381 Kent Street

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report (Rev #1)

Prepared for:

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PN: 2021-108

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1 Screening

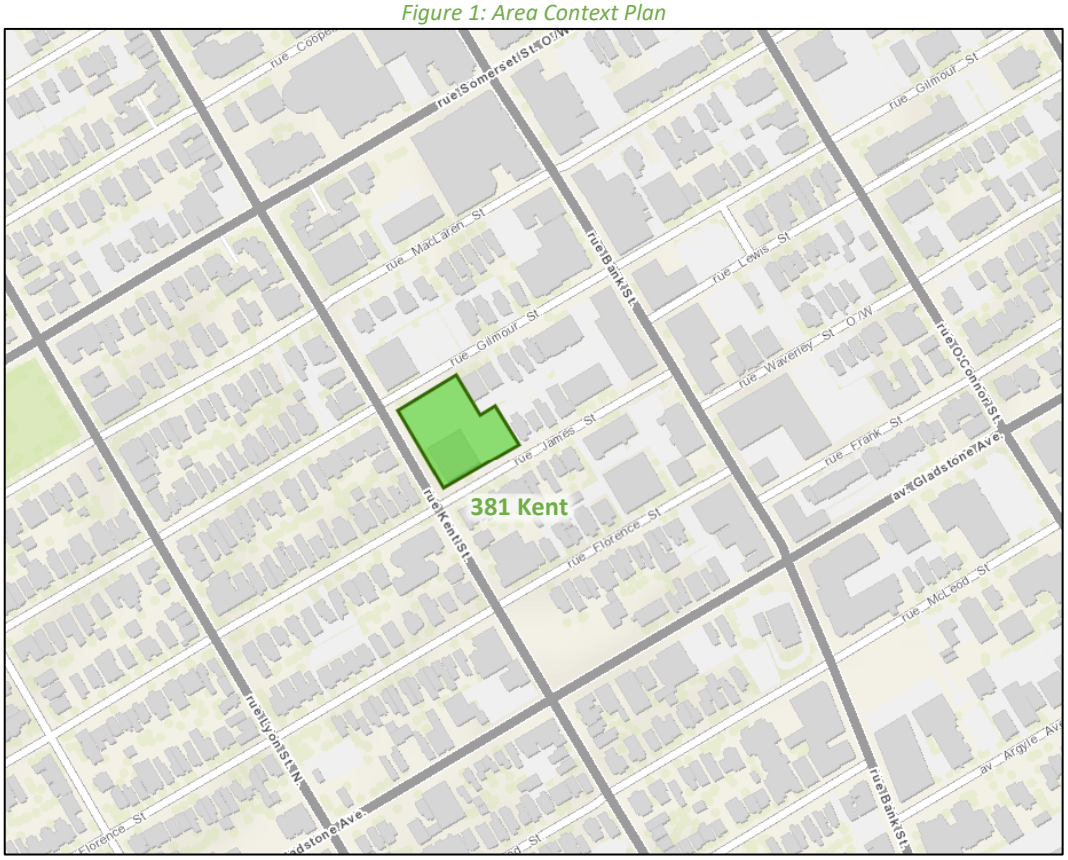
This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines, prior to the June 2023 updates. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component. This study has been prepared to support a zoning bylaw amendment and site plan application.

2 Existing and Planned Conditions

2.1 Proposed Development

The existing site, located at 381 Kent Street, is zoned as Residential Fourth Density Zone (R4UD) and is occupied by a medical building and surface parking lot. The proposed development consists of two nine-storey mixed-use buildings with 218 apartment units, a park, 1,841 sq. ft of commercial space, 154 parking stalls, and 235 bicycle parking spaces. The proposed plan will remove the existing accesses on Gilmour Street and James Street and will replace them with a new access located on Gilmour Street. The anticipated full build-out and occupancy horizon is 2030. The site is located within the Centretown Secondary Plan and Community Design Plan areas, and the Downtown Ottawa Urban Design Strategy Design Priority Area. Figure 1 illustrates the study area context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: November 24, 2022

Figure 2: Concept Plan

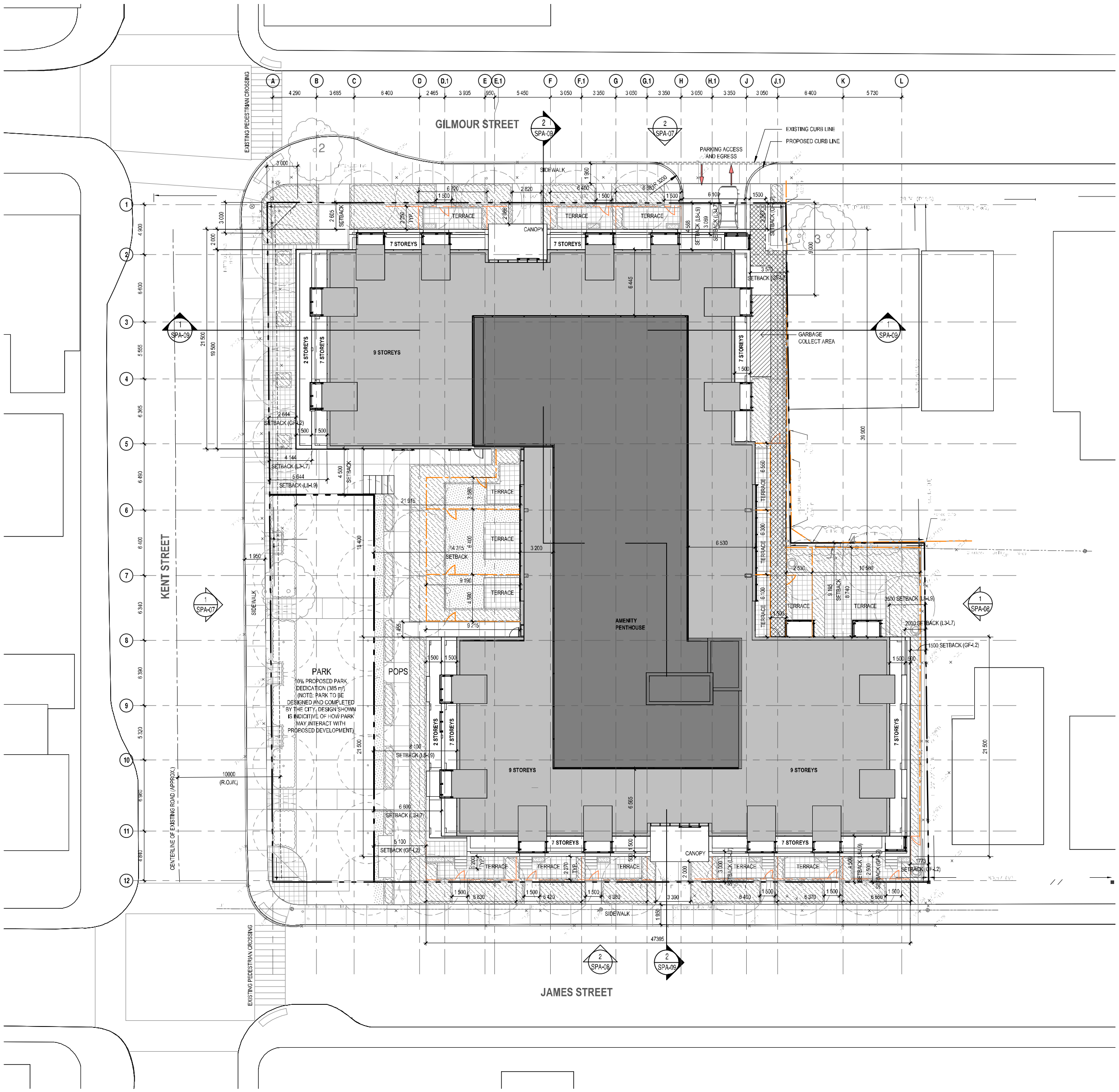
LEGEND OF SYMBOLS

- PROPERTY LINE
- SET BACK LINE
- FENCE

PROJECT INFORMATION		
ZONING	Residential Fifth Density, Subzone Z (R5Z)	
LOT	32 TO 34 GILMOUR ST. & 32 TO 35 JAMES ST.	
LOT AREA	3 824 m^2	
FLOOR SPACE INDEX	5.16	
LOT COVERAGE	0.56	
	REQUIRED	PROVIDED
PARK (10%)	382,4 m^2	385 m^2
BUILDING FOOTPRINT	N/A	2 138 m^2
BUILDING HEIGHT	30 m	33 m
SETBACKS	REQUIRED	PROVIDED
MIN FRONT YARD SETBACK (Gilmour, north)	3m	2.6 m
MIN CORNER SIDE YARD SETBACK (Kent, west)	3m	2.6 m & 5.1 m
MIN REAR YARD SETBACK (James, south)	7.5	2.5 m
MIN INTERIOR YARD SETBACK (east)	R4: 7.5m, GM: 6m	1.5 m & 3.5 m

GROSS FLOOR AREA		UNIT STATISTICS	
GROUND FLOOR	2 138 m^2	TOWNHOUSE (1 BR)	4
LEVEL 2	2 139 m^2	TOWNHOUSE (1 BR + DEN)	3
LEVEL 3	2 146 m^2	TOWNHOUSE (2 BR)	2
LEVEL 4	2 146 m2	STUDIO	18
LEVEL 5	2 146 m2	1 BR	94
LEVEL 6	2 146 m2	1 BR + DEN	31
LEVEL 7	2 146 m2	2 BR	56
LEVEL 8	1 983 m^2	3 BR	10
LEVEL 9	1 983 m^2	**TOTAL**	**218**
AMENITY LEVEL	756 m^2		
TOTAL	**19 729 m^2**		
BASEMENT LEVEL 1	3 377 m2		
BASEMENT LEVEL 2	3 377 m2		
TOTAL	**6 754 m2**		

PARKING			AMENITY	
CAR PARKING	**REQUIRED**	**PROVIDED**	REQUIRED	
RESIDENTIAL*	103	132	TOTAL AMENITY : 218 UNITS X 6m2	1308 m^2
COMMERCIAL	N/A	N/A	MIN. 50% COMMUNAL AREA	654 m^2
VISITOR	22 (0,1/u)	22		
TOTAL	125	**154**		
*Residential: 0.5 spaces per dwelling unit, less first 12			PROVIDED	
			COMMUNAL AREA	667 m2
			PRIVATE TERRACE (GF)	444 m2
BIKE RACK	**REQUIRED**	**PROVIDED**	PRIVATE BALCONY AND LOGGIA	793 m^2
RESIDENTIAL	109 (0,5/u)	230	AMENITY (including basements)	1017 m2
COMMERCIAL	N/A	5	ROOF TERRACE	484 m^2
TOTAL		**235**	**TOTAL**	**3 405 m2**



NOTE:
PROPERTY BOUNDARY & TOPOGRAPHIC INFORMATION WAS DERIVED FROM:
SURVEY PLAN OF LOTS 32, 33, 34 AND PART OF 35 SOUTH GILMORE STREET AND LOTS 32, 33, 34 AND 35 NORTH JAMES STREET
REGISTERED PLAN 30671 CITY OF OTTAWA, DATED OCTOBER 21, 2010, WAS PREPARED FOR GAZIT AMERICA INC.

SPA_SITE PLAN
1 : 200

PLANNING RATIONALE
Fotenn

ARCHITECTURE DE PAYSAGE Landscape Architect
GJALA

CIVIL Civil
McIntosh Perry

ARCHITECTES Architect
NEUF architect(e)s SENCRL

ONTARIO ASSOCIATION OF ARCHITECTS
HUGO GAGNON
LICENCE 8287
2023-09-05

NEUF ARCHITECT(E)S

CLIENT Client
KATASA

OUVRAGE Project
381 KENT STREET

EMPLACEMENT Location: OTTAWA
NO PROJET No.: 12399

NO	RÉVISION	DATE (aa-mm-jj)
01	SITE PLAN CONTROL	23-02-20
02	SITE PLAN CONTROL	23-08-30

Préliminaire
NE PAS UTILISER POUR CONSTRUCTION

DESSINÉ PAR Drawn by: MM
VÉRIFIÉ PAR Checked: HG
DATE (aa.mm.jj): 23.02.20
ÉCHELLE Scale: 1:200

TITRE DU DESSIN Drawing Title
SITE PLAN (ROOF LEVEL)

NO. DESSIN Dwg Number
SPA-02

C:\Fichiers Revit Locaux\KENT_12399_ARC_INT_R22_mmadahSY9RW.rvt

2.2 Existing Conditions

2.2.1 Area Road Network

Kent Street: Kent Street is a City of Ottawa one-way arterial road (northbound) with a three-lane urban cross-section, sidewalks on both sides of the road, and on-street parking permitted on both sides of the road (no stopping 7:00 AM-9:00 AM on the east side of the road). The unposted speed limit is 50 km/h and the City protected right-of-way is 20.0 metres. Kent Street is designated as a truck route.

Bank Street: Bank Street is a City of Ottawa arterial road with a two-lane urban cross-section, sidewalks on both sides of the road, and on-street parking permitted on the west side of the road (no stopping 7:00 AM-9:00 AM and 3:30 PM-5:30 PM). The posted speed limit is 50 km/h and the City protected right-of-way is 20.0 metres.

Lyon Street: Lyon Street is a City of Ottawa one-way arterial road (southbound) with a two-lane urban cross-section, sidewalks on both sides of the road. The bike lane is provided in the southbound direction. The unposted speed limit is 50 km/h and the City protected right-of-way is 20.0 metres.

Somerset Street: Somerset Street is a City of Ottawa arterial road with a two-lane urban cross-section, sidewalks on both sides of the road, and on-street parking permitted on both sides of the road. Parking on the north side is restricted during the AM peak and the south side is restricted during both peak hours. The unposted speed limit is 50 km/h and the City protected right-of-way is 20.0 metres. Somerset Street is designated as a truck route.

Gladstone Avenue: Gladstone Avenue is a City of Ottawa major collector road with a two-lane urban cross-section east of Bank Street and a four-lane cross-section to the west. On-street parking is permitted along both sides of the roadway, with the parking laybys to the east of Bank Street and parking within the curbside lane to the west of Bank Street (off-peak only). Sidewalks are provided on both sides of the road and the unposted speed limit is 50 km/h. The existing right-of-way is approximately 18.0 metres, although it varies slightly at different properties. Gladstone Avenue is designated as a truck route.

Gilmour Street: Gilmour Street is a City of Ottawa one-way local road (eastbound) with an urban cross-section, sidewalks on both sides of the road, and on-street parking permitted on the south side to the west of Bank Street and north side of the road to the east side of Bank Street. The unposted speed limit is 50 km/h and the existing right-of-way is 18.0 metres.

MacLaren Street: MacLaren Street is a City of Ottawa one-way local road (westbound) with an urban cross-section, sidewalks on both sides of the road, and on-street parking permitted on the north side to the west of Bank Street and both sides of the road to the east side of Bank Street. The unposted speed limit is 50 km/h and the existing right-of-way is 18.0 metres.

James Street: James Street is a City of Ottawa one-way local road (westbound) with an urban cross-section, sidewalks on both sides of the road, and on-street parking permitted on the south side and angled parking is located adjacent to Bank Street. The unposted speed limit is 50 km/h and the existing right-of-way is 18.0 metres.

2.2.2 Existing Intersections

The key existing signalized area intersections within 400 metres of the site have been summarized below:

Lyon Street & James Street	The intersection of Lyon Street and James Street is a signalized intersection. The southbound approach consists of a share left-turn/through lane and a shared through/right-turn lane, and the westbound approach consists of a shared left-turn/ through lane. No turn restrictions were noted.

Lyon Street & Gladstone Avenue

The intersection of Lyon Street and Gladstone Avenue is a signalized intersection. The southbound approach consists of a shared left-tun/through lane and a shared through/right-turn lane. The eastbound approach consists of a shared through/right-turn lane and the westbound approach consists of a shared left-turn/ through lane. No turn restrictions were noted.

Kent Street & Somerset Street

The intersection of Kent Street and Somerset Street is a signalized intersection. The northbound approach consists of a left-turn, two through lanes, and a shared through/right, the eastbound approach consists of a left-turn lane and shared through, and the westbound approach consists of a shared through/right-turn lane. Westbound right turns on red are prohibited.

Kent Street & Gilmour Street

The intersection of Kent Street and Gilmour Street is a signalized intersection. The northbound approach consists of two through lanes and a shared through/right, and the eastbound approach consists of a shared left-turn/through. No turn restrictions are noted.

Kent Street & Gladstone Avenue

The intersection of Kent Street and Gladstone Avenue is a signalized intersection. The northbound approach consists of an auxiliary left-turn, two through lanes, and a shared through/right, the eastbound approach consists of an auxiliary left-turn lane and a through lane, and the westbound approach consists of a shared through/right-turn lane. No turn restrictions are noted.

Bank Street & Somerset Street

The intersection of Bank Street and Somerset Street is a signalized intersection. The northbound approach consists of a shared all-movement lane, the southbound approach consists of a shared through/right-turn lane, the eastbound approach consists of a shared left-turn/through lane and a right-turn lane, and the westbound approach consists of an auxiliary left-turn lane and shared through/right-turn lane. All right turns on red are prohibited between 7:00 AM-7:00 PM. Southbound left-turns are restricted, bicycles are excepted, and the northbound left-turns are prohibited during peak hours, buses excepted.

Bank Street & MacLaren Street

The intersection of Bank Street and MacLaren Street is a signalized intersection. The northbound approach consists of a shared left-turn/through, the southbound approach consists of a shared through/right-turn lane, and the westbound approach consists of a shared all-movement lane. No turn restrictions are noted.

Bank Street & Gilmour Street

The intersection of Bank Street and Gilmour Street is a signalized intersection. The northbound approach consists of a shared through/right-turn lane, the southbound approach consists of a shared left-turn/through lane, and the eastbound approach consists of a shared all-movement lane. No turn restrictions are noted.

Bank Street & Gladstone Avenue

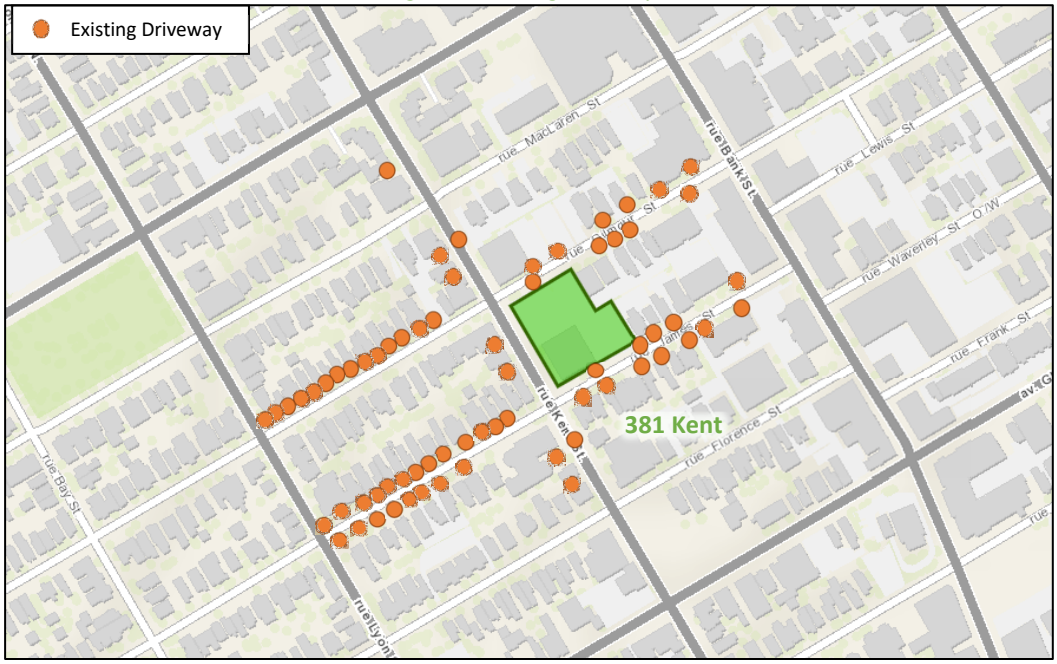
The intersection of Bank Street and Gladstone Avenue is a signalized intersection. The northbound approach consists of an auxiliary left-turn and a shared through/right, the southbound approach consists of a shared left-turn/through lane and a shared through/right-turn lane, the

	eastbound approach consists of a shared left-turn/through lane and a shared through/right-lane, and the westbound approach consists of a shared all movement lane. All right turns on red are prohibited, and no left-turns are permitted in the southbound direction during the AM peak.
Kent Street & James Street	The intersection of Kent Street and James Street is an unsignalized intersection. The northbound approach consists of a shared left-turn/through lane and two through lanes, and the westbound approach consists of a shared through/right-turn lane. No turn restrictions are noted.
Bank Street & James Street	The intersection of Bank Street and James Street is an unsignalized intersection. The northbound and southbound approaches consist of single travel lanes, and the west leg of the intersection is inbound only. No turn restrictions are noted.

2.2.3 Existing Driveways

Within 200 metres of the proposed site, private accesses are located on both sides of James Street, Kent Street, and Gilmour Street. Figure 3 illustrates the existing driveways.

Figure 3: Existing Driveways

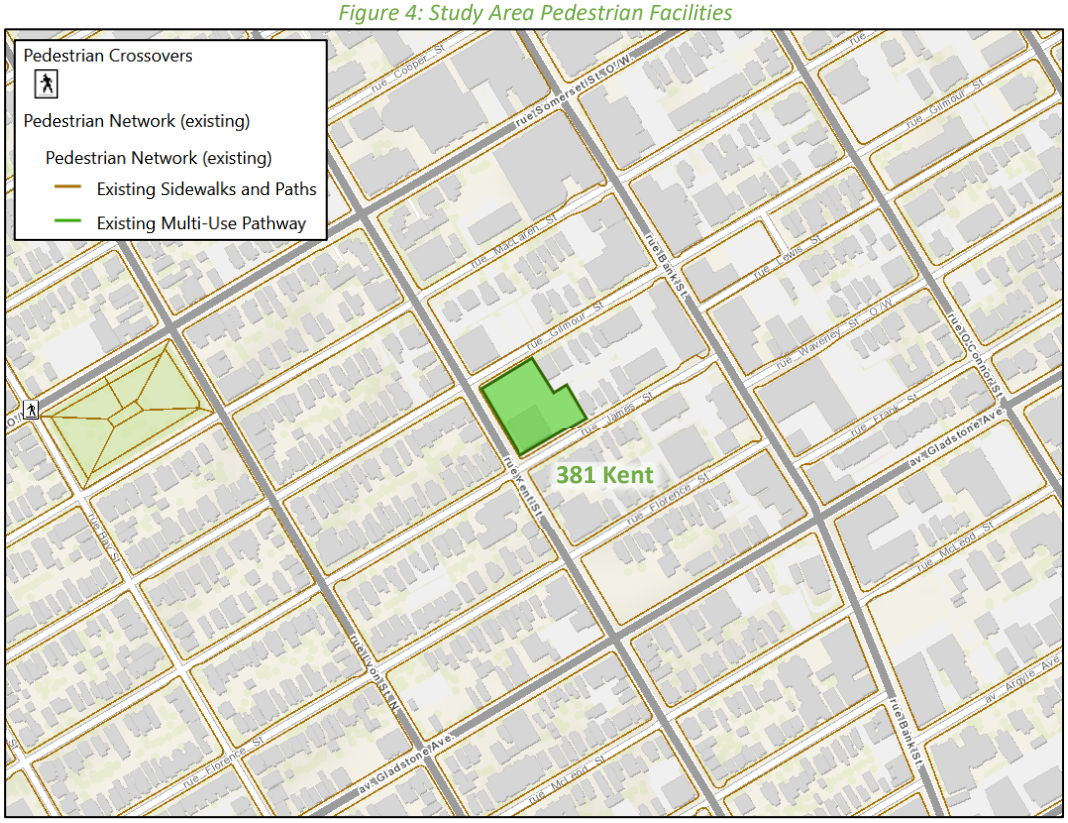


Source: http://maps.ottawa.ca/geoOttawa/ Accessed: November 24, 2022

2.2.4 Cycling and Pedestrian Facilities

Figure 4 illustrates the pedestrian facilities in the study area and Figure 5 illustrates the cycling facilities. Sidewalks are provided along both sides of the road within the study area. Bike lanes are provided along Lyon Street, and Somerset Street, Bank Street, and Gladstone Avenue are suggested routes. Somerset Street, Lyon Street, and Gladstone Avenue are spine routes. Bank Steet is a local route.

Figure 4: Study Area Pedestrian Facilities



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: November 24, 2022

Figure 5: Study Area Cycling Facilities

Source: http://maps.ottawa.ca/geoOttawa/ Accessed: November 24, 2022

Pedestrian and cyclist volumes included in study area intersection counts, presented in Section 2.2.7, have been compiled and are illustrated in Figure 6 and Figure 7 respectively.

Figure 6: Existing Pedestrian Volumes

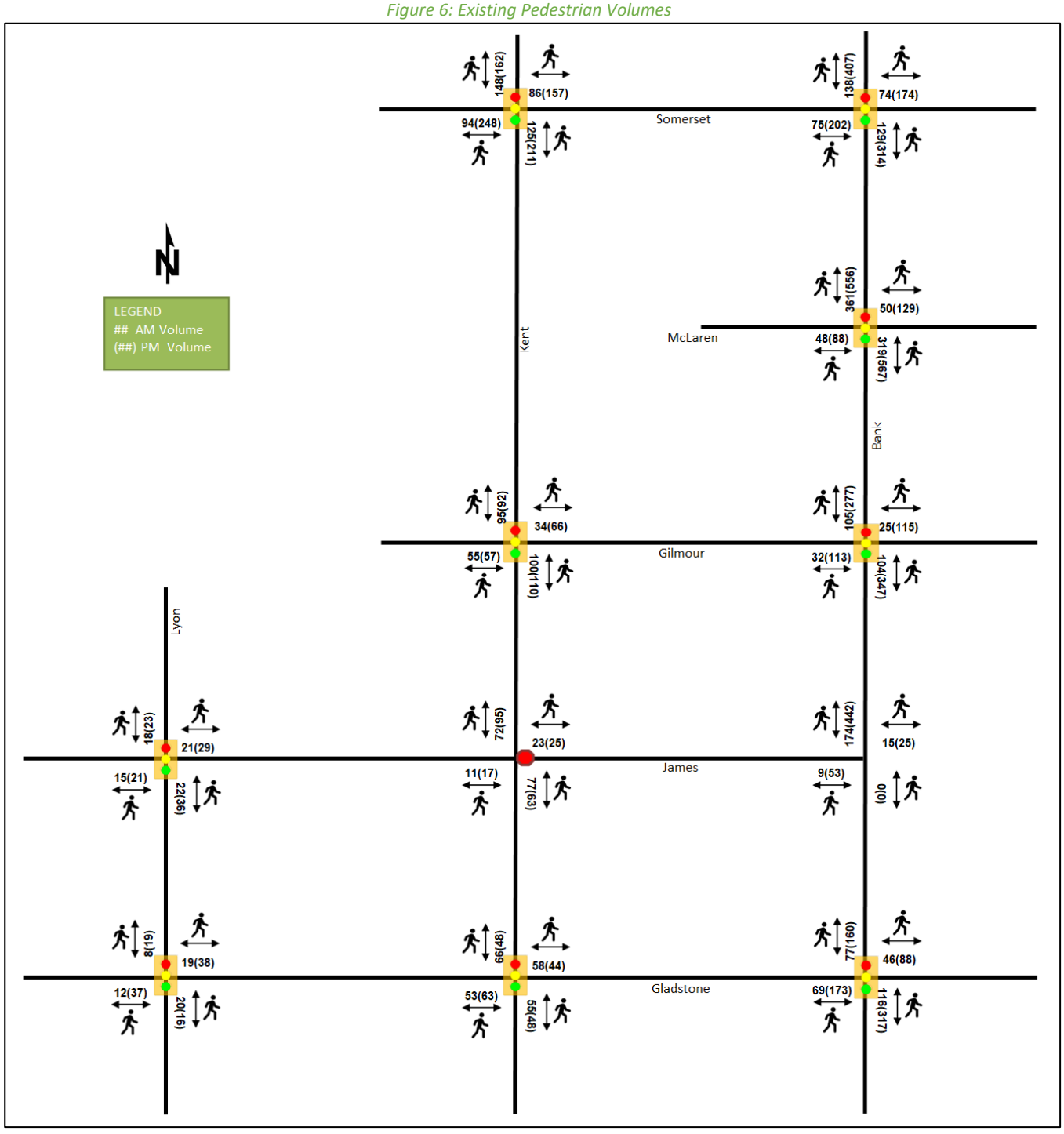
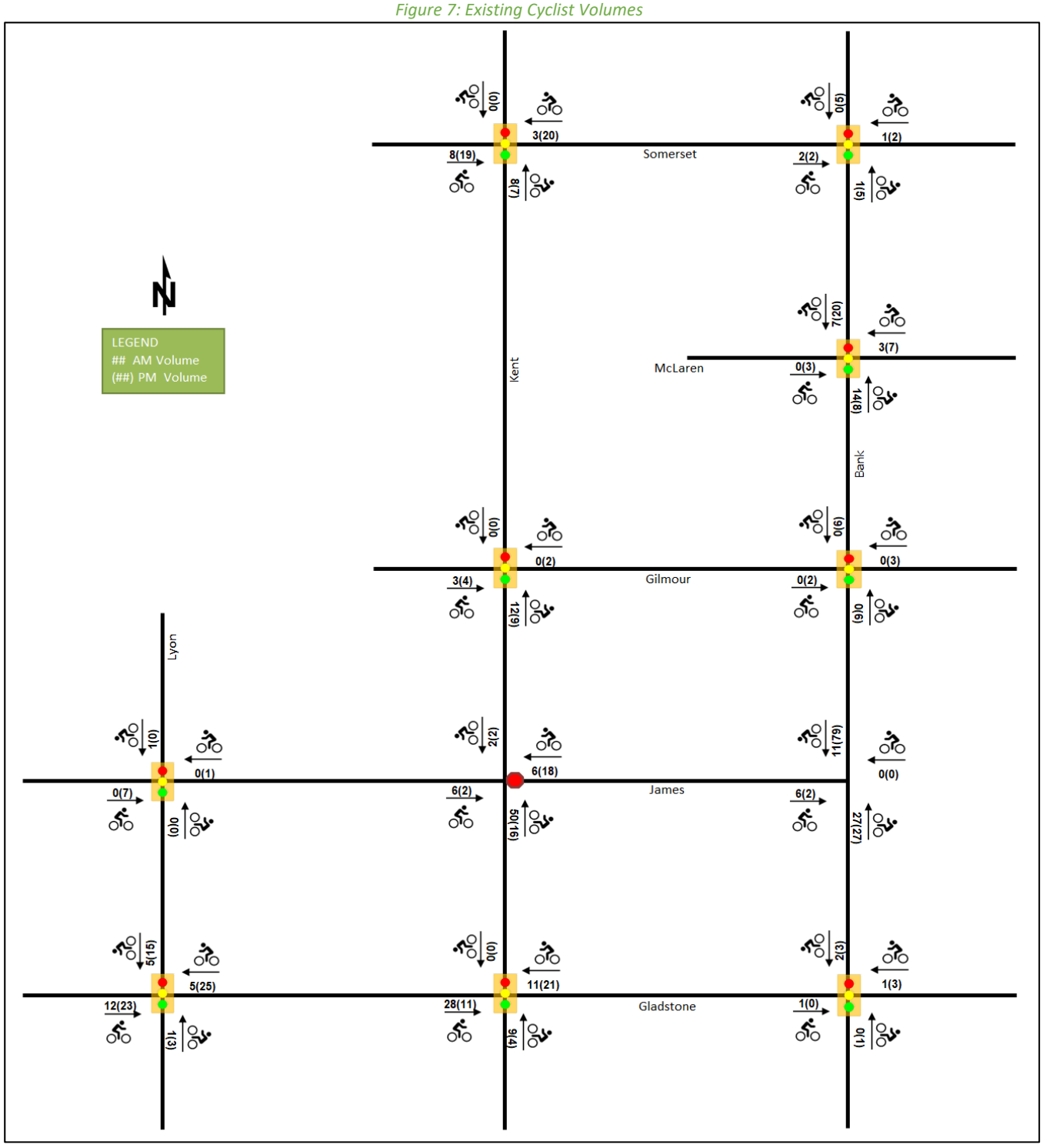


Figure 7: Existing Cyclist Volumes



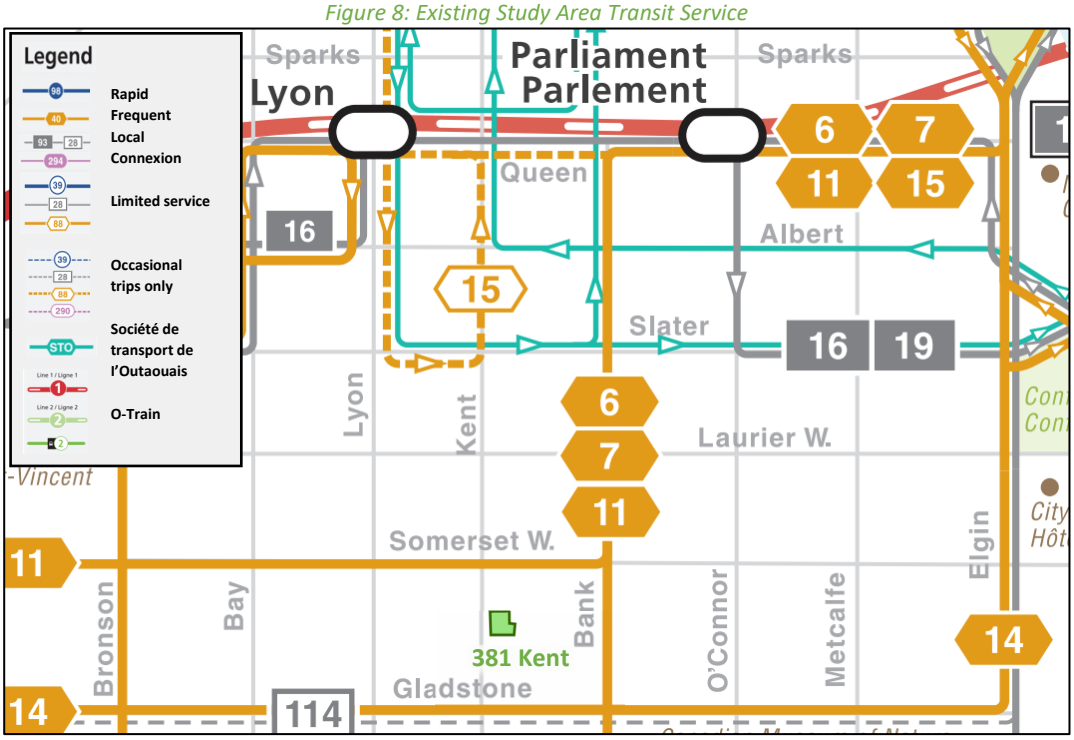
2.2.5 Existing Transit

Figure 8 illustrates the transit system map in the study area and Figure 9 illustrates nearby transit stops. All transit information is from November 24, 2022 and is included for general information purposes and context to the surrounding area.

Within the study area, routes #6 and #7 travel along Bank Street, #11 travel along Somerset Street and north along Bank Street, and routes #14 and #114 travel along Gladstone Avenue. The frequency of these routes within proximity of the proposed site based on November 24, 2022 service levels are:

- Route # 6 – 10-15-minute service all day, 30-minute service during the evening
- Route # 7 – 10-15-minute service all day, 30-minute service during the evening
- Route # 11 – 15-20-minute service all day, 30-minute service after 10 PM
- Route # 14 – 10-15-minute service all day, 20-30 minutes service after 6 PM
- Route # 114 – two buses per peak direction/period daily

Figure 8: Existing Study Area Transit Service



Source: http://www.octranspo.com/ Accessed: November 24, 2022

Figure 9: Existing Study Area Transit Stops

Source: http://www.octranspo.com/ Accessed: November 24, 2022

2.2.6 Existing Area Traffic Management Measures

On-street parking and bulb-outs/planters are presented at the intersections of Lyon Street at James Street, Kent Street at Somerset Street, Kent Street at Gilmour Street, Kent Street at James Street, Kent Street at Gladstone Avenue, Bank Street at MacLaren Street, Bank Street at Gilmour Street, and Bank Street at James Street to provide to delineate the start and end of the parking areas. Speed humps are provided along Lyon Street, Gilmour Street, MacLaren Street, and James Street within the study area.

2.2.7 Existing Peak Hour Travel Demand

Existing turning movement counts were acquired from the City of Ottawa and The Traffic Specialist for the existing study area key intersections. The existing traffic counts were balanced along the roadways. Table 1 summarizes the intersection count dates and sources.

Table 1: Intersection Count Date

Intersection	Count Date	Source
Lyon Street & James Street	Tuesday, March 08, 2022	City of Ottawa
Lyon Street & Gladstone Avenue	Tuesday, March 08, 2022	City of Ottawa
Kent Street & Somerset Street	Wednesday. April 5, 2017	City of Ottawa
Kent Street & Gilmour Street	Wednesday, April 5, 2017	City of Ottawa
Kent Street & James Street	Tuesday, July 9, 2019	The Traffic Specialist
Kent Street & Gladstone Avenue	Tuesday, April 25, 2017	City of Ottawa
Bank Street & Somerset Street	Tuesday, March 08, 2022	City of Ottawa
Bank Street & MacLaren Street	Tuesday, April 16, 2019	City of Ottawa

Intersection	Count Date	Source
Bank Street & Gilmour Street	Tuesday, March 08, 2022	City of Ottawa
Bank Street & James Street	Tuesday, July 9, 2019	The Traffic Specialist
Bank Street & Gladstone Avenue	Tuesday, March 08, 2022	City of Ottawa

Figure 10 illustrates the existing traffic counts and Table 2 summarizes the existing intersection operations. The level of service for signalized intersections is based on the v/c calculation for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. Detailed turning movement count data is included in Appendix B and the Synchro worksheets are provided in Appendix C.

Figure 10: Existing Traffic Counts

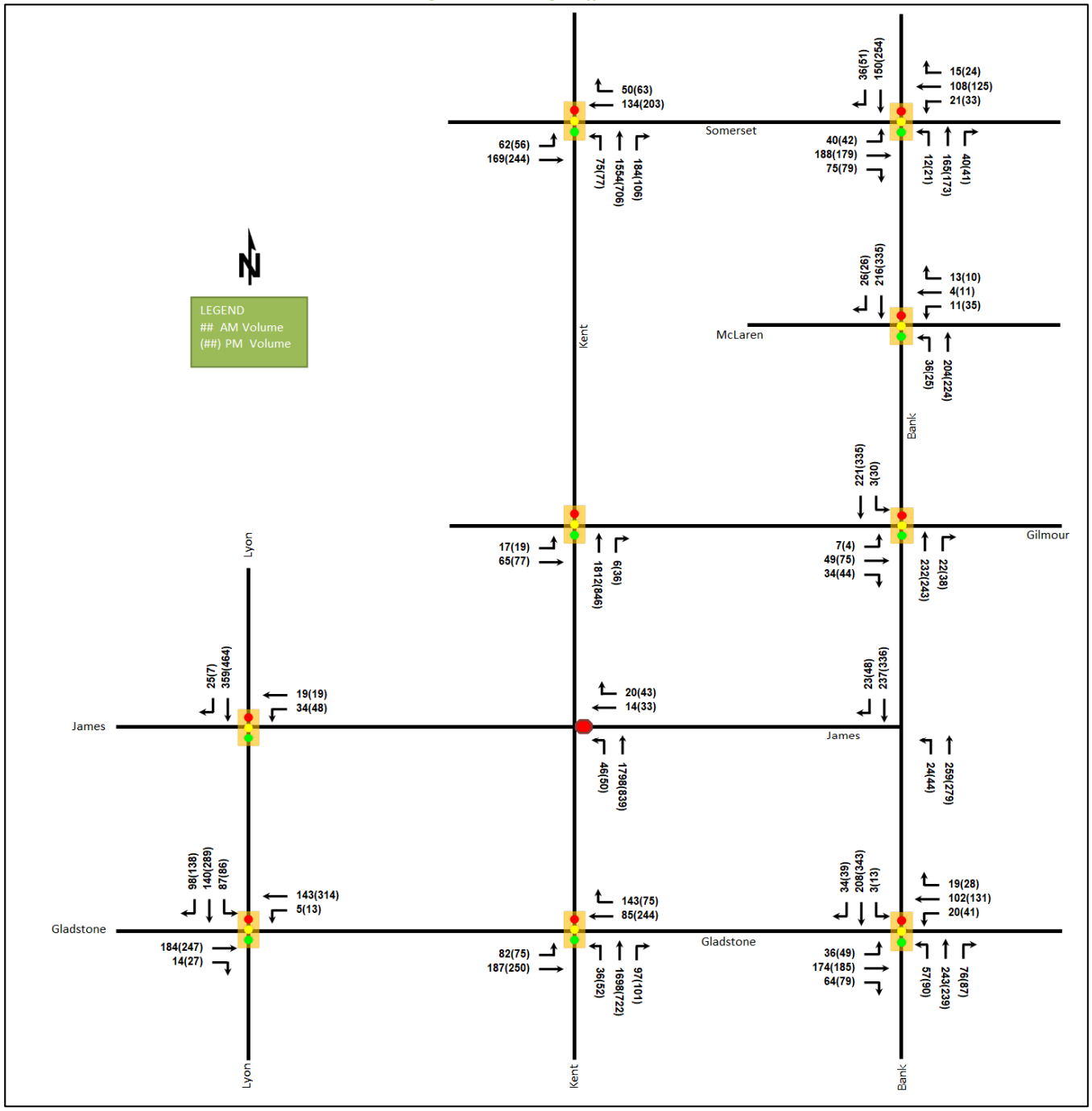


Table 2: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Lyon Street & James Street Signalized	WBL/T	A	0.27	27.1	m11.6	A	0.32	29.1	22.2
	SB	A	0.16	2.4	12.9	A	0.20	3.3	16.4
	Overall	**A**	**0.19**	**5.4**	-	**A**	**0.23**	**6.5**	-
Lyon Street & Gladstone Avenue *Signalized*	EBT/R	A	0.30	14.6	34.8	A	0.39	15.2	47.1
	WBL/T	A	0.22	9.2	15.6	A	0.47	14.5	48.3
	SB	A	0.27	10.2	23.0	A	0.44	12.2	22.8
	Overall	**A**	**0.27**	**11.2**	-	**A**	**0.44**	**13.6**	-
Kent Street & Somerset Street *Signalized*	EBL	A	0.38	30.2	19.2	A	0.35	26.3	16.1
	EBT	A	0.51	30.5	40.8	A	0.57	27.7	50.1
	WBT/R	A	0.60	28.3	49.9	B	0.69	31.9	58.8
	NBL	A	0.12	9.3	m13.9	A	0.14	9.6	11.4
	NBT/R	B	0.66	10.1	75.0	A	0.36	10.3	25.7
	Overall	**B**	**0.64**	**13.7**	-	**A**	**0.46**	**17.8**	-
Kent Street & Gilmour Street *Signalized*	EB	A	0.32	29.8	23.7	A	0.35	29.4	27.2
	NB	A	0.57	13.6	129.4	A	0.29	3.5	15.8
	Overall	**A**	**0.56**	**14.3**	-	**A**	**0.32**	**6.0**	-
Kent Street & James Street *Unsignalized*	WB	D	0.19	27.7	5.3	B	0.19	14.9	5.3
	NBL/T	A	0.05	8.6	1.5	A	0.05	8.6	1.5
	NBT	A	-	0.0	-	A	-	0.3	-
	Overall	**A**	**-**	**0.7**	-	**A**	**-**	**1.9**	-
Kent Street & Gladstone Avenue *Signalized*	EBL	A	0.51	40.6	19.8	A	0.51	23.1	10.0
	EBT	A	0.52	37.0	36.4	A	0.57	18.5	24.9
	WBT/R	C	0.72	33.5	58.2	C	0.73	35.4	77.4
	NBL	A	0.05	7.5	7.1	A	0.07	9.6	11.0
	NBT/R	B	0.68	11.9	102.8	A	0.35	9.6	40.6
	Overall	**B**	**0.69**	**17.0**	-	**A**	**0.47**	**17.1**	-
Bank Street & Somerset Street *Signalized*	EBL/T	C	0.72	42.3	m58.6	B	0.68	28.8	49.3
	EBR	A	0.32	30.6	m18.6	A	0.49	26.8	22.6
	WBL	A	0.14	21.9	7.7	A	0.26	25.8	11.2
	WBT/R	A	0.35	24.7	28.2	A	0.43	26.3	33.9
	NB	A	0.27	3.5	7.0	A	0.31	3.9	9.2
	SB	A	0.24	8.5	28.9	A	0.39	10.2	50.1
	Overall	**A**	**0.43**	**20.9**	-	**A**	**0.51**	**16.9**	-
Bank Street & MacLaren Street *Signalized*	WB	A	0.10	15.7	8.1	A	0.19	20.5	15.4
	NB	A	0.23	1.7	2.3	A	0.26	5.1	10.0
	SB	A	0.23	7.8	25.8	A	0.36	10.9	28.4
	Overall	**A**	**0.22**	**5.3**	-	**A**	**0.33**	**9.5**	-
Bank Street & Gilmour Street *Signalized*	EB	A	0.33	13.8	m25.0	A	0.38	11.9	10.3
	NB	A	0.25	3.5	12.4	A	0.31	11.0	41.1
	SB	A	0.23	3.0	9.5	A	0.39	3.4	10.7
	Overall	**A**	**0.26**	**4.9**	-	**A**	**0.38**	**7.5**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street & Gladstone Avenue *Signalized*	EB	A	0.59	39.8	m35.2	A	0.59	17.0	14.6
	WB	A	0.56	35.0	37.7	B	0.68	36.9	49.5
	NBL	A	0.15	11.9	11.9	A	0.36	19.6	22.7
	NBT/R	A	0.48	15.8	55.9	A	0.58	21.3	67.0
	SB	A	0.20	15.9	26.5	A	0.36	8.5	18.2
	Overall	**A**	**0.44**	**24.6**	**-**	**A**	**0.51**	**18.7**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 0.90
Delay = average vehicle delay in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersections operate well.

2.2.8 Collision Analysis

Collision data have been acquired from the City of Ottawa open data website (data.ottawa.ca) for five years prior to the commencement of this TIA for the surrounding study area road network. Table 3 summarizes the collision types and conditions in the study area, Figure 11 illustrates the intersections and segments analyzed, and Table 4 summarizes the total collisions for each of these locations. Collision data are included in Appendix D.

Table 3: Study Area Collision Summary, 2016-2020

		Number	%
Total Collisions		**47**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	8	17%
	Property Damage Only	39	83%
Initial Impact Type	**Approaching**	1	2%
	Angle	7	15%
	Rear end	9	19%
	Sideswipe	12	26%
	Turning Movement	5	11%
	SMV Unattended	9	19%
	SMV Other	2	4%
	Other	2	4%
Road Surface Condition	**Dry**	36	77%
	Wet	5	11%
	Loose Snow	3	6%
	Slush	2	4%
	Packed Snow	1	2%
Pedestrian Involved		1	2%
Cyclists Involved		1	2%

Figure 11: Study Area Collision Records

Table 4: Summary of Collision Locations, 2016-2020

	Number	%
Intersections / Segments	**45**	**100%**
Kent St @ James St	16	36%
Bank St @ Gilmour St	9	20%
Kent St @ Gilmour St	4	9%
Kent St Btwn Maclaren St & Gilmour St	5	11%
Kent St Btwn James St & Florence St	4	9%
Kent St Btwn Gilmour St & James St	3	7%
Gilmour St Btwn Lyon St & Kent St	3	7%
James St Btwn Lyon St & Kent St	1	2%

Within the study area, the intersection of Kent Street and James Street is noted to have experienced higher collisions than other locations. Table 5 summarizes the collision types and conditions for the intersection of Kent Street and James Street.

Table 5: Kent Street and James Street Collision Summary

		Number	%
Total Collisions		**16**	**100%**
Classification	**Fatality**	0	0%
	Non-Fatal Injury	2	13%
	Property Damage Only	14	88%
	Angle	7	44%
	Rear end	2	13%
	Sideswipe	4	25%
	Turning Movement	3	19%
Road Surface Condition	**Dry**	12	75%
	Wet	2	13%
	Loose Snow	1	6%
	Packed Snow	1	6%
Pedestrian Involved		0	0%
Cyclists Involved		0	0%

The Kent Street and James Street intersection had a total of 14 collisions during the 2016-2020 time period, with 12 involving property damage only and the remaining two having non-fatal injuries. The detailed collision records outline that angle collisions predominantly are the result of the westbound vehicles failed to yield and improper turns. The small set back of the existing houses, the overhang of the trees, and on-street parking restrict sight lines to/from the south on Kent Street and may contribute to these collisions. The City should review for right-of-way maintenance and the private landowners on the south side of James Street. Weather conditions do not affect collisions at this location. No further review of these collisions is required as part of this study and mitigation is subject to City review/action.

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

Isolated transit priority measures are identified as part of the Affordable Network along Bank Street, on Gladstone Avenue to support the LRT stations, and along Somerset Street between Woodroffe Avenue and Bank Street.

An integrated road, sewer and watermain renewal project for James Street between Bank Street and Bronson Avenue and for Kent Street north of James Street to Florence Street is scheduled to be completed in 2025. The drafted design includes a speed hump at 47 James Street, a contra-flow (eastbound) bike lane on the south side of James Street, parking on the north side of James Street, and sidewalk widening on both sides of Kent Street. The draft design is provided in Appendix E.

The 2023 Transportation Master Plan identifies a contra-flow (westbound) bike lane on Gilmour Street between Percy Street and Cartier Street in the active transportation project list.

2.3.2 Other Study Area Developments

406 – 408 Bank Street

The proposed development includes a site plan for a five-storey mixed-use building, which includes 14 apartment units and ground-floor commercial. Recently reactivated, no TIA is available for this development.

390 – 394 Bank Street

The proposed development includes a site plan for a nine-storey mixed-use building, which includes 127 apartment units with approximately 6,750 sq. ft. of ground-floor retail space. The anticipated full build-out and

occupancy horizon is 2024 and the development is predicted to generate 16 new AM two-way peak-hour auto trips and 19 new PM two-way peak-hour auto trips. (CGH, 2021)

267 O'Connor Street
The proposed development includes a zoning bylaw amendment to permit two 30-storey high-rise buildings. Both towers will include a total of 547 condo units. A park is included within the site. Phase one is anticipated to be built out by 2023 and to generate 59 new AM and 65 new PM peak hour two-way auto trips, and phase two is anticipated to be built out by 2025 and to generate 62 new AM and 69 new PM peak hour two-way auto trips. The removal of the existing building on the site is additionally anticipated to reduce area network traffic by 29 AM and 30 PM peak hour two-way auto trips. (Parsons, 2020)

311 Somerset Street, 234 – 236 O'Connor Street
The proposed development includes a zoning bylaw amendment and site plan for the construction of a 16-storey, 140-unit apartment/mixed-use building with 2,645 sq. ft. of ground-floor commercial space. The development is anticipated to be built out in a single phase by 2024 and to generate 33 new AM and 37 new PM peak hour two-way auto trips. (CGH, 2021)

322 Waverley Street
The proposed development includes a zoning bylaw amendment for a six-storey residential building with a total of 27 dwelling units. The development satisfies the Location Trigger. No TIA is available at this time.

157 – 159 James Street
The proposed development includes a site plan to convert an existing seven-unit low-rise residential dwelling to a 12-unit dwelling. No TIA is required.

359 Kent Street, 436 & 444 MacLaren Street
The proposed development includes an official plan amendment and zoning bylaw amendment applications to permit a 35-storey residential tower, housing 405 apartment units, 21,388 ft^2 of office space, and 7,833 ft^2 of commercial space. The anticipated full build-out and occupancy horizon is 2024 and the development is predicted to generate 31 new AM two-way peak-hour auto trips and 32 new PM two-way peak-hour auto trips. (Parsons, 2021)

66 – 80 Flora Street and 17 – 19 Arlington Avenue
The proposed development includes 64 units. The anticipated full build-out and occupancy horizon is 2026 and not recommended to trigger a TIA. (CGH, 2022)

3 Study Area and Time Periods

3.1 Study Area

The study area will include the intersection will include:

- Lyon Street at:
  - Gladstone Avenue
  - James Street
- Kent Street at:
  - Somerset Street
  - Gilmour Street
  - James Street
  - Gladstone Avenue
- Bank Street at:
  - Somerset Street
  - McLaren Street

- Gilmour Street
- James Street
- Gladstone Avenue

The boundary road will be James Street, Kent Street, and Gilmour Steet. No screenline is present within proximity to the site.

3.2 Time Periods

As the proposed development is a mixed-use development with residential units and commercial units, therefore, the AM and PM peak hours will be examined.

3.3 Horizon Years

The anticipated build-out year is 2030. As a result, the full build-out plus five years horizon year is 2035.

4 Exemption Review

Table 6 summarizes the exemptions for this TIA.

Table 6: Exemption Review

Module	Element	Explanation	Exempt/Required
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	Required
	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Required
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Required
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Required
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt

5 Development-Generated Travel Demand

5.1 Mode Shares

Examining the mode shares recommended in the TRANS Trip Generation Manual (2020) for the subject district, derived from the most recent National Capital Region Origin-Destination survey (OD Survey), the existing average district mode shares by land use for Ottawa Inner Area have been summarized in Table 7.

Table 7: TRANS Trip Generation Manual Recommended Mode Shares – Ottawa Inner Area

Travel Mode	Multi-Unit (High-Rise)		Commercial Generator	
	AM	PM	AM	PM
Auto Driver	26%	25%	39%	22%
Auto Passenger	6%	8%	2%	4%
Transit	28%	21%	16%	12%
Cycling	5%	6%	3%	4%
Walking	34%	39%	40%	58%

5.2 Trip Generation

This TIA has been prepared using the vehicle and person trip rates for the residential dwellings using the TRANS Trip Generation Manual (2020) and the vehicle trip rates and derived person trip rates for commercial components from the ITE Trip Generation Manual 10th Edition (2017) using the City-prescribed conversion factor of 1.28. Table 8 summarizes the person trip rates for the proposed residential land uses for each peak period and the person trip rates for the non-residential land uses by peak hour.

Table 8: Trip Generation Person Trip Rates

Land Use	Land Use Code	Peak	Peak Period		Peak Hour	
			Vehicle Trip Rate	Person Trip Rates	Vehicle Trip Rate	Person Trip Rates
Multi-Unit (High-Rise)	221 & 222 (TRANS)	AM	-	0.80	-	-
		PM	-	0.90	-	
Retail <40k sq. ft.	822 (ITE)	AM	-	-	2.36	3.02
		PM	-	-	6.59	8.44

Using the above person trip rates, the total person trip generation has been estimated. Table 9 summarizes the total person trip generation for the residential land uses and the non-residential land uses.

Table 9: Total Person Trip Generation

Land Use	Units	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Multi-Unit (High-Rise)	218	54	121	175	114	83	197
Land Use	**Units / GFA**	**AM Peak Hour**			**PM Peak Hour**		
		In	**Out**	**Total**	**In**	**Out**	**Total**
Retail <40k sq. ft.	1841 sq. ft	4	2	6	8	8	16

Internal capture rates from the ITE Trip Generation Handbook 3rd Edition have been assigned to the development's commercial component for mixed-use developments. The rates summarized in Table 10 represent the percentage of trips to/from commercial use based on the residential component.

Table 10: Internal Capture Rates

Land Use	AM		PM	
	In	Out	In	Out
Residential to/from commercial	17%	14%	10%	26%

Based on the low trip generation, pass-by reductions applied to the retail trip generation at a rate of 20% have been assumed.

Using the above mode share targets for the internal capture and pass-by rates, and the person trip rates, the person trips by mode have been projected. Table 11 summarizes the trip generation by mode and peak hour using the residential peak hour adjustment factor and the non-residential trip generation using the internal capture and pass-by reductions.

Table 11: Trip Generation by Mode

Travel Mode		AM Peak Hour				PM Peak Hour			
		Mode Share	In	Out	Total	Mode Share	In	Out	Total
Multi-Unit (High-Rise)	Auto Driver	**26%**	7	15	22	**25%**	13	9	22
	Auto Passenger	**6%**	1	3	4	**8%**	4	3	7
	Transit	**28%**	8	19	27	**21%**	11	8	19
	Cycling	**5%**	2	3	5	**6%**	3	2	5
	Walking	**34%**	10	24	34	**39%**	23	17	40
	Total	**100%**	**28**	**64**	**92**	**100%**	**54**	**39**	**93**
Retail <40k sq. ft.	Auto Driver	**39%**	0	1	1	**22%**	0	0	0
	Auto Passenger	**2%**	0	0	0	**4%**	0	0	0
	Transit	**16%**	0	0	0	**12%**	1	1	2
	Cycling	**3%**	0	0	0	**4%**	0	0	0
	Walking	**40%**	1	1	2	**58%**	4	3	7
	Internal Capture	*varies*	*-1*	*0*	*-1*	*varies*	*-1*	*-2*	*-3*
	Pass-by	*35%*	*-1*	*0*	*-1*	*35%*	*-2*	*-2*	*-4*
	Total	**100%**	**1**	**2**	**3**	**100%**	**5**	**4**	**9**
Total	Auto Driver	-	7	16	23	-	13	9	22
	Auto Passenger	-	1	3	4	-	4	3	7
	Transit	-	8	19	27	-	12	9	21
	Cycling	-	2	3	5	-	3	2	5
	Walking	-	11	25	36	-	27	20	47
	Total	-	**29**	**66**	**95**	-	**59**	**43**	**102**

As shown above, a total of 23 AM and 22 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

5.3 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed to determine the travel for the residential component, and these patterns were applied based on the build-out of Ottawa Inner. Table 12 below summarizes the distributions.

Table 12: OD Survey Distribution – Ottawa Inner

To/From	% of Trips
North	20%
South	35%
East	25%
West	20%
Total	**100%**

5.4 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Table 13 summarizes the proportional assignment to the study area roadways, and Figure 12 and Figure 13 illustrate the new site and pass-by generated volumes respectively.

Table 13: Trip Assignment

To/From	Inbound Via	Outbound Via
North	5% Bank Street (N), 15% Gilmour Street (W)	20% Bank Street(N)
South	35% Kent Street (S)	35% Bank Street (S)
East	25% Gladstone Avenue (E)	25 % Gilmour Street (E)
West	20% Gilmour Street (W)	10% Somerset Street (W), 10% Gladstone Avenue (W)
Total	**100%**	**100%**

Figure 12: New Site Generation Volumes

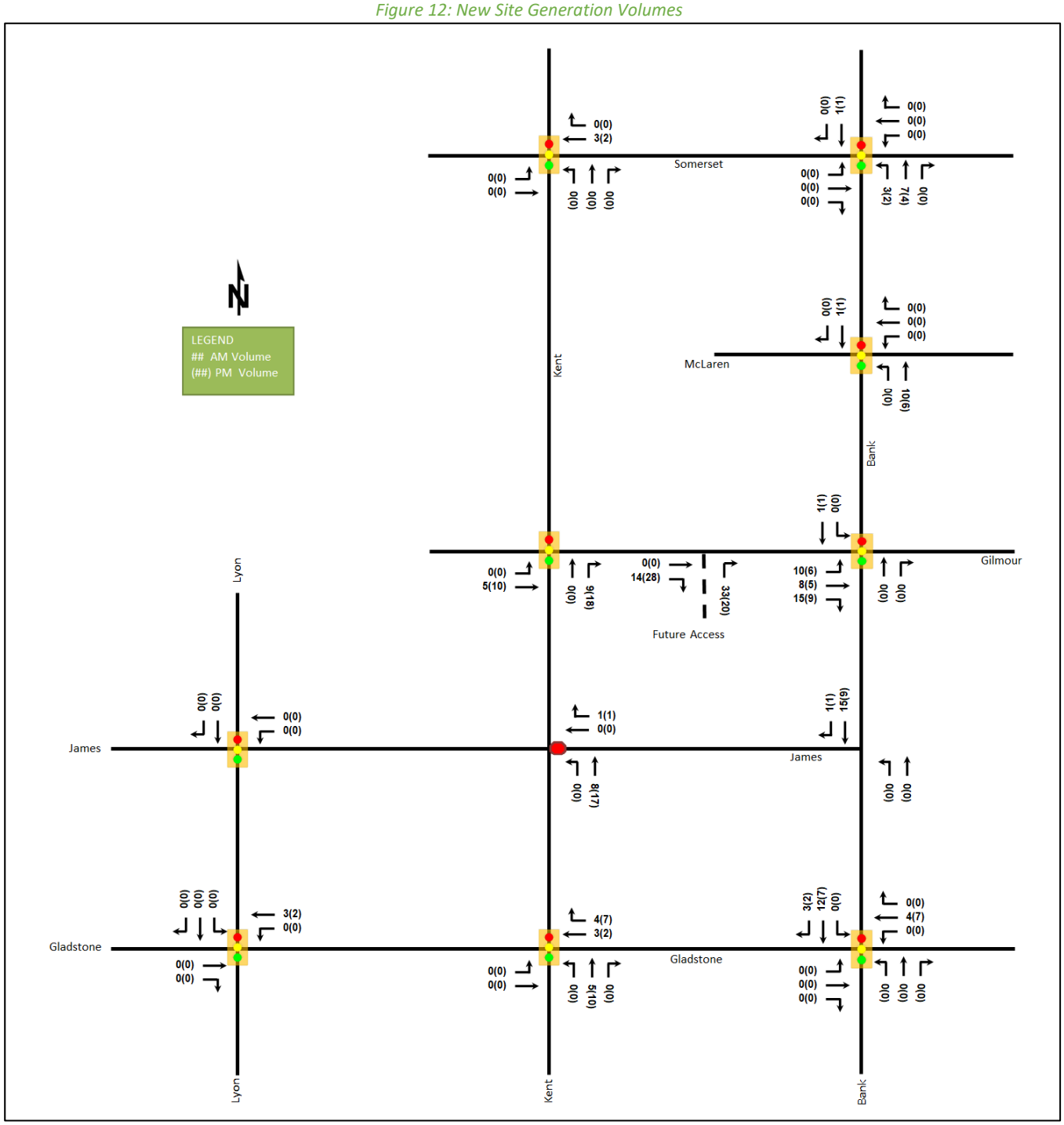
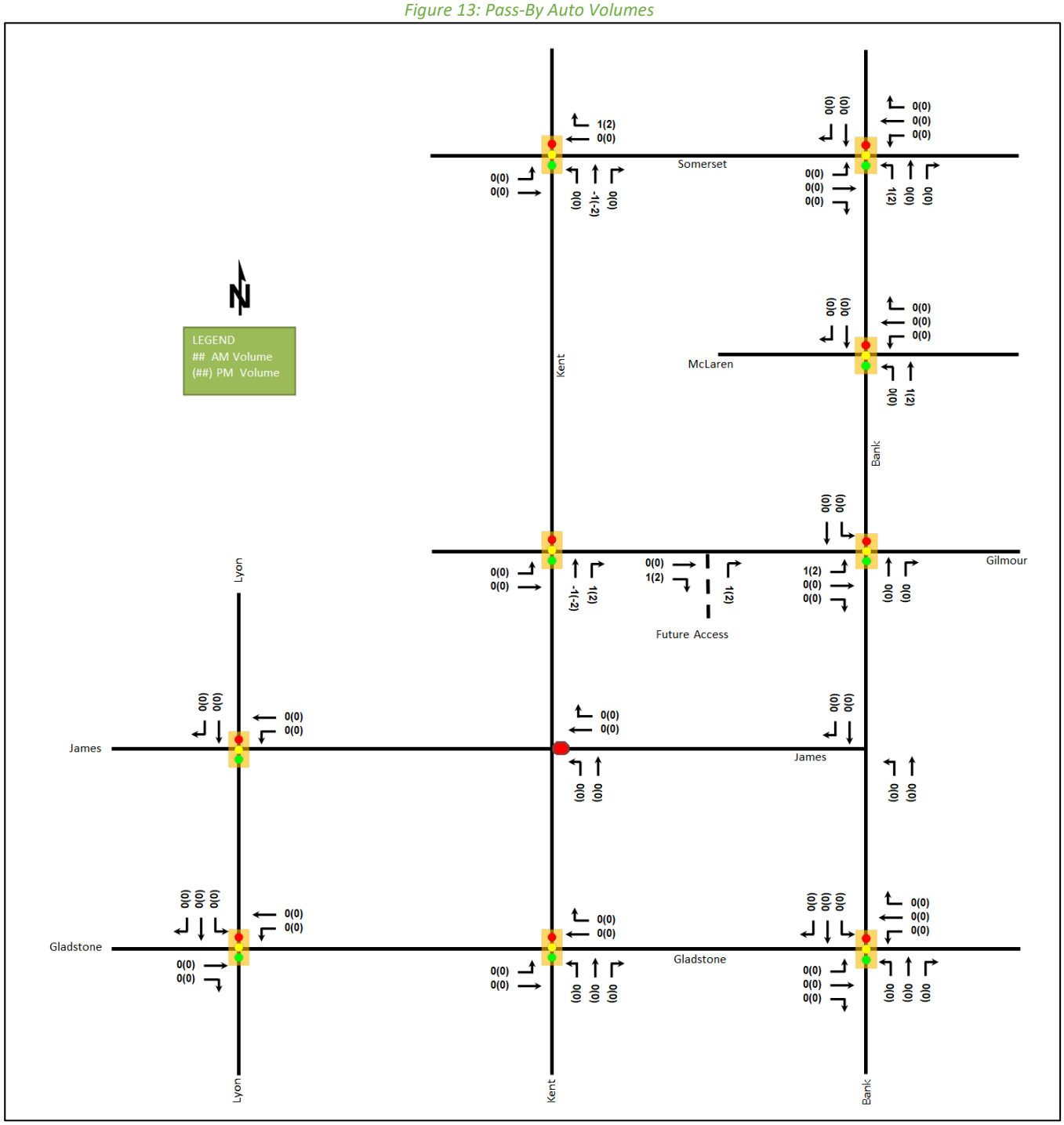


Figure 13: Pass-By Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3. and no impacts on the study area traffic volumes and travel patterns are anticipated from network changes.

6.2 Background Growth

A review of the background projections from the City's TRANS Regional Model for the 2011 and 2031 horizons was completed to determine the background growth for each of the study area roadways. The background TRANS model growth rates are summarized in Table 14 and the TRANS model plots are provided in Appendix F.

Table 14: TRANS Regional Model Projections – Study Area Growth Rates

Street	TRANS Rate		2011 to Existing		Existing to 2031	
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
Somerset St	-1.07%	-2.75%	-3.30%	1.25%	1.71%	-7.43%
Gladstone Ave	-0.54%	-3.29%	0.20%	1.71%	-1.43%	-9.07%
	Northbound	**Southbound**	**Northbound**	**Southbound**	**Northbound**	**Southbound**
Kent St	0.17%	n/a	3.16%	n/a	-3.35%	n/a
Bank St	0.07%	1.34%	-4.62%	4.66%	6.11%	-2.57%
Lyon St	n/a	4.15%	n/a	4.77%	n/a	3.65%

In general, the growth rates in the study area derived from the two TRANS model horizons are projected to be negative along Somerset Street and Gladstone Avenue and positive along all Kent Street, Bank Street, and Lyon Street. A comparison of 2011 to Existing volumes and Existing to 2031 volumes illustrates a situation that development has not progressed linearly. Table 15 summarizes the recommended growth rates to be considered within the study area.

Table 15: Recommended Area Growth Rates

Street	AM Peak Hour		PM Peak Hour	
	Eastbound	Westbound	Eastbound	Westbound
Somerset St	0%	0%	0%	0%
Gladstone Ave	0%	0%	0%	0%
	Northbound	**Southbound**	**Northbound**	**Southbound**
Kent St	0%	n/a	0%	n/a
Bank St	0%	1.00%	1.00%	0%
Lyon St	n/a	1.00%	n/a	1.00%

6.3 Other Developments

The background developments explicitly considered in the background conditions (Section 6.2) include:

- 390 – 394 Bank Street
- 267 O'Connor Street
- 311 Somerset Street, 234 – 236 O'Connor Street
- 359 Kent Street, 436 & 444 MacLaren Street

The background development volumes within the study area have been provided in Appendix G.

7 Demand Rationalization

7.1 2030 Future Background Operations

Figure 14 illustrates the 2030 background volumes and Table 16 summarizes the 2030 background intersection operations. The level of service for signalized intersections is based on the v/c calculation for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. The synchro worksheets for the 2030 future background horizon are provided in Appendix H.

Figure 14: 2030 Future Background Volumes

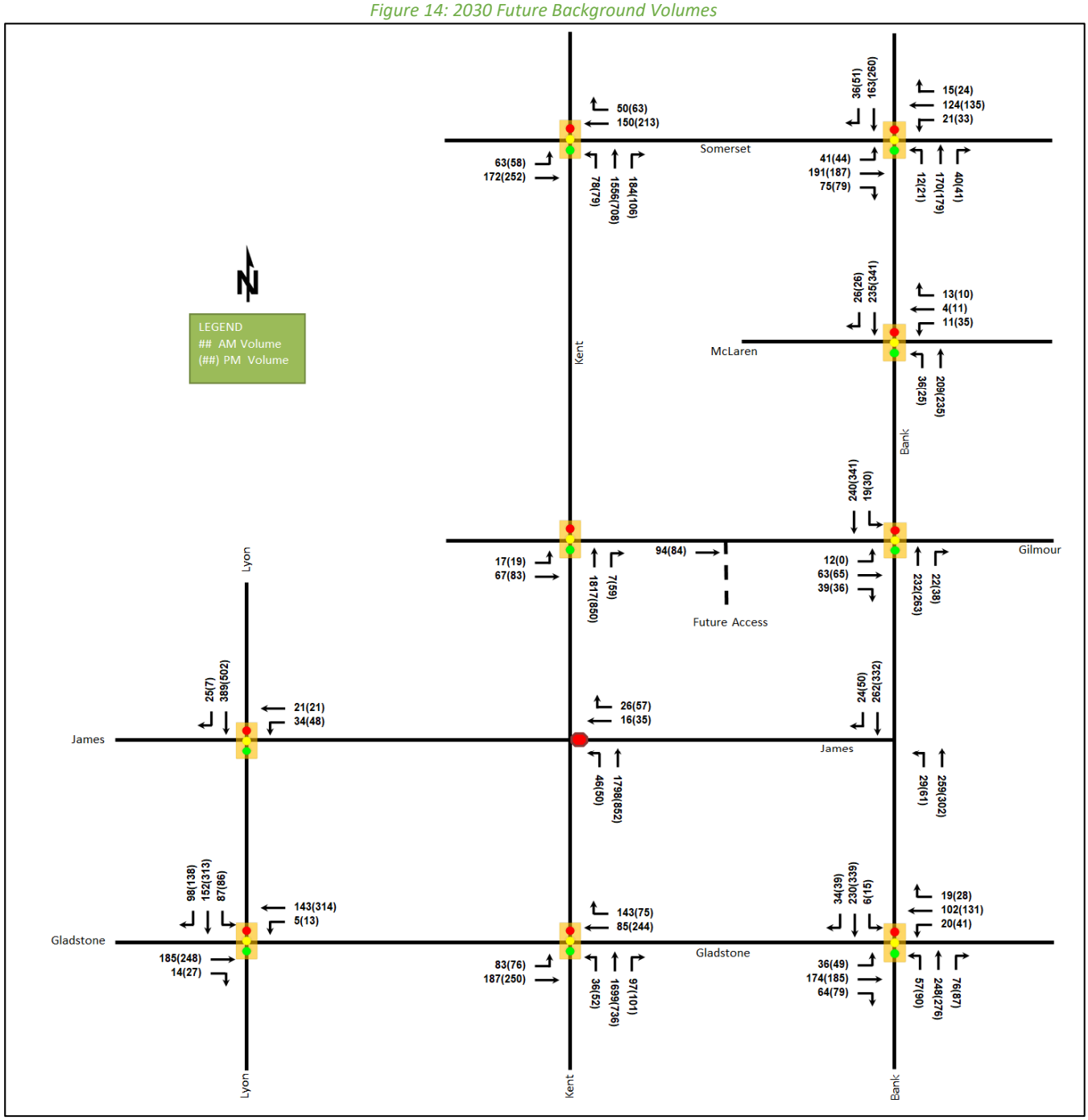


Table 16: 2030 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Lyon Street & James Street Signalized	WBL/T	A	0.25	26.1	m11.6	A	0.30	29.5	20.9
	SB	A	0.15	2.4	12.5	A	0.20	3.3	16.0
	Overall	**A**	**0.19**	**5.2**	-	**A**	**0.23**	**6.4**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Lyon Street & Gladstone Avenue *Signalized*	EBT/R	A	0.27	14.3	31.7	A	0.36	14.6	42.1
	WBL/T	A	0.20	8.5	14.1	A	0.42	12.7	41.0
	SB	A	0.25	10.0	21.5	A	0.41	12.0	21.6
	Overall	**A**	**0.24**	**10.9**	**-**	**A**	**0.41**	**12.8**	**-**
Kent Street & Somerset Street *Signalized*	EBL	A	0.34	29.3	17.8	A	0.33	26.1	15.5
	EBT	A	0.47	29.7	37.7	A	0.55	28.0	47.9
	WBT/R	A	0.59	27.6	49.4	B	0.66	31.5	56.8
	NBL	A	0.11	8.5	m12.9	A	0.13	9.4	10.4
	NBT/R	A	0.59	9.1	63.1	A	0.32	9.7	24.9
	Overall	**B**	**0.59**	**12.8**	**-**	**A**	**0.42**	**17.5**	**-**
Kent Street & Gilmour Street *Signalized*	EB	A	0.30	29.3	22.1	A	0.33	29.0	26.0
	NB	A	0.51	12.0	112.6	A	0.27	3.5	14.6
	Overall	**A**	**0.50**	**12.8**	**-**	**A**	**0.30**	**6.0**	**-**
Kent Street & James Street *Unsignalized*	WB	C	0.18	24.2	5.3	B	0.19	14.4	5.3
	NBL	A	0.04	8.6	0.8	A	0.05	8.6	1.5
	NBT	A	-	2.7	-	A	-	0.2	-
	Overall	**A**	**-**	**3.3**	**-**	**A**	**-**	**2.0**	**-**
Kent Street & Gladstone Avenue *Signalized*	EBL	A	0.47	42.0	19.8	A	0.47	23.4	10.0
	EBT	A	0.51	39.4	36.0	A	0.56	20.0	24.3
	WBT/R	B	0.70	32.3	48.9	C	0.71	35.2	70.4
	NBL	A	0.04	6.8	6.3	A	0.06	8.5	9.4
	NBT/R	A	0.60	9.8	81.7	A	0.31	8.3	34.2
	Overall	**B**	**0.62**	**15.5**	**-**	**A**	**0.42**	**16.5**	**-**
Bank Street & Somerset Street *Signalized*	EBL/T	B	0.70	43.2	58.6	B	0.66	28.5	46.3
	EBR	A	0.30	32.0	m19.5	A	0.46	25.8	20.4
	WBL	A	0.12	22.5	7.4	A	0.23	25.8	10.5
	WBT/R	A	0.37	26.1	29.6	A	0.42	26.9	33.6
	NB	A	0.25	3.2	6.5	A	0.28	3.5	8.5
	SB	A	0.22	7.9	26.3	A	0.35	9.2	42.9
	Overall	**A**	**0.39**	**21.1**	**-**	**A**	**0.47**	**16.5**	**-**
Bank Street & MacLaren Street *Signalized*	WB	A	0.10	15.8	7.7	A	0.17	20.3	14.2
	NB	A	0.21	1.9	3.4	A	0.25	5.0	8.9
	SB	A	0.22	7.9	24.1	A	0.33	10.9	26.1
	Overall	**A**	**0.21**	**5.5**	**-**	**A**	**0.30**	**9.4**	**-**
Bank Street & Gilmour Street *Signalized*	EB	A	0.37	16.3	27.6	A	0.28	9.6	10.6
	NB	A	0.22	3.4	11.3	A	0.28	11.0	41.1
	SB	A	0.22	3.0	9.3	A	0.33	2.6	9.9
	Overall	**A**	**0.25**	**5.6**	**-**	**A**	**0.32**	**6.8**	**-**
Bank Street & Gladstone Avenue *Signalized*	EB	A	0.55	40.0	33.5	A	0.54	15.9	12.8
	WB	A	0.51	33.4	34.4	B	0.63	34.8	44.2
	NBL	A	0.14	11.7	11.0	A	0.31	18.3	20.0
	NBT/R	A	0.44	15.0	50.3	A	0.57	21.0	66.5
	SB	A	0.20	16.3	25.8	A	0.33	8.2	16.0
	Overall	**A**	**0.40**	**24.0**	**-**	**A**	**0.48**	**18.0**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay = average vehicle delay in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The intersections at the 2030 future background condition are anticipated to operate similarly to the existing conditions. Nominal operational improvements are noted due to the change of the peak hour factor from 0.90 in the existing conditions to 1.00 for future forecasting.

7.2 2035 Future Background Operations

Figure 14 illustrates the 2035 background volumes and Table 17 summarizes the 2035 background intersection operations. The level of service for signalized intersections is based on the v/c calculation for individual lane movements and HCM 2000 v/c calculations for the overall intersection, and HCM average delay for unsignalized intersections. The synchro worksheets for the 2035 future background horizon are provided in Appendix I.

Figure 15: 2035 Future Background Volumes

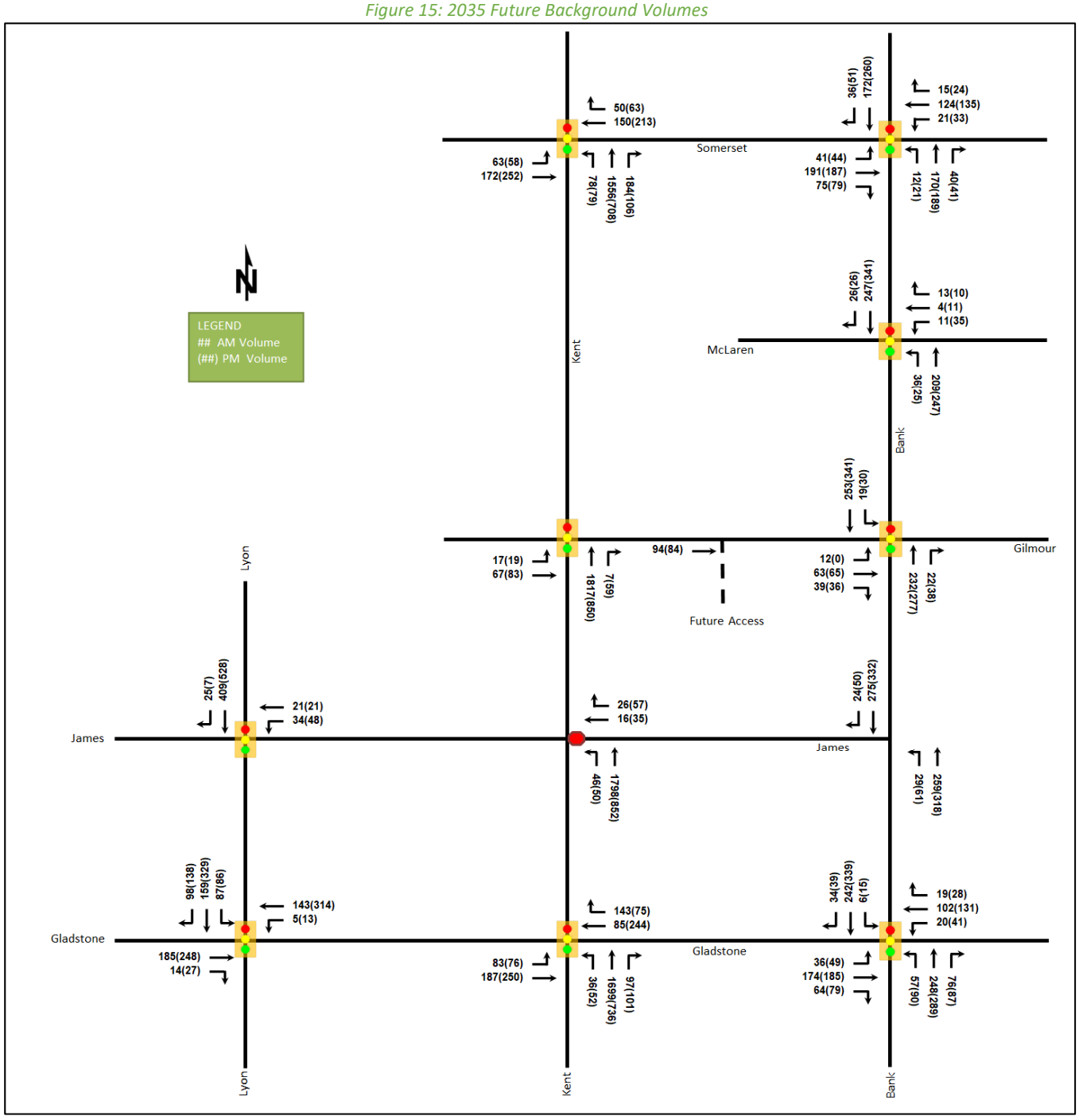


Table 17: 2035 Future Background Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Lyon Street & James Street Signalized	WBL/T	A	0.25	26.1	m11.6	A	0.30	29.5	20.9
	SB	A	0.16	2.5	13.2	A	0.21	3.3	16.9
	Overall	**A**	**0.19**	**5.1**	-	**A**	**0.23**	**6.3**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Lyon Street & Gladstone Avenue *Signalized*	EBT/R	A	0.27	14.3	31.7	A	0.36	14.6	42.1
	WBL/T	A	0.20	8.5	14.1	A	0.42	12.7	41.0
	SB	A	0.26	10.1	22.0	A	0.43	12.3	22.3
	Overall	**A**	**0.25**	**10.9**	**-**	**A**	**0.42**	**13.0**	**-**
Kent Street & Somerset Street *Signalized*	EBL	A	0.34	29.3	17.8	A	0.33	26.1	15.5
	EBT	A	0.47	29.7	37.7	A	0.55	28.0	47.9
	WBT/R	A	0.59	27.6	49.5	B	0.66	31.9	57.7
	NBL	A	0.11	8.5	m12.9	A	0.13	9.4	10.4
	NBT/R	A	0.59	9.1	63.0	A	0.32	9.7	24.9
	Overall	**A**	**0.59**	**12.8**	**-**	**A**	**0.42**	**17.6**	**-**
Kent Street & Gilmour Street *Signalized*	EB	A	0.30	29.3	22.1	A	0.33	29.0	26.0
	NB	A	0.51	12.0	112.6	A	0.27	3.5	14.6
	Overall	**A**	**0.50**	**12.8**	**-**	**A**	**0.30**	**6.0**	**-**
Kent Street & James Street *Unsignalized*	WB	C	0.18	24.2	5.3	B	0.19	14.4	5.3
	NBL	A	0.04	8.6	0.8	A	0.05	8.6	1.5
	NBT	A	-	2.7	-	A	-	0.2	-
	Overall	**A**	**-**	**3.3**	**-**	**A**	**-**	**2.0**	**-**
Kent Street & Gladstone Avenue *Signalized*	EBL	A	0.47	42.0	19.7	A	0.47	23.4	10.0
	EBT	A	0.51	39.4	36.0	A	0.56	19.9	24.4
	WBT/R	B	0.70	32.3	48.8	C	0.71	35.2	70.4
	NBL	A	0.04	6.8	6.3	A	0.06	8.5	9.4
	NBT/R	A	0.60	9.8	81.7	A	0.31	8.3	34.2
	Overall	**B**	**0.62**	**15.5**	**-**	**A**	**0.42**	**16.5**	**-**
Bank Street & Somerset Street *Signalized*	EBL/T	B	0.70	43.2	58.6	B	0.66	28.5	46.3
	EBR	A	0.30	32.0	m19.5	A	0.46	25.8	20.4
	WBL	A	0.12	22.5	7.4	A	0.23	25.8	10.5
	WBT/R	A	0.37	26.1	29.6	A	0.42	26.9	33.6
	NB	A	0.25	3.2	6.5	A	0.29	3.5	8.6
	SB	A	0.23	7.9	27.4	A	0.35	9.2	42.9
	Overall	**A**	**0.39**	**21.0**	**-**	**A**	**0.47**	**16.4**	**-**
Bank Street & MacLaren Street *Signalized*	WB	A	0.10	15.8	7.7	A	0.17	20.3	14.2
	NB	A	0.21	1.9	3.4	A	0.26	4.9	9.0
	SB	A	0.23	7.7	24.2	A	0.33	10.9	26.1
	Overall	**A**	**0.22**	**5.5**	**-**	**A**	**0.30**	**9.3**	**-**
Bank Street & Gilmour Street *Signalized*	EB	A	0.37	16.3	27.6	A	0.28	9.6	10.6
	NB	A	0.22	3.4	11.3	A	0.29	11.4	43.7
	SB	A	0.23	3.1	9.7	A	0.33	2.6	9.9
	Overall	**A**	**0.26**	**5.6**	**-**	**A**	**0.32**	**7.0**	**-**
Bank Street & Gladstone Avenue *Signalized*	EB	A	0.55	40.0	33.5	A	0.54	15.9	12.8
	WB	A	0.51	33.4	34.4	B	0.63	34.8	44.2
	NBL	A	0.14	11.7	11.0	A	0.31	18.3	20.0
	NBT/R	A	0.44	15.0	50.3	A	0.59	21.5	69.3
	SB	A	0.21	16.4	27.0	A	0.33	8.2	16.0
	Overall	**B**	**0.40**	**24.0**	**-**	**A**	**0.49**	**18.1**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay = average vehicle delay in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

The intersections at the 2035 future background condition are anticipated to operate similarly to the 2030 future background condition.

7.3 2030 Future Total Operations

Figure 16 illustrates the 2030 total volumes and Table 18 summarizes the 2030 total intersection operations. The level of service for signalized intersections is based on v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection The synchro worksheets for the 2030 total horizon are provided in Appendix J.

Figure 16: 2030 Future Total Volumes

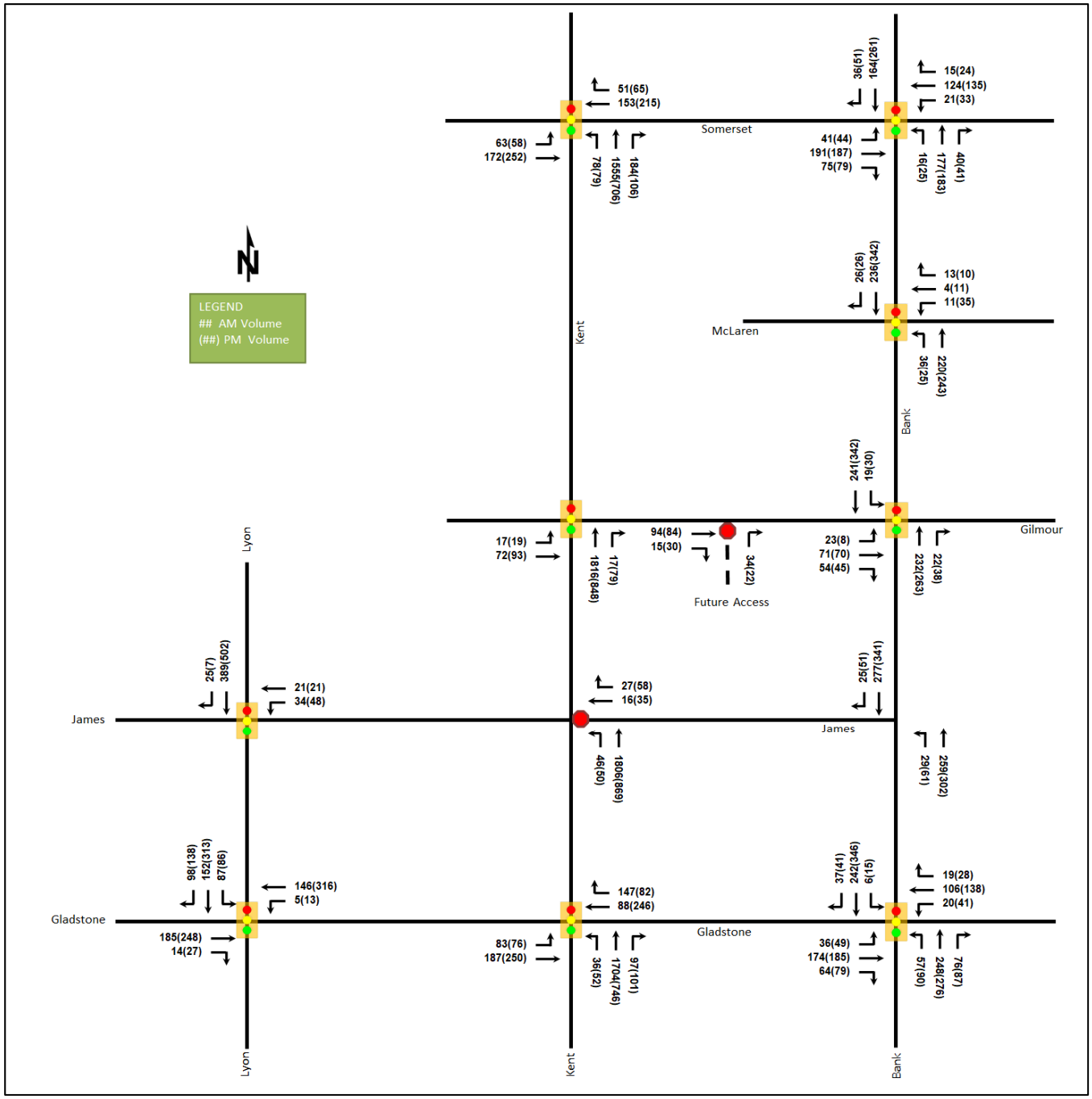


Table 18: 2030 Future Total Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Lyon Street & James Street Signalized	WBL/T	A	0.25	26.2	m11.4	A	0.30	29.4	21.1
	SB	A	0.15	2.4	12.5	A	0.20	3.3	16.0
	Overall	**A**	**0.19**	**5.2**	-	**A**	**0.23**	**6.4**	-
Lyon Street & Gladstone Avenue *Signalized*	EBT/R	A	0.27	14.3	31.7	A	0.36	14.6	42.1
	WBL/T	A	0.20	8.4	14.1	A	0.43	13.1	41.9
	SB	A	0.25	10.0	21.5	A	0.41	12.0	21.6
	Overall	**A**	**0.24**	**10.9**	-	**A**	**0.41**	**12.9**	-
Kent Street & Somerset Street *Signalized*	EBL	A	0.34	29.2	17.7	A	0.33	26.1	15.4
	EBT	A	0.47	29.5	37.5	A	0.55	27.7	47.5
	WBT/R	A	0.60	28.1	49.7	B	0.67	32.1	57.7
	NBL	A	0.11	8.7	m13.1	A	0.13	9.3	10.4
	NBT/R	A	0.59	9.2	63.3	A	0.32	9.6	23.3
	Overall	**A**	**0.59**	**13.0**	-	**A**	**0.42**	**17.6**	-
Kent Street & Gilmour Street *Signalized*	EB	A	0.31	29.7	23.2	A	0.37	29.7	28.3
	NB	A	0.52	12.3	114.5	A	0.27	3.4	14.6
	Overall	**A**	**0.51**	**13.1**	-	**A**	**0.31**	**6.2**	-
Kent Street & James Street *Unsignalized*	WB	C	0.19	24.4	5.3	B	0.20	14.6	5.3
	NBL	A	0.04	8.6	0.8	A	0.05	8.6	1.5
	NBT	A	-	0.0	-	A	-	0.2	-
	Overall	**A**	**-**	**0.7**	-	**A**	**-**	**2.0**	-
Kent Street & Gladstone Avenue *Signalized*	EBL	A	0.47	41.2	19.2	A	0.47	23.1	9.8
	EBT	A	0.50	38.3	34.9	A	0.55	19.4	23.9
	WBT/R	B	0.70	32.4	51.3	C	0.72	35.3	72.2
	NBL	A	0.04	7.0	6.4	A	0.06	8.8	9.6
	NBT/R	A	0.60	10.1	83.4	A	0.31	8.6	35.3
	Overall	**B**	**0.63**	**15.6**	-	**A**	**0.43**	**16.7**	-
Bank Street & Somerset Street *Signalized*	EBL/T	B	0.70	43.2	58.6	B	0.66	28.6	46.3
	EBR	A	0.30	31.9	m19.4	A	0.46	25.9	20.5
	WBL	A	0.12	22.5	7.4	A	0.23	25.8	10.5
	WBT/R	A	0.37	26.1	29.6	A	0.42	26.9	33.6
	NB	A	0.26	3.2	6.5	A	0.29	3.5	8.5
	SB	A	0.22	7.9	26.4	A	0.35	9.2	43.1
	Overall	**A**	**0.40**	**20.9**	-	**A**	**0.47**	**16.5**	-
Bank Street & MacLaren Street *Signalized*	WB	A	0.10	15.8	7.7	A	0.17	20.3	14.2
	NB	A	0.22	2.6	6.0	A	0.25	5.3	10.6
	SB	A	0.22	7.8	24.1	A	0.33	10.9	26.1
	Overall	**A**	**0.21**	**5.8**	-	**A**	**0.30**	**9.5**	-
Bank Street & Gilmour Street *Signalized*	EB	A	0.48	25.0	29.4	A	0.35	19.8	24.3
	NB	A	0.24	3.8	11.3	A	0.30	11.3	41.1
	SB	A	0.24	3.5	9.2	A	0.36	3.1	9.9
	Overall	**A**	**0.28**	**8.4**	-	**A**	**0.34**	**8.8**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Bank Street & Gladstone Avenue ***Signalized***	EB	A	0.53	39.3	33.2	A	0.54	15.9	13.0
	WB	A	0.52	33.7	35.3	B	0.64	35.0	45.5
	NBL	A	0.14	11.7	11.0	A	0.31	18.3	20.0
	NBT/R	A	0.44	15.0	50.3	A	0.57	21.0	66.5
	SB	A	0.21	15.7	25.8	A	0.34	8.7	16.8
	Overall	**A**	**0.40**	**23.7**	**-**	**A**	**0.49**	**18.2**	**-**
Gilmour Street & Access ***Unsignalized***	EB	A	0.12	7.4	3.0	A	0.12	7.3	3.0
	NB	A	0.03	6.7	0.8	A	0.02	6.7	0.8
	Overall	**A**	**-**	**7.2**	**-**	**A**	**-**	**7.2**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay = average vehicle delay in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersection operates well. No capacity issues are noted.

7.4 2035 Future Total Operations

Figure 16 illustrates the 2035 total volumes and Table 19 summarizes the 2035 total intersection operations. The level of service for signalized intersections is based on v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection The synchro worksheets for the 2035 total horizon are provided in Appendix K.

Figure 17: 2035 Future Total Volumes

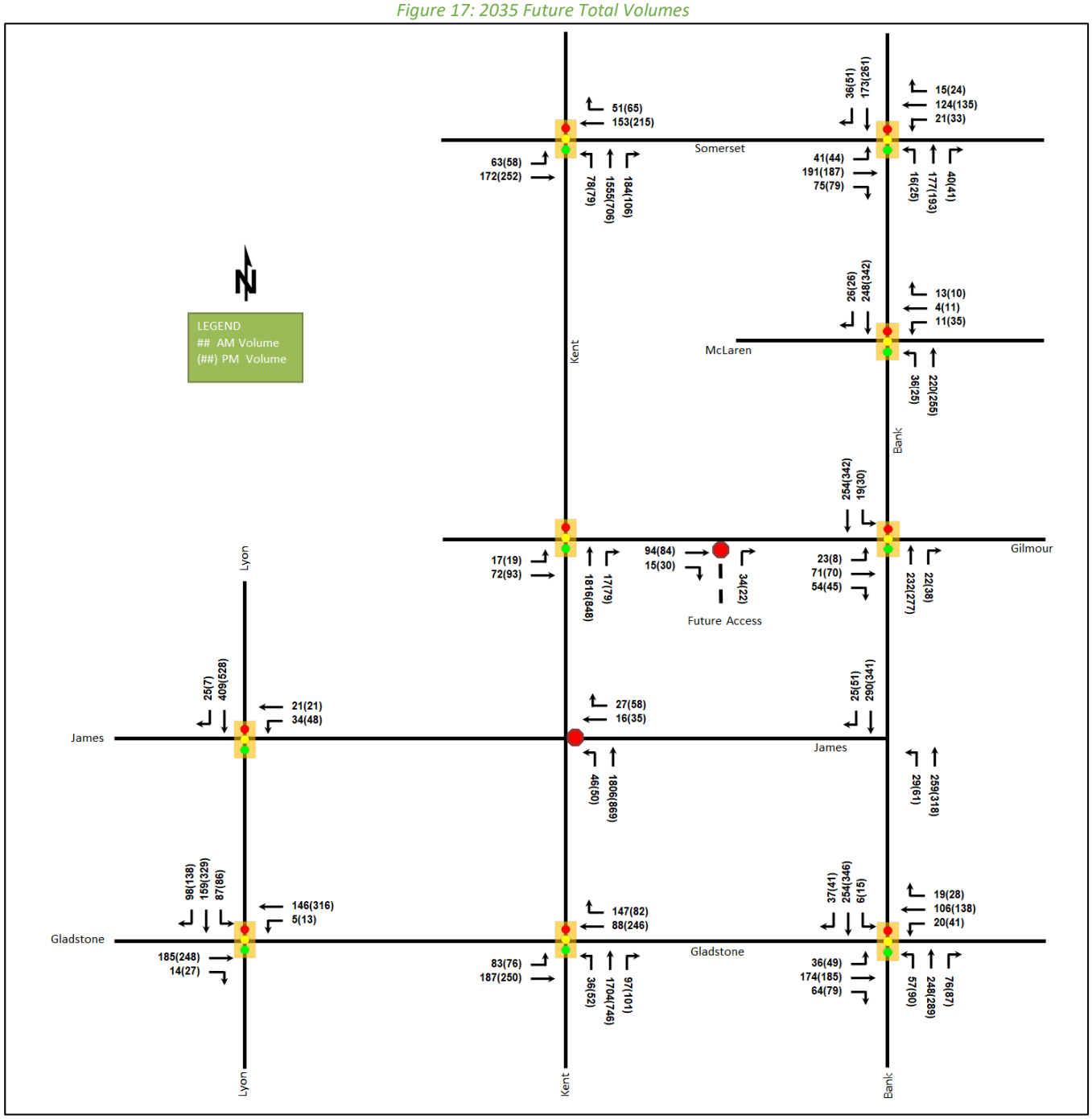


Table 19: 2035 Future Total Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Lyon Street & James Street Signalized	WBL/T	A	0.25	26.2	m11.4	A	0.30	29.4	21.1
	SB	A	0.16	2.5	13.2	A	0.21	3.3	16.9
	Overall	**A**	**0.19**	**5.1**	-	**A**	**0.23**	**6.3**	-

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Lyon Street & Gladstone Avenue *Signalized*	EBT/R	A	0.27	14.3	31.7	A	0.36	14.6	42.1
	WBL/T	A	0.20	8.4	14.1	A	0.43	13.1	41.9
	SB	A	0.26	10.1	22.1	A	0.43	12.3	22.3
	Overall	**A**	**0.25**	**10.9**	**-**	**A**	**0.42**	**13.1**	**-**
Kent Street & Somerset Street *Signalized*	EBL	A	0.34	29.2	17.7	A	0.33	26.1	15.4
	EBT	A	0.47	29.5	37.5	A	0.55	27.7	47.5
	WBT/R	A	0.60	27.6	49.4	B	0.67	32.1	57.8
	NBL	A	0.11	8.7	m13.1	A	0.13	9.3	10.5
	NBT/R	A	0.59	9.2	63.3	A	0.32	9.6	23.3
	Overall	**A**	**0.59**	**12.9**	**-**	**A**	**0.42**	**17.6**	**-**
Kent Street & Gilmour Street *Signalized*	EB	A	0.31	29.7	23.2	A	0.37	29.7	28.3
	NB	A	0.52	12.3	114.5	A	0.27	3.4	14.6
	Overall	**A**	**0.51**	**13.1**	**-**	**A**	**0.31**	**6.2**	**-**
Kent Street & James Street *Unsignalized*	WB	C	0.19	24.4	5.3	B	0.20	14.6	5.3
	NBL	A	0.04	8.6	0.8	A	0.05	8.6	1.5
	NBT	A	-	0.0	-	A	-	0.2	-
	Overall	**A**	**-**	**0.7**	**-**	**A**	**-**	**2.0**	**-**
Kent Street & Gladstone Avenue *Signalized*	EBL	A	0.47	41.2	19.2	A	0.47	23.0	9.9
	EBT	A	0.50	38.3	35.0	A	0.55	19.3	24.0
	WBT/R	B	0.70	32.4	51.3	C	0.72	35.3	72.1
	NBL	A	0.04	7.0	6.4	A	0.06	8.8	9.6
	NBT/R	A	0.60	10.1	83.4	A	0.31	8.6	35.3
	Overall	**B**	**0.63**	**15.6**	**-**	**A**	**0.43**	**16.7**	**-**
Bank Street & Somerset Street *Signalized*	EBL/T	B	0.70	43.2	58.6	B	0.66	28.6	46.3
	EBR	A	0.30	31.9	m19.4	A	0.46	25.9	20.5
	WBL	A	0.12	22.5	7.4	A	0.23	25.8	10.5
	WBT/R	A	0.37	26.1	29.6	A	0.42	26.9	33.6
	NB	A	0.26	3.2	6.5	A	0.30	3.5	8.6
	SB	A	0.23	7.9	27.5	A	0.35	9.2	43.1
	Overall	**A**	**0.40**	**20.8**	**-**	**A**	**0.47**	**16.3**	**-**
Bank Street & MacLaren Street *Signalized*	WB	A	0.10	15.8	7.7	A	0.17	20.3	14.2
	NB	A	0.22	2.6	6.0	A	0.26	5.2	10.7
	SB	A	0.23	7.6	24.2	A	0.33	10.9	26.1
	Overall	**A**	**0.22**	**5.7**	**-**	**A**	**0.30**	**9.4**	**-**
Bank Street & Gilmour Street *Signalized*	EB	A	0.48	25.0	29.4	A	0.35	19.8	24.3
	NB	A	0.24	3.8	11.3	A	0.31	11.7	43.8
	SB	A	0.25	3.5	9.8	A	0.36	3.1	9.9
	Overall	**A**	**0.29**	**8.3**	**-**	**A**	**0.34**	**9.0**	**-**
Bank Street & Gladstone Avenue *Signalized*	EB	A	0.53	39.3	33.2	A	0.54	15.9	13.0
	WB	A	0.52	33.7	35.3	B	0.64	35.0	45.5
	NBL	A	0.14	11.8	11.0	A	0.31	18.3	20.0
	NBT/R	A	0.44	15.0	50.3	A	0.59	21.5	69.3
	SB	A	0.22	15.9	26.9	A	0.34	8.7	16.8
	Overall	**A**	**0.40**	**23.6**	**-**	**A**	**0.50**	**18.3**	**-**

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay	Q (95th)	LOS	V/C	Delay	Q (95th)
Gilmour Street & Access	EB	A	0.12	7.4	3.0	A	0.12	7.3	3.0
	NB	A	0.03	6.7	0.8	A	0.02	6.7	0.8
Unsignalized	**Overall**	**A**	**-**	**7.2**	**-**	**A**	**-**	**7.2**	**-**

Notes: Saturation flow rate of 1800 veh/h/lane
Queue is measured in metres
Peak Hour Factor = 1.00
Delay = average vehicle delay in seconds
m = metered queue
# = volume for the 95th %ile cycle exceeds capacity

During both the AM and PM peak hours, the study area intersection operates well. No capacity issues are noted.

7.5 Trip Estimate from Existing Site Land Uses

An approximation of the existing land uses was derived from the ITE Trip Generation Manual 11th Edition (2017) using the City-prescribed conversion factor of 1.28. Table 20 summarizes the trip generation land use and floor area, and the resultant estimated existing site generated trips by mode have been provided in Table 21.

Table 20: Trip Generation Person Trip Rates by Peak Hour

Land Use	Land Use Code	GFA (sq. ft.)
Fast Casual Restaurant	930 (ITE)	280
Clinic	630 (ITE)	1,600
Pharmacy/Drugstore without Drive-Through Window	880 (ITE)	1,600
Medical-Dental Office Building - Stand-Alone	720 (ITE)	19,500

Table 21: Existing Land Use Trip Generation by Mode

Travel Mode		AM Peak Hour				PM Peak Hour			
		Mode Share	In	Out	Total	Mode Share	In	Out	Total
Total	Auto Driver	-	54	16	70	-	35	73	108
	Auto Passenger	-	3	1	6	-	2	5	7
	Transit	-	5	1	6	-	3	6	9
	Cycling	-	1	0	1	-	0	1	1
	Walking	-	1	0	1	-	0	1	2
	Total	**-**	**65**	**18**	**84**	**-**	**40**	**86**	**126**

The existing site is estimated to produce 70 two-way primary auto trips in the AM peak hour and 108 two-way primary auto trips in the PM peak hour based on the land uses. Table 22 compares the existing auto trips and proposed site auto trips.

Table 22: Estimated Existing Auto Trip Volumes vs Forecasted Auto Trip Volumes

Scenario	AM Peak Hour				PM Peak Hour			
	Mode Share	In	Out	Total	Mode Share	In	Out	Total
Existing	Varies	55	16	71	Varies	35	73	108
Proposed	Varies	7	15	22	Varies	13	9	22
Difference	**-**	**-48**	**-1**	**-49**	**-**	**-22**	**-64**	**-86**

The proposed site is estimated to produce 49 less two-way primary auto trips in the AM peak hour and 86 less two-way primary auto trips in the PM peak hour. Given the change in operation for the site over the recent years, the forecasted existing trips cannot be verified by site evaluation. Therefore, the TIA will assume a conservative analysis without the removal of the forecasted existing land uses from the network volumes. As summarized in Sections 7.3 and 7.4, no operational issues are noted, and no further traffic analysis is required for the site.

7.6 Modal Share Sensitivity and Demand Rationalization Conclusions

No capacity constraints are noted within the study area. As such, no rationalization of the modal share and network volumes is required.

8 Development Design

8.1 Design for Sustainable Modes

The proposed development is a residential building with parking provided on two underground levels. Underground bicycle storage rooms are accessed by the parking garage ramp. A total of 16 bike spaces are provided in the bike room on ground level, five bike spaces for commercial unit are provided south of commercial unit, and three bike spaces are provided closer to the entrance to lobby on both James Street and Gilmour Street. Hard surface connections are provided between building entrances and the surrounding pedestrian facilities on Gilmour Street and James Street. Local bus stops are located within 400 metres of the site entrances and the LRT stations to the north are just beyond an 800-metre walking distance.

The infrastructure TDM checklist is provided in Appendix L.

8.2 Circulation and Access

The site access is provided as a right-in-right-out driveway onto Gilmour Street and provides access to the internal parking. Garbage will be collected on Gilmour Street. The two-way access onto Gilmour Street is 6.1m wide.

9 Parking

9.1 Parking Supply

The site provides 154 underground vehicle parking spaces, 27 bicycle spaces on the ground floor, and 208 underground bicycle spaces. A total of 132 residential parking and 22 visitor parking spaces will be provided, and no parking will be provided for the commercial unit. A total of 230 bike spaces will be provided for residential units, and five for commercial unit.

The minimum vehicle parking provision is 125 spaces, which includes 103 spaces for the residential units and 22 spaces for the visitors, and the minimum bicycle parking provision is 109 spaces. The residential, visitor, and bicycle parking meet the minimum by-law requirements. No minimum vehicle parking provision for the commercial unit.

Based on the City of Ottawa Accessibility Design Standards (2015), the total number of accessible spaces required is six spaces with thee for each Type A and Type B. The site provides three Type A spaces and three Type B spaces, and it meets the requirements.

10 Boundary Street Design

Table 23 summarizes the MMLOS analysis for the boundary streets of James Street, Kent Street, and Gilmour Street. An integrated road, sewer and watermain renewal project for James Street and Kent Street is planned to be completed in 2025, and modifications on James Street and Kent Street will be considered in the MMLOS analysis for the boundary streets in the future conditions. The boundary street analysis is based on the “General Urban Area”. The MMLOS worksheets have been provided in Appendix M.

Table 23: Boundary Street MMLOS Analysis

Segment	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target
James Street (Existing)	C	C	D	D	N/A	N/A	N/A	N/A
James Street (Future)	C	C	D	D	N/A	N/A	N/A	N/A
Kent Street (Existing)	**D**	C	**E**	D	N/A	N/A	B	D
Kent Street (Future)	**D**	C	**E**	D	N/A	N/A	B	D
Gilmour Street (Existing)	C	C	D	D	N/A	N/A	N/A	N/A
Gilmour Street (Future)	C	C	C	D	N/A	N/A	N/A	N/A

Kent Street does not meet the pedestrian LOS. To meet the target, the City would need to reconstruct the roadway to provide a boulevard width of at least 0.5 metres or lower the operating speed.

Kent Street does not meet the bicycle LOS. To meet the target, the operating speed has to be lower than 50 km/h.

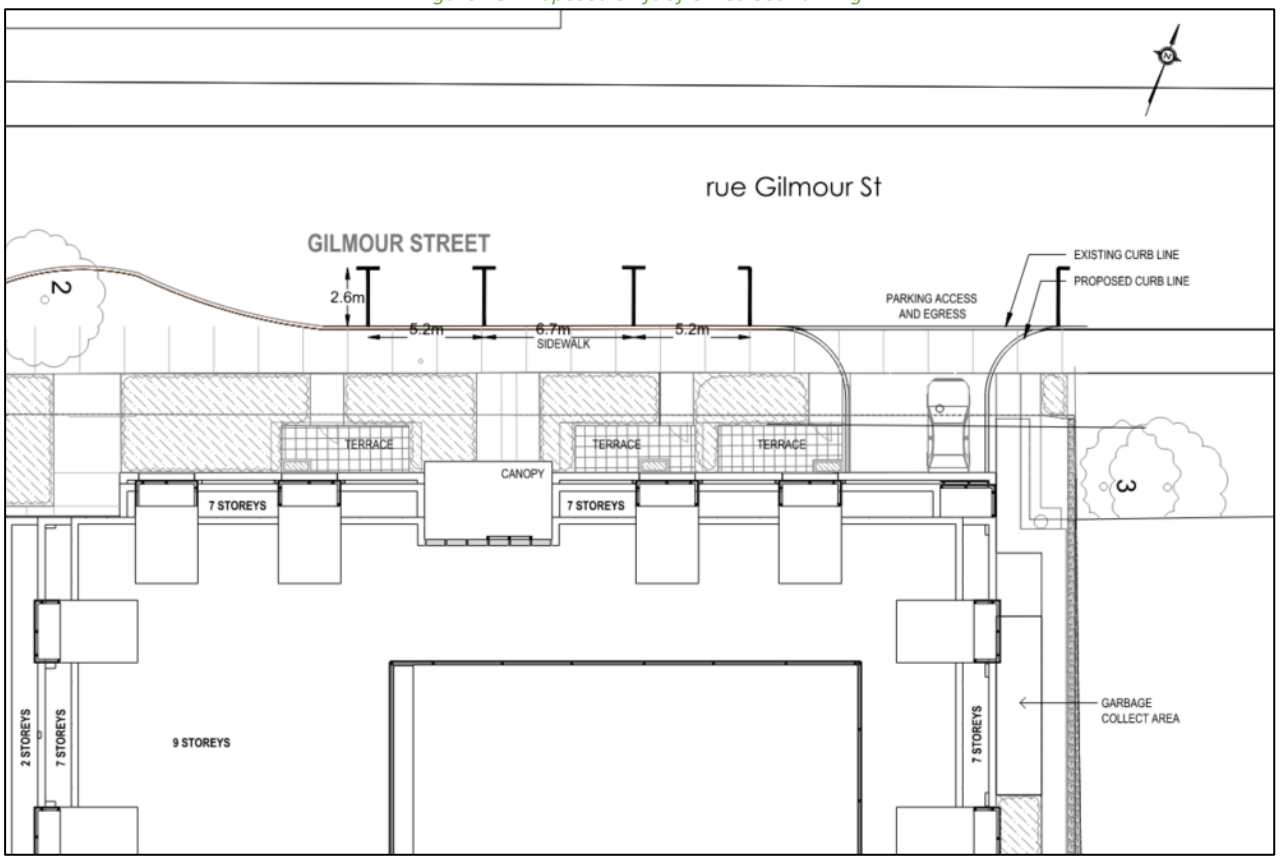
11 Access Intersections Design

11.1 Location and Design of Access

The existing access on Gilmour Street and James Street will be removed, and the site proposes a new on right-in-right-out access Gilmour Steet. The proposed access is 6.1-metre wide, and it access to the parking garage ramp with 7.5% to 15% slope. The Gilmour frontage is approximately 44 metres, and it meets the maximum number of private approaches permitted. The distance between the access and nearest intersecting street line is approximately 35 metres, and it meets the requirement of 30 metres. Sidewalk and on-street parking will be provided along Gilmour Street.

The on-street parking is purely a shift of the existing parking configuration and is not changing any distances, offsets or number of on-street spaces provided by the existing conditions. Any subsequent removal of on-street purposes will be through the City and Parking Services. Figure 18 illustrates the proposed shift of the on-street parking along Gilmour Street.

Figure 18: Proposed Shift of On-Street Parking



11.2 Intersection Control

The site access will have stop-control on the minor approach. No further traffic control is necessary for a private approach.

11.3 Access Intersection Design

11.3.1 Future Access Intersection Operations

The operations are noted in Section 7.4 and no mitigation of conditions is required for the subject site traffic.

11.3.2 Access Intersection MMLOS

The access intersection is unsignalized, and therefore no access intersection MMLOS analysis has been conducted.

11.3.3 Recommended Design Elements

The existing accesses on Gilmour Street and James Street will be removed, and a new right-in-right-out access on Gilmour Steet is proposed.

12 Transportation Demand Management

12.1 Context for TDM

The mode shares used within the TIA represent the unmodified district mode shares. Overall, the modal shares are likely to be achieved, and supporting TDM measures should be provided to encourage shifts toward sustainable modes.

The subject site is within the Centretown Secondary Plan and Community Design Plan areas and the Downtown Ottawa Urban Design Strategy Design Priority Area. The total bedroom count within the development is 18 studios, 133 one-bedroom, 58 two-bedroom, and 10 three-bedroom.

12.2 Need and Opportunity

The subject site has been assumed to rely predominantly on auto travel and transit. The study area intersections are anticipated to have the residual capacity, and as the unmodified district mode shares have been applied, risks to other network users from failing to meet mode share targets are low.

12.3 TDM Program

The "suite of post occupancy TDM measures" has been summarized in the TDM checklists. The checklist is provided in Appendix L. The key TDM measures recommended include:

- Display local area maps with walking and cycling routes, and transit route information and schedules at major entrances
- Inclusion of a 1-year Presto card for first time apartment rental, with a set time frame for this offer (e.g.6-months) from the initial opening of the site
- Unbundle parking from rental costs
- Provide a multimodal travel option information package to new residents

13 Neighbourhood Traffic Management

The proposed development will connect to the arterial network via Gilmour Street (a local road). The TIA guidelines have outlined thresholds for two-way traffic on local and have been found to be too low for the purposes of this analysis. City Staff have noted that these thresholds are under review and will be updated in the future. The existing volumes on Gilmour Street are between 71 and 123 vehicles during peak hours and are forecasted to be between 113 and 148 vehicles during peak hours. These volumes are consistent with local road usage and no changes to the roadway classification is required.

14 Transit

14.1 Route Capacity

In Section 5.1 the trip generation by mode was estimated, including an estimate of the number of transit trips that will be generated by the proposed development. Table 24 summarizes the transit trip generation.

Table 24: Trip Generation by Transit Mode

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Transit	Varies	8	19	27	12	9	21

The proposed development is anticipated to generate an additional 27 AM and 21 PM peak hour two-way transit trips. From the trip distribution found in section 5.3, these values can be further broken down. Table 25 summarizes forecasted site-generated transit ridership trips by direction and the equivalent bus loads.

Table 25: Forecasted Site-Generated Transit Ridership

Direction	AM Peak Hour		PM Peak Hour		Service Type	Approximate Equivalent Peak Hour/Direction Bus Loads
	In	Out	In	Out		
North	2	4	2	2	Bus	Negligible
South	2	6	5	3	LRT, Bus	Negligible

Direction	AM Peak Hour		PM Peak Hour		Service Type	Approximate Equivalent Peak Hour/Direction Bus Loads
	In	Out	In	Out		
East	2	5	3	2	LRT, Bus	Negligible
West	2	4	2	2	LRT, Bus	Negligible

14.2 Transit Priority

Examining the study area intersection delays, negligible impacts are noted on the transit movements at the study area intersections.

15 Network Intersection Design

15.1 Network Intersection Control

No change to any existing signalized intersection control is recommended for the network intersections.

15.2 Network Intersection Design

15.2.1 2030 and 2035 Future Total Network Intersection Operations

The operations are noted in Section 7.4 and no mitigation of conditions is required for the subject site traffic.

15.2.2 Network Intersection MMLOS

Table 26 summarizes the MMLOS analysis for the network intersections in the study area. An integrated road, sewer and watermain renewal project for James Street and Kent Street is planned to be completed in 2025, and modifications on James Street and Kent Street will be considered in the MMLOS analysis for future conditions. Except for Lyon Street at James Street, the existing and future conditions for all other study area intersections will be the same and are considered in one row. The analysis is based on "Traditional Main Street" for Somerset Street, Bank Street, and Gladstone Avenue at Bank Street to the west, and the remaining intersections are based on the "General Urban Area". The MMLOS worksheets have been provided in Appendix M.

Table 26: Study Area Intersection MMLOS Analysis

Intersection	Pedestrian LOS		Bicycle LOS		Transit LOS		Truck LOS		Auto LOS	
	PLOS	Target	BLOS	Target	TLOS	Target	TrLOS	Target	ALOS	Target
Kent Street & Somerset Street	C	B	E	C	E	D	E	D	A	D
Kent Street & Gilmour Street	D	C	B	C	N/A	N/A	N/A	N/A	A	D
Kent Street & Gladstone Avenue	C	B	E	C	E	D	D	D	B	D
Bank Street & Somerset Street	D	B	D	C	D	D	N/A	N/A	A	D
Bank Street & MacLaren Street	C	B	B	C	B	D	N/A	N/A	A	D
Bank Street & Gilmour Street	C	B	B	C	C	D	N/A	N/A	A	D
Bank Street & Gladstone Avenue	D	B	D	C	E	D	N/A	N/A	A	D
Lyon Street & James Street (Existing)	D	C	B	C	N/A	N/A	N/A	N/A	A	D
Lyon Street & James Street (Future)	D	C	B	C	N/A	N/A	N/A	N/A	A	D
Lyon Street & Gladstone Avenue	B	B	B	C	N/A	N/A	N/A	N/A	A	D

The pedestrian LOS will not be met at the study area intersections except for Lyon Street at Gladstone Avenue intersection. To meet pedestrian LOS at all intersections, the maximum crossing distance on all pedestrian crossings would need to be reduced to three lane-widths at the intersections of Kent Street at Somerset Street, Kent Street at Gladstone Avenue, Bank Street at Somerset Street, and Bank Street at Gladstone Avenue. Additionally, the average pedestrian delays on all approaches at the intersections of Kent Street at Somerset Street, Kent Street at Gladstone Avenue, Bank Street at Somerset Street, Bank Street at MacLaren Street, Bank Street at Gilmour Street, and Bank Street at Gladstone Avenue need to be reduced to less than 20 seconds to meet the pedestrian LOS targets. The average pedestrian delays on all approaches at the intersections of Kent Street at Gilmour Street and Lyon Street at James Street also need to be reduced to less than 30 seconds to meet the pedestrian LOS targets.

The bicycle LOS will not be met at the intersections of Kent Street at Somerset Street, Kent Street at Gladstone Avenue, Bank Street at Somerset Street, and Bank Street at Gladstone Avenue. To meet bicycle LOS at all intersections, the left-turn configurations would need to be two-stage or include turn boxes along the roadways.

The transit LOS will not be met at the intersections of Kent Street at Somerset Street, Kent Street at Gladstone Avenue, and Bank Street at Gladstone Avenue. To meet transit LOS, the delay would need to be reduced to below 30 seconds on all transit movements.

The truck LOS will not be met at the existing or future intersections of Kent Street at Somerset Street. To meet truck LOS, the effective corner radius needs to increase to at least 15 metres.

15.2.3 Recommended Design Elements

No study area intersection design elements are proposed as part of this study.

16 Summary of Improvements Indicated and Modifications Options

The following summarizes the analysis and results presented in this TIA report:

Proposed Site and Screening

- The proposed site includes 218 apartment units, a park, and 1841 sq. ft of commercial space
- The existing accesses on Gilmour Street and James Street will remove and will replace them with a new access located on Gilmour Street
- A total of 154 vehicle parking stalls and 235 bicycle parking spaces are proposed
- The development is proposed to be completed as a single phase by 2030
- The trip generation, location and safety triggers were met for the TIA Screening

Existing Conditions

- Kent Street, Bank Street, Lyon Street, and Somerset Street are arterial roads, and Gladstone Avenue is a major collector road in the study area
- Sidewalks are provided along both sides of the road within the study area
- Bike lanes are provided along Lyon Street, and Somerset Street, Bank Street, and Gladstone Avenue are suggested routes
- Somerset Street, Lyon Street, and Gladstone Avenue are spine routes, and Bank Steet is a local route
- Within the study area, the intersection of Kent Street and James Street is noted to have experienced higher collisions than other locations

- The detailed collision records outline that angle collisions predominantly are the result of the westbound vehicle failed to yield and improper turns
- No further review of these collisions is required as part of this study and mitigation is subject to City review/action
- During both the AM and PM peak hours, the study area intersections operate well in the existing conditions

Background Conditions

- The background developments were explicitly included in the background conditions, along with a total background growth of 1.00% per annum along the mainline volumes and direction of Bank Street and Lyon Street
- An integrated road, sewer and watermain renewal project for James Street between Bank Street and Bronson Avenue and for Kent Street north of James Street to Florence Street is scheduled to be completed in 2025
- The study area intersections will operate similarly to the existing conditions

Development Generated Travel Demand

- The proposed development is forecasted to produce 95 two-way people trips during the AM peak hour and 102 two-way people trips during the PM peak hour
- Of the forecasted people trips, 23 two-way trips will be vehicle trips during the AM peak hour and 22 two-way trips will be vehicle trips during the PM peak hour
- Of the forecasted trips, 20% are anticipated to travel the north and the west, 35% to the south, and 25% to both the east
- The proposed site is estimated to produce 49 less two-way primary auto trips in the AM peak hour and 86 less two-way primary auto trips in the PM peak hour than the forecasted existing land use
- The TIA assumed a conservative analysis without the removal of the forecasted existing land use trips from the network volumes

Development Design

- The proposed development is a residential building with the parking provided on two underground levels
- Underground bicycle storage rooms are accessed by the parking garage ramp
- A total of five bike spaces are provided for commercial unit and 22 bike spaces are provided for residential units on ground level
- Hard surface connections are provided between building entrances and the surrounding pedestrian facilities on James Street and Gilmour Street
- Garbage will be collected on Gilmour Street frontage

Parking

- The site provides 154 underground vehicle parking spaces, 27 bicycle spaces on the ground floor, and 208 underground bicycle spaces
- A total of 132 residential parking and 22 visitor parking spaces will be provided, and no parking will be provided for the commercial unit
- A total of 230 bike spaces will be provided for residential units, and five for commercial unit
- The residential, visitor, and bicycle parking meet the minimum by-law requirements

- No minimum vehicle parking provision for the commercial unit
- The accessible parking spaces meet the minimum accessible spaces requirements

Boundary Street Design

- Kent Street does not meet the pedestrian LOS, and boulevard width has to be widened to at least 0.5 metres or lower the operating speed to meet the target
- Kent Street does not meet the pedestrian LOS target, and the operating speed has to be lower than 50 km/h

Access Intersections Design

- The existing accesses on Gilmour Street and James Street will be removed, and a new right-in-right-out access on Gilmour Steet is proposed
- Sidewalk and on-street parking will be provided along Gilmour Street
- The on-street parking is a shift of the existing parking, and the pavement markings can be removed to allow drivers to determine if they are appropriately spaced
- The site will access Gilmour Steet via a right-in-right-out access, and the access width is 6.1 metres
- The Gilmour frontage meets the maximum number of private approaches permitted
- The distance between the access and nearest intersecting street line meets the requirement
- The site access will have stop-control on the minor approach

TDM

- Supportive TDM measures to be included within the proposed development should include:
    - Display local area maps with walking and cycling routes, and transit route information and schedules at major entrances
    - Inclusion of a 1-year Presto card for first time apartment rental, with a set time frame for this offer (e.g.6-months) from the initial opening of the site
    - Unbundle parking from rental costs
    - Provide a multimodal travel option information package to new residents

Neighbourhood Traffic Management

- The existing volumes on Gilmour Street is between 71 and 123 vehicles during the peak hours and is forecasted to be between 113 and 148 vehicles during the peak hours
- No changes to the roadway classifications

Transit

- The proposed development is anticipated to generate an additional 27 AM and 21 PM peak hour two-way transit trips
- Peak hour increases in transit ridership have negligible impacts
- Negligible impacts are noted on the transit movements at the study area intersections

Network Intersection Design

- Generally, the network intersections will operate well
- The pedestrian LOS will not be met at the study area intersections except for the Lyon Street at Gladstone Avenue intersection

- The maximum crossing distance on all pedestrian crossings at the intersections of Kent Street at Somerset Street, Kent Street at Gladstone Avenue, Bank Street at Somerset Street, and Bank Street at Gladstone Avenue would need to be reduced to three lane-widths, and the average pedestrian delays on all approaches at all intersections below pedestrian LOS targets need to be reduced to meet the pedestrian LOS targets
- The bicycle LOS targets will not be met at the intersections of Kent Street at Somerset Street, Kent Street at Gladstone Avenue, Bank Street at Somerset Street, and Bank Street at Gladstone Avenue, and the left-turn configurations are required to be to be two-stage or include turn boxes along the roadways
- The transit LOS will not be met at the intersections of Kent Street at Somerset Street, Kent Street and Gladstone Avenue, and Bank Street at Gladstone Avenue, and the delay is required to be below 30 seconds
- The truck LOS will not be met at the existing or future intersections of Kent Street at Somerset Street and the effective corner radius needs to increase to at least 15 metres

17 Conclusion

It is recommended that, from a transportation perspective, the proposed development applications proceed.

Prepared By:

Yu-Chu Chen, EIT
Transportation Engineering-Intern

Reviewed By:

Andrew Harte, P.Eng.
Senior Transportation Engineer

Appendix A

TIA Screening Form and PM Certification Form

CGH TRANSPORTATION

6 Plaza Court
Ottawa, ON K2H 7W1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 17-Feb-23
Project Number: 2021-108
Project Reference: 381 Kent Street

1.1 Description of Proposed Development	
Municipal Address	381 Kent Street
Description of Location	Ward 14, Northeast corner of the James Street and Kent Street
Land Use Classification	Residential Fourth Density Zone (R4UD)
Development Size	218 apartment units and 1,841 sq. ft of commercial space
Accesses	One access onto Gilmour Street
Phase of Development	Single
Buildout Year	2030
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	218	Units
Trip Generation Trigger	Yes	

1.3 Location Triggers		
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	Design Strategy Design Priority Area
Location Trigger	Yes	

1.4. Safety Triggers		
Are posted speed limits on a boundary street 80 km/hr or greater?	No	
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	Kent Street at Gilmour Street is within 150m
Is the proposed driveway within auxiliary lanes of an intersection?	No	
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?	No	
Does the development include a drive-thru facility?	No	
Safety Trigger	Yes	

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering √ or transportation planning □.

[1,2] License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

City Of Ottawa
Infrastructure Services and Community Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

Ville d'Ottawa
Services d 'infrastructure et Viabilité des collectivités
Urbanisme et Gestion de la croissance
110, avenue Laurier Ouest
Ottawa (Ontario) K1P 1J1
Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at ___Ottawa_____ this __20__ day of _____September_____, 2018.
(City)

Name: _____Andrew Harte_____
(Please Print)

Professional Title: _____Professional Engineer_____

_____
Signature of Individual certifier that s/he meets the above four criteria

Office Contact Information (Please Print)
Address: 6 Plaza Court
City / Postal Code: Ottawa / K2H 7W1
Telephone / Extension: (613) 697-3797
E-Mail Address: Andrew.Harte@CGHTransportation.com

Appendix B

Turning Movement Counts

Transportation Services - Traffic Services

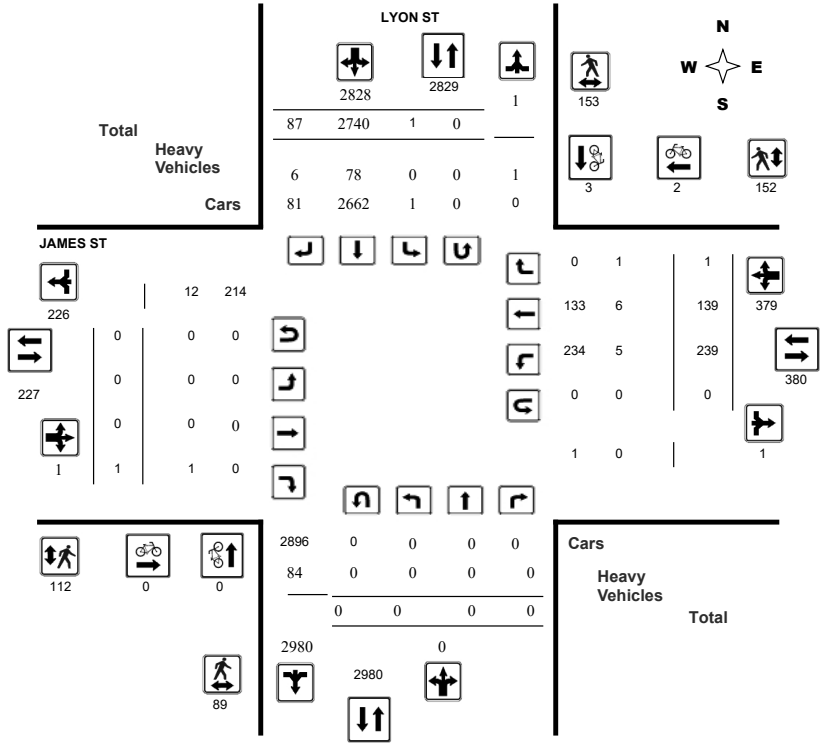
Turning Movement Count - Study Results

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

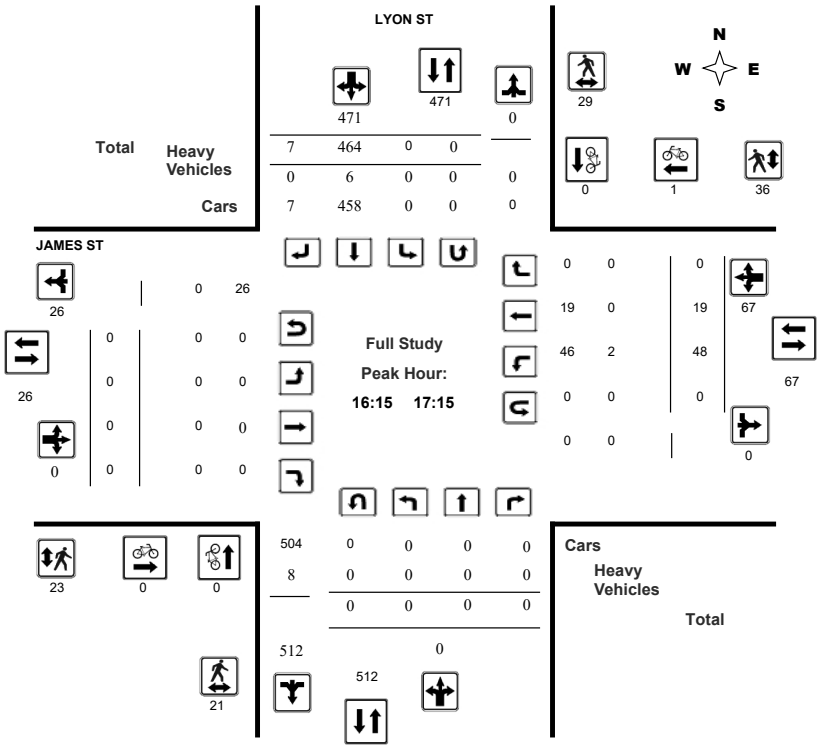
Turning Movement Count - Study Results

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



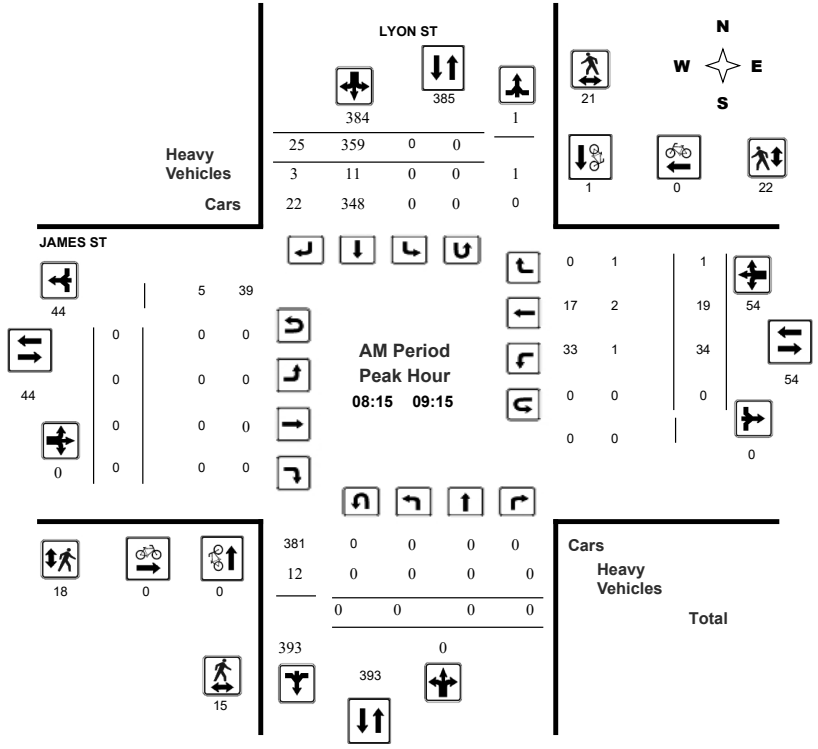
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision



Comments

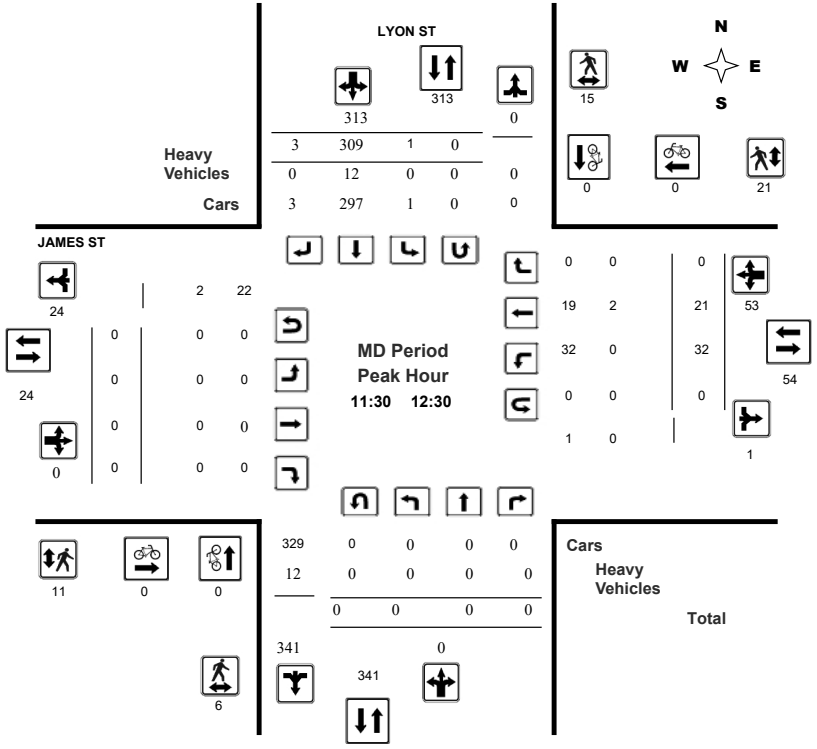
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision



Comments

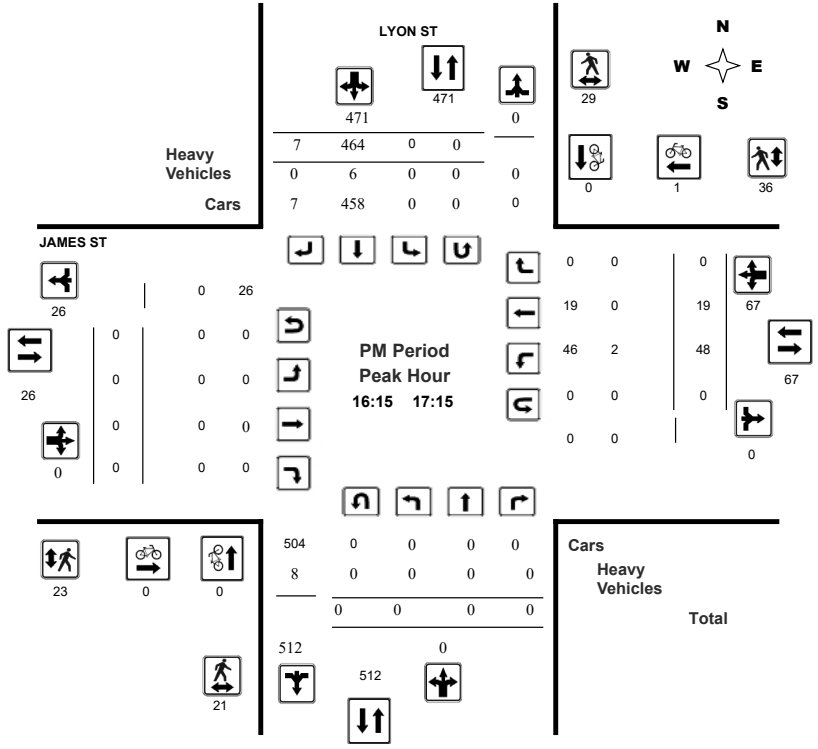
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 08, 2022

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	LYON ST								JAMES ST									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	0	0	**0**	0	238	8	**246**	**246**	0	0	1	**1**	14	2	0	**16**	**17**	**263**
08:00 09:00	0	0	0	**0**	0	366	22	**388**	**388**	0	0	0	**0**	34	14	0	**48**	**48**	**436**
09:00 10:00	0	0	0	**0**	0	259	15	**274**	**274**	0	0	0	**0**	22	24	1	**47**	**47**	**321**
11:30 12:30	0	0	0	**0**	1	309	3	**313**	**313**	0	0	0	**0**	32	21	0	**53**	**53**	**366**
12:30 13:30	0	0	0	**0**	0	289	8	**297**	**297**	0	0	0	**0**	22	17	0	**39**	**39**	**336**
15:00 16:00	0	0	0	**0**	0	438	11	**449**	**449**	0	0	0	**0**	32	19	0	**51**	**51**	**500**
16:00 17:00	0	0	0	**0**	0	445	7	**452**	**452**	0	0	0	**0**	43	13	0	**56**	**56**	**508**
17:00 18:00	0	0	0	**0**	0	396	13	**409**	**409**	0	0	0	**0**	40	29	0	**69**	**69**	**478**
Sub Total	0	0	0	**0**	1	2740	87	**2828**	**2828**	0	0	1	**1**	239	139	1	**379**	**380**	**3208**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	0	0	0	**0**	1	2740	87	**2828**	**2828**	0	0	1	**1**	239	139	1	**379**	**380**	**3208**
EQ 12Hr	0	0	0	**0**	1	3809	121	**3931**	**3931**	0	0	1	**1**	332	193	1	**527**	**528**	**4459**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	0	0	0	**0**	1	4989	158	**3931**	**3931**	0	0	1	**1**	332	193	1	**527**	**528**	**4459**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	0	0	0	**0**	1	6536	207	**5150**	**5150**	0	0	1	**1**	435	253	1	**690**	**692**	**5841**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		LYON ST									JAMES ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	0	0	52	1	53	53	0	0	1	1	2	0	0	2	3	56
07:15	07:30	0	0	0	0	0	49	1	50	50	0	0	0	0	1	1	0	2	2	52
07:30	07:45	0	0	0	0	0	60	4	64	64	0	0	0	0	4	0	0	4	4	68
07:45	08:00	0	0	0	0	0	77	2	79	79	0	0	0	0	7	1	0	8	8	87
08:00	08:15	0	0	0	0	0	89	0	89	89	0	0	0	0	6	3	0	9	9	98
08:15	08:30	0	0	0	0	0	80	1	81	81	0	0	0	0	13	4	0	17	17	98
08:30	08:45	0	0	0	0	0	109	6	115	115	0	0	0	0	8	2	0	10	10	125
08:45	09:00	0	0	0	0	0	88	15	103	103	0	0	0	0	7	5	0	12	12	115
09:00	09:15	0	0	0	0	0	82	3	85	85	0	0	0	0	6	8	1	15	15	100
09:15	09:30	0	0	0	0	0	49	4	53	53	0	0	0	0	7	8	0	15	15	68
09:30	09:45	0	0	0	0	0	59	4	63	63	0	0	0	0	5	4	0	9	9	72
09:45	10:00	0	0	0	0	0	69	4	73	73	0	0	0	0	4	4	0	8	8	81
11:30	11:45	0	0	0	0	1	85	0	86	86	0	0	0	0	10	7	0	17	17	103
11:45	12:00	0	0	0	0	0	70	2	72	72	0	0	0	0	10	3	0	13	13	85
12:00	12:15	0	0	0	0	0	73	0	73	73	0	0	0	0	7	8	0	15	15	88
12:15	12:30	0	0	0	0	0	81	1	82	82	0	0	0	0	5	3	0	8	8	90
12:30	12:45	0	0	0	0	0	70	2	72	72	0	0	0	0	8	5	0	13	13	85
12:45	13:00	0	0	0	0	0	88	1	89	89	0	0	0	0	5	3	0	8	8	97
13:00	13:15	0	0	0	0	0	61	3	64	64	0	0	0	0	5	5	0	10	10	74
13:15	13:30	0	0	0	0	0	70	2	72	72	0	0	0	0	4	4	0	8	8	80
15:00	15:15	0	0	0	0	0	102	2	104	104	0	0	0	0	7	3	0	10	10	114
15:15	15:30	0	0	0	0	0	119	5	124	124	0	0	0	0	8	7	0	15	15	139
15:30	15:45	0	0	0	0	0	104	2	106	106	0	0	0	0	7	3	0	10	10	116
15:45	16:00	0	0	0	0	0	113	2	115	115	0	0	0	0	10	6	0	16	16	131
16:00	16:15	0	0	0	0	0	106	1	107	107	0	0	0	0	9	0	0	9	9	116
16:15	16:30	0	0	0	0	0	121	2	123	123	0	0	0	0	10	4	0	14	14	137
16:30	16:45	0	0	0	0	0	103	1	104	104	0	0	0	0	11	6	0	17	17	121
16:45	17:00	0	0	0	0	0	115	3	118	118	0	0	0	0	13	3	0	16	16	134
17:00	17:15	0	0	0	0	0	125	1	126	126	0	0	0	0	14	6	0	20	20	146
17:15	17:30	0	0	0	0	0	103	5	108	108	0	0	0	0	11	9	0	20	20	128
17:30	17:45	0	0	0	0	0	89	3	92	92	0	0	0	0	9	10	0	19	19	111
17:45	18:00	0	0	0	0	0	79	4	83	83	0	0	0	0	6	4	0	10	10	93
Total:		0	0	0	0	1	2740	87	2828	2828	0	0	1	1	239	139	1	379	380	3,208

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		LYON ST			JAMES ST			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	1	1	0	0	0	1
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	0	0	0	0	0	0
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	1	1	0	0	0	1
09:15	09:30	0	0	0	0	1	1	1
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	0	0	0	0	0	0	0
11:45	12:00	0	0	0	0	0	0	0
12:00	12:15	0	0	0	0	0	0	0
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	0	0	0	0	0	0	0
12:45	13:00	0	0	0	0	0	0	0
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	0	0	0	0	0	0
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	0
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	1	1	1
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	1	1	0	0	0	1
17:45	18:00	0	0	0	0	0	0	0
Total		0	3	**3**	0	2	2	5

Transportation Services - Traffic Services

Turning Movement Count - Study Results

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period		LYON ST NB Approach (E or W Crossing)	LYON ST SB Approach (E or W Crossing)	LYON ST Total	JAMES ST EB Approach (N or S Crossing)	JAMES ST WB Approach (N or S Crossing)	JAMES ST Total	Grand Total
07:00	07:15	0	0	**0**	1	1	**2**	**2**
07:15	07:30	2	0	**2**	0	0	**0**	**2**
07:30	07:45	5	4	**9**	3	1	**4**	**13**
07:45	08:00	3	5	**8**	2	4	**6**	**14**
08:00	08:15	4	7	**11**	3	4	**7**	**18**
08:15	08:30	6	7	**13**	6	7	**13**	**26**
08:30	08:45	7	7	**14**	6	7	**13**	**27**
08:45	09:00	1	3	**4**	5	4	**9**	**13**
09:00	09:15	1	4	**5**	1	4	**5**	**10**
09:15	09:30	0	3	**3**	2	0	**2**	**5**
09:30	09:45	0	2	**2**	1	1	**2**	**4**
09:45	10:00	3	0	**3**	2	1	**3**	**6**
11:30	11:45	3	2	**5**	2	6	**8**	**13**
11:45	12:00	1	9	**10**	3	6	**9**	**19**
12:00	12:15	1	2	**3**	5	2	**7**	**10**
12:15	12:30	1	2	**3**	1	7	**8**	**11**
12:30	12:45	0	2	**2**	3	7	**10**	**12**
12:45	13:00	2	9	**11**	1	3	**4**	**15**
13:00	13:15	1	6	**7**	3	6	**9**	**16**
13:15	13:30	1	3	**4**	0	0	**0**	**4**
15:00	15:15	1	5	**6**	8	8	**16**	**22**
15:15	15:30	0	2	**2**	4	3	**7**	**9**
15:30	15:45	4	5	**9**	5	7	**12**	**21**
15:45	16:00	3	4	**7**	2	7	**9**	**16**
16:00	16:15	1	7	**8**	3	5	**8**	**16**
16:15	16:30	5	8	**13**	8	10	**18**	**31**
16:30	16:45	5	4	**9**	4	9	**13**	**22**
16:45	17:00	6	11	**17**	2	12	**14**	**31**
17:00	17:15	5	6	**11**	9	5	**14**	**25**
17:15	17:30	6	4	**10**	4	7	**11**	**21**
17:30	17:45	9	5	**14**	8	5	**13**	**27**
17:45	18:00	2	15	**17**	5	3	**8**	**25**
Total	.....	89	153	**242**	112	152	**264**	**506**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

Time Period		LYON ST Northbound LT	LYON ST Northbound ST	LYON ST Northbound RT	LYON ST N TOT	LYON ST Southbound LT	LYON ST Southbound ST	LYON ST Southbound RT	LYON ST S TOT	LYON ST STR TOT	JAMES ST Eastbound LT	JAMES ST Eastbound ST	JAMES ST Eastbound RT	JAMES ST E TOT	JAMES ST Westbound LT	JAMES ST Westbound ST	JAMES ST Westbound RT	JAMES ST W TOT	JAMES ST STR TOT	Grand Total
07:00	07:15	0	0	0	**1**	0	0	0	**0**	**1**	0	0	1	**1**	0	0	0	**0**	**1**	**1**
07:15	07:30	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
07:30	07:45	0	0	0	**2**	0	2	1	**3**	**5**	0	0	0	**1**	0	0	0	**0**	**1**	**3**
07:45	08:00	0	0	0	**5**	0	4	0	**4**	**9**	0	0	0	**0**	1	0	0	**1**	**1**	**5**
08:00	08:15	0	0	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
08:15	08:30	0	0	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
08:30	08:45	0	0	0	**4**	0	4	1	**5**	**9**	0	0	0	**1**	0	0	0	**0**	**1**	**5**
08:45	09:00	0	0	0	**2**	0	1	2	**3**	**5**	0	0	0	**3**	1	1	0	**2**	**5**	**5**
09:00	09:15	0	0	0	**2**	0	2	0	**3**	**5**	0	0	0	**1**	0	1	1	**2**	**3**	**4**
09:15	09:30	0	0	0	**2**	0	2	0	**2**	**4**	0	0	0	**2**	0	2	0	**2**	**4**	**4**
09:30	09:45	0	0	0	**4**	0	3	0	**3**	**7**	0	0	0	**0**	1	0	0	**1**	**1**	**4**
09:45	10:00	0	0	0	**8**	0	8	0	**8**	**16**	0	0	0	**0**	0	0	0	**0**	**0**	**8**
11:30	11:45	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
11:45	12:00	0	0	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
12:00	12:15	0	0	0	**6**	0	6	0	**6**	**12**	0	0	0	**2**	0	2	0	**2**	**4**	**8**
12:15	12:30	0	0	0	**5**	0	5	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
12:30	12:45	0	0	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
12:45	13:00	0	0	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
13:00	13:15	0	0	0	**2**	0	2	1	**3**	**5**	0	0	0	**1**	0	0	0	**0**	**1**	**3**
13:15	13:30	0	0	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
15:00	15:15	0	0	0	**4**	0	4	1	**5**	**9**	0	0	0	**1**	0	0	0	**0**	**1**	**5**
15:15	15:30	0	0	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
15:30	15:45	0	0	0	**2**	0	2	0	**2**	**4**	0	0	0	**0**	0	0	0	**0**	**0**	**2**
15:45	16:00	0	0	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
16:00	16:15	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
16:15	16:30	0	0	0	**3**	0	2	0	**2**	**5**	0	0	0	**0**	1	0	0	**1**	**1**	**3**
16:30	16:45	0	0	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
16:45	17:00	0	0	0	**1**	0	0	0	**0**	**1**	0	0	0	**0**	1	0	0	**1**	**1**	**1**
17:00	17:15	0	0	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
17:15	17:30	0	0	0	**1**	0	1	0	**1**	**2**	0	0	0	**0**	0	0	0	**0**	**0**	**1**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**0**	0	0	0	**0**	**0**	**0**
17:45	18:00	0	0	0	**3**	0	3	0	**3**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**3**
Total:	None	0	0	0	**84**	0	78	6	**85**	**169**	0	0	1	**13**	5	6	1	**12**	**25**	**97**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

JAMES ST @ LYON ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40221

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		LYON ST Northbound U-Turn Total	LYON ST Southbound U-Turn Total	JAMES ST Eastbound U-Turn Total	JAMES ST Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Transportation Services - Traffic Services

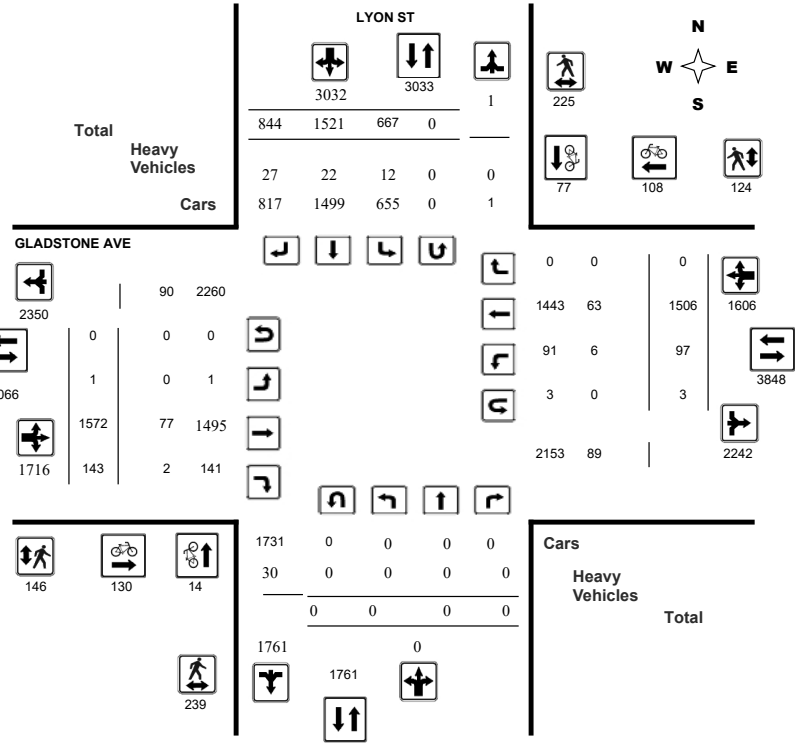
Turning Movement Count - Study Results

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

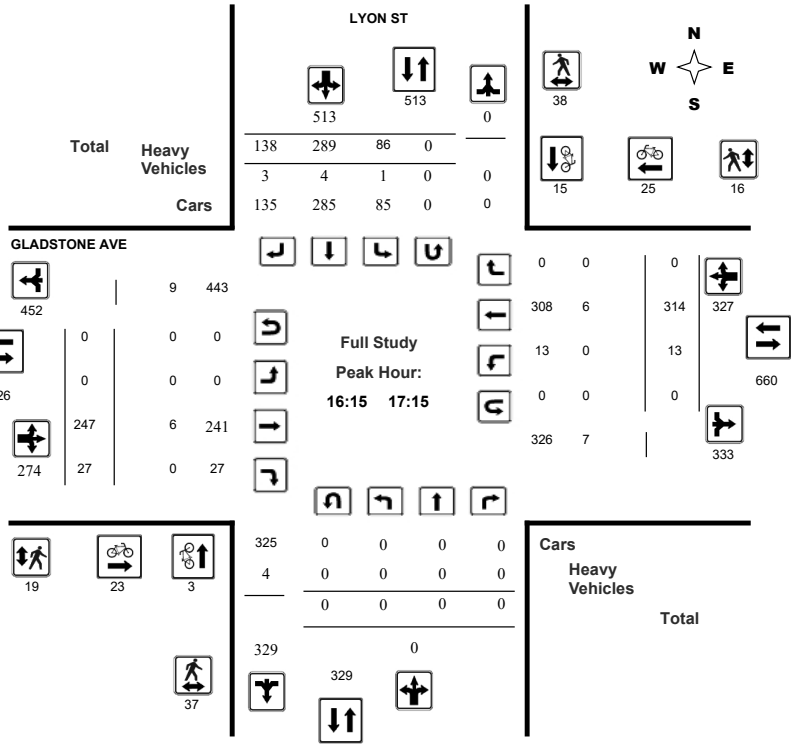
Turning Movement Count - Study Results

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



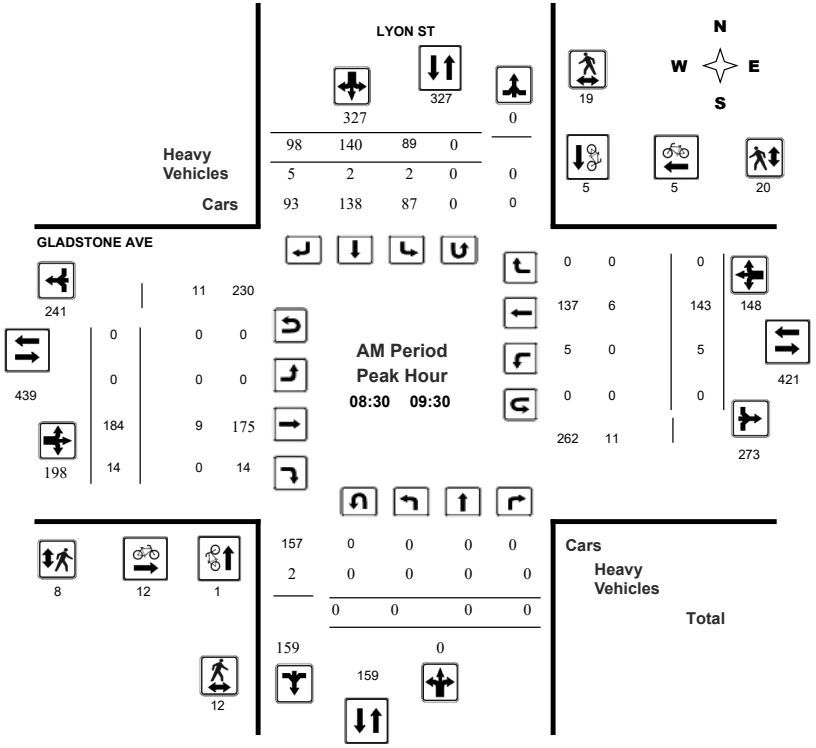
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision



Comments

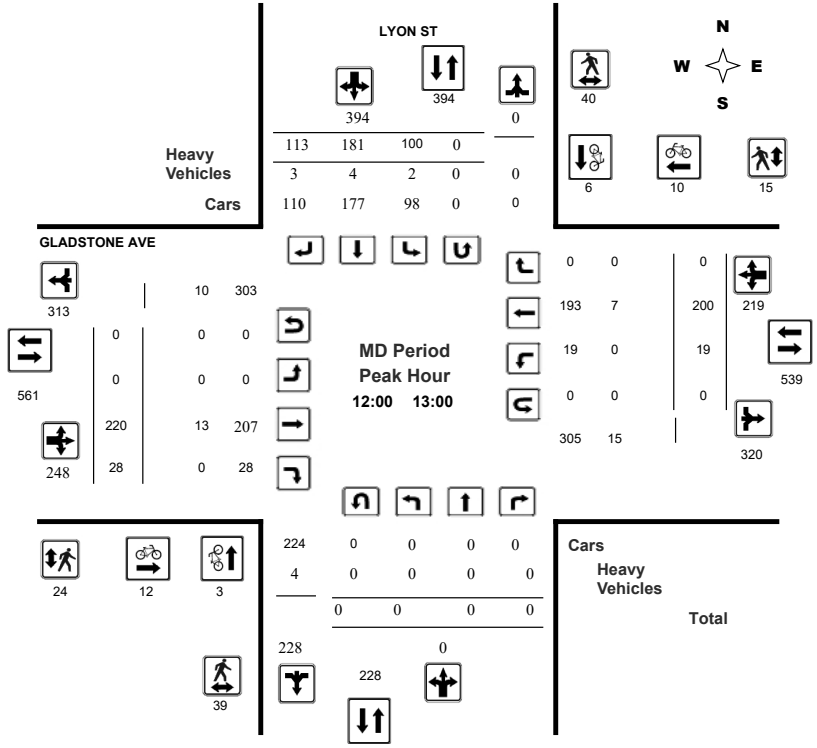
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision



Comments

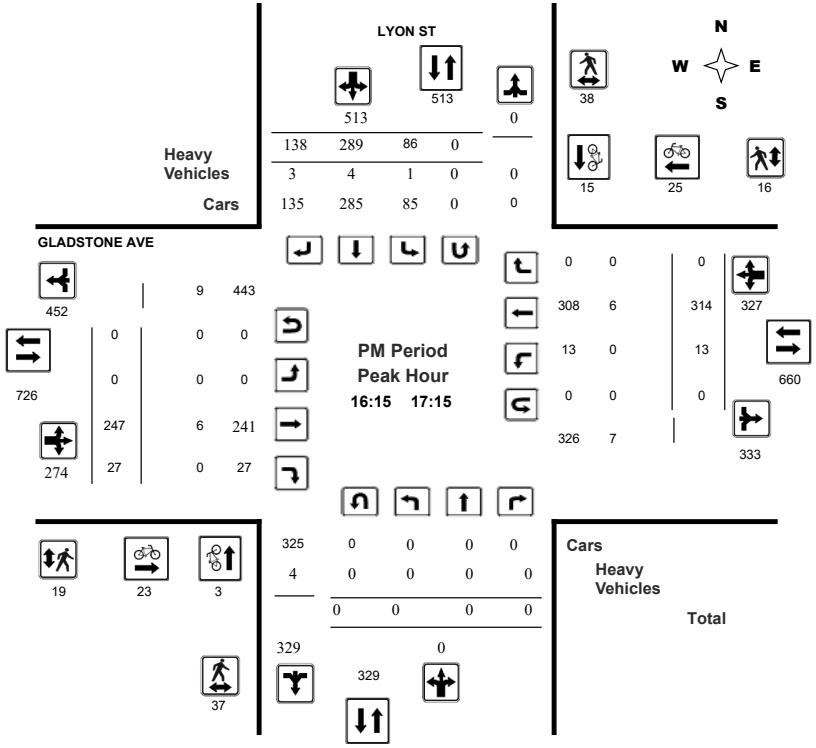
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, August 24, 2022

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 3

AADT Factor .90

	LYON ST								GLADSTONE AVE									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	0	0	0	60	133	66	259	259	0	125	6	131	7	88	0	95	226	485
08:00 09:00	0	0	0	0	92	149	98	339	339	0	155	9	164	9	104	0	113	277	616
09:00 10:00	0	0	0	0	60	143	82	285	285	0	184	18	202	2	137	0	139	341	626
11:30 12:30	0	0	0	0	89	176	113	378	378	0	217	22	239	20	197	0	217	456	834
12:30 13:30	0	0	0	0	91	172	103	366	366	1	227	20	248	17	204	0	221	469	835
15:00 16:00	0	0	0	0	96	212	122	430	430	0	198	18	216	14	216	0	230	446	876
16:00 17:00	0	0	0	0	85	273	143	501	501	0	229	25	254	12	315	0	327	581	1082
17:00 18:00	0	0	0	0	94	263	117	474	474	0	237	25	262	16	245	0	261	523	997
Sub Total	0	0	0	0	667	1521	844	3032	3032	1	1572	143	1716	97	1506	0	1603	3319	6351
U Turns				0				0	0				0				3	3	3
Total	0	0	0	0	667	1521	844	3032	3032	1	1572	143	1716	97	1506	0	1606	3322	6354
EQ 12Hr	0	0	0	0	927	2114	1173	4214	4214	1	2185	199	2385	135	2093	0	2232	4618	8832
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	0	0	0	0	834	2493	1383	3793	3793	1	1966	179	2146	122	1884	0	2009	4156	7949
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	0	0	0	0	1093	3266	1812	4969	4969	1	2575	234	2811	160	2468	0	2632	5444	10413
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		LYON ST									GLADSTONE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	0	10	23	13	46	46	0	20	3	23	0	12	0	12	35	81
07:15	07:30	0	0	0	0	17	29	14	60	60	0	29	0	29	1	23	0	24	53	113
07:30	07:45	0	0	0	0	18	31	15	64	64	0	43	2	45	3	28	0	31	76	140
07:45	08:00	0	0	0	0	15	50	24	89	89	0	33	1	34	3	25	0	28	62	151
08:00	08:15	0	0	0	0	20	37	20	77	77	0	36	3	39	1	23	0	25	64	141
08:15	08:30	0	0	0	0	21	40	22	83	83	0	31	1	32	3	17	0	20	52	135
08:30	08:45	0	0	0	0	31	34	24	89	89	0	44	3	47	5	30	0	35	82	171
08:45	09:00	0	0	0	0	20	38	32	90	90	0	44	2	46	0	34	0	34	80	170
09:00	09:15	0	0	0	0	16	34	17	67	67	0	54	4	58	0	47	0	47	105	172
09:15	09:30	0	0	0	0	22	34	25	81	81	0	42	5	47	0	32	0	32	79	160
09:30	09:45	0	0	0	0	10	47	19	76	76	0	39	5	44	1	26	0	27	71	147
09:45	10:00	0	0	0	0	12	28	21	61	61	0	49	4	53	1	32	0	33	86	147
11:30	11:45	0	0	0	0	11	51	31	93	93	0	56	7	63	5	48	0	54	117	210
11:45	12:00	0	0	0	0	30	36	23	89	89	0	58	2	60	4	52	0	56	116	205
12:00	12:15	0	0	0	0	29	52	27	108	108	0	56	3	59	6	43	0	49	108	216
12:15	12:30	0	0	0	0	19	37	32	88	88	0	47	10	57	5	54	0	59	116	204
12:30	12:45	0	0	0	0	27	43	27	97	97	0	66	4	70	4	47	0	51	121	218
12:45	13:00	0	0	0	0	25	49	27	101	101	0	51	11	62	4	56	0	60	122	223
13:00	13:15	0	0	0	0	23	48	22	93	93	1	54	4	59	4	52	0	56	115	208
13:15	13:30	0	0	0	0	16	32	27	75	75	0	56	1	57	5	49	0	54	111	186
15:00	15:15	0	0	0	0	19	48	29	96	96	0	56	5	61	2	56	0	58	119	215
15:15	15:30	0	0	0	0	26	57	36	119	119	0	50	3	53	4	50	0	55	108	227
15:30	15:45	0	0	0	0	29	52	27	108	108	0	40	4	44	5	54	0	59	103	211
15:45	16:00	0	0	0	0	22	55	30	107	107	0	52	6	58	3	56	0	59	117	224
16:00	16:15	0	0	0	0	21	55	27	103	103	0	50	5	55	2	67	0	69	124	227
16:15	16:30	0	0	0	0	27	79	39	145	145	0	64	8	72	4	79	0	83	155	300
16:30	16:45	0	0	0	0	18	76	44	138	138	0	49	6	55	1	85	0	86	141	279
16:45	17:00	0	0	0	0	19	63	33	115	115	0	66	6	72	5	84	0	89	161	276
17:00	17:15	0	0	0	0	22	71	22	115	115	0	68	7	75	3	66	0	69	144	259
17:15	17:30	0	0	0	0	31	77	27	135	135	0	66	11	77	6	58	0	64	141	276
17:30	17:45	0	0	0	0	21	60	31	112	112	0	59	3	62	4	69	0	73	135	247
17:45	18:00	0	0	0	0	20	55	37	112	112	0	44	4	48	3	52	0	55	103	215
Total:		0	0	0	0	667	1521	844	3032	3032	1	1572	143	1716	97	1506	0	1606	3322	6,354

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

Time Period		LYON ST Northbound	LYON ST Southbound	LYON ST Street Total	GLADSTONE AVE Eastbound	GLADSTONE AVE Westbound	GLADSTONE AVE Street Total	Grand Total
07:00	07:15	0	2	2	3	4	7	9
07:15	07:30	0	0	0	2	1	3	3
07:30	07:45	0	0	0	4	2	6	6
07:45	08:00	1	1	2	7	1	8	10
08:00	08:15	0	4	4	4	3	7	11
08:15	08:30	1	0	1	3	0	3	4
08:30	08:45	1	0	1	2	1	3	4
08:45	09:00	0	3	3	3	1	4	7
09:00	09:15	0	2	2	2	1	3	5
09:15	09:30	0	0	0	5	2	7	7
09:30	09:45	0	1	1	2	2	4	5
09:45	10:00	0	1	1	2	1	3	4
11:30	11:45	0	3	3	2	2	4	7
11:45	12:00	0	3	3	6	4	10	13
12:00	12:15	0	2	2	4	1	5	7
12:15	12:30	2	1	3	4	3	7	10
12:30	12:45	0	0	0	2	3	5	5
12:45	13:00	1	3	4	2	3	5	9
13:00	13:15	0	3	3	5	1	6	9
13:15	13:30	0	7	7	2	1	3	10
15:00	15:15	0	2	2	7	4	11	13
15:15	15:30	0	0	0	9	7	16	16
15:30	15:45	0	2	2	2	2	4	6
15:45	16:00	1	1	2	1	4	5	7
16:00	16:15	4	3	7	10	8	18	25
16:15	16:30	1	4	5	8	5	13	18
16:30	16:45	1	2	3	5	5	10	13
16:45	17:00	1	5	6	4	10	14	20
17:00	17:15	0	4	4	6	5	11	15
17:15	17:30	0	10	10	3	7	10	20
17:30	17:45	0	6	6	2	7	9	15
17:45	18:00	0	2	2	7	7	14	16
Total		14	77	**91**	130	108	238	329

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period		LYON ST NB Approach (E or W Crossing)	LYON ST SB Approach (E or W Crossing)	LYON ST Total	GLADSTONE AVE EB Approach (N or S Crossing)	GLADSTONE AVE WB Approach (N or S Crossing)	GLADSTONE AVE Total	Grand Total
07:00	07:15	1	0	**1**	0	0	**0**	**1**
07:15	07:30	1	0	**1**	1	2	**3**	**4**
07:30	07:45	1	3	**4**	1	0	**1**	**5**
07:45	08:00	11	6	**17**	1	9	**10**	**27**
08:00	08:15	5	2	**7**	2	3	**5**	**12**
08:15	08:30	2	3	**5**	4	4	**8**	**13**
08:30	08:45	3	5	**8**	0	4	**4**	**12**
08:45	09:00	6	5	**11**	4	8	**12**	**23**
09:00	09:15	1	1	**2**	3	3	**6**	**8**
09:15	09:30	2	8	**10**	1	5	**6**	**16**
09:30	09:45	5	6	**11**	6	3	**9**	**20**
09:45	10:00	11	3	**14**	3	3	**6**	**20**
11:30	11:45	4	7	**11**	5	2	**7**	**18**
11:45	12:00	16	5	**21**	0	4	**4**	**25**
12:00	12:15	6	9	**15**	5	3	**8**	**23**
12:15	12:30	15	12	**27**	8	3	**11**	**38**
12:30	12:45	10	8	**18**	5	3	**8**	**26**
12:45	13:00	8	11	**19**	6	6	**12**	**31**
13:00	13:15	13	5	**18**	8	4	**12**	**30**
13:15	13:30	8	2	**10**	7	6	**13**	**23**
15:00	15:15	4	10	**14**	5	1	**6**	**20**
15:15	15:30	12	15	**27**	6	2	**8**	**35**
15:30	15:45	11	5	**16**	5	7	**12**	**28**
15:45	16:00	5	12	**17**	6	4	**10**	**27**
16:00	16:15	7	5	**12**	11	1	**12**	**24**
16:15	16:30	11	8	**19**	5	4	**9**	**28**
16:30	16:45	9	9	**18**	4	8	**12**	**30**
16:45	17:00	5	10	**15**	5	3	**8**	**23**
17:00	17:15	12	11	**23**	5	1	**6**	**29**
17:15	17:30	19	18	**37**	17	3	**20**	**57**
17:30	17:45	6	10	**16**	3	7	**10**	**26**
17:45	18:00	9	11	**20**	4	8	**12**	**32**
Total		239	225	**464**	146	124	**270**	**734**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		LYON ST									GLADSTONE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	0	0	**1**	0	1	1	**2**	**3**	0	2	0	**5**	0	2	0	**4**	**9**	**6**
07:15	07:30	0	0	0	**1**	1	0	1	**2**	**3**	0	0	0	**2**	1	1	0	**3**	**5**	**4**
07:30	07:45	0	0	0	**2**	0	0	0	**0**	**2**	0	5	0	**10**	2	5	0	**12**	**22**	**12**
07:45	08:00	0	0	0	**0**	0	0	2	**2**	**2**	0	2	0	**6**	0	2	0	**4**	**10**	**6**
08:00	08:15	0	0	0	**1**	1	1	1	**3**	**4**	0	2	0	**6**	0	3	0	**6**	**12**	**8**
08:15	08:30	0	0	0	**1**	0	1	1	**2**	**3**	0	2	0	**5**	0	2	0	**4**	**9**	**6**
08:30	08:45	0	0	0	**1**	1	1	1	**3**	**4**	0	1	0	**3**	0	1	0	**3**	**6**	**5**
08:45	09:00	0	0	0	**0**	0	0	1	**1**	**1**	0	1	0	**4**	0	2	0	**3**	**7**	**4**
09:00	09:15	0	0	0	**0**	1	0	2	**3**	**3**	0	4	0	**8**	0	2	0	**7**	**15**	**9**
09:15	09:30	0	0	0	**1**	0	1	1	**2**	**3**	0	3	0	**5**	0	1	0	**4**	**9**	**6**
09:30	09:45	0	0	0	**3**	0	2	0	**2**	**5**	0	1	1	**2**	0	0	0	**1**	**3**	**4**
09:45	10:00	0	0	0	**1**	1	0	0	**1**	**2**	0	3	1	**7**	0	3	0	**7**	**14**	**8**
11:30	11:45	0	0	0	**1**	0	0	3	**3**	**4**	0	4	0	**9**	1	2	0	**7**	**16**	**10**
11:45	12:00	0	0	0	**2**	0	2	1	**3**	**5**	0	2	0	**5**	0	2	0	**4**	**9**	**7**
12:00	12:15	0	0	0	**1**	0	1	1	**2**	**3**	0	2	0	**5**	0	2	0	**4**	**9**	**6**
12:15	12:30	0	0	0	**0**	0	0	0	**0**	**0**	0	4	0	**6**	0	2	0	**6**	**12**	**6**
12:30	12:45	0	0	0	**2**	1	2	2	**5**	**7**	0	2	0	**6**	0	2	0	**5**	**11**	**9**
12:45	13:00	0	0	0	**1**	1	1	0	**2**	**3**	0	5	0	**6**	0	1	0	**7**	**13**	**8**
13:00	13:15	0	0	0	**0**	1	0	2	**3**	**3**	0	3	0	**9**	0	4	0	**8**	**17**	**10**
13:15	13:30	0	0	0	**2**	0	1	2	**3**	**5**	0	1	0	**6**	1	3	0	**5**	**11**	**8**
15:00	15:15	0	0	0	**2**	0	2	0	**2**	**4**	0	4	0	**7**	0	3	0	**7**	**14**	**9**
15:15	15:30	0	0	0	**0**	1	0	1	**2**	**2**	0	1	0	**3**	0	1	0	**3**	**6**	**4**
15:30	15:45	0	0	0	**0**	2	0	0	**2**	**2**	0	6	0	**10**	0	4	0	**12**	**22**	**12**
15:45	16:00	0	0	0	**1**	0	1	0	**1**	**2**	0	2	0	**4**	0	2	0	**4**	**8**	**5**
16:00	16:15	0	0	0	**1**	0	1	1	**2**	**3**	0	4	0	**7**	0	2	0	**6**	**13**	**8**
16:15	16:30	0	0	0	**0**	1	0	0	**1**	**1**	0	1	0	**3**	0	2	0	**4**	**7**	**4**
16:30	16:45	0	0	0	**2**	0	2	2	**4**	**6**	0	2	0	**5**	0	1	0	**3**	**8**	**7**
16:45	17:00	0	0	0	**0**	0	0	0	**0**	**0**	0	1	0	**3**	0	2	0	**3**	**6**	**3**
17:00	17:15	0	0	0	**2**	0	2	1	**3**	**5**	0	2	0	**4**	0	1	0	**3**	**7**	**6**
17:15	17:30	0	0	0	**1**	0	0	0	**0**	**1**	0	2	0	**4**	1	2	0	**5**	**9**	**5**
17:30	17:45	0	0	0	**0**	0	0	0	**0**	**0**	0	0	0	**1**	0	1	0	**1**	**2**	**1**
17:45	18:00	0	0	0	**0**	0	0	0	**0**	**0**	0	3	0	**3**	0	0	0	**3**	**6**	**3**
Total:	None	0	0	0	**30**	12	22	27	**61**	**91**	0	77	2	**169**	6	63	0	**158**	**327**	**209**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

GLADSTONE AVE @ LYON ST

Survey Date: Wednesday, August 24, 2022 **WO No:** 40574

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

		LYON ST	LYON ST	GLADSTONE AVE	GLADSTONE AVE	
Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	1	1
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	1	1
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	1	1
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	3	3

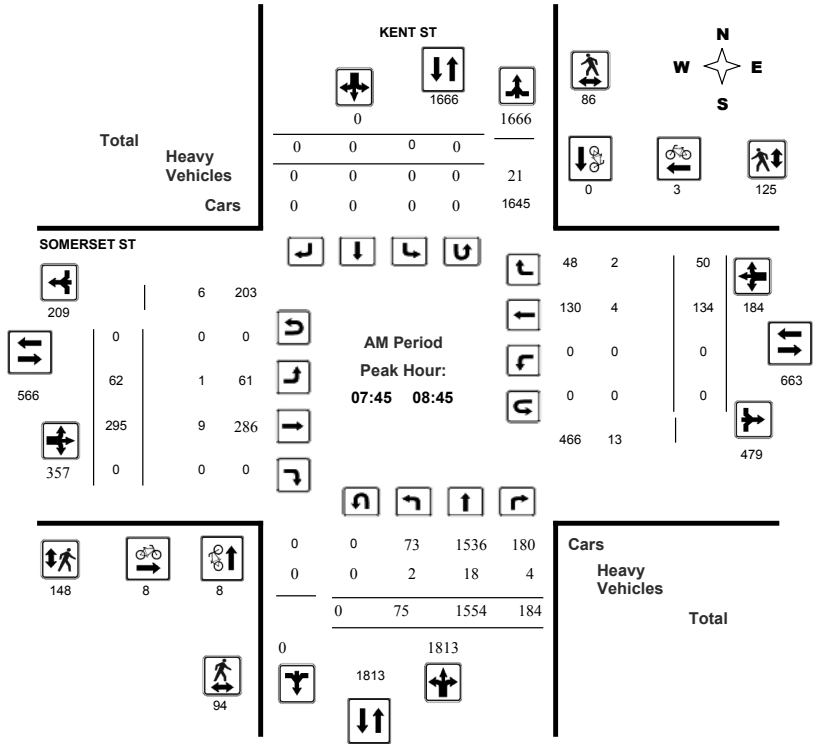
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017 **WO No:** 36850

Start Time: 07:00 **Device:** Miovision



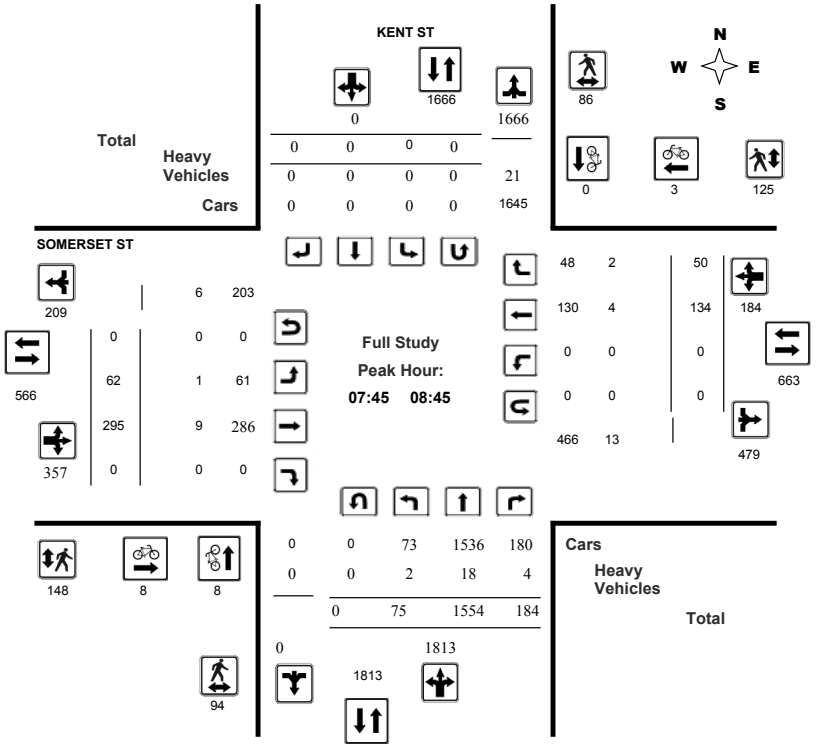
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017 **WO No:** 36850

Start Time: 07:00 **Device:** Miovision



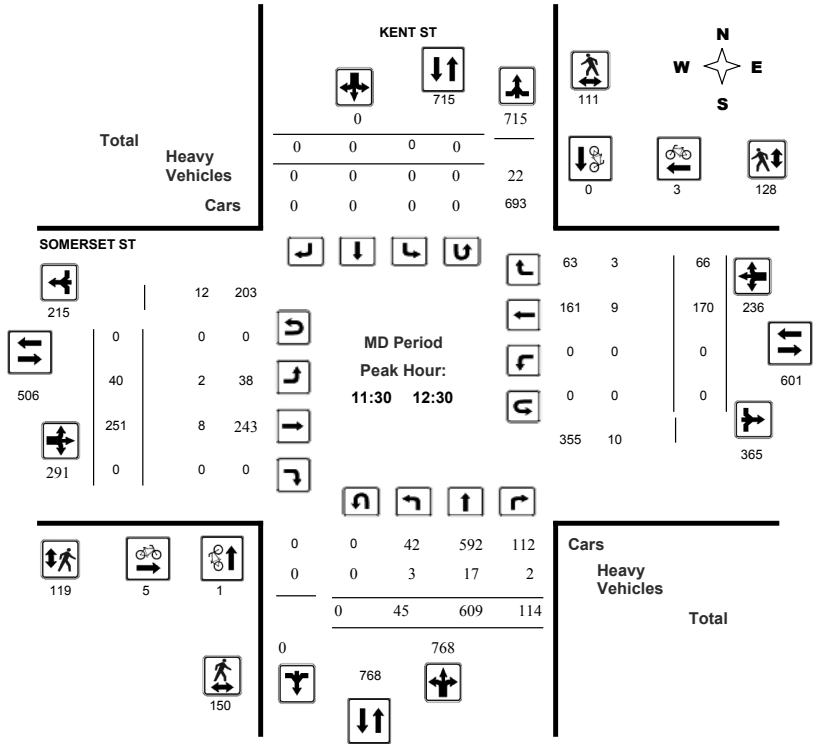
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017 **WO No:** 36850

Start Time: 07:00 **Device:** Miovision



Comments

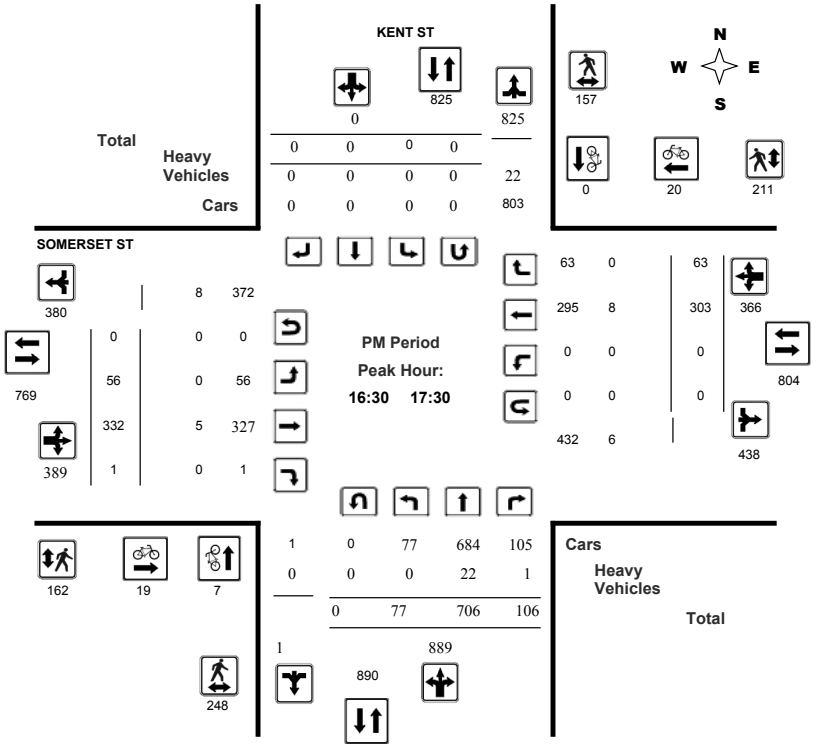
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017 **WO No:** 36850

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

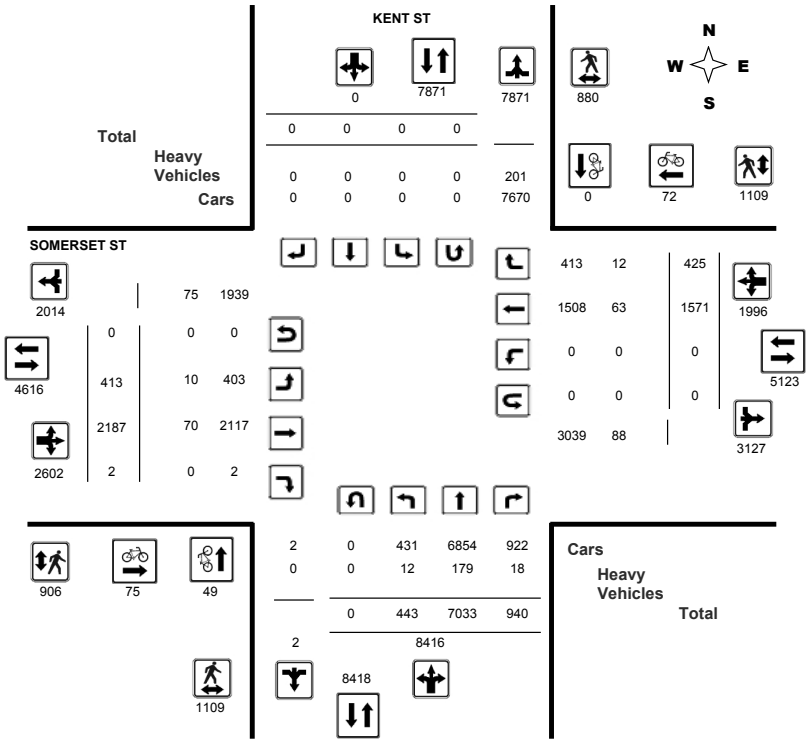
Turning Movement Count - Full Study Diagram

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017

WO#: 36850

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order 36850

Turning Movement Count - Full Study Summary Report

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	KENT ST								SOMERSET ST									
	Northbound				Southbound				Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	53	1393	126	**1572**	0	0	0	**0**	**1572**	46	245	0	**291**	0	93	44	**137**	**428**	**2000**
08:00 09:00	69	1516	190	**1775**	0	0	0	**0**	**1775**	68	301	0	**369**	0	152	48	**200**	**569**	**2344**
09:00 10:00	48	944	106	**1098**	0	0	0	**0**	**1098**	56	233	0	**289**	0	166	40	**206**	**495**	**1593**
11:30 12:30	45	609	114	**768**	0	0	0	**0**	**768**	40	251	0	**291**	0	170	66	**236**	**527**	**1295**
12:30 13:30	42	530	90	**662**	0	0	0	**0**	**662**	45	242	1	**288**	0	161	41	**202**	**490**	**1152**
15:00 16:00	56	651	113	**820**	0	0	0	**0**	**820**	35	305	0	**340**	0	251	56	**307**	**647**	**1467**
16:00 17:00	64	682	96	**842**	0	0	0	**0**	**842**	61	330	1	**392**	0	318	66	**384**	**776**	**1618**
17:00 18:00	66	708	105	**879**	0	0	0	**0**	**879**	62	280	0	**342**	0	260	64	**324**	**666**	**1545**
Sub Total	443	7033	940	**8416**	0	0	0	**0**	**8416**	413	2187	2	**2602**	0	1571	425	**1996**	**4598**	**13014**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	443	7033	940	**8416**	0	0	0	**0**	**8416**	413	2187	2	**2602**	0	1571	425	**1996**	**4598**	**13014**
EQ 12Hr	616	9776	1307	**11698**	0	0	0	**0**	**11698**	574	3040	3	**3617**	0	2184	591	**2774**	**6391**	**18089**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor. **1.39**																			
AVG 12Hr	554	8798	1176	**10528**	0	0	0	**0**	**10528**	517	2736	3	**3255**	0	1965	532	**2497**	**5752**	**16280**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. **.90**																			
AVG 24Hr	726	11526	1540	**13792**	0	0	0	**0**	**13792**	677	3584	3	**4264**	0	2575	696	**3271**	**7535**	**21327**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**																			

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

W.O. 36850

Turning Movement Count - 15 Minute Summary Report

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		KENT ST								SOMERSET ST									
		Northbound				Southbound				Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	8	312	26	**346**	0	0	0	**0**	**346**	6	61	0	**67**	0	14	12	**26**	**93**	**439**
07:15	07:30	8	335	33	**376**	0	0	0	**0**	**376**	7	46	0	**53**	0	22	9	**31**	**84**	**460**
07:30	07:45	12	348	30	**390**	0	0	0	**0**	**390**	16	65	0	**81**	0	35	11	**46**	**127**	**517**
07:45	08:00	25	398	37	**460**	0	0	0	**0**	**460**	17	73	0	**90**	0	22	12	**34**	**124**	**584**
08:00	08:15	17	373	39	**429**	0	0	0	**0**	**429**	14	68	0	**82**	0	29	12	**41**	**123**	**552**
08:15	08:30	18	416	46	**480**	0	0	0	**0**	**480**	12	67	0	**79**	0	41	15	**56**	**135**	**615**
08:30	08:45	15	367	62	**444**	0	0	0	**0**	**444**	19	87	0	**106**	0	42	11	**53**	**159**	**603**
08:45	09:00	19	360	43	**422**	0	0	0	**0**	**422**	23	79	0	**102**	0	40	10	**50**	**152**	**574**
09:00	09:15	9	306	34	**349**	0	0	0	**0**	**349**	14	59	0	**73**	0	42	11	**53**	**126**	**475**
09:15	09:30	16	250	20	**286**	0	0	0	**0**	**286**	13	60	0	**73**	0	42	9	**51**	**124**	**410**
09:30	09:45	10	202	27	**239**	0	0	0	**0**	**239**	13	55	0	**68**	0	38	13	**51**	**119**	**358**
09:45	10:00	13	186	25	**224**	0	0	0	**0**	**224**	16	59	0	**75**	0	44	7	**51**	**126**	**350**
11:30	11:45	12	145	31	**188**	0	0	0	**0**	**188**	10	61	0	**71**	0	40	22	**62**	**133**	**321**
11:45	12:00	9	197	28	**234**	0	0	0	**0**	**234**	12	63	0	**75**	0	49	12	**61**	**136**	**370**
12:00	12:15	15	125	27	**167**	0	0	0	**0**	**167**	9	66	0	**75**	0	47	17	**64**	**139**	**306**
12:15	12:30	9	142	28	**179**	0	0	0	**0**	**179**	9	61	0	**70**	0	34	15	**49**	**119**	**298**
12:30	12:45	9	139	23	**171**	0	0	0	**0**	**171**	13	56	0	**69**	0	48	9	**57**	**126**	**297**
12:45	13:00	14	121	24	**159**	0	0	0	**0**	**159**	8	64	0	**72**	0	37	9	**46**	**118**	**277**
13:00	13:15	8	141	21	**170**	0	0	0	**0**	**170**	8	68	0	**76**	0	44	19	**63**	**139**	**309**
13:15	13:30	11	129	22	**162**	0	0	0	**0**	**162**	16	54	1	**71**	0	32	4	**36**	**107**	**269**
15:00	15:15	11	144	30	**185**	0	0	0	**0**	**185**	3	80	0	**83**	0	53	20	**73**	**156**	**341**
15:15	15:30	16	183	26	**225**	0	0	0	**0**	**225**	13	78	0	**91**	0	60	8	**68**	**159**	**384**
15:30	15:45	15	175	17	**207**	0	0	0	**0**	**207**	9	72	0	**81**	0	70	13	**83**	**164**	**371**
15:45	16:00	14	149	40	**203**	0	0	0	**0**	**203**	10	75	0	**85**	0	68	15	**83**	**168**	**371**
16:00	16:15	18	158	21	**197**	0	0	0	**0**	**197**	18	88	0	**106**	0	73	16	**89**	**195**	**392**
16:15	16:30	13	172	17	**202**	0	0	0	**0**	**202**	15	64	0	**79**	0	85	22	**107**	**186**	**388**
16:30	16:45	14	181	26	**221**	0	0	0	**0**	**221**	12	85	0	**97**	0	82	11	**93**	**190**	**411**
16:45	17:00	19	171	32	**222**	0	0	0	**0**	**222**	16	93	1	**110**	0	78	17	**95**	**205**	**427**
17:00	17:15	24	167	29	**220**	0	0	0	**0**	**220**	9	76	0	**85**	0	76	12	**88**	**173**	**393**
17:15	17:30	20	187	19	**226**	0	0	0	**0**	**226**	19	78	0	**97**	0	67	23	**90**	**187**	**413**
17:30	17:45	7	193	24	**224**	0	0	0	**0**	**224**	16	69	0	**85**	0	68	18	**86**	**171**	**395**
17:45	18:00	15	161	33	**209**	0	0	0	**0**	**209**	18	57	0	**75**	0	49	11	**60**	**135**	**344**
TOTAL:		443	7033	940	**8416**	0	0	0	**0**	**8416**	413	2187	2	**2602**	0	1571	425	**1996**	**4598**	**13014**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 36850

KENT ST @ SOMERSET ST

Count Date: Wednesday, April 05, 2017 **Start Time:** 07:00

	KENT ST			SOMERSET ST			
Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00 08:00	8	0	**8**	12	4	**16**	**24**
08:00 09:00	10	0	**10**	8	5	**13**	**23**
09:00 10:00	7	0	**7**	7	6	**13**	**20**
11:30 12:30	1	0	**1**	5	3	**8**	**9**
12:30 13:30	4	0	**4**	11	8	**19**	**23**
15:00 16:00	4	0	**4**	8	10	**18**	**22**
16:00 17:00	8	0	**8**	18	20	**38**	**46**
17:00 18:00	7	0	**7**	6	16	**22**	**29**
Total	49	0	**49**	75	72	**147**	**196**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 36850

Turning Movement Count - Heavy Vehicle Report

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017

Time Period	KENT ST Northbound LT	ST	RT	N TOT	KENT ST Southbound LT	ST	RT	S TOT	STR TOT	SOMERSET ST Eastbound LT	ST	RT	E TOT	SOMERSET ST Westbound LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 08:00	2	18	1	**21**	0	0	0	**0**	**21**	2	10	0	**12**	0	7	2	**9**	**21**	**42**
08:00 09:00	3	20	5	**28**	0	0	0	**0**	**28**	2	13	0	**15**	0	6	2	**8**	**23**	**51**
09:00 10:00	2	30	3	**35**	0	0	0	**0**	**35**	1	15	0	**16**	0	13	1	**14**	**30**	**65**
11:30 12:30	3	17	2	**22**	0	0	0	**0**	**22**	2	8	0	**10**	0	9	3	**12**	**22**	**44**
12:30 13:30	1	14	0	**15**	0	0	0	**0**	**15**	2	5	0	**7**	0	6	2	**8**	**15**	**30**
15:00 16:00	0	34	5	**39**	0	0	0	**0**	**39**	0	7	0	**7**	0	8	0	**8**	**15**	**54**
16:00 17:00	1	27	1	**29**	0	0	0	**0**	**29**	1	7	0	**8**	0	7	1	**8**	**16**	**45**
17:00 18:00	0	19	1	**20**	0	0	0	**0**	**20**	0	5	0	**5**	0	7	1	**8**	**13**	**33**
Sub Total	12	179	18	**209**	0	0	0	**0**	**209**	10	70	0	**80**	0	63	12	**75**	**155**	**364**
U-Turns (Heavy Vehicles)				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	12	179	18	**0**	0	0	0	**0**	**209**	10	70	0	**80**	0	63	12	**75**	**155**	**364**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order 36850

Turning Movement Count - Pedestrian Volume Report

KENT ST @ SOMERSET ST

Count Date: Wednesday, April 05, 2017 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	2	7	**9**	3	12	**15**	**24**
07:15 07:30	11	13	**24**	14	14	**28**	**52**
07:30 07:45	5	15	**20**	10	24	**34**	**54**
07:45 08:00	23	21	**44**	36	27	**63**	**107**
07:00 08:00	41	56	**97**	63	77	**140**	**237**
08:00 08:15	22	18	**40**	27	27	**54**	**94**
08:15 08:30	17	22	**39**	32	38	**70**	**109**
08:30 08:45	32	25	**57**	53	33	**86**	**143**
08:45 09:00	26	22	**48**	35	29	**64**	**112**
08:00 09:00	97	87	**184**	147	127	**274**	**458**
09:00 09:15	30	17	**47**	33	22	**55**	**102**
09:15 09:30	22	16	**38**	30	30	**60**	**98**
09:30 09:45	20	16	**36**	19	14	**33**	**69**
09:45 10:00	23	16	**39**	18	25	**43**	**82**
09:00 10:00	95	65	**160**	100	91	**191**	**351**
11:30 11:45	36	17	**53**	12	22	**34**	**87**
11:45 12:00	42	24	**66**	36	32	**68**	**134**
12:00 12:15	35	33	**68**	43	39	**82**	**150**
12:15 12:30	37	37	**74**	28	35	**63**	**137**
11:30 12:30	150	111	**261**	119	128	**247**	**508**
12:30 12:45	27	38	**65**	28	35	**63**	**128**
12:45 13:00	40	33	**73**	33	36	**69**	**142**
13:00 13:15	32	29	**61**	29	37	**66**	**127**
13:15 13:30	23	29	**52**	12	32	**44**	**96**
12:30 13:30	122	129	**251**	102	140	**242**	**493**
15:00 15:15	28	32	**60**	30	31	**61**	**121**
15:15 15:30	19	30	**49**	29	27	**56**	**105**
15:30 15:45	55	27	**82**	32	45	**77**	**159**
15:45 16:00	30	40	**70**	18	39	**57**	**127**
15:00 16:00	132	129	**261**	109	142	**251**	**512**
16:00 16:15	49	29	**78**	19	56	**75**	**153**
16:15 16:30	60	38	**98**	38	53	**91**	**189**
16:30 16:45	66	45	**111**	51	70	**121**	**232**
16:45 17:00	55	32	**87**	46	54	**100**	**187**
16:00 17:00	230	144	**374**	154	233	**387**	**761**
17:00 17:15	71	40	**111**	33	45	**78**	**189**
17:15 17:30	56	40	**96**	32	42	**74**	**170**
17:30 17:45	50	27	**77**	16	44	**60**	**137**
17:45 18:00	65	52	**117**	31	40	**71**	**188**
17:00 18:00	242	159	**401**	112	171	**283**	**684**
Total	1109	880	**1989**	906	1109	**2015**	**4004**

Comment:

Transportation Services - Traffic Services

Work Order 36850

Turning Movement Count - 15 Min U-Turn Total Report

KENT ST @ SOMERSET ST

Survey Date: Wednesday, April 05, 2017

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

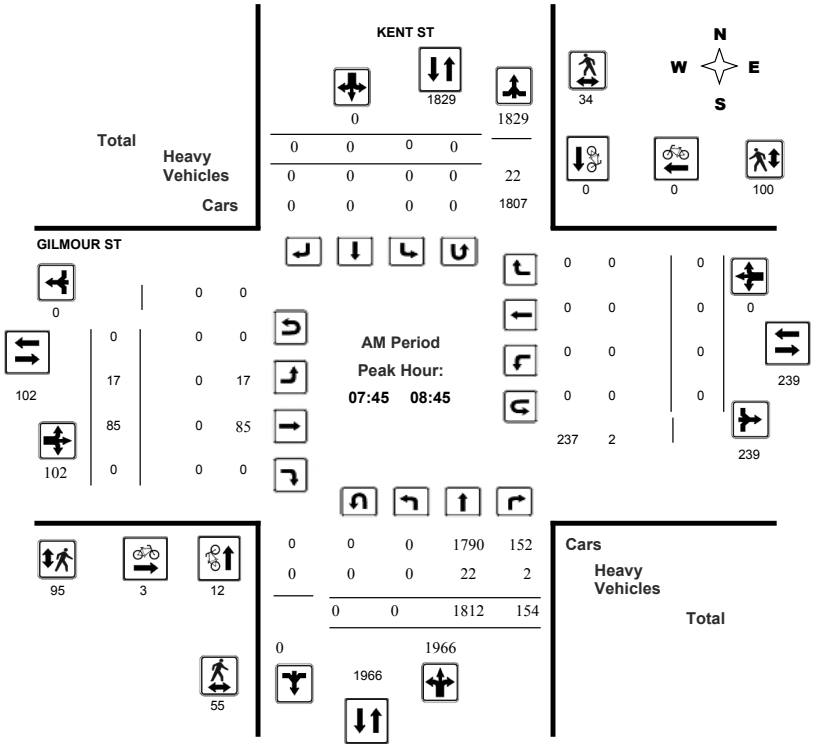
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017 **WO No:** 36849

Start Time: 07:00 **Device:** Miovision



Comments

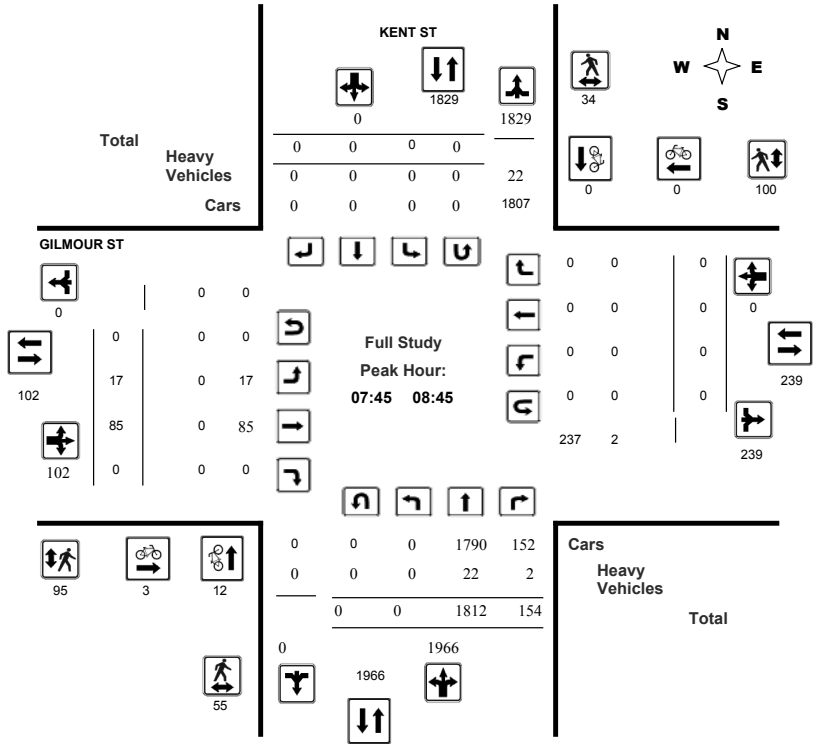
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017 **WO No:** 36849

Start Time: 07:00 **Device:** Miovision



Comments

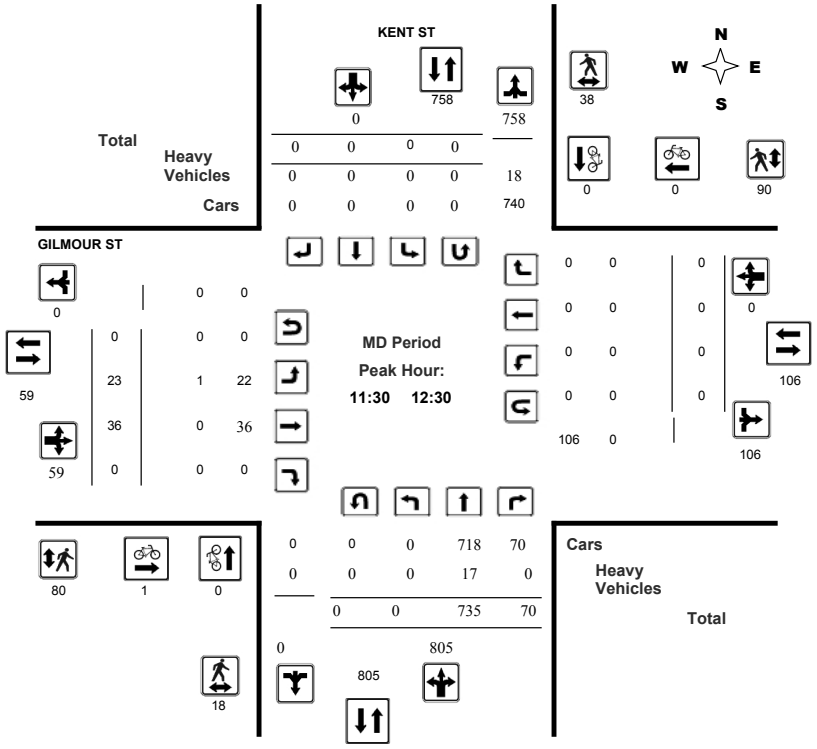
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017 **WO No:** 36849

Start Time: 07:00 **Device:** Miovision



Comments

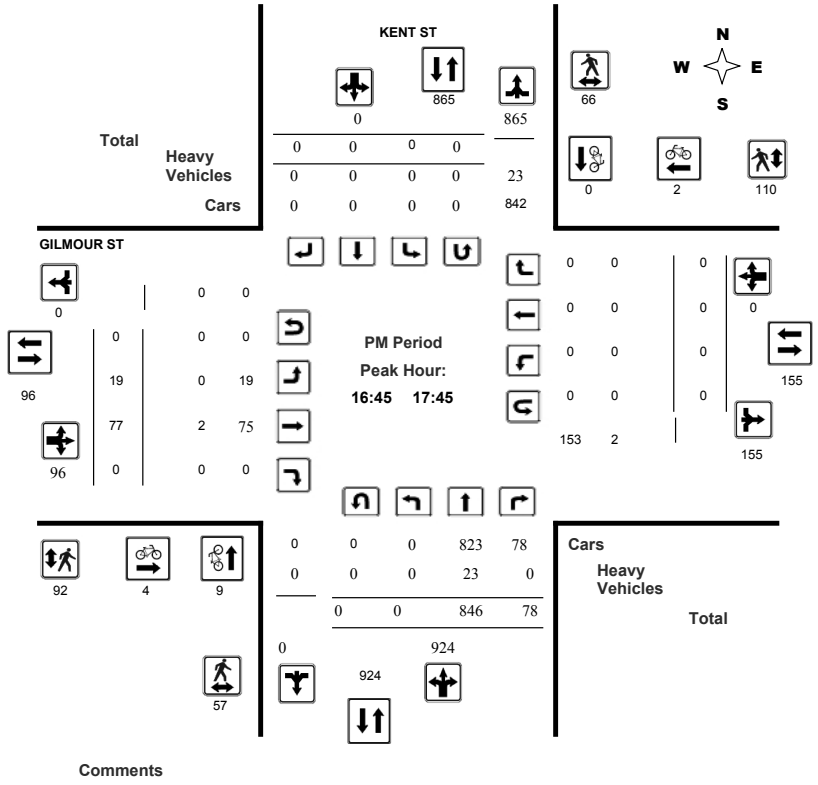
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017 **WO No:** 36849

Start Time: 07:00 **Device:** Miovision



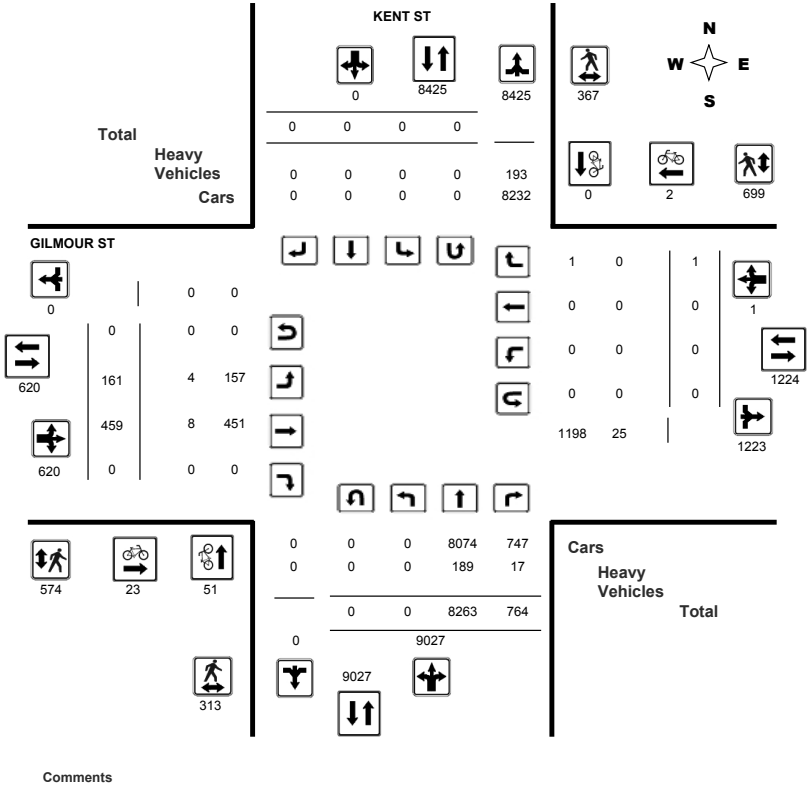
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017 **WO#:** 36849

Device: Miovision



Transportation Services - Traffic Services

Work Order 36849

Turning Movement Count - Full Study Summary Report

GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	KENT ST									GILMOUR ST									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	1629	91	**1720**	0	0	0	**0**	**1720**	14	41	0	**55**	0	0	0	**0**	**55**	**1775**
08:00 09:00	0	1767	156	**1923**	0	0	0	**0**	**1923**	19	98	0	**117**	0	0	0	**0**	**117**	**2040**
09:00 10:00	0	1075	123	**1198**	0	0	0	**0**	**1198**	30	46	0	**76**	0	0	1	**1**	**77**	**1275**
11:30 12:30	0	735	70	**805**	0	0	0	**0**	**805**	23	36	0	**59**	0	0	0	**0**	**59**	**864**
12:30 13:30	0	638	86	**724**	0	0	0	**0**	**724**	18	60	0	**78**	0	0	0	**0**	**78**	**802**
15:00 16:00	0	777	83	**860**	0	0	0	**0**	**860**	24	45	0	**69**	0	0	0	**0**	**69**	**929**
16:00 17:00	0	792	86	**878**	0	0	0	**0**	**878**	15	60	0	**75**	0	0	0	**0**	**75**	**953**
17:00 18:00	0	850	69	**919**	0	0	0	**0**	**919**	18	73	0	**91**	0	0	0	**0**	**91**	**1010**
Sub Total	0	8263	764	**9027**	0	0	0	**0**	**9027**	161	459	0	**620**	0	0	1	**1**	**621**	**9648**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	0	8263	764	**9027**	0	0	0	**0**	**9027**	161	459	0	**620**	0	0	1	**1**	**621**	**9648**
EQ 12Hr	0	11486	1062	**12548**	0	0	0	**0**	**12548**	224	638	0	**862**	0	0	1	**1**	**863**	**13411**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	0	10337	956	**11293**	0	0	0	**0**	**11293**	201	574	0	**776**	0	0	1	**1**	**777**	**12070**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	0	13541	1252	**14794**	0	0	0	**0**	**14794**	264	752	0	**1016**	0	0	2	**2**	**1018**	**15812**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

W.O. 36849

Turning Movement Count - 15 Minute Summary Report

GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

	KENT ST								GILMOUR ST									
	Northbound				Southbound				Eastbound				Westbound					
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	0	361	16	**377**	0	0	0	**0**	**377**	2	8	0	**10**	0	0	0	**0**	**10**	**387**
07:15 07:30	0	394	21	**415**	0	0	0	**0**	**415**	3	10	0	**13**	0	0	0	**0**	**13**	**428**
07:30 07:45	0	409	23	**432**	0	0	0	**0**	**432**	3	10	0	**13**	0	0	0	**0**	**13**	**445**
07:45 08:00	0	465	31	**496**	0	0	0	**0**	**496**	6	13	0	**19**	0	0	0	**0**	**19**	**515**
08:00 08:15	0	430	43	**473**	0	0	0	**0**	**473**	7	30	0	**37**	0	0	0	**0**	**37**	**510**
08:15 08:30	0	480	43	**523**	0	0	0	**0**	**523**	3	19	0	**22**	0	0	0	**0**	**22**	**545**
08:30 08:45	0	437	37	**474**	0	0	0	**0**	**474**	1	23	0	**24**	0	0	0	**0**	**24**	**498**
08:45 09:00	0	420	33	**453**	0	0	0	**0**	**453**	8	26	0	**34**	0	0	0	**0**	**34**	**487**
09:00 09:15	0	351	26	**377**	0	0	0	**0**	**377**	7	17	0	**24**	0	0	0	**0**	**24**	**401**
09:15 09:30	0	276	30	**306**	0	0	0	**0**	**306**	8	12	0	**20**	0	0	0	**0**	**20**	**326**
09:30 09:45	0	248	30	**278**	0	0	0	**0**	**278**	8	12	0	**20**	0	0	1	**1**	**21**	**299**
09:45 10:00	0	200	37	**237**	0	0	0	**0**	**237**	7	5	0	**12**	0	0	0	**0**	**12**	**249**
11:30 11:45	0	179	23	**202**	0	0	0	**0**	**202**	4	5	0	**9**	0	0	0	**0**	**9**	**211**
11:45 12:00	0	220	21	**241**	0	0	0	**0**	**241**	6	14	0	**20**	0	0	0	**0**	**20**	**261**
12:00 12:15	0	165	16	**181**	0	0	0	**0**	**181**	5	9	0	**14**	0	0	0	**0**	**14**	**195**
12:15 12:30	0	171	10	**181**	0	0	0	**0**	**181**	8	8	0	**16**	0	0	0	**0**	**16**	**197**
12:30 12:45	0	169	12	**181**	0	0	0	**0**	**181**	4	13	0	**17**	0	0	0	**0**	**17**	**198**
12:45 13:00	0	154	26	**180**	0	0	0	**0**	**180**	4	12	0	**16**	0	0	0	**0**	**16**	**196**
13:00 13:15	0	161	25	**186**	0	0	0	**0**	**186**	6	14	0	**20**	0	0	0	**0**	**20**	**206**
13:15 13:30	0	154	23	**177**	0	0	0	**0**	**177**	4	21	0	**25**	0	0	0	**0**	**25**	**202**
15:00 15:15	0	178	17	**195**	0	0	0	**0**	**195**	7	13	0	**20**	0	0	0	**0**	**20**	**215**
15:15 15:30	0	205	23	**228**	0	0	0	**0**	**228**	5	10	0	**15**	0	0	0	**0**	**15**	**243**
15:30 15:45	0	206	22	**228**	0	0	0	**0**	**228**	4	13	0	**17**	0	0	0	**0**	**17**	**245**
15:45 16:00	0	188	21	**209**	0	0	0	**0**	**209**	8	9	0	**17**	0	0	0	**0**	**17**	**226**
16:00 16:15	0	179	24	**203**	0	0	0	**0**	**203**	5	13	0	**18**	0	0	0	**0**	**18**	**221**
16:15 16:30	0	191	18	**209**	0	0	0	**0**	**209**	4	17	0	**21**	0	0	0	**0**	**21**	**230**
16:30 16:45	0	215	19	**234**	0	0	0	**0**	**234**	2	14	0	**16**	0	0	0	**0**	**16**	**250**
16:45 17:00	0	207	25	**232**	0	0	0	**0**	**232**	4	16	0	**20**	0	0	0	**0**	**20**	**252**
17:00 17:15	0	200	13	**213**	0	0	0	**0**	**213**	6	21	0	**27**	0	0	0	**0**	**27**	**240**
17:15 17:30	0	226	26	**252**	0	0	0	**0**	**252**	7	18	0	**25**	0	0	0	**0**	**25**	**277**
17:30 17:45	0	213	14	**227**	0	0	0	**0**	**227**	2	22	0	**24**	0	0	0	**0**	**24**	**251**
17:45 18:00	0	211	16	**227**	0	0	0	**0**	**227**	3	12	0	**15**	0	0	0	**0**	**15**	**242**
TOTAL:	0	8263	764	**9027**	0	0	0	**0**	**9027**	161	459	0	**620**	0	0	1	**1**	**621**	**9648**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 36849

GILMOUR ST @ KENT ST

Count Date: Wednesday, April 05, 2017 **Start Time:** 07:00

Time Period	KENT ST Northbound	KENT ST Southbound	KENT ST Street Total	GILMOUR ST Eastbound	GILMOUR ST Westbound	GILMOUR ST Street Total	Grand Total
07:00 08:00	7	0	**7**	3	0	**3**	**10**
08:00 09:00	13	0	**13**	2	0	**2**	**15**
09:00 10:00	3	0	**3**	5	0	**5**	**8**
11:30 12:30	0	0	**0**	1	0	**1**	**1**
12:30 13:30	3	0	**3**	3	0	**3**	**6**
15:00 16:00	5	0	**5**	4	0	**4**	**9**
16:00 17:00	9	0	**9**	1	0	**1**	**10**
17:00 18:00	11	0	**11**	4	2	**6**	**17**
Total	51	0	**51**	23	2	**25**	**76**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 36849

Turning Movement Count - Heavy Vehicle Report

GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017

Time Period	KENT ST Northbound LT	ST	RT	N TOT	Southbound LT	ST	RT	S TOT	STR TOT	GILMOUR ST Eastbound LT	ST	RT	E TOT	Westbound LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 08:00	0	22	2	**24**	0	0	0	**0**	**24**	0	0	0	**0**	0	0	0	**0**	**0**	**24**
08:00 09:00	0	24	2	**26**	0	0	0	**0**	**26**	0	1	0	**1**	0	0	0	**0**	**1**	**27**
09:00 10:00	0	28	5	**33**	0	0	0	**0**	**33**	1	0	0	**1**	0	0	0	**0**	**1**	**34**
11:30 12:30	0	17	0	**17**	0	0	0	**0**	**17**	1	0	0	**1**	0	0	0	**0**	**1**	**18**
12:30 13:30	0	17	1	**18**	0	0	0	**0**	**18**	0	1	0	**1**	0	0	0	**0**	**1**	**19**
15:00 16:00	0	33	4	**37**	0	0	0	**0**	**37**	2	3	0	**5**	0	0	0	**0**	**5**	**42**
16:00 17:00	0	30	3	**33**	0	0	0	**0**	**33**	0	1	0	**1**	0	0	0	**0**	**1**	**34**
17:00 18:00	0	18	0	**18**	0	0	0	**0**	**18**	0	2	0	**2**	0	0	0	**0**	**2**	**20**
Sub Total	0	189	17	**206**	0	0	0	**0**	**206**	4	8	0	**12**	0	0	0	**0**	**12**	**218**
U-Turns (Heavy Vehicles)				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	0	189	17	**0**	0	0	0	**0**	**206**	4	8	0	**12**	0	0	0	**0**	**12**	**218**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order 36849

Turning Movement Count - Pedestrian Volume Report

GILMOUR ST @ KENT ST

Count Date: Wednesday, April 05, 2017 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	3	9	**12**	3	13	**16**	**28**
07:15 07:30	5	7	**12**	9	6	**15**	**27**
07:30 07:45	1	5	**6**	5	18	**23**	**29**
07:45 08:00	12	8	**20**	14	22	**36**	**56**
07:00 08:00	21	29	**50**	31	59	**90**	**140**
08:00 08:15	10	8	**18**	21	22	**43**	**61**
08:15 08:30	15	7	**22**	32	24	**56**	**78**
08:30 08:45	18	11	**29**	28	32	**60**	**89**
08:45 09:00	18	9	**27**	17	21	**38**	**65**
08:00 09:00	61	35	**96**	98	99	**197**	**293**
09:00 09:15	11	6	**17**	19	17	**36**	**53**
09:15 09:30	15	10	**25**	14	11	**25**	**50**
09:30 09:45	9	7	**16**	17	19	**36**	**52**
09:45 10:00	8	13	**21**	14	20	**34**	**55**
09:00 10:00	43	36	**79**	64	67	**131**	**210**
11:30 11:45	3	9	**12**	12	17	**29**	**41**
11:45 12:00	4	10	**14**	22	30	**52**	**66**
12:00 12:15	4	9	**13**	19	23	**42**	**55**
12:15 12:30	7	10	**17**	27	20	**47**	**64**
11:30 12:30	18	38	**56**	80	90	**170**	**226**
12:30 12:45	11	14	**25**	27	30	**57**	**82**
12:45 13:00	8	13	**21**	16	23	**39**	**60**
13:00 13:15	9	15	**24**	12	16	**28**	**52**
13:15 13:30	9	12	**21**	8	17	**25**	**46**
12:30 13:30	37	54	**91**	63	86	**149**	**240**
15:00 15:15	8	9	**17**	16	20	**36**	**53**
15:15 15:30	13	20	**33**	18	18	**36**	**69**
15:30 15:45	13	13	**26**	25	24	**49**	**75**
15:45 16:00	9	17	**26**	13	31	**44**	**70**
15:00 16:00	43	59	**102**	72	93	**165**	**267**
16:00 16:15	6	11	**17**	14	22	**36**	**53**
16:15 16:30	8	16	**24**	17	28	**45**	**69**
16:30 16:45	11	17	**28**	28	31	**59**	**87**
16:45 17:00	15	21	**36**	23	45	**68**	**104**
16:00 17:00	40	65	**105**	82	126	**208**	**313**
17:00 17:15	15	17	**32**	18	29	**47**	**79**
17:15 17:30	20	11	**31**	28	19	**47**	**78**
17:30 17:45	7	17	**24**	23	17	**40**	**64**
17:45 18:00	8	6	**14**	15	14	**29**	**43**
17:00 18:00	50	51	**101**	84	79	**163**	**264**
Total	313	367	**680**	574	699	**1273**	**1953**

Comment:

Transportation Services - Traffic Services

Work Order 36849

Turning Movement Count - 15 Min U-Turn Total Report

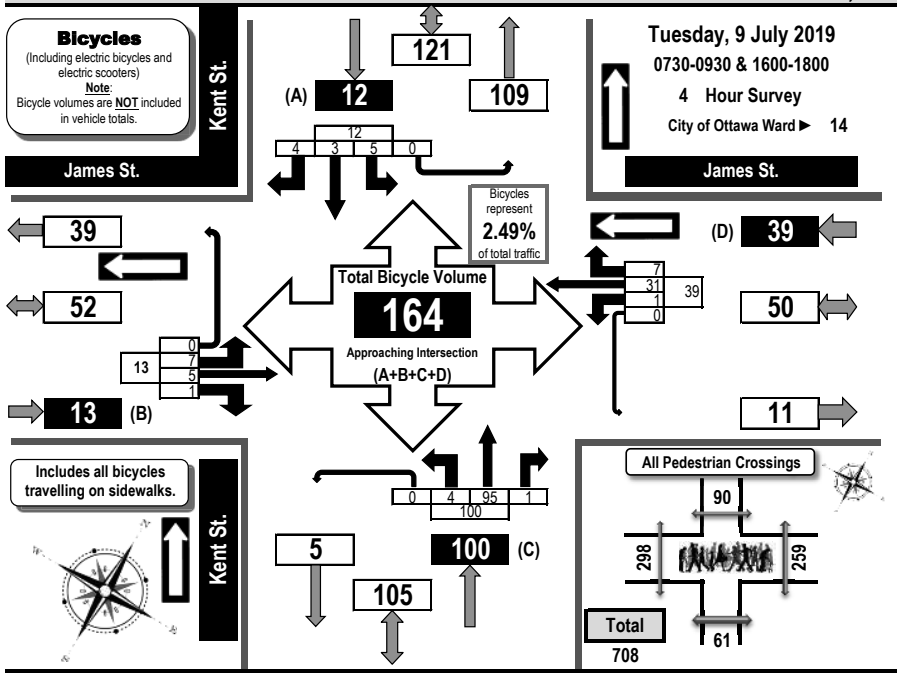
GILMOUR ST @ KENT ST

Survey Date: Wednesday, April 05, 2017

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Turning Movement Count
Bicycle Summary
Flow Diagram

James Street & Kent Street — **Ottawa, ON**



	James St. Eastbound					James St. Westbound					Kent St. Northbound					Kent St. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	0	1	0	1	0	1	2	0	3	1	11	0	0	12	1	0	0	0	1	17
0800-0900	5	1	0	0	6	0	4	2	0	6	2	48	0	0	50	2	0	0	0	2	64
0900-0930	2	0	0	0	2	0	0	0	0	0	0	9	0	0	9	1	0	0	0	1	12
1600-1700	0	2	0	0	2	1	10	1	0	12	0	13	0	0	13	1	1	4	0	6	33
1700-1800	0	2	0	0	2	0	16	2	0	18	1	14	1	0	16	0	2	0	0	2	38
Totals	7	5	1	0	13	1	31	7	0	39	4	95	1	0	100	5	3	4	0	12	164

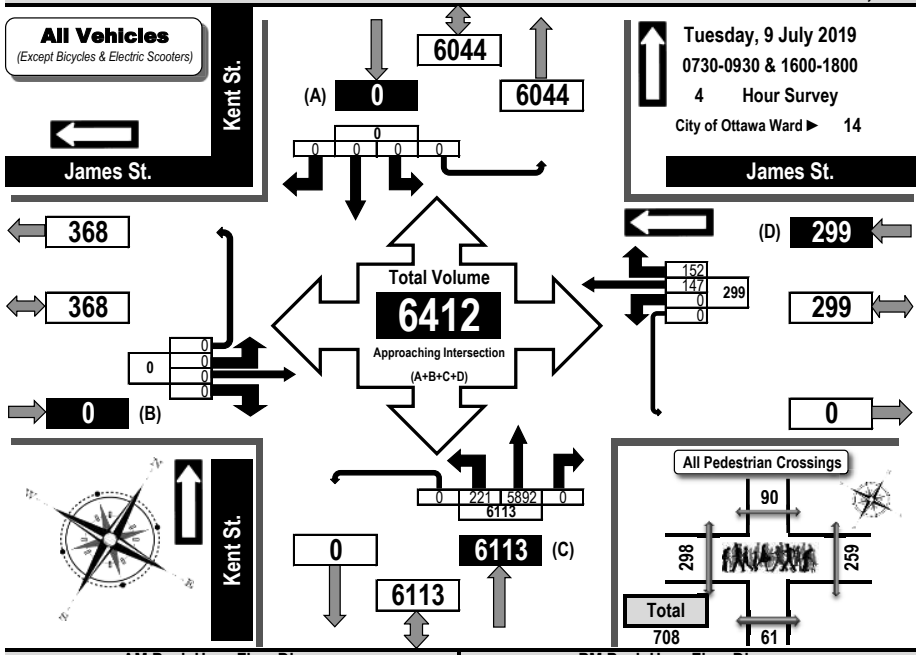
Comments:

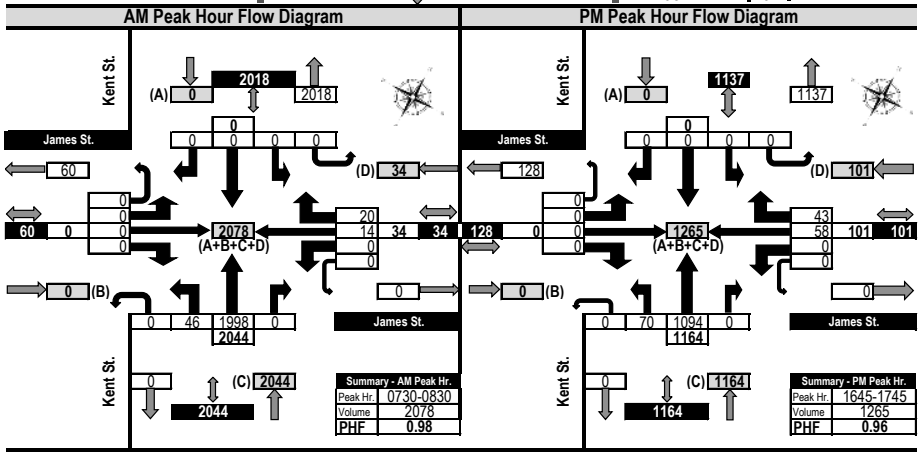
Bronson Avenue, northbound, is closed due to construction between Catherine Street and Chamberlain Avenue. Kent Street is one way northbound and James Street is one way westbound. Bicycle volumes were counted on all approaches.

Turning Movement Count
Summary, AM and PM Peak Hour
Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

James Street & Kent Street — **Ottawa, ON**



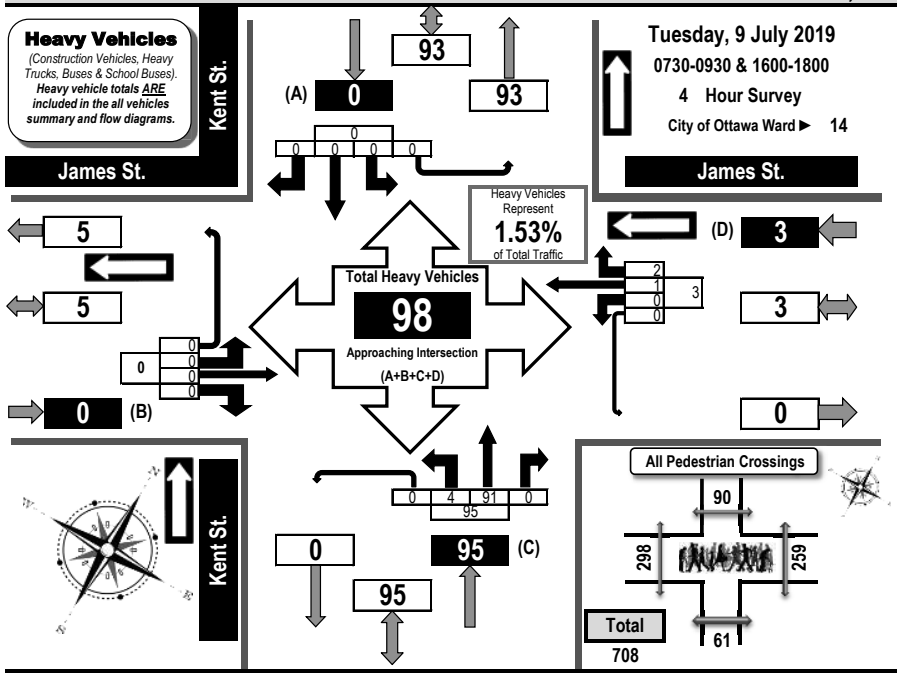


Turning Movement Count
Heavy Vehicle Summary
Flow Diagram

James Street & Kent Street — **Ottawa, ON**

Heavy Vehicles
(Construction Vehicles, Heavy Trucks, Buses & School Buses).
Heavy vehicle totals ARE included in the all vehicles summary and flow diagrams.

Tuesday, 9 July 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 14



	James St. Eastbound					James St. Westbound					Kent St. Northbound					Kent St. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	0	0	0	**0**	0	0	0	0	**0**	0	10	0	0	**10**	0	0	0	0	**0**	**10**
0800-0900	0	0	0	0	**0**	0	1	1	0	**2**	3	33	0	0	**36**	0	0	0	0	**0**	**38**
0900-0930	0	0	0	0	**0**	0	0	0	0	**0**	0	15	0	0	**15**	0	0	0	0	**0**	**15**
1600-1700	0	0	0	0	**0**	0	0	0	0	**0**	1	24	0	0	**25**	0	0	0	0	**0**	**25**
1700-1800	0	0	0	0	**0**	0	0	1	0	**1**	0	9	0	0	**9**	0	0	0	0	**0**	**10**
Totals	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**3**	**4**	**91**	**0**	**0**	**95**	**0**	**0**	**0**	**0**	**0**	**98**

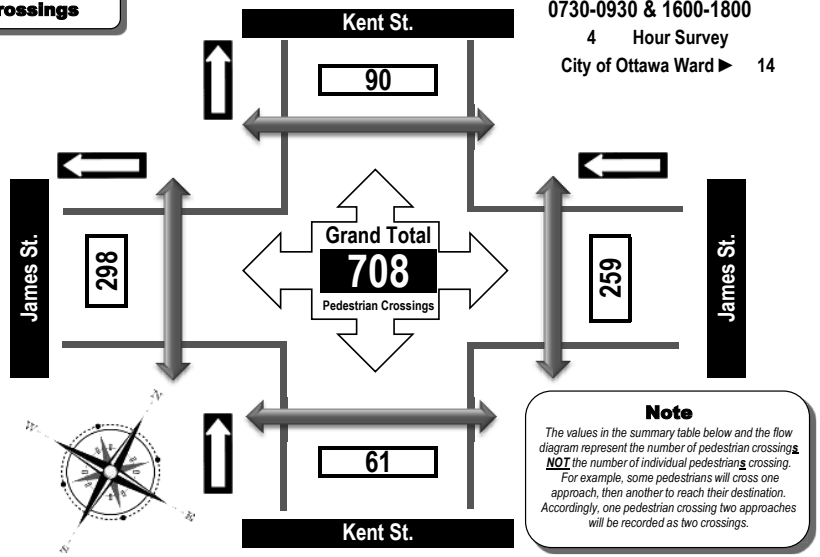
Comments:
Bronson Avenue, northbound, is closed due to construction between Catherine Street and Chamberlain Avenue. Kent Street is one way northbound and James Street is one way westbound. Bicycle volumes were counted on all approaches.

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

James Street & Kent Street — **Ottawa, ON**

Pedestrian Crossings

Tuesday, 9 July 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 14



Note
*The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing James St.	East Side Crossing James St.	Street Total	South Side Crossing Kent St.	North Side Crossing Kent St.	Street Total	Grand Total
0730-0800	26	28	**54**	1	10	**11**	**65**
0800-0900	72	77	**149**	11	23	**34**	**183**
0900-0930	21	38	**59**	11	8	**19**	**78**
1600-1700	95	63	**158**	17	25	**42**	**200**
1700-1800	84	53	**137**	21	24	**45**	**182**
Totals	**298**	**259**	**557**	**61**	**90**	**151**	**708**

Comments:
Bronson Avenue, northbound, is closed due to construction between Catherine Street and Chamberlain Avenue. Kent Street is one way northbound and James Street is one way westbound. Bicycle volumes were counted on all approaches.

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary Report
AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

James Street & Kent Street — Ottawa, ON

Survey Date: Tuesday, 9 July 2019 **Start Time:** 0730 **AADT Factor:** 0.9
Weather AM: Clear + 16ºC **Survey Duration:** 4 Hrs. **Survey Hours:** 0730-0930 & 1600-1800
Weather PM: Partly Cloudy +30ºC **Surveyor(s):** Carmody

	James St. Eastbound					James St. Westbound						Kent St. Northbound					Kent St. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0730-0800	0	0	0	0	**0**	0	7	8	0	**15**	**15**	17	1024	0	0	**1041**	0	0	0	0	**0**	**1041**	**1056**
0800-0900	0	0	0	0	**0**	0	18	33	0	**51**	**51**	49	1904	0	0	**1953**	0	0	0	0	**0**	**1953**	**2004**
0900-0930	0	0	0	0	**0**	0	11	17	0	**28**	**28**	29	826	0	0	**855**	0	0	0	0	**0**	**855**	**883**
1600-1700	0	0	0	0	**0**	0	61	53	0	**114**	**114**	56	1045	0	0	**1101**	0	0	0	0	**0**	**1101**	**1215**
1700-1800	0	0	0	0	**0**	0	50	41	0	**91**	**91**	70	1093	0	0	**1163**	0	0	0	0	**0**	**1163**	**1254**
Totals	**0**	**0**	**0**	**0**	**0**	**0**	**147**	**152**	**0**	**299**	**299**	**221**	**5892**	**0**	**0**	**6113**	**0**	**0**	**0**	**0**	**0**	**6113**	**6412**

Equivalent 12 & 24-hour Vehicle Volumes including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	n/a	n/a	n/a	n/a	**n/a**	n/a	n/a	n/a	n/a	**n/a**	**n/a**	**n/a**

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.98 — Highest Hourly Vehicle Volume Between 0700h & 1000h

AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0730-0830	0	0	0	0	**0**	0	14	20	0	**34**	**34**	46	1998	0	0	**2044**	0	0	0	0	**0**	**2044**	**2078**

PM Peak Hour Factor ➡ 0.96 — Highest Hourly Vehicle Volume Between 1500h & 1800h

PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1645-1745	0	0	0	0	**0**	0	58	43	0	**101**	**101**	70	1094	0	0	**1164**	0	0	0	0	**0**	**1164**	**1265**

Comments:

Bronson Avenue, northbound, is closed due to construction between Catherine Street and Chamberlain Avenue. Kent Street is one way northbound and James Street is one way westbound. Bicycle volumes were counted on all approaches.

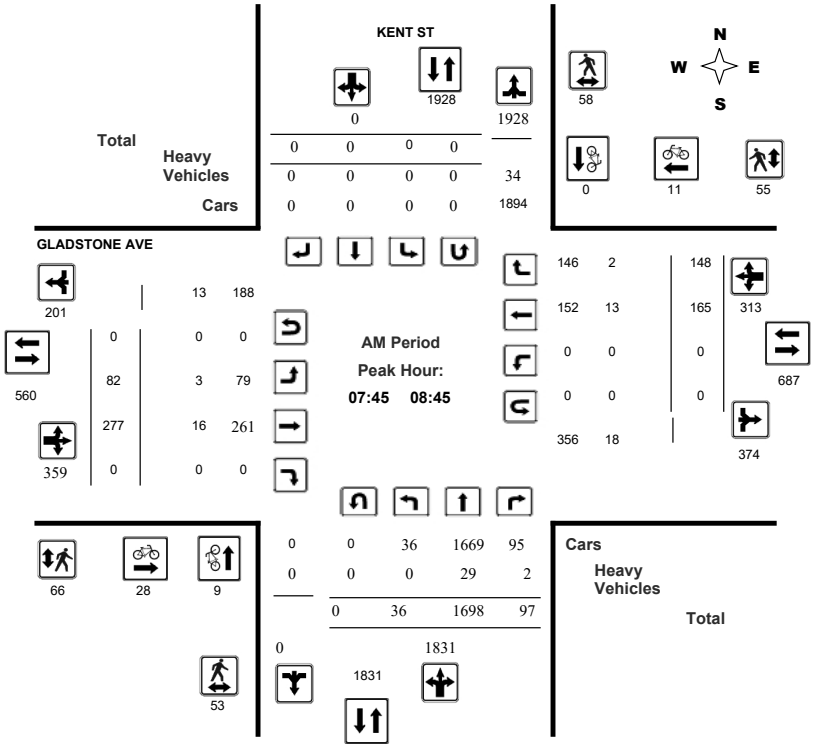
Notes:

1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Ottawa

Transportation Services - Traffic Services
Turning Movement Count - Full Study Peak Hour Diagram
GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017 **WO No:** 36848
Start Time: 07:00 **Device:** Miovision



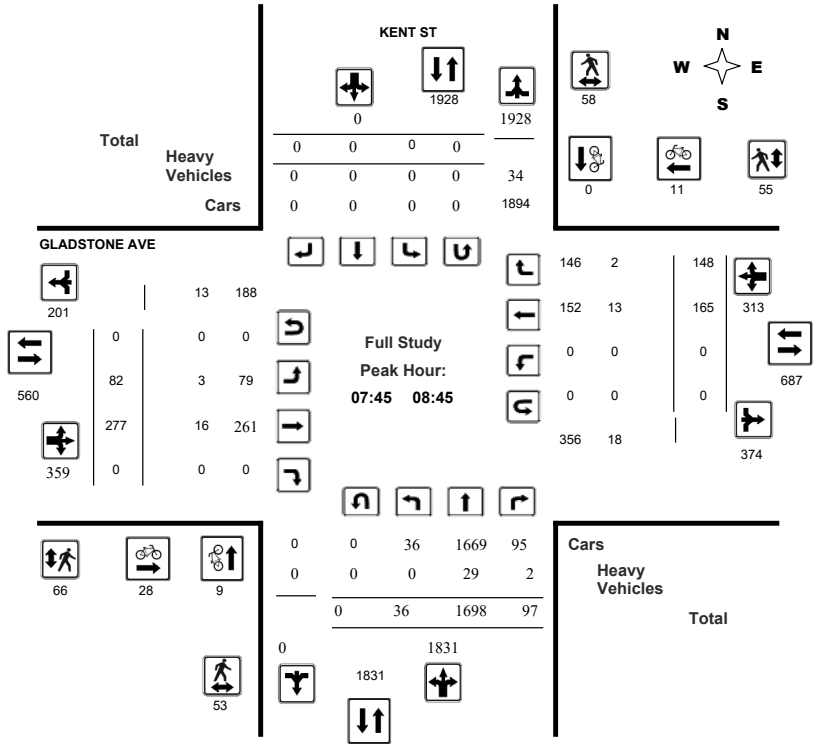
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017 **WO No:** 36848

Start Time: 07:00 **Device:** Miovision



Comments

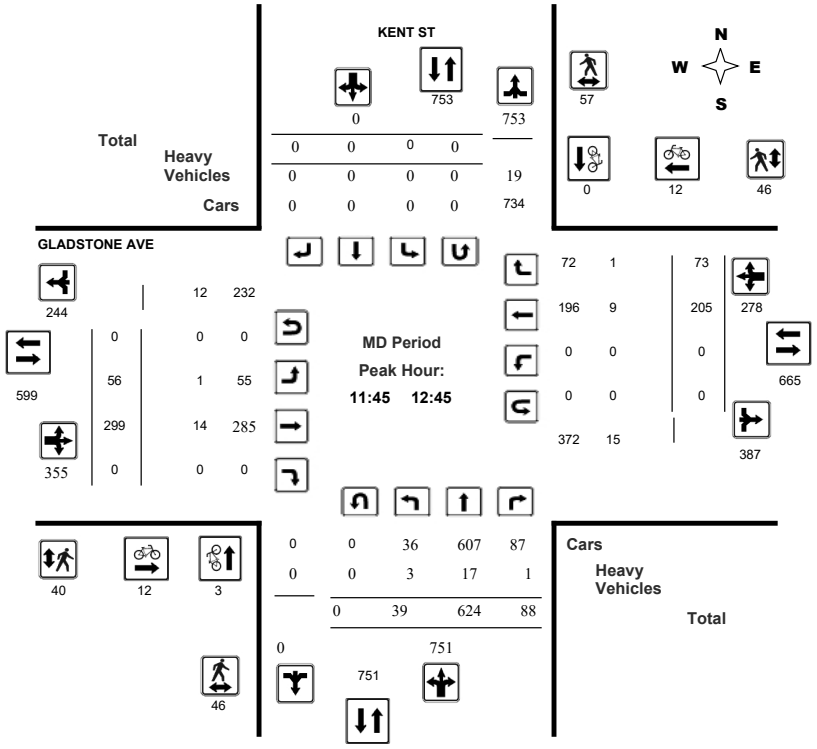
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017 **WO No:** 36848

Start Time: 07:00 **Device:** Miovision



Comments

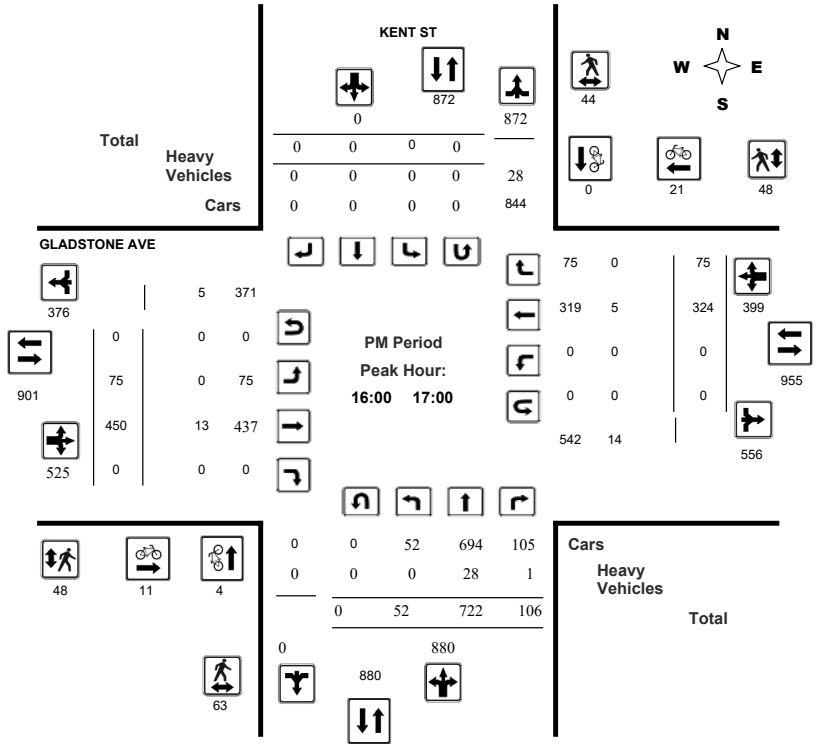
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017 **WO No:** 36848

Start Time: 07:00 **Device:** Miovision



Comments

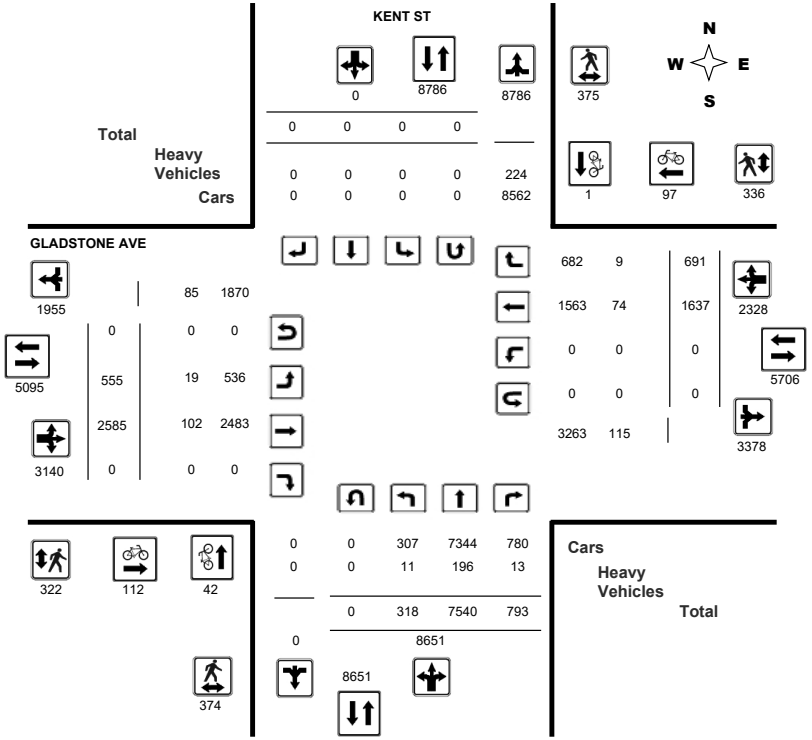
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017 **WO#:** 36848

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order 36848

Turning Movement Count - Full Study Summary Report

GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	KENT ST									GLADSTONE AVE									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	14	1536	96	**1646**	0	0	0	**0**	**1646**	61	214	0	**275**	0	100	104	**204**	**479**	**2125**
08:00 09:00	42	1679	98	**1819**	0	0	0	**0**	**1819**	82	291	0	**373**	0	172	130	**302**	**675**	**2494**
09:00 10:00	34	943	107	**1084**	0	0	0	**0**	**1084**	76	256	0	**332**	0	173	76	**249**	**581**	**1665**
11:30 12:30	36	633	80	**749**	0	0	0	**0**	**749**	55	288	0	**343**	0	182	77	**259**	**602**	**1351**
12:30 13:30	33	569	97	**699**	0	0	0	**0**	**699**	54	321	0	**375**	0	201	74	**275**	**650**	**1349**
15:00 16:00	47	667	108	**822**	0	0	0	**0**	**822**	66	394	0	**460**	0	237	72	**309**	**769**	**1591**
16:00 17:00	52	722	106	**880**	0	0	0	**0**	**880**	75	450	0	**525**	0	324	75	**399**	**924**	**1804**
17:00 18:00	60	791	101	**952**	0	0	0	**0**	**952**	86	371	0	**457**	0	248	83	**331**	**788**	**1740**
Sub Total	318	7540	793	**8651**	0	0	0	**0**	**8651**	555	2585	0	**3140**	0	1637	691	**2328**	**5468**	**14119**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	318	7540	793	**8651**	0	0	0	**0**	**8651**	555	2585	0	**3140**	0	1637	691	**2328**	**5468**	**14119**
EQ 12Hr	442	10481	1102	**12025**	0	0	0	**0**	**12025**	771	3593	0	**4365**	0	2275	960	**3236**	**7601**	**19626**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	398	9433	992	**10822**	0	0	0	**0**	**10822**	694	3234	0	**3928**	0	2048	864	**2912**	**6840**	**17662**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	521	12357	1300	**14177**	0	0	0	**0**	**14177**	910	4236	0	**5146**	0	2683	1132	**3815**	**8961**	**23138**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

W.O. 36848

Turning Movement Count - 15 Minute Summary Report

GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

	KENT ST								GLADSTONE AVE									
	Northbound				Southbound				Eastbound				Westbound					
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	1	319	24	**344**	0	0	0	**0**	**344**	17	51	0	**68**	0	20	10	**30**	**98**	**442**
07:15 07:30	2	382	24	**408**	0	0	0	**0**	**408**	13	40	0	**53**	0	18	21	**39**	**92**	**500**
07:30 07:45	6	402	25	**433**	0	0	0	**0**	**433**	15	64	0	**79**	0	22	31	**53**	**132**	**565**
07:45 08:00	5	433	23	**461**	0	0	0	**0**	**461**	16	59	0	**75**	0	40	42	**82**	**157**	**618**
08:00 08:15	8	428	33	**469**	0	0	0	**0**	**469**	22	79	0	**101**	0	31	42	**73**	**174**	**643**
08:15 08:30	7	435	19	**461**	0	0	0	**0**	**461**	22	70	0	**92**	0	50	28	**78**	**170**	**631**
08:30 08:45	16	402	22	**440**	0	0	0	**0**	**440**	22	69	0	**91**	0	44	36	**80**	**171**	**611**
08:45 09:00	11	414	24	**449**	0	0	0	**0**	**449**	16	73	0	**89**	0	47	24	**71**	**160**	**609**
09:00 09:15	6	319	28	**353**	0	0	0	**0**	**353**	17	66	0	**83**	0	51	31	**82**	**165**	**518**
09:15 09:30	14	243	26	**283**	0	0	0	**0**	**283**	27	66	0	**93**	0	33	17	**50**	**143**	**426**
09:30 09:45	4	177	29	**210**	0	0	0	**0**	**210**	15	61	0	**76**	0	41	15	**56**	**132**	**342**
09:45 10:00	10	204	24	**238**	0	0	0	**0**	**238**	17	63	0	**80**	0	48	13	**61**	**141**	**379**
11:30 11:45	6	158	12	**176**	0	0	0	**0**	**176**	14	67	0	**81**	0	33	18	**51**	**132**	**308**
11:45 12:00	8	167	28	**203**	0	0	0	**0**	**203**	17	82	0	**99**	0	55	25	**80**	**179**	**382**
12:00 12:15	14	153	25	**192**	0	0	0	**0**	**192**	13	65	0	**78**	0	44	19	**63**	**141**	**333**
12:15 12:30	8	155	15	**178**	0	0	0	**0**	**178**	11	74	0	**85**	0	50	15	**65**	**150**	**328**
12:30 12:45	9	149	20	**178**	0	0	0	**0**	**178**	15	78	0	**93**	0	56	14	**70**	**163**	**341**
12:45 13:00	6	153	19	**178**	0	0	0	**0**	**178**	12	66	0	**78**	0	47	22	**69**	**147**	**325**
13:00 13:15	15	141	32	**188**	0	0	0	**0**	**188**	16	96	0	**112**	0	48	19	**67**	**179**	**367**
13:15 13:30	3	126	26	**155**	0	0	0	**0**	**155**	11	81	0	**92**	0	50	19	**69**	**161**	**316**
15:00 15:15	11	154	15	**180**	0	0	0	**0**	**180**	20	85	0	**105**	0	59	19	**78**	**183**	**363**
15:15 15:30	14	157	28	**199**	0	0	0	**0**	**199**	18	102	0	**120**	0	56	21	**77**	**197**	**396**
15:30 15:45	9	167	21	**197**	0	0	0	**0**	**197**	16	107	0	**123**	0	65	14	**79**	**202**	**399**
15:45 16:00	13	189	44	**246**	0	0	0	**0**	**246**	12	100	0	**112**	0	57	18	**75**	**187**	**433**
16:00 16:15	14	172	23	**209**	0	0	0	**0**	**209**	14	118	0	**132**	0	86	25	**111**	**243**	**452**
16:15 16:30	9	195	28	**232**	0	0	0	**0**	**232**	24	111	0	**135**	0	71	19	**90**	**225**	**457**
16:30 16:45	16	167	18	**201**	0	0	0	**0**	**201**	19	116	0	**135**	0	89	18	**107**	**242**	**443**
16:45 17:00	13	188	37	**238**	0	0	0	**0**	**238**	18	105	0	**123**	0	78	13	**91**	**214**	**452**
17:00 17:15	19	176	29	**224**	0	0	0	**0**	**224**	20	99	0	**119**	0	69	17	**86**	**205**	**429**
17:15 17:30	14	201	27	**242**	0	0	0	**0**	**242**	26	109	0	**135**	0	53	25	**78**	**213**	**455**
17:30 17:45	15	215	26	**256**	0	0	0	**0**	**256**	25	93	0	**118**	0	69	21	**90**	**208**	**464**
17:45 18:00	12	199	19	**230**	0	0	0	**0**	**230**	15	70	0	**85**	0	57	20	**77**	**162**	**392**
TOTAL:	318	7540	793	**8651**	0	0	0	**0**	**8651**	555	2585	0	**3140**	0	1637	691	**2328**	**5468**	**14119**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 36848

GLADSTONE AVE @ KENT ST

Count Date: Tuesday, April 25, 2017 **Start Time:** 07:00

	KENT ST			GLADSTONE AVE			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	5	0	**5**	15	12	**27**	**32**
08:00 09:00	13	0	**13**	29	13	**42**	**55**
09:00 10:00	8	0	**8**	13	6	**19**	**27**
11:30 12:30	2	0	**2**	12	11	**23**	**25**
12:30 13:30	8	0	**8**	8	13	**21**	**29**
15:00 16:00	0	1	**1**	8	5	**13**	**14**
16:00 17:00	4	0	**4**	11	21	**32**	**36**
17:00 18:00	2	0	**2**	16	16	**32**	**34**
Total	42	1	**43**	112	97	**209**	**252**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 36848

Turning Movement Count - Heavy Vehicle Report

GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017

	KENT ST								GLADSTONE AVE									
	Northbound				Southbound				Eastbound				Westbound					
Time Period	LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00 08:00	2	17	2	**21**	0	0	0	**0**	**21**	5	12	0	**17**	0	11	1	**12**	**29**	**50**
08:00 09:00	2	31	1	**34**	0	0	0	**0**	**34**	5	16	0	**21**	0	10	2	**12**	**33**	**67**
09:00 10:00	2	24	5	**31**	0	0	0	**0**	**31**	2	12	0	**14**	0	15	2	**17**	**31**	**62**
11:30 12:30	2	20	1	**23**	0	0	0	**0**	**23**	2	12	0	**14**	0	8	1	**9**	**23**	**46**
12:30 13:30	2	12	0	**14**	0	0	0	**0**	**14**	2	16	0	**18**	0	8	0	**8**	**26**	**40**
15:00 16:00	0	45	3	**48**	0	0	0	**0**	**48**	2	13	0	**15**	0	12	3	**15**	**30**	**78**
16:00 17:00	0	28	1	**29**	0	0	0	**0**	**29**	0	13	0	**13**	0	5	0	**5**	**18**	**47**
17:00 18:00	1	19	0	**20**	0	0	0	**0**	**20**	1	8	0	**9**	0	5	0	**5**	**14**	**34**
Sub Total	11	196	13	**220**	0	0	0	**0**	**220**	19	102	0	**121**	0	74	9	**83**	**204**	**424**
U-Turns (Heavy Vehicles)				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	11	196	13	**0**	0	0	0	**0**	**220**	19	102	0	**121**	0	74	9	**83**	**204**	**424**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order 36848

Turning Movement Count - Pedestrian Volume Report

GLADSTONE AVE @ KENT ST

Count Date: Tuesday, April 25, 2017 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	2	4	**6**	3	4	**7**	**13**
07:15 07:30	3	9	**12**	9	5	**14**	**26**
07:30 07:45	8	5	**13**	16	5	**21**	**34**
07:45 08:00	9	8	**17**	13	8	**21**	**38**
07:00 08:00	22	26	**48**	41	22	**63**	**111**
08:00 08:15	10	11	**21**	18	12	**30**	**51**
08:15 08:30	17	24	**41**	21	17	**38**	**79**
08:30 08:45	17	15	**32**	14	18	**32**	**64**
08:45 09:00	12	10	**22**	13	10	**23**	**45**
08:00 09:00	56	60	**116**	66	57	**123**	**239**
09:00 09:15	6	11	**17**	7	14	**21**	**38**
09:15 09:30	6	6	**12**	8	6	**14**	**26**
09:30 09:45	6	13	**19**	4	4	**8**	**27**
09:45 10:00	6	15	**21**	8	7	**15**	**36**
09:00 10:00	24	45	**69**	27	31	**58**	**127**
11:30 11:45	9	6	**15**	11	5	**16**	**31**
11:45 12:00	5	13	**18**	4	8	**12**	**30**
12:00 12:15	13	16	**29**	8	12	**20**	**49**
12:15 12:30	12	13	**25**	14	17	**31**	**56**
11:30 12:30	39	48	**87**	37	42	**79**	**166**
12:30 12:45	16	15	**31**	14	9	**23**	**54**
12:45 13:00	14	10	**24**	3	9	**12**	**36**
13:00 13:15	15	16	**31**	4	13	**17**	**48**
13:15 13:30	12	16	**28**	6	8	**14**	**42**
12:30 13:30	57	57	**114**	27	39	**66**	**180**
15:00 15:15	10	14	**24**	5	12	**17**	**41**
15:15 15:30	12	6	**18**	17	15	**32**	**50**
15:30 15:45	13	11	**24**	2	16	**18**	**42**
15:45 16:00	12	9	**21**	5	11	**16**	**37**
15:00 16:00	47	40	**87**	29	54	**83**	**170**
16:00 16:15	12	11	**23**	9	10	**19**	**42**
16:15 16:30	17	12	**29**	17	14	**31**	**60**
16:30 16:45	18	10	**28**	9	12	**21**	**49**
16:45 17:00	16	11	**27**	13	12	**25**	**52**
16:00 17:00	63	44	**107**	48	48	**96**	**203**
17:00 17:15	23	13	**36**	13	13	**26**	**62**
17:15 17:30	8	17	**25**	13	14	**27**	**52**
17:30 17:45	20	12	**32**	9	10	**19**	**51**
17:45 18:00	15	13	**28**	12	6	**18**	**46**
17:00 18:00	66	55	**121**	47	43	**90**	**211**
Total	374	375	**749**	322	336	**658**	**1407**

Comment:

Transportation Services - Traffic Services

Work Order 36848

Turning Movement Count - 15 Min U-Turn Total Report

GLADSTONE AVE @ KENT ST

Survey Date: Tuesday, April 25, 2017

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Transportation Services - Traffic Services

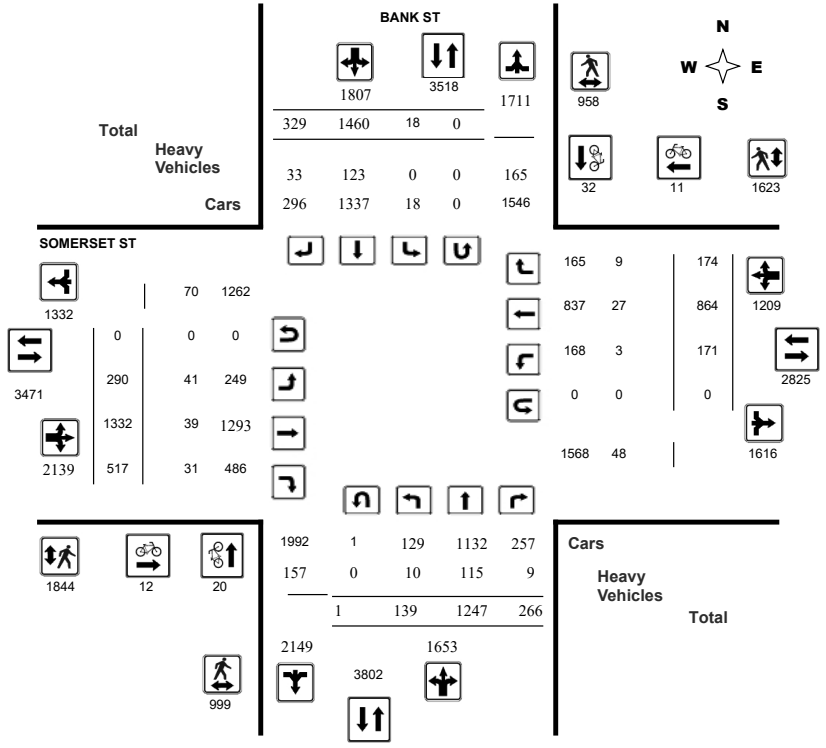
Turning Movement Count - Study Results

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

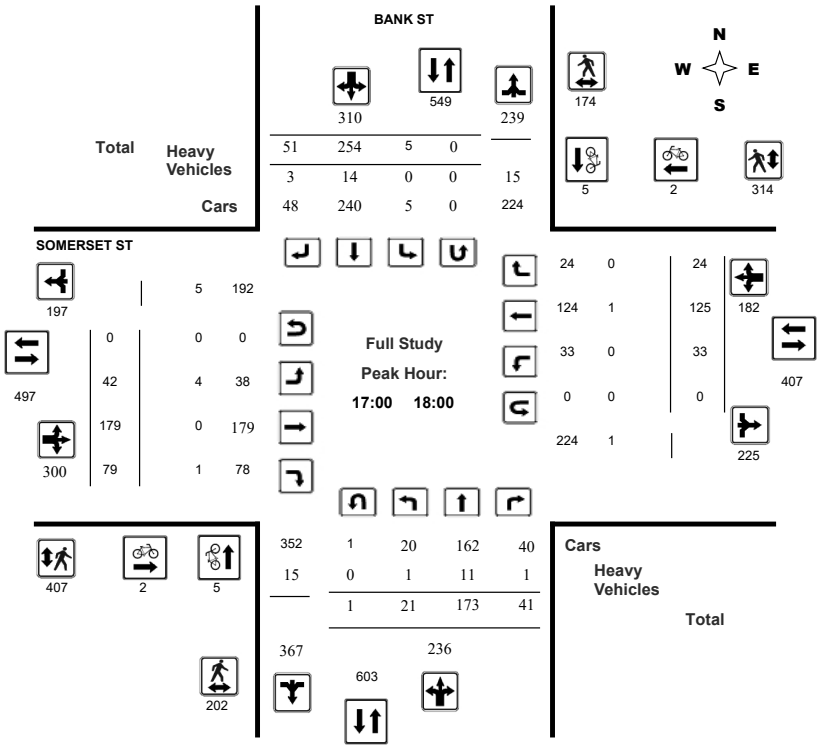
Turning Movement Count - Study Results

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



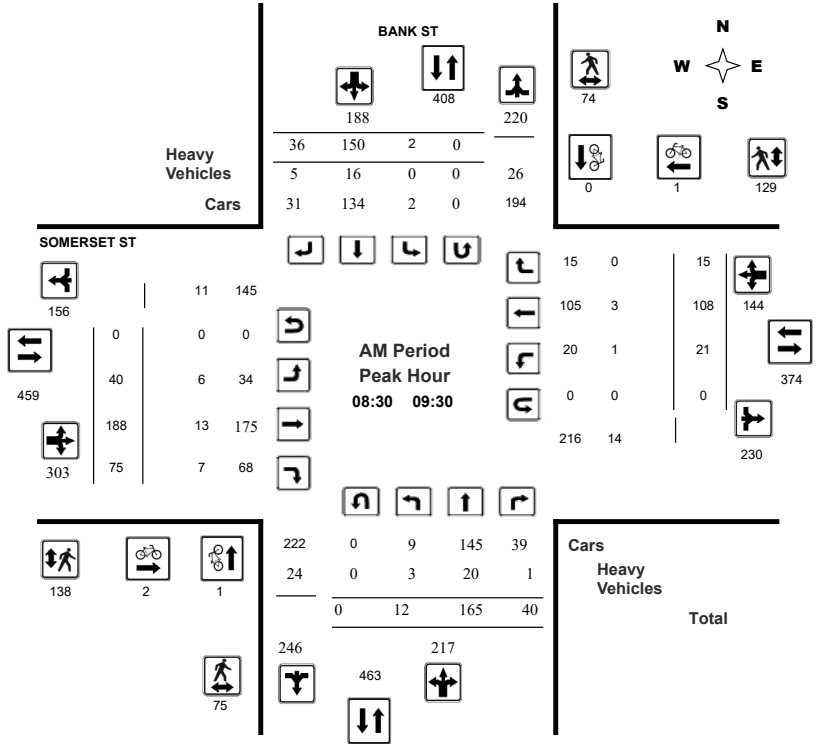
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision



Comments

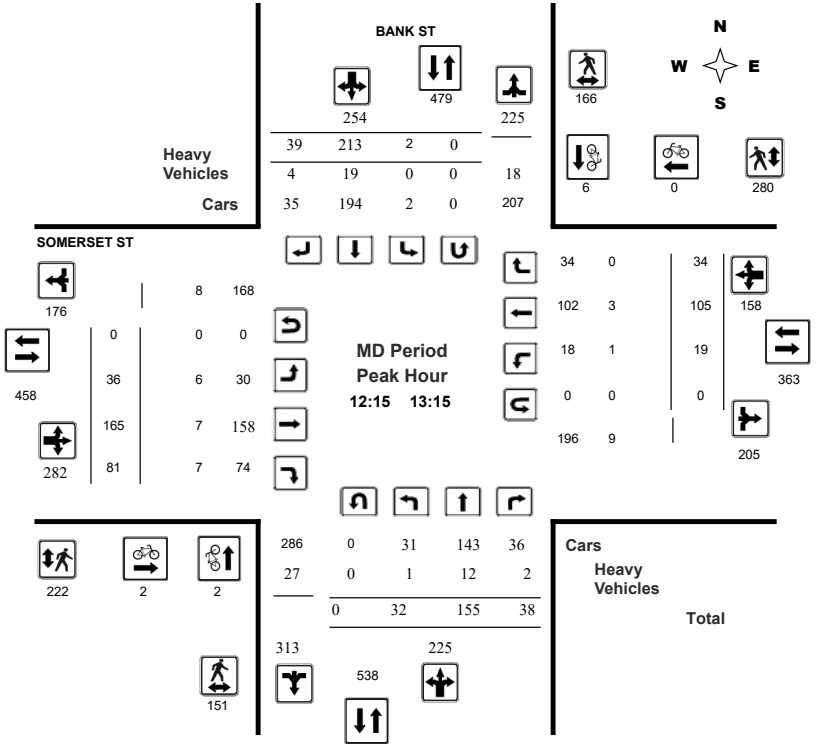
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision



Comments

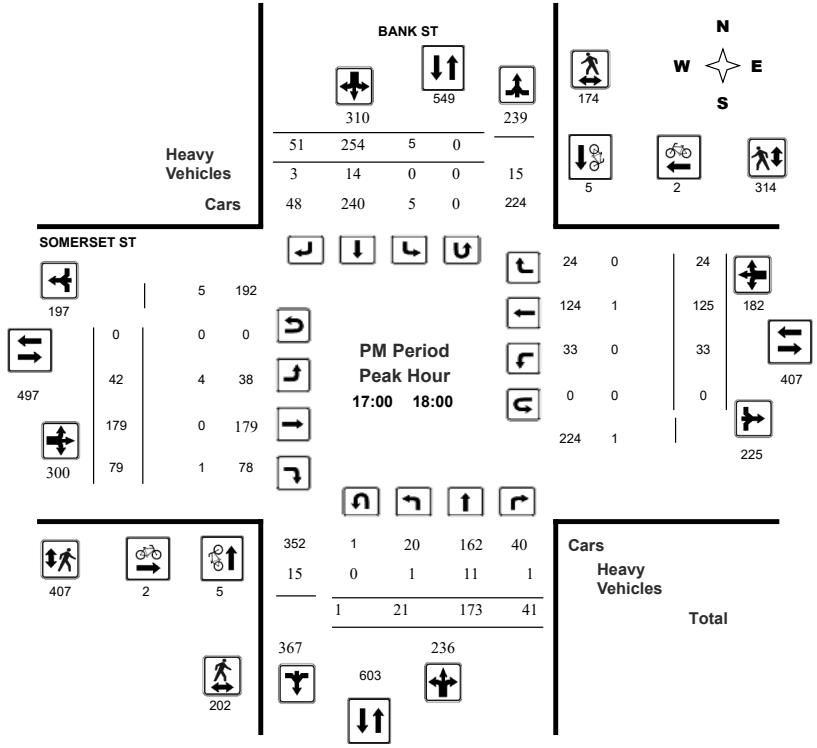
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 08, 2022

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	BANK ST								SOMERSET ST								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	6	116	30	**152**	1	88	17	**106**	**258**	35	128	30	**193**	4	61	11	**76**	**269**	**527**
08:00 09:00	5	169	29	**203**	2	140	36	**178**	**381**	43	192	57	**292**	18	117	20	**155**	**447**	**828**
09:00 10:00	17	156	29	**202**	1	148	35	**184**	**386**	36	162	69	**267**	25	86	14	**125**	**392**	**778**
11:30 12:30	30	171	39	**240**	5	187	43	**235**	**475**	21	151	58	**230**	19	107	23	**149**	**379**	**854**
12:30 13:30	27	154	34	**215**	0	211	36	**247**	**462**	44	168	83	**295**	24	98	38	**160**	**455**	**917**
15:00 16:00	18	142	22	**182**	4	206	51	**261**	**443**	37	184	70	**291**	22	119	22	**163**	**454**	**897**
16:00 17:00	15	166	42	**223**	0	226	60	**286**	**509**	32	168	71	**271**	26	151	22	**199**	**470**	**979**
17:00 18:00	21	173	41	**235**	5	254	51	**310**	**545**	42	179	79	**300**	33	125	24	**182**	**482**	**1027**
Sub Total	139	1247	266	**1652**	18	1460	329	**1807**	**3459**	290	1332	517	**2139**	171	864	174	**1209**	**3348**	**6807**
U Turns				**1**				**0**	**1**				**0**				**0**	**0**	**1**
Total	139	1247	266	**1653**	18	1460	329	**1807**	**3460**	290	1332	517	**2139**	171	864	174	**1209**	**3348**	**6808**
EQ 12Hr	193	1733	370	**2298**	25	2029	457	**2512**	**4809**	403	1851	719	**2973**	238	1201	242	**1681**	**4654**	**9463**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	193	1733	370	**2298**	25	2659	599	**2512**	**4809**	403	1851	719	**2973**	238	1201	242	**1681**	**4654**	**9463**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	253	2270	485	**3010**	33	3483	785	**3291**	**6300**	528	2425	942	**3895**	312	1573	317	**2202**	**6097**	**12397**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		BANK ST									SOMERSET ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	30	8	39	0	20	4	24	63	8	25	7	40	0	13	5	18	58	121
07:15	07:30	1	24	9	34	1	32	3	36	70	7	30	5	42	1	11	2	14	56	126
07:30	07:45	1	20	10	31	0	16	6	22	53	8	31	8	47	0	20	1	21	68	121
07:45	08:00	3	42	3	48	0	20	4	24	72	12	42	10	64	3	17	3	23	87	159
08:00	08:15	2	35	5	42	1	32	10	43	85	12	47	13	72	3	25	3	31	103	188
08:15	08:30	0	41	5	46	0	34	6	40	86	10	41	5	56	5	29	8	42	98	184
08:30	08:45	3	43	6	52	0	23	11	34	86	13	46	15	74	4	33	1	38	112	198
08:45	09:00	0	50	13	63	1	51	9	61	124	8	58	24	90	6	30	8	44	134	258
09:00	09:15	5	41	11	57	0	36	7	43	100	7	39	16	62	8	28	4	40	102	202
09:15	09:30	4	31	10	45	1	40	9	50	95	12	45	20	77	3	17	2	22	99	194
09:30	09:45	3	34	6	43	0	41	13	54	97	7	43	11	61	7	18	3	28	89	186
09:45	10:00	5	50	2	57	0	31	6	37	94	10	35	22	67	7	23	5	35	102	196
11:30	11:45	6	44	7	57	1	45	10	56	113	5	33	15	53	6	19	6	31	84	197
11:45	12:00	9	40	15	64	1	47	7	55	119	7	33	10	50	8	26	7	41	91	210
12:00	12:15	2	49	7	58	1	43	14	58	116	6	45	13	64	5	29	5	39	103	219
12:15	12:30	13	38	10	61	2	52	12	66	127	3	40	20	63	0	33	5	38	101	228
12:30	12:45	6	31	7	44	0	52	9	61	105	10	46	23	79	6	28	8	42	121	226
12:45	13:00	4	37	13	54	0	43	10	53	107	12	46	19	77	7	25	10	42	119	226
13:00	13:15	9	49	8	66	0	66	8	74	140	11	33	19	63	6	19	11	36	99	239
13:15	13:30	8	37	6	51	0	50	9	59	110	11	43	22	76	5	26	9	40	116	226
15:00	15:15	7	29	6	42	2	63	13	78	120	11	46	19	76	6	27	9	42	118	238
15:15	15:30	7	46	7	60	1	49	15	65	125	11	51	22	84	6	25	5	36	120	245
15:30	15:45	2	31	4	37	1	46	15	62	99	6	53	15	74	7	26	3	36	110	209
15:45	16:00	2	36	5	43	0	48	8	56	99	9	34	14	57	3	41	5	49	106	205
16:00	16:15	4	40	9	53	0	69	18	87	140	8	41	15	64	4	53	3	60	124	264
16:15	16:30	1	46	9	56	0	58	13	71	127	8	41	26	75	8	26	4	38	113	240
16:30	16:45	4	41	13	58	0	54	14	68	126	7	53	13	73	7	42	6	55	128	254
16:45	17:00	6	39	11	56	0	45	15	60	116	9	33	17	59	7	30	9	46	105	221
17:00	17:15	4	38	7	49	1	69	19	89	138	5	42	25	72	8	30	3	41	113	251
17:15	17:30	6	45	9	60	1	62	12	75	135	14	60	14	88	9	34	7	50	138	273
17:30	17:45	5	44	13	62	2	69	11	82	144	9	41	21	71	9	32	5	46	117	261
17:45	18:00	6	46	12	65	1	54	9	64	129	14	36	19	69	7	29	9	45	114	243
Total:		139	1247	266	1653	18	1460	329	1807	3460	290	1332	517	2139	171	864	174	1209	3348	6,808

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		BANK ST			SOMERSET ST			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	1	0	1	0	1	1	2
08:15	08:30	0	1	1	0	0	0	1
08:30	08:45	0	0	0	2	0	2	2
08:45	09:00	0	0	0	0	1	1	1
09:00	09:15	1	0	1	0	0	0	1
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	1	1	2	0	1	1	3
11:30	11:45	1	2	3	1	1	2	5
11:45	12:00	2	3	5	0	0	0	5
12:00	12:15	0	2	2	0	0	0	2
12:15	12:30	0	0	0	0	0	0	0
12:30	12:45	1	2	3	0	0	0	3
12:45	13:00	1	3	4	1	0	1	5
13:00	13:15	0	1	1	1	0	1	2
13:15	13:30	1	1	2	0	1	1	3
15:00	15:15	0	0	0	0	1	1	1
15:15	15:30	1	1	2	0	0	0	2
15:30	15:45	1	5	6	0	0	0	6
15:45	16:00	1	0	1	2	0	2	3
16:00	16:15	0	2	2	1	0	1	3
16:15	16:30	1	2	3	0	0	0	3
16:30	16:45	0	1	1	1	1	2	3
16:45	17:00	2	0	2	1	2	3	5
17:00	17:15	1	1	2	1	0	1	3
17:15	17:30	2	1	3	1	0	1	4
17:30	17:45	1	1	2	0	2	2	4
17:45	18:00	1	2	3	0	0	0	3
Total		20	32	**52**	12	11	23	75

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period	BANK ST NB Approach (E or W Crossing)	BANK ST SB Approach (E or W Crossing)	BANK ST Total	SOMERSET ST EB Approach (N or S Crossing)	SOMERSET ST WB Approach (N or S Crossing)	SOMERSET ST Total	Grand Total
07:00 07:15	6	9	**15**	15	4	**19**	**34**
07:15 07:30	8	8	**16**	15	10	**25**	**41**
07:30 07:45	11	13	**24**	26	29	**55**	**79**
07:45 08:00	22	12	**34**	23	25	**48**	**82**
08:00 08:15	13	19	**32**	34	17	**51**	**83**
08:15 08:30	11	19	**30**	25	19	**44**	**74**
08:30 08:45	18	17	**35**	32	47	**79**	**114**
08:45 09:00	18	17	**35**	38	22	**60**	**95**
09:00 09:15	19	18	**37**	42	25	**67**	**104**
09:15 09:30	20	22	**42**	26	35	**61**	**103**
09:30 09:45	20	22	**42**	28	29	**57**	**99**
09:45 10:00	31	26	**57**	50	18	**68**	**125**
11:30 11:45	36	33	**69**	52	38	**90**	**159**
11:45 12:00	32	36	**68**	50	61	**111**	**179**
12:00 12:15	33	37	**70**	57	51	**108**	**178**
12:15 12:30	44	34	**78**	67	76	**143**	**221**
12:30 12:45	33	39	**72**	57	60	**117**	**189**
12:45 13:00	30	47	**77**	56	61	**117**	**194**
13:00 13:15	44	46	**90**	42	83	**125**	**215**
13:15 13:30	36	36	**72**	63	62	**125**	**197**
15:00 15:15	38	36	**74**	83	65	**148**	**222**
15:15 15:30	34	35	**69**	77	51	**128**	**197**
15:30 15:45	31	36	**67**	84	62	**146**	**213**
15:45 16:00	43	30	**73**	81	70	**151**	**224**
16:00 16:15	56	31	**87**	85	92	**177**	**264**
16:15 16:30	36	37	**73**	77	64	**141**	**214**
16:30 16:45	34	36	**70**	71	67	**138**	**208**
16:45 17:00	40	33	**73**	81	66	**147**	**220**
17:00 17:15	42	55	**97**	113	64	**177**	**274**
17:15 17:30	47	38	**85**	103	92	**195**	**280**
17:30 17:45	65	52	**117**	118	79	**197**	**314**
17:45 18:00	48	29	**77**	73	79	**152**	**229**
Total	999	958	**1957**	1844	1623	**3467**	**5424**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		BANK ST Northbound				BANK ST Southbound					BANK ST Eastbound					BANK ST Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	2	1	**7**	0	2	1	**8**	**15**	2	0	2	**5**	0	0	1	**2**	**7**	**11**
07:15	07:30	0	4	0	**9**	0	5	0	**10**	**19**	1	1	0	**3**	0	1	0	**2**	**5**	**12**
07:30	07:45	1	3	0	**7**	0	3	1	**8**	**15**	1	1	0	**6**	0	2	0	**3**	**9**	**12**
07:45	08:00	1	4	0	**9**	0	3	1	**10**	**19**	2	3	0	**9**	1	2	0	**6**	**15**	**17**
08:00	08:15	0	3	0	**6**	0	2	2	**8**	**14**	1	3	1	**9**	0	2	0	**5**	**14**	**14**
08:15	08:30	0	7	0	**14**	0	6	0	**16**	**30**	1	0	1	**4**	0	2	2	**4**	**8**	**19**
08:30	08:45	1	5	1	**10**	0	3	1	**11**	**21**	2	0	0	**5**	0	1	0	**2**	**7**	**14**
08:45	09:00	0	6	0	**13**	0	6	1	**14**	**27**	1	5	1	**8**	0	0	0	**5**	**13**	**20**
09:00	09:15	1	5	0	**11**	0	2	1	**8**	**19**	0	3	3	**9**	0	1	0	**4**	**13**	**16**
09:15	09:30	1	4	0	**14**	0	5	2	**14**	**28**	3	5	3	**15**	1	1	0	**7**	**22**	**25**
09:30	09:45	1	3	0	**10**	0	5	1	**10**	**20**	1	1	1	**6**	0	1	0	**2**	**8**	**14**
09:45	10:00	0	10	0	**16**	0	4	1	**17**	**33**	2	0	2	**7**	0	2	0	**2**	**9**	**21**
11:30	11:45	0	6	0	**12**	0	3	2	**13**	**25**	1	1	3	**8**	0	1	1	**3**	**11**	**18**
11:45	12:00	0	3	1	**7**	0	3	1	**10**	**17**	2	0	0	**4**	0	1	1	**3**	**7**	**12**
12:00	12:15	0	6	0	**11**	0	5	1	**13**	**24**	1	1	0	**4**	0	1	0	**2**	**6**	**15**
12:15	12:30	1	4	0	**10**	0	5	1	**11**	**21**	1	3	0	**6**	0	0	0	**3**	**9**	**15**
12:30	12:45	0	2	0	**10**	0	6	1	**11**	**21**	2	3	2	**10**	0	2	0	**5**	**15**	**18**
12:45	13:00	0	3	1	**11**	0	2	1	**8**	**19**	2	1	4	**8**	1	0	0	**3**	**11**	**15**
13:00	13:15	0	3	1	**11**	0	6	1	**11**	**22**	1	0	1	**4**	0	1	0	**2**	**6**	**14**
13:15	13:30	1	3	1	**13**	0	6	1	**12**	**25**	1	3	2	**8**	0	0	1	**5**	**13**	**19**
15:00	15:15	0	4	0	**11**	0	5	0	**13**	**24**	2	0	2	**4**	0	0	2	**2**	**6**	**15**
15:15	15:30	1	1	1	**5**	0	2	2	**6**	**11**	1	3	0	**7**	0	0	0	**4**	**11**	**11**
15:30	15:45	0	5	0	**7**	0	2	1	**9**	**16**	1	0	0	**4**	0	2	0	**2**	**6**	**11**
15:45	16:00	0	1	1	**5**	0	3	2	**7**	**12**	1	0	0	**4**	0	1	0	**2**	**6**	**9**
16:00	16:15	0	3	0	**6**	0	3	1	**8**	**14**	1	1	0	**4**	0	1	0	**2**	**6**	**10**
16:15	16:30	0	2	0	**8**	0	5	1	**10**	**18**	1	1	1	**4**	0	0	1	**2**	**6**	**12**
16:30	16:45	0	1	0	**5**	0	4	1	**6**	**11**	0	0	0	**2**	0	1	0	**1**	**3**	**7**
16:45	17:00	0	1	0	**5**	0	3	1	**7**	**12**	2	0	1	**4**	0	0	0	**0**	**4**	**8**
17:00	17:15	0	4	0	**7**	0	3	0	**7**	**14**	0	0	0	**1**	0	1	0	**1**	**2**	**8**
17:15	17:30	0	0	1	**5**	0	3	1	**6**	**11**	2	0	1	**4**	0	0	0	**1**	**5**	**8**
17:30	17:45	0	4	0	**9**	0	5	0	**9**	**18**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
17:45	18:00	1	3	0	**7**	0	3	2	**10**	**17**	2	0	0	**5**	0	0	0	**0**	**5**	**11**
Total:	None	10	115	9	**291**	0	123	33	**321**	**612**	41	39	31	**181**	3	27	9	**87**	**268**	**440**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ SOMERSET ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40216

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		BANK ST Northbound U-Turn Total	BANK ST Southbound U-Turn Total	SOMERSET ST Eastbound U-Turn Total	SOMERSET ST Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	1	0	0	0	1
Total		1	0	0	0	1

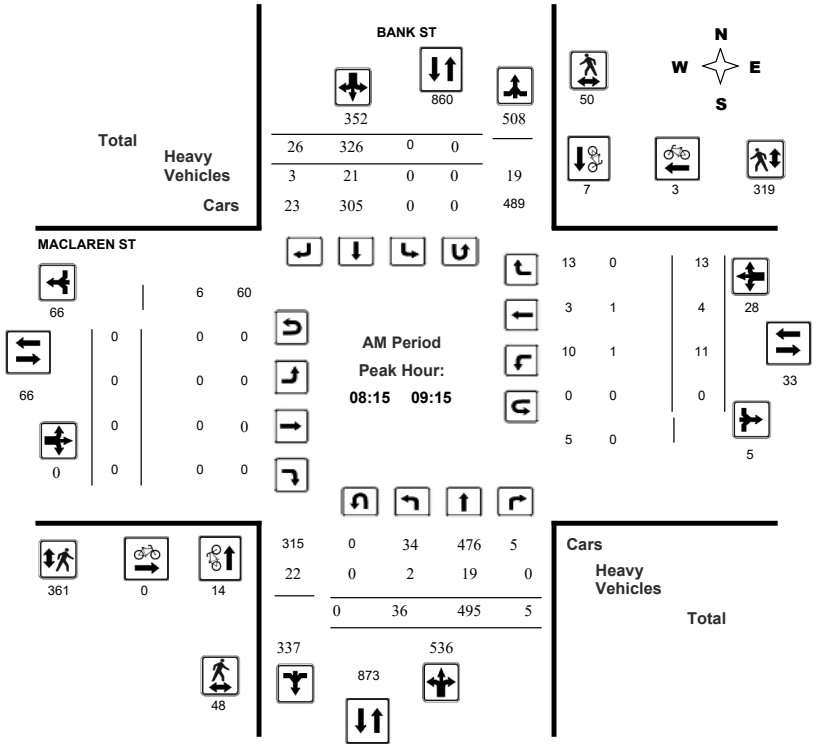
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019 **WO No:** 38538

Start Time: 07:00 **Device:** Miovision



Comments

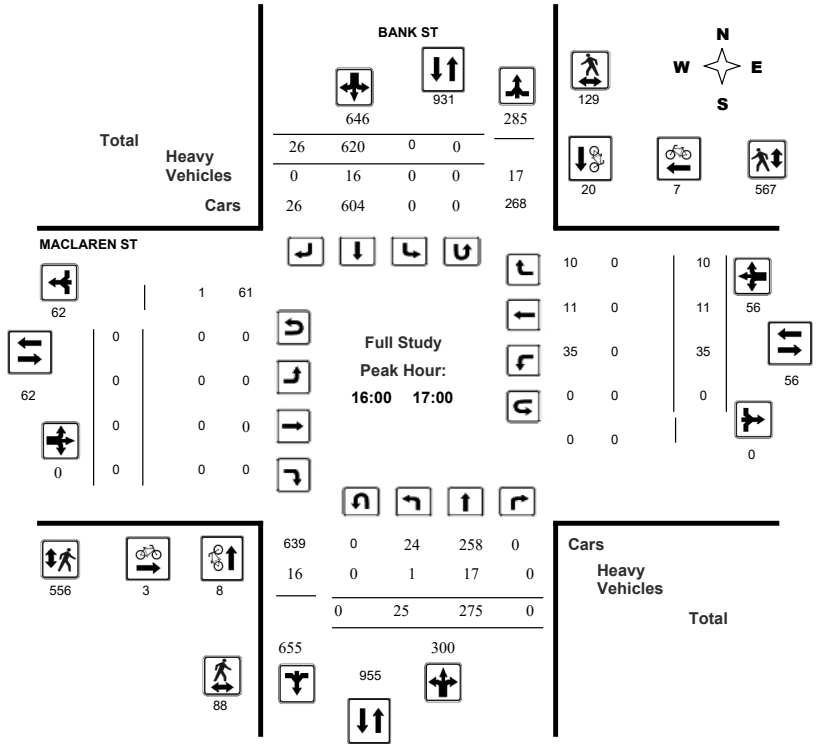
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019 **WO No:** 38538

Start Time: 07:00 **Device:** Miovision



Comments

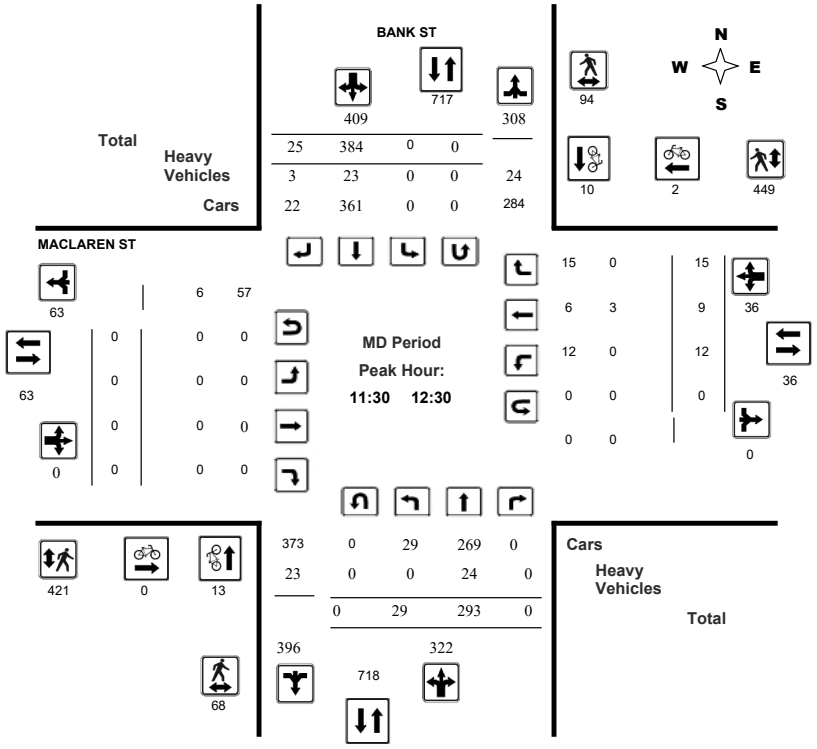
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019 **WO No:** 38538

Start Time: 07:00 **Device:** Miovision



Comments

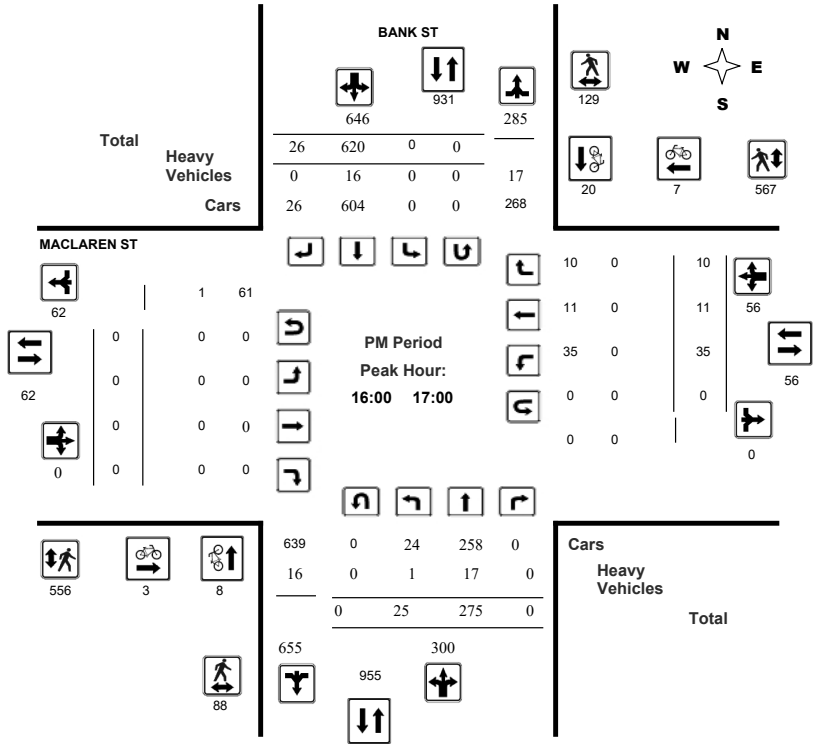
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019 **WO No:** 38538

Start Time: 07:00 **Device:** Miovision



Comments

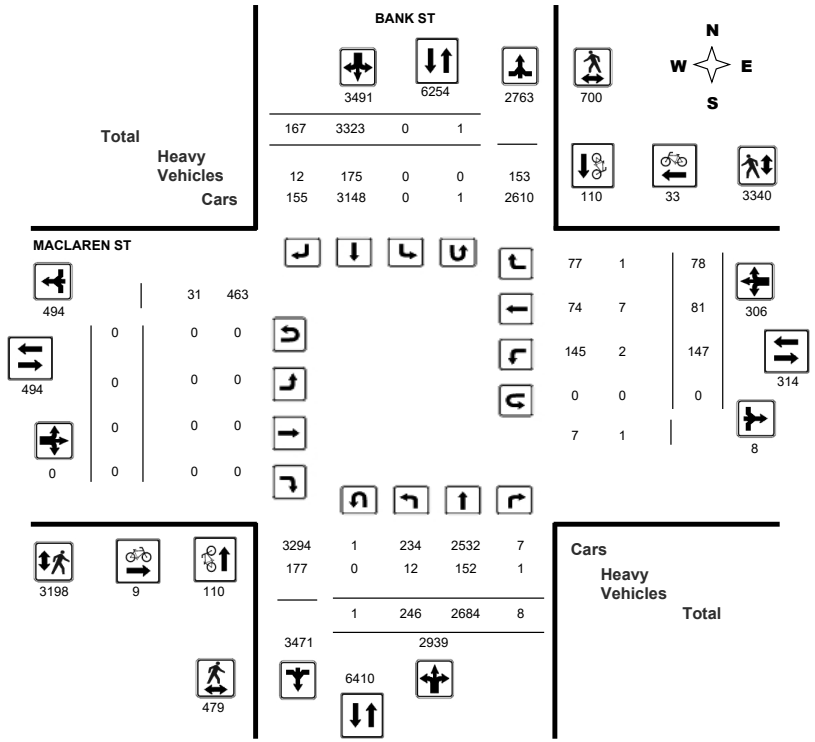
Transportation Services - Traffic Services

Turning Movement Count - Full Study Diagram

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019 **WO#:** 38538

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order 38538

Turning Movement Count - Full Study Summary Report

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019

Total Observed U-Turns

Northbound: 1 Southbound: 1

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	BANK ST									MACLAREN ST									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	29	386	0	**415**	0	237	12	**249**	**664**	0	0	0	**0**	12	6	8	**26**	**26**	**690**
08:00 09:00	34	488	2	**524**	0	304	21	**325**	**849**	0	0	0	**0**	17	7	11	**35**	**35**	**884**
09:00 10:00	42	448	6	**496**	0	355	20	**375**	**871**	0	0	0	**0**	3	0	4	**7**	**7**	**878**
11:30 12:30	29	293	0	**322**	0	384	25	**409**	**731**	0	0	0	**0**	12	9	15	**36**	**36**	**767**
12:30 13:30	29	282	0	**311**	0	362	25	**387**	**698**	0	0	0	**0**	12	15	13	**40**	**40**	**738**
15:00 16:00	35	245	0	**280**	0	524	16	**540**	**820**	0	0	0	**0**	24	16	8	**48**	**48**	**868**
16:00 17:00	25	275	0	**300**	0	620	26	**646**	**946**	0	0	0	**0**	35	11	10	**56**	**56**	**1002**
17:00 18:00	23	267	0	**290**	0	537	22	**559**	**849**	0	0	0	**0**	32	17	9	**58**	**58**	**907**
Sub Total	246	2684	8	**2938**	0	3323	167	**3490**	**6428**	0	0	0	**0**	147	81	78	**306**	**306**	**6734**
U Turns				**1**				**1**	**2**				**0**				**0**	**0**	**2**
Total	246	2684	8	**2939**	0	3323	167	**3491**	**6430**	0	0	0	**0**	147	81	78	**306**	**306**	**6736**
EQ 12Hr	342	3731	11	**4085**	0	4619	232	**4852**	**8937**	0	0	0	**0**	204	113	108	**425**	**425**	**9362**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	308	3358	10	**3677**	0	4157	209	**4367**	**8044**	0	0	0	**0**	184	101	98	**383**	**383**	**8427**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	403	4399	13	**4816**	0	5446	274	**5721**	**10537**	0	0	0	**0**	241	133	128	**501**	**501**	**11038**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

W.O. 38538

Turning Movement Count - 15 Minute Summary Report

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019

Total Observed U-Turns

Northbound: 1 Southbound: 1

Eastbound: 0 Westbound: 0

	BANK ST									MACLAREN ST									
	Northbound				Southbound					Eastbound				Westbound					
Time Period	LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 07:15	5	84	0	**89**	0	52	3	**55**	**144**	0	0	0	**0**	2	1	1	**4**	**4**	**148**
07:15 07:30	8	94	0	**102**	0	62	2	**64**	**166**	0	0	0	**0**	3	1	0	**4**	**4**	**170**
07:30 07:45	6	91	0	**97**	0	67	4	**71**	**168**	0	0	0	**0**	2	4	2	**8**	**8**	**176**
07:45 08:00	10	117	0	**127**	0	56	3	**59**	**186**	0	0	0	**0**	5	0	5	**10**	**10**	**196**
08:00 08:15	10	122	0	**132**	0	69	3	**72**	**204**	0	0	0	**0**	6	3	1	**10**	**10**	**214**
08:15 08:30	8	121	0	**129**	0	84	7	**91**	**220**	0	0	0	**0**	5	1	7	**13**	**13**	**233**
08:30 08:45	6	115	0	**121**	0	74	6	**80**	**201**	0	0	0	**0**	4	3	1	**8**	**8**	**209**
08:45 09:00	10	130	2	**142**	0	77	5	**82**	**224**	0	0	0	**0**	2	0	2	**4**	**4**	**228**
09:00 09:15	12	129	3	**144**	0	91	8	**99**	**243**	0	0	0	**0**	0	0	3	**3**	**3**	**246**
09:15 09:30	11	124	2	**137**	0	82	3	**85**	**222**	0	0	0	**0**	1	0	0	**1**	**1**	**223**
09:30 09:45	9	113	1	**123**	0	84	5	**89**	**212**	0	0	0	**0**	1	0	0	**1**	**1**	**213**
09:45 10:00	10	82	0	**92**	0	98	4	**102**	**194**	0	0	0	**0**	1	0	1	**2**	**2**	**196**
11:30 11:45	10	82	0	**92**	0	80	6	**86**	**178**	0	0	0	**0**	3	1	2	**6**	**6**	**184**
11:45 12:00	5	71	0	**76**	0	92	5	**97**	**173**	0	0	0	**0**	1	2	3	**6**	**6**	**179**
12:00 12:15	11	78	0	**89**	0	111	6	**117**	**206**	0	0	0	**0**	3	4	6	**13**	**13**	**219**
12:15 12:30	3	62	0	**65**	0	101	8	**109**	**174**	0	0	0	**0**	5	2	4	**11**	**11**	**185**
12:30 12:45	8	64	0	**72**	0	79	3	**82**	**154**	0	0	0	**0**	5	4	4	**13**	**13**	**167**
12:45 13:00	6	75	0	**81**	0	90	10	**100**	**181**	0	0	0	**0**	1	2	3	**6**	**6**	**187**
13:00 13:15	10	69	0	**80**	0	85	3	**88**	**168**	0	0	0	**0**	3	4	1	**8**	**8**	**176**
13:15 13:30	5	74	0	**79**	0	108	9	**118**	**197**	0	0	0	**0**	3	5	5	**13**	**13**	**210**
15:00 15:15	8	65	0	**73**	0	124	5	**129**	**202**	0	0	0	**0**	9	5	3	**17**	**17**	**219**
15:15 15:30	11	71	0	**82**	0	134	7	**141**	**223**	0	0	0	**0**	6	4	2	**12**	**12**	**235**
15:30 15:45	8	60	0	**68**	0	132	2	**134**	**202**	0	0	0	**0**	0	4	3	**7**	**7**	**209**
15:45 16:00	8	49	0	**57**	0	134	2	**136**	**193**	0	0	0	**0**	9	3	0	**12**	**12**	**205**
16:00 16:15	4	80	0	**84**	0	156	2	**158**	**242**	0	0	0	**0**	10	5	1	**16**	**16**	**258**
16:15 16:30	4	55	0	**59**	0	152	11	**163**	**222**	0	0	0	**0**	8	0	5	**13**	**13**	**235**
16:30 16:45	8	64	0	**72**	0	151	5	**156**	**228**	0	0	0	**0**	5	4	1	**10**	**10**	**238**
16:45 17:00	9	76	0	**85**	0	161	8	**169**	**254**	0	0	0	**0**	12	2	3	**17**	**17**	**271**
17:00 17:15	6	58	0	**64**	0	168	6	**174**	**238**	0	0	0	**0**	12	3	3	**18**	**18**	**256**
17:15 17:30	4	65	0	**69**	0	124	6	**130**	**199**	0	0	0	**0**	8	7	1	**16**	**16**	**215**
17:30 17:45	7	67	0	**74**	0	127	6	**133**	**207**	0	0	0	**0**	4	3	3	**10**	**10**	**217**
17:45 18:00	6	77	0	**83**	0	118	4	**122**	**205**	0	0	0	**0**	8	4	2	**14**	**14**	**219**
TOTAL:	246	2684	8	**2939**	0	3323	167	**3491**	**6430**	0	0	0	**0**	147	81	78	**306**	**306**	**6736**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order 38538

BANK ST @ MACLAREN ST

Count Date: Tuesday, April 16, 2019 **Start Time:** 07:00

Time Period	BANK ST Northbound	BANK ST Southbound	BANK ST Street Total	MACLAREN ST Eastbound	MACLAREN ST Westbound	MACLAREN ST Street Total	Grand Total
07:00 08:00	14	1	**15**	0	2	**2**	**17**
08:00 09:00	20	4	**24**	0	3	**3**	**27**
09:00 10:00	11	7	**18**	0	3	**3**	**21**
11:30 12:30	13	10	**23**	0	2	**2**	**25**
12:30 13:30	15	18	**33**	1	2	**3**	**36**
15:00 16:00	12	14	**26**	3	5	**8**	**34**
16:00 17:00	8	20	**28**	3	7	**10**	**38**
17:00 18:00	17	36	**53**	2	9	**11**	**64**
Total	110	110	**220**	9	33	**42**	**262**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 38538

Turning Movement Count - Heavy Vehicle Report

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019

Time Period	BANK ST Northbound LT	ST	RT	N TOT	BANK ST Southbound LT	ST	RT	S TOT	STR TOT	MACLAREN ST Eastbound LT	ST	RT	E TOT	MACLAREN ST Westbound LT	ST	RT	W TOT	STR TOT	Grand Total
07:00 08:00	2	21	0	**23**	0	22	0	**22**	**45**	0	0	0	**0**	0	0	0	**0**	**0**	**45**
08:00 09:00	2	18	0	**20**	0	21	3	**24**	**44**	0	0	0	**0**	1	1	0	**2**	**2**	**46**
09:00 10:00	3	22	1	**26**	0	23	3	**26**	**52**	0	0	0	**0**	0	0	0	**0**	**0**	**52**
11:30 12:30	0	24	0	**24**	0	23	3	**26**	**50**	0	0	0	**0**	0	3	0	**3**	**3**	**53**
12:30 13:30	3	19	0	**22**	0	28	2	**30**	**52**	0	0	0	**0**	0	2	1	**3**	**3**	**55**
15:00 16:00	1	15	0	**16**	0	23	1	**24**	**40**	0	0	0	**0**	1	1	0	**2**	**2**	**42**
16:00 17:00	1	17	0	**18**	0	16	0	**16**	**34**	0	0	0	**0**	0	0	0	**0**	**0**	**34**
17:00 18:00	0	16	0	**16**	0	19	0	**19**	**35**	0	0	0	**0**	0	0	0	**0**	**0**	**35**
Sub Total	12	152	1	**165**	0	175	12	**187**	**352**	0	0	0	**0**	2	7	1	**10**	**10**	**362**
U-Turns (Heavy Vehicles)				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	12	152	1	**0**	0	175	12	**187**	**352**	0	0	0	**0**	2	7	1	**10**	**10**	**362**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order 38538

Turning Movement Count - Pedestrian Volume Report

BANK ST @ MACLAREN ST

Count Date: Tuesday, April 16, 2019 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	3	4	**7**	26	35	**61**	**68**
07:15 07:30	5	5	**10**	35	34	**69**	**79**
07:30 07:45	6	7	**13**	56	49	**105**	**118**
07:45 08:00	14	8	**22**	65	68	**133**	**155**
07:00 08:00	28	24	**52**	182	186	**368**	**420**
08:00 08:15	12	9	**21**	78	72	**150**	**171**
08:15 08:30	13	10	**23**	89	87	**176**	**199**
08:30 08:45	12	14	**26**	87	77	**164**	**190**
08:45 09:00	15	11	**26**	106	99	**205**	**231**
08:00 09:00	52	44	**96**	360	335	**695**	**791**
09:00 09:15	8	15	**23**	79	56	**135**	**158**
09:15 09:30	12	18	**30**	61	48	**109**	**139**
09:30 09:45	6	9	**15**	60	45	**105**	**120**
09:45 10:00	7	13	**20**	61	34	**95**	**115**
09:00 10:00	33	55	**88**	261	183	**444**	**532**
11:30 11:45	8	25	**33**	76	78	**154**	**187**
11:45 12:00	21	25	**46**	104	99	**203**	**249**
12:00 12:15	20	22	**42**	131	121	**252**	**294**
12:15 12:30	19	22	**41**	110	151	**261**	**302**
11:30 12:30	68	94	**162**	421	449	**870**	**1032**
12:30 12:45	9	22	**31**	96	138	**234**	**265**
12:45 13:00	20	27	**47**	97	142	**239**	**286**
13:00 13:15	24	21	**45**	92	110	**202**	**247**
13:15 13:30	10	41	**51**	88	113	**201**	**252**
12:30 13:30	63	111	**174**	373	503	**876**	**1050**
15:00 15:15	15	15	**30**	105	84	**189**	**219**
15:15 15:30	8	23	**31**	87	106	**193**	**224**
15:30 15:45	17	36	**53**	90	142	**232**	**285**
15:45 16:00	16	23	**39**	96	124	**220**	**259**
15:00 16:00	56	97	**153**	378	456	**834**	**987**
16:00 16:15	16	17	**33**	138	112	**250**	**283**
16:15 16:30	17	43	**60**	120	169	**289**	**349**
16:30 16:45	36	37	**73**	157	122	**279**	**352**
16:45 17:00	19	32	**51**	141	164	**305**	**356**
16:00 17:00	88	129	**217**	556	567	**1123**	**1340**
17:00 17:15	28	37	**65**	184	155	**339**	**404**
17:15 17:30	20	46	**66**	170	214	**384**	**450**
17:30 17:45	16	30	**46**	144	159	**303**	**349**
17:45 18:00	27	33	**60**	169	133	**302**	**362**
17:00 18:00	91	146	**237**	667	661	**1328**	**1565**
Total	479	700	**1179**	3198	3340	**6538**	**7717**

Comment:

Transportation Services - Traffic Services

Work Order 38538

Turning Movement Count - 15 Min U-Turn Total Report

BANK ST @ MACLAREN ST

Survey Date: Tuesday, April 16, 2019

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	1	0	0	0	1
13:15	13:30	0	1	0	0	1
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		1	1	0	0	2

Transportation Services - Traffic Services

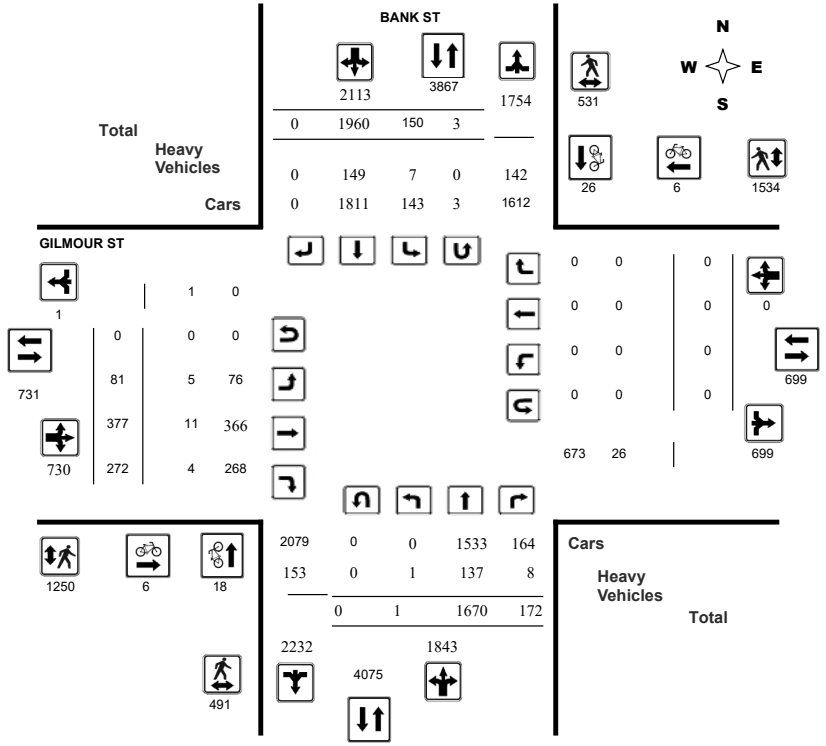
Turning Movement Count - Study Results

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

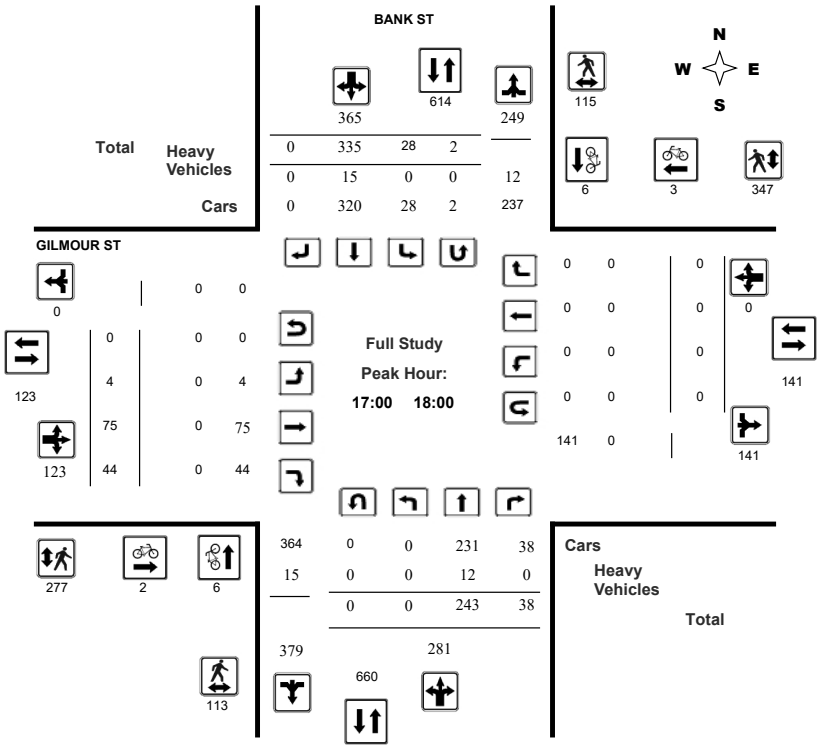
Turning Movement Count - Study Results

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



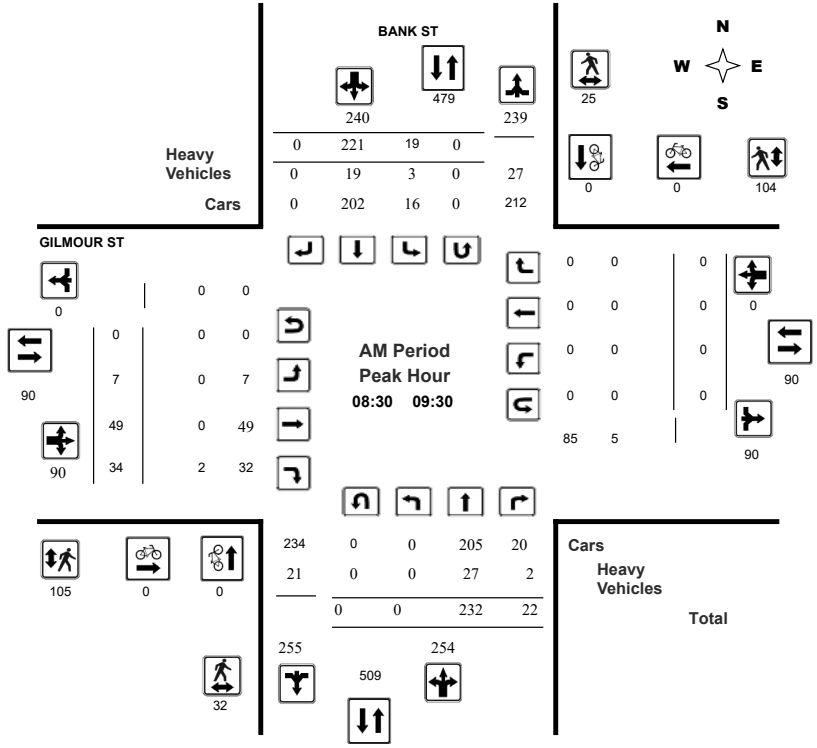
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision



Comments

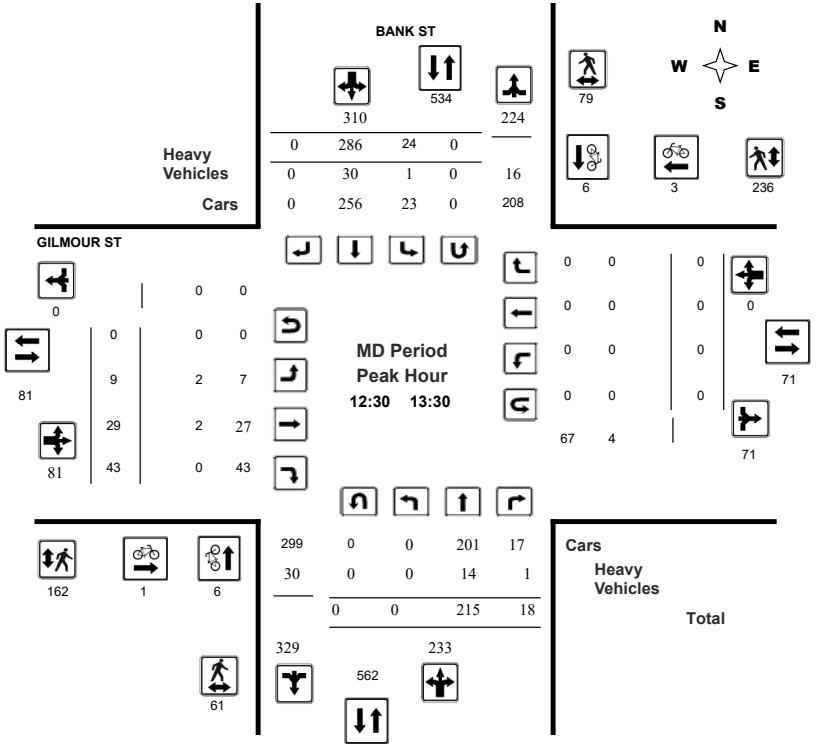
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision



Comments

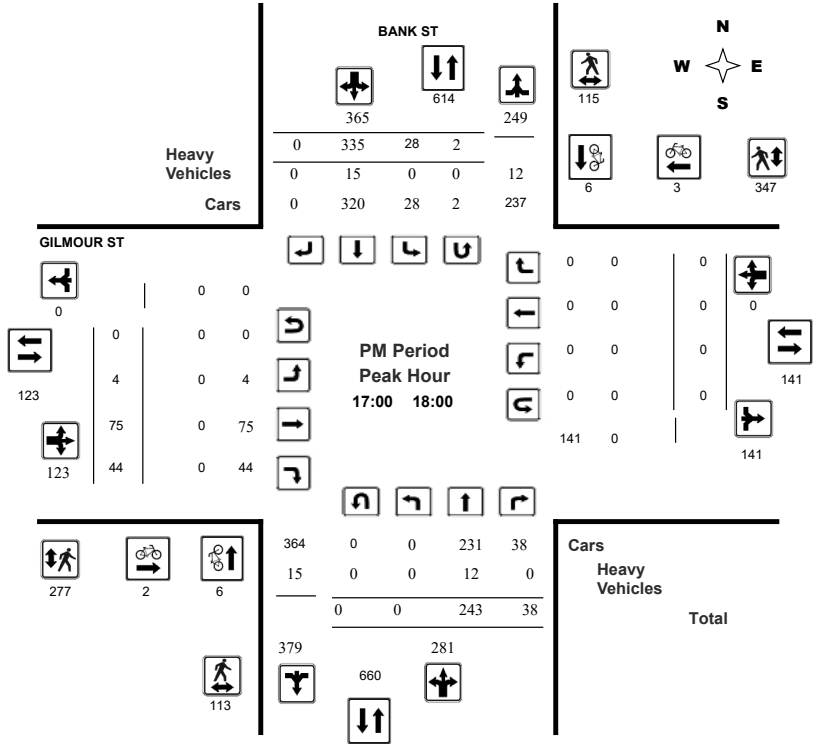
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 08, 2022

Total Observed U-Turns

Northbound: 0 Southbound: 3

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	BANK ST								GILMOUR ST								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	1	159	17	**177**	7	115	0	**122**	**299**	6	25	16	**47**	0	0	0	**0**	**47**	**346**
08:00 09:00	0	208	15	**223**	9	204	0	**213**	**436**	11	54	30	**95**	0	0	0	**0**	**95**	**531**
09:00 10:00	0	214	22	**236**	26	204	0	**230**	**466**	7	38	36	**81**	0	0	0	**0**	**81**	**547**
11:30 12:30	0	229	17	**246**	11	250	0	**261**	**507**	16	50	33	**99**	0	0	0	**0**	**99**	**606**
12:30 13:30	0	215	18	**233**	24	286	0	**310**	**543**	9	29	43	**81**	0	0	0	**0**	**81**	**624**
15:00 16:00	0	174	22	**196**	17	269	0	**286**	**482**	14	52	33	**99**	0	0	0	**0**	**99**	**581**
16:00 17:00	0	228	23	**251**	28	297	0	**325**	**576**	14	54	37	**105**	0	0	0	**0**	**105**	**681**
17:00 18:00	0	243	38	**281**	28	335	0	**363**	**644**	4	75	44	**123**	0	0	0	**0**	**123**	**767**
Sub Total	1	1670	172	**1843**	150	1960	0	**2110**	**3953**	81	377	272	**730**	0	0	0	**0**	**730**	**4683**
U Turns				**0**				**3**	**3**				**0**				**0**	**0**	**3**
Total	1	1670	172	**1843**	150	1960	0	**2113**	**3956**	81	377	272	**730**	0	0	0	**0**	**730**	**4686**
EQ 12Hr	1	2321	239	**2562**	208	2724	0	**2937**	**5499**	113	524	378	**1015**	0	0	0	**0**	**1015**	**6514**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	1	2321	239	**2562**	208	3569	0	**2937**	**5499**	113	524	378	**1015**	0	0	0	**0**	**1015**	**6514**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	1	3041	313	**3356**	272	4675	0	**3847**	**7204**	148	686	495	**1330**	0	0	0	**0**	**1330**	**8533**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		BANK ST									GILMOUR ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	42	5	47	1	24	0	25	72	1	4	2	7	0	0	0	0	7	79
07:15	07:30	0	32	1	33	2	34	0	36	69	1	6	2	9	0	0	0	0	9	78
07:30	07:45	0	33	6	39	2	25	0	27	66	1	9	7	17	0	0	0	0	17	83
07:45	08:00	1	52	5	58	2	32	0	34	92	3	6	5	14	0	0	0	0	14	106
08:00	08:15	0	41	2	43	2	46	0	48	91	2	21	5	28	0	0	0	0	28	119
08:15	08:30	0	44	4	48	1	43	0	44	92	5	4	8	17	0	0	0	0	17	109
08:30	08:45	0	53	5	58	0	42	0	42	100	3	16	14	33	0	0	0	0	33	133
08:45	09:00	0	70	4	74	6	73	0	79	153	1	13	3	17	0	0	0	0	17	170
09:00	09:15	0	57	7	64	7	53	0	60	124	3	9	8	20	0	0	0	0	20	144
09:15	09:30	0	52	6	58	6	53	0	59	117	0	11	9	20	0	0	0	0	20	137
09:30	09:45	0	42	4	46	5	48	0	53	99	2	8	8	18	0	0	0	0	18	117
09:45	10:00	0	63	5	68	8	50	0	58	126	2	10	11	23	0	0	0	0	23	149
11:30	11:45	0	56	3	59	3	61	0	64	123	1	9	7	17	0	0	0	0	17	140
11:45	12:00	0	57	5	62	3	65	0	68	130	7	20	9	36	0	0	0	0	36	166
12:00	12:15	0	65	7	72	3	61	0	64	136	4	10	9	23	0	0	0	0	23	159
12:15	12:30	0	51	2	53	2	63	0	66	119	4	11	8	23	0	0	0	0	23	142
12:30	12:45	0	52	4	56	4	77	0	81	137	2	9	5	16	0	0	0	0	16	153
12:45	13:00	0	49	3	52	4	62	0	66	118	2	8	7	17	0	0	0	0	17	135
13:00	13:15	0	62	5	67	9	84	0	93	160	3	10	12	25	0	0	0	0	25	185
13:15	13:30	0	52	6	58	7	63	0	70	128	2	2	19	23	0	0	0	0	23	151
15:00	15:15	0	36	9	45	6	78	0	84	129	3	13	10	26	0	0	0	0	26	155
15:15	15:30	0	61	4	65	3	69	0	72	137	2	18	8	28	0	0	0	0	28	165
15:30	15:45	0	33	2	35	3	66	0	69	104	3	11	8	22	0	0	0	0	22	126
15:45	16:00	0	44	7	51	5	56	0	61	112	6	10	7	23	0	0	0	0	23	135
16:00	16:15	0	59	10	69	6	83	0	89	158	3	11	10	24	0	0	0	0	24	182
16:15	16:30	0	54	6	60	8	82	0	90	150	5	13	6	24	0	0	0	0	24	174
16:30	16:45	0	59	4	63	9	67	0	76	139	2	14	10	26	0	0	0	0	26	165
16:45	17:00	0	56	3	59	5	65	0	70	129	4	16	11	31	0	0	0	0	31	160
17:00	17:15	0	48	8	56	9	88	0	98	154	3	19	16	38	0	0	0	0	38	192
17:15	17:30	0	62	10	72	9	78	0	87	159	0	23	9	32	0	0	0	0	32	191
17:30	17:45	0	65	6	71	6	91	0	98	169	0	13	8	21	0	0	0	0	21	190
17:45	18:00	0	68	14	82	4	78	0	82	164	1	20	11	32	0	0	0	0	32	196
Total:		1	1670	172	1843	150	1960	0	2113	3956	81	377	272	730	0	0	0	0	730	4,686

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		BANK ST			GILMOUR ST			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	0	0	0	0
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	1	1	0	0	0	1
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	0	0	0	0
09:00	09:15	0	0	0	0	0	0	0
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	0	0	0	0
09:45	10:00	0	0	0	0	0	0	0
11:30	11:45	1	0	1	0	0	0	1
11:45	12:00	1	1	2	1	0	1	3
12:00	12:15	0	2	2	0	0	0	2
12:15	12:30	0	2	2	0	0	0	2
12:30	12:45	2	1	3	0	1	1	4
12:45	13:00	2	4	6	1	1	2	8
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	2	1	3	0	1	1	4
15:00	15:15	0	0	0	0	0	0	0
15:15	15:30	1	1	2	0	0	0	2
15:30	15:45	0	3	3	0	0	0	3
15:45	16:00	2	2	4	0	0	0	4
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	1	2	3	1	0	1	4
16:30	16:45	0	0	0	1	0	1	1
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	2	1	3	0	1	1	4
17:15	17:30	2	0	2	0	1	1	3
17:30	17:45	0	1	1	1	0	1	2
17:45	18:00	2	4	6	1	1	2	8
Total		18	26	**44**	6	6	12	56

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period	BANK ST NB Approach (E or W Crossing)	BANK ST SB Approach (E or W Crossing)	BANK ST Total	GILMOUR ST EB Approach (N or S Crossing)	GILMOUR ST WB Approach (N or S Crossing)	GILMOUR ST Total	Grand Total
07:00 07:15	3	6	**9**	7	6	**13**	**22**
07:15 07:30	6	5	**11**	18	11	**29**	**40**
07:30 07:45	6	12	**18**	20	24	**44**	**62**
07:45 08:00	16	16	**32**	21	17	**38**	**70**
08:00 08:15	16	11	**27**	13	16	**29**	**56**
08:15 08:30	10	8	**18**	31	19	**50**	**68**
08:30 08:45	14	4	**18**	24	40	**64**	**82**
08:45 09:00	6	6	**12**	33	18	**51**	**63**
09:00 09:15	8	9	**17**	28	21	**49**	**66**
09:15 09:30	4	6	**10**	20	25	**45**	**55**
09:30 09:45	12	11	**23**	27	21	**48**	**71**
09:45 10:00	7	5	**12**	22	13	**35**	**47**
11:30 11:45	13	18	**31**	22	55	**77**	**108**
11:45 12:00	20	14	**34**	32	52	**84**	**118**
12:00 12:15	10	19	**29**	36	49	**85**	**114**
12:15 12:30	11	23	**34**	54	69	**123**	**157**
12:30 12:45	10	15	**25**	38	54	**92**	**117**
12:45 13:00	17	12	**29**	47	58	**105**	**134**
13:00 13:15	14	24	**38**	41	59	**100**	**138**
13:15 13:30	20	28	**48**	36	65	**101**	**149**
15:00 15:15	14	21	**35**	29	59	**88**	**123**
15:15 15:30	12	23	**35**	50	46	**96**	**131**
15:30 15:45	24	21	**45**	58	50	**108**	**153**
15:45 16:00	20	13	**33**	46	56	**102**	**135**
16:00 16:15	18	21	**39**	49	72	**121**	**160**
16:15 16:30	24	20	**44**	50	59	**109**	**153**
16:30 16:45	21	20	**41**	52	86	**138**	**179**
16:45 17:00	22	25	**47**	69	67	**136**	**183**
17:00 17:15	21	34	**55**	55	84	**139**	**194**
17:15 17:30	26	22	**48**	82	91	**173**	**221**
17:30 17:45	35	22	**57**	68	78	**146**	**203**
17:45 18:00	31	37	**68**	72	94	**166**	**234**
Total	491	531	**1022**	1250	1534	**2784**	**3806**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		BANK ST Northbound				BANK ST Southbound					GILMOUR ST Eastbound				GILMOUR ST Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	4	0	**7**	0	3	0	**7**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
07:15	07:30	0	3	0	**7**	1	4	0	**8**	**15**	0	0	0	**0**	0	0	0	**1**	**1**	**8**
07:30	07:45	0	4	0	**7**	0	3	0	**7**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
07:45	08:00	1	5	0	**9**	0	3	0	**8**	**17**	0	1	0	**2**	0	0	0	**1**	**3**	**10**
08:00	08:15	0	4	0	**9**	0	5	0	**9**	**18**	0	1	0	**1**	0	0	0	**1**	**2**	**10**
08:15	08:30	0	7	2	**15**	0	6	0	**13**	**28**	0	0	0	**0**	0	0	0	**2**	**2**	**15**
08:30	08:45	0	8	0	**12**	0	4	0	**12**	**24**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
08:45	09:00	0	7	0	**14**	0	6	0	**13**	**27**	0	0	1	**1**	0	0	0	**0**	**1**	**14**
09:00	09:15	0	8	1	**15**	1	5	0	**14**	**29**	0	0	1	**1**	0	0	0	**2**	**3**	**16**
09:15	09:30	0	4	1	**9**	2	4	0	**10**	**19**	0	0	0	**0**	0	0	0	**3**	**3**	**11**
09:30	09:45	0	5	0	**10**	0	4	0	**9**	**19**	0	0	1	**1**	0	0	0	**0**	**1**	**10**
09:45	10:00	0	11	1	**19**	1	7	0	**19**	**38**	0	0	0	**0**	0	0	0	**2**	**2**	**20**
11:30	11:45	0	6	0	**14**	0	8	0	**14**	**28**	0	0	0	**0**	0	0	0	**0**	**0**	**14**
11:45	12:00	0	5	0	**8**	0	3	0	**8**	**16**	0	2	0	**2**	0	0	0	**2**	**4**	**10**
12:00	12:15	0	6	2	**13**	0	4	0	**10**	**23**	0	0	1	**1**	0	0	0	**2**	**3**	**13**
12:15	12:30	0	5	0	**10**	0	5	0	**11**	**21**	1	0	0	**1**	0	0	0	**0**	**1**	**11**
12:30	12:45	0	5	0	**12**	0	7	0	**13**	**25**	1	0	0	**1**	0	0	0	**0**	**1**	**13**
12:45	13:00	0	3	0	**10**	0	7	0	**10**	**20**	0	2	0	**2**	0	0	0	**2**	**4**	**12**
13:00	13:15	0	2	0	**9**	0	7	0	**10**	**19**	1	0	0	**1**	0	0	0	**0**	**1**	**10**
13:15	13:30	0	4	1	**14**	1	9	0	**14**	**28**	0	0	0	**0**	0	0	0	**2**	**2**	**15**
15:00	15:15	0	3	0	**10**	0	7	0	**10**	**20**	0	2	0	**2**	0	0	0	**2**	**4**	**12**
15:15	15:30	0	3	0	**6**	0	3	0	**7**	**13**	1	1	0	**2**	0	0	0	**1**	**3**	**8**
15:30	15:45	0	3	0	**5**	0	2	0	**5**	**10**	0	1	0	**1**	0	0	0	**1**	**2**	**6**
15:45	16:00	0	2	0	**5**	0	3	0	**6**	**11**	1	1	0	**2**	0	0	0	**1**	**3**	**7**
16:00	16:15	0	3	0	**6**	0	3	0	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
16:15	16:30	0	2	0	**6**	1	4	0	**7**	**13**	0	0	0	**0**	0	0	0	**1**	**1**	**7**
16:30	16:45	0	1	0	**5**	0	4	0	**5**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**5**
16:45	17:00	0	2	0	**6**	0	4	0	**6**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
17:00	17:15	0	4	0	**7**	0	3	0	**7**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
17:15	17:30	0	0	0	**4**	0	4	0	**4**	**8**	0	0	0	**0**	0	0	0	**0**	**0**	**4**
17:30	17:45	0	4	0	**9**	0	5	0	**9**	**18**	0	0	0	**0**	0	0	0	**0**	**0**	**9**
17:45	18:00	0	4	0	**7**	0	3	0	**7**	**14**	0	0	0	**0**	0	0	0	**0**	**0**	**7**
Total:	None	1	137	8	**299**	7	149	0	**298**	**597**	5	11	4	**21**	0	0	0	**26**	**47**	**322**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GILMOUR ST

Survey Date: Tuesday, March 08, 2022 **WO No:** 40217

Start Time: 07:00 **Device:** Miovision

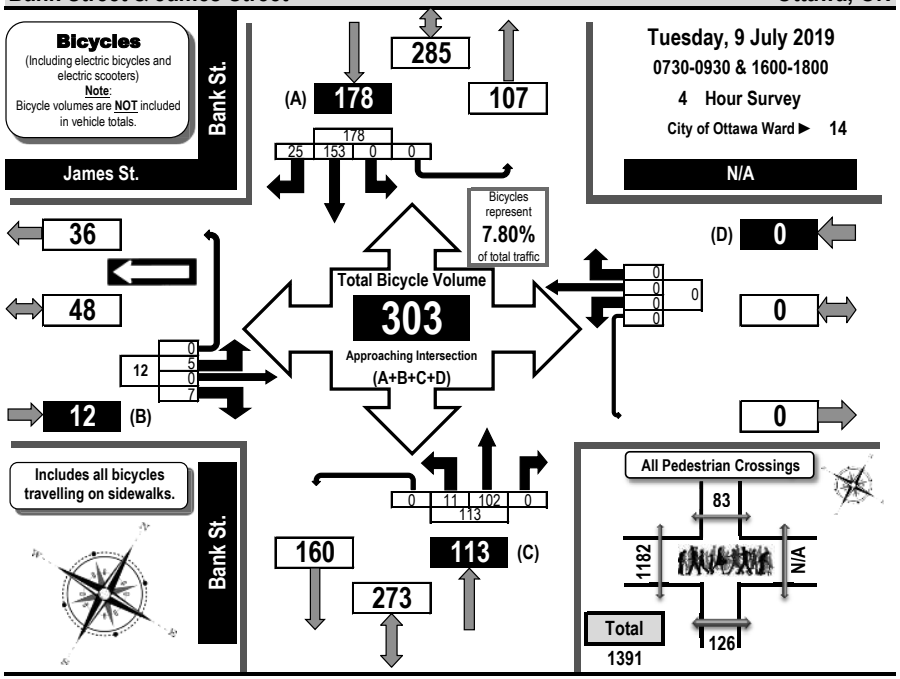
Full Study 15 Minute U-Turn Total

Time Period		BANK ST Northbound U-Turn Total	BANK ST Southbound U-Turn Total	GILMOUR ST Eastbound U-Turn Total	GILMOUR ST Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	1	0	0	1
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	1	0	0	1
17:15	17:30	0	0	0	0	0
17:30	17:45	0	1	0	0	1
17:45	18:00	0	0	0	0	0
Total		0	3	0	0	3

ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Bicycle Summary
Flow Diagram

Bank Street & James Street **Ottawa, ON**



	James St. Eastbound					N/A Westbound					Bank St. Northbound					Bank St. Southbound					
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	0	1	0	1	0	0	0	0	0	2	16	0	0	18	0	6	4	0	10	29
0800-0900	3	0	3	0	6	0	0	0	0	0	2	25	0	0	27	0	9	2	0	11	44
0900-0930	0	0	1	0	1	0	0	0	0	0	0	12	0	0	12	0	7	0	0	7	20
1600-1700	1	0	1	0	2	0	0	0	0	0	4	25	0	0	29	0	63	8	0	71	102
1700-1800	1	0	1	0	2	0	0	0	0	0	3	24	0	0	27	0	68	11	0	79	108
Totals	5	0	7	0	12	0	0	0	0	0	11	102	0	0	113	0	153	25	0	178	303

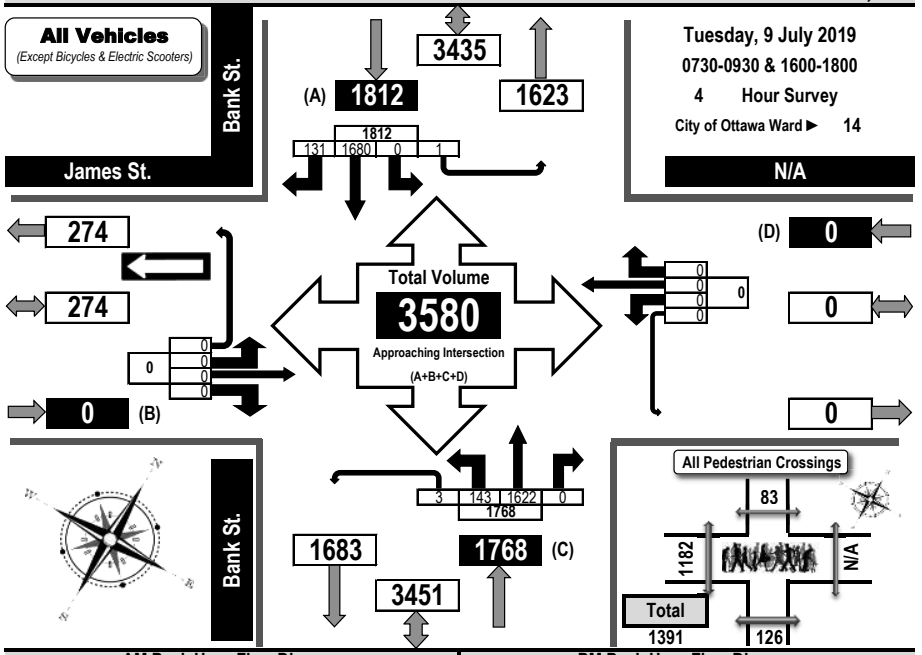
Comments:

Bronson Avenue, northbound, is closed due to construction between Catherine Street and Chamberlain Avenue. James Street is one way westbound. Bicycles were counted on all approaches. Pedestrians using the sidewalk on the east side of Bank Street were not counted; however, all bicycles driving on it were and are included in the bicycle summary. There were two eastbound vehicles from James Street but they are not included in the summary. The majority of heavy vehicle traffic consists of OC Transpo buses.

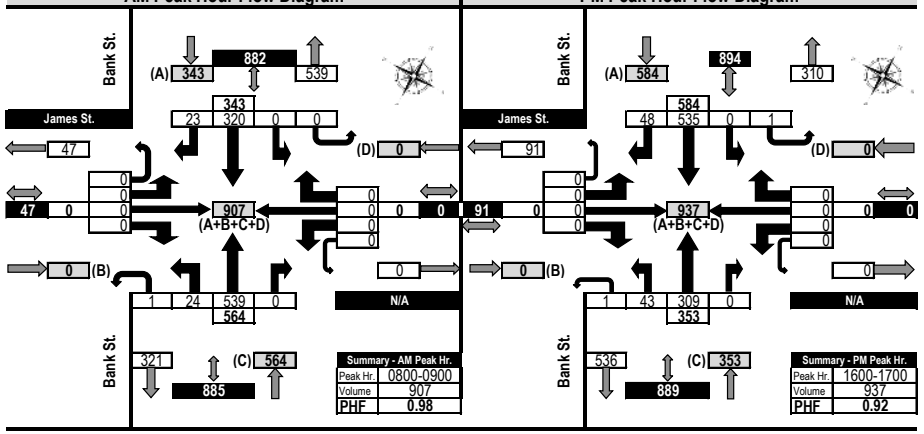
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Bank Street & James Street — **Ottawa, ON**



AM Peak Hour Flow Diagram



Summary - AM Peak Hr.

Peak Hr.	0800-0900
Volume	907
PHF	0.98

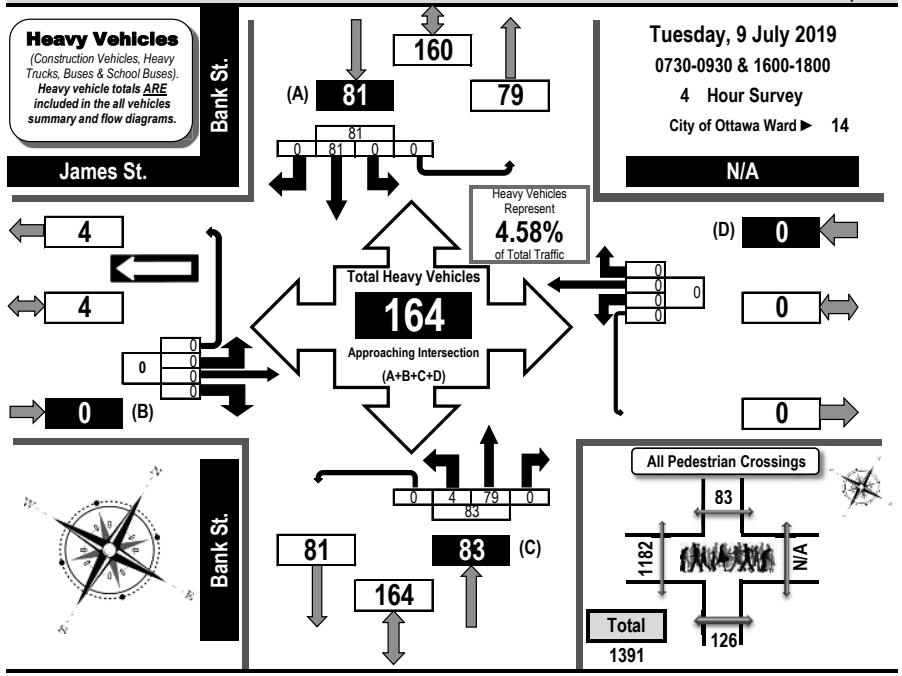
PM Peak Hour Flow Diagram

Summary - PM Peak Hr.

Peak Hr.	1600-1700
Volume	937
PHF	0.92

Turning Movement Count
Heavy Vehicle Summary Flow Diagram

Bank Street & James Street — **Ottawa, ON**



	James St.					N/A					Bank St.					Bank St.				
	Eastbound					Westbound					Northbound					Southbound				
Time Period	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	LT	ST	RT	UT	S. Tot	G.Tot.
0730-0800	0	0	0	0	0	0	0	0	0	0	0	13	0	0	13	0	13	0	0	13	26
0800-0900	0	0	0	0	0	0	0	0	0	0	2	26	0	0	28	0	25	0	0	25	53
0900-0930	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15	0	12	0	0	12	27
1600-1700	0	0	0	0	0	0	0	0	0	0	1	13	0	0	14	0	10	0	0	10	24
1700-1800	0	0	0	0	0	0	0	0	0	0	1	12	0	0	13	0	21	0	0	21	34
Totals	0	0	0	0	0	0	0	0	0	0	4	79	0	0	83	0	81	0	0	81	164

Comments:

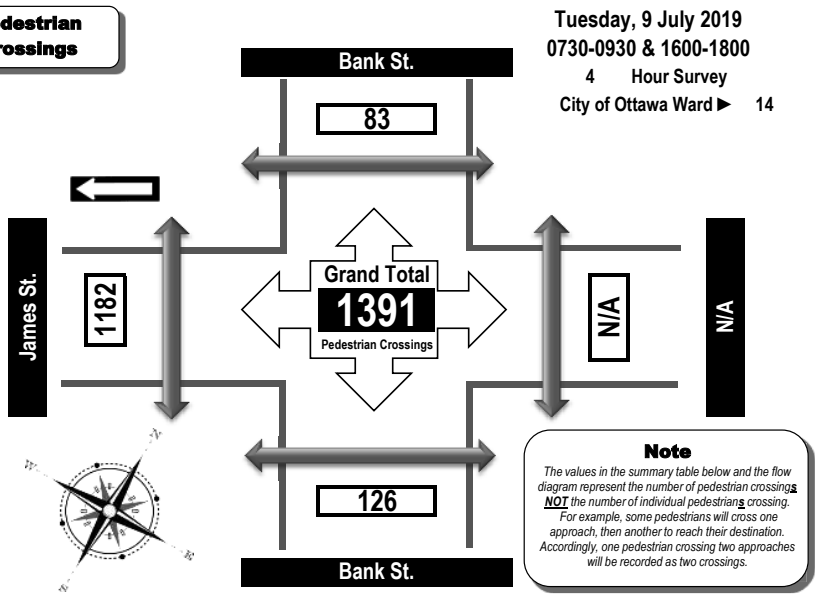
Bronson Avenue, northbound, is closed due to construction between Catherine Street and Chamberlain Avenue. James Street is one way westbound. Bicycles were counted on all approaches. Pedestrians using the sidewalk on the east side of Bank Street were not counted; however, all bicycles driving on it were and are included in the bicycle summary. There were two eastbound vehicles from James Street but they are not included in the summary. The majority of heavy vehicle traffic consists of OC Transpo buses.

Turning Movement Count
Pedestrian Crossings Summary and Flow Diagram

Bank Street & James Street — **Ottawa, ON**

Pedestrian Crossings

Tuesday, 9 July 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ► 14



Note

*The values in the summary table below and the flow diagram represent the number of pedestrian crossing**s** **NOT** the number of individual pedestrian**s** crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.*

Time Period	West Side Crossing James St.	East Side Crossing N/A	Street Total	South Side Crossing Bank St.	North Side Crossing Bank St.	Street Total	Grand Total
0730-0800	78	0	78	4	4	8	86
0800-0900	174	0	174	9	15	24	198
0900-0930	49	0	49	17	9	26	75
1600-1700	439	0	439	43	30	73	512
1700-1800	442	0	442	53	25	78	520
Totals	1182	0	1182	126	83	209	1391

Comments:

Bronson Avenue, northbound, is closed due to construction between Catherine Street and Chamberlain Avenue. James Street is one way westbound. Bicycles were counted on all approaches. Pedestrians using the sidewalk on the east side of Bank Street were not counted; however, all bicycles driving on it were and are included in the bicycle summary. There were two eastbound vehicles from James Street but they are not included in the summary. The majority of heavy vehicle traffic consists of OC Transpo buses.

Turning Movement Count
Summary Report
AADT and Expansion Factors

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Bank Street & James Street — **Ottawa, ON**

Survey Date: Tuesday, 9 July 2019 **Start Time:** 0730 **AADT Factor:** 0.9
Weather AM: Clear +16ºC **Survey Duration:** 4 Hrs. **Survey Hours:** 0730-0930 & 1600-1800
Weather PM: Partly Cloudy +30ºC **Surveyor(s):** Carmody

	James St. Eastbound					N/A Westbound						Bank St. Northbound					Bank St. Southbound						
Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0730-0800	0	0	0	0	0	0	0	0	0	0	0	12	261	0	0	273	0	161	6	0	167	440	440
0800-0900	0	0	0	0	0	0	0	0	0	0	0	24	539	0	1	564	0	320	23	0	343	907	907
0900-0930	0	0	0	0	0	0	0	0	0	0	0	16	194	0	0	210	0	150	15	0	165	375	375
1600-1700	0	0	0	0	0	0	0	0	0	0	0	43	309	0	1	353	0	535	48	1	584	937	937
1700-1800	0	0	0	0	0	0	0	0	0	0	0	48	319	0	1	368	0	514	39	0	553	921	921
Totals	0	0	0	0	0	0	0	0	0	0	0	143	1622	0	3	1768	0	1680	131	1	1812	3580	3580

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 ➡12 expansion factor of 1.39

Equ. 12 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9

AADT 12-hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 ➡24 expansion factor of 1.31

AADT 24 Hr	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor ➡ 0.98 — Highest Hourly Vehicle Volume Between 0700h & 1000h

AM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
0800-0900	0	0	0	0	0	0	0	0	0	0	0	24	539	0	1	564	0	320	23	0	343	907	907

PM Peak Hour Factor ➡ 0.92 — Highest Hourly Vehicle Volume Between 1500h & 1800h

PM Peak Hr	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	LT	ST	RT	UT	TOT	LT	ST	RT	UT	TOT	S.TOT	G.TOT
1600-1700	0	0	0	0	0	0	0	0	0	0	0	43	309	0	1	353	0	535	48	1	584	937	937

Comments:

Bronson Avenue, northbound, is closed due to construction between Catherine Street and Chamberlain Avenue. James Street is one way westbound. Bicycles were counted on all approaches. Pedestrians using the sidewalk on the east side of Bank Street were not counted; however, all bicycles driving on it were and are included in the bicycle summary. There were two eastbound vehicles from James Street but they are not included in the summary. The majority of heavy vehicle traffic consists of OC Transpo buses.

Notes:

1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
2.When expansion and AADT factors are applied, the results will differ slightly due to rounding.

Transportation Services - Traffic Services

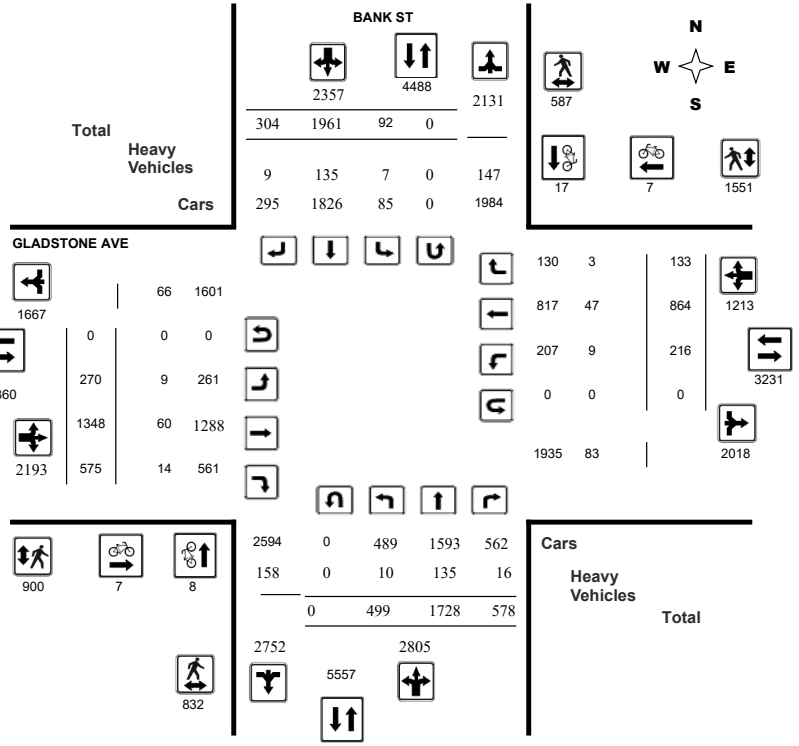
Turning Movement Count - Study Results

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision

Full Study Diagram



Transportation Services - Traffic Services

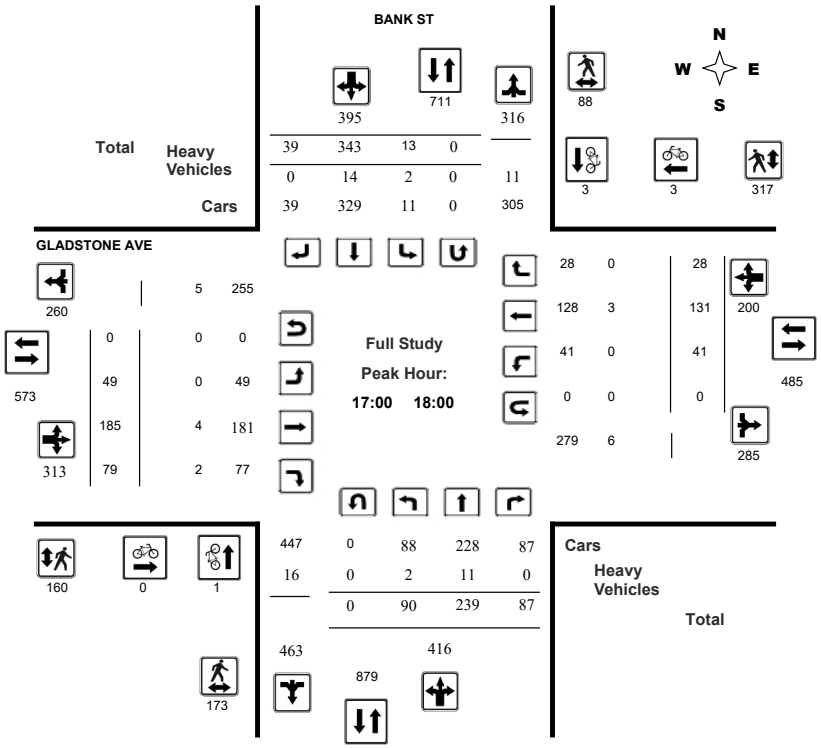
Turning Movement Count - Study Results

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision

Full Study Peak Hour Diagram



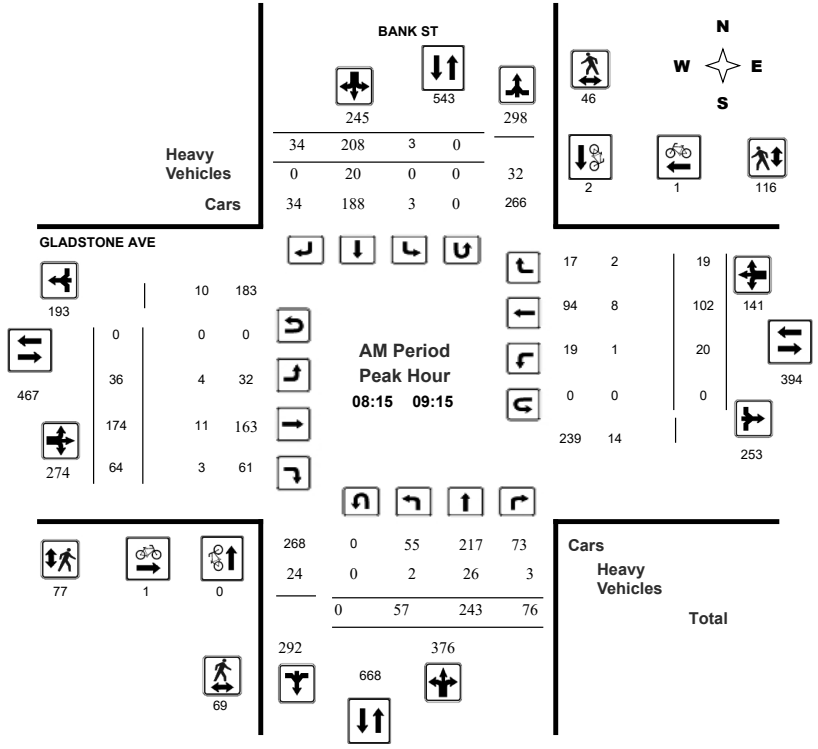
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision



Comments

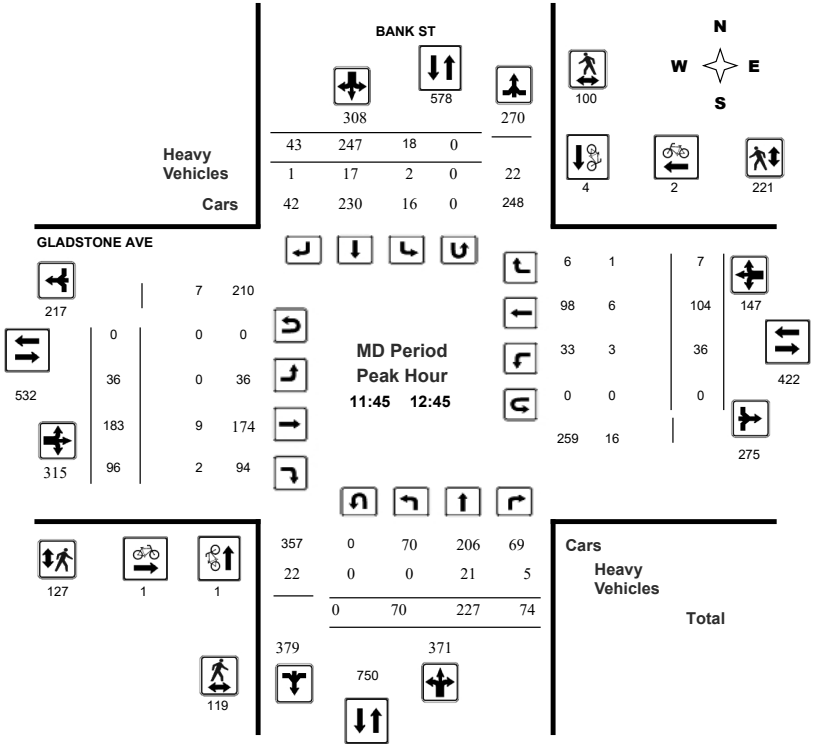
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision



Comments

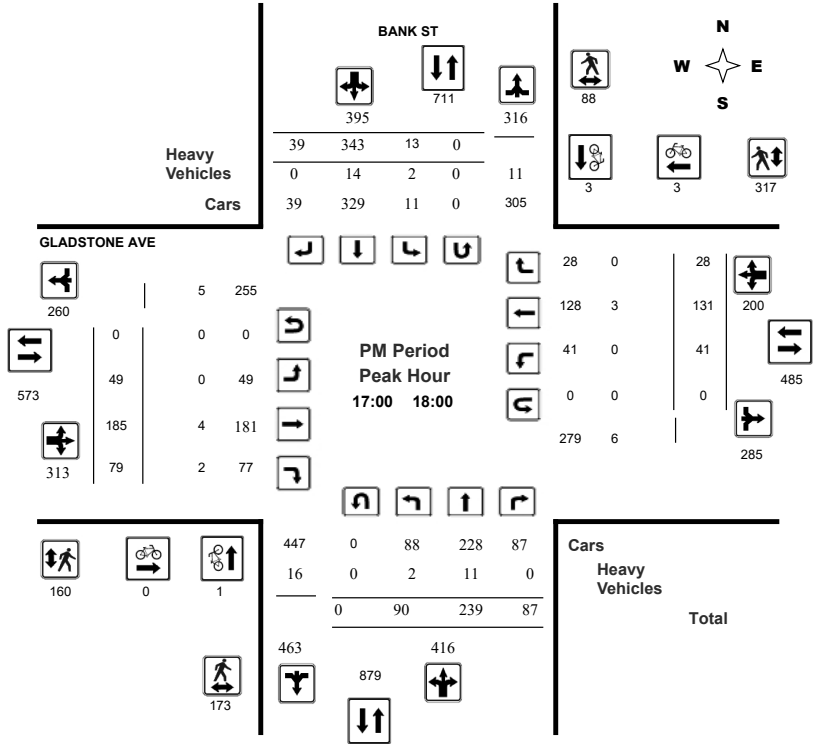
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, March 08, 2022

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.00

	BANK ST								GLADSTONE AVE								
	Northbound				Southbound				Eastbound				Westbound				
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	47	181	73	**301**	0	133	13	**146**	**447**	21	132	38	**191**	13	53	8	**74**	**265**	**712**
08:00 09:00	59	223	79	**361**	1	198	33	**232**	**593**	29	185	62	**276**	24	95	18	**137**	**413**	**1006**
09:00 10:00	42	229	59	**330**	11	189	41	**241**	**571**	30	155	51	**236**	12	99	11	**122**	**358**	**929**
11:30 12:30	71	227	69	**367**	11	232	46	**289**	**656**	38	176	95	**309**	35	106	13	**154**	**463**	**1119**
12:30 13:30	67	216	81	**364**	20	272	44	**336**	**700**	30	175	77	**282**	23	106	10	**139**	**421**	**1121**
15:00 16:00	62	184	62	**308**	19	279	48	**346**	**654**	32	172	89	**293**	26	129	21	**176**	**469**	**1123**
16:00 17:00	61	229	68	**358**	17	315	40	**372**	**730**	41	168	84	**293**	42	145	24	**211**	**504**	**1234**
17:00 18:00	90	239	87	**416**	13	343	39	**395**	**811**	49	185	79	**313**	41	131	28	**200**	**513**	**1324**
Sub Total	499	1728	578	**2805**	92	1961	304	**2357**	**5162**	270	1348	575	**2193**	216	864	133	**1213**	**3406**	**8568**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	499	1728	578	**2805**	92	1961	304	**2357**	**5162**	270	1348	575	**2193**	216	864	133	**1213**	**3406**	**8568**
EQ 12Hr	694	2402	803	**3899**	128	2726	423	**3276**	**7175**	375	1874	799	**3048**	300	1201	185	**1686**	**4734**	**11910**

Note: These values are calculated by multiplying the totals by the appropriate expansion factor. **1.39**

AVG 12Hr	694	2402	803	**3899**	128	3571	554	**3276**	**7175**	375	1874	799	**3048**	300	1201	185	**1686**	**4734**	**11910**

Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. **1.00**

AVG 24Hr	909	3147	1052	**5108**	168	4678	726	**4292**	**9399**	491	2455	1047	**3993**	393	1573	242	**2209**	**6202**	**15602**

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		BANK ST									GLADSTONE AVE								
		Northbound				Southbound					Eastbound				Westbound				
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	11	43	17	71	0	26	3	29	100	4	24	8	36	2	12	2	16	52	152
07:15	07:30	7	41	17	65	0	41	2	43	108	5	33	8	46	4	9	0	13	59	167
07:30	07:45	15	41	24	80	0	27	4	31	111	5	27	8	40	4	16	3	23	63	174
07:45	08:00	14	56	15	85	0	39	4	43	128	7	48	14	69	3	16	3	22	91	219
08:00	08:15	11	47	13	71	0	41	8	49	120	5	51	9	65	6	24	1	31	96	216
08:15	08:30	16	47	19	82	1	47	8	56	138	4	36	17	57	6	31	6	43	100	238
08:30	08:45	20	56	25	101	0	48	9	57	158	10	57	16	83	7	21	3	31	114	272
08:45	09:00	12	73	22	107	0	62	8	70	177	10	41	20	71	5	19	8	32	103	280
09:00	09:15	9	67	10	86	2	51	9	62	148	12	40	11	63	2	31	2	35	98	246
09:15	09:30	9	53	14	76	3	49	9	61	137	6	34	8	48	6	20	3	29	77	214
09:30	09:45	17	48	18	83	2	40	12	54	137	5	40	20	65	2	25	2	29	94	231
09:45	10:00	7	61	17	85	4	49	11	64	149	7	41	12	60	2	23	4	29	89	238
11:30	11:45	13	53	12	78	0	55	12	67	145	8	44	17	69	6	23	6	35	104	249
11:45	12:00	15	60	15	90	5	54	13	72	162	10	52	21	83	10	32	1	43	126	288
12:00	12:15	24	63	21	108	4	67	9	80	188	14	35	24	73	8	20	5	33	106	294
12:15	12:30	19	51	21	91	2	56	12	70	161	6	45	33	84	11	31	1	43	127	288
12:30	12:45	12	53	17	82	7	70	9	86	168	6	51	18	75	7	21	0	28	103	271
12:45	13:00	25	48	21	94	3	62	8	73	167	9	41	20	70	10	30	2	42	112	279
13:00	13:15	17	56	25	98	7	74	14	95	193	7	39	20	66	1	23	4	28	94	287
13:15	13:30	13	59	18	90	3	66	13	82	172	8	44	19	71	5	32	4	41	112	284
15:00	15:15	14	47	20	81	4	74	16	94	175	11	44	17	72	8	28	6	42	114	289
15:15	15:30	17	59	12	88	5	84	9	98	186	7	38	27	72	10	23	4	37	109	295
15:30	15:45	16	35	14	65	5	70	11	86	151	5	51	19	75	4	35	2	41	116	267
15:45	16:00	15	43	16	74	5	51	12	68	142	9	39	26	74	4	43	9	56	130	272
16:00	16:15	15	67	21	103	3	94	11	108	211	4	41	21	66	9	33	4	46	112	323
16:15	16:30	20	49	20	89	5	77	11	93	182	16	44	17	77	9	33	4	46	123	305
16:30	16:45	8	54	13	75	6	71	6	83	158	11	36	16	63	15	40	11	66	129	287
16:45	17:00	18	59	14	91	3	73	12	88	179	10	47	30	87	9	39	5	53	140	319
17:00	17:15	25	51	23	99	2	96	9	107	206	7	50	26	83	10	37	5	52	135	341
17:15	17:30	27	59	21	107	6	83	8	97	204	8	59	20	87	14	39	5	58	145	349
17:30	17:45	18	61	20	99	1	85	9	95	194	14	39	18	71	9	26	9	44	115	309
17:45	18:00	20	68	23	111	4	79	13	96	207	20	37	15	72	8	29	9	46	118	325
Total:		499	1728	578	2805	92	1961	304	2357	5162	270	1348	575	2193	216	864	133	1213	3406	8,568

Note: U-Turns are included in Totals.

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision

Full Study Cyclist Volume

		BANK ST			GLADSTONE AVE			
Time Period		Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00	07:15	0	0	0	0	0	0	0
07:15	07:30	0	0	0	0	0	0	0
07:30	07:45	0	0	0	0	0	0	0
07:45	08:00	0	0	0	1	1	2	2
08:00	08:15	0	0	0	0	0	0	0
08:15	08:30	0	2	2	0	0	0	2
08:30	08:45	0	0	0	0	0	0	0
08:45	09:00	0	0	0	1	0	1	1
09:00	09:15	0	0	0	0	1	1	1
09:15	09:30	0	0	0	0	0	0	0
09:30	09:45	0	0	0	1	0	1	1
09:45	10:00	1	0	1	0	0	0	1
11:30	11:45	0	0	0	1	0	1	1
11:45	12:00	0	0	0	0	1	1	1
12:00	12:15	0	2	2	0	0	0	2
12:15	12:30	0	1	1	1	1	2	3
12:30	12:45	1	1	2	0	0	0	2
12:45	13:00	1	1	2	0	0	0	2
13:00	13:15	0	0	0	0	0	0	0
13:15	13:30	0	3	3	1	0	1	4
15:00	15:15	0	0	0	1	0	1	1
15:15	15:30	1	0	1	0	0	0	1
15:30	15:45	0	3	3	0	0	0	3
15:45	16:00	1	0	1	0	0	0	1
16:00	16:15	1	0	1	0	0	0	1
16:15	16:30	1	0	1	0	0	0	1
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	1	1	0	0	0	1
17:00	17:15	1	0	1	0	0	0	1
17:15	17:30	0	1	1	0	3	3	4
17:30	17:45	0	1	1	0	0	0	1
17:45	18:00	0	1	1	0	0	0	1
Total		8	17	**25**	7	7	14	39

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision

Full Study Pedestrian Volume

Time Period	BANK ST NB Approach (E or W Crossing)	BANK ST SB Approach (E or W Crossing)	BANK ST Total	GLADSTONE AVE EB Approach (N or S Crossing)	GLADSTONE AVE WB Approach (N or S Crossing)	GLADSTONE AVE Total	Grand Total
07:00 07:15	9	6	**15**	6	10	**16**	**31**
07:15 07:30	4	5	**9**	10	10	**20**	**29**
07:30 07:45	10	1	**11**	11	20	**31**	**42**
07:45 08:00	20	11	**31**	11	23	**34**	**65**
08:00 08:15	22	19	**41**	11	27	**38**	**79**
08:15 08:30	24	11	**35**	16	31	**47**	**82**
08:30 08:45	22	8	**30**	20	36	**56**	**86**
08:45 09:00	10	10	**20**	19	27	**46**	**66**
09:00 09:15	13	17	**30**	22	22	**44**	**74**
09:15 09:30	15	7	**22**	11	24	**35**	**57**
09:30 09:45	13	9	**22**	22	17	**39**	**61**
09:45 10:00	15	10	**25**	19	16	**35**	**60**
11:30 11:45	16	25	**41**	28	40	**68**	**109**
11:45 12:00	30	21	**51**	23	54	**77**	**128**
12:00 12:15	23	27	**50**	43	40	**83**	**133**
12:15 12:30	36	25	**61**	32	64	**96**	**157**
12:30 12:45	30	27	**57**	29	63	**92**	**149**
12:45 13:00	27	33	**60**	29	73	**102**	**162**
13:00 13:15	24	27	**51**	35	75	**110**	**161**
13:15 13:30	25	32	**57**	37	54	**91**	**148**
15:00 15:15	34	18	**52**	24	49	**73**	**125**
15:15 15:30	25	17	**42**	35	38	**73**	**115**
15:30 15:45	22	26	**48**	37	48	**85**	**133**
15:45 16:00	34	19	**53**	37	63	**100**	**153**
16:00 16:15	42	14	**56**	45	81	**126**	**182**
16:15 16:30	35	30	**65**	47	71	**118**	**183**
16:30 16:45	41	16	**57**	39	79	**118**	**175**
16:45 17:00	38	28	**66**	42	79	**121**	**187**
17:00 17:15	50	22	**72**	31	80	**111**	**183**
17:15 17:30	45	22	**67**	49	79	**128**	**195**
17:30 17:45	36	23	**59**	47	74	**121**	**180**
17:45 18:00	42	21	**63**	33	84	**117**	**180**
Total	832	587	**1419**	900	1551	**2451**	**3870**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision

Full Study Heavy Vehicles

		BANK ST									GLADSTONE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	2	4	0	**9**	0	3	0	**7**	**16**	0	2	0	**5**	0	1	0	**3**	**8**	**12**
07:15	07:30	0	3	0	**7**	0	4	0	**7**	**14**	0	3	0	**4**	0	1	0	**4**	**8**	**11**
07:30	07:45	0	4	1	**10**	0	3	0	**7**	**17**	0	2	1	**3**	1	0	0	**4**	**7**	**12**
07:45	08:00	0	5	1	**8**	0	2	0	**7**	**15**	0	0	0	**3**	0	3	0	**4**	**7**	**11**
08:00	08:15	0	8	0	**11**	0	3	0	**11**	**22**	0	1	0	**3**	0	2	0	**3**	**6**	**14**
08:15	08:30	0	5	2	**16**	0	6	0	**12**	**28**	0	3	2	**9**	1	4	1	**11**	**20**	**24**
08:30	08:45	1	7	1	**12**	0	3	0	**12**	**24**	2	3	0	**7**	0	1	0	**5**	**12**	**18**
08:45	09:00	1	7	0	**15**	0	6	0	**14**	**29**	0	2	1	**5**	0	1	1	**4**	**9**	**19**
09:00	09:15	0	7	0	**12**	0	5	0	**14**	**26**	2	3	0	**7**	0	2	0	**5**	**12**	**19**
09:15	09:30	1	4	0	**10**	0	5	1	**10**	**20**	0	2	0	**5**	0	1	0	**3**	**8**	**14**
09:30	09:45	1	5	1	**13**	0	6	0	**11**	**24**	0	3	0	**6**	0	2	0	**6**	**12**	**18**
09:45	10:00	0	9	1	**16**	0	6	1	**19**	**35**	3	5	0	**13**	0	4	0	**10**	**23**	**29**
11:30	11:45	0	4	0	**10**	0	4	2	**10**	**20**	0	1	0	**4**	2	1	0	**4**	**8**	**14**
11:45	12:00	0	6	3	**12**	1	2	0	**9**	**21**	0	2	1	**5**	0	2	0	**8**	**13**	**17**
12:00	12:15	0	5	0	**11**	0	5	1	**12**	**23**	0	4	1	**6**	0	0	1	**5**	**11**	**17**
12:15	12:30	0	7	1	**13**	0	3	0	**10**	**23**	0	2	0	**5**	2	3	0	**8**	**13**	**18**
12:30	12:45	0	3	1	**12**	1	7	0	**11**	**23**	0	1	0	**2**	1	1	0	**5**	**7**	**15**
12:45	13:00	0	3	1	**9**	1	4	1	**9**	**18**	0	2	1	**4**	0	0	0	**4**	**8**	**13**
13:00	13:15	1	2	1	**13**	0	7	0	**9**	**22**	0	3	2	**8**	0	2	0	**6**	**14**	**18**
13:15	13:30	0	5	0	**14**	1	9	1	**16**	**30**	0	3	0	**6**	0	2	0	**6**	**12**	**21**
15:00	15:15	1	4	0	**13**	0	8	0	**12**	**25**	0	2	0	**5**	0	2	0	**4**	**9**	**17**
15:15	15:30	0	2	0	**4**	1	2	0	**7**	**11**	2	1	0	**4**	0	1	0	**3**	**7**	**9**
15:30	15:45	0	4	0	**6**	0	2	0	**6**	**12**	0	0	0	**1**	0	1	0	**1**	**2**	**7**
15:45	16:00	0	1	1	**6**	0	3	0	**4**	**10**	0	0	1	**3**	0	2	0	**3**	**6**	**8**
16:00	16:15	0	4	0	**7**	0	3	1	**8**	**15**	0	2	0	**4**	0	1	0	**3**	**7**	**11**
16:15	16:30	0	2	0	**8**	0	4	1	**7**	**15**	0	2	1	**6**	1	2	0	**5**	**11**	**13**
16:30	16:45	0	1	1	**6**	0	3	0	**4**	**10**	0	1	1	**3**	0	1	0	**3**	**6**	**8**
16:45	17:00	0	3	0	**7**	0	3	0	**6**	**13**	0	1	0	**2**	1	1	0	**3**	**5**	**9**
17:00	17:15	2	3	0	**9**	1	3	0	**7**	**16**	0	1	1	**4**	0	0	0	**2**	**6**	**11**
17:15	17:30	0	1	0	**5**	0	4	0	**5**	**10**	0	0	0	**1**	0	1	0	**1**	**2**	**6**
17:30	17:45	0	3	0	**7**	1	4	0	**8**	**15**	0	1	0	**2**	0	1	0	**3**	**5**	**10**
17:45	18:00	0	4	0	**8**	0	3	0	**7**	**15**	0	2	1	**4**	0	1	0	**3**	**7**	**11**
Total:	None	10	135	16	**319**	7	135	9	**298**	**617**	9	60	14	**149**	9	47	3	**142**	**291**	**454**

Transportation Services - Traffic Services

Turning Movement Count - Study Results

BANK ST @ GLADSTONE AVE

Survey Date: Tuesday, March 08, 2022 **WO No:** 40220

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute U-Turn Total

Time Period		BANK ST Northbound U-Turn Total	BANK ST Southbound U-Turn Total	GLADSTONE AVE Eastbound U-Turn Total	GLADSTONE AVE Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

Appendix C

Synchro Intersection Worksheets – Existing Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	56	23	0	0	0	0	0	423	11
Future Volume (vph)	0	0	0	56	23	0	0	0	0	0	423	11
Satd. Flow (prot)	0	0	0	0	1652	0	0	0	0	0	3297	0
Flt Permitted					0.966							
Satd. Flow (perm)	0	0	0	0	1644	0	0	0	0	0	3297	0
Satd. Flow (RTOR)											8	
Lane Group Flow (vph)	0	0	0	0	88	0	0	0	0	0	482	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.8						58.4	
Actuated g/C Ratio					0.14						0.78	
v/c Ratio					0.37						0.19	
Control Delay					29.8						3.2	
Queue Delay					0.0						0.0	
Total Delay					29.8						3.2	
LOS					C						A	
Approach Delay					29.8						3.2	
Approach LOS					C						A	
Queue Length 50th (m)					10.7						8.9	
Queue Length 95th (m)					m18.3						14.9	
Internal Link Dist (m)		102.5			161.6			141.5			55.1	
Turn Bay Length (m)												
Base Capacity (vph)					263						2567	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.33						0.19	

Intersection Summary

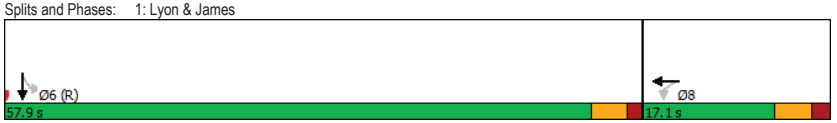
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 16 (21%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 40.2%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 1: Lyon & James



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	304	68	32	166	0	0	0	0	67	340	57
Future Volume (vph)	0	304	68	32	166	0	0	0	0	67	340	57
Satd. Flow (prot)	0	1675	0	0	1687	0	0	0	0	0	3233	0
Flt Permitted					0.897						0.993	
Satd. Flow (perm)	0	1675	0	0	1525	0	0	0	0	0	3233	0
Satd. Flow (RTOR)		19									25	
Lane Group Flow (vph)	0	414	0	0	220	0	0	0	0	0	515	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		17.2		17.2	17.2					22.6	22.6	
Total Split (s)		38.0		38.0	38.0					37.0	37.0	
Total Split (%)		50.7%		50.7%	50.7%					49.3%	49.3%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		C-Max	C-Max					Max	Max	
Act Effct Green (s)		32.8			32.8						31.4	
Actuated g/C Ratio		0.44			0.44						0.42	
v/c Ratio		0.56			0.33						0.38	
Control Delay		18.5			6.7						15.5	
Queue Delay		0.0			0.0						0.0	
Total Delay		18.5			6.7						15.5	
LOS		B			A						B	
Approach Delay		18.5			6.7						15.5	
Approach LOS		B			A						B	
Queue Length 50th (m)		42.0			6.3						27.9	
Queue Length 95th (m)		68.8			m12.1						40.6	
Internal Link Dist (m)		110.8			164.9			56.5			141.5	
Turn Bay Length (m)												
Base Capacity (vph)		743			666						1368	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.56			0.33						0.38	

Intersection Summary

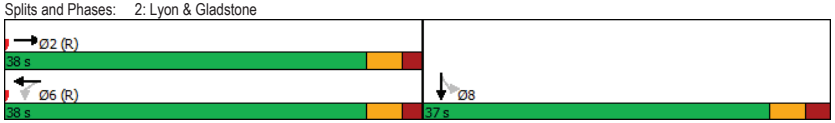
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 10 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 14.9	Intersection LOS: B
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 2: Lyon & Gladstone



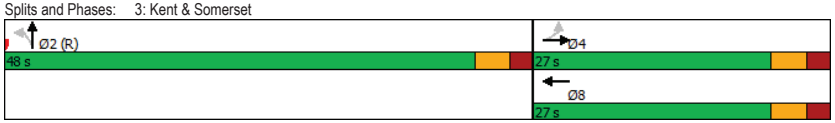
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	265	0	0	134	50	75	1554	164	0	0	0
Future Volume (vph)	62	265	0	0	134	50	75	1554	164	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1600	0	1642	4558	0	0	0	0
Flt Permitted	0.560						0.950					
Satd. Flow (perm)	892	1728	0	0	1600	0	1072	4558	0	0	0	0
Satd. Flow (RTOR)								39				
Lane Group Flow (vph)	69	294	0	0	205	0	83	1909	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	27.0	27.0			27.0		48.0	48.0				
Total Split (%)	36.0%	36.0%			36.0%		64.0%	64.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	17.4	17.4			17.4		46.7	46.7				
Actuated g/C Ratio	0.23	0.23			0.23		0.62	0.62				
v/c Ratio	0.33	0.73			0.55		0.12	0.67				
Control Delay	27.2	37.4			21.5		11.0	11.6				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	27.2	37.4			21.5		11.0	11.6				
LOS	C	D			C		B	B				
Approach Delay		35.5			21.5			11.6				
Approach LOS		D			C			B				
Queue Length 50th (m)	8.5	40.3			30.1		3.9	39.3				
Queue Length 95th (m)	18.7	62.4			m51.2		m13.5	77.9				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	255	495			458		666	2850				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.27	0.59			0.45		0.12	0.67				

Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 66 (88%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73
Intersection Signal Delay: 15.8 — Intersection LOS: B
Intersection Capacity Utilization 71.4% — ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Kent & Somerset



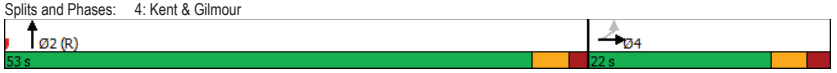
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	75	0	0	0	0	0	1812	114	0	0	0
Future Volume (vph)	17	75	0	0	0	0	0	1812	114	0	0	0
Satd. Flow (prot)	0	1729	0	0	0	0	0	4680	0	0	0	0
Flt Permitted		0.991										
Satd. Flow (perm)	0	1714	0	0	0	0	0	4680	0	0	0	0
Satd. Flow (RTOR)		31						26				
Lane Group Flow (vph)	0	102	0	0	0	0	0	2140	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		12.4						56.1				
Actuated g/C Ratio		0.17						0.75				
v/c Ratio		0.33						0.61				
Control Delay		22.2						15.2				
Queue Delay		0.0						0.0				
Total Delay		22.2						15.2				
LOS		C						B				
Approach Delay		22.2						15.2				
Approach LOS		C						B				
Queue Length 50th (m)		9.7						104.3				
Queue Length 95th (m)		21.3						134.2				
Internal Link Dist (m)		69.3			174.3			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		401						3508				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.25						0.61				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 5 (7%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 15.6	Intersection LOS: B
Intersection Capacity Utilization 61.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



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	0	0	0	0	14	20	46	1798	0	0	0	0
Future Vol, veh/h	0	0	0	0	14	20	46	1798	0	0	0	0
Conflicting Peds, #/hr	23	0	11	11	0	23	72	0	77	77	0	72
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-917504		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	7	5	7	2	2	2	2	2
Mvmt Flow	0	0	0	0	16	22	51	1998	0	0	0	0

Major/Minor			Minor1			Major1		
Conflicting Flow All			-	2172	1022	72	0	-
Stage 1			-	2100	-	-	-	-
Stage 2			-	72	-	-	-	-
Critical Hdwy			-	6.64	7.2	5.44	-	-
Critical Hdwy Stg 1			-	5.64	-	-	-	-
Critical Hdwy Stg 2			-	-	-	-	-	-
Follow-up Hdwy			-	4.07	3.95	3.17	-	-
Pot Cap-1 Maneuver			0	43	196	1051	-	0
Stage 1			0	86	-	-	-	0
Stage 2			0	-	-	-	-	0
Platoon blocked, %							-	
Mov Cap-1 Maneuver			-	0	196	1051	-	-
Mov Cap-2 Maneuver			-	0	-	-	-	-
Stage 1			-	0	-	-	-	-
Stage 2			-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	27.7	0.2
HCM LOS	D	

Minor Lane/Major Mvmt	NBL	NBTWBLn1
Capacity (veh/h)	1051	- 196
HCM Lane V/C Ratio	0.049	- 0.193
HCM Control Delay (s)	8.6	0 27.7
HCM Lane LOS	A	A D
HCM 95th %tile Q(veh)	0.2	- 0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	277	0	0	160	143	36	1698	97	0	0	0
Future Volume (vph)	82	277	0	0	160	143	36	1698	97	0	0	0
Satd. Flow (prot)	1626	1679	0	0	1507	0	1658	4703	0	0	0	0
Flt Permitted	0.365						0.950					
Satd. Flow (perm)	598	1679	0	0	1507	0	1401	4703	0	0	0	0
Satd. Flow (RTOR)					6			18				
Lane Group Flow (vph)	91	308	0	0	337	0	40	1995	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	30.0	30.0			30.0		45.0	45.0				
Total Split (%)	40.0%	40.0%			40.0%		60.0%	60.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	20.6	20.6			20.6		43.6	43.6				
Actuated g/C Ratio	0.27	0.27			0.27		0.58	0.58				
v/c Ratio	0.55	0.67			0.81		0.05	0.73				
Control Delay	44.0	41.0			40.7		8.4	14.1				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	44.0	41.0			40.7		8.4	14.1				
LOS	D	D			D		A	B				
Approach Delay		41.7			40.7			14.0				
Approach LOS		D			D			B				
Queue Length 50th (m)	12.1	41.2			51.8		2.4	73.6				
Queue Length 95th (m)	m21.5	59.2			80.2		7.1	102.8				
Internal Link Dist (m)		164.9			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	196	550			498		814	2742				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.46	0.56			0.68		0.05	0.73				

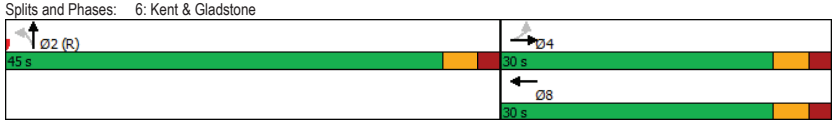
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 36 (48%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 21.2	Intersection LOS: C
Intersection Capacity Utilization 79.2%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	253	75	14	153	11	8	469	67	0	152	8
Future Volume (vph)	52	253	75	14	153	11	8	469	67	0	152	8
Satd. Flow (prot)	1537	1511	0	1658	1690	0	0	1525	0	0	1601	0
Flt Permitted	0.633			0.362				0.996				
Satd. Flow (perm)	780	1511	0	534	1690	0	0	1510	0	0	1601	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	58	364	0	16	182	0	0	604	0	0	178	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0		25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	23.0	23.0		23.0	23.0			41.0			41.0	
Actuated g/C Ratio	0.31	0.31		0.31	0.31			0.55			0.55	
v/c Ratio	0.24	0.78		0.10	0.35			0.73			0.20	
Control Delay	26.6	40.6		19.6	21.9			10.1			10.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	26.6	40.6		19.6	21.9			10.1			10.0	
LOS	C	D		B	C			B			A	
Approach Delay		38.7			21.7			10.1			10.0	
Approach LOS		D			C			B			A	
Queue Length 50th (m)	8.3	54.0		1.6	20.2			9.2			13.2	
Queue Length 95th (m)	m12.6	#89.0		6.2	36.4			#28.7			23.9	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)	25.0			15.0								
Base Capacity (vph)	241	467		165	523			824			874	
Starvation Cap Reductn	0	0		0	0			1			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.24	0.78		0.10	0.35			0.73			0.20	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

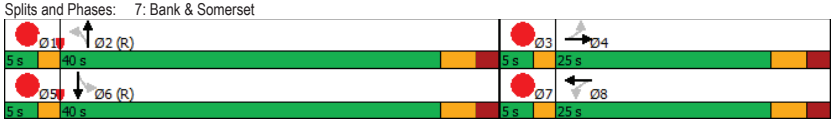
Intersection Summary

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 80.7%	ICU Level of Service D
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Bank & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	11	4	13	36	535	0	0	221	26
Future Volume (vph)	0	0	0	11	4	13	36	535	0	0	221	26
Satd. Flow (prot)	0	0	0	0	1430	0	0	1704	0	0	1539	0
Flt Permitted					0.980			0.969				
Satd. Flow (perm)	0	0	0	0	1376	0	0	1614	0	0	1539	0
Satd. Flow (RTOR)					14						15	
Lane Group Flow (vph)	0	0	0	0	30	0	0	634	0	0	275	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					15.4			57.5			57.5	
Actuated g/C Ratio					0.21			0.77			0.77	
v/c Ratio					0.10			0.51			0.23	
Control Delay					15.7			3.6			5.3	
Queue Delay					0.0			0.0			0.2	
Total Delay					15.7			3.7			5.5	
LOS					B			A			A	
Approach Delay					15.7			3.7			5.5	
Approach LOS					B			A			A	
Queue Length 50th (m)					1.8			23.5			16.0	
Queue Length 95th (m)					8.1			7.7			m23.8	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					359			1237			1183	
Starvation Cap Reductn					0			17			334	
Spillback Cap Reductn					0			9			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.08			0.52			0.32	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 42 (56%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 4.6	Intersection LOS: A
Intersection Capacity Utilization 74.2%	ICU Level of Service D
Analysis Period (min) 15	

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

Splits and Phases: 8: Bank & MacLaren

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	48	31	0	0	0	0	540	34	15	214	0
Future Volume (vph)	32	48	31	0	0	0	0	540	34	15	214	0
Satd. Flow (prot)	0	1602	0	0	0	0	0	1669	0	0	1576	0
Flt Permitted		0.986									0.955	
Satd. Flow (perm)	0	1545	0	0	0	0	0	1669	0	0	1502	0
Satd. Flow (RTOR)		25						8				
Lane Group Flow (vph)	0	123	0	0	0	0	0	638	0	0	255	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		13.2						55.5			55.5	
Actuated g/C Ratio		0.18						0.74			0.74	
v/c Ratio		0.42						0.52			0.23	
Control Delay		26.4						4.3			2.6	
Queue Delay		0.0						0.1			0.2	
Total Delay		26.4						4.4			2.8	
LOS		C						A			A	
Approach Delay		26.4						4.4			2.8	
Approach LOS		C						A			A	
Queue Length 50th (m)		13.2						17.9			4.2	
Queue Length 95th (m)		m25.7						m23.8			8.7	
Internal Link Dist (m)		174.3			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		426						1238			1112	
Starvation Cap Reductn		0						0			359	
Spillback Cap Reductn		0						48			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.29						0.54			0.34	

Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 37 (49%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 6.6	Intersection LOS: A
Intersection Capacity Utilization 55.7%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 9: Bank & Gilmour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	218	116	28	110	27	112	459	86	5	229	29
Future Volume (vph)	63	218	116	28	110	27	112	459	86	5	229	29
Satd. Flow (prot)	0	2867	0	0	1610	0	1642	1540	0	0	2939	0
Flt Permitted		0.834			0.862		0.573				0.945	
Satd. Flow (perm)	0	2370	0	0	1380	0	777	1540	0	0	2776	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	441	0	0	183	0	124	606	0	0	292	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	23.0	23.0		23.0	23.0		42.0	42.0		42.0	42.0	
Total Split (%)	30.7%	30.7%		30.7%	30.7%		56.0%	56.0%		56.0%	56.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		16.7			16.7		36.5	36.5			36.5	
Actuated g/C Ratio		0.22			0.22		0.49	0.49			0.49	
v/c Ratio		0.84			0.60		0.33	0.81			0.22	
Control Delay		50.4			34.9		14.9	27.1			15.8	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		50.4			34.9		14.9	27.1			15.8	
LOS		D			C		B	C			B	
Approach Delay		50.4			34.9			25.0			15.8	
Approach LOS		D			C			C			B	
Queue Length 50th (m)		37.1			24.1		10.7	72.1			17.9	
Queue Length 95th (m)		m#57.1			44.4		23.0	#133.7			27.6	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		553			322		378	749			1350	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.80			0.57		0.33	0.81			0.22	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 20 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

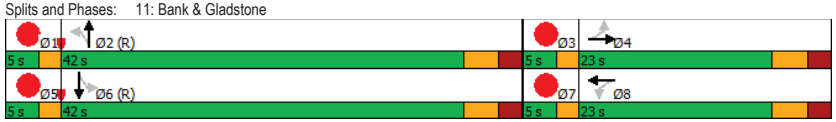
Intersection Summary

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Bank & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	70	30	0	0	0	0	0	893	22
Future Volume (vph)	0	0	0	70	30	0	0	0	0	0	893	22
Satd. Flow (prot)	0	0	0	0	1681	0	0	0	0	0	3294	0
Flt Permitted					0.966							
Satd. Flow (perm)	0	0	0	0	1612	0	0	0	0	0	3294	0
Satd. Flow (RTOR)											8	
Lane Group Flow (vph)	0	0	0	0	111	0	0	0	0	0	1016	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.9						58.3	
Actuated g/C Ratio					0.15						0.78	
v/c Ratio					0.48						0.40	
Control Delay					32.1						4.3	
Queue Delay					0.0						0.0	
Total Delay					32.1						4.3	
LOS					C						A	
Approach Delay					32.1						4.3	
Approach LOS					C						A	
Queue Length 50th (m)					15.8						24.2	
Queue Length 95th (m)					31.0						36.4	
Internal Link Dist (m)		110.6			164.0			139.6			62.1	
Turn Bay Length (m)												
Base Capacity (vph)					257						2561	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.43						0.40	

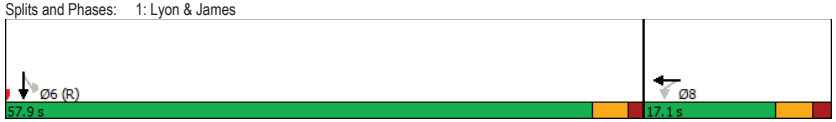
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
1: Lyon & James

Existing PM Peak Hour

Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 7.0	Intersection LOS: A
Intersection Capacity Utilization 47.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Lyon & James



Lanes, Volumes, Timings
2: Gladstone & Lyon

Existing PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	360	38	26	289	0	0	0	0	132	748	63
Future Volume (vph)	0	360	38	26	289	0	0	0	0	132	748	63
Satd. Flow (prot)	0	1690	0	0	1738	0	0	0	0	0	3246	0
Flt Permitted					0.945						0.993	
Satd. Flow (perm)	0	1690	0	0	1646	0	0	0	0	0	3228	0
Satd. Flow (RTOR)		9									12	
Lane Group Flow (vph)	0	442	0	0	350	0	0	0	0	0	1048	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		23.2		23.6	23.6					23.6	23.6	
Total Split (s)		39.0		39.0	39.0					36.0	36.0	
Total Split (%)		52.0%		52.0%	52.0%					48.0%	48.0%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		Max	Max					Max	Max	
Act Effct Green (s)		33.8			33.8						30.4	
Actuated g/C Ratio		0.45			0.45						0.41	
v/c Ratio		0.58			0.47						0.80	
Control Delay		18.7			15.1						21.5	
Queue Delay		0.0			0.0						0.0	
Total Delay		18.7			15.1						21.5	
LOS		B			B						C	
Approach Delay		18.7			15.1						21.5	
Approach LOS		B			B						C	
Queue Length 50th (m)		45.7			21.3						35.5	
Queue Length 95th (m)		74.2			48.4						64.0	
Internal Link Dist (m)		109.1			166.3			55.5			139.6	
Turn Bay Length (m)												
Base Capacity (vph)		766			741						1315	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.58			0.47						0.80	

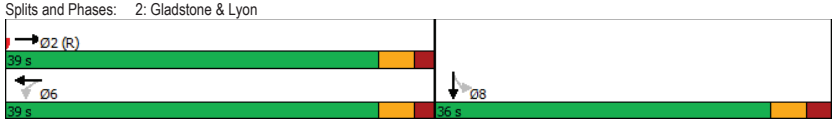
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 45 (60%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
2: Gladstone & Lyon

Existing PM Peak Hour

Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 19.6	Intersection LOS: B
Intersection Capacity Utilization 79.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Gladstone & Lyon



Lanes, Volumes, Timings
3: Kent & Somerset

Existing PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	332	0	0	303	63	77	706	106	0	0	0
Future Volume (vph)	56	332	0	0	303	63	77	706	106	0	0	0
Satd. Flow (prot)	1658	1745	0	0	1623	0	1658	4322	0	0	0	0
Flt Permitted	0.327						0.950					
Satd. Flow (perm)	513	1745	0	0	1623	0	1028	4322	0	0	0	0
Satd. Flow (RTOR)								43				
Lane Group Flow (vph)	62	369	0	0	407	0	86	902	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	41.0	41.0			41.0		34.0	34.0				
Total Split (%)	54.7%	54.7%			54.7%		45.3%	45.3%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	24.6	24.6			24.6		39.5	39.5				
Actuated g/C Ratio	0.33	0.33			0.33		0.53	0.53				
v/c Ratio	0.37	0.64			0.76		0.16	0.39				
Control Delay	23.7	26.0			32.4		13.4	13.2				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	23.7	26.0			32.4		13.4	13.2				
LOS	C	C			C		B	B				
Approach Delay		25.6			32.4			13.2				
Approach LOS		C			C			B				
Queue Length 50th (m)	6.9	45.9			62.1		5.7	21.2				
Queue Length 95th (m)	15.1	61.3			87.4		15.4	55.2				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	242	825			768		540	2294				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.26	0.45			0.53		0.16	0.39				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 50 (67%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

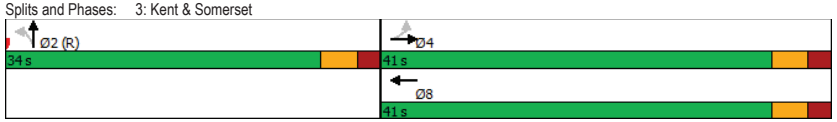
Lanes, Volumes, Timings
3: Kent & Somerset

Existing PM Peak Hour

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 62.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Kent & Somerset



Lanes, Volumes, Timings
4: Kent & Gilmour

Existing PM Peak Hour

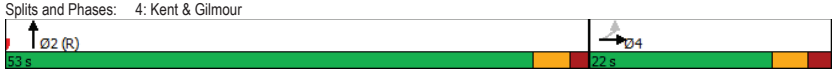
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	77	0	0	0	0	0	846	78	0	0	0
Future Volume (vph)	19	77	0	0	0	0	0	846	78	0	0	0
Satd. Flow (prot)	0	1714	0	0	0	0	0	4598	0	0	0	0
Flt Permitted		0.990										
Satd. Flow (perm)	0	1683	0	0	0	0	0	4598	0	0	0	0
Satd. Flow (RTOR)		31						40				
Lane Group Flow (vph)	0	107	0	0	0	0	0	1027	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		13.6						54.9				
Actuated g/C Ratio		0.18						0.73				
v/c Ratio		0.32						0.30				
Control Delay		21.5						4.4				
Queue Delay		0.0						0.0				
Total Delay		21.5						4.4				
LOS		C						A				
Approach Delay		21.5						4.4				
Approach LOS		C						A				
Queue Length 50th (m)		9.4						13.6				
Queue Length 95th (m)		22.6						26.5				
Internal Link Dist (m)		69.3			174.3			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		394						3377				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.27						0.30				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 47.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	58	43	70	819	0	0	0	0
Future Vol, veh/h	0	0	0	0	58	43	70	819	0	0	0	0
Conflicting Peds, #/hr	25	0	17	17	0	25	95	0	63	63	0	95
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	64	48	78	910	0	0	0	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	-	1161	480	95	0	-
Stage 1	-	1066	-	-	-	-
Stage 2	-	95	-	-	-	-
Critical Hdwy	-	6.54	7.14	5.34	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	3.92	3.12	-	-
Pot Cap-1 Maneuver	0	194	455	1044	-	0
Stage 1	0	297	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %					-	
Mov Cap-1 Maneuver	-	0	455	1044	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-
Stage 1	-	0	-	-	-	-
Stage 2	-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	15.5	1
HCM LOS	C	

Minor Lane/Major Mvmt	NBL	NBT	WBLn1
Capacity (veh/h)	1044	-	455
HCM Lane V/C Ratio	0.074	-	0.247
HCM Control Delay (s)	8.7	0.3	15.5
HCM Lane LOS	A	A	C
HCM 95th %tile Q(veh)	0.2	-	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	405	0	0	274	75	52	722	101	0	0	0
Future Volume (vph)	75	405	0	0	274	75	52	722	101	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1664	0	1658	4554	0	0	0	0
Flt Permitted	0.370						0.950					
Satd. Flow (perm)	624	1728	0	0	1664	0	1471	4554	0	0	0	0
Satd. Flow (RTOR)					27			36				
Lane Group Flow (vph)	83	450	0	0	387	0	58	914	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	45.0	45.0			45.0		30.0	30.0				
Total Split (%)	60.0%	60.0%			60.0%		40.0%	40.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	26.1	26.1			26.1		38.1	38.1				
Actuated g/C Ratio	0.35	0.35			0.35		0.51	0.51				
v/c Ratio	0.38	0.75			0.65		0.08	0.39				
Control Delay	13.2	18.0			28.8		12.6	12.7				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	13.2	18.0			28.8		12.6	12.7				
LOS	B	B			C		B	B				
Approach Delay		17.3			28.8			12.7				
Approach LOS		B			C			B				
Queue Length 50th (m)	5.5	30.5			56.9		4.2	27.4				
Queue Length 95th (m)	m6.7	m32.0			m64.4		12.8	47.2				
Internal Link Dist (m)		166.3			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	329	912			891		747	2331				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.25	0.49			0.43		0.08	0.39				

Intersection Summary

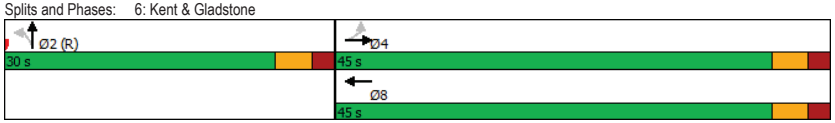
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 23 (31%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 60.2%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	278	99	59	254	4	9	260	35	0	331	32
Future Volume (vph)	34	278	99	59	254	4	9	260	35	0	331	32
Satd. Flow (prot)	1433	1560	0	1658	1729	0	0	1535	0	0	1591	0
Flt Permitted	0.488			0.310				0.987				
Satd. Flow (perm)	529	1560	0	505	1729	0	0	1503	0	0	1591	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	38	419	0	66	286	0	0	338	0	0	404	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0		25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)	24.5	24.5		24.5	24.5			39.5			39.5	
Actuated g/C Ratio	0.33	0.33		0.33	0.33			0.53			0.53	
v/c Ratio	0.22	0.82		0.40	0.51			0.43			0.48	
Control Delay	19.4	35.8		28.6	24.2			5.6			13.7	
Queue Delay	0.0	0.0		0.0	0.0			0.3			0.1	
Total Delay	19.4	35.8		28.6	24.2			5.9			13.8	
LOS	B	D		C	C			A			B	
Approach Delay		34.4			25.0			5.9			13.8	
Approach LOS		C			C			A			B	
Queue Length 50th (m)	4.7	59.3		7.5	33.9			8.9			35.5	
Queue Length 95th (m)	m12.1	#106.1		19.8	56.8			12.2			58.3	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)	25.0			15.0								
Base Capacity (vph)	172	509		164	564			791			837	
Starvation Cap Reductn	0	0		0	0			114			0	
Spillback Cap Reductn	0	0		0	0			0			28	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.22	0.82		0.40	0.51			0.50			0.50	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

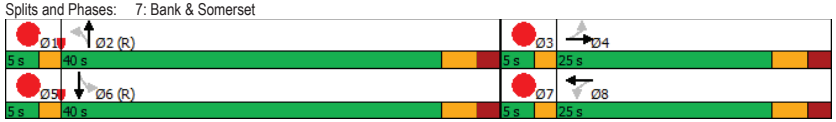
Intersection Summary

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 70.7%	ICU Level of Service C
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Bank & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	11	10	25	310	0	0	445	26
Future Volume (vph)	0	0	0	35	11	10	25	310	0	0	445	26
Satd. Flow (prot)	0	0	0	0	1571	0	0	1675	0	0	1648	0
Flt Permitted					0.970			0.948				
Satd. Flow (perm)	0	0	0	0	1399	0	0	1564	0	0	1648	0
Satd. Flow (RTOR)					11						7	
Lane Group Flow (vph)	0	0	0	0	62	0	0	372	0	0	523	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					17.2			51.6			51.6	
Actuated g/C Ratio					0.23			0.69			0.69	
v/c Ratio					0.19			0.35			0.46	
Control Delay					20.5			4.5			10.1	
Queue Delay					0.0			0.1			0.3	
Total Delay					20.5			4.6			10.5	
LOS					C			A			B	
Approach Delay					20.5			4.6			10.5	
Approach LOS					C			A			B	
Queue Length 50th (m)					5.9			10.9			27.9	
Queue Length 95th (m)					15.4			12.5			m37.0	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					362			1077			1137	
Starvation Cap Reductn					0			158			206	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.17			0.40			0.56	

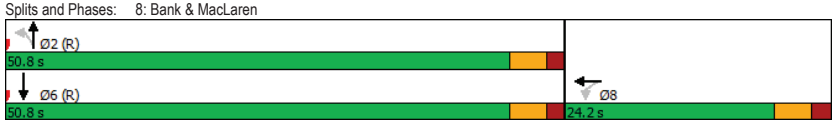
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 8.9	Intersection LOS: A
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 8: Bank & MacLaren



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	116	61	0	0	0	0	335	28	19	443	0
Future Volume (vph)	14	116	61	0	0	0	0	335	28	19	443	0
Satd. Flow (prot)	0	1595	0	0	0	0	0	1664	0	0	1692	0
Flt Permitted		0.996									0.978	
Satd. Flow (perm)	0	1557	0	0	0	0	0	1664	0	0	1646	0
Satd. Flow (RTOR)		31						10				
Lane Group Flow (vph)	0	213	0	0	0	0	0	403	0	0	513	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		18.4						46.3			46.3	
Actuated g/C Ratio		0.25						0.62			0.62	
v/c Ratio		0.53						0.39			0.50	
Control Delay		19.7						13.9			3.7	
Queue Delay		0.0						0.0			0.1	
Total Delay		19.7						13.9			3.8	
LOS		B						B			A	
Approach Delay		19.7						13.9			3.8	
Approach LOS		B						B			A	
Queue Length 50th (m)		18.8						36.0			7.5	
Queue Length 95th (m)		28.8						m60.1			10.9	
Internal Link Dist (m)		174.3			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		433						1031			1016	
Starvation Cap Reductn		0						0			59	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.49						0.39			0.54	

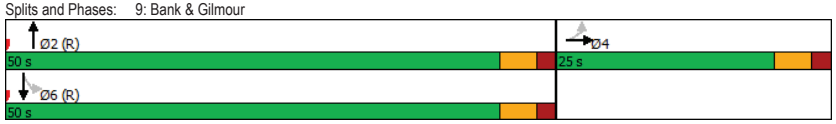
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 6 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 10.4	Intersection LOS: B
Intersection Capacity Utilization 68.5%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 9: Bank & Gilmour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	252	165	56	166	23	95	321	93	24	475	47
Future Volume (vph)	43	252	165	56	166	23	95	321	93	24	475	47
Satd. Flow (prot)	0	2796	0	0	1613	0	1658	1500	0	0	3112	0
Flt Permitted		0.882			0.699		0.370				0.922	
Satd. Flow (perm)	0	2440	0	0	1112	0	520	1500	0	0	2860	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	511	0	0	272	0	106	460	0	0	607	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	28.0	28.0		28.0	28.0		37.0	37.0		37.0	37.0	
Total Split (%)	37.3%	37.3%		37.3%	37.3%		49.3%	49.3%		49.3%	49.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		20.3			20.3		31.5	31.5			31.5	
Actuated g/C Ratio		0.27			0.27		0.42	0.42			0.42	
v/c Ratio		0.77			0.90		0.49	0.73			0.51	
Control Delay		19.5			60.1		25.2	26.6			10.0	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		19.5			60.1		25.2	26.6			10.0	
LOS		B			E		C	C			B	
Approach Delay		19.5			60.1			26.4			10.0	
Approach LOS		B			E			C			B	
Queue Length 50th (m)		9.8			37.3		11.1	55.4			17.4	
Queue Length 95th (m)		35.5			#78.1		27.4	#92.7			26.3	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		732			333		218	630			1201	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.70			0.82		0.49	0.73			0.51	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 26 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

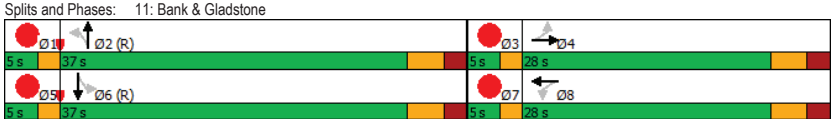
Intersection Summary

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 92.4%	ICU Level of Service F
Analysis Period (min) 15	

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

Splits and Phases: 11: Bank & Gladstone



Appendix D

Collision Data

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Traffic Control Condition	Classification Of Accident	Initial Impact Type	Road Surface Condition	# Vehicles	# Motorcycles	# Bicycles	# Pedestrians
6/3/2016	2016	18:00	BANK ST @ GILMOUR ST (0007270)	01 - Clear	01 - Daylight	01 - Traffic signal	01 - Functioning	02 - Non-fatal injury	05 - Turning movement	01 - Dry	2	0	1	0
10/10/2018	2018	20:37	BANK ST @ GILMOUR ST (0007270)	01 - Clear	07 - Dark	01 - Traffic signal	01 - Functioning	03 - P.D. only	03 - Rear end	01 - Dry	3	0	0	0
1/29/2018	2018	13:54	BANK ST @ GILMOUR ST (0007270)	01 - Clear	01 - Daylight	01 - Traffic signal	01 - Functioning	03 - P.D. only	04 - Sideswipe	02 - Wet	2	0	0	0
6/8/2018	2018	15:16	BANK ST @ GILMOUR ST (0007270)	01 - Clear	01 - Daylight	01 - Traffic signal	01 - Functioning	02 - Non-fatal injury	05 - Turning movement	01 - Dry	2	1	0	0
7/13/2018	2018	20:47	BANK ST @ GILMOUR ST (0007270)	01 - Clear	05 - Dusk	01 - Traffic signal	01 - Functioning	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
8/6/2018	2018	23:18	BANK ST @ GILMOUR ST (0007270)	01 - Clear	07 - Dark	01 - Traffic signal	02 - Not functioning	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
3/24/2019	2019	20:24	BANK ST @ GILMOUR ST (0007270)	01 - Clear	07 - Dark	01 - Traffic signal	01 - Functioning	03 - P.D. only	99 - Other	01 - Dry	2	0	0	0
6/26/2019	2019	16:40	BANK ST @ GILMOUR ST (0007270)	01 - Clear	01 - Daylight	01 - Traffic signal	00 - Unknown	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
3/6/2020	2020	14:43	BANK ST @ GILMOUR ST (0007270)	01 - Clear	01 - Daylight	01 - Traffic signal	01 - Functioning	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
8/21/2016	2016	16:33	GILMOUR ST @ KENT ST (0007283)	02 - Rain	01 - Daylight	01 - Traffic signal	01 - Functioning	02 - Non-fatal injury	07 - SMV other	02 - Wet	1	0	0	1
9/8/2018	2018	16:03	GILMOUR ST @ KENT ST (0007283)	01 - Clear	01 - Daylight	01 - Traffic signal	01 - Functioning	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
11/17/2019	2019	9:07	GILMOUR ST @ KENT ST (0007283)	01 - Clear	01 - Daylight	01 - Traffic signal	01 - Functioning	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
9/27/2020	2020	18:44	GILMOUR ST @ KENT ST (0007283)	01 - Clear	05 - Dusk	01 - Traffic signal	01 - Functioning	03 - P.D. only	02 - Angle	01 - Dry	2	0	0	0
12/31/2016	2016	14:12	JAMES ST @ KENT ST (0007277)	03 - Snow	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	04 - Sideswipe	03 - Loose snow	2	0	0	0
3/3/2016	2016	17:12	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	02 - Non-fatal injury	02 - Angle	05 - Packed snow	2	0	0	0
5/2/2016	2016	13:52	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
6/26/2016	2016	11:00	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	05 - Turning movement	01 - Dry	2	0	0	0
5/29/2017	2017	10:20	JAMES ST @ KENT ST (0007277)	02 - Rain	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	02 - Angle	02 - Wet	2	0	0	0
8/29/2017	2017	13:44	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	05 - Turning movement	01 - Dry	2	0	0	0
6/6/2018	2018	1:43	JAMES ST @ KENT ST (0007277)	01 - Clear	07 - Dark	02 - Stop sign	01 - Functioning	02 - Non-fatal injury	02 - Angle	01 - Dry	2	0	0	0
6/3/2018	2018	16:58	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	02 - Angle	01 - Dry	2	0	0	0
9/17/2019	2019	8:25	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
10/15/2019	2019	15:35	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	02 - Angle	01 - Dry	2	0	0	0
10/23/2019	2019	12:23	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	02 - Angle	01 - Dry	2	0	0	0
5/10/2019	2019	21:00	JAMES ST @ KENT ST (0007277)	01 - Clear	07 - Dark	02 - Stop sign	00 - Unknown	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
1/24/2020	2020	18:35	JAMES ST @ KENT ST (0007277)	01 - Clear	07 - Dark	02 - Stop sign	00 - Unknown	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
1/1/2020	2020	20:20	JAMES ST @ KENT ST (0007277)	01 - Clear	07 - Dark	02 - Stop sign	02 - Not functioning	03 - P.D. only	02 - Angle	01 - Dry	2	0	0	0
2/8/2020	2020	22:10	JAMES ST @ KENT ST (0007277)	01 - Clear	07 - Dark	02 - Stop sign	00 - Unknown	03 - P.D. only	05 - Turning movement	02 - Wet	2	0	0	0
3/19/2020	2020	16:15	JAMES ST @ KENT ST (0007277)	01 - Clear	01 - Daylight	02 - Stop sign	01 - Functioning	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
6/17/2016	2016	14:04	KENT ST btwn MACLAREN ST & GILMOUR ST (__3ZBOE1)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
12/2/2017	2017	14:01	KENT ST btwn MACLAREN ST & GILMOUR ST (__3ZBOE1)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	06 - SMV unattended vehicle	01 - Dry	1	0	0	0
5/31/2017	2017	21:12	KENT ST btwn MACLAREN ST & GILMOUR ST (__3ZBOE1)	01 - Clear	07 - Dark	10 - No control	0	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
11/1/2019	2019	6:55	KENT ST btwn MACLAREN ST & GILMOUR ST (__3ZBOE1)	02 - Rain	03 - Dawn	10 - No control	0	03 - P.D. only	03 - Rear end	02 - Wet	2	0	0	0
7/26/2019	2019	16:17	KENT ST btwn MACLAREN ST & GILMOUR ST (__3ZBOE1)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	01 - Approaching	01 - Dry	2	0	0	0
3/24/2017	2017	16:55	KENT ST btwn GILMOUR ST & JAMES ST (__3ZA3QT)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	07 - SMV other	03 - Loose snow	1	0	0	0
12/20/2019	2019	12:30	KENT ST btwn GILMOUR ST & JAMES ST (__3ZA3QT)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
12/17/2020	2020	17:59	KENT ST btwn GILMOUR ST & JAMES ST (__3ZA3QT)	01 - Clear	07 - Dark	10 - No control	0	03 - P.D. only	03 - Rear end	01 - Dry	2	0	0	0
7/13/2016	2016	16:42	KENT ST btwn JAMES ST & FLORENCE ST (__3ZA3QJ)	01 - Clear	01 - Daylight	10 - No control	0	02 - Non-fatal injury	03 - Rear end	01 - Dry	3	0	0	0
10/28/2017	2017	5:03	KENT ST btwn JAMES ST & FLORENCE ST (__3ZA3QJ)	01 - Clear	07 - Dark	10 - No control	0	03 - P.D. only	04 - Sideswipe	01 - Dry	2	0	0	0
6/14/2017	2017	Unknown	KENT ST btwn JAMES ST & FLORENCE ST (__3ZA3QJ)	01 - Clear	00 - Unknown	10 - No control	0	03 - P.D. only	06 - SMV unattended vehicle	01 - Dry	1	0	0	0
6/30/2018	2018	Unknown	KENT ST btwn JAMES ST & FLORENCE ST (__3ZA3QJ)	01 - Clear	00 - Unknown	10 - No control	0	03 - P.D. only	06 - SMV unattended vehicle	01 - Dry	1	0	0	0
12/22/2016	2016	9:07	GILMOUR ST btwn LYON ST N & KENT ST (__3ZBORF)	03 - Snow	01 - Daylight	10 - No control	0	03 - P.D. only	06 - SMV unattended vehicle	04 - Slush	1	0	0	0
1/14/2016	2016	9:30	GILMOUR ST btwn LYON ST N & KENT ST (__3ZBORF)	03 - Snow	01 - Daylight	10 - No control	0	03 - P.D. only	06 - SMV unattended vehicle	04 - Slush	1	0	0	0
8/4/2016	2016	13:56	GILMOUR ST btwn LYON ST N & KENT ST (__3ZBORF)	01 - Clear	01 - Daylight	10 - No control	0	03 - P.D. only	06 - SMV unattended vehicle	01 - Dry	1	0	0	0
6/27/2018	2018	Unknown	JAMES ST btwn LYON ST N & KENT ST (__3ZBORG)	01 - Clear	00 - Unknown	10 - No control	0	03 - P.D. only	06 - SMV unattended vehicle	01 - Dry	1	0	0	0

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: JAMES ST @ KENT ST

Traffic Control: Stop sign

Total Collisions: 14

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jan-29, Thu,19:32	Snow	Angle	P.D. only	Loose snow	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Feb-27, Fri,18:30	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: JAMES ST @ KENT ST

Traffic Control: Stop sign **Total Collisions:** 14

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Mar-03, Thu,17:12	Clear	Angle	Non-fatal injury	Packed snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-May-02, Mon,13:52	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Jun-26, Sun,11:00	Clear	Turning movement	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Dec-31, Sat,14:12	Snow	Sideswipe	P.D. only	Loose snow	North	Changing lanes	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-May-29, Mon,10:20	Rain	Angle	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Aug-29, Tue,13:44	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-03, Sun,16:58	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-06, Wed,01:43	Clear	Angle	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-May-10, Fri,21:00	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Sep-17, Tue,08:25	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Oct-15, Tue,15:35	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: JAMES ST @ KENT ST

Traffic Control: Stop sign **Total Collisions:** 14

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Oct-23, Wed,12:23	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Appendix E

James Street & Kent Street– Integrated Sewer, Watermain and Road Renewal

CGH TRANSPORTATION

THIS IS NOT A PLAN OF SURVEY

Boundaries shown hereon are NOT based on an actual survey. Contractors are required to verify boundary locations in the field prior to commencing construction.

PLANNING, INFRASTRUCTURE AND ECONOMIC DEVELOPMENT DEPARTMENT
SURVEYS & MAPPING BRANCH

PHONE (613) 580-2400
FAX (613) 580-4764

100 CONSTELLATION DRIVE
OTTAWA, ONTARIO, K2G 6J8

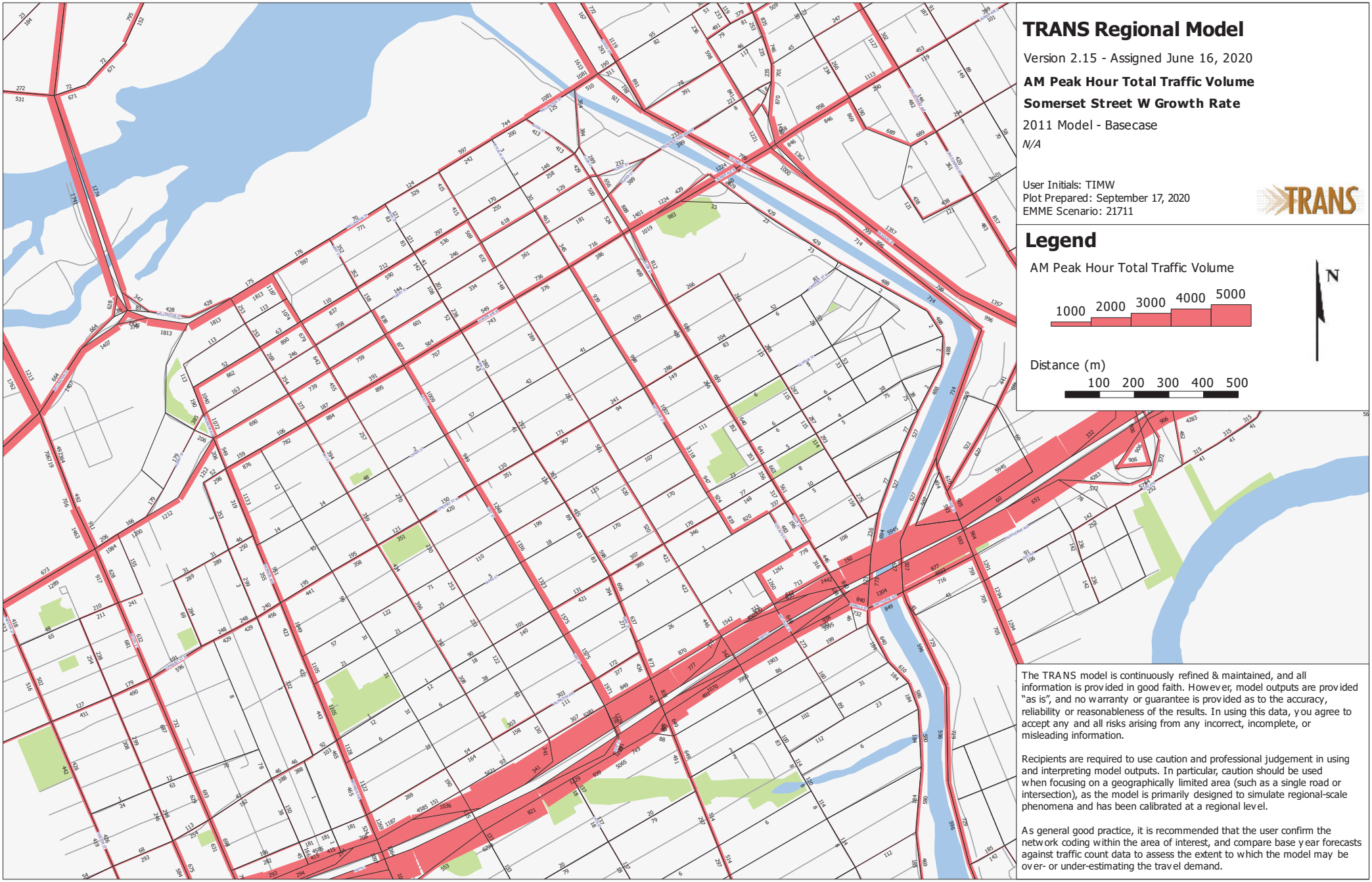
PROJECT :: JAMES STREET

DATA COMPILATION :	TOTAL STATION MAPPING
DATA TYPE :	ELECTRONIC FIELD NOTES
HORIZONTAL AND VERTICAL DATUM :	NAD 83 (ORIGINAL) ZONE 9 MTM - CGVD28
HYPSOGRAPHIC MODEL :	BREAKLINES & SPOT HEIGHTS
RECOMMENDED HARDCOPY SCALE :	1 : 250
RECOMMENDED CONTOUR INTERVAL :	0.25 m
A - NUMBER :	A-4196
COMPUTER GRAPHICS FILE NAME :	21838-m.DGN
JOB - NUMBER :	21838
FIELD DATE COLLECTED : FSD	DATE : JULY 7, 2021 TO NOVEMBER 11,
CAD / CALC'D : CJ HALL	DATE : NOV 16, 2021
MAP / CADASTRAL COMPILATION CHECK : CITY	DATE : NOV. 26, 2021

Appendix F

TRANS Model Plots

CGH TRANSPORTATION



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Somerset Street W Growth Rate

2011 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: September 17, 2020
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

Distance (m)

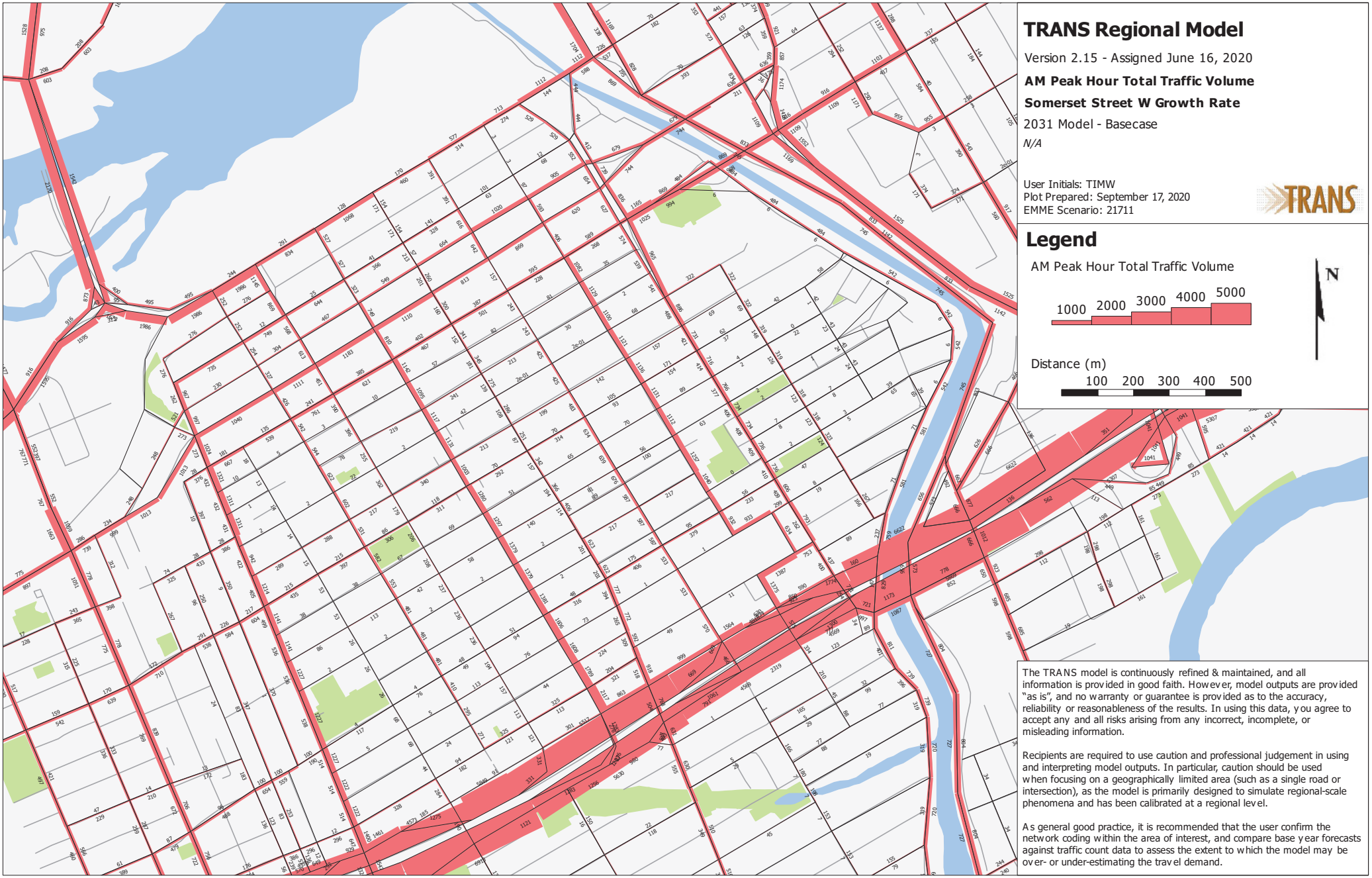
100 200 300 400 500

N

The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Somerset Street W Growth Rate

2031 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: September 17, 2020
EMME Scenario: 21711

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

Distance (m)

100 200 300 400 500

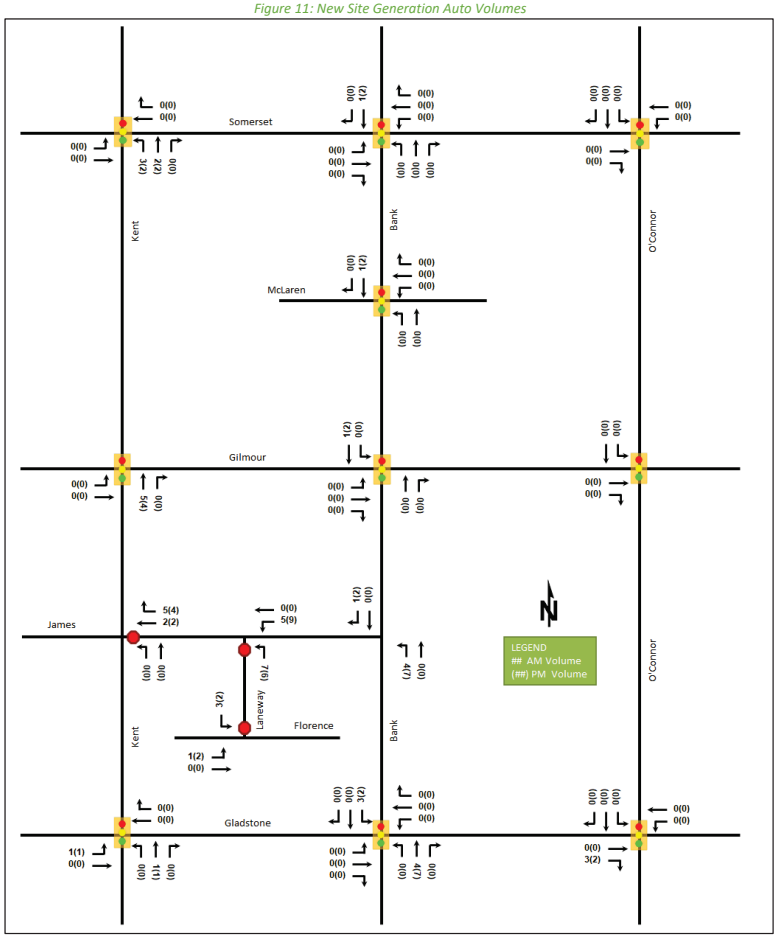
N

Appendix G

Background Development Volumes

CGH TRANSPORTATION

Figure 11: New Site Generation Auto Volumes



PARSONS

Figure 7: Phase I 'New' Site Generated Traffic

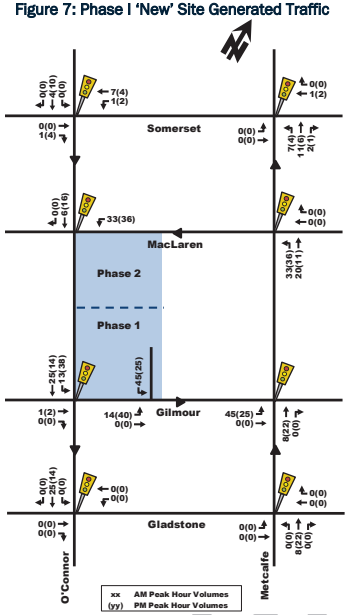


Figure 8: Phase II 'New' Site Generated Traffic

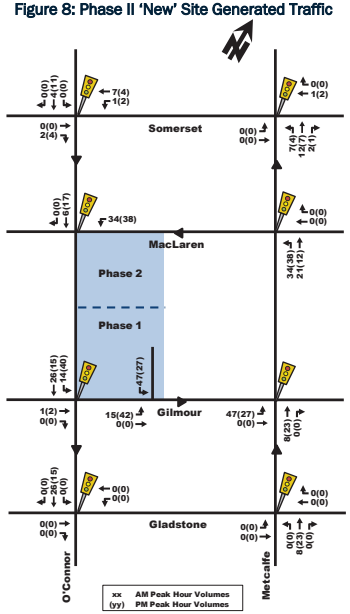


Figure 9: Total Phase I & II 'New' Site Generated Traffic

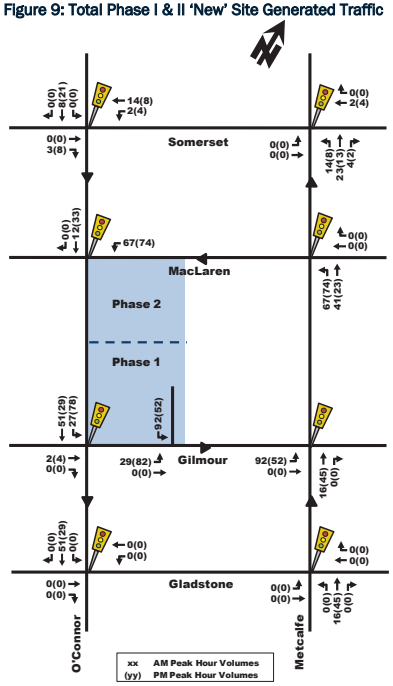


Figure 9: New Site Generation Auto Volumes

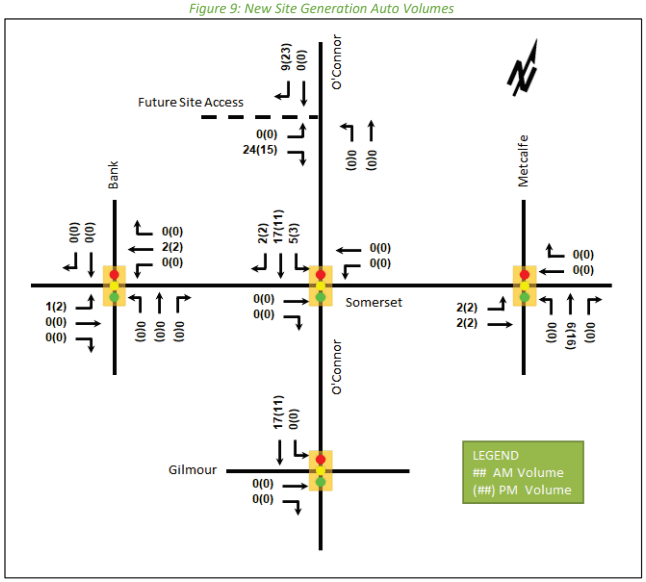
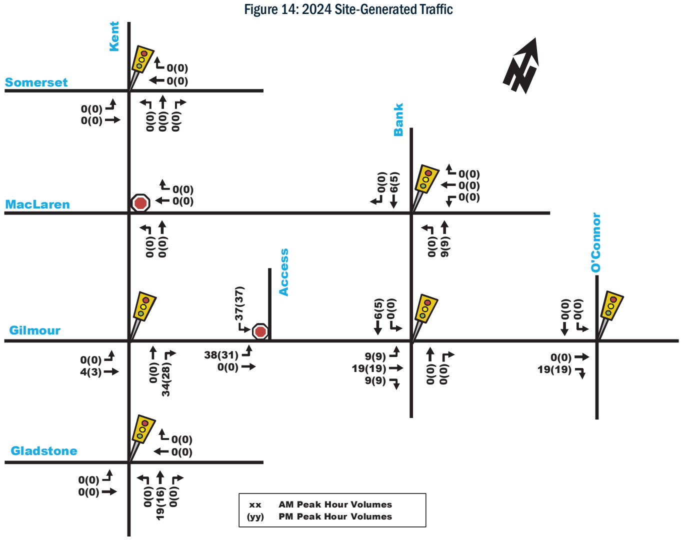


Figure 14: 2024 Site-Generated Traffic



Appendix H

Synchro Intersection Worksheets – 2030 Future Background Conditions

CGH TRANSPORTATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	21	0	0	0	0	0	389	25
Future Volume (vph)	0	0	0	34	21	0	0	0	0	0	389	25
Satd. Flow (prot)	0	0	0	0	1628	0	0	0	0	0	3228	0
Flt Permitted					0.970							
Satd. Flow (perm)	0	0	0	0	1600	0	0	0	0	0	3228	0
Satd. Flow (RTOR)											21	
Lane Group Flow (vph)	0	0	0	0	55	0	0	0	0	0	414	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.4						62.7	
Actuated g/C Ratio					0.14						0.84	
v/c Ratio					0.25						0.15	
Control Delay					26.1						2.4	
Queue Delay					0.0						0.0	
Total Delay					26.1						2.4	
LOS					C						A	
Approach Delay					26.1						2.4	
Approach LOS					C						A	
Queue Length 50th (m)					7.5						7.2	
Queue Length 95th (m)					m11.6						12.5	
Internal Link Dist (m)		102.5			161.6			141.5			55.1	
Turn Bay Length (m)												
Base Capacity (vph)					256						2703	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.21						0.15	

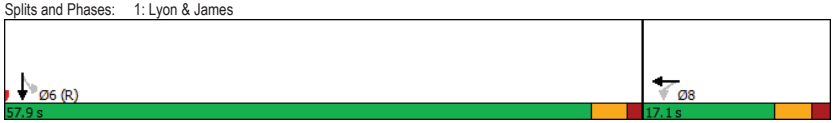
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 16 (21%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 38.9%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 1: Lyon & James



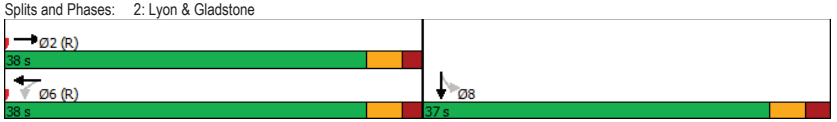
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	185	14	5	143	0	0	0	0	87	152	98
Future Volume (vph)	0	185	14	5	143	0	0	0	0	87	152	98
Satd. Flow (prot)	0	1679	0	0	1709	0	0	0	0	0	3064	0
Flt Permitted					0.992						0.987	
Satd. Flow (perm)	0	1679	0	0	1698	0	0	0	0	0	3030	0
Satd. Flow (RTOR)		6									98	
Lane Group Flow (vph)	0	199	0	0	148	0	0	0	0	0	337	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		17.2		17.2	17.2					22.6	22.6	
Total Split (s)		38.0		38.0	38.0					37.0	37.0	
Total Split (%)		50.7%		50.7%	50.7%					49.3%	49.3%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		C-Max	C-Max					Max	Max	
Act Effct Green (s)		32.8			32.8						31.4	
Actuated g/C Ratio		0.44			0.44						0.42	
v/c Ratio		0.27			0.20						0.25	
Control Delay		14.3			8.5						10.0	
Queue Delay		0.0			0.0						0.0	
Total Delay		14.3			8.5						10.0	
LOS		B			A						A	
Approach Delay		14.3			8.5						10.0	
Approach LOS		B			A						A	
Queue Length 50th (m)		17.6			5.7						12.5	
Queue Length 95th (m)		31.7			14.1						21.5	
Internal Link Dist (m)		110.8			164.9			56.5			141.5	
Turn Bay Length (m)												
Base Capacity (vph)		737			742						1325	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.27			0.20						0.25	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 10 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.27

Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 35.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Lyon & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	172	0	0	150	50	78	1556	184	0	0	0
Future Volume (vph)	63	172	0	0	150	50	78	1556	184	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1610	0	1642	4534	0	0	0	0
Flt Permitted	0.556						0.950					
Satd. Flow (perm)	885	1728	0	0	1610	0	1072	4534	0	0	0	0
Satd. Flow (RTOR)								45				
Lane Group Flow (vph)	63	172	0	0	200	0	78	1740	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	27.0	27.0			27.0		48.0	48.0				
Total Split (%)	36.0%	36.0%			36.0%		64.0%	64.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	15.8	15.8			15.8		48.3	48.3				
Actuated g/C Ratio	0.21	0.21			0.21		0.64	0.64				
v/c Ratio	0.34	0.47			0.59		0.11	0.59				
Control Delay	29.3	29.7			27.0		8.5	9.1				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	29.3	29.7			27.0		8.5	9.1				
LOS	C	C			C		A	A				
Approach Delay		29.6			27.0			9.0				
Approach LOS		C			C			A				
Queue Length 50th (m)	8.0	22.5			29.2		1.6	12.2				
Queue Length 95th (m)	17.8	37.7			49.2		m12.9	63.1				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	253	495			461		690	2937				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.25	0.35			0.43		0.11	0.59				

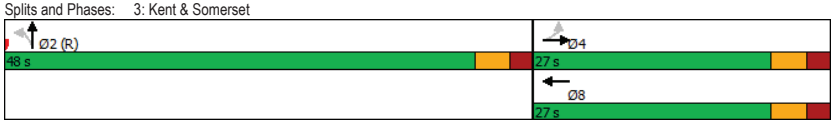
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 66 (88%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 12.8	Intersection LOS: B
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 3: Kent & Somerset

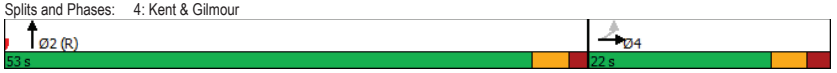


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	67	0	0	0	0	0	1817	7	0	0	0
Future Volume (vph)	17	67	0	0	0	0	0	1817	7	0	0	0
Satd. Flow (prot)	0	1728	0	0	0	0	0	4757	0	0	0	0
Flt Permitted		0.990										
Satd. Flow (perm)	0	1711	0	0	0	0	0	4757	0	0	0	0
Satd. Flow (RTOR)								1				
Lane Group Flow (vph)	0	84	0	0	0	0	0	1824	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		12.4						56.1				
Actuated g/C Ratio		0.17						0.75				
v/c Ratio		0.30						0.51				
Control Delay		29.3						12.0				
Queue Delay		0.0						0.0				
Total Delay		29.3						12.0				
LOS		C						B				
Approach Delay		29.3						12.0				
Approach LOS		C						B				
Queue Length 50th (m)		11.6						57.8				
Queue Length 95th (m)		22.1						112.6				
Internal Link Dist (m)		69.3			174.3			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		376						3559				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.22						0.51				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 5 (7%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51
Intersection Signal Delay: 12.8 — Intersection LOS: B
Intersection Capacity Utilization 59.1% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Kent & Gilmour



Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	16	26	46	1798	0	0	0	0
Future Vol, veh/h	0	0	0	0	16	26	46	1798	0	0	0	0
Conflicting Peds, #/hr	23	0	11	11	0	23	72	0	77	77	0	72
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	1048576		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	7	5	7	2	2	2	2	2
Mvmt Flow	0	0	0	0	16	26	46	1798	0	0	0	0

Major/Minor			Minor1			Major1		
Conflicting Flow All			-	1962	922	72	0	-
Stage 1			-	1890	-	-	-	-
Stage 2			-	72	-	-	-	-
Critical Hdwy			-	6.64	7.2	5.44	-	-
Critical Hdwy Stg 1			-	5.64	-	-	-	-
Critical Hdwy Stg 2			-	-	-	-	-	-
Follow-up Hdwy			-	4.07	3.95	3.17	-	-
Pot Cap-1 Maneuver			0	59	229	1051	-	0
Stage 1			0	111	-	-	-	0
Stage 2			0	-	-	-	-	0
Platoon blocked, %							-	
Mov Cap-1 Maneuver			-	0	229	1051	-	-
Mov Cap-2 Maneuver			-	0	-	-	-	-
Stage 1			-	0	-	-	-	-
Stage 2			-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	24.2	2.8
HCM LOS	C	

Minor Lane/Major Mvmt	NBL	NBT	WBLn1
Capacity (veh/h)	1051	-	229
HCM Lane V/C Ratio	0.044	-	0.183
HCM Control Delay (s)	8.6	2.7	24.2
HCM Lane LOS	A	A	C
HCM 95th %tile Q(veh)	0.1	-	0.7

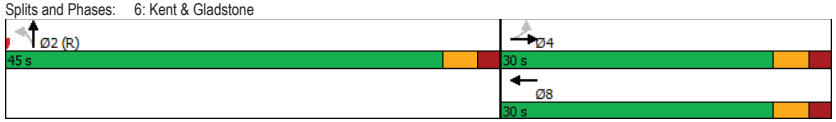
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	187	0	0	85	143	36	1699	97	0	0	0
Future Volume (vph)	83	187	0	0	85	143	36	1699	97	0	0	0
Satd. Flow (prot)	1626	1679	0	0	1461	0	1658	4703	0	0	0	0
Flt Permitted	0.501						0.950					
Satd. Flow (perm)	807	1679	0	0	1461	0	1401	4703	0	0	0	0
Satd. Flow (RTOR)					10			18				
Lane Group Flow (vph)	83	187	0	0	228	0	36	1796	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	30.0	30.0			30.0		45.0	45.0				
Total Split (%)	40.0%	40.0%			40.0%		60.0%	60.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	16.5	16.5			16.5		47.7	47.7				
Actuated g/C Ratio	0.22	0.22			0.22		0.64	0.64				
v/c Ratio	0.47	0.51			0.70		0.04	0.60				
Control Delay	42.0	39.4			32.3		6.8	9.8				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	42.0	39.4			32.3		6.8	9.8				
LOS	D	D			C		A	A				
Approach Delay		40.2			32.3			9.7				
Approach LOS		D			C			A				
Queue Length 50th (m)	13.2	29.8			18.6		1.7	49.3				
Queue Length 95th (m)	19.8	36.0			48.9		6.3	81.7				
Internal Link Dist (m)		164.9			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	264	550			485		891	2998				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.31	0.34			0.47		0.04	0.60				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 36 (48%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 75.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	191	75	21	124	15	12	170	40	2	163	36
Future Volume (vph)	41	191	75	21	124	15	12	170	40	2	163	36
Satd. Flow (prot)	0	1627	1388	1610	1665	0	0	1465	0	0	1459	0
Flt Permitted		0.918		0.502				0.985			0.998	
Satd. Flow (perm)	0	1467	1102	746	1665	0	0	1428	0	0	1453	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	232	75	21	139	0	0	222	0	0	201	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5	20.5	20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0	25.0	25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag	Lag	Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		16.9	16.9	16.9	16.9			47.1			47.1	
Actuated g/C Ratio		0.23	0.23	0.23	0.23			0.63			0.63	
v/c Ratio		0.70	0.30	0.12	0.37			0.25			0.22	
Control Delay		43.2	32.0	22.5	26.1			3.0			7.9	
Queue Delay		0.0	0.0	0.0	0.0			0.2			0.0	
Total Delay		43.2	32.0	22.5	26.1			3.2			7.9	
LOS		D	C	C	C			A			A	
Approach Delay		40.5			25.6			3.2			7.9	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		37.1	11.9	2.5	17.6			3.6			11.4	
Queue Length 95th (m)		58.6	m19.5	7.4	29.6			6.5			26.3	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)			28.0	15.0								
Base Capacity (vph)		395	296	200	448			896			912	
Starvation Cap Reductn		0	0	0	0			245			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.59	0.25	0.10	0.31			0.34			0.22	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

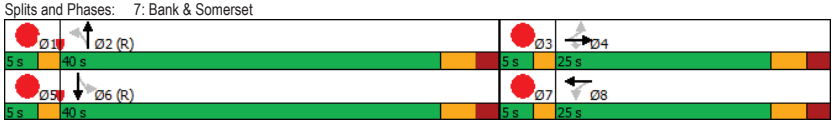
Intersection Summary

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 21.1	Intersection LOS: C
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 7: Bank & Somerset



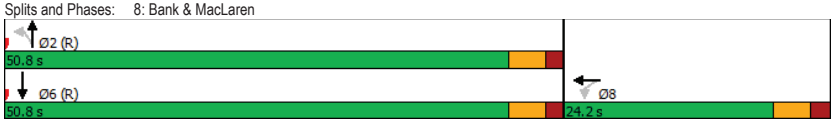
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	11	4	13	36	209	0	0	235	26
Future Volume (vph)	0	0	0	11	4	13	36	209	0	0	235	26
Satd. Flow (prot)	0	0	0	0	1430	0	0	1695	0	0	1547	0
Flt Permitted					0.981			0.936				
Satd. Flow (perm)	0	0	0	0	1376	0	0	1498	0	0	1547	0
Satd. Flow (RTOR)					13						14	
Lane Group Flow (vph)	0	0	0	0	28	0	0	245	0	0	261	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					15.4			57.5			57.5	
Actuated g/C Ratio					0.21			0.77			0.77	
v/c Ratio					0.10			0.21			0.22	
Control Delay					15.8			1.8			7.7	
Queue Delay					0.0			0.1			0.2	
Total Delay					15.8			1.9			7.9	
LOS					B			A			A	
Approach Delay					15.8			1.9			7.9	
Approach LOS					B			A			A	
Queue Length 50th (m)					1.7			8.6			22.3	
Queue Length 95th (m)					7.7			3.4			24.1	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					358			1148			1189	
Starvation Cap Reductn					0			317			373	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.08			0.29			0.32	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 42 (56%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.22

Intersection Signal Delay: 5.5	Intersection LOS: A
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Bank & MacLaren



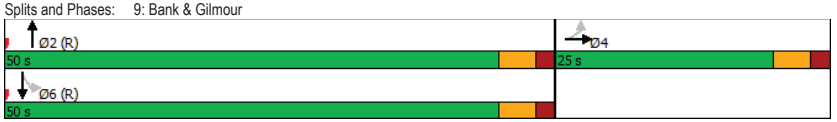
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	63	39	0	0	0	0	232	22	19	240	0
Future Volume (vph)	12	63	39	0	0	0	0	232	22	19	240	0
Satd. Flow (prot)	0	1587	0	0	0	0	0	1536	0	0	1619	0
Flt Permitted		0.995									0.974	
Satd. Flow (perm)	0	1578	0	0	0	0	0	1536	0	0	1562	0
Satd. Flow (RTOR)		34						11				
Lane Group Flow (vph)	0	114	0	0	0	0	0	254	0	0	259	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		13.2						55.6			55.6	
Actuated g/C Ratio		0.18						0.74			0.74	
v/c Ratio		0.37						0.22			0.22	
Control Delay		16.3						3.4			2.8	
Queue Delay		0.0						0.0			0.2	
Total Delay		16.3						3.4			3.0	
LOS		B						A			A	
Approach Delay		16.3						3.4			3.0	
Approach LOS		B						A			A	
Queue Length 50th (m)		12.9						7.2			4.4	
Queue Length 95th (m)		27.6						11.3			9.3	
Internal Link Dist (m)		174.3			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		441						1140			1157	
Starvation Cap Reductn		0						0			406	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.26						0.22			0.34	

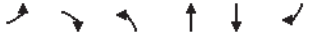
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 37 (49%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 5.6	Intersection LOS: A
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Bank & Gilmour





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	29	259	262	24
Future Volume (vph)	0	0	29	259	262	24
Satd. Flow (prot)	0	0	0	1682	1638	0
Flt Permitted				0.995		
Satd. Flow (perm)	0	0	0	1682	1638	0
Lane Group Flow (vph)	0	0	0	288	286	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	174	64	20	102	19	57	248	76	6	230	34
Future Volume (vph)	36	174	64	20	102	19	57	248	76	6	230	34
Satd. Flow (prot)	0	2964	0	0	1578	0	1626	1503	0	0	2965	0
Flt Permitted		0.872			0.910		0.585				0.948	
Satd. Flow (perm)	0	2574	0	0	1432	0	869	1503	0	0	2808	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	274	0	0	141	0	57	324	0	0	270	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	23.0	23.0		23.0	23.0		42.0	42.0		42.0	42.0	
Total Split (%)	30.7%	30.7%		30.7%	30.7%		56.0%	56.0%		56.0%	56.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		14.5			14.5		36.5	36.5			36.5	
Actuated g/C Ratio		0.19			0.19		0.49	0.49			0.49	
v/c Ratio		0.55			0.51		0.14	0.44			0.20	
Control Delay		40.0			33.4		11.7	15.0			16.3	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		40.0			33.4		11.7	15.0			16.3	
LOS		D			C		B	B			B	
Approach Delay		40.0			33.4			14.5			16.3	
Approach LOS		D			C			B			B	
Queue Length 50th (m)		22.6			18.8		4.4	29.9			16.6	
Queue Length 95th (m)		33.5			34.4		11.0	50.3			25.8	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		600			334		422	731			1366	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.46			0.42		0.14	0.44			0.20	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 20 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

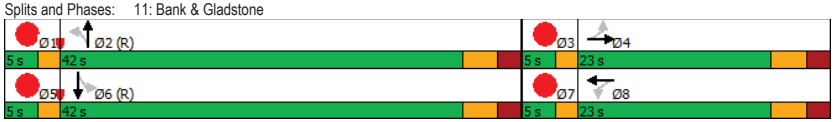
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Bank & Gladstone



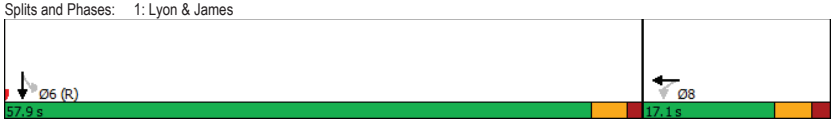
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	48	21	0	0	0	0	0	502	7
Future Volume (vph)	0	0	0	48	21	0	0	0	0	0	502	7
Satd. Flow (prot)	0	0	0	0	1663	0	0	0	0	0	3307	0
Flt Permitted					0.966							
Satd. Flow (perm)	0	0	0	0	1618	0	0	0	0	0	3307	0
Satd. Flow (RTOR)											4	
Lane Group Flow (vph)	0	0	0	0	69	0	0	0	0	0	509	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.8						58.4	
Actuated g/C Ratio					0.14						0.78	
v/c Ratio					0.30						0.20	
Control Delay					29.5						3.3	
Queue Delay					0.0						0.0	
Total Delay					29.5						3.3	
LOS					C						A	
Approach Delay					29.5						3.3	
Approach LOS					C						A	
Queue Length 50th (m)					9.6						9.5	
Queue Length 95th (m)					20.9						16.0	
Internal Link Dist (m)		110.6			164.0			139.6			62.1	
Turn Bay Length (m)												
Base Capacity (vph)					258						2574	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.27						0.20	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 6.4	Intersection LOS: A
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Lyon & James



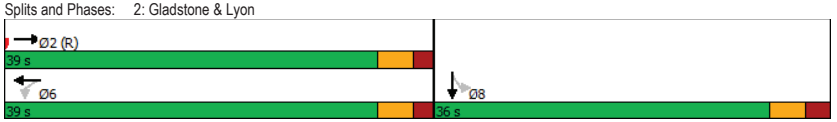
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	248	27	13	314	0	0	0	0	86	313	138
Future Volume (vph)	0	248	27	13	314	0	0	0	0	86	313	138
Satd. Flow (prot)	0	1707	0	0	1742	0	0	0	0	0	3101	0
Flt Permitted					0.985						0.992	
Satd. Flow (perm)	0	1707	0	0	1716	0	0	0	0	0	3083	0
Satd. Flow (RTOR)		10									77	
Lane Group Flow (vph)	0	275	0	0	327	0	0	0	0	0	537	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		23.2		23.6	23.6					23.6	23.6	
Total Split (s)		39.0		39.0	39.0					36.0	36.0	
Total Split (%)		52.0%		52.0%	52.0%					48.0%	48.0%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		Max	Max					Max	Max	
Act Effct Green (s)		33.8			33.8						30.4	
Actuated g/C Ratio		0.45			0.45						0.41	
v/c Ratio		0.36			0.42						0.41	
Control Delay		14.6			12.7						12.0	
Queue Delay		0.0			0.0						0.0	
Total Delay		14.6			12.7						12.0	
LOS		B			B						B	
Approach Delay		14.6			12.7						12.0	
Approach LOS		B			B						B	
Queue Length 50th (m)		24.6			14.5						11.0	
Queue Length 95th (m)		42.1			41.0						21.6	
Internal Link Dist (m)		109.1			166.3			55.5			139.6	
Turn Bay Length (m)												
Base Capacity (vph)		774			773						1295	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.36			0.42						0.41	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 45 (60%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 12.8	Intersection LOS: B
Intersection Capacity Utilization 57.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Gladstone & Lyon



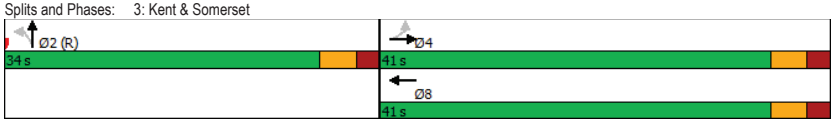
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	252	0	0	213	63	79	708	106	0	0	0
Future Volume (vph)	58	252	0	0	213	63	79	708	106	0	0	0
Satd. Flow (prot)	1658	1745	0	0	1589	0	1658	4323	0	0	0	0
Flt Permitted	0.455						0.950					
Satd. Flow (perm)	681	1745	0	0	1589	0	1028	4323	0	0	0	0
Satd. Flow (RTOR)								43				
Lane Group Flow (vph)	58	252	0	0	276	0	79	814	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	41.0	41.0			41.0		34.0	34.0				
Total Split (%)	54.7%	54.7%			54.7%		45.3%	45.3%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	19.7	19.7			19.7		44.4	44.4				
Actuated g/C Ratio	0.26	0.26			0.26		0.59	0.59				
v/c Ratio	0.33	0.55			0.66		0.13	0.32				
Control Delay	26.1	28.0			31.9		9.4	9.7				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	26.1	28.0			31.9		9.4	9.7				
LOS	C	C			C		A	A				
Approach Delay		27.6			31.9			9.7				
Approach LOS		C			C			A				
Queue Length 50th (m)	7.1	33.1			42.3		4.9	17.7				
Queue Length 95th (m)	15.5	47.9			57.6		10.4	24.9				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	322	825			752		609	2578				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.18	0.31			0.37		0.13	0.32				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 50 (67%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 57.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Kent & Somerset



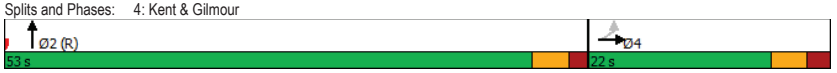
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	83	0	0	0	0	0	850	59	0	0	0
Future Volume (vph)	19	83	0	0	0	0	0	850	59	0	0	0
Satd. Flow (prot)	0	1716	0	0	0	0	0	4626	0	0	0	0
Flt Permitted		0.991										
Satd. Flow (perm)	0	1686	0	0	0	0	0	4626	0	0	0	0
Satd. Flow (RTOR)								29				
Lane Group Flow (vph)	0	102	0	0	0	0	0	909	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		13.6						54.9				
Actuated g/C Ratio		0.18						0.73				
v/c Ratio		0.33						0.27				
Control Delay		29.0						3.5				
Queue Delay		0.0						0.0				
Total Delay		29.0						3.5				
LOS		C						A				
Approach Delay		29.0						3.5				
Approach LOS		C						A				
Queue Length 50th (m)		12.8						11.7				
Queue Length 95th (m)		26.0						14.6				
Internal Link Dist (m)		69.3			174.3			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		370						3395				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.28						0.27				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 47.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	35	57	50	852	0	0	0	0
Future Vol, veh/h	0	0	0	0	35	57	50	852	0	0	0	0
Conflicting Peds, #/hr	25	0	17	17	0	25	95	0	63	63	0	95
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	2293760		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	35	57	50	852	0	0	0	0

Major/Minor			Minor1			Major1		
Conflicting Flow All			-	1047	451	95	0	-
Stage 1			-	952	-	-	-	-
Stage 2			-	95	-	-	-	-
Critical Hdwy			-	6.54	7.14	5.34	-	-
Critical Hdwy Stg 1			-	5.54	-	-	-	-
Critical Hdwy Stg 2			-	-	-	-	-	-
Follow-up Hdwy			-	4.02	3.92	3.12	-	-
Pot Cap-1 Maneuver			0	227	475	1044	-	0
Stage 1			0	336	-	-	-	0
Stage 2			0	-	-	-	-	0
Platoon blocked, %							-	
Mov Cap-1 Maneuver			-	0	475	1044	-	-
Mov Cap-2 Maneuver			-	0	-	-	-	-
Stage 1			-	0	-	-	-	-
Stage 2			-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	14.4	0.7
HCM LOS	B	

Minor Lane/Major Mvmt	NBL	NBT	WBLn1
Capacity (veh/h)	1044	-	475
HCM Lane V/C Ratio	0.048	-	0.194
HCM Control Delay (s)	8.6	0.2	14.4
HCM Lane LOS	A	A	B
HCM 95th %tile Q(veh)	0.2	-	0.7

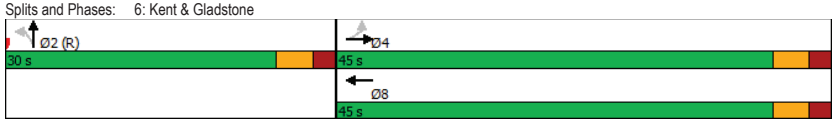
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	250	0	0	244	75	52	736	101	0	0	0
Future Volume (vph)	76	250	0	0	244	75	52	736	101	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1656	0	1658	4554	0	0	0	0
Flt Permitted	0.372						0.950					
Satd. Flow (perm)	624	1728	0	0	1656	0	1471	4554	0	0	0	0
Satd. Flow (RTOR)					31			35				
Lane Group Flow (vph)	76	250	0	0	319	0	52	837	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	45.0	45.0			45.0		30.0	30.0				
Total Split (%)	60.0%	60.0%			60.0%		40.0%	40.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	19.2	19.2			19.2		45.0	45.0				
Actuated g/C Ratio	0.26	0.26			0.26		0.60	0.60				
v/c Ratio	0.47	0.56			0.71		0.06	0.31				
Control Delay	23.4	20.0			35.2		8.5	8.3				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	23.4	20.0			35.2		8.5	8.3				
LOS	C	B			D		A	A				
Approach Delay		20.8			35.2			8.3				
Approach LOS		C			D			A				
Queue Length 50th (m)	5.8	19.1			44.4		2.9	19.0				
Queue Length 95th (m)	10.0	24.3			70.4		9.4	34.2				
Internal Link Dist (m)		166.3			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	329	912			889		881	2744				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.23	0.27			0.36		0.06	0.31				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 23 (31%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 58.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	187	79	33	135	24	21	179	41	5	260	51
Future Volume (vph)	44	187	79	33	135	24	21	179	41	5	260	51
Satd. Flow (prot)	0	1704	1483	1658	1590	0	0	1487	0	0	1479	0
Flt Permitted		0.908		0.515				0.962			0.996	
Satd. Flow (perm)	0	1457	723	601	1590	0	0	1396	0	0	1466	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	231	79	33	159	0	0	241	0	0	316	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5	20.5	20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0	25.0	25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag	Lag	Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		17.9	17.9	17.9	17.9			46.1			46.1	
Actuated g/C Ratio		0.24	0.24	0.24	0.24			0.61			0.61	
v/c Ratio		0.66	0.46	0.23	0.42			0.28			0.35	
Control Delay		28.5	25.8	25.8	26.9			3.2			9.2	
Queue Delay		0.0	0.0	0.0	0.0			0.2			0.0	
Total Delay		28.5	25.8	25.8	26.9			3.5			9.2	
LOS		C	C	C	C			A			A	
Approach Delay		27.8			26.7			3.5			9.2	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		32.4	10.0	4.1	20.5			6.0			19.6	
Queue Length 95th (m)		46.3	20.4	10.5	33.6			8.5			42.9	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)			28.0	15.0								
Base Capacity (vph)		392	194	162	429			857			900	
Starvation Cap Reductn		0	0	0	0			206			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.59	0.41	0.20	0.37			0.37			0.35	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

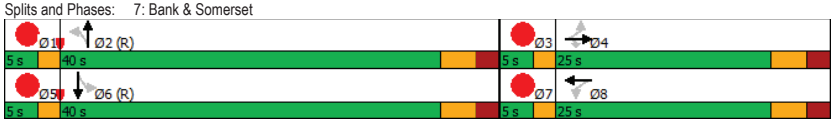
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 66.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Bank & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	11	10	25	235	0	0	341	26
Future Volume (vph)	0	0	0	35	11	10	25	235	0	0	341	26
Satd. Flow (prot)	0	0	0	0	1570	0	0	1674	0	0	1624	0
Flt Permitted					0.970			0.952				
Satd. Flow (perm)	0	0	0	0	1400	0	0	1541	0	0	1624	0
Satd. Flow (RTOR)					10						9	
Lane Group Flow (vph)	0	0	0	0	56	0	0	260	0	0	367	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					17.2			51.6			51.6	
Actuated g/C Ratio					0.23			0.69			0.69	
v/c Ratio					0.17			0.25			0.33	
Control Delay					20.3			4.9			10.5	
Queue Delay					0.0			0.2			0.4	
Total Delay					20.3			5.0			10.9	
LOS					C			A			B	
Approach Delay					20.3			5.0			10.9	
Approach LOS					C			A			B	
Queue Length 50th (m)					5.3			8.5			40.4	
Queue Length 95th (m)					14.2			8.9			26.1	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					362			1061			1121	
Starvation Cap Reductn					0			276			344	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.15			0.33			0.47	

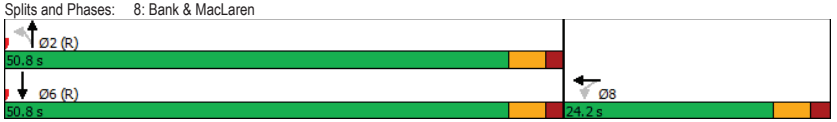
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 9.4	Intersection LOS: A
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Bank & MacLaren



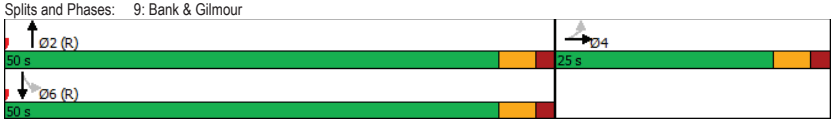
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	65	36	0	0	0	0	263	38	30	341	0
Future Volume (vph)	0	65	36	0	0	0	0	263	38	30	341	0
Satd. Flow (prot)	0	1512	0	0	0	0	0	1549	0	0	1707	0
Flt Permitted											0.962	
Satd. Flow (perm)	0	1512	0	0	0	0	0	1549	0	0	1600	0
Satd. Flow (RTOR)		36						17				
Lane Group Flow (vph)	0	101	0	0	0	0	0	301	0	0	371	0
Turn Type		NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		16.4						52.4			52.4	
Actuated g/C Ratio		0.22						0.70			0.70	
v/c Ratio		0.28						0.28			0.33	
Control Delay		9.6						11.0			2.5	
Queue Delay		0.0						0.0			0.2	
Total Delay		9.6						11.0			2.6	
LOS		A						B			A	
Approach Delay		9.6						11.0			2.6	
Approach LOS		A						B			A	
Queue Length 50th (m)		3.2						22.2			6.6	
Queue Length 95th (m)		10.6						41.1			9.9	
Internal Link Dