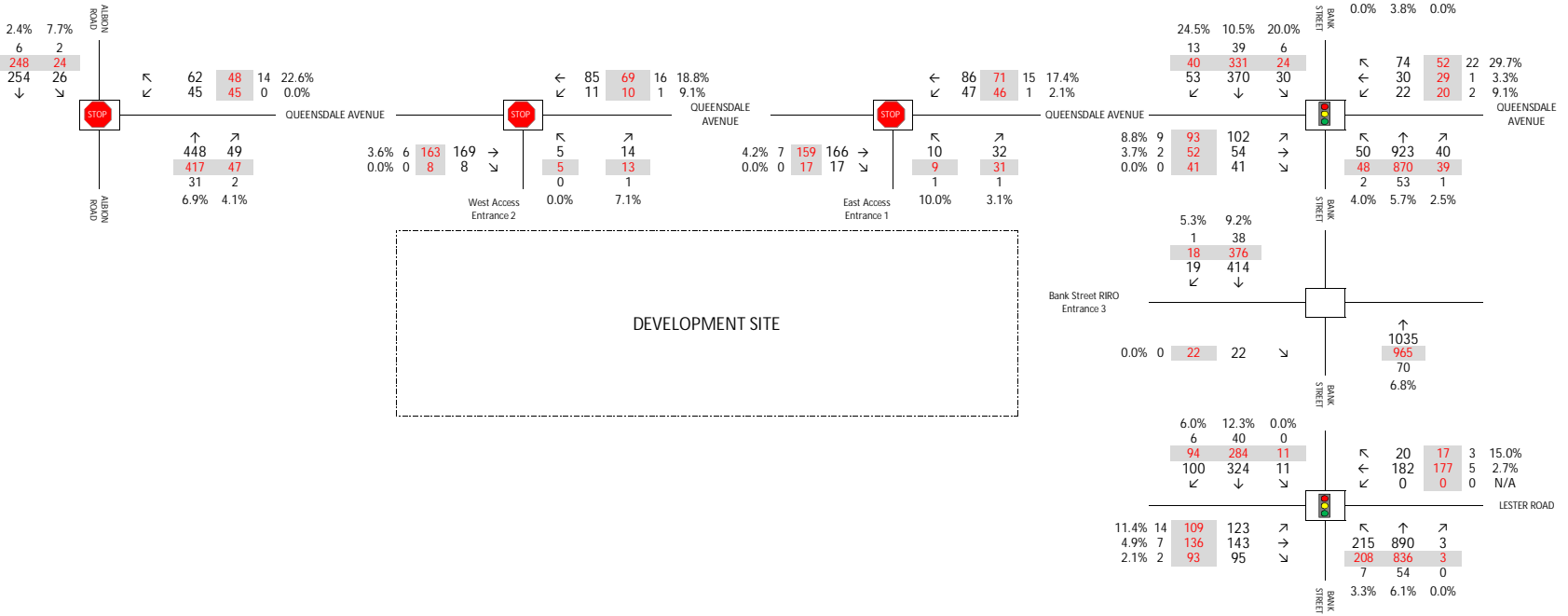


AM PEAK

Year 2026  
Growth Rate 0.02

0.0% Heavy Vehicle %  
0 Heavy Vehicles  
0 Passenger Vehicles  
0 Total Vehicles

N.T.S

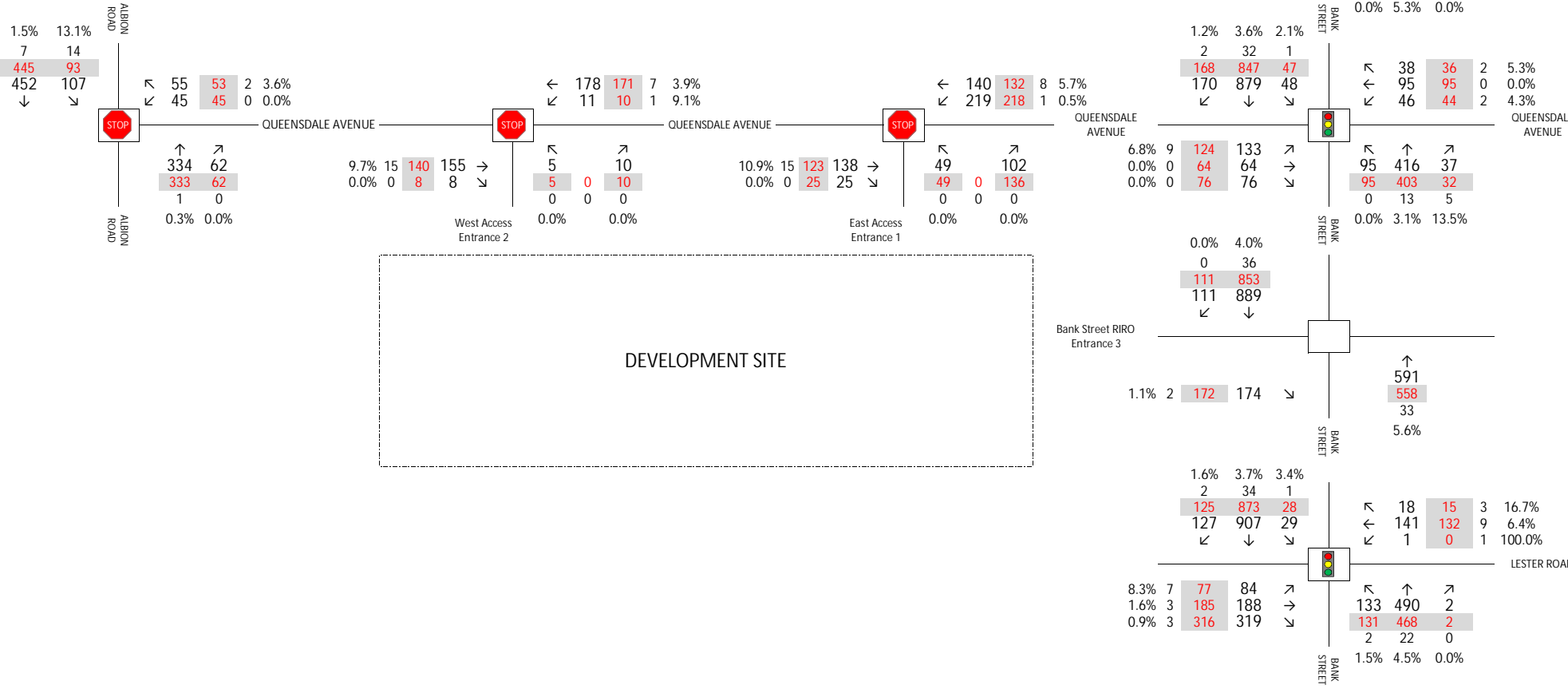


PM PEAK

Year 2026  
Growth Rate 0.02

0.0% Heavy Vehicle %  
0 Heavy Vehicles  
0 Passenger Vehicles  
0 Total Vehicles

N.T.S

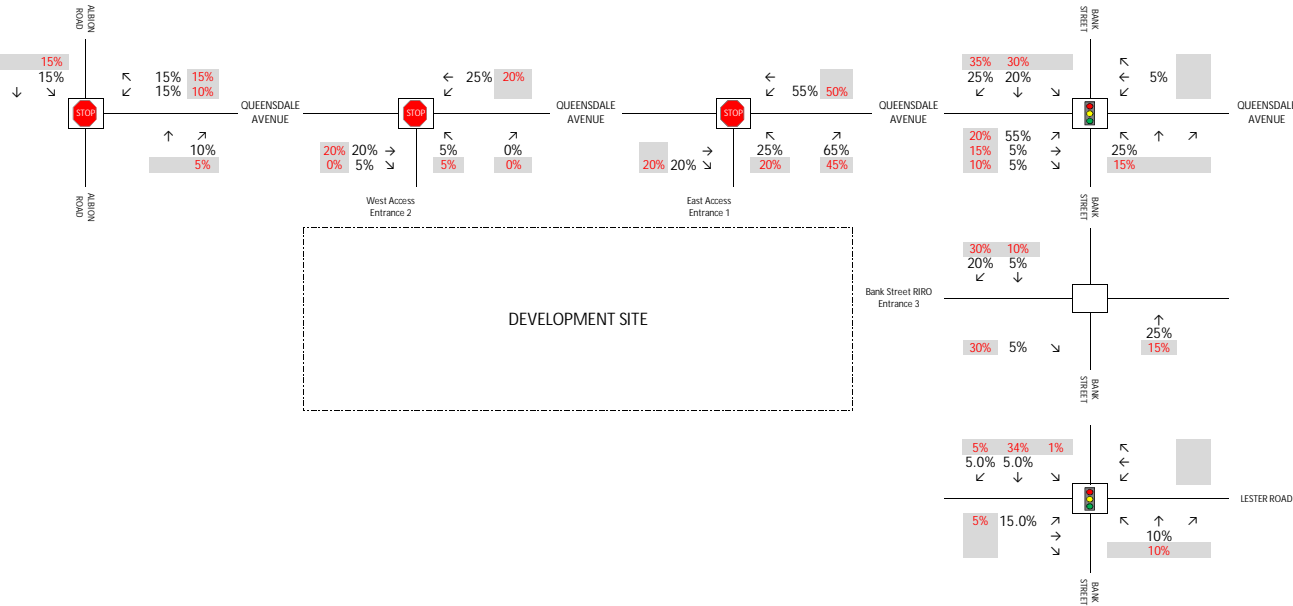


TRIP DISTRIBUTION OF GENERATED TRIPS

0 PM PEAK DISTRIBUTION  
0 AM PEAK DISTRIBUTION

N.T.S

AM TRIPS IN 27  
AM TRIPS OUT 24  
PM TRIPS IN 31  
PM TRIPS OUT 31

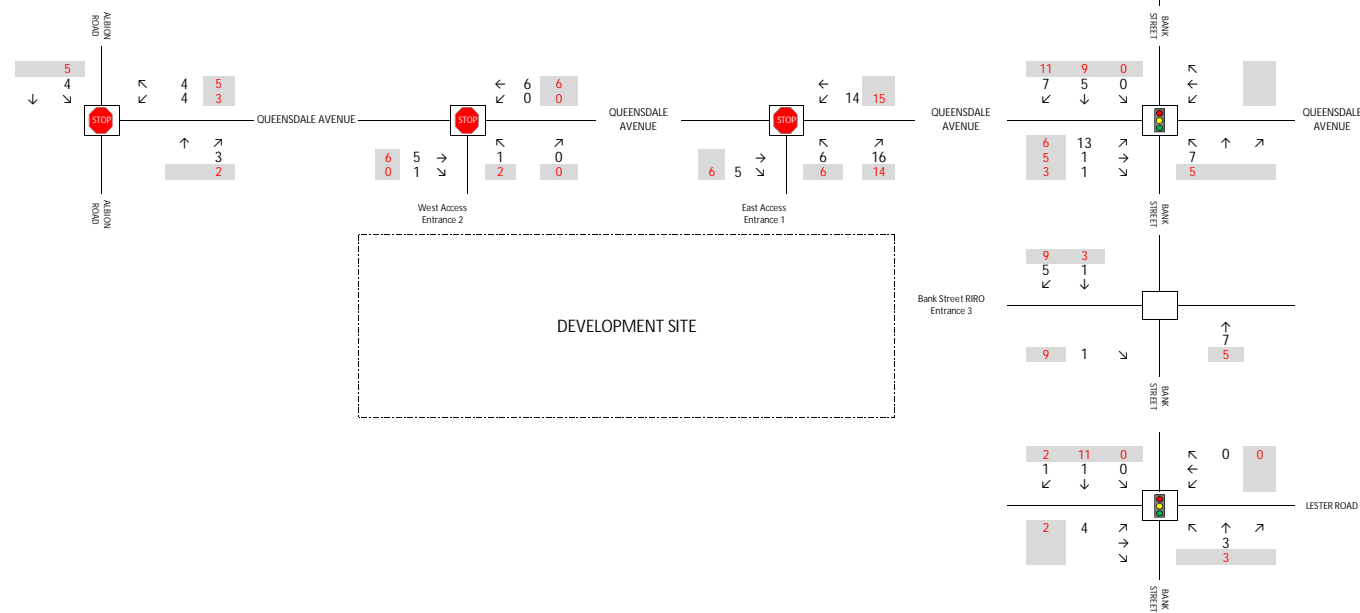


TRIP ASSIGNMENT OF GENERATED TRIPS

0 PM PEAK DISTRIBUTION  
0 AM PEAK DISTRIBUTION

N.T.S

AM TRIPS IN 27  
AM TRIPS OUT 24  
PM TRIPS IN 31  
PM TRIPS OUT 31

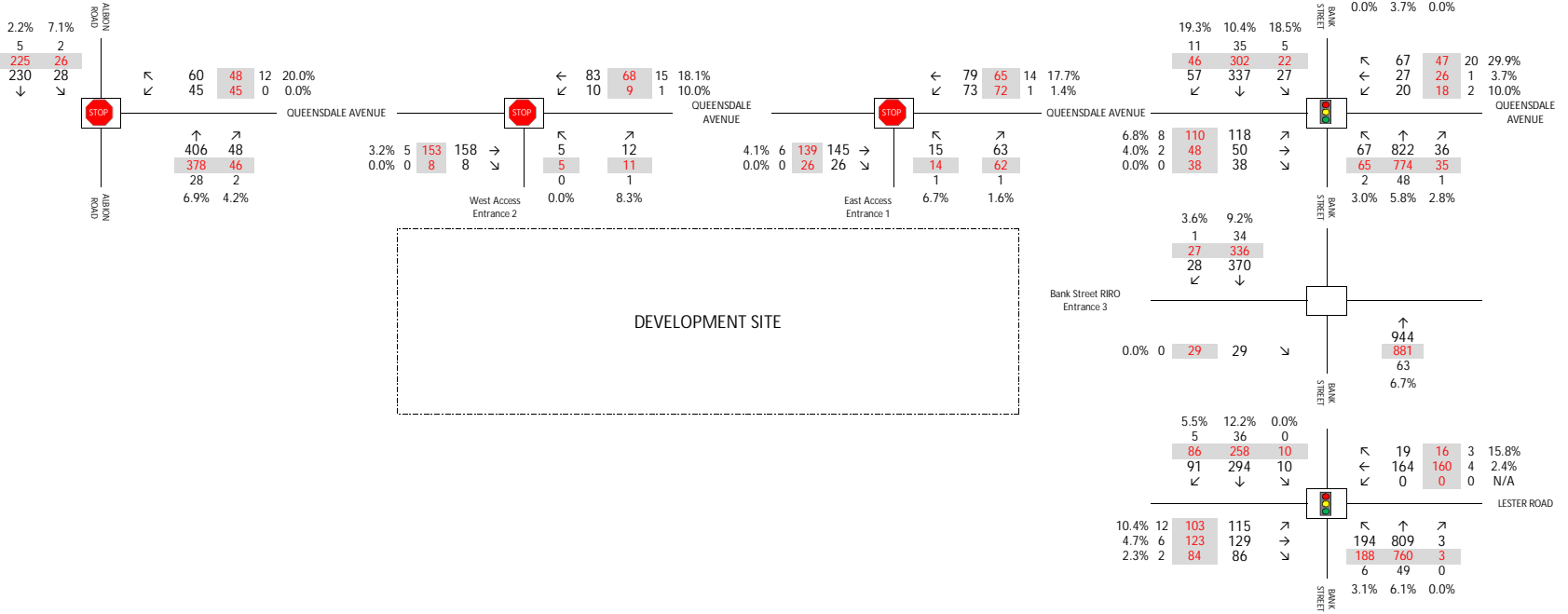


AM PEAK

Year 2021  
Growth Rate 0.02

0.0% Heavy Vehicle %  
0 Heavy Vehicles  
0 Passenger Vehicles  
0 Total Vehicles

N.T.S



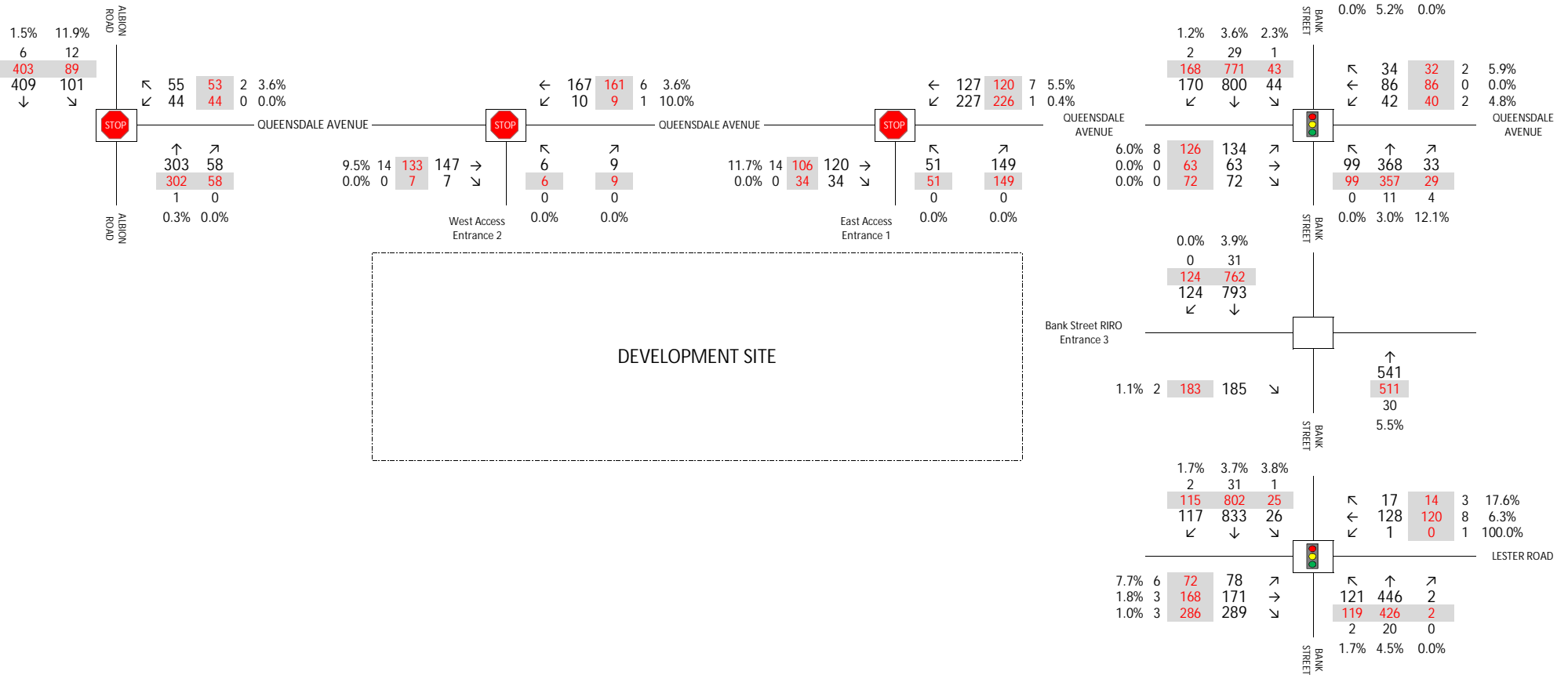


PM PEAK

Year 2021  
Growth Rate 0.02

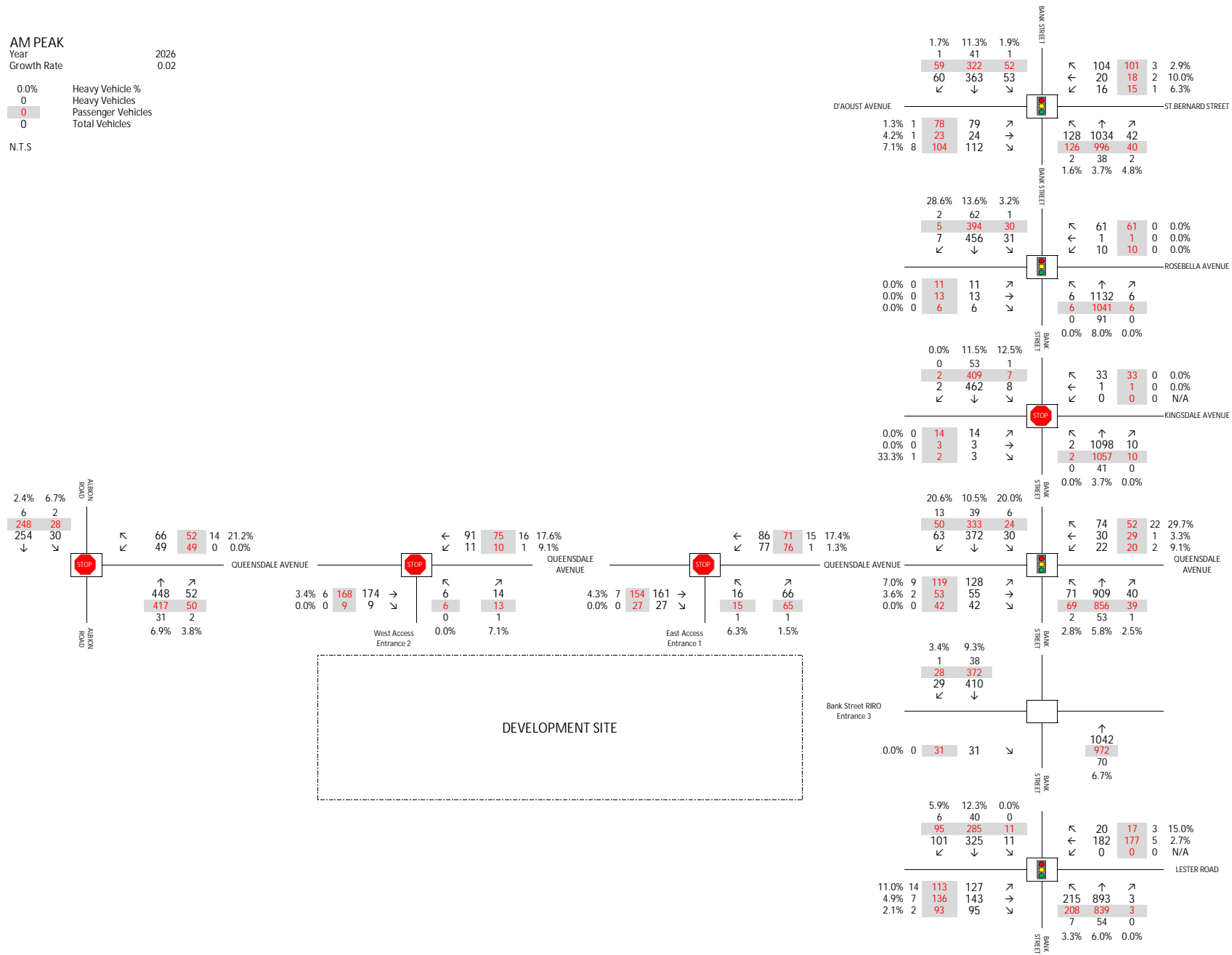
0.0% Heavy Vehicle %  
0 Heavy Vehicles  
0 Passenger Vehicles  
0 Total Vehicles

N.T.S



Year	2026
Growth Rate	0.02

N.T.S

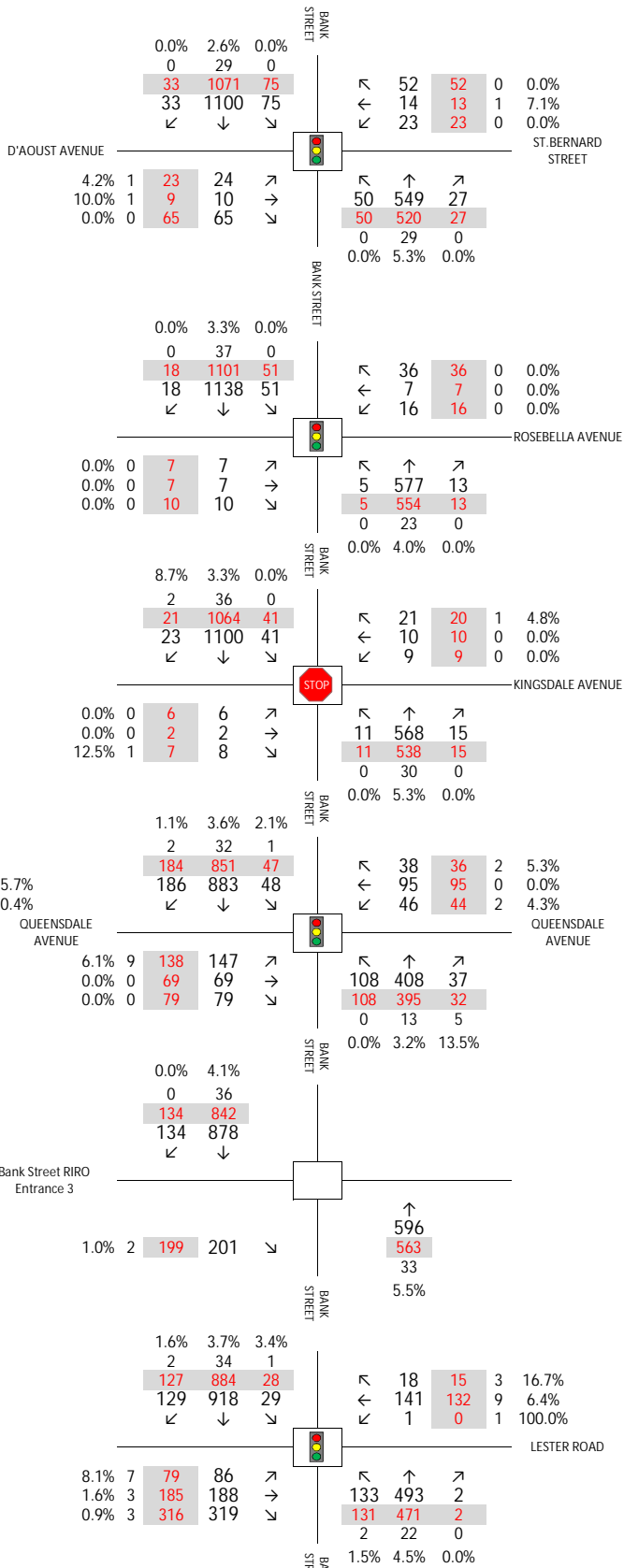
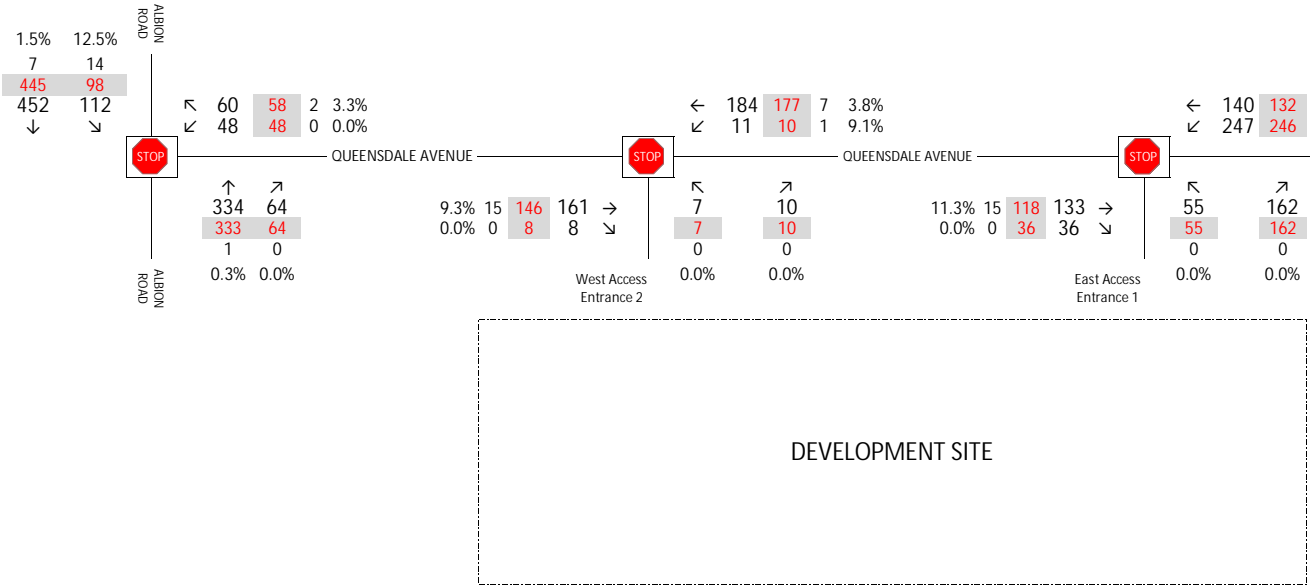


PM PEAK

Year 2026  
Growth Rate 0.02

0.0% Heavy Vehicle %  
0 Heavy Vehicles  
0 Passenger Vehicles  
0 Total Vehicles

N.T.S





















## Appendix F

### Synchro 10 Outputs













Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Baseline (2019)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	11	5	9	1	41	5	756	4	24	349	5
Future Volume (vph)	8	11	5	9	1	41	5	756	4	24	349	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	12.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	2		0
Taper Length (m)	7.5			7.5			7.5			50.0		
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	0.95
Frt		0.974			0.892			0.999			0.998	
Flt Protected		0.983			0.991		0.950			0.950		
Satd. Flow (prot)	0	1819	0	0	1680	0	1805	3340	0	1736	3151	0
Flt Permitted		0.863			0.931		0.524			0.341		
Satd. Flow (perm)	0	1597	0	0	1578	0	996	3340	0	623	3151	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			45			1			2	
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		192.9			163.1			63.7			153.9	
Travel Time (s)		17.4			14.7			3.8			9.2	
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 (%)	0%	0%	0%	0%	0%	0%	0%	8%	0%	4%	14%	40%
Adj. Flow (vph)	9	12	5	10	1	45	5	822	4	26	379	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	56	0	5	826	0	26	384	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		6.8			6.8		67.8	67.8		67.8	67.8	
Actuated g/C Ratio		0.08			0.08		0.85	0.85		0.85	0.85	
v/c Ratio		0.19			0.32		0.01	0.29		0.05	0.14	
Control Delay		31.8			19.1		2.8	2.8		3.0	2.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		31.8			19.1		2.8	2.8		3.0	2.3	
LOS		C			B		A	A		A	A	
Approach Delay		31.8			19.1			2.8			2.4	
Approach LOS		C			B			A			A	
Queue Length 50th (m)		3.2			1.7		0.2	16.8		0.8	6.6	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Baseline (2019)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)		10.4			12.2		1.0	27.4		3.0	12.0	
Internal Link Dist (m)		168.9			139.1			39.7			129.9	
Turn Bay Length (m)							12.0			30.0		
Base Capacity (vph)		566			585		844	2831		528	2671	
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		0.05			0.10		0.01	0.29		0.05	0.14	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 3.9

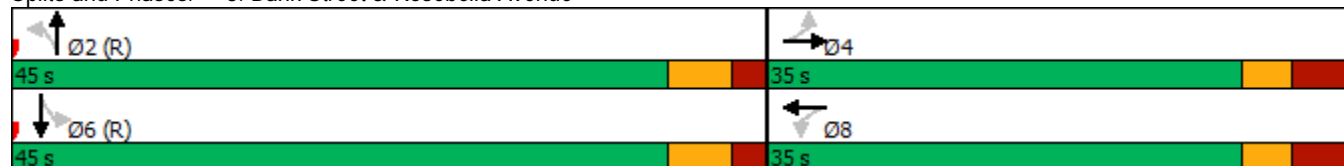
Intersection LOS: A

Intersection Capacity Utilization 35.8%

ICU Level of Service A

Analysis Period (min) 15




















Splits and Phases: 3: Bank Street & Rosebella Avenue

















Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Baseline (2019)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	48	36	19	26	50	44	628	35	23	273	39
Future Volume (vph)	70	48	36	19	26	50	44	628	35	23	273	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (m)	7.5			7.5			65.0			7.5		
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		0.968			0.929			0.992				0.850
Flt Protected		0.978			0.990		0.950			0.950		
Satd. Flow (prot)	0	1708	0	0	1468	0	1719	3383	0	1543	3252	1313
Flt Permitted		0.827			0.904		0.570			0.369		
Satd. Flow (perm)	0	1444	0	0	1340	0	1031	3383	0	599	3252	1313
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			54			10				57
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		96.2			200.6			101.5			65.8	
Travel Time (s)		8.7			18.1			6.1			3.9	
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 (%)	9%	4%	0%	11%	4%	30%	5%	6%	3%	17%	11%	23%
Adj. Flow (vph)	76	52	39	21	28	54	48	683	38	25	297	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	167	0	0	103	0	48	721	0	25	297	42
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	36.2	36.2		36.2	36.2		24.0	24.0		35.0	35.0	35.0
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0		44.0	44.0	44.0
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%		54.9%	54.9%	54.9%
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		7.2			7.2		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
Act Effect Green (s)		13.7			13.7		53.3	53.3		53.3	53.3	53.3
Actuated g/C Ratio		0.17			0.17		0.66	0.66		0.66	0.66	0.66
v/c Ratio		0.63			0.38		0.07	0.32		0.06	0.14	0.05
Control Delay		36.8			18.6		6.4	6.8		6.7	5.9	1.6
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		36.8			18.6		6.4	6.8		6.7	5.9	1.6
LOS		D			B		A	A		A	A	A
Approach Delay		36.8			18.6			6.8			5.5	
Approach LOS		D			B			A			A	
Queue Length 50th (m)		21.9			6.9		2.4	22.0		1.2	8.0	0.0

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Baseline (2019)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)		37.9			18.9		7.6	39.5		5.0	16.1	2.8
Internal Link Dist (m)		72.2			176.6			77.5			41.8	
Turn Bay Length (m)							35.0			30.0		
Base Capacity (vph)		535			519		684	2250		398	2160	891
Starvation Cap Reductn		0			0		0	0		0	0	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.31			0.20		0.07	0.32		0.06	0.14	0.05

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 10.9

Intersection LOS: B

Intersection Capacity Utilization 53.9%

ICU Level of Service A























Analysis Period (min) 15

Splits and Phases: 9: Bank Street & Queensdale Avenue















Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Baseline (2019)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	124	83	0	158	14	187	592	3	8	234	73
Future Volume (vph)	81	124	83	0	158	14	187	592	3	8	234	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.940			0.988				0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1626	1721	0	1900	1807	0	1752	3406	1615	1805	3223	1524
Flt Permitted	0.640						0.595			0.408		
Satd. Flow (perm)	1095	1721	0	1900	1807	0	1098	3406	1615	775	3223	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			5				56			79
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	5%	2%	0%	3%	14%	3%	6%	0%	0%	12%	6%
Adj. Flow (vph)	88	135	90	0	172	15	203	643	3	9	254	79
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	225	0	0	187	0	203	643	3	9	254	79
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Act Effect Green (s)	10.1	10.1			10.1		14.3	14.3	14.3	14.3	14.3	14.3
Actuated g/C Ratio	0.26	0.26			0.26		0.37	0.37	0.37	0.37	0.37	0.37
v/c Ratio	0.31	0.47			0.40		0.50	0.52	0.00	0.03	0.22	0.13
Control Delay	16.1	14.4			15.3		15.0	11.4	0.0	8.6	9.1	3.4
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	14.4			15.3		15.0	11.4	0.0	8.6	9.1	3.4
LOS	B	B			B		B	B	A	A	A	A
Approach Delay		14.8			15.3			12.2			7.8	
Approach LOS		B			B			B			A	
Queue Length 50th (m)	4.6	9.8			9.6		9.9	16.5	0.0	0.4	5.7	0.0

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Baseline (2019)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 95th (m)	15.8	29.4			27.3		27.7	33.1	0.0	2.5	13.4	5.7
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0						130.0		80.0	90.0		60.0
Base Capacity (vph)	913	1443			1509		1067	3310	1571	753	3132	1483
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	0.10	0.16			0.12		0.19	0.19	0.00	0.01	0.08	0.05

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 39

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 12.1





Intersection LOS: B

Intersection Capacity Utilization 59.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 18: Bank Street & Lester Road

 Ø2	 Ø4
50.5 s	39.6 s
 Ø6	 Ø8
50.5 s	39.6 s

HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Baseline (2019)  
AM PEAK

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	↕
Traffic Vol, veh/h	12	3	3	0	1	29	2	945	9	6	342	2
Future Vol, veh/h	12	3	3	0	1	29	2	945	9	6	342	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	10	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	0	0	0	0	4	0	17	12	0
Mvmt Flow	13	3	3	0	1	32	2	1027	10	7	372	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	904	1427	186	1238	1424	519	374	0	0	1037	0	0
Stage 1	386	386	-	1036	1036	-	-	-	-	-	-	-
Stage 2	518	1041	-	202	388	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.5	6.5	6.9	4.1	-	-	4.44	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.5	4	3.3	2.2	-	-	2.37	-	-
Pot Cap-1 Maneuver	232	134	824	134	137	507	1196	-	-	583	-	-
Stage 1	609	609	-	251	311	-	-	-	-	-	-	-
Stage 2	509	305	-	787	612	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	214	132	824	130	135	507	1196	-	-	583	-	-
Mov Cap-2 Maneuver	214	132	-	130	135	-	-	-	-	-	-	-
Stage 1	608	602	-	250	310	-	-	-	-	-	-	-
Stage 2	475	304	-	770	605	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.1		13.3		0		0.2	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1196	-	-	218	464	583	-
HCM Lane V/C Ratio	0.002	-	-	0.09	0.07	0.011	-
HCM Control Delay (s)	8	-	-	23.1	13.3	11.2	-
HCM Lane LOS	A	-	-	C	B	B	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-

---

12: Bank Street & Entrance 3 (RIRO) Performance by approach

---

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	0.9	2.1	0.9	1.7

---

14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

---

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.3	3.1	3.2	1.9

---

16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

---

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.2	0.5	2.9	0.5

---

Total Zone Performance

---

Denied Del/Veh (s)	0.1
Total Del/Veh (s)	34.0



**Intersection: 12: Bank Street & Entrance 3 (RIRO)****Movement**

Directions Served

Maximum Queue (m)

Average Queue (m)

95th Queue (m)

Link Distance (m)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)

Queuing Penalty (veh)

**Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue****Movement**

EB

WB

NB

Directions Served

TR

LT

LR

Maximum Queue (m)

1.5

13.7

19.6

Average Queue (m)

0.1

2.1

6.9

95th Queue (m)

1.3

9.1

15.7

Link Distance (m)

52.2

71.9

61.9

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)

Queuing Penalty (veh)

**Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue****Movement**

WB

NB

Directions Served

LT

LR

Maximum Queue (m)

4.6

12.6

Average Queue (m)

0.3

3.1

95th Queue (m)

2.9

11.2

Link Distance (m)

52.2

51.7

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (m)

Storage Blk Time (%)



















Queuing Penalty (veh)

**Zone Summary**

Zone wide Queuing Penalty: 0

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue













Baseline (2019)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	6	10	16	6	31	5	592	13	41	1027	15
Future Volume (vph)	6	6	10	16	6	31	5	592	13	41	1027	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	12.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	2		0
Taper Length (m)	7.5			7.5			7.5			50.0		
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	0.95
Frt		0.941			0.921			0.997			0.998	
Flt Protected		0.986			0.986		0.950			0.950		
Satd. Flow (prot)	0	1763	0	0	1725	0	1805	3464	0	1805	3499	0
Flt Permitted		0.885			0.892		0.240			0.402		
Satd. Flow (perm)	0	1582	0	0	1561	0	456	3464	0	764	3499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			34			4			2	
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		192.9			163.1			63.7			153.9	
Travel Time (s)		17.4			14.7			3.8			9.2	
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 (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	0%
Adj. Flow (vph)	7	7	11	17	7	34	5	643	14	45	1116	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	58	0	5	657	0	45	1132	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.1			7.1		67.5	67.5		67.5	67.5	
Actuated g/C Ratio		0.09			0.09		0.84	0.84		0.84	0.84	
v/c Ratio		0.17			0.35		0.01	0.22		0.07	0.38	
Control Delay		25.9			23.9		3.0	2.6		3.1	3.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Baseline (2019)

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		25.9			23.9		3.0	2.6		3.1	3.3	
LOS		C			C		A	A		A	A	
Approach Delay		25.9			23.9			2.6			3.3	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		2.1			3.7		0.1	12.4		1.4	26.0	
Queue Length 95th (m)		9.1			14.3		1.1	21.5		4.6	42.5	
Internal Link Dist (m)		168.9			139.1			39.7			129.9	
Turn Bay Length (m)							12.0			30.0		
Base Capacity (vph)		564			572		384	2924		645	2953	
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		0.04			0.10		0.01	0.22		0.07	0.38	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 35 (44%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 4.0





Intersection LOS: A

Intersection Capacity Utilization 48.9%

ICU Level of Service A

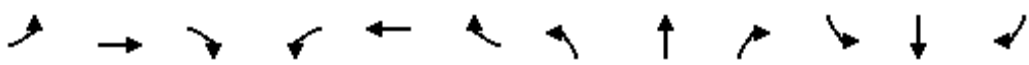
Analysis Period (min) 15

Splits and Phases: 3: Bank Street & Rosebella Avenue

 Ø2 (R)	 Ø4
45 s	35 s
 Ø6 (R)	 Ø8
45 s	35 s













Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Baseline (2019)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	↕
Traffic Volume (vph)	126	56	66	40	94	36	94	392	32	45	811	179
Future Volume (vph)	126	56	66	40	94	36	94	392	32	45	811	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	35.0		0.0	30.0		0.0
Storage Lanes	0		0	0		0	1		0	1		1
Taper Length (m)	7.5			7.5			65.0			7.5		
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		0.964			0.971			0.989				0.850
Flt Protected		0.975			0.988		0.950			0.950		
Satd. Flow (prot)	0	1725	0	0	1779	0	1805	3441	0	1770	3471	1599
Flt Permitted		0.750			0.856		0.284			0.487		
Satd. Flow (perm)	0	1327	0	0	1542	0	540	3441	0	907	3471	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			19			14				195
Link Speed (k/h)		40			40			60			60	
Link Distance (m)		96.2			200.6			101.5			65.8	
Travel Time (s)		8.7			18.1			6.1			3.9	
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 (%)	7%	0%	0%	5%	0%	6%	0%	3%	13%	2%	4%	1%
Adj. Flow (vph)	137	61	72	43	102	39	102	426	35	49	882	195
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	270	0	0	184	0	102	461	0	49	882	195
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	36.2	36.2		36.2	36.2		24.0	24.0		24.0	24.0	24.0
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0		44.0	44.0	44.0
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%		54.9%	54.9%	54.9%
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0		38.0	38.0	38.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3		2.3	2.3	2.3
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)		7.2			7.2		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	C-Max
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)	22.0	22.0		22.0	22.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effect Green (s)		20.0			20.0		47.0	47.0		47.0	47.0	47.0
Actuated g/C Ratio		0.25			0.25		0.59	0.59		0.59	0.59	0.59
v/c Ratio		0.77			0.46		0.32	0.23		0.09	0.43	0.19
Control Delay		39.3			25.2		14.4	9.1		10.0	11.1	2.3
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.3	0.0

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Baseline (2019)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		39.3			25.2		14.4	9.1		10.0	11.5	2.3
LOS		D			C		B	A		B	B	A
Approach Delay		39.3			25.2			10.1			9.8	
Approach LOS		D			C			B			A	
Queue Length 50th (m)		36.4			22.3		7.6	16.4		3.2	37.7	0.0
Queue Length 95th (m)		55.6			35.4		23.4	30.9		10.1	65.4	10.1
Internal Link Dist (m)		72.2			176.6			77.5			41.8	
Turn Bay Length (m)							35.0			30.0		
Base Capacity (vph)		496			569		316	2023		531	2034	1018
Starvation Cap Reductn		0			0		0	0		0	544	0
Spillback Cap Reductn		0			0		0	0		0	0	0
Storage Cap Reductn		0			0		0	0		0	0	0
Reduced v/c Ratio		0.54			0.32		0.32	0.23		0.09	0.59	0.19

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

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

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 14.9

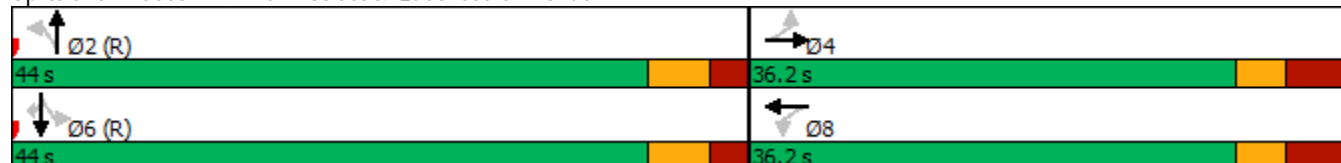
Intersection LOS: B

Intersection Capacity Utilization 71.1%

ICU Level of Service C























Analysis Period (min) 15

Splits and Phases: 9: Bank Street & Queensdale Avenue



Lanes, Volumes, Timings  
18: Bank Street & Lester Road













Baseline (2019)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	165	278	1	122	16	116	426	2	26	833	117
Future Volume (vph)	74	165	278	1	122	16	116	426	2	26	833	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.906			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1698	0	1805	1724	0	1770	3438	1615	1736	3471	1583
Flt Permitted	0.662			0.327			0.242			0.486		
Satd. Flow (perm)	1165	1698	0	621	1724	0	451	3438	1615	888	3471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		93			8				56			127
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	8%	2%	1%	0%	7%	19%	2%	5%	0%	4%	4%	2%
Adj. Flow (vph)	80	179	302	1	133	17	126	463	2	28	905	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	481	0	1	150	0	126	463	2	28	905	127
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	19.8	19.8		19.8	19.8		24.7	24.7	24.7	24.7	24.7	24.7
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.41	0.41	0.41	0.41	0.41	0.41
v/c Ratio	0.21	0.77		0.00	0.26		0.68	0.33	0.00	0.08	0.63	0.17
Control Delay	18.4	25.3		17.0	17.3		36.1	12.8	0.0	12.2	16.3	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0



Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Baseline (2019)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	18.4	25.3		17.0	17.3		36.1	12.8	0.0	12.2	16.3	3.3
LOS	B	C		B	B		D	B	A	B	B	A
Approach Delay		24.3			17.3			17.7			14.6	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	5.8	34.7		0.1	10.4		10.4	16.6	0.0	1.7	38.2	0.0
Queue Length 95th (m)	20.9	99.1		1.2	32.5		37.9	35.3	0.0	7.3	75.1	8.8
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0			40.0			130.0		80.0	90.0		60.0
Base Capacity (vph)	683	1035		364	1015		348	2653	1259	685	2678	1250
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	0.12	0.46		0.00	0.15		0.36	0.17	0.00	0.04	0.34	0.10

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 60

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.9





Intersection LOS: B

Intersection Capacity Utilization 82.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 18: Bank Street & Lester Road

 Ø2	 Ø4
50.5 s	39.6 s
 Ø6	 Ø8
50.5 s	39.6 s

HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Baseline (2019)  
PM PEAK

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕↗		↙	↕↗	↗
Traffic Vol, veh/h	5	2	7	8	9	18	10	489	13	33	890	19
Future Vol, veh/h	5	2	7	8	9	18	10	489	13	33	890	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	10	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	0	0	6	0	5	0	0	3	11
Mvmt Flow	5	2	8	9	10	20	11	532	14	36	967	21
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1332	1607	484	1118	1621	273	988	0	0	546	0	0
Stage 1	1039	1039	-	561	561	-	-	-	-	-	-	-
Stage 2	293	568	-	557	1060	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.18	7.5	6.5	7.02	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.44	3.5	4	3.36	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	114	106	498	164	104	713	708	-	-	1033	-	-
Stage 1	250	310	-	485	513	-	-	-	-	-	-	-
Stage 2	696	510	-	487	303	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	99	101	498	153	99	713	708	-	-	1033	-	-
Mov Cap-2 Maneuver	99	101	-	153	99	-	-	-	-	-	-	-
Stage 1	246	299	-	477	505	-	-	-	-	-	-	-
Stage 2	653	502	-	459	292	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	28.9		26.1		0.2		0.3					
HCM LOS	D		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	708	-	-	166	208	1033	-	-				
HCM Lane V/C Ratio	0.015	-	-	0.092	0.183	0.035	-	-				
HCM Control Delay (s)	10.2	-	-	28.9	26.1	8.6	-	-				
HCM Lane LOS	B	-	-	D	D	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.3	0.7	0.1	-	-				

---

12: Bank Street & Entrance 3 (RIRO) Performance by approach

---

Approach	EB	NB	SB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.2	0.3	0.6

---

14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

---

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.4	0.1	0.5

---

16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

---

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0	0.0

---

Total Zone Performance

---

Denied Delay (hr)	0.0
Total Delay (hr)	1.1

**Intersection: 12: Bank Street & Entrance 3 (RIRO)**

Movement	EB
Directions Served	R
Maximum Queue (m)	14.1
Average Queue (m)	1.8
95th Queue (m)	10.0
Link Distance (m)	76.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

**Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue**

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	3.1	18.1	21.3
Average Queue (m)	0.1	5.3	11.4
95th Queue (m)	2.0	15.3	18.8
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue**



















Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	4.5	9.9
Average Queue (m)	0.3	2.5
95th Queue (m)	2.8	9.1
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

**Zone Summary**

Zone wide Queuing Penalty: 0













Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Background Growth Only (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	10	11	5	9	1	55	28	401	6	5	1014	4
Future Volume (vph)	10	11	5	9	1	55	28	401	6	5	1014	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.974			0.886			0.998			0.999	
Flt Protected		0.981			0.993		0.950			0.950		
Satd. Flow (prot)	0	1815	0	0	1672	0	1736	3150	0	1805	3340	0
Flt Permitted		0.846			0.946		0.273			0.513		
Satd. Flow (perm)	0	1566	0	0	1592	0	499	3150	0	975	3340	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			55			3			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	14%	40%	0%	8%	0%
Adj. Flow (vph)	10	11	5	9	1	55	28	401	6	5	1014	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	65	0	28	407	0	5	1018	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		6.8			6.8		64.1	64.1		64.1	64.1	
Actuated g/C Ratio		0.08			0.08		0.80	0.80		0.80	0.80	
v/c Ratio		0.19			0.35		0.07	0.16		0.01	0.38	
Control Delay		31.8			18.0		2.7	2.2		2.8	3.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.3	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Background Growth Only (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		31.8			18.0		2.7	2.2		2.8	4.0	
LOS		C			B		A	A		A	A	
Approach Delay		31.8			18.0			2.2			3.9	
Approach LOS		C			B			A			A	
90th %ile Green (s)	9.4	9.4		9.4	9.4		57.9	57.9		57.9	57.9	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	7.3	7.3		7.3	7.3		60.0	60.0		60.0	60.0	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.4	6.4		6.4	6.4		60.9	60.9		60.9	60.9	
50th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.6	5.6		5.6	5.6		61.7	61.7		61.7	61.7	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		3.2			1.5		0.7	5.9		0.2	22.4	
Queue Length 95th (m)		11.6			15.2		m2.6	10.4		1.1	43.7	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		555			596		399	2524		781	2676	
Starvation Cap Reductn		0			0		0	0		0	891	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.05			0.11		0.07	0.16		0.01	0.57	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 4.5

Intersection LOS: A





Intersection Capacity Utilization 42.9%

ICU Level of Service A

Analysis Period (min) 60





















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

Splits and Phases: 3: Bank Street & Rosebella Avenue

 Ø2 (R)	 Ø4
45 s	35 s
 Ø6 (R)	 Ø8
45 s	35 s

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue













Background Growth Only (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	92	49	37	20	27	67	27	335	47	46	836	36
Future Volume (vph)	92	49	37	20	27	67	27	335	47	46	836	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.972			0.921				0.850		0.994	
Flt Protected		0.975			0.991		0.950			0.950		
Satd. Flow (prot)	0	1703	0	0	1442	0	1543	3252	1313	1719	3389	0
Flt Permitted		0.814			0.921		0.303			0.550		
Satd. Flow (perm)	0	1422	0	0	1340	0	492	3252	1313	995	3389	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			67				57		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	9%	4%	0%	11%	3%	30%	17%	11%	23%	5%	6%	3%
Adj. Flow (vph)	92	49	37	20	27	67	27	335	47	46	836	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	178	0	0	114	0	27	335	47	46	872	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		14.9			14.9		52.1	52.1	52.1	52.1	52.1	
Actuated g/C Ratio		0.19			0.19		0.65	0.65	0.65	0.65	0.65	
v/c Ratio		0.64			0.38		0.08	0.16	0.05	0.07	0.40	
Control Delay		37.1			16.0		7.8	6.5	2.0	7.1	8.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	



Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Background Growth Only (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		37.1			16.0		7.8	6.5	2.0	7.1	8.0	
LOS		D			B		A	A	A	A	A	
Approach Delay		37.1			16.0			6.1			8.0	
Approach LOS		D			B			A			A	
90th %ile Green (s)	21.8	21.8		21.8	21.8		45.2	45.2	45.2	45.2	45.2	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
70th %ile Green (s)	17.7	17.7		17.7	17.7		49.3	49.3	49.3	49.3	49.3	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
50th %ile Green (s)	14.9	14.9		14.9	14.9		52.1	52.1	52.1	52.1	52.1	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
30th %ile Green (s)	12.1	12.1		12.1	12.1		54.9	54.9	54.9	54.9	54.9	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
10th %ile Green (s)	8.1	8.1		8.1	8.1		58.9	58.9	58.9	58.9	58.9	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
Queue Length 50th (m)		23.8			6.4		1.4	9.6	0.0	2.4	30.0	
Queue Length 95th (m)		46.0			22.2		6.5	21.8	4.5	8.9	62.5	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		525			527		319	2111	872	646	2203	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.34			0.22		0.08	0.16	0.05	0.07	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 11.3

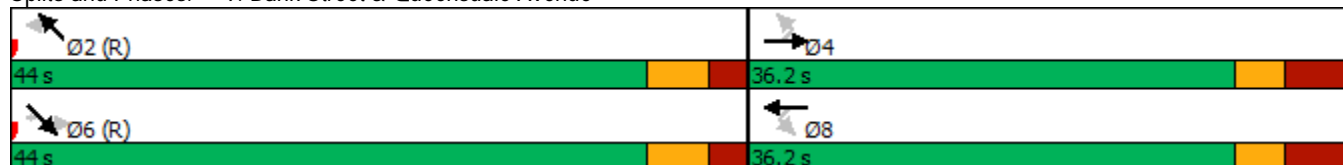
Intersection LOS: B

Intersection Capacity Utilization 61.0%

ICU Level of Service B

Analysis Period (min) 60























Splits and Phases: 9: Bank Street & Queensdale Avenue



Lanes, Volumes, Timings  
18: Bank Street & Lester Road













Background Growth Only (2021)

AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	129	86	0	164	19	194	806	3	10	293	90
Future Volume (vph)	111	129	86	0	164	19	194	806	3	10	293	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.940			0.984				0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1626	1721	0	1900	1795	0	1752	3406	1615	1805	3223	1524
Flt Permitted	0.642						0.573			0.325		
Satd. Flow (perm)	1099	1721	0	1900	1795	0	1057	3406	1615	618	3223	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			7				56			90
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	11%	5%	2%	0%	3%	14%	3%	6%	0%	0%	12%	6%
Adj. Flow (vph)	111	129	86	0	164	19	194	806	3	10	293	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	215	0	0	183	0	194	806	3	10	293	90
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	10.3	10.3			10.3		16.3	16.3	16.3	16.3	16.3	16.3
Actuated g/C Ratio	0.25	0.25			0.25		0.40	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.41	0.47			0.40		0.46	0.60	0.00	0.04	0.23	0.14
Control Delay	19.1	15.2			16.3		13.8	12.1	0.0	8.6	8.9	3.1
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Background Growth Only (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.1	15.2			16.3		13.8	12.1	0.0	8.6	8.9	3.1
LOS	B	B			B		B	B	A	A	A	A
Approach Delay		16.5			16.3			12.4			7.6	
Approach LOS		B			B			B			A	
90th %ile Green (s)	15.5	15.5		15.5	15.5		23.8	23.8	23.8	23.8	23.8	23.8
90th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	11.8	11.8		11.8	11.8		18.7	18.7	18.7	18.7	18.7	18.7
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	10.0	10.0		10.0	10.0		16.5	16.5	16.5	16.5	16.5	16.5
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	8.3	8.3		8.3	8.3		13.6	13.6	13.6	13.6	13.6	13.6
30th %ile Term Code	Gap	Gap		Gap	Gap		Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	6.7	6.7		6.7	6.7		10.4	10.4	10.4	10.4	10.4	10.4
10th %ile Term Code	Hold	Hold		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
Queue Length 50th (m)	6.8	10.6			10.7		9.6	22.4	0.0	0.4	6.8	0.0
Queue Length 95th (m)	23.3	33.9			31.9		31.4	50.4	0.0	3.0	17.3	7.4
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0						130.0		80.0	90.0		60.0
Base Capacity (vph)	877	1383			1435		1017	3277	1556	594	3101	1469
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	0.13	0.16			0.13		0.19	0.25	0.00	0.02	0.09	0.06

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 41.2

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 66.2%

ICU Level of Service C

Analysis Period (min) 60

90th %ile Actuated Cycle: 53.4

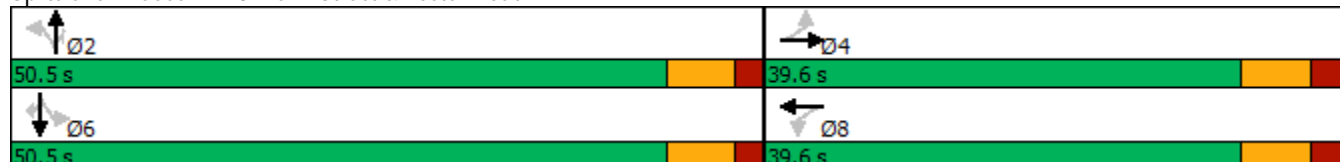
70th %ile Actuated Cycle: 44.6

50th %ile Actuated Cycle: 40.6

30th %ile Actuated Cycle: 36

10th %ile Actuated Cycle: 31.2

Splits and Phases: 18: Bank Street & Lester Road

































# Lanes, Volumes, Timings

# Background Growth Only (2021)

## 25: Bank Street & D'Aoust Avenue/St. Bernard Street

AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	72	22	96	13	19	95	48	324	54	114	929	36
Future Volume (vph)	72	22	96	13	19	95	48	324	54	114	929	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.932			0.899			0.979			0.994	
Flt Protected		0.981			0.995		0.950			0.950		
Satd. Flow (prot)	0	1648	0	0	1623	0	1770	3196	0	1770	3448	0
Flt Permitted		0.839			0.948		0.276			0.528		
Satd. Flow (perm)	0	1410	0	0	1546	0	514	3196	0	984	3448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			95			34			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	2%	5%	8%	8%	11%	3%	2%	12%	2%	2%	4%	6%
Adj. Flow (vph)	72	22	96	13	19	95	48	324	54	114	929	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	190	0	0	127	0	48	378	0	114	965	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		12.6			12.6		55.0	55.0		55.0	55.0	
Actuated g/C Ratio		0.16			0.16		0.69	0.69		0.69	0.69	
v/c Ratio		0.68			0.39		0.14	0.17		0.17	0.41	
Control Delay		32.1			13.2		7.0	4.9		4.0	4.2	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		32.1			13.2		7.0	4.9		4.0	4.2	
LOS		C			B		A	A		A	A	
Approach Delay		32.1			13.2			5.2			4.2	
Approach LOS		C			B			A			A	
90th %ile Green (s)	19.7	19.7		19.7	19.7		47.9	47.9		47.9	47.9	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	15.5	15.5		15.5	15.5		52.1	52.1		52.1	52.1	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	12.6	12.6		12.6	12.6		55.0	55.0		55.0	55.0	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	9.7	9.7		9.7	9.7		57.9	57.9		57.9	57.9	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	5.6	5.6		5.6	5.6		62.0	62.0		62.0	62.0	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		18.1			4.5		2.2	8.5		3.1	13.6	
Queue Length 95th (m)		42.3			21.0		9.5	20.6		7.1	21.0	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		513			575		353	2207		676	2371	
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		0.37			0.22		0.14	0.17		0.17	0.41	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 27 (34%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 8.0

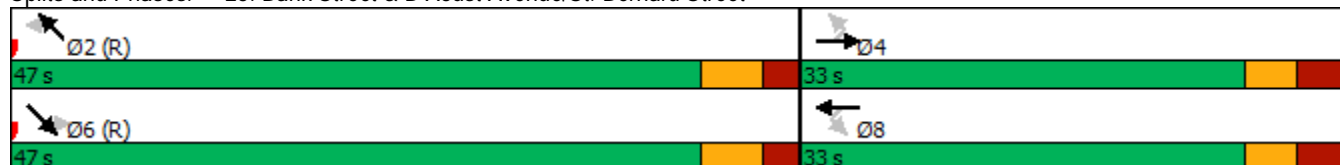
Intersection LOS: A

Intersection Capacity Utilization 63.9%

ICU Level of Service B

Analysis Period (min) 60

Splits and Phases: 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Background Growth Only (2021)  
AM PEAK




Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	12	3	3	0	1	30	7	407	2	2	983	9
Future Vol, veh/h	12	3	3	0	1	30	7	407	2	2	983	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	17	12	0	0	4	0
Mvmt Flow	12	3	3	0	1	30	7	407	2	2	983	9

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	997	1540	221	1316	1537	539	1078	0	0	444	0	0
Stage 1	458	458	-	1077	1077	-	-	-	-	-	-	-
Stage 2	539	1082	-	239	460	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.44	-	-	4.1	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.37	-	-	2.2	-	-
Pot Cap-1 Maneuver	198	114	783	115	115	487	561	-	-	1127	-	-
Stage 1	552	565	-	234	293	-	-	-	-	-	-	-
Stage 2	494	292	-	743	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	181	112	783	111	113	487	561	-	-	1127	-	-
Mov Cap-2 Maneuver	181	112	-	111	113	-	-	-	-	-	-	-
Stage 1	544	557	-	231	292	-	-	-	-	-	-	-
Stage 2	458	291	-	725	556	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW	
HCM Control Delay, s	26.6		13.9		0.2		0	
HCM LOS	D		B					

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	1127	-	-	186	440	561	-
HCM Lane V/C Ratio	0.002	-	-	0.105	0.077	0.014	-
HCM Control Delay (s)	8.2	-	-	26.6	13.9	11.5	-
HCM Lane LOS	A	-	-	D	B	B	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0	-

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	56	406	45	24	230
Future Vol, veh/h	41	56	406	45	24	230
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	22	7	5	8	2
Mvmt Flow	41	56	406	45	24	230
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.4	15.1	10.8
HCM LOS	A	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	42%	9%
Vol Thru, %	90%	0%	91%
Vol Right, %	10%	58%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	451	97	254
LT Vol	0	41	24
Through Vol	406	0	230
RT Vol	45	56	0
Lane Flow Rate	490	105	276
Geometry Grp	1	1	1
Degree of Util (X)	0.621	0.156	0.373
Departure Headway (Hd)	4.558	5.342	4.869
Convergence, Y/N	Yes	Yes	Yes
Cap	789	666	734
Service Time	2.602	3.417	2.922
HCM Lane V/C Ratio	0.621	0.158	0.376
HCM Control Delay	15.1	9.4	10.8
HCM Lane LOS	C	A	B
HCM 95th-tile Q	4.8	0.6	1.8



#### 12: Bank Street & Ent. 3 Performance by approach

Approach	EB	SE	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.7	0.9
Total Del/Veh (s)	0.9	1.0	2.8	2.2

#### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.1	0.0	0.2
Total Del/Veh (s)	0.3	3.3	3.8	1.8

#### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.5	3.1	0.5

#### Total Zone Performance

Denied Delay (hr)	0.0
Denied Del/Veh (s)	0.2
Total Delay (hr)	1.0
Total Del/Veh (s)	151.0

### Intersection: 12: Bank Street & Ent. 3

Movement	NW
Directions Served	T
Maximum Queue (m)	5.0
Average Queue (m)	0.2
95th Queue (m)	2.9
Link Distance (m)	365.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	9.3	17.9
Average Queue (m)	1.7	7.0
95th Queue (m)	7.5	16.1
Link Distance (m)	71.9	61.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	9.1	12.9
Average Queue (m)	0.5	3.6
95th Queue (m)	3.7	11.1
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



















### Zone Summary

Zone wide Queuing Penalty: 0
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Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue













Background Growth Only (2021)

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	6	6	10	15	6	32	46	1012	17	4	517	11
Future Volume (vph)	6	6	10	15	6	32	46	1012	17	4	517	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.939			0.918			0.998			0.997	
Flt Protected		0.987			0.986		0.950			0.950		
Satd. Flow (prot)	0	1761	0	0	1720	0	1805	3500	0	1805	3464	0
Flt Permitted		0.890			0.896		0.456			0.271		
Satd. Flow (perm)	0	1588	0	0	1563	0	866	3500	0	515	3464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			32			3			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%	0%
Adj. Flow (vph)	6	6	10	15	6	32	46	1012	17	4	517	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	53	0	46	1029	0	4	528	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		6.9			6.9		67.6	67.6		67.6	67.6	
Actuated g/C Ratio		0.09			0.09		0.84	0.84		0.84	0.84	
v/c Ratio		0.15			0.32		0.06	0.35		0.01	0.18	
Control Delay		26.0			23.6		2.8	2.6		3.0	2.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Background Growth Only (2021)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		26.0			23.6		2.8	2.6		3.0	2.5	
LOS		C			C		A	A		A	A	
Approach Delay		26.0			23.6			2.7			2.5	
Approach LOS		C			C			A			A	
90th %ile Green (s)	9.5	9.5		9.5	9.5		57.8	57.8		57.8	57.8	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	7.7	7.7		7.7	7.7		59.6	59.6		59.6	59.6	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.5	6.5		6.5	6.5		60.8	60.8		60.8	60.8	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
30th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		1.8			3.2		1.4	21.7		0.1	9.5	
Queue Length 95th (m)		9.6			15.5		4.8	32.6		1.0	19.0	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		566			571		732	2959		435	2929	
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		0.04			0.09		0.06	0.35		0.01	0.18	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 3.6





Intersection LOS: A

Intersection Capacity Utilization 52.4%

ICU Level of Service A

Analysis Period (min) 60





















Splits and Phases: 3: Bank Street & Rosebella Avenue

 Ø2 (R)	 Ø4
45 s	35 s
 Ø6 (R)	 Ø8
45 s	35 s

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue













Background Growth Only (2021)

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	120	58	69	42	86	34	44	796	154	86	376	33
Future Volume (vph)	120	58	69	42	86	34	44	796	154	86	376	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.962			0.972				0.850		0.988	
Flt Protected		0.976			0.987		0.950			0.950		
Satd. Flow (prot)	0	1725	0	0	1777	0	1770	3471	1599	1805	3436	0
Flt Permitted		0.780			0.841		0.512			0.325		
Satd. Flow (perm)	0	1379	0	0	1514	0	954	3471	1599	618	3436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			19				154		15	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	7%	0%	0%	5%	0%	6%	2%	4%	1%	0%	3%	13%
Adj. Flow (vph)	120	58	69	42	86	34	44	796	154	86	376	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	162	0	44	796	154	86	409	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		18.3			18.3		48.7	48.7	48.7	48.7	48.7	
Actuated g/C Ratio		0.23			0.23		0.61	0.61	0.61	0.61	0.61	
v/c Ratio		0.74			0.45		0.08	0.38	0.15	0.23	0.20	
Control Delay		38.9			26.0		8.9	9.7	2.2	11.3	8.0	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Background Growth Only (2021)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		38.9			26.0		8.9	9.7	2.2	11.3	8.0	
LOS		D			C		A	A	A	B	A	
Approach Delay		38.9			26.0			8.5			8.6	
Approach LOS		D			C			A			A	
90th %ile Green (s)	26.1	26.1		26.1	26.1		40.9	40.9	40.9	40.9	40.9	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
70th %ile Green (s)	21.6	21.6		21.6	21.6		45.4	45.4	45.4	45.4	45.4	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
50th %ile Green (s)	18.4	18.4		18.4	18.4		48.6	48.6	48.6	48.6	48.6	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
30th %ile Green (s)	15.1	15.1		15.1	15.1		51.9	51.9	51.9	51.9	51.9	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
10th %ile Green (s)	10.4	10.4		10.4	10.4		56.6	56.6	56.6	56.6	56.6	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
Queue Length 50th (m)		32.8			19.6		2.6	30.9	0.0	5.7	13.3	
Queue Length 95th (m)		59.9			37.5		9.9	63.3	11.1	20.0	29.3	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		515			559		579	2106	1030	375	2091	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.48			0.29		0.08	0.38	0.15	0.23	0.20	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 14.0

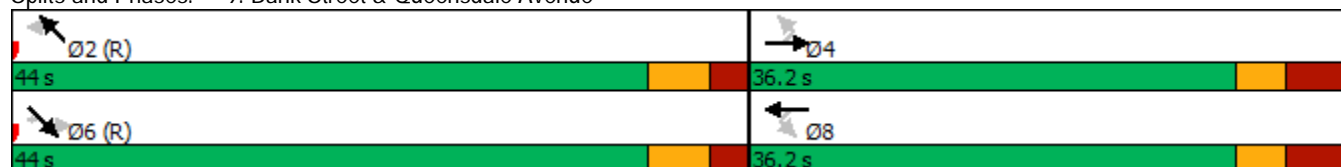
Intersection LOS: B

Intersection Capacity Utilization 63.3%

ICU Level of Service B

Analysis Period (min) 60























Splits and Phases: 9: Bank Street & Queensdale Avenue



Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Background Growth Only (2021)













PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	171	289	1	128	17	121	443	2	26	822	115
Future Volume (vph)	76	171	289	1	128	17	121	443	2	26	822	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.906			0.982				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1698	0	1805	1721	0	1770	3438	1615	1736	3471	1583
Flt Permitted	0.665			0.372			0.284			0.495		
Satd. Flow (perm)	1170	1698	0	707	1721	0	529	3438	1615	904	3471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		105			8				56			115
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	8%	2%	1%	0%	7%	19%	2%	5%	0%	4%	4%	2%
Adj. Flow (vph)	76	171	289	1	128	17	121	443	2	26	822	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	76	460	0	1	145	0	121	443	2	26	822	115
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	17.9	17.9		17.9	17.9		21.3	21.3	21.3	21.3	21.3	21.3
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.39	0.39	0.39	0.39	0.39	0.39
v/c Ratio	0.20	0.73		0.00	0.25		0.59	0.33	0.00	0.07	0.61	0.17
Control Delay	16.4	21.4		15.0	15.5		28.4	12.7	0.0	12.3	15.7	3.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0



Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Background Growth Only (2021)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	16.4	21.4		15.0	15.5		28.4	12.7	0.0	12.3	15.7	3.6
LOS	B	C		B	B		C	B	A	B	B	A
Approach Delay		20.7			15.5			16.0			14.2	
Approach LOS		C			B			B			B	
90th %ile Green (s)	32.0	32.0		32.0	32.0		39.4	39.4	39.4	39.4	39.4	39.4
90th %ile Term Code	Max	Max		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	21.3	21.3		21.3	21.3		24.7	24.7	24.7	24.7	24.7	24.7
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	16.4	16.4		16.4	16.4		18.7	18.7	18.7	18.7	18.7	18.7
50th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
30th %ile Green (s)	13.2	13.2		13.2	13.2		15.8	15.8	15.8	15.8	15.8	15.8
30th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	9.6	9.6		9.6	9.6		11.6	11.6	11.6	11.6	11.6	11.6
10th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
Queue Length 50th (m)	4.8	27.2		0.1	8.9		8.6	14.5	0.0	1.5	30.8	0.0
Queue Length 95th (m)	20.9	101.4		1.3	33.3		38.7	38.9	0.0	7.8	78.4	11.0
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0			40.0			130.0		80.0	90.0		60.0
Base Capacity (vph)	749	1126		453	1106		438	2847	1347	748	2875	1330
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	0.10	0.41		0.00	0.13		0.28	0.16	0.00	0.03	0.29	0.09

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 54.6

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 16.3

Intersection LOS: B

Intersection Capacity Utilization 83.8%

ICU Level of Service E

Analysis Period (min) 60

90th %ile Actuated Cycle: 85.5

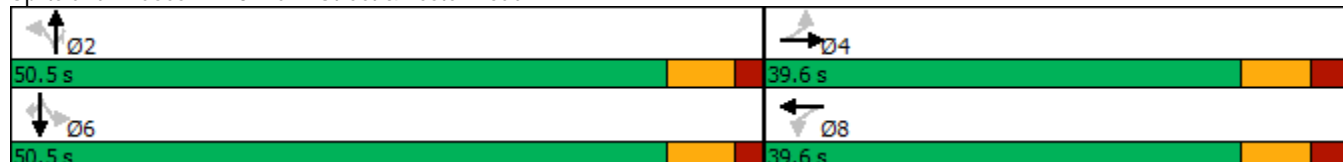
70th %ile Actuated Cycle: 60.1

50th %ile Actuated Cycle: 49.2

30th %ile Actuated Cycle: 43.1

10th %ile Actuated Cycle: 35.3

Splits and Phases: 18: Bank Street & Lester Road

































## Lanes, Volumes, Timings

## Background Growth Only (2021)

## 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	22	9	59	21	12	47	68	996	30	44	490	23
Future Volume (vph)	22	9	59	21	12	47	68	996	30	44	490	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.911			0.921			0.996			0.993	
Flt Protected		0.988			0.987		0.950			0.950		
Satd. Flow (prot)	0	1671	0	0	1707	0	1805	3494	0	1805	3421	0
Flt Permitted		0.916			0.923		0.463			0.269		
Satd. Flow (perm)	0	1550	0	0	1596	0	880	3494	0	511	3421	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		59			47			5			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	5%	11%	0%	0%	8%	0%	0%	3%	0%	0%	5%	0%
Adj. Flow (vph)	22	9	59	21	12	47	68	996	30	44	490	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	80	0	68	1026	0	44	513	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.6			7.6		63.6	63.6		63.6	63.6	
Actuated g/C Ratio		0.10			0.10		0.80	0.80		0.80	0.80	
v/c Ratio		0.45			0.41		0.10	0.37		0.11	0.19	
Control Delay		22.3			23.5		3.6	3.8		2.6	1.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		22.3			23.5		3.6	3.8		2.6	1.9	
LOS		C			C		A	A		A	A	
Approach Delay		22.3			23.5			3.8			2.0	
Approach LOS		C			C			A			A	
90th %ile Green (s)	11.3	11.3		11.3	11.3		56.3	56.3		56.3	56.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	8.7	8.7		8.7	8.7		58.9	58.9		58.9	58.9	
70th %ile Term Code	Gap	Gap		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	7.1	7.1		7.1	7.1		60.5	60.5		60.5	60.5	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.5	5.5		5.5	5.5		62.1	62.1		62.1	62.1	
30th %ile Term Code	Gap	Gap		Gap	Gap		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		4.7			5.0		2.2	22.8		0.9	5.5	
Queue Length 95th (m)		20.8			20.1		7.7	47.0		2.9	9.7	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		552			560		699	2777		406	2720	
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		0.16			0.14		0.10	0.37		0.11	0.19	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 31 (39%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 5.0





Intersection LOS: A

Intersection Capacity Utilization 54.8%

ICU Level of Service A

Analysis Period (min) 60

Splits and Phases: 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street

 Ø2 (R)	 Ø4
47 s	33 s
 Ø6 (R)	 Ø8
47 s	33 s

HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Background Growth Only (2021)  
PM PEAK

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↗↗	↗	↗	↗↗	
Traffic Vol, veh/h	5	2	7	8	9	19	37	978	21	10	509	14
Future Vol, veh/h	5	2	7	8	9	19	37	978	21	10	509	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	0	0	6	0	3	11	0	5	0
Mvmt Flow	5	2	7	8	9	19	37	978	21	10	509	14




Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1447	1733	532	1196	1749	284	568	0	0	1086	0	0
Stage 1	1143	1143	-	583	583	-	-	-	-	-	-	-
Stage 2	304	590	-	613	1166	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.18	7.5	6.5	7.02	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.44	3.5	4	3.36	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	94	89	462	144	87	701	1014	-	-	650	-	-
Stage 1	216	277	-	470	502	-	-	-	-	-	-	-
Stage 2	686	498	-	451	270	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	79	84	462	133	82	701	1014	-	-	650	-	-
Mov Cap-2 Maneuver	79	84	-	133	82	-	-	-	-	-	-	-
Stage 1	208	266	-	452	493	-	-	-	-	-	-	-
Stage 2	642	490	-	423	259	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW	
HCM Control Delay, s	34.6		30		0.3		0.2	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER
Capacity (veh/h)	650	-	-	137	183	1014	-	-
HCM Lane V/C Ratio	0.017	-	-	0.111	0.214	0.04	-	-
HCM Control Delay (s)	10.6	-	-	34.6	30	8.7	-	-
HCM Lane LOS	B	-	-	D	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.8	0.1	-	-

Intersection

Intersection Delay, s/veh	17.2
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	50	303	56	96	409
Future Vol, veh/h	41	50	303	56	96	409
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	13	2
Mvmt Flow	41	50	303	56	96	409
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10	12.8	21.7
HCM LOS	A	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	45%	19%
Vol Thru, %	84%	0%	81%
Vol Right, %	16%	55%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	359	91	505
LT Vol	0	41	96
Through Vol	303	0	409
RT Vol	56	50	0
Lane Flow Rate	390	99	549
Geometry Grp	1	1	1
Degree of Util (X)	0.511	0.161	0.742
Departure Headway (Hd)	4.717	5.844	4.867
Convergence, Y/N	Yes	Yes	Yes
Cap	757	617	736
Service Time	2.792	3.844	2.939
HCM Lane V/C Ratio	0.515	0.16	0.746
HCM Control Delay	12.8	10	21.7
HCM Lane LOS	B	A	C
HCM 95th-tile Q	3.1	0.6	8

#### 12: Bank Street & Ent. 3 Performance by approach

Approach	EB	SE	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Delay (hr)	0.1	0.4	0.3	0.8
Total Del/Veh (s)	1.4	1.7	2.0	1.7

#### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.2	0.1
Total Delay (hr)	0.0	0.5	0.3	0.8
Total Del/Veh (s)	0.6	5.5	6.1	4.5

#### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.2	0.7	3.3	0.6

#### Total Zone Performance

Denied Delay (hr)		0.0	
Denied Del/Veh (s)		0.2	
Total Delay (hr)		1.7	
Total Del/Veh (s)		221.7	

Intersection: 12: Bank Street & Ent. 3

Movement	EB
Directions Served	R
Maximum Queue (m)	17.5
Average Queue (m)	1.9
95th Queue (m)	10.5
Link Distance (m)	76.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	5.3	49.1	31.4
Average Queue (m)	0.2	8.8	13.6
95th Queue (m)	2.9	27.3	23.8
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	12.2	9.9
Average Queue (m)	0.6	2.8
95th Queue (m)	4.9	9.6
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary



















Zone wide Queuing Penalty: 0
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Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue













Background Growth Only (2026)

AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	11	13	6	10	1	61	31	443	7	6	1120	5
Future Volume (vph)	11	13	6	10	1	61	31	443	7	6	1120	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.973			0.886			0.998			0.999	
Flt Protected		0.982			0.993		0.950			0.950		
Satd. Flow (prot)	0	1815	0	0	1672	0	1736	3149	0	1805	3340	0
Flt Permitted		0.849			0.945		0.239			0.492		
Satd. Flow (perm)	0	1570	0	0	1591	0	437	3149	0	935	3340	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			50			3			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	14%	40%	0%	8%	0%
Adj. Flow (vph)	11	13	6	10	1	61	31	443	7	6	1120	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	30	0	0	72	0	31	450	0	6	1125	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.2			7.2		63.8	63.8		63.8	63.8	
Actuated g/C Ratio		0.09			0.09		0.80	0.80		0.80	0.80	
v/c Ratio		0.21			0.39		0.09	0.18		0.01	0.42	
Control Delay		31.3			21.4		2.9	2.2		3.0	4.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.3	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Background Growth Only (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		31.3			21.4		2.9	2.2		3.0	4.4	
LOS		C			C		A	A		A	A	
Approach Delay		31.3			21.4			2.3			4.4	
Approach LOS		C			C			A			A	
90th %ile Green (s)	10.1	10.1		10.1	10.1		57.2	57.2		57.2	57.2	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	8.0	8.0		8.0	8.0		59.3	59.3		59.3	59.3	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.5	6.5		6.5	6.5		60.8	60.8		60.8	60.8	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.7	5.7		5.7	5.7		61.6	61.6		61.6	61.6	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		3.7			3.4		0.8	6.6		0.2	26.2	
Queue Length 95th (m)		12.6			17.7		m2.8	11.2		1.3	53.2	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		557			593		348	2511		745	2663	
Starvation Cap Reductn		0			0		0	0		0	839	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.05			0.12		0.09	0.18		0.01	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 5.0

Intersection LOS: A













Intersection Capacity Utilization 46.4%

ICU Level of Service A

Analysis Period (min) 60





















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

Splits and Phases: 3: Bank Street & Rosebella Avenue

					
Ø2 (R)				Ø4	
45 s				35 s	
					
Ø6 (R)				Ø8	
45 s				35 s	













Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Background Growth Only (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	102	54	41	22	30	74	30	370	53	50	923	40
Future Volume (vph)	102	54	41	22	30	74	30	370	53	50	923	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.972			0.921				0.850		0.994	
Flt Protected		0.975			0.991		0.950			0.950		
Satd. Flow (prot)	0	1703	0	0	1442	0	1543	3252	1313	1719	3389	0
Flt Permitted		0.806			0.919		0.265			0.532		
Satd. Flow (perm)	0	1408	0	0	1337	0	430	3252	1313	963	3389	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			74				57		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	9%	4%	0%	11%	3%	30%	17%	11%	23%	5%	6%	3%
Adj. Flow (vph)	102	54	41	22	30	74	30	370	53	50	923	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	197	0	0	126	0	30	370	53	50	963	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		16.2			16.2		50.8	50.8	50.8	50.8	50.8	
Actuated g/C Ratio		0.20			0.20		0.63	0.63	0.63	0.63	0.63	
v/c Ratio		0.66			0.38		0.11	0.18	0.06	0.08	0.45	
Control Delay		37.2			15.1		9.0	7.2	2.5	7.8	9.2	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Background Growth Only (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		37.2			15.1		9.0	7.2	2.5	7.8	9.2	
LOS		D			B		A	A	A	A	A	
Approach Delay		37.2			15.1			6.8			9.1	
Approach LOS		D			B			A			A	
90th %ile Green (s)	23.4	23.4		23.4	23.4		43.6	43.6	43.6	43.6	43.6	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
70th %ile Green (s)	19.2	19.2		19.2	19.2		47.8	47.8	47.8	47.8	47.8	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
50th %ile Green (s)	16.2	16.2		16.2	16.2		50.8	50.8	50.8	50.8	50.8	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
30th %ile Green (s)	13.2	13.2		13.2	13.2		53.8	53.8	53.8	53.8	53.8	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
10th %ile Green (s)	8.9	8.9		8.9	8.9		58.1	58.1	58.1	58.1	58.1	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
Queue Length 50th (m)		26.5			7.0		1.7	11.4	0.0	2.8	36.5	
Queue Length 95th (m)		50.0			23.2		7.8	25.3	5.5	10.1	75.4	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		520			530		272	2060	852	610	2150	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.38			0.24		0.11	0.18	0.06	0.08	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.0

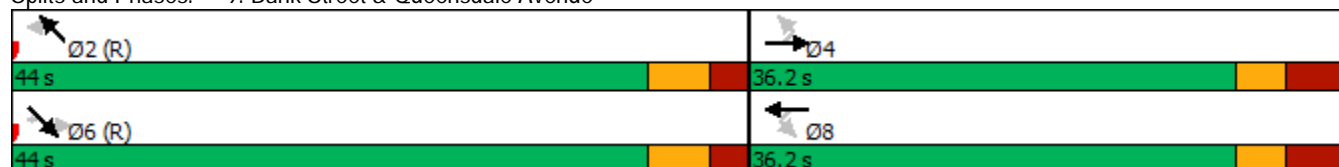
Intersection LOS: B

Intersection Capacity Utilization 64.6%

ICU Level of Service C

Analysis Period (min) 60























Splits and Phases: 9: Bank Street & Queensdale Avenue



Lanes, Volumes, Timings  
18: Bank Street & Lester Road













Background Growth Only (2026)

AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	143	95	0	182	20	215	890	3	11	324	100
Future Volume (vph)	123	143	95	0	182	20	215	890	3	11	324	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.940			0.985				0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1626	1721	0	1900	1798	0	1752	3406	1615	1805	3223	1524
Flt Permitted	0.631						0.556			0.277		
Satd. Flow (perm)	1080	1721	0	1900	1798	0	1026	3406	1615	526	3223	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			7				56			100
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	11%	5%	2%	0%	3%	14%	3%	6%	0%	0%	12%	6%
Adj. Flow (vph)	123	143	95	0	182	20	215	890	3	11	324	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	238	0	0	202	0	215	890	3	11	324	100
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	11.4	11.4			11.4		18.7	18.7	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.26	0.26			0.26		0.42	0.42	0.42	0.42	0.42	0.42
v/c Ratio	0.45	0.51			0.44		0.50	0.63	0.00	0.05	0.24	0.14
Control Delay	21.3	16.9			17.8		14.9	12.7	0.0	9.1	9.1	3.0
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Background Growth Only (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	21.3	16.9			17.8		14.9	12.7	0.0	9.1	9.1	3.0
LOS	C	B			B		B	B	A	A	A	A
Approach Delay		18.4			17.8			13.1			7.7	
Approach LOS		B			B			B			A	
90th %ile Green (s)	17.8	17.8		17.8	17.8		27.8	27.8	27.8	27.8	27.8	27.8
90th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	13.3	13.3		13.3	13.3		21.8	21.8	21.8	21.8	21.8	21.8
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	10.9	10.9		10.9	10.9		18.1	18.1	18.1	18.1	18.1	18.1
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	9.0	9.0		9.0	9.0		14.9	14.9	14.9	14.9	14.9	14.9
30th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	7.1	7.1		7.1	7.1		12.3	12.3	12.3	12.3	12.3	12.3
10th %ile Term Code	Hold	Hold		Gap	Gap		Gap	Gap	Gap	Hold	Hold	Hold
Queue Length 50th (m)	8.1	12.9			12.8		11.5	26.7	0.0	0.5	8.0	0.0
Queue Length 95th (m)	28.1	41.4			38.2		38.1	61.4	0.0	3.4	20.3	8.0
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0						130.0		80.0	90.0		60.0
Base Capacity (vph)	804	1292			1341		950	3155	1500	487	2985	1419
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	0.15	0.18			0.15		0.23	0.28	0.00	0.02	0.11	0.07

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 44.7

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 60

90th %ile Actuated Cycle: 59.7

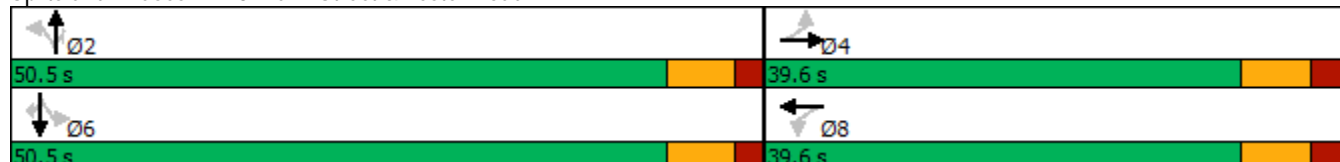
70th %ile Actuated Cycle: 49.2

50th %ile Actuated Cycle: 43.1

30th %ile Actuated Cycle: 38

10th %ile Actuated Cycle: 33.5

Splits and Phases: 18: Bank Street & Lester Road





















# Lanes, Volumes, Timings













# Background Growth Only (2026)

## 25: Bank Street & D'Aoust Avenue/St. Bernard Street

AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	79	24	107	15	20	104	53	358	60	126	1026	40
Future Volume (vph)	79	24	107	15	20	104	53	358	60	126	1026	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.931			0.899			0.978			0.994	
Flt Protected		0.982			0.995		0.950			0.950		
Satd. Flow (prot)	0	1648	0	0	1623	0	1770	3193	0	1770	3448	0
Flt Permitted		0.824			0.943		0.239			0.507		
Satd. Flow (perm)	0	1383	0	0	1539	0	445	3193	0	944	3448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		70			76			35			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	2%	5%	8%	8%	11%	3%	2%	12%	2%	2%	4%	6%
Adj. Flow (vph)	79	24	107	15	20	104	53	358	60	126	1026	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	210	0	0	139	0	53	418	0	126	1066	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		13.8			13.8		53.8	53.8		53.8	53.8	
Actuated g/C Ratio		0.17			0.17		0.67	0.67		0.67	0.67	
v/c Ratio		0.71			0.42		0.18	0.19		0.20	0.46	
Control Delay		33.9			17.3		8.5	5.5		4.5	4.9	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		33.9			17.3		8.5	5.5		4.5	4.9	
LOS		C			B		A	A		A	A	
Approach Delay		33.9			17.3			5.9			4.9	
Approach LOS		C			B			A			A	
90th %ile Green (s)	21.3	21.3		21.3	21.3		46.3	46.3		46.3	46.3	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	16.9	16.9		16.9	16.9		50.7	50.7		50.7	50.7	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	13.8	13.8		13.8	13.8		53.8	53.8		53.8	53.8	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	10.7	10.7		10.7	10.7		56.9	56.9		56.9	56.9	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	6.3	6.3		6.3	6.3		61.3	61.3		61.3	61.3	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		21.0			8.8		2.7	10.3		3.6	15.8	
Queue Length 95th (m)		46.7			26.2		11.7	24.4		7.8	23.3	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		504			560		299	2158		634	2321	
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		0.42			0.25		0.18	0.19		0.20	0.46	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 27 (34%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 9.0

Intersection LOS: A

Intersection Capacity Utilization 74.9%

ICU Level of Service D

Analysis Period (min) 60

Splits and Phases: 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street






HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Background Growth Only (2026)  
AM PEAK

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	14	3	3	0	1	33	8	449	2	2	1085	10
Future Vol, veh/h	14	3	3	0	1	33	8	449	2	2	1085	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	17	12	0	0	4	0
Mvmt Flow	14	3	3	0	1	33	8	449	2	2	1085	10
Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1100	1700	244	1453	1697	595	1190	0	0	490	0	0
Stage 1	506	506	-	1189	1189	-	-	-	-	-	-	-
Stage 2	594	1194	-	264	508	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.44	-	-	4.1	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.37	-	-	2.2	-	-
Pot Cap-1 Maneuver	167	91	757	91	92	447	505	-	-	1084	-	-
Stage 1	517	538	-	199	260	-	-	-	-	-	-	-
Stage 2	458	258	-	718	537	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	150	89	757	87	90	447	505	-	-	1084	-	-
Mov Cap-2 Maneuver	150	89	-	87	90	-	-	-	-	-	-	-
Stage 1	508	528	-	195	259	-	-	-	-	-	-	-
Stage 2	419	257	-	698	527	-	-	-	-	-	-	-
Approach	EB		WB		SE			NW				
HCM Control Delay, s	32.4		14.9		0.2			0				
HCM LOS	D		B									
Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	WBLn1	SEL	SET	SER				
Capacity (veh/h)	1084	-	-	153	400	505	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.142	0.092	0.017	-	-				
HCM Control Delay (s)	8.3	-	-	32.4	14.9	12.3	-	-				
HCM Lane LOS	A	-	-	D	B	B	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.5	0.3	0.1	-	-				

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	62	448	49	26	254
Future Vol, veh/h	45	62	448	49	26	254
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	22	7	5	9	2
Mvmt Flow	45	62	448	49	26	254
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.8	18.2	11.7
HCM LOS	A	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	42%	9%
Vol Thru, %	90%	0%	91%
Vol Right, %	10%	58%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	497	107	280
LT Vol	0	45	26
Through Vol	448	0	254
RT Vol	49	62	0
Lane Flow Rate	540	116	304
Geometry Grp	1	1	1
Degree of Util (X)	0.696	0.178	0.422
Departure Headway (Hd)	4.638	5.517	4.988
Convergence, Y/N	Yes	Yes	Yes
Cap	773	643	715
Service Time	2.695	3.615	3.057
HCM Lane V/C Ratio	0.699	0.18	0.425
HCM Control Delay	18.2	9.8	11.7
HCM Lane LOS	C	A	B
HCM 95th-tile Q	6.5	0.6	2.2

#### 12: Bank Street & Ent. 3 Performance by approach

Approach	EB	SE	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.9	1.1
Total Del/Veh (s)	0.9	1.1	3.2	2.5

#### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Delay (hr)	0.0	0.1	0.0	0.2
Total Del/Veh (s)	0.4	3.6	3.6	2.0

#### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.3	0.6	3.2	0.5

#### Total Zone Performance

Denied Delay (hr)		0.0	
Denied Del/Veh (s)		0.2	
Total Delay (hr)		1.3	
Total Del/Veh (s)		158.9	

Intersection: 12: Bank Street & Ent. 3

Movement	NW	NW
Directions Served	T	T
Maximum Queue (m)	5.4	10.6
Average Queue (m)	0.2	0.4
95th Queue (m)	3.2	5.7
Link Distance (m)	365.1	365.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	5.9	16.4	16.3
Average Queue (m)	0.2	2.0	7.2
95th Queue (m)	4.6	9.3	14.6
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	9.7	14.8
Average Queue (m)	0.6	4.0
95th Queue (m)	4.6	11.9
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



















Zone Summary

Zone wide Queuing Penalty: 0
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Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue













Background Growth Only (2026)

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	7	7	10	16	7	36	51	1118	18	5	571	13
Future Volume (vph)	7	7	10	16	7	36	51	1118	18	5	571	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.944			0.918			0.998			0.997	
Flt Protected		0.986			0.987		0.950			0.950		
Satd. Flow (prot)	0	1768	0	0	1722	0	1805	3499	0	1805	3464	0
Flt Permitted		0.881			0.900		0.432			0.239		
Satd. Flow (perm)	0	1580	0	0	1570	0	821	3499	0	454	3464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			36			3			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%	0%
Adj. Flow (vph)	7	7	10	16	7	36	51	1118	18	5	571	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	0	59	0	51	1136	0	5	584	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.1			7.1		67.5	67.5		67.5	67.5	
Actuated g/C Ratio		0.09			0.09		0.84	0.84		0.84	0.84	
v/c Ratio		0.16			0.35		0.07	0.38		0.01	0.20	
Control Delay		26.2			23.3		2.9	2.8		3.0	2.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Background Growth Only (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		26.2			23.3		2.9	2.8		3.0	2.6	
LOS		C			C		A	A		A	A	
Approach Delay		26.2			23.3			2.8			2.6	
Approach LOS		C			C			A			A	
90th %ile Green (s)	9.8	9.8		9.8	9.8		57.5	57.5		57.5	57.5	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	7.9	7.9		7.9	7.9		59.4	59.4		59.4	59.4	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.6	6.6		6.6	6.6		60.7	60.7		60.7	60.7	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
30th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		2.1			3.5		1.6	25.1		0.1	10.8	
Queue Length 95th (m)		10.1			16.6		m5.1	35.6		1.2	21.6	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		563			576		693	2953		383	2924	
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		0.04			0.10		0.07	0.38		0.01	0.20	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 3.7

Intersection LOS: A





Intersection Capacity Utilization 55.6%

ICU Level of Service B

Analysis Period (min) 60

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

Splits and Phases: 3: Bank Street & Rosebella Avenue





















 Ø2 (R)	 Ø4
45 s	35 s
 Ø6 (R)	 Ø8
45 s	35 s



Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue













Background Growth Only (2026)

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	133	64	76	46	95	38	48	879	170	95	416	37
Future Volume (vph)	133	64	76	46	95	38	48	879	170	95	416	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.962			0.971				0.850		0.988	
Flt Protected		0.976			0.987		0.950			0.950		
Satd. Flow (prot)	0	1725	0	0	1775	0	1770	3471	1599	1805	3436	0
Flt Permitted		0.764			0.836		0.491			0.286		
Satd. Flow (perm)	0	1350	0	0	1504	0	915	3471	1599	543	3436	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27			19				170		16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	7%	0%	0%	5%	0%	6%	2%	4%	1%	0%	3%	13%
Adj. Flow (vph)	133	64	76	46	95	38	48	879	170	95	416	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	273	0	0	179	0	48	879	170	95	453	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		19.9			19.9		47.1	47.1	47.1	47.1	47.1	
Actuated g/C Ratio		0.25			0.25		0.59	0.59	0.59	0.59	0.59	
v/c Ratio		0.77			0.46		0.09	0.43	0.17	0.30	0.22	
Control Delay		40.2			25.2		10.0	11.1	2.3	13.9	9.0	
Queue Delay		0.0			0.0		0.0	0.3	0.0	0.0	0.0	

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Background Growth Only (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		40.2			25.2		10.0	11.4	2.3	13.9	9.0	
LOS		D			C		A	B	A	B	A	
Approach Delay		40.2			25.2			9.9			9.8	
Approach LOS		D			C			A			A	
90th %ile Green (s)	28.0	28.0		28.0	28.0		39.0	39.0	39.0	39.0	39.0	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
70th %ile Green (s)	23.4	23.4		23.4	23.4		43.6	43.6	43.6	43.6	43.6	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
50th %ile Green (s)	20.1	20.1		20.1	20.1		46.9	46.9	46.9	46.9	46.9	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
30th %ile Green (s)	16.6	16.6		16.6	16.6		50.4	50.4	50.4	50.4	50.4	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
10th %ile Green (s)	11.6	11.6		11.6	11.6		55.4	55.4	55.4	55.4	55.4	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
Queue Length 50th (m)		36.7			21.6		3.1	37.5	0.0	7.0	16.0	
Queue Length 95th (m)		65.8			40.0		11.2	76.1	12.4	25.2	34.4	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		505			555		537	2036	1008	318	2022	
Starvation Cap Reductn		0			0		0	545	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.54			0.32		0.09	0.59	0.17	0.30	0.22	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 15.2

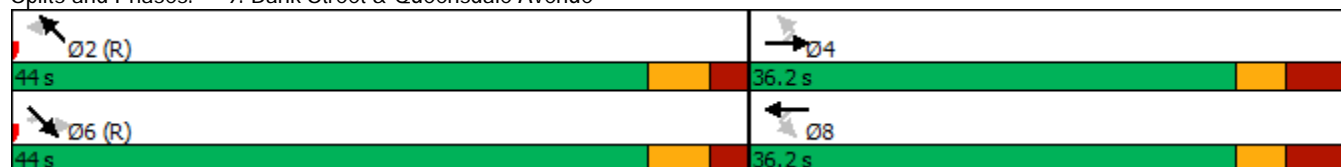
Intersection LOS: B

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 60























Splits and Phases: 9: Bank Street & Queensdale Avenue



Lanes, Volumes, Timings  
18: Bank Street & Lester Road













Background Growth Only (2026)

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	188	319	1	141	18	133	490	2	29	907	127
Future Volume (vph)	84	188	319	1	141	18	133	490	2	29	907	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.906			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1698	0	1805	1724	0	1770	3438	1615	1736	3471	1583
Flt Permitted	0.656			0.295			0.238			0.473		
Satd. Flow (perm)	1154	1698	0	560	1724	0	443	3438	1615	864	3471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		93			8				56			127
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	8%	2%	1%	0%	7%	19%	2%	5%	0%	4%	4%	2%
Adj. Flow (vph)	84	188	319	1	141	18	133	490	2	29	907	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	507	0	1	159	0	133	490	2	29	907	127
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	21.5	21.5		21.5	21.5		26.2	26.2	26.2	26.2	26.2	26.2
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.41	0.41	0.41	0.41	0.41	0.41
v/c Ratio	0.21	0.79		0.01	0.27		0.73	0.34	0.00	0.08	0.63	0.17
Control Delay	19.0	27.9		18.0	17.8		44.3	13.4	0.0	12.7	16.8	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Background Growth Only (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.0	27.9		18.0	17.8		44.3	13.4	0.0	12.7	16.8	3.3
LOS	B	C		B	B		D	B	A	B	B	A
Approach Delay		26.7			17.8			19.9			15.1	
Approach LOS		C			B			B			B	
90th %ile Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
90th %ile Term Code	Max	Max		Hold	Hold		Max	Max	Max	Hold	Hold	Hold
70th %ile Green (s)	29.3	29.3		29.3	29.3		36.6	36.6	36.6	36.6	36.6	36.6
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	20.8	20.8		20.8	20.8		24.1	24.1	24.1	24.1	24.1	24.1
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	16.0	16.0		16.0	16.0		18.2	18.2	18.2	18.2	18.2	18.2
30th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	11.5	11.5		11.5	11.5		13.2	13.2	13.2	13.2	13.2	13.2
10th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
Queue Length 50th (m)	6.5	40.5		0.1	11.8		12.2	19.3	0.0	1.9	41.5	0.0
Queue Length 95th (m)	24.5	#145.5		1.3	39.2		#55.5	42.7	0.0	8.4	88.2	11.3
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0			40.0			130.0		80.0	90.0		60.0
Base Capacity (vph)	642	987		311	963		327	2540	1208	638	2565	1203
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	0.13	0.51		0.00	0.17		0.41	0.19	0.00	0.05	0.35	0.11

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 63.2

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 89.6%

ICU Level of Service E

Analysis Period (min) 60

90th %ile Actuated Cycle: 90.1

70th %ile Actuated Cycle: 80

50th %ile Actuated Cycle: 59

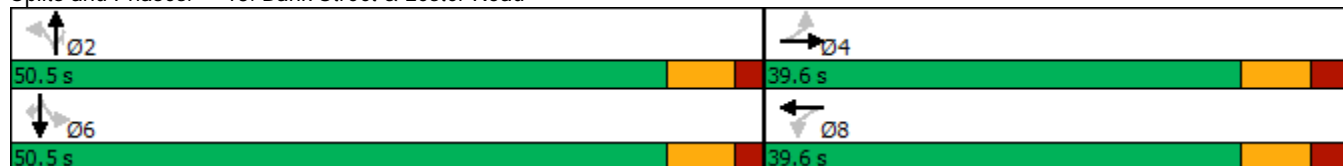
30th %ile Actuated Cycle: 48.3



















10th %ile Actuated Cycle: 38.8













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

Queue shown is maximum after two cycles.

Splits and Phases: 18: Bank Street & Lester Road



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	24	10	65	23	14	52	75	1100	33	48	541	25
Future Volume (vph)	24	10	65	23	14	52	75	1100	33	48	541	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.911			0.921			0.996			0.993	
Flt Protected		0.988			0.987		0.950			0.950		
Satd. Flow (prot)	0	1671	0	0	1706	0	1805	3494	0	1805	3421	0
Flt Permitted		0.925			0.919		0.439			0.236		
Satd. Flow (perm)	0	1565	0	0	1588	0	834	3494	0	448	3421	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			52			5			8	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	5%	11%	0%	0%	8%	0%	0%	3%	0%	0%	5%	0%
Adj. Flow (vph)	24	10	65	23	14	52	75	1100	33	48	541	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	89	0	75	1133	0	48	566	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.9			7.9		63.2	63.2		63.2	63.2	
Actuated g/C Ratio		0.10			0.10		0.79	0.79		0.79	0.79	
v/c Ratio		0.47			0.44		0.11	0.41		0.14	0.21	
Control Delay		22.8			23.4		3.9	4.2		3.0	2.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		22.8			23.4		3.9	4.2		3.0	2.0	
LOS		C			C		A	A		A	A	
Approach Delay		22.8			23.4			4.2			2.1	
Approach LOS		C			C			A			A	
90th %ile Green (s)	11.9	11.9		11.9	11.9		55.7	55.7		55.7	55.7	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	9.2	9.2		9.2	9.2		58.4	58.4		58.4	58.4	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	7.4	7.4		7.4	7.4		60.2	60.2		60.2	60.2	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.7	5.7		5.7	5.7		61.9	61.9		61.9	61.9	
30th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		5.6			5.6		2.5	27.0		1.0	6.2	
Queue Length 95th (m)		22.5			21.4		8.8	56.4		3.1	10.6	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		559			560		659	2763		354	2706	
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		0.18			0.16		0.11	0.41		0.14	0.21	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 31 (39%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 5.3





Intersection LOS: A

Intersection Capacity Utilization 58.5%

ICU Level of Service B

Analysis Period (min) 60

Splits and Phases: 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street

 Ø2 (R)	 Ø4
47 s	33 s
 Ø6 (R)	 Ø8
47 s	33 s

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↔			↔		↔	↔	↔	↔	↔	
Traffic Vol, veh/h	6	2	8	9	10	21	41	1080	23	11	562	15
Future Vol, veh/h	6	2	8	9	10	21	41	1080	23	11	562	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	0	0	6	0	3	11	0	5	0
Mvmt Flow	6	2	8	9	10	21	41	1080	23	11	562	15




Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1599	1915	587	1321	1932	314	627	0	0	1199	0	0
Stage 1	1264	1264	-	643	643	-	-	-	-	-	-	-
Stage 2	335	651	-	678	1289	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.18	7.5	6.5	7.02	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.44	3.5	4	3.36	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	72	68	424	117	67	670	965	-	-	589	-	-
Stage 1	182	243	-	433	472	-	-	-	-	-	-	-
Stage 2	658	468	-	413	236	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	57	64	424	106	63	670	965	-	-	589	-	-
Mov Cap-2 Maneuver	57	64	-	106	63	-	-	-	-	-	-	-
Stage 1	173	232	-	413	463	-	-	-	-	-	-	-
Stage 2	608	459	-	382	225	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW	
HCM Control Delay, s	47		40.4		0.3		0.2	
HCM LOS	E		E					

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	589	-	-	103	145	965	-
HCM Lane V/C Ratio	0.02	-	-	0.169	0.3	0.046	-
HCM Control Delay (s)	11.2	-	-	47	40.4	8.9	-
HCM Lane LOS	B	-	-	E	E	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	1.3	0.1	-



Intersection	
Intersection Delay, s/veh	23.4
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	45	55	334	62	107	452
Future Vol, veh/h	45	55	334	62	107	452
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	13	2
Mvmt Flow	45	55	334	62	107	452
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.5	14.6	32
HCM LOS	B	B	D

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	45%	19%
Vol Thru, %	84%	0%	81%
Vol Right, %	16%	55%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	396	100	559
LT Vol	0	45	107
Through Vol	334	0	452
RT Vol	62	55	0
Lane Flow Rate	430	109	608
Geometry Grp	1	1	1
Degree of Util (X)	0.578	0.184	0.837
Departure Headway (Hd)	4.835	6.088	4.96
Convergence, Y/N	Yes	Yes	Yes
Cap	736	593	723
Service Time	2.93	4.088	3.051
HCM Lane V/C Ratio	0.584	0.184	0.841
HCM Control Delay	14.6	10.5	32
HCM Lane LOS	B	B	D
HCM 95th-tile Q	4	0.7	12.7

#### 12: Bank Street & Ent. 3 Performance by approach

Approach	EB	SE	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Delay (hr)	0.1	0.6	0.3	0.9
Total Del/Veh (s)	1.5	1.9	2.0	1.9

#### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.2	0.1
Total Delay (hr)	0.0	0.6	0.3	1.0
Total Del/Veh (s)	0.8	6.1	6.9	4.9

#### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.2	0.9	3.4	0.7

#### Total Zone Performance

Denied Delay (hr)		0.0	
Denied Del/Veh (s)		0.2	
Total Delay (hr)		2.0	
Total Del/Veh (s)		263.8	

### Intersection: 12: Bank Street & Ent. 3

Movement	EB	SE
Directions Served	R	T
Maximum Queue (m)	18.3	1.0
Average Queue (m)	2.3	0.0
95th Queue (m)	11.7	0.8
Link Distance (m)	76.1	80.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	19.7	45.9	27.5
Average Queue (m)	0.9	10.7	13.2
95th Queue (m)	8.0	28.4	22.1
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue



















Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	14.3	8.9
Average Queue (m)	0.8	3.6
95th Queue (m)	6.6	10.7
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Zone Summary

Zone wide Queuing Penalty: 0
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










Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	10	11	5	9	1	55	28	414	6	5	1026	5
Future Volume (vph)	10	11	5	9	1	55	28	414	6	5	1026	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.974			0.886			0.998			0.999	
Flt Protected		0.981			0.993		0.950			0.950		
Satd. Flow (prot)	0	1815	0	0	1672	0	1736	3153	0	1805	3340	0
Flt Permitted		0.846			0.946		0.269			0.506		
Satd. Flow (perm)	0	1566	0	0	1592	0	491	3153	0	961	3340	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			55			2			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	14%	33%	0%	8%	0%
Adj. Flow (vph)	10	11	5	9	1	55	28	414	6	5	1026	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	65	0	28	420	0	5	1031	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		6.8			6.8		64.1	64.1		64.1	64.1	
Actuated g/C Ratio		0.08			0.08		0.80	0.80		0.80	0.80	
v/c Ratio		0.19			0.35		0.07	0.17		0.01	0.39	
Control Delay		31.8			18.0		2.7	2.2		2.8	3.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.3	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		31.8			18.0		2.7	2.2		2.8	4.0	
LOS		C			B		A	A		A	A	
Approach Delay		31.8			18.0			2.2			4.0	
Approach LOS		C			B			A			A	
90th %ile Green (s)	9.4	9.4		9.4	9.4		57.9	57.9		57.9	57.9	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	7.3	7.3		7.3	7.3		60.0	60.0		60.0	60.0	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.4	6.4		6.4	6.4		60.9	60.9		60.9	60.9	
50th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.6	5.6		5.6	5.6		61.7	61.7		61.7	61.7	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		3.2			1.5		0.7	6.1		0.2	22.9	
Queue Length 95th (m)		11.6			15.2		m2.6	10.6		1.1	44.6	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		555			596		393	2526		770	2676	
Starvation Cap Reductn		0			0		0	0		0	886	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.05			0.11		0.07	0.17		0.01	0.58	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 4.5

Intersection LOS: A





Intersection Capacity Utilization 43.3%

ICU Level of Service A

Analysis Period (min) 60





















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

Splits and Phases: 3: Bank Street & Rosebella Avenue

 Ø2 (R)	 Ø4
45 s	35 s
 Ø6 (R)	 Ø8
45 s	35 s













Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	118	50	38	20	27	67	27	337	57	67	822	36
Future Volume (vph)	118	50	38	20	27	67	27	337	57	67	822	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.975			0.921				0.850		0.994	
Flt Protected		0.972			0.991		0.950			0.950		
Satd. Flow (prot)	0	1715	0	0	1441	0	1530	3282	1357	1752	3389	0
Flt Permitted		0.792			0.921		0.303			0.549		
Satd. Flow (perm)	0	1398	0	0	1339	0	488	3282	1357	1013	3389	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			67				57		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	7%	4%	0%	10%	4%	30%	18%	10%	19%	3%	6%	3%
Adj. Flow (vph)	118	50	38	20	27	67	27	337	57	67	822	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	0	0	114	0	27	337	57	67	858	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		16.8			16.8		50.2	50.2	50.2	50.2	50.2	
Actuated g/C Ratio		0.21			0.21		0.63	0.63	0.63	0.63	0.63	
v/c Ratio		0.67			0.34		0.09	0.16	0.07	0.11	0.40	
Control Delay		37.6			14.3		8.9	7.5	2.8	8.3	9.1	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		37.6			14.3		8.9	7.5	2.8	8.3	9.1	
LOS		D			B		A	A	A	A	A	
Approach Delay		37.6			14.3			6.9			9.0	
Approach LOS		D			B			A			A	
90th %ile Green (s)	24.2	24.2		24.2	24.2		42.8	42.8	42.8	42.8	42.8	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
70th %ile Green (s)	19.9	19.9		19.9	19.9		47.1	47.1	47.1	47.1	47.1	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
50th %ile Green (s)	16.9	16.9		16.9	16.9		50.1	50.1	50.1	50.1	50.1	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
30th %ile Green (s)	13.8	13.8		13.8	13.8		53.2	53.2	53.2	53.2	53.2	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
10th %ile Green (s)	9.4	9.4		9.4	9.4		57.6	57.6	57.6	57.6	57.6	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
Queue Length 50th (m)		28.1			6.2		1.5	10.5	0.0	3.9	32.1	
Queue Length 95th (m)		52.0			21.1		7.1	23.6	6.2	13.0	66.0	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		515			526		305	2052	870	633	2122	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.40			0.22		0.09	0.16	0.07	0.11	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 12.4

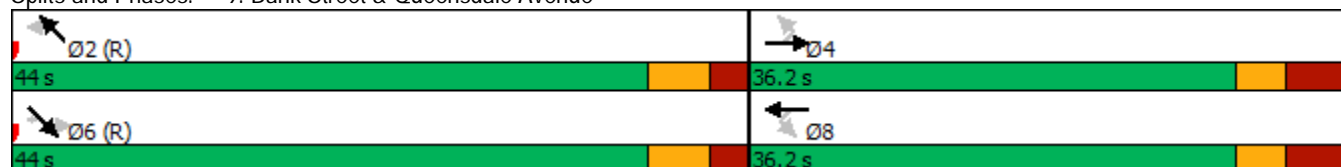
Intersection LOS: B

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 60























Splits and Phases: 9: Bank Street & Queensdale Avenue

















Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	129	86	0	164	19	194	809	3	10	294	91
Future Volume (vph)	115	129	86	0	164	19	194	809	3	10	294	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.940			0.984				0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1641	1721	0	1900	1807	0	1752	3406	1615	1805	3223	1524
Flt Permitted	0.642						0.572			0.324		
Satd. Flow (perm)	1109	1721	0	1900	1807	0	1055	3406	1615	616	3223	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			7				56			91
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	10%	5%	2%	0%	2%	16%	3%	6%	0%	0%	12%	6%
Adj. Flow (vph)	115	129	86	0	164	19	194	809	3	10	294	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	215	0	0	183	0	194	809	3	10	294	91
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	10.3	10.3			10.3		16.4	16.4	16.4	16.4	16.4	16.4
Actuated g/C Ratio	0.25	0.25			0.25		0.40	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.42	0.47			0.40		0.46	0.60	0.00	0.04	0.23	0.14
Control Delay	19.3	15.1			16.3		13.9	12.1	0.0	8.7	9.0	3.1
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.3	15.1			16.3		13.9	12.1	0.0	8.7	9.0	3.1
LOS	B	B			B		B	B	A	A	A	A
Approach Delay		16.6			16.3			12.4			7.6	
Approach LOS		B			B			B			A	
90th %ile Green (s)	15.8	15.8		15.8	15.8		24.0	24.0	24.0	24.0	24.0	24.0
90th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	12.0	12.0		12.0	12.0		18.9	18.9	18.9	18.9	18.9	18.9
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	10.0	10.0		10.0	10.0		16.5	16.5	16.5	16.5	16.5	16.5
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	8.3	8.3		8.3	8.3		13.6	13.6	13.6	13.6	13.6	13.6
30th %ile Term Code	Gap	Gap		Gap	Gap		Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	6.7	6.7		6.7	6.7		10.4	10.4	10.4	10.4	10.4	10.4
10th %ile Term Code	Hold	Hold		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
Queue Length 50th (m)	7.0	10.6			10.7		9.6	22.5	0.0	0.4	6.8	0.0
Queue Length 95th (m)	24.2	34.1			31.9		31.7	51.2	0.0	3.1	17.5	7.4
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0						130.0		80.0	90.0		60.0
Base Capacity (vph)	883	1379			1440		1011	3266	1551	590	3090	1465
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	0.13	0.16			0.13		0.19	0.25	0.00	0.02	0.10	0.06

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 41.3

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 66.2%

ICU Level of Service C

Analysis Period (min) 60

90th %ile Actuated Cycle: 53.9

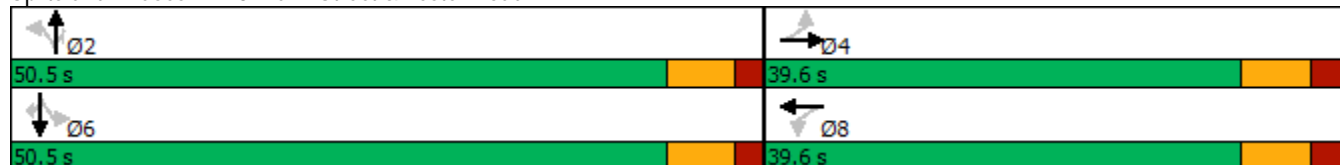
70th %ile Actuated Cycle: 45

50th %ile Actuated Cycle: 40.6

30th %ile Actuated Cycle: 36

10th %ile Actuated Cycle: 31.2

Splits and Phases: 18: Bank Street & Lester Road

































# Lanes, Volumes, Timings

## 25: Bank Street & D'Aoust Avenue/St. Bernard Street

Total Traffic (2021)

AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	72	22	101	14	19	95	48	329	54	116	936	38
Future Volume (vph)	72	22	101	14	19	95	48	329	54	116	936	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.930			0.900			0.979			0.994	
Flt Protected		0.982			0.995		0.950			0.950		
Satd. Flow (prot)	0	1646	0	0	1625	0	1770	3196	0	1770	3448	0
Flt Permitted		0.841			0.941		0.272			0.525		
Satd. Flow (perm)	0	1409	0	0	1536	0	507	3196	0	978	3448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		72			95			34			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	2%	5%	8%	8%	11%	3%	2%	12%	2%	2%	4%	6%
Adj. Flow (vph)	72	22	101	14	19	95	48	329	54	116	936	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	0	0	128	0	48	383	0	116	974	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		12.7			12.7		54.9	54.9		54.9	54.9	
Actuated g/C Ratio		0.16			0.16		0.69	0.69		0.69	0.69	
v/c Ratio		0.69			0.40		0.14	0.17		0.17	0.41	
Control Delay		32.2			13.3		7.1	5.0		4.1	4.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		32.2			13.3		7.1	5.0		4.1	4.3	
LOS		C			B		A	A		A	A	
Approach Delay		32.2			13.3			5.2			4.3	
Approach LOS		C			B			A			A	
90th %ile Green (s)	19.9	19.9		19.9	19.9		47.7	47.7		47.7	47.7	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	15.6	15.6		15.6	15.6		52.0	52.0		52.0	52.0	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	12.7	12.7		12.7	12.7		54.9	54.9		54.9	54.9	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	9.8	9.8		9.8	9.8		57.8	57.8		57.8	57.8	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	5.6	5.6		5.6	5.6		62.0	62.0		62.0	62.0	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		18.4			4.6		2.3	8.7		3.1	13.8	
Queue Length 95th (m)		43.0			21.3		9.6	21.1		7.2	21.1	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		514			572		347	2203		670	2367	
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		0.38			0.22		0.14	0.17		0.17	0.41	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 27 (34%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 8.1

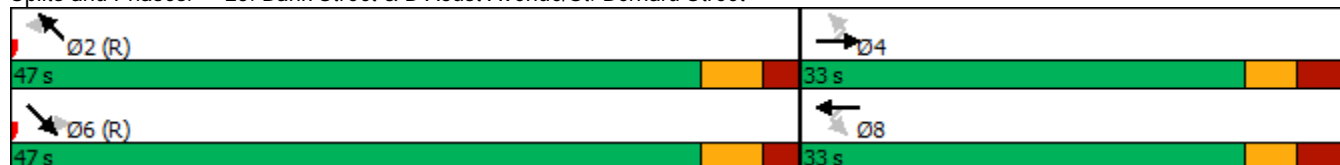
Intersection LOS: A

Intersection Capacity Utilization 64.5%

ICU Level of Service C

Analysis Period (min) 60

Splits and Phases: 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

02-25-2020

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↗↗	↗	↗	↗↗	
Traffic Vol, veh/h	12	3	3	0	1	30	7	420	2	2	996	9
Future Vol, veh/h	12	3	3	0	1	30	7	420	2	2	996	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	33	0	0	0	14	11	0	0	4	0
Mvmt Flow	12	3	3	0	1	30	7	420	2	2	996	9

Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1019	1570	229	1338	1567	547	1093	0	0	459	0	0
Stage 1	473	473	-	1092	1092	-	-	-	-	-	-	-
Stage 2	546	1097	-	246	475	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.56	7.5	6.5	6.9	4.38	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.63	3.5	4	3.3	2.34	-	-	2.2	-	-
Pot Cap-1 Maneuver	194	112	687	113	112	486	569	-	-	1113	-	-
Stage 1	546	562	-	232	293	-	-	-	-	-	-	-
Stage 2	495	291	-	742	561	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	178	110	687	109	110	486	569	-	-	1113	-	-
Mov Cap-2 Maneuver	178	110	-	109	110	-	-	-	-	-	-	-
Stage 1	538	554	-	229	292	-	-	-	-	-	-	-
Stage 2	459	290	-	724	553	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW					
HCM Control Delay, s	27.2		13.9		0.2		0					
HCM LOS	D		B									




Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	1113	-	-	182 438	569	-	-
HCM Lane V/C Ratio	0.002	-	-	0.108 0.077	0.013	-	-
HCM Control Delay (s)	8.2	-	-	27.2 13.9	11.4	-	-
HCM Lane LOS	A	-	-	D B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4 0.2	0	-	-

HCM 6th AWSC  
23: Albion Road & Queensdale Avenue

02-25-2020

Intersection

Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	60	406	48	28	230
Future Vol, veh/h	44	60	406	48	28	230
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	22	7	5	9	2
Mvmt Flow	44	60	406	48	28	230
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.5	15.4	11.1
HCM LOS	A	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	42%	11%
Vol Thru, %	89%	0%	89%
Vol Right, %	11%	58%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	454	104	258
LT Vol	0	44	28
Through Vol	406	0	230
RT Vol	48	60	0
Lane Flow Rate	493	113	280
Geometry Grp	1	1	1
Degree of Util (X)	0.629	0.168	0.383
Departure Headway (Hd)	4.586	5.365	4.918
Convergence, Y/N	Yes	Yes	Yes
Cap	785	662	726
Service Time	2.634	3.446	2.976
HCM Lane V/C Ratio	0.628	0.171	0.386
HCM Control Delay	15.4	9.5	11.1
HCM Lane LOS	C	A	B
HCM 95th-tile Q	4.9	0.6	1.8

### 12: Bank Street & Ent. 3 Performance by movement

Movement	EBR	SET	SER	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.0	0.8	0.9
Total Del/Veh (s)	0.9	1.0	2.3	2.8	2.3

### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay (hr)	0.0	0.0	0.1	0.1	0.0	0.1	0.3
Total Del/Veh (s)	0.7	0.1	4.3	3.5	6.7	4.3	2.7

### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.2	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.3	0.1	2.8	0.4	5.6	3.4	0.6

### Total Zone Performance

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)			0.0				
Denied Del/Veh (s)			0.2				
Total Delay (hr)			1.2				
Total Del/Veh (s)			234.2				



## Queuing and Blocking Report

### AM PEAK

02-25-2020

#### Intersection: 12: Bank Street & Ent. 3

Movement	NW	NW
Directions Served	T	T
Maximum Queue (m)	3.1	4.4
Average Queue (m)	0.1	0.1
95th Queue (m)	2.2	3.1
Link Distance (m)	365.1	365.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	3.1	32.0	22.2
Average Queue (m)	0.2	4.0	10.5
95th Queue (m)	2.6	17.5	18.7
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

#### Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue



















Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	8.0	14.2
Average Queue (m)	0.4	4.8
95th Queue (m)	3.9	12.9
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Zone Summary

Zone wide Queuing Penalty: 0

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Total Traffic (2021)  
PM PEAK













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	6	6	9	15	6	32	46	1031	17	4	523	11
Future Volume (vph)	6	6	9	15	6	32	46	1031	17	4	523	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.942			0.918			0.998			0.997	
Flt Protected		0.986			0.986		0.950			0.950		
Satd. Flow (prot)	0	1765	0	0	1720	0	1805	3499	0	1805	3463	0
Flt Permitted		0.885			0.897		0.453			0.265		
Satd. Flow (perm)	0	1584	0	0	1565	0	861	3499	0	504	3463	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			32			3			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%	0%
Adj. Flow (vph)	6	6	9	15	6	32	46	1031	17	4	523	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	0	0	53	0	46	1048	0	4	534	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								Yes				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	

Total Traffic (2021) 12-13-2019 PM PEAK

Synchro 10 Report  
Page 1

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

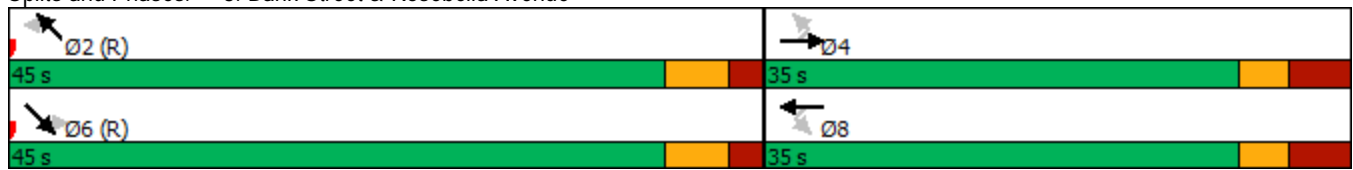
Total Traffic (2021)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		6.9			6.9		67.6	67.6		67.6	67.6	
Actuated g/C Ratio		0.09			0.09		0.84	0.84		0.84	0.84	
v/c Ratio		0.14			0.32		0.06	0.35		0.01	0.18	
Control Delay		26.3			23.6		2.8	2.7		3.0	2.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		26.3			23.6		2.8	2.7		3.0	2.5	
LOS		C			C		A	A		A	A	
Approach Delay		26.3			23.6			2.7			2.5	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		1.8			3.2		1.4	22.2		0.1	9.6	
Queue Length 95th (m)		9.4			15.5		4.8	33.3		1.0	19.3	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		564			572		728	2958		426	2928	
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		0.04			0.09		0.06	0.35		0.01	0.18	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green												
Natural Cycle: 65												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.35												
Intersection Signal Delay: 3.5				Intersection LOS: A								
Intersection Capacity Utilization 52.9%				ICU Level of Service A								
Analysis Period (min) 60												

3: Bank Street & Rosebella Avenue





















PM PEAK

Splits and Phases: 3: Bank Street & Rosebella Avenue



Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Total Traffic (2021)  
PM PEAK













												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	134	62	72	42	86	34	44	800	169	98	368	33
Future Volume (vph)	134	62	72	42	86	34	44	800	169	98	368	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.964			0.972				0.850		0.988	
Flt Protected		0.976			0.987		0.950			0.950		
Satd. Flow (prot)	0	1727	0	0	1777	0	1770	3471	1599	1805	3435	0
Flt Permitted		0.778			0.842		0.516			0.320		
Satd. Flow (perm)	0	1377	0	0	1516	0	961	3471	1599	608	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			19				169		16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	7%	0%	0%	5%	0%	6%	2%	4%	1%	0%	3%	13%
Adj. Flow (vph)	134	62	72	42	86	34	44	800	169	98	368	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	268	0	0	162	0	44	800	169	98	401	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
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	

Total Traffic (2021) 12-13-2019 PM PEAK

Synchro 10 Report  
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Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

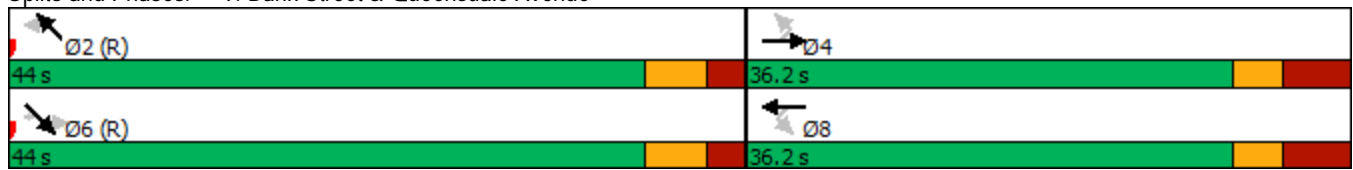
Total Traffic (2021)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)		19.6			19.6		47.4	47.4	47.4	47.4	47.4	
Actuated g/C Ratio		0.24			0.24		0.59	0.59	0.59	0.59	0.59	
v/c Ratio		0.75			0.42		0.08	0.39	0.17	0.27	0.20	
Control Delay		39.2			24.3		9.7	10.5	2.3	12.8	8.6	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		39.2			24.3		9.7	10.5	2.3	12.8	8.6	
LOS		D			C		A	B	A	B	A	
Approach Delay		39.2			24.3			9.1			9.4	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		36.0			19.1		2.8	32.6	0.0	7.0	13.6	
Queue Length 95th (m)		64.2			36.3		10.3	66.6	12.2	24.3	30.0	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		514			560		568	2051	1014	359	2036	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.52			0.29		0.08	0.39	0.17	0.27	0.20	
Intersection Summary												
Area Type:	Other											
Cycle Length:	80.2											
Actuated Cycle Length:	80.2											
Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green												
Natural Cycle: 75												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.75												
Intersection Signal Delay: 14.6						Intersection LOS: B						
Intersection Capacity Utilization 65.3%						ICU Level of Service C						
Analysis Period (min) 60												

Lanes, Volumes, Timings  
 9: Bank Street & Queensdale Avenue























Total Traffic (2021)  
 PM PEAK

Splits and Phases: 9: Bank Street & Queensdale Avenue



Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Total Traffic (2021)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	171	289	1	128	17	121	446	2	26	832	116
Future Volume (vph)	77	171	289	1	128	17	121	446	2	26	832	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.906			0.982				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1698	0	1805	1721	0	1770	3438	1615	1736	3471	1583
Flt Permitted	0.665			0.369			0.279			0.494		
Satd. Flow (perm)	1170	1698	0	701	1721	0	520	3438	1615	902	3471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		105			8				56			116
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	8%	2%	1%	0%	7%	19%	2%	5%	0%	4%	4%	2%
Adj. Flow (vph)	77	171	289	1	128	17	121	446	2	26	832	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	460	0	1	145	0	121	446	2	26	832	116
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	













Total Traffic (2021) 12-13-2019 PM PEAK

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Lanes, Volumes, Timings  
18: Bank Street & Lester Road

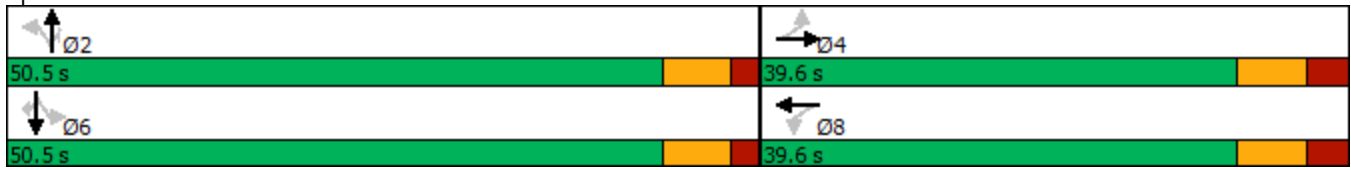
Total Traffic (2021)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effct Green (s)	18.0	18.0		18.0	18.0		21.6	21.6	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.39	0.39	0.39	0.39	0.39	0.39
v/c Ratio	0.20	0.74		0.00	0.26		0.59	0.33	0.00	0.07	0.61	0.17
Control Delay	16.7	21.8		16.0	15.8		28.8	12.6	0.0	12.2	15.7	3.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	21.8		16.0	15.8		28.8	12.6	0.0	12.2	15.7	3.5
LOS	B	C		B	B		C	B	A	B	B	A
Approach Delay		21.1			15.8			16.0			14.1	
Approach LOS		C			B			B			B	
Queue Length 50th (m)	5.0	27.3		0.1	8.9		8.6	14.7	0.0	1.5	31.4	0.0
Queue Length 95th (m)	21.5	103.4		1.3	33.9		39.2	39.0	0.0	7.8	79.3	11.0
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0			40.0			130.0		80.0	90.0		60.0
Base Capacity (vph)	745	1119		446	1098		428	2832	1340	743	2859	1324
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	0.10	0.41		0.00	0.13		0.28	0.16	0.00	0.03	0.29	0.09
Intersection Summary												
Area Type:	Other											
Cycle Length:	90.1											
Actuated Cycle Length:	55.1											
Natural Cycle:	75											
Control Type:	Semi Act-Uncoord											
Maximum v/c Ratio:	0.74											
Intersection Signal Delay:	16.4						Intersection LOS: B					
Intersection Capacity Utilization	84.1%						ICU Level of Service E					
Analysis Period (min)	60											

Lanes, Volumes, Timings  
 18: Bank Street & Lester Road

Total Traffic (2021)  
 PM PEAK

Splits and Phases: 18: Bank Street & Lester Road





















# Lanes, Volumes, Timings

## 25: Bank Street & D'Aoust Avenue/St. Bernard Street

Total Traffic (2021)

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	22	9	59	21	12	47	68	996	30	46	497	25
Future Volume (vph)	22	9	59	21	12	47	68	996	30	46	497	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.911			0.921			0.996			0.993	
Flt Protected		0.988			0.987		0.950			0.950		
Satd. Flow (prot)	0	1671	0	0	1707	0	1805	3494	0	1805	3422	0
Flt Permitted		0.916			0.923		0.459			0.269		
Satd. Flow (perm)	0	1550	0	0	1596	0	872	3494	0	511	3422	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		59			47			5			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	5%	11%	0%	0%	8%	0%	0%	3%	0%	0%	5%	0%
Adj. Flow (vph)	22	9	59	21	12	47	68	996	30	46	497	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	80	0	68	1026	0	46	522	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								Yes			Yes	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	

Total Traffic (2021) 12-13-2019 PM PEAK













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# Lanes, Volumes, Timings

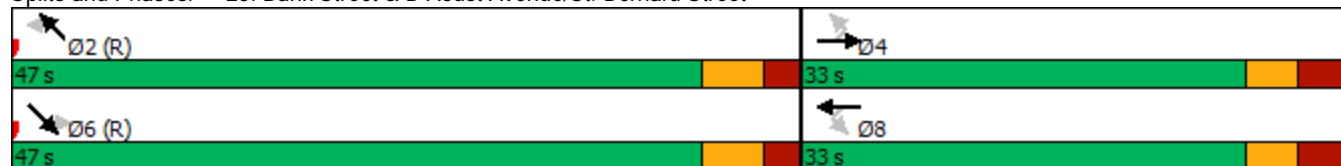
Total Traffic (2021)

## 25: Bank Street & D'Aoust Avenue/St. Bernard Street

PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		7.6			7.6		63.6	63.6		63.6	63.6	
Actuated g/C Ratio		0.10			0.10		0.80	0.80		0.80	0.80	
v/c Ratio		0.45			0.41		0.10	0.37		0.11	0.19	
Control Delay		22.3			23.5		3.6	3.8		2.7	2.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.3			23.5		3.6	3.8		2.7	2.0	
LOS		C			C		A	A		A	A	
Approach Delay		22.3			23.5			3.8			2.0	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		4.7			5.0		2.2	22.8		1.0	5.7	
Queue Length 95th (m)		20.8			20.1		7.7	47.0		3.0	9.8	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		552			560		692	2777		406	2720	
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		0.16			0.14		0.10	0.37		0.11	0.19	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 31 (39%), Referenced to phase 2:NWTL and 6:SETL, Start of Green												
Natural Cycle: 65												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.45												
Intersection Signal Delay: 5.0						Intersection LOS: A						
Intersection Capacity Utilization 54.8%						ICU Level of Service A						
Analysis Period (min) 60												

Splits and Phases: 25: Bank Street & D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Total Traffic (2021)  
PM PEAK




Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	5	2	7	8	9	19	37	998	21	10	515	14
Future Vol, veh/h	5	2	7	8	9	19	37	998	21	10	515	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	0	0	5	0	3	10	0	5	0
Mvmt Flow	5	2	7	8	9	19	37	998	21	10	515	14

Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1472	1762	543	1214	1778	288	575	0	0	1108	0	0
Stage 1	1165	1165	-	590	590	-	-	-	-	-	-	-
Stage 2	307	597	-	624	1188	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.18	7.5	6.5	7	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.44	3.5	4	3.35	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	90	85	454	140	83	700	1008	-	-	638	-	-
Stage 1	210	271	-	466	498	-	-	-	-	-	-	-
Stage 2	683	495	-	445	264	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	76	80	454	129	78	700	1008	-	-	638	-	-
Mov Cap-2 Maneuver	76	80	-	129	78	-	-	-	-	-	-	-
Stage 1	202	260	-	447	490	-	-	-	-	-	-	-
Stage 2	638	487	-	417	253	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW	
HCM Control Delay, s	35.8		31.3		0.3		0.2	
HCM LOS	E		D					

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	638	-	-	132	176	1008	-
HCM Lane V/C Ratio	0.017	-	-	0.115	0.222	0.04	-
HCM Control Delay (s)	10.7	-	-	35.8	31.3	8.7	-
HCM Lane LOS	B	-	-	E	D	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.8	0.1	-

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	55	303	58	101	409
Future Vol, veh/h	44	55	303	58	101	409
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	12	2
Mvmt Flow	44	55	303	58	101	409
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.1	13	22.5
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	44%	20%
Vol Thru, %	84%	0%	80%
Vol Right, %	16%	56%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	361	99	510
LT Vol	0	44	101
Through Vol	303	0	409
RT Vol	58	55	0
Lane Flow Rate	392	108	554
Geometry Grp	1	1	1
Degree of Util (X)	0.518	0.175	0.752
Departure Headway (Hd)	4.75	5.865	4.884
Convergence, Y/N	Yes	Yes	Yes
Cap	749	616	732
Service Time	2.83	3.865	2.961
HCM Lane V/C Ratio	0.523	0.175	0.757
HCM Control Delay	13	10.1	22.5
HCM Lane LOS	B	B	C
HCM 95th-tile Q	3.2	0.6	8.3

## Queuing and Blocking Report PM PEAK

Total Traffic (2021)  
PM PEAK

### Intersection: 12: Bank Street & Ent. 3

Movement	EB
Directions Served	R
Maximum Queue (m)	23.4
Average Queue (m)	2.9
95th Queue (m)	14.2
Link Distance (m)	76.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

### Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	11.8	41.2	35.9
Average Queue (m)	0.5	10.5	15.4
95th Queue (m)	5.0	26.2	27.2
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

### Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	5.4	8.9
Average Queue (m)	0.2	3.3
95th Queue (m)	2.6	10.3
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

### Zone Summary

Zone wide Queuing Penalty: 0



12: Bank Street & Ent. 3 Performance by movement

Movement	EBR	SET	SER	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.4	0.1	0.3	0.9
Total Del/Veh (s)	1.7	1.7	2.9	1.9	1.9

14: Entrance 1 (East Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.3	0.1
Total Delay (hr)	0.0	0.0	0.4	0.2	0.1	0.2	1.0
Total Del/Veh (s)	0.7	0.2	6.3	5.1	10.4	5.4	4.9

16: Entrance 2 (West Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.1	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.2	0.0	2.5	0.7	5.4	2.7	0.7



















Total Zone Performance

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)			0.0				
Denied Del/Veh (s)			0.2				
Total Delay (hr)			1.9				
Total Del/Veh (s)			283.9				

# Lanes, Volumes, Timings

## 3: Bank Street & Rosebella Avenue













Horizon (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	11	13	6	10	1	61	31	454	7	6	1131	6
Future Volume (vph)	11	13	6	10	1	61	31	454	7	6	1131	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.973			0.886			0.998			0.999	
Flt Protected		0.982			0.993		0.950			0.950		
Satd. Flow (prot)	0	1815	0	0	1672	0	1736	3149	0	1805	3341	0
Flt Permitted		0.849			0.945		0.236			0.487		
Satd. Flow (perm)	0	1570	0	0	1591	0	431	3149	0	925	3341	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			49			3			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	14%	40%	0%	8%	0%
Adj. Flow (vph)	11	13	6	10	1	61	31	454	7	6	1131	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	30	0	0	72	0	31	461	0	6	1137	0
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	

# Lanes, Volumes, Timings

## 3: Bank Street & Rosebella Avenue

Horizon (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.2			7.2		63.7	63.7		63.7	63.7	
Actuated g/C Ratio		0.09			0.09		0.80	0.80		0.80	0.80	
v/c Ratio		0.21			0.39		0.09	0.18		0.01	0.43	
Control Delay		31.2			21.7		3.0	2.2		3.0	4.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.3	
Total Delay		31.2			21.7		3.0	2.2		3.0	4.5	
LOS		C			C		A	A		A	A	
Approach Delay		31.2			21.7			2.3			4.5	
Approach LOS		C			C			A			A	
90th %ile Green (s)	10.2	10.2		10.2	10.2		57.1	57.1		57.1	57.1	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	8.0	8.0		8.0	8.0		59.3	59.3		59.3	59.3	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.6	6.6		6.6	6.6		60.7	60.7		60.7	60.7	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.7	5.7		5.7	5.7		61.6	61.6		61.6	61.6	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		3.7			3.5		0.8	6.7		0.2	26.8	
Queue Length 95th (m)		12.6			17.9		m2.7	11.4		1.3	54.4	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		557			592		343	2509		737	2662	
Starvation Cap Reductn		0			0		0	0		0	832	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.05			0.12		0.09	0.18		0.01	0.62	
Intersection Summary												
Area Type:	Other											
Cycle Length:	80											
Actuated Cycle Length:	80											
Offset:	26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green											
Natural Cycle:	65											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.43											
Intersection Signal Delay:	5.0											
	Intersection LOS: A											

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Horizon (2026)  
AM PEAK





















Intersection Capacity Utilization 46.7% ICU Level of Service A  
Analysis Period (min) 60  
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Bank Street & Rosebella Avenue















Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Horizon (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	127	55	42	22	30	74	30	372	62	70	909	40
Future Volume (vph)	127	55	42	22	30	74	30	372	62	70	909	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.975			0.921				0.850		0.994	
Flt Protected		0.972			0.991		0.950			0.950		
Satd. Flow (prot)	0	1697	0	0	1442	0	1543	3252	1313	1719	3389	0
Flt Permitted		0.789			0.919		0.264			0.531		
Satd. Flow (perm)	0	1378	0	0	1337	0	429	3252	1313	961	3389	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			74				62		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	9%	4%	0%	11%	3%	30%	17%	11%	23%	5%	6%	3%
Adj. Flow (vph)	127	55	42	22	30	74	30	372	62	70	909	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	224	0	0	126	0	30	372	62	70	949	0
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Horizon (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		18.1			18.1		48.9	48.9	48.9	48.9	48.9	
Actuated g/C Ratio		0.23			0.23		0.61	0.61	0.61	0.61	0.61	
v/c Ratio		0.69			0.35		0.11	0.19	0.08	0.12	0.46	
Control Delay		37.5			13.6		10.2	8.2	3.0	9.2	10.3	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		37.5			13.6		10.2	8.2	3.0	9.2	10.3	
LOS		D			B		B	A	A	A	B	
Approach Delay		37.5			13.6			7.7			10.3	
Approach LOS		D			B			A			B	
90th %ile Green (s)	25.9	25.9		25.9	25.9		41.1	41.1	41.1	41.1	41.1	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
70th %ile Green (s)	21.4	21.4		21.4	21.4		45.6	45.6	45.6	45.6	45.6	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
50th %ile Green (s)	18.2	18.2		18.2	18.2		48.8	48.8	48.8	48.8	48.8	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
30th %ile Green (s)	14.9	14.9		14.9	14.9		52.1	52.1	52.1	52.1	52.1	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
10th %ile Green (s)	10.2	10.2		10.2	10.2		56.8	56.8	56.8	56.8	56.8	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
Queue Length 50th (m)		30.6			6.7		1.8	12.4	0.0	4.3	38.8	
Queue Length 95th (m)		55.5			22.0		8.4	27.6	6.9	14.4	79.9	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		508			530		261	1982	824	585	2068	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.44			0.24		0.11	0.19	0.08	0.12	0.46	
Intersection Summary												
Area Type:	Other											
Cycle Length:	80.2											
Actuated Cycle Length:	80.2											
Offset:	23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green											
Natural Cycle:	75											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.69											
Intersection Signal Delay:	13.2						Intersection LOS: B					

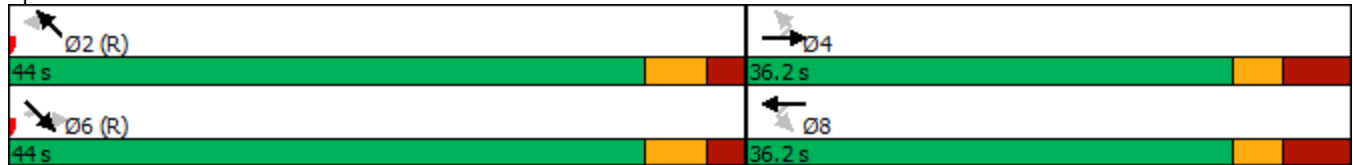
Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Horizon (2026)  
AM PEAK

Intersection Capacity Utilization 65.7%  
Analysis Period (min) 60























ICU Level of Service C

Splits and Phases: 9: Bank Street & Queensdale Avenue



Lanes, Volumes, Timings  
18: Bank Street & Lester Road













Horizon (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	143	95	0	182	20	215	893	3	11	325	101
Future Volume (vph)	126	143	95	0	182	20	215	893	3	11	325	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.940			0.985				0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1626	1721	0	1900	1798	0	1752	3406	1615	1805	3223	1524
Flt Permitted	0.631						0.555			0.276		
Satd. Flow (perm)	1080	1721	0	1900	1798	0	1024	3406	1615	524	3223	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			7				56			101
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	11%	5%	2%	0%	3%	14%	3%	6%	0%	0%	12%	6%
Adj. Flow (vph)	126	143	95	0	182	20	215	893	3	11	325	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	238	0	0	202	0	215	893	3	11	325	101
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0	2.0	2.0	10.0	2.0
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6	2.0	2.0	0.6	2.0
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0



Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Horizon (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	11.4	11.4			11.4		18.8	18.8	18.8	18.8	18.8	18.8
Actuated g/C Ratio	0.25	0.25			0.25		0.42	0.42	0.42	0.42	0.42	0.42
v/c Ratio	0.46	0.51			0.44		0.50	0.63	0.00	0.05	0.24	0.15
Control Delay	21.6	16.9			17.8		15.0	12.8	0.0	9.1	9.2	3.0
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	16.9			17.8		15.0	12.8	0.0	9.1	9.2	3.0
LOS	C	B			B		B	B	A	A	A	A
Approach Delay		18.5			17.8			13.1			7.8	
Approach LOS		B			B			B			A	
90th %ile Green (s)	18.1	18.1		18.1	18.1		28.1	28.1	28.1	28.1	28.1	28.1
90th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	13.4	13.4		13.4	13.4		21.9	21.9	21.9	21.9	21.9	21.9
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	10.9	10.9		10.9	10.9		18.1	18.1	18.1	18.1	18.1	18.1
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	9.0	9.0		9.0	9.0		14.9	14.9	14.9	14.9	14.9	14.9
30th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	7.1	7.1		7.1	7.1		12.3	12.3	12.3	12.3	12.3	12.3
10th %ile Term Code	Hold	Hold		Gap	Gap		Gap	Gap	Gap	Hold	Hold	Hold
Queue Length 50th (m)	8.3	12.9			12.8		11.5	26.8	0.0	0.5	8.0	0.0
Queue Length 95th (m)	28.8	41.5			38.4		38.5	62.4	0.0	3.4	20.5	8.1
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0						130.0		80.0	90.0		60.0
Base Capacity (vph)	803	1290			1338		946	3147	1496	484	2978	1416
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	0.16	0.18			0.15		0.23	0.28	0.00	0.02	0.11	0.07

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 44.9

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.4

Intersection LOS: B

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 60

90th %ile Actuated Cycle: 60.3

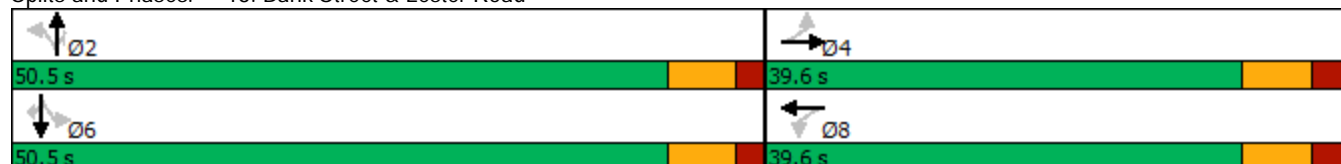
70th %ile Actuated Cycle: 49.4

50th %ile Actuated Cycle: 43.1

30th %ile Actuated Cycle: 38



















10th %ile Actuated Cycle: 33.5

Splits and Phases: 18: Bank Street & Lester Road















Lanes, Volumes, Timings  
25: Bank Street & D'Aoust Avenue/St. Bernard Street

Horizon (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	79	24	112	16	20	104	53	363	60	128	1033	42
Future Volume (vph)	79	24	112	16	20	104	53	363	60	128	1033	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.930			0.900			0.979			0.994	
Flt Protected		0.982			0.994		0.950			0.950		
Satd. Flow (prot)	0	1645	0	0	1623	0	1770	3196	0	1770	3448	0
Flt Permitted		0.827			0.937		0.235			0.505		
Satd. Flow (perm)	0	1386	0	0	1530	0	438	3196	0	941	3448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			75			34			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	2%	5%	8%	8%	11%	3%	2%	12%	2%	2%	4%	6%
Adj. Flow (vph)	79	24	112	16	20	104	53	363	60	128	1033	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	215	0	0	140	0	53	423	0	128	1075	0
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	

Lanes, Volumes, Timings  
25: Bank Street & D'Aoust Avenue/St. Bernard Street

Horizon (2026)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		14.0			14.0		53.6	53.6		53.6	53.6	
Actuated g/C Ratio		0.18			0.18		0.67	0.67		0.67	0.67	
v/c Ratio		0.71			0.43		0.18	0.20		0.20	0.46	
Control Delay		33.6			17.5		8.7	5.6		4.6	5.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		33.6			17.5		8.7	5.6		4.6	5.0	
LOS		C			B		A	A		A	A	
Approach Delay		33.6			17.5			6.0			4.9	
Approach LOS		C			B			A			A	
90th %ile Green (s)	21.5	21.5		21.5	21.5		46.1	46.1		46.1	46.1	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	17.1	17.1		17.1	17.1		50.5	50.5		50.5	50.5	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	14.0	14.0		14.0	14.0		53.6	53.6		53.6	53.6	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	10.8	10.8		10.8	10.8		56.8	56.8		56.8	56.8	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	6.4	6.4		6.4	6.4		61.2	61.2		61.2	61.2	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		21.3			9.1		2.8	10.5		3.6	16.0	
Queue Length 95th (m)		47.4			26.6		11.9	25.0		7.9	23.4	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		507			556		293	2154		631	2314	
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		0.42			0.25		0.18	0.20		0.20	0.46	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 27 (34%), Referenced to phase 2:NWTL and 6:SETL, Start of Green												
Natural Cycle: 65												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.71												
Intersection Signal Delay: 9.1	Intersection LOS: A											

Lanes, Volumes, Timings  
 25: Bank Street & D'Aoust Avenue/St. Bernard Street

Horizon (2026)  
 AM PEAK

Intersection Capacity Utilization 75.6% ICU Level of Service D  
 Analysis Period (min) 60

Splits and Phases: 25: Bank Street & D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Horizon (2026)  
AM PEAK

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	14	3	3	0	1	33	8	462	2	2	1098	10
Future Vol, veh/h	14	3	3	0	1	33	8	462	2	2	1098	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	33	0	0	0	12	12	0	0	4	0
Mvmt Flow	14	3	3	0	1	33	8	462	2	2	1098	10




Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1121	1728	251	1474	1725	602	1204	0	0	504	0	0
Stage 1	520	520	-	1203	1203	-	-	-	-	-	-	-
Stage 2	601	1208	-	271	522	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.56	7.5	6.5	6.9	4.34	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.63	3.5	4	3.3	2.32	-	-	2.2	-	-
Pot Cap-1 Maneuver	163	89	663	90	90	448	523	-	-	1071	-	-
Stage 1	512	535	-	199	260	-	-	-	-	-	-	-
Stage 2	459	258	-	717	534	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	146	87	663	86	88	448	523	-	-	1071	-	-
Mov Cap-2 Maneuver	146	87	-	86	88	-	-	-	-	-	-	-
Stage 1	503	526	-	196	259	-	-	-	-	-	-	-
Stage 2	420	257	-	697	525	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW	
HCM Control Delay, s	33.5		14.9		0.2		0	
HCM LOS	D		B					

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	1071	-	-	148 400	523	-	-
HCM Lane V/C Ratio	0.002	-	-	0.147 0.092	0.017	-	-
HCM Control Delay (s)	8.4	-	-	33.5 14.9	12	-	-
HCM Lane LOS	A	-	-	D B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5 0.3	0.1	-	-

Intersection

Intersection Delay, s/veh	15.5
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	66	448	52	30	254
Future Vol, veh/h	49	66	448	52	30	254
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	21	7	4	7	2
Mvmt Flow	49	66	448	52	30	254
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10	18.8	11.9
HCM LOS	A	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	43%	11%
Vol Thru, %	90%	0%	89%
Vol Right, %	10%	57%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	500	115	284
LT Vol	0	49	30
Through Vol	448	0	254
RT Vol	52	66	0
Lane Flow Rate	543	125	309
Geometry Grp	1	1	1
Degree of Util (X)	0.705	0.196	0.428
Departure Headway (Hd)	4.667	5.643	4.992
Convergence, Y/N	Yes	Yes	Yes
Cap	766	640	713
Service Time	2.736	3.643	3.074
HCM Lane V/C Ratio	0.709	0.195	0.433
HCM Control Delay	18.8	10	11.9
HCM Lane LOS	C	A	B
HCM 95th-tile Q	6.8	0.7	2.2

### 12: Bank Street & Ent. 3 Performance by movement

Movement	EBR	SET	SER	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.0
Total Delay (hr)	0.0	0.1	0.0	0.9	1.0
Total Del/Veh (s)	0.9	1.0	2.2	3.1	2.5

### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay (hr)	0.0	0.0	0.1	0.1	0.0	0.1	0.3
Total Del/Veh (s)	0.5	0.2	4.7	3.5	7.1	3.7	2.6

### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.1	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.2	0.1	2.1	0.4	4.9	2.9	0.6

### Total Zone Performance

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)			0.0				
Denied Del/Veh (s)			0.2				
Total Delay (hr)			1.4				
Total Del/Veh (s)			267.1				



## Queuing and Blocking Report

### AM PEAK

02-25-2020

#### Intersection: 12: Bank Street & Ent. 3

Movement	NW	NW
Directions Served	T	T
Maximum Queue (m)	18.1	18.3
Average Queue (m)	0.6	0.9
95th Queue (m)	9.0	10.0
Link Distance (m)	365.1	365.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	3.1	17.3	22.5
Average Queue (m)	0.1	4.2	10.0
95th Queue (m)	1.6	13.3	17.0
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

#### Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	3.7	13.0
Average Queue (m)	0.2	4.9
95th Queue (m)	2.3	12.5
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



















#### Zone Summary

Zone wide Queuing Penalty: 0

# Lanes, Volumes, Timings













## 3: Bank Street & Rosebella Avenue

Horizon (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	7	7	10	16	7	36	51	1137	18	5	577	13
Future Volume (vph)	7	7	10	16	7	36	51	1137	18	5	577	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.944			0.918			0.998			0.997	
Flt Protected		0.986			0.987		0.950			0.950		
Satd. Flow (prot)	0	1768	0	0	1722	0	1805	3499	0	1805	3464	0
Flt Permitted		0.881			0.900		0.429			0.233		
Satd. Flow (perm)	0	1580	0	0	1570	0	815	3499	0	443	3464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			36			3			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%	0%
Adj. Flow (vph)	7	7	10	16	7	36	51	1137	18	5	577	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	0	59	0	51	1155	0	5	590	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.1			7.1		67.5	67.5		67.5	67.5	
Actuated g/C Ratio		0.09			0.09		0.84	0.84		0.84	0.84	
v/c Ratio		0.16			0.35		0.07	0.39		0.01	0.20	
Control Delay		26.2			23.3		2.9	2.8		3.0	2.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Horizon (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		26.2			23.3		2.9	2.8		3.0	2.6	
LOS		C			C		A	A		A	A	
Approach Delay		26.2			23.3			2.8			2.6	
Approach LOS		C			C			A			A	
90th %ile Green (s)	9.8	9.8		9.8	9.8		57.5	57.5		57.5	57.5	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	7.9	7.9		7.9	7.9		59.4	59.4		59.4	59.4	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.6	6.6		6.6	6.6		60.7	60.7		60.7	60.7	
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
30th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
30th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		2.1			3.5		1.6	25.6		0.1	11.0	
Queue Length 95th (m)		10.1			16.6		m5.0	36.3		1.2	21.9	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		563			576		688	2953		374	2924	
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		0.04			0.10		0.07	0.39		0.01	0.20	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 3.7

Intersection LOS: A





Intersection Capacity Utilization 56.1%

ICU Level of Service B

Analysis Period (min) 60




















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

Splits and Phases: 3: Bank Street & Rosebella Avenue

 Ø2 (R)	 Ø4
45 s	35 s
 Ø6 (R)	 Ø8
45 s	35 s













Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Horizon (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	147	68	79	46	95	38	48	883	185	107	408	37
Future Volume (vph)	147	68	79	46	95	38	48	883	185	107	408	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.964			0.971				0.850		0.988	
Flt Protected		0.976			0.987		0.950			0.950		
Satd. Flow (prot)	0	1727	0	0	1775	0	1770	3471	1599	1805	3435	0
Flt Permitted		0.762			0.837		0.494			0.280		
Satd. Flow (perm)	0	1348	0	0	1506	0	920	3471	1599	532	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			19				185		16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	7%	0%	0%	5%	0%	6%	2%	4%	1%	0%	3%	13%
Adj. Flow (vph)	147	68	79	46	95	38	48	883	185	107	408	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	294	0	0	179	0	48	883	185	107	445	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		21.2			21.2		45.8	45.8	45.8	45.8	45.8	
Actuated g/C Ratio		0.26			0.26		0.57	0.57	0.57	0.57	0.57	
v/c Ratio		0.79			0.44		0.09	0.45	0.19	0.35	0.23	
Control Delay		40.8			23.7		10.6	11.9	2.4	15.9	9.6	
Queue Delay		0.0			0.0		0.0	0.3	0.0	0.0	0.0	

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Horizon (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		40.8			23.7		10.6	12.2	2.4	15.9	9.6	
LOS		D			C		B	B	A	B	A	
Approach Delay		40.8			23.7			10.5			10.8	
Approach LOS		D			C			B			B	
90th %ile Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
70th %ile Green (s)	24.9	24.9		24.9	24.9		42.1	42.1	42.1	42.1	42.1	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
50th %ile Green (s)	21.4	21.4		21.4	21.4		45.6	45.6	45.6	45.6	45.6	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
30th %ile Green (s)	17.9	17.9		17.9	17.9		49.1	49.1	49.1	49.1	49.1	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
10th %ile Green (s)	12.6	12.6		12.6	12.6		54.4	54.4	54.4	54.4	54.4	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
Queue Length 50th (m)		39.8			21.0		3.2	39.7	0.0	8.5	16.3	
Queue Length 95th (m)		71.1			39.1		11.6	78.6	13.4	30.4	34.7	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		504			556		525	1984	993	304	1970	
Starvation Cap Reductn		0			0		0	506	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.58			0.32		0.09	0.60	0.19	0.35	0.23	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.9

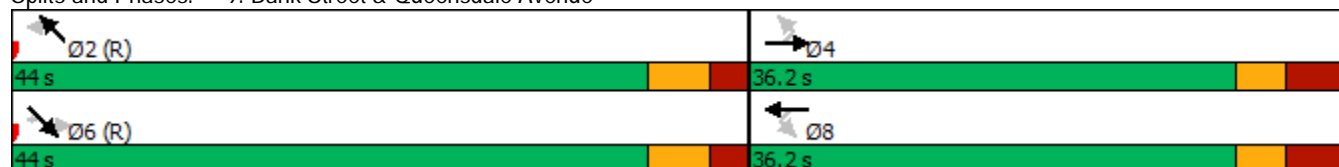
Intersection LOS: B

Intersection Capacity Utilization 76.8%

ICU Level of Service D























Analysis Period (min) 60

Splits and Phases: 9: Bank Street & Queensdale Avenue















Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Horizon (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	188	319	1	141	18	133	493	2	29	917	128
Future Volume (vph)	85	188	319	1	141	18	133	493	2	29	917	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.906			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1698	0	1805	1724	0	1770	3438	1615	1736	3471	1583
Flt Permitted	0.656			0.293			0.234			0.472		
Satd. Flow (perm)	1154	1698	0	557	1724	0	436	3438	1615	862	3471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		90			8				56			128
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	8%	2%	1%	0%	7%	19%	2%	5%	0%	4%	4%	2%
Adj. Flow (vph)	85	188	319	1	141	18	133	493	2	29	917	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	507	0	1	159	0	133	493	2	29	917	128
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	21.8	21.8		21.8	21.8		26.7	26.7	26.7	26.7	26.7	26.7
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.42	0.42	0.42	0.42	0.42	0.42
v/c Ratio	0.22	0.79		0.01	0.27		0.73	0.34	0.00	0.08	0.63	0.17
Control Delay	19.2	28.3		18.0	18.0		45.7	13.5	0.0	12.7	17.0	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Horizon (2026)  
PM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.2	28.3		18.0	18.0		45.7	13.5	0.0	12.7	17.0	3.3
LOS	B	C		B	B		D	B	A	B	B	A
Approach Delay		27.0			18.0			20.3			15.2	
Approach LOS		C			B			C			B	
90th %ile Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
90th %ile Term Code	Max	Max		Hold	Hold		Max	Max	Max	Hold	Hold	Hold
70th %ile Green (s)	30.0	30.0		30.0	30.0		37.8	37.8	37.8	37.8	37.8	37.8
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	21.2	21.2		21.2	21.2		25.0	25.0	25.0	25.0	25.0	25.0
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	16.2	16.2		16.2	16.2		18.4	18.4	18.4	18.4	18.4	18.4
30th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
10th %ile Green (s)	11.7	11.7		11.7	11.7		13.3	13.3	13.3	13.3	13.3	13.3
10th %ile Term Code	Gap	Gap		Hold	Hold		Hold	Hold	Hold	Gap	Gap	Gap
Queue Length 50th (m)	6.8	42.0		0.1	12.2		12.5	19.7	0.0	2.0	42.7	0.0
Queue Length 95th (m)	24.9	#146.3		1.3	39.2		#56.1	43.0	0.0	8.4	89.5	11.4
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0			40.0			130.0		80.0	90.0		60.0
Base Capacity (vph)	635	975		306	952		319	2515	1196	630	2540	1192
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	0.13	0.52		0.00	0.17		0.42	0.20	0.00	0.05	0.36	0.11

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 64

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.5

Intersection LOS: B

Intersection Capacity Utilization 89.8%

ICU Level of Service E

Analysis Period (min) 60

90th %ile Actuated Cycle: 90.1

70th %ile Actuated Cycle: 81.9

50th %ile Actuated Cycle: 60.3

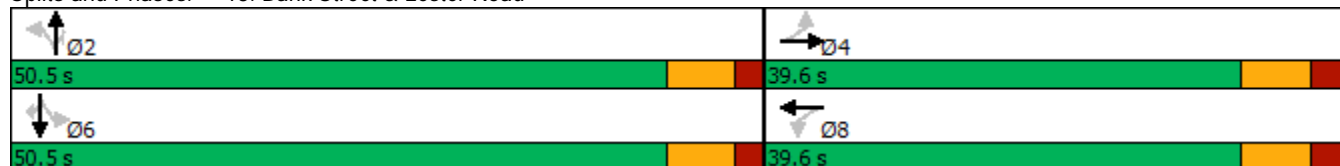
30th %ile Actuated Cycle: 48.7



















10th %ile Actuated Cycle: 39.1

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

Queue shown is maximum after two cycles.

Splits and Phases: 18: Bank Street & Lester Road















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	24	10	65	23	14	52	75	1100	33	50	548	27
Future Volume (vph)	24	10	65	23	14	52	75	1100	33	50	548	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.911			0.921			0.996			0.993	
Flt Protected		0.988			0.987		0.950			0.950		
Satd. Flow (prot)	0	1671	0	0	1706	0	1805	3494	0	1805	3422	0
Flt Permitted		0.925			0.919		0.436			0.236		
Satd. Flow (perm)	0	1565	0	0	1588	0	828	3494	0	448	3422	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			52			5			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	5%	11%	0%	0%	8%	0%	0%	3%	0%	0%	5%	0%
Adj. Flow (vph)	24	10	65	23	14	52	75	1100	33	50	548	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	89	0	75	1133	0	50	575	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.9			7.9		63.2	63.2		63.2	63.2	
Actuated g/C Ratio		0.10			0.10		0.79	0.79		0.79	0.79	
v/c Ratio		0.47			0.44		0.11	0.41		0.14	0.21	
Control Delay		22.8			23.4		3.9	4.2		3.0	2.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	



Lanes, Volumes, Timings  
25: Bank Street & D'Aoust Avenue/St. Bernard Street

Horizon (2026)  
PM PEAK

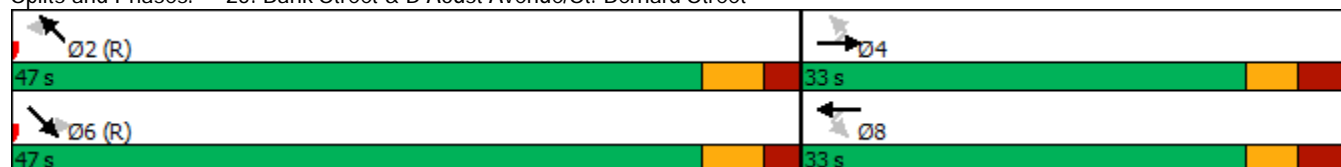
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		22.8			23.4		3.9	4.2		3.0	2.0	
LOS		C			C		A	A		A	A	
Approach Delay		22.8			23.4			4.2			2.1	
Approach LOS		C			C			A			A	
90th %ile Green (s)	11.9	11.9		11.9	11.9		55.7	55.7		55.7	55.7	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	9.2	9.2		9.2	9.2		58.4	58.4		58.4	58.4	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	7.4	7.4		7.4	7.4		60.2	60.2		60.2	60.2	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.7	5.7		5.7	5.7		61.9	61.9		61.9	61.9	
30th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		5.6			5.6		2.5	27.0		1.0	6.3	
Queue Length 95th (m)		22.5			21.4		8.8	56.4		3.2	10.7	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		559			560		654	2763		354	2707	
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		0.18			0.16		0.11	0.41		0.14	0.21	

Intersection Summary

Area Type: Other  
Cycle Length: 80  
Actuated Cycle Length: 80  
Offset: 31 (39%), Referenced to phase 2:NWTL and 6:SETL, Start of Green  
Natural Cycle: 65  
Control Type: Actuated-Coordinated  
Maximum v/c Ratio: 0.47  
Intersection Signal Delay: 5.3  
Intersection Capacity Utilization 58.5%  
Analysis Period (min) 60

Intersection LOS: A  
ICU Level of Service B

Splits and Phases: 25: Bank Street & D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Horizon (2026)  
PM PEAK




Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↔			↔		↗	↗↗	↗	↗	↗↗	
Traffic Vol, veh/h	6	2	8	9	10	21	41	1100	23	11	568	15
Future Vol, veh/h	6	2	8	9	10	21	41	1100	23	11	568	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	13	0	0	5	0	3	9	0	5	0
Mvmt Flow	6	2	8	9	10	21	41	1100	23	11	568	15

Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1624	1943	598	1338	1960	317	633	0	0	1221	0	0
Stage 1	1286	1286	-	649	649	-	-	-	-	-	-	-
Stage 2	338	657	-	689	1311	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.16	7.5	6.5	7	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.43	3.5	4	3.35	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	69	66	419	113	64	670	960	-	-	578	-	-
Stage 1	177	237	-	430	469	-	-	-	-	-	-	-
Stage 2	656	465	-	407	231	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	55	62	419	102	60	670	960	-	-	578	-	-
Mov Cap-2 Maneuver	55	62	-	102	60	-	-	-	-	-	-	-
Stage 1	169	226	-	410	459	-	-	-	-	-	-	-
Stage 2	606	455	-	376	220	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW				
HCM Control Delay, s	48.5		42.2		0.3		0.2				
HCM LOS	E		E								

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	578	-	-	100	140	960	-
HCM Lane V/C Ratio	0.021	-	-	0.174	0.311	0.046	-
HCM Control Delay (s)	11.4	-	-	48.5	42.2	8.9	-
HCM Lane LOS	B	-	-	E	E	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	1.3	0.1	-

Intersection	
Intersection Delay, s/veh	25
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	60	334	64	112	452
Future Vol, veh/h	48	60	334	64	112	452
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	0	0	13	2
Mvmt Flow	48	60	334	64	112	452
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.7	15.3	34.6
HCM LOS	B	C	D

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	44%	20%
Vol Thru, %	84%	0%	80%
Vol Right, %	16%	56%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	398	108	564
LT Vol	0	48	112
Through Vol	334	0	452
RT Vol	64	60	0
Lane Flow Rate	433	117	613
Geometry Grp	1	1	1
Degree of Util (X)	0.598	0.199	0.851
Departure Headway (Hd)	4.975	6.114	5.104
Convergence, Y/N	Yes	Yes	Yes
Cap	731	589	717
Service Time	2.975	4.132	3.104
HCM Lane V/C Ratio	0.592	0.199	0.855
HCM Control Delay	15.3	10.7	34.6
HCM Lane LOS	C	B	D
HCM 95th-tile Q	4.3	0.7	13.6

### 12: Bank Street & Ent. 3 Performance by movement

Movement	EBR	SET	SER	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	0.4	0.1	0.4	1.0
Total Del/Veh (s)	1.4	1.8	3.0	2.1	2.0

### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.2	0.1
Total Delay (hr)	0.0	0.0	0.4	0.2	0.1	0.2	0.9
Total Del/Veh (s)	0.5	0.2	5.6	4.5	8.5	4.8	4.3

### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.1	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	0.2	0.0	2.3	0.6	4.8	2.8	0.6

### Total Zone Performance

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)			0.0				
Denied Del/Veh (s)			0.2				
Total Delay (hr)			2.0				
Total Del/Veh (s)			343.7				

Intersection: 12: Bank Street & Ent. 3

Movement	EB
Directions Served	R
Maximum Queue (m)	16.6
Average Queue (m)	1.6
95th Queue (m)	9.5
Link Distance (m)	76.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT LR	LR
Maximum Queue (m)	27.4	27.2
Average Queue (m)	7.9	14.8
95th Queue (m)	18.9	22.4
Link Distance (m)	71.9	61.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue



















Movement	WB	NB
Directions Served	LT LR	LR
Maximum Queue (m)	9.3	8.9
Average Queue (m)	0.6	3.8
95th Queue (m)	4.4	11.1
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0
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










Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	10	11	5	9	1	55	28	414	6	5	1026	5
Future Volume (vph)	10	11	5	9	1	55	28	414	6	5	1026	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.974			0.886			0.998			0.999	
Flt Protected		0.981			0.993		0.950			0.950		
Satd. Flow (prot)	0	1815	0	0	1672	0	1736	3153	0	1805	3340	0
Flt Permitted		0.846			0.946		0.269			0.506		
Satd. Flow (perm)	0	1566	0	0	1592	0	491	3153	0	961	3340	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			55			2			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	14%	33%	0%	8%	0%
Adj. Flow (vph)	10	11	5	9	1	55	28	414	6	5	1026	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	65	0	28	420	0	5	1031	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		6.8			6.8		64.1	64.1		64.1	64.1	
Actuated g/C Ratio		0.08			0.08		0.80	0.80		0.80	0.80	
v/c Ratio		0.19			0.35		0.07	0.17		0.01	0.39	
Control Delay		31.8			18.0		2.7	2.2		2.8	3.7	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.3	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		31.8			18.0		2.7	2.2		2.8	4.0	
LOS		C			B		A	A		A	A	
Approach Delay		31.8			18.0			2.2			4.0	
Approach LOS		C			B			A			A	
90th %ile Green (s)	9.4	9.4		9.4	9.4		57.9	57.9		57.9	57.9	
90th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
70th %ile Green (s)	7.3	7.3		7.3	7.3		60.0	60.0		60.0	60.0	
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord	
50th %ile Green (s)	6.4	6.4		6.4	6.4		60.9	60.9		60.9	60.9	
50th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	5.6	5.6		5.6	5.6		61.7	61.7		61.7	61.7	
30th %ile Term Code	Hold	Hold		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	0.0	0.0		0.0	0.0		74.1	74.1		74.1	74.1	
10th %ile Term Code	Skip	Skip		Skip	Skip		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		3.2			1.5		0.7	6.1		0.2	22.9	
Queue Length 95th (m)		11.6			15.2		m2.6	10.6		1.1	44.6	
Internal Link Dist (m)		168.9			139.1			173.2			39.7	
Turn Bay Length (m)							30.0			12.0		
Base Capacity (vph)		555			596		393	2526		770	2676	
Starvation Cap Reductn		0			0		0	0		0	886	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.05			0.11		0.07	0.17		0.01	0.58	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 4.5

Intersection LOS: A





Intersection Capacity Utilization 43.3%

ICU Level of Service A

Analysis Period (min) 60




















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

Splits and Phases: 3: Bank Street & Rosebella Avenue

 Ø2 (R)	 Ø4
45 s	35 s
 Ø6 (R)	 Ø8
45 s	35 s

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue













Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	118	50	38	20	27	67	27	337	57	67	822	36
Future Volume (vph)	118	50	38	20	27	67	27	337	57	67	822	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.975			0.921				0.850		0.994	
Flt Protected		0.972			0.991		0.950			0.950		
Satd. Flow (prot)	0	1715	0	0	1441	0	1530	3282	1357	1752	3389	0
Flt Permitted		0.792			0.921		0.303			0.549		
Satd. Flow (perm)	0	1398	0	0	1339	0	488	3282	1357	1013	3389	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			67				57		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	7%	4%	0%	10%	4%	30%	18%	10%	19%	3%	6%	3%
Adj. Flow (vph)	118	50	38	20	27	67	27	337	57	67	822	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	0	0	114	0	27	337	57	67	858	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		16.8			16.8		50.2	50.2	50.2	50.2	50.2	
Actuated g/C Ratio		0.21			0.21		0.63	0.63	0.63	0.63	0.63	
v/c Ratio		0.67			0.34		0.09	0.16	0.07	0.11	0.40	
Control Delay		37.6			14.3		8.9	7.5	2.8	8.3	9.1	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	



Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		37.6			14.3		8.9	7.5	2.8	8.3	9.1	
LOS		D			B		A	A	A	A	A	
Approach Delay		37.6			14.3			6.9			9.0	
Approach LOS		D			B			A			A	
90th %ile Green (s)	24.2	24.2		24.2	24.2		42.8	42.8	42.8	42.8	42.8	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
70th %ile Green (s)	19.9	19.9		19.9	19.9		47.1	47.1	47.1	47.1	47.1	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
50th %ile Green (s)	16.9	16.9		16.9	16.9		50.1	50.1	50.1	50.1	50.1	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
30th %ile Green (s)	13.8	13.8		13.8	13.8		53.2	53.2	53.2	53.2	53.2	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
10th %ile Green (s)	9.4	9.4		9.4	9.4		57.6	57.6	57.6	57.6	57.6	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord	Coord	Coord	Coord	
Queue Length 50th (m)		28.1			6.2		1.5	10.5	0.0	3.9	32.1	
Queue Length 95th (m)		52.0			21.1		7.1	23.6	6.2	13.0	66.0	
Internal Link Dist (m)		72.2			176.6			41.8			77.5	
Turn Bay Length (m)							30.0			35.0		
Base Capacity (vph)		515			526		305	2052	870	633	2122	
Starvation Cap Reductn		0			0		0	0	0	0	0	
Spillback Cap Reductn		0			0		0	0	0	0	0	
Storage Cap Reductn		0			0		0	0	0	0	0	
Reduced v/c Ratio		0.40			0.22		0.09	0.16	0.07	0.11	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 12.4

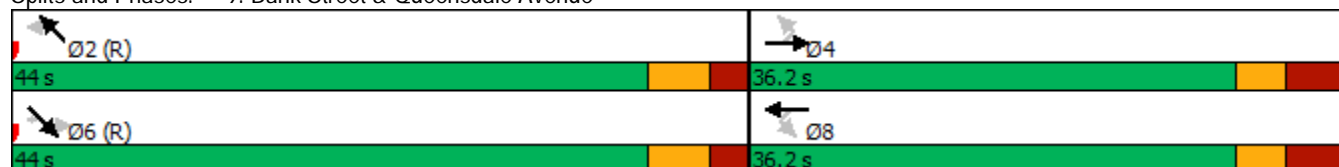
Intersection LOS: B

Intersection Capacity Utilization 62.2%

ICU Level of Service B























Analysis Period (min) 60

Splits and Phases: 9: Bank Street & Queensdale Avenue















Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	129	86	0	164	19	194	809	3	10	294	91
Future Volume (vph)	115	129	86	0	164	19	194	809	3	10	294	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.940			0.984				0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1641	1721	0	1900	1807	0	1752	3406	1615	1805	3223	1524
Flt Permitted	0.642						0.572			0.324		
Satd. Flow (perm)	1109	1721	0	1900	1807	0	1055	3406	1615	616	3223	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			7				56			91
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	10%	5%	2%	0%	2%	16%	3%	6%	0%	0%	12%	6%
Adj. Flow (vph)	115	129	86	0	164	19	194	809	3	10	294	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	215	0	0	183	0	194	809	3	10	294	91
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	10.3	10.3			10.3		16.4	16.4	16.4	16.4	16.4	16.4
Actuated g/C Ratio	0.25	0.25			0.25		0.40	0.40	0.40	0.40	0.40	0.40
v/c Ratio	0.42	0.47			0.40		0.46	0.60	0.00	0.04	0.23	0.14
Control Delay	19.3	15.1			16.3		13.9	12.1	0.0	8.7	9.0	3.1
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Total Traffic (2021)  
AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	19.3	15.1			16.3		13.9	12.1	0.0	8.7	9.0	3.1
LOS	B	B			B		B	B	A	A	A	A
Approach Delay		16.6			16.3			12.4			7.6	
Approach LOS		B			B			B			A	
90th %ile Green (s)	15.8	15.8		15.8	15.8		24.0	24.0	24.0	24.0	24.0	24.0
90th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
70th %ile Green (s)	12.0	12.0		12.0	12.0		18.9	18.9	18.9	18.9	18.9	18.9
70th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
50th %ile Green (s)	10.0	10.0		10.0	10.0		16.5	16.5	16.5	16.5	16.5	16.5
50th %ile Term Code	Gap	Gap		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
30th %ile Green (s)	8.3	8.3		8.3	8.3		13.6	13.6	13.6	13.6	13.6	13.6
30th %ile Term Code	Gap	Gap		Gap	Gap		Gap	Gap	Gap	Hold	Hold	Hold
10th %ile Green (s)	6.7	6.7		6.7	6.7		10.4	10.4	10.4	10.4	10.4	10.4
10th %ile Term Code	Hold	Hold		Hold	Hold		Gap	Gap	Gap	Hold	Hold	Hold
Queue Length 50th (m)	7.0	10.6			10.7		9.6	22.5	0.0	0.4	6.8	0.0
Queue Length 95th (m)	24.2	34.1			31.9		31.7	51.2	0.0	3.1	17.5	7.4
Internal Link Dist (m)		223.4			197.1			203.3			356.8	
Turn Bay Length (m)	50.0						130.0		80.0	90.0		60.0
Base Capacity (vph)	883	1379			1440		1011	3266	1551	590	3090	1465
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	0.13	0.16			0.13		0.19	0.25	0.00	0.02	0.10	0.06

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 41.3

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 66.2%

ICU Level of Service C

Analysis Period (min) 60

90th %ile Actuated Cycle: 53.9

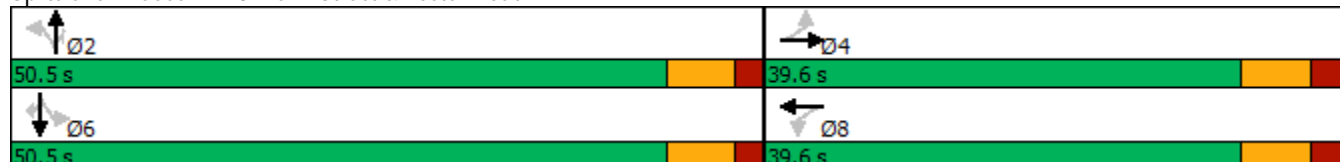
70th %ile Actuated Cycle: 45

50th %ile Actuated Cycle: 40.6

30th %ile Actuated Cycle: 36

10th %ile Actuated Cycle: 31.2

Splits and Phases: 18: Bank Street & Lester Road

































## Lanes, Volumes, Timings

Total Traffic (2021)

## 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street

AM PEAK

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	72	22	101	14	19	95	48	329	54	116	936	38
Future Volume (vph)	72	22	101	14	19	95	48	329	54	116	936	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.930			0.900			0.979			0.994	
Flt Protected		0.982			0.995		0.950			0.950		
Satd. Flow (prot)	0	1646	0	0	1625	0	1770	3196	0	1770	3448	0
Flt Permitted		0.841			0.941		0.272			0.525		
Satd. Flow (perm)	0	1409	0	0	1536	0	507	3196	0	978	3448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		72			95			34			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	2%	5%	8%	8%	11%	3%	2%	12%	2%	2%	4%	6%
Adj. Flow (vph)	72	22	101	14	19	95	48	329	54	116	936	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	0	0	128	0	48	383	0	116	974	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		12.7			12.7		54.9	54.9		54.9	54.9	
Actuated g/C Ratio		0.16			0.16		0.69	0.69		0.69	0.69	
v/c Ratio		0.69			0.40		0.14	0.17		0.17	0.41	
Control Delay		32.2			13.3		7.1	5.0		4.1	4.3	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Total Delay		32.2			13.3		7.1	5.0		4.1	4.3	
LOS		C			B		A	A		A	A	
Approach Delay		32.2			13.3			5.2			4.3	
Approach LOS		C			B			A			A	
90th %ile Green (s)	19.9	19.9		19.9	19.9		47.7	47.7		47.7	47.7	
90th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
70th %ile Green (s)	15.6	15.6		15.6	15.6		52.0	52.0		52.0	52.0	
70th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
50th %ile Green (s)	12.7	12.7		12.7	12.7		54.9	54.9		54.9	54.9	
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
30th %ile Green (s)	9.8	9.8		9.8	9.8		57.8	57.8		57.8	57.8	
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
10th %ile Green (s)	5.6	5.6		5.6	5.6		62.0	62.0		62.0	62.0	
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord	
Queue Length 50th (m)		18.4			4.6		2.3	8.7		3.1	13.8	
Queue Length 95th (m)		43.0			21.3		9.6	21.1		7.2	21.1	
Internal Link Dist (m)		142.9			169.0			85.9			173.2	
Turn Bay Length (m)							25.0			35.0		
Base Capacity (vph)		514			572		347	2203		670	2367	
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		0.38			0.22		0.14	0.17		0.17	0.41	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 27 (34%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 8.1

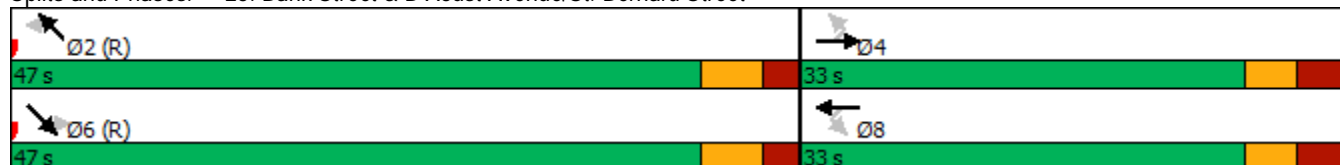
Intersection LOS: A

Intersection Capacity Utilization 64.5%

ICU Level of Service C

Analysis Period (min) 60

Splits and Phases: 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

02-25-2020

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↗↗	↗	↗	↗↗	
Traffic Vol, veh/h	12	3	3	0	1	30	7	420	2	2	996	9
Future Vol, veh/h	12	3	3	0	1	30	7	420	2	2	996	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	33	0	0	0	14	11	0	0	4	0
Mvmt Flow	12	3	3	0	1	30	7	420	2	2	996	9

Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1019	1570	229	1338	1567	547	1093	0	0	459	0	0
Stage 1	473	473	-	1092	1092	-	-	-	-	-	-	-
Stage 2	546	1097	-	246	475	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.56	7.5	6.5	6.9	4.38	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.63	3.5	4	3.3	2.34	-	-	2.2	-	-
Pot Cap-1 Maneuver	194	112	687	113	112	486	569	-	-	1113	-	-
Stage 1	546	562	-	232	293	-	-	-	-	-	-	-
Stage 2	495	291	-	742	561	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	178	110	687	109	110	486	569	-	-	1113	-	-
Mov Cap-2 Maneuver	178	110	-	109	110	-	-	-	-	-	-	-
Stage 1	538	554	-	229	292	-	-	-	-	-	-	-
Stage 2	459	290	-	724	553	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW					
HCM Control Delay, s	27.2		13.9		0.2		0					
HCM LOS	D		B									




Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	1113	-	-	182 438	569	-	-
HCM Lane V/C Ratio	0.002	-	-	0.108 0.077	0.013	-	-
HCM Control Delay (s)	8.2	-	-	27.2 13.9	11.4	-	-
HCM Lane LOS	A	-	-	D B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4 0.2	0	-	-

HCM 6th AWSC  
23: Albion Road & Queensdale Avenue

02-25-2020

Intersection

Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	60	406	48	28	230
Future Vol, veh/h	44	60	406	48	28	230
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	22	7	5	9	2
Mvmt Flow	44	60	406	48	28	230
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.5	15.4	11.1
HCM LOS	A	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	42%	11%
Vol Thru, %	89%	0%	89%
Vol Right, %	11%	58%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	454	104	258
LT Vol	0	44	28
Through Vol	406	0	230
RT Vol	48	60	0
Lane Flow Rate	493	113	280
Geometry Grp	1	1	1
Degree of Util (X)	0.629	0.168	0.383
Departure Headway (Hd)	4.586	5.365	4.918
Convergence, Y/N	Yes	Yes	Yes
Cap	785	662	726
Service Time	2.634	3.446	2.976
HCM Lane V/C Ratio	0.628	0.171	0.386
HCM Control Delay	15.4	9.5	11.1
HCM Lane LOS	C	A	B
HCM 95th-tile Q	4.9	0.6	1.8

### 12: Bank Street & Ent. 3 Performance by movement

Movement	EBR	SET	SER	NWT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	0.0	0.1	0.0	0.8	0.9
Total Del/Veh (s)	0.9	1.0	2.3	2.8	2.3

### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Delay (hr)	0.0	0.0	0.1	0.1	0.0	0.1	0.3
Total Del/Veh (s)	0.7	0.1	4.3	3.5	6.7	4.3	2.7

### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.2	0.1	0.1
Total Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.3	0.1	2.8	0.4	5.6	3.4	0.6

### Total Zone Performance

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Delay (hr)			0.0				
Denied Del/Veh (s)			0.2				
Total Delay (hr)			1.2				
Total Del/Veh (s)			234.2				



## Queuing and Blocking Report

### AM PEAK

02-25-2020

#### Intersection: 12: Bank Street & Ent. 3

Movement	NW	NW
Directions Served	T	T
Maximum Queue (m)	3.1	4.4
Average Queue (m)	0.1	0.1
95th Queue (m)	2.2	3.1
Link Distance (m)	365.1	365.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	3.1	32.0	22.2
Average Queue (m)	0.2	4.0	10.5
95th Queue (m)	2.6	17.5	18.7
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

#### Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue



















Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	8.0	14.2
Average Queue (m)	0.4	4.8
95th Queue (m)	3.9	12.9
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

#### Zone Summary

Zone wide Queuing Penalty: 0













Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Total Traffic (2021)  
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	6	6	9	15	6	32	46	1032	17	4	523	11
Future Volume (vph)	6	6	9	15	6	32	46	1032	17	4	523	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.942			0.918			0.998			0.997	
Flt Protected		0.986			0.986		0.950			0.950		
Satd. Flow (prot)	0	1765	0	0	1720	0	1805	3499	0	1805	3463	0
Flt Permitted		0.885			0.897		0.453			0.265		
Satd. Flow (perm)	0	1584	0	0	1565	0	861	3499	0	504	3463	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			32			3			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%	0%
Adj. Flow (vph)	6	6	9	15	6	32	46	1032	17	4	523	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	0	0	53	0	46	1049	0	4	534	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								Yes				
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Total Traffic (2021)  
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		6.9			6.9		67.6	67.6		67.6	67.6	
Actuated g/C Ratio		0.09			0.09		0.84	0.84		0.84	0.84	
v/c Ratio		0.14			0.32		0.06	0.35		0.01	0.18	
Control Delay		26.3			23.6		2.8	2.7		3.0	2.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		26.3			23.6		2.8	2.7		3.0	2.5	
LOS		C			C		A	A		A	A	
Approach Delay		26.3			23.6			2.7			2.5	
Approach LOS		C			C			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay: 3.5

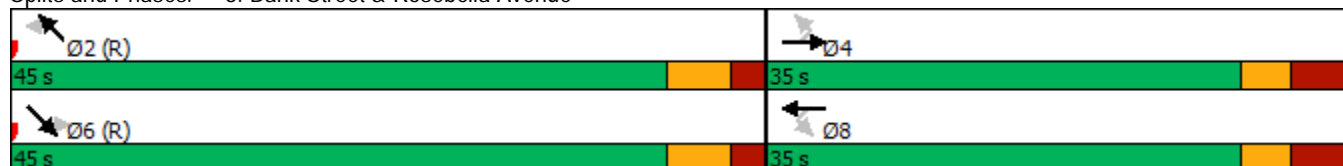
Intersection LOS: A

Intersection Capacity Utilization 52.9%

ICU Level of Service A





















Analysis Period (min) 60

Splits and Phases: 3: Bank Street & Rosebella Avenue















Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Total Traffic (2021)  
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	134	63	72	42	86	34	44	800	170	99	368	33
Future Volume (vph)	134	63	72	42	86	34	44	800	170	99	368	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.964			0.972				0.850		0.988	
Flt Protected		0.976			0.987		0.950			0.950		
Satd. Flow (prot)	0	1727	0	0	1777	0	1770	3471	1599	1805	3435	0
Flt Permitted		0.778			0.842		0.516			0.319		
Satd. Flow (perm)	0	1377	0	0	1516	0	961	3471	1599	606	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			19				170		16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	7%	0%	0%	5%	0%	6%	2%	4%	1%	0%	3%	13%
Adj. Flow (vph)	134	63	72	42	86	34	44	800	170	99	368	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	269	0	0	162	0	44	800	170	99	401	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
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Total Traffic (2021)  
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		19.7			19.7		47.3	47.3	47.3	47.3	47.3	
Actuated g/C Ratio		0.25			0.25		0.59	0.59	0.59	0.59	0.59	
v/c Ratio		0.75			0.42		0.08	0.39	0.17	0.28	0.20	
Control Delay		39.2			24.2		9.7	10.5	2.3	12.8	8.6	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		39.2			24.2		9.7	10.5	2.3	12.8	8.6	
LOS		D			C		A	B	A	B	A	
Approach Delay		39.2			24.2			9.1			9.5	
Approach LOS		D			C			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 65.4%

ICU Level of Service C























Analysis Period (min) 60

Splits and Phases: 9: Bank Street & Queensdale Avenue















Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Total Traffic (2021)  
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	171	289	1	128	17	121	446	2	26	833	117
Future Volume (vph)	78	171	289	1	128	17	121	446	2	26	833	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.906			0.982				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1698	0	1805	1721	0	1770	3438	1615	1736	3471	1583
Flt Permitted	0.665			0.369			0.278			0.494		
Satd. Flow (perm)	1170	1698	0	701	1721	0	518	3438	1615	902	3471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		105			8				56			117
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	8%	2%	1%	0%	7%	19%	2%	5%	0%	4%	4%	2%
Adj. Flow (vph)	78	171	289	1	128	17	121	446	2	26	833	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	460	0	1	145	0	121	446	2	26	833	117
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	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Total Traffic (2021)  
PM Peak

												
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		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	18.0	18.0		18.0	18.0		21.6	21.6	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.39	0.39	0.39	0.39	0.39	0.39
v/c Ratio	0.20	0.74		0.00	0.26		0.60	0.33	0.00	0.07	0.61	0.17
Control Delay	16.8	21.8		16.0	15.8		28.9	12.6	0.0	12.2	15.7	3.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	21.8		16.0	15.8		28.9	12.6	0.0	12.2	15.7	3.5
LOS	B	C		B	B		C	B	A	B	B	A
Approach Delay		21.1			15.8			16.1			14.1	
Approach LOS		C			B			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 55.1

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 60

Splits and Phases: 18: Bank Street & Lester Road



















 Ø2	 Ø4
50.5 s	39.6 s
 Ø6	 Ø8
50.5 s	39.6 s

# Lanes, Volumes, Timings

Total Traffic (2021)

## 25: Bank Street & D'Aoust Avenue/St. Bernard Street

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	22	9	59	21	12	47	68	996	30	46	498	25
Future Volume (vph)	22	9	59	21	12	47	68	996	30	46	498	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.911			0.921			0.996			0.993	
Flt Protected		0.988			0.987		0.950			0.950		
Satd. Flow (prot)	0	1671	0	0	1707	0	1805	3494	0	1805	3422	0
Flt Permitted		0.916			0.923		0.458			0.269		
Satd. Flow (perm)	0	1550	0	0	1596	0	870	3494	0	511	3422	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		59			47			5			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	5%	11%	0%	0%	8%	0%	0%	3%	0%	0%	5%	0%
Adj. Flow (vph)	22	9	59	21	12	47	68	996	30	46	498	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	80	0	68	1026	0	46	523	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								Yes			Yes	
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	















# Lanes, Volumes, Timings

Total Traffic (2021)

## 25: Bank Street & D'Aoust Avenue/St. Bernard Street

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.6			7.6		63.6	63.6		63.6	63.6	
Actuated g/C Ratio		0.10			0.10		0.80	0.80		0.80	0.80	
v/c Ratio		0.45			0.41		0.10	0.37		0.11	0.19	
Control Delay		22.3			23.5		3.6	3.8		2.7	2.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.3			23.5		3.6	3.8		2.7	2.0	
LOS		C			C		A	A		A	A	
Approach Delay		22.3			23.5			3.8			2.0	
Approach LOS		C			C			A			A	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 31 (39%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 5.0

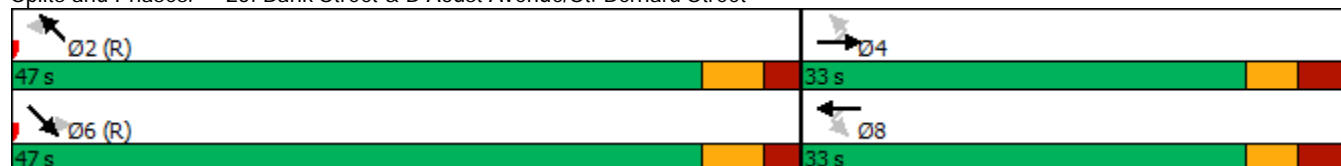
Intersection LOS: A

Intersection Capacity Utilization 54.8%

ICU Level of Service A

Analysis Period (min) 60

Splits and Phases: 25: Bank Street & D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Total Traffic (2021)  
PM Peak

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	5	2	7	8	9	19	37	998	21	10	515	14
Future Vol, veh/h	5	2	7	8	9	19	37	998	21	10	515	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	0	0	6	0	3	11	0	5	0
Mvmt Flow	5	2	7	8	9	19	37	998	21	10	515	14




Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1472	1762	543	1214	1778	288	575	0	0	1108	0	0
Stage 1	1165	1165	-	590	590	-	-	-	-	-	-	-
Stage 2	307	597	-	624	1188	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.18	7.5	6.5	7.02	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.44	3.5	4	3.36	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	90	85	454	140	83	697	1008	-	-	638	-	-
Stage 1	210	271	-	466	498	-	-	-	-	-	-	-
Stage 2	683	495	-	445	264	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	76	80	454	129	78	697	1008	-	-	638	-	-
Mov Cap-2 Maneuver	76	80	-	129	78	-	-	-	-	-	-	-
Stage 1	202	260	-	447	490	-	-	-	-	-	-	-
Stage 2	638	487	-	417	253	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW	
HCM Control Delay, s	35.8		31.3		0.3		0.2	
HCM LOS	E		D					

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	638	-	-	132	176	1008	-
HCM Lane V/C Ratio	0.017	-	-	0.115	0.222	0.04	-
HCM Control Delay (s)	10.7	-	-	35.8	31.3	8.7	-
HCM Lane LOS	B	-	-	E	D	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.8	0.1	-

Intersection

Intersection Delay, s/veh	17.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	54	303	58	101	409
Future Vol, veh/h	44	54	303	58	101	409
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	13	2
Mvmt Flow	44	54	303	58	101	409
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.1	13	22.7
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	45%	20%
Vol Thru, %	84%	0%	80%
Vol Right, %	16%	55%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	361	98	510
LT Vol	0	44	101
Through Vol	303	0	409
RT Vol	58	54	0
Lane Flow Rate	392	107	554
Geometry Grp	1	1	1
Degree of Util (X)	0.518	0.174	0.754
Departure Headway (Hd)	4.748	5.872	4.897
Convergence, Y/N	Yes	Yes	Yes
Cap	749	615	732
Service Time	2.829	3.872	2.976
HCM Lane V/C Ratio	0.523	0.174	0.757
HCM Control Delay	13	10.1	22.7
HCM Lane LOS	B	B	C
HCM 95th-tile Q	3.2	0.6	8.4

### 12: Bank Street & Ent. 3 Performance by approach

Approach	EB	SE	NW	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	1.6	1.9	1.9	1.9

### 14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.1
Total Del/Veh (s)	0.9	5.8	7.5	5.2

### 16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.2	0.8	3.4	0.6

### Total Zone Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	316.7

## Queuing and Blocking Report

### PM PEAK

Total Traffic (2021)  
PM Peak

#### Intersection: 12: Bank Street & Ent. 3

Movement	EB
Directions Served	R
Maximum Queue (m)	22.6
Average Queue (m)	3.5
95th Queue (m)	15.3
Link Distance (m)	76.1
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

#### Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	20.2	35.6	40.8
Average Queue (m)	0.9	10.1	15.1
95th Queue (m)	8.0	24.6	29.1
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)		0	0
Queuing Penalty (veh)		0	0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

#### Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	9.0	10.2
Average Queue (m)	0.5	3.2
95th Queue (m)	3.8	10.4
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		



















#### Zone Summary

Zone wide Queuing Penalty: 0

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Horizon (2026)













AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	11	13	6	10	1	61	31	456	7	6	1132	6
Future Volume (vph)	11	13	6	10	1	61	31	456	7	6	1132	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.973			0.886			0.998			0.999	
Flt Protected		0.982			0.993		0.950			0.950		
Satd. Flow (prot)	0	1815	0	0	1672	0	1736	3149	0	1805	3341	0
Flt Permitted		0.849			0.945		0.236			0.486		
Satd. Flow (perm)	0	1570	0	0	1591	0	431	3149	0	923	3341	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			49			3			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	4%	14%	40%	0%	8%	0%
Adj. Flow (vph)	11	13	6	10	1	61	31	456	7	6	1132	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	30	0	0	72	0	31	463	0	6	1138	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								Yes				
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	

# Lanes, Volumes, Timings

## 3: Bank Street & Rosebella Avenue

Horizon (2026)  
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.2			7.2		63.7	63.7		63.7	63.7	
Actuated g/C Ratio		0.09			0.09		0.80	0.80		0.80	0.80	
v/c Ratio		0.21			0.39		0.09	0.18		0.01	0.43	
Control Delay		31.2			21.7		3.0	2.3		3.0	4.1	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.3	
Total Delay		31.2			21.7		3.0	2.3		3.0	4.5	
LOS		C			C		A	A		A	A	
Approach Delay		31.2			21.7			2.3			4.5	
Approach LOS		C			C			A			A	

### Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 5.0

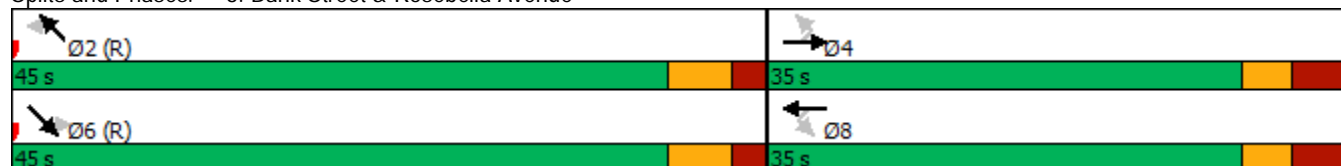
Intersection LOS: A

Intersection Capacity Utilization 46.7%

ICU Level of Service A





















Analysis Period (min) 60

Splits and Phases: 3: Bank Street & Rosebella Avenue



Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue













Horizon (2026)  
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	128	55	42	22	30	74	30	372	63	71	909	40
Future Volume (vph)	128	55	42	22	30	74	30	372	63	71	909	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.975			0.921				0.850		0.994	
Flt Protected		0.972			0.991		0.950			0.950		
Satd. Flow (prot)	0	1697	0	0	1442	0	1543	3252	1313	1719	3389	0
Flt Permitted		0.789			0.919		0.264			0.531		
Satd. Flow (perm)	0	1378	0	0	1337	0	429	3252	1313	961	3389	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			74				63		7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	9%	4%	0%	11%	3%	30%	17%	11%	23%	5%	6%	3%
Adj. Flow (vph)	128	55	42	22	30	74	30	372	63	71	909	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	225	0	0	126	0	30	372	63	71	949	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
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	



Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Horizon (2026)  
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		18.2			18.2		48.8	48.8	48.8	48.8	48.8	
Actuated g/C Ratio		0.23			0.23		0.61	0.61	0.61	0.61	0.61	
v/c Ratio		0.69			0.35		0.11	0.19	0.08	0.12	0.46	
Control Delay		37.5			13.5		10.3	8.3	3.0	9.2	10.4	
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		37.5			13.5		10.3	8.3	3.0	9.2	10.4	
LOS		D			B		B	A	A	A	B	
Approach Delay		37.5			13.5			7.7			10.3	
Approach LOS		D			B			A			B	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 13.2

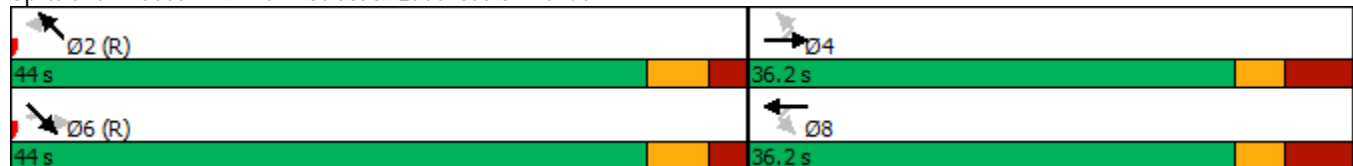
Intersection LOS: B

Intersection Capacity Utilization 65.8%

ICU Level of Service C























Analysis Period (min) 60

Splits and Phases: 9: Bank Street & Queensdale Avenue















Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Horizon (2026)  
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	143	95	0	182	20	215	893	3	11	325	101
Future Volume (vph)	127	143	95	0	182	20	215	893	3	11	325	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.940			0.985				0.850			0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1626	1721	0	1900	1798	0	1752	3406	1615	1805	3223	1524
Flt Permitted	0.631						0.555			0.276		
Satd. Flow (perm)	1080	1721	0	1900	1798	0	1024	3406	1615	524	3223	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		41			7				56			101
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	11%	5%	2%	0%	3%	14%	3%	6%	0%	0%	12%	6%
Adj. Flow (vph)	127	143	95	0	182	20	215	893	3	11	325	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	238	0	0	202	0	215	893	3	11	325	101
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	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Horizon (2026)  
AM Peak

												
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		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	11.5	11.5			11.5		18.7	18.7	18.7	18.7	18.7	18.7
Actuated g/C Ratio	0.26	0.26			0.26		0.42	0.42	0.42	0.42	0.42	0.42
v/c Ratio	0.46	0.51			0.44		0.50	0.63	0.00	0.05	0.24	0.15
Control Delay	21.6	16.9			17.8		15.0	12.8	0.0	9.2	9.2	3.0
Queue Delay	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	16.9			17.8		15.0	12.8	0.0	9.2	9.2	3.0
LOS	C	B			B		B	B	A	A	A	A
Approach Delay		18.5			17.8			13.2			7.8	
Approach LOS		B			B			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 44.9

Natural Cycle: 75

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 13.4


Intersection LOS: B

Intersection Capacity Utilization 70.2%

ICU Level of Service C

Analysis Period (min) 60



















Splits and Phases: 18: Bank Street & Lester Road

 Ø2	 Ø4
50.5 s	39.6 s
 Ø6	 Ø8
50.5 s	39.6 s

Lanes, Volumes, Timings  
25: Bank Street & D'Aoust Avenue/St. Bernard Street













Horizon (2026)

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	79	24	112	16	20	104	53	363	60	128	1034	42
Future Volume (vph)	79	24	112	16	20	104	53	363	60	128	1034	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.930			0.900			0.979			0.994	
Flt Protected		0.982			0.994		0.950			0.950		
Satd. Flow (prot)	0	1645	0	0	1623	0	1770	3196	0	1770	3448	0
Flt Permitted		0.827			0.937		0.235			0.505		
Satd. Flow (perm)	0	1386	0	0	1530	0	438	3196	0	941	3448	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			75			34			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	2%	5%	8%	8%	11%	3%	2%	12%	2%	2%	4%	6%
Adj. Flow (vph)	79	24	112	16	20	104	53	363	60	128	1034	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	215	0	0	140	0	53	423	0	128	1076	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								Yes			Yes	
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	

Lanes, Volumes, Timings  
25: Bank Street & D'Aoust Avenue/St. Bernard Street

Horizon (2026)  
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		14.0			14.0		53.6	53.6		53.6	53.6	
Actuated g/C Ratio		0.18			0.18		0.67	0.67		0.67	0.67	
v/c Ratio		0.71			0.43		0.18	0.20		0.20	0.46	
Control Delay		33.6			17.5		8.7	5.6		4.6	5.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		33.6			17.5		8.7	5.6		4.6	5.0	
LOS		C			B		A	A		A	A	
Approach Delay		33.6			17.5			6.0			4.9	
Approach LOS		C			B			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 27 (34%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 9.1

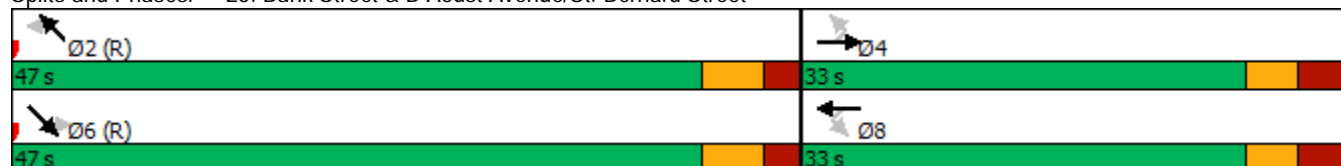
Intersection LOS: A

Intersection Capacity Utilization 75.6%

ICU Level of Service D

Analysis Period (min) 60

Splits and Phases: 25: Bank Street & D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Horizon (2026)  
AM Peak

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↗	↗↗	↗	↗	↗↗	
Traffic Vol, veh/h	14	3	3	0	1	33	8	462	2	2	1098	10
Future Vol, veh/h	14	3	3	0	1	33	8	462	2	2	1098	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	17	12	0	0	4	0
Mvmt Flow	14	3	3	0	1	33	8	462	2	2	1098	10




Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1121	1728	251	1474	1725	602	1204	0	0	504	0	0
Stage 1	520	520	-	1203	1203	-	-	-	-	-	-	-
Stage 2	601	1208	-	271	522	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.44	-	-	4.1	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.37	-	-	2.2	-	-
Pot Cap-1 Maneuver	161	88	749	88	88	443	498	-	-	1071	-	-
Stage 1	507	530	-	196	256	-	-	-	-	-	-	-
Stage 2	454	254	-	712	529	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	86	749	84	86	443	498	-	-	1071	-	-
Mov Cap-2 Maneuver	144	86	-	84	86	-	-	-	-	-	-	-
Stage 1	498	520	-	192	255	-	-	-	-	-	-	-
Stage 2	415	253	-	692	519	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	33.7	15.1	0.2	0
HCM LOS	D	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	1071	-	-	147 395	498	-	-
HCM Lane V/C Ratio	0.002	-	-	0.148 0.094	0.017	-	-
HCM Control Delay (s)	8.4	-	-	33.7 15.1	12.4	-	-
HCM Lane LOS	A	-	-	D C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5 0.3	0.1	-	-

Intersection

Intersection Delay, s/veh	15.5
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	66	448	52	30	254
Future Vol, veh/h	49	66	448	52	30	254
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	22	7	5	9	2
Mvmt Flow	49	66	448	52	30	254
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10	18.8	12
HCM LOS	A	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	43%	11%
Vol Thru, %	90%	0%	89%
Vol Right, %	10%	57%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	500	115	284
LT Vol	0	49	30
Through Vol	448	0	254
RT Vol	52	66	0
Lane Flow Rate	543	125	309
Geometry Grp	1	1	1
Degree of Util (X)	0.705	0.196	0.431
Departure Headway (Hd)	4.67	5.647	5.026
Convergence, Y/N	Yes	Yes	Yes
Cap	766	640	710
Service Time	2.738	3.647	3.108
HCM Lane V/C Ratio	0.709	0.195	0.435
HCM Control Delay	18.8	10	12
HCM Lane LOS	C	A	B
HCM 95th-tile Q	6.8	0.7	2.2

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12: Bank Street & Ent. 3 Performance by approach

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Approach	EB	SE	NW	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	0.9	1.3	3.1	2.5

---

14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

---

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.2	0.0
Total Del/Veh (s)	0.4	3.9	3.9	2.4

---

16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

---

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.2	0.7	3.5	0.6

---

Total Zone Performance

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Denied Del/Veh (s)	0.2
Total Del/Veh (s)	184.6



Intersection: 12: Bank Street & Ent. 3

Movement	NW	NW
Directions Served	T	T
Maximum Queue (m)	6.6	12.7
Average Queue (m)	0.3	0.6
95th Queue (m)	3.9	6.8
Link Distance (m)	365.1	365.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	1.8	20.1	20.1
Average Queue (m)	0.1	4.1	10.7
95th Queue (m)	1.3	13.3	17.3
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	9.2	12.7
Average Queue (m)	0.5	4.5
95th Queue (m)	3.9	12.3
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary



















Zone wide Queuing Penalty: 0
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# Lanes, Volumes, Timings

## 3: Bank Street & Rosebella Avenue













Horizon (2026)

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	7	7	10	16	7	36	51	1138	18	5	577	13
Future Volume (vph)	7	7	10	16	7	36	51	1138	18	5	577	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	12.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			50.0			7.5		
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	0.95
Frt		0.944			0.918			0.998			0.997	
Flt Protected		0.986			0.987		0.950			0.950		
Satd. Flow (prot)	0	1768	0	0	1722	0	1805	3499	0	1805	3464	0
Flt Permitted		0.881			0.900		0.429			0.233		
Satd. Flow (perm)	0	1580	0	0	1570	0	815	3499	0	443	3464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			36			3			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		192.9			163.1			197.2			63.7	
Travel Time (s)		13.9			11.7			14.2			4.6	
Peak Hour 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
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	4%	0%
Adj. Flow (vph)	7	7	10	16	7	36	51	1138	18	5	577	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	0	59	0	51	1156	0	5	590	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								Yes				
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	34.8	34.8		34.8	34.8		25.9	25.9		25.9	25.9	
Total Split (s)	35.0	35.0		35.0	35.0		45.0	45.0		45.0	45.0	
Total Split (%)	43.8%	43.8%		43.8%	43.8%		56.3%	56.3%		56.3%	56.3%	
Maximum Green (s)	28.2	28.2		28.2	28.2		39.1	39.1		39.1	39.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.8	3.8		3.8	3.8		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.8			6.8		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	

Lanes, Volumes, Timings  
3: Bank Street & Rosebella Avenue

Horizon (2026)  
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	21.0	21.0		21.0	21.0		13.0	13.0		13.0	13.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.1			7.1		67.5	67.5		67.5	67.5	
Actuated g/C Ratio		0.09			0.09		0.84	0.84		0.84	0.84	
v/c Ratio		0.16			0.35		0.07	0.39		0.01	0.20	
Control Delay		26.2			23.3		2.9	2.8		3.0	2.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		26.2			23.3		2.9	2.8		3.0	2.6	
LOS		C			C		A	A		A	A	
Approach Delay		26.2			23.3			2.8			2.6	
Approach LOS		C			C			A			A	

Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 26 (33%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 3.7

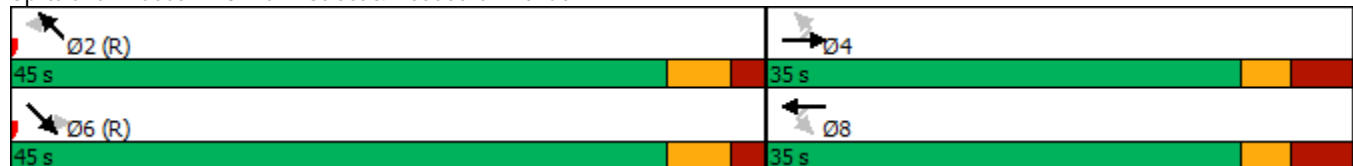
Intersection LOS: A

Intersection Capacity Utilization 56.2%

ICU Level of Service B

Analysis Period (min) 60





















Splits and Phases: 3: Bank Street & Rosebella Avenue



Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue













Horizon (2026)

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	147	69	79	46	95	38	48	883	186	108	408	37
Future Volume (vph)	147	69	79	46	95	38	48	883	186	108	408	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	30.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		1	1		0
Taper Length (m)	7.5			7.5			7.5			65.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.964			0.971				0.850		0.988	
Flt Protected		0.976			0.987		0.950			0.950		
Satd. Flow (prot)	0	1727	0	0	1775	0	1770	3471	1599	1805	3435	0
Flt Permitted		0.763			0.837		0.494			0.280		
Satd. Flow (perm)	0	1350	0	0	1506	0	920	3471	1599	532	3435	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			19				186		16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		96.2			200.6			65.8			101.5	
Travel Time (s)		6.9			14.4			4.7			7.3	
Peak Hour 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
Heavy Vehicles (%)	7%	0%	0%	5%	0%	6%	2%	4%	1%	0%	3%	13%
Adj. Flow (vph)	147	69	79	46	95	38	48	883	186	108	408	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	295	0	0	179	0	48	883	186	108	445	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
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6		6	2		
Detector Phase	4	4		8	8		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	36.2	36.2		36.2	36.2		35.0	35.0	35.0	24.0	24.0	
Total Split (s)	36.2	36.2		36.2	36.2		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	45.1%	45.1%		45.1%	45.1%		54.9%	54.9%	54.9%	54.9%	54.9%	
Maximum Green (s)	29.0	29.0		29.0	29.0		38.0	38.0	38.0	38.0	38.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	4.2	4.2		4.2	4.2		2.3	2.3	2.3	2.3	2.3	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.2			7.2		6.0	6.0	6.0	6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max	C-Max	C-Max	C-Max	

Lanes, Volumes, Timings  
9: Bank Street & Queensdale Avenue

Horizon (2026)  
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
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)	22.0	22.0		22.0	22.0		11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effect Green (s)		21.2			21.2		45.8	45.8	45.8	45.8	45.8	
Actuated g/C Ratio		0.26			0.26		0.57	0.57	0.57	0.57	0.57	
v/c Ratio		0.79			0.44		0.09	0.45	0.19	0.36	0.23	
Control Delay		40.8			23.7		10.6	11.9	2.4	16.0	9.6	
Queue Delay		0.0			0.0		0.0	0.3	0.0	0.0	0.0	
Total Delay		40.8			23.7		10.6	12.2	2.4	16.0	9.6	
LOS		D			C		B	B	A	B	A	
Approach Delay		40.8			23.7			10.5			10.8	
Approach LOS		D			C			B			B	

Intersection Summary

Area Type: Other

Cycle Length: 80.2

Actuated Cycle Length: 80.2

Offset: 23 (29%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.9

Intersection LOS: B

Intersection Capacity Utilization 76.9%

ICU Level of Service D























Analysis Period (min) 60

Splits and Phases: 9: Bank Street & Queensdale Avenue















Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Horizon (2026)  
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	188	319	1	141	18	133	493	2	29	918	129
Future Volume (vph)	86	188	319	1	141	18	133	493	2	29	918	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	50.0		0.0	40.0		0.0	130.0		80.0	90.0		60.0
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (m)	40.0			20.0			100.0			100.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.906			0.983				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1671	1698	0	1805	1724	0	1770	3438	1615	1736	3471	1583
Flt Permitted	0.656			0.293			0.233			0.472		
Satd. Flow (perm)	1154	1698	0	557	1724	0	434	3438	1615	862	3471	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		90			8				56			129
Link Speed (k/h)		80			80			80			80	
Link Distance (m)		247.4			221.1			227.3			380.8	
Travel Time (s)		11.1			9.9			10.2			17.1	
Peak Hour 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
Heavy Vehicles (%)	8%	2%	1%	0%	7%	19%	2%	5%	0%	4%	4%	2%
Adj. Flow (vph)	86	188	319	1	141	18	133	493	2	29	918	129
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	507	0	1	159	0	133	493	2	29	918	129
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	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		6
Detector Phase	4	4		8	8		2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	39.6	39.6		39.6	39.6		33.5	33.5	33.5	33.5	33.5	33.5
Total Split (s)	39.6	39.6		39.6	39.6		50.5	50.5	50.5	50.5	50.5	50.5
Total Split (%)	44.0%	44.0%		44.0%	44.0%		56.0%	56.0%	56.0%	56.0%	56.0%	56.0%
Maximum Green (s)	32.0	32.0		32.0	32.0		44.0	44.0	44.0	44.0	44.0	44.0
Yellow Time (s)	4.6	4.6		4.6	4.6		4.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	3.0	3.0		3.0	3.0		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.6	7.6		7.6	7.6		6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	Min

Lanes, Volumes, Timings  
18: Bank Street & Lester Road

Horizon (2026)  
PM Peak

												
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		11.0	11.0	11.0	11.0	11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	0
Act Effect Green (s)	21.9	21.9		21.9	21.9		26.8	26.8	26.8	26.8	26.8	26.8
Actuated g/C Ratio	0.34	0.34		0.34	0.34		0.42	0.42	0.42	0.42	0.42	0.42
v/c Ratio	0.22	0.79		0.01	0.27		0.74	0.34	0.00	0.08	0.63	0.18
Control Delay	19.3	28.4		18.0	18.0		46.3	13.5	0.0	12.7	17.0	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	28.4		18.0	18.0		46.3	13.5	0.0	12.7	17.0	3.3
LOS	B	C		B	B		D	B	A	B	B	A
Approach Delay		27.1			18.0			20.4			15.2	
Approach LOS		C			B			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 90.1

Actuated Cycle Length: 64.2

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 19.6





Intersection LOS: B

Intersection Capacity Utilization 89.9%

ICU Level of Service E

Analysis Period (min) 60

Splits and Phases: 18: Bank Street & Lester Road



















 Ø2	 Ø4
50.5 s	39.6 s
 Ø6	 Ø8
50.5 s	39.6 s

# Lanes, Volumes, Timings

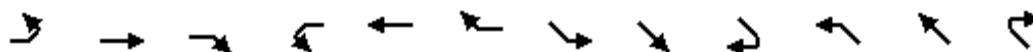
Horizon (2026)

## 25: Bank Street & D'Aoust Avenue/St. Bernard Street

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	24	10	65	23	14	52	75	1100	33	50	549	27
Future Volume (vph)	24	10	65	23	14	52	75	1100	33	50	549	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	25.0		0.0	35.0		0.0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			40.0		
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	0.95
Frt		0.911			0.921			0.996			0.993	
Flt Protected		0.988			0.987		0.950			0.950		
Satd. Flow (prot)	0	1671	0	0	1706	0	1805	3494	0	1805	3422	0
Flt Permitted		0.925			0.919		0.435			0.236		
Satd. Flow (perm)	0	1565	0	0	1588	0	826	3494	0	448	3422	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			52			5			9	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		166.9			193.0			109.9			197.2	
Travel Time (s)		12.0			13.9			7.9			14.2	
Peak Hour 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
Heavy Vehicles (%)	5%	11%	0%	0%	8%	0%	0%	3%	0%	0%	5%	0%
Adj. Flow (vph)	24	10	65	23	14	52	75	1100	33	50	549	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	89	0	75	1133	0	50	576	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								Yes			Yes	
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	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			6			2	
Permitted Phases	4			8			6			2		
Detector Phase	4	4		8	8		6	6		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	32.5	32.5		29.5	29.5		28.9	28.9		31.9	31.9	
Total Split (s)	33.0	33.0		33.0	33.0		47.0	47.0		47.0	47.0	
Total Split (%)	41.3%	41.3%		41.3%	41.3%		58.8%	58.8%		58.8%	58.8%	
Maximum Green (s)	26.5	26.5		26.5	26.5		41.1	41.1		41.1	41.1	
Yellow Time (s)	3.0	3.0		3.0	3.0		3.7	3.7		3.7	3.7	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.5			6.5		5.9	5.9		5.9	5.9	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
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		16.0	16.0		16.0	16.0		19.0	19.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		7.9			7.9		63.2	63.2		63.2	63.2	
Actuated g/C Ratio		0.10			0.10		0.79	0.79		0.79	0.79	
v/c Ratio		0.47			0.44		0.11	0.41		0.14	0.21	
Control Delay		22.8			23.4		3.9	4.2		3.0	2.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.8			23.4		3.9	4.2		3.0	2.0	
LOS		C			C		A	A		A	A	
Approach Delay		22.8			23.4			4.2			2.1	
Approach LOS		C			C			A			A	

## Intersection Summary

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 31 (39%), Referenced to phase 2:NWTL and 6:SETL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 5.3

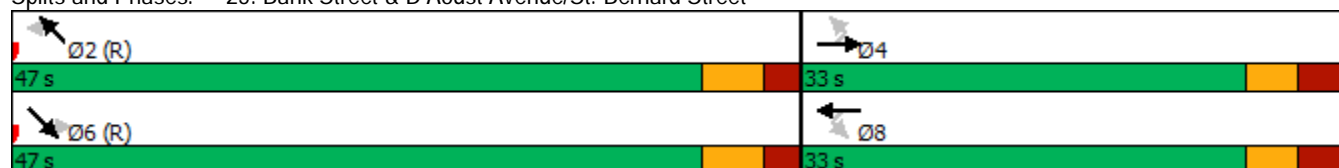
Intersection LOS: A

Intersection Capacity Utilization 58.5%

ICU Level of Service B

Analysis Period (min) 60

Splits and Phases: 25: Bank Street &amp; D'Aoust Avenue/St. Bernard Street



HCM 6th TWSC  
6: Bank Street & Kingsdale Avenue

Horizon (2026)  
PM Peak




Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	
Traffic Vol, veh/h	6	2	8	9	10	21	41	1100	23	11	568	15
Future Vol, veh/h	6	2	8	9	10	21	41	1100	23	11	568	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	120	-	230	10	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	0	0	6	0	3	11	0	5	0
Mvmt Flow	6	2	8	9	10	21	41	1100	23	11	568	15

Major/Minor	Minor1		Minor2		Major1			Major2				
Conflicting Flow All	1624	1943	598	1338	1960	317	633	0	0	1221	0	0
Stage 1	1286	1286	-	649	649	-	-	-	-	-	-	-
Stage 2	338	657	-	689	1311	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.18	7.5	6.5	7.02	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.44	3.5	4	3.36	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	69	66	417	113	64	667	960	-	-	578	-	-
Stage 1	177	237	-	430	469	-	-	-	-	-	-	-
Stage 2	656	465	-	407	231	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	55	62	417	102	60	667	960	-	-	578	-	-
Mov Cap-2 Maneuver	55	62	-	102	60	-	-	-	-	-	-	-
Stage 1	169	226	-	410	459	-	-	-	-	-	-	-
Stage 2	606	455	-	376	220	-	-	-	-	-	-	-

Approach	EB		WB		SE		NW	
HCM Control Delay, s	48.5		42.2		0.3		0.2	
HCM LOS	E		E					

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1WBLn1	SEL	SET	SER
Capacity (veh/h)	578	-	-	100 140	960	-	-
HCM Lane V/C Ratio	0.021	-	-	0.174 0.311	0.046	-	-
HCM Control Delay (s)	11.4	-	-	48.5 42.2	8.9	-	-
HCM Lane LOS	B	-	-	E E	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6 1.3	0.1	-	-

Intersection	
Intersection Delay, s/veh	25
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	48	60	334	64	112	452
Future Vol, veh/h	48	60	334	64	112	452
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	0	0	13	2
Mvmt Flow	48	60	334	64	112	452
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.7	15.3	34.6
HCM LOS	B	C	D

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	44%	20%
Vol Thru, %	84%	0%	80%
Vol Right, %	16%	56%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	398	108	564
LT Vol	0	48	112
Through Vol	334	0	452
RT Vol	64	60	0
Lane Flow Rate	433	117	613
Geometry Grp	1	1	1
Degree of Util (X)	0.598	0.199	0.851
Departure Headway (Hd)	4.975	6.114	5.104
Convergence, Y/N	Yes	Yes	Yes
Cap	731	589	717
Service Time	2.975	4.132	3.104
HCM Lane V/C Ratio	0.592	0.199	0.855
HCM Control Delay	15.3	10.7	34.6
HCM Lane LOS	C	B	D
HCM 95th-tile Q	4.3	0.7	13.6

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12: Bank Street & Ent. 3 Performance by approach

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Approach	EB	SE	NW	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	1.8	2.0	2.0	2.0

---

14: Entrance 1 (East Access) & Queensdale Avenue Performance by approach

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Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.3	0.1
Total Del/Veh (s)	1.2	6.5	8.3	5.8

---

16: Entrance 2 (West Access) & Queensdale Avenue Performance by approach

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Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	0.2	0.9	3.9	0.7

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Total Zone Performance

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Denied Del/Veh (s)	0.2
Total Del/Veh (s)	269.3

Intersection: 12: Bank Street & Ent. 3

Movement	EB	SE
Directions Served	R	R
Maximum Queue (m)	28.3	3.3
Average Queue (m)	4.2	0.1
95th Queue (m)	18.7	2.3
Link Distance (m)	76.1	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		30.0
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 14: Entrance 1 (East Access) & Queensdale Avenue

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	20.4	36.5	41.0
Average Queue (m)	1.8	11.4	17.2
95th Queue (m)	12.3	26.9	32.4
Link Distance (m)	52.2	71.9	61.9
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Entrance 2 (West Access) & Queensdale Avenue

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	13.9	11.9
Average Queue (m)	0.9	3.4
95th Queue (m)	6.8	10.8
Link Distance (m)	52.2	51.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0
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## Appendix G

### TDM Measures Checklist

## **TDM Measures Checklist:** *Non-Residential Developments (office, institutional, retail or industrial)*

<b>Legend</b>	
<b>BASIC</b>	The measure is generally feasible and effective, and in most cases would benefit the development and its users
<b>BETTER</b>	The measure could maximize support for users of sustainable modes, and optimize development performance
★	The measure is one of the most dependably effective tools to encourage the use of sustainable modes

<b>TDM measures: <i>Non-residential developments</i></b>		<b>Check if proposed &amp; add descriptions</b>
<b>1. TDM PROGRAM MANAGEMENT</b>		
<b>1.1 Program coordinator</b>		
<b>BASIC</b> ★	1.1.1 Designate an internal coordinator, or contract with an external coordinator	<input type="checkbox"/>
<b>1.2 Travel surveys</b>		
<b>BETTER</b>	1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	<input type="checkbox"/>
<b>2. WALKING AND CYCLING</b>		
<b>2.1 Information on walking/cycling routes &amp; destinations</b>		
<b>BASIC</b>	2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances	<input type="checkbox"/>
<b>2.2 Bicycle skills training</b>		
<i>Commuter travel</i>		
<b>BETTER</b> ★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses	<input type="checkbox"/>
<b>2.3 Valet bike parking</b>		
<i>Visitor travel</i>		
<b>BETTER</b>	2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	<input type="checkbox"/>

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
<b>3. TRANSIT</b>		
<b>3.1 Transit information</b>		
BASIC	3.1.1 Display relevant transit schedules and route maps at entrances	<input type="checkbox"/>
BASIC	3.1.2 Provide online links to OC Transpo and STO information	<input type="checkbox"/>
BETTER	3.1.3 Provide real-time arrival information display at entrances	<input type="checkbox"/>
<b>3.2 Transit fare incentives</b>		
<i>Commuter travel</i>		
BETTER	3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	<input type="checkbox"/>
BETTER ★	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	<input type="checkbox"/>
<b>3.3 Enhanced public transit service</b>		
<i>Commuter travel</i>		
BETTER	3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	<input type="checkbox"/>
<b>3.4 Private transit service</b>		
<i>Commuter travel</i>		
BETTER	3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	<input type="checkbox"/>
<i>Visitor travel</i>		
BETTER	3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	<input type="checkbox"/>



TDM measures: <i>Non-residential developments</i>			Check if proposed & add descriptions
<b>4. RIDESHARING</b>			
<b>4.1 Ridematching service</b>			
<i>Commuter travel</i>			
BASIC	★	4.1.1 Provide a dedicated ridematching portal at OttawaRideMatch.com	<input type="checkbox"/>
<b>4.2 Carpool parking price incentives</b>			
<i>Commuter travel</i>			
BETTER		4.2.1 Provide discounts on parking costs for registered carpools	<input type="checkbox"/>
<b>4.3 Vanpool service</b>			
<i>Commuter travel</i>			
BETTER		4.3.1 Provide a vanpooling service for long-distance commuters	<input type="checkbox"/>
<b>5. CARSHARING &amp; BIKESHARING</b>			
<b>5.1 Bikeshare stations &amp; memberships</b>			
BETTER		5.1.1 Contract with provider to install on-site bikeshare station for use by commuters and visitors	<input type="checkbox"/>
<i>Commuter travel</i>			
BETTER		5.1.2 Provide employees with bikeshare memberships for local business travel	<input type="checkbox"/>
<b>5.2 Carshare vehicles &amp; memberships</b>			
<i>Commuter travel</i>			
BETTER		5.2.1 Contract with provider to install on-site carshare vehicles and promote their use by tenants	<input type="checkbox"/>
BETTER		5.2.2 Provide employees with carshare memberships for local business travel	<input type="checkbox"/>
<b>6. PARKING</b>			
<b>6.1 Priced parking</b>			
<i>Commuter travel</i>			
BASIC	★	6.1.1 Charge for long-term parking (daily, weekly, monthly)	<input type="checkbox"/>
BASIC		6.1.2 Unbundle parking cost from lease rates at multi-tenant sites	<input type="checkbox"/>
<i>Visitor travel</i>			
BETTER		6.1.3 Charge for short-term parking (hourly)	<input type="checkbox"/>

TDM measures: <i>Non-residential developments</i>			Check if proposed & add descriptions
<b>7. TDM MARKETING &amp; COMMUNICATIONS</b>			
<b>7.1 Multimodal travel information</b>			
<i>Commuter travel</i>			
BASIC	★	7.1.1 Provide a multimodal travel option information package to new/relocating employees and students	<input type="checkbox"/>
<i>Visitor travel</i>			
BETTER	★	7.1.2 Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	<input type="checkbox"/>
<b>7.2 Personalized trip planning</b>			
<i>Commuter travel</i>			
BETTER	★	7.2.1 Offer personalized trip planning to new/relocating employees	<input type="checkbox"/>
<b>7.3 Promotions</b>			
<i>Commuter travel</i>			
BETTER		7.3.1 Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	<input type="checkbox"/>
<b>8. OTHER INCENTIVES &amp; AMENITIES</b>			
<b>8.1 Emergency ride home</b>			
<i>Commuter travel</i>			
BETTER	★	8.1.1 Provide emergency ride home service to non-driving commuters	<input type="checkbox"/>
<b>8.2 Alternative work arrangements</b>			
<i>Commuter travel</i>			
BASIC	★	8.2.1 Encourage flexible work hours	<input type="checkbox"/>
BETTER		8.2.2 Encourage compressed workweeks	<input type="checkbox"/>
BETTER	★	8.2.3 Encourage telework	<input type="checkbox"/>
<b>8.3 Local business travel options</b>			
<i>Commuter travel</i>			
BASIC	★	8.3.1 Provide local business travel options that minimize the need for employees to bring a personal car to work	<input type="checkbox"/>
<b>8.4 Commuter incentives</b>			
<i>Commuter travel</i>			
BETTER		8.4.1 Offer employees a taxable, mode-neutral commuting allowance	<input type="checkbox"/>
<b>8.5 On-site amenities</b>			
<i>Commuter travel</i>			
BETTER		8.5.1 Provide on-site amenities/services to minimize mid-day or mid-commute errands	<input checked="" type="checkbox"/>

## **TDM-Supportive Development Design and Infrastructure Checklist:** *Non-Residential Developments (office, institutional, retail or industrial)*

<b>Legend</b>	
<b>REQUIRED</b>	The Official Plan or Zoning By-law provides related guidance that must be followed
<b>BASIC</b>	The measure is generally feasible and effective, and in most cases would benefit the development and its users
<b>BETTER</b>	The measure could maximize support for users of sustainable modes, and optimize development performance

<b>TDM-supportive design &amp; infrastructure measures:</b> <i>Non-residential developments</i>		<b>Check if completed &amp; add descriptions, explanations or plan/drawing references</b>
<b>1. WALKING &amp; CYCLING: ROUTES</b>		
<b>1.1 Building location &amp; access points</b>		
<b>BASIC</b>	1.1.1 Locate building close to the street, and do not locate parking areas between the street and building entrances	<input checked="" type="checkbox"/> Building Entrances located Perpendicular to Bank Street
<b>BASIC</b>	1.1.2 Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	<input checked="" type="checkbox"/> Both Building A and B are close to the street and sidewalk
<b>BASIC</b>	1.1.3 Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	<input checked="" type="checkbox"/> Doors and Windows expected to provide visibility to sidewalks and parking area.
<b>1.2 Facilities for walking &amp; cycling</b>		
<b>REQUIRED</b>	1.2.1 Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations ( <i>see Official Plan policy 4.3.3</i> )	<input type="checkbox"/>  No rapid transit within 600m
<b>REQUIRED</b>	1.2.2 Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible ( <i>see Official Plan policy 4.3.12</i> )	<input checked="" type="checkbox"/>  Concrete Sidewalks provide access from Bank Street and Queensdale Avenue. Walkways to provide access between adjacent buildings.

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3 Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks ( <i>see Official Plan policy 4.3.10</i> )	<input checked="" type="checkbox"/> Concrete sidewalks and pathway to be provided
REQUIRED	1.2.4 Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps ( <i>see Official Plan policy 4.3.10</i> )	<input checked="" type="checkbox"/> Depressed curbs provided. Accessible parking spaces provided close to building entrances
REQUIRED	1.2.5 Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians ( <i>see Official Plan policy 4.3.11</i> )	<input checked="" type="checkbox"/> Concrete sidewalks connect on-street concrete sidewalks to building access sidewalks
BASIC	1.2.6 Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	<input checked="" type="checkbox"/> Sidewalks lead to transit stops on Queensdale Avenue
BASIC	1.2.7 Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	<input checked="" type="checkbox"/> Area is lit and visible
BASIC	1.2.8 Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	<input type="checkbox"/>
<b>1.3 Amenities for walking &amp; cycling</b>		
BASIC	1.3.1 Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	<input checked="" type="checkbox"/> Existing lighting and proposed lighting on Queensdale Avenue, Bank Street and within the parking area, one existing picnic table provided
BASIC	1.3.2 Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	<input checked="" type="checkbox"/> Signage provided at access off Bank Street

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
<b>2. WALKING &amp; CYCLING: END-OF-TRIP FACILITIES</b>		
<b>2.1 Bicycle parking</b>		
REQUIRED	2.1.1 Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible ( <i>see Official Plan policy 4.3.6</i> )	<input checked="" type="checkbox"/> Bicycle parking located in front of proposed buildings
REQUIRED	2.1.2 Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas ( <i>see Zoning By-law Section 111</i> )	<input checked="" type="checkbox"/> 30 parking spoys require, 46 parking spots provided
REQUIRED	2.1.3 Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored ( <i>see Zoning By-law Section 111</i> )	<input checked="" type="checkbox"/>
BASIC	2.1.4 Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	<input checked="" type="checkbox"/> 3 trip generated in AM peak 2 Generated trips in PM peak 46 spaces provided
BETTER	2.1.5 Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	<input checked="" type="checkbox"/>
<b>2.2 Secure bicycle parking</b>		
REQUIRED	2.2.1 Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers ( <i>see Zoning By-law Section 111</i> )	<input type="checkbox"/>
BETTER	2.2.2 Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	<input type="checkbox"/>
<b>2.3 Shower &amp; change facilities</b>		
BASIC	2.3.1 Provide shower and change facilities for the use of active commuters	<input type="checkbox"/>
BETTER	2.3.2 In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	<input type="checkbox"/>
<b>2.4 Bicycle repair station</b>		
BETTER	2.4.1 Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
<b>3. TRANSIT</b>		
<b>3.1 Customer amenities</b>		
BASIC	3.1.1 Provide shelters, lighting and benches at any on-site transit stops	<input type="checkbox"/>
BASIC	3.1.2 Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	<input type="checkbox"/>
BETTER	3.1.3 Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	<input type="checkbox"/>
<b>4. RIDESHARING</b>		
<b>4.1 Pick-up &amp; drop-off facilities</b>		
BASIC	4.1.1 Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	<input type="checkbox"/>
<b>4.2 Carpool parking</b>		
BASIC	4.2.1 Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	<input type="checkbox"/>
BETTER	4.2.2 At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	<input type="checkbox"/>
<b>5. CARSHARING &amp; BIKESHARING</b>		
<b>5.1 Carshare parking spaces</b>		
BETTER	5.1.1 Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces ( <i>see Zoning By-law Section 94</i> )	<input type="checkbox"/>
<b>5.2 Bikeshare station location</b>		
BETTER	5.2.1 Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	<input type="checkbox"/>

TDM-supportive design & infrastructure measures: <i>Non-residential developments</i>		Check if completed & add descriptions, explanations or plan/drawing references
<b>6. PARKING</b>		
<b>6.1 Number of parking spaces</b>		
<b>REQUIRED</b>	6.1.1 Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	<input checked="" type="checkbox"/> No limit on parking supply as proposed development is not located within 600m of rapid transit
<b>BASIC</b>	6.1.2 Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	<input type="checkbox"/>
<b>BASIC</b>	6.1.3 Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly ( <i>see Zoning By-law Section 104</i> )	<input checked="" type="checkbox"/> Parking spaces reduced accordingly
<b>BETTER</b>	6.1.4 Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking ( <i>see Zoning By-law Section 111</i> )	<input type="checkbox"/>
<b>6.2 Separate long-term &amp; short-term parking areas</b>		
<b>BETTER</b>	6.2.1 Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	<input type="checkbox"/>
<b>7. OTHER</b>		
<b>7.1 On-site amenities to minimize off-site trips</b>		
<b>BETTER</b>	7.1.1 Provide on-site amenities to minimize mid-day or mid-commute errands	<input checked="" type="checkbox"/> Restaurant and retail on-site. Majority of trips not expected to be employees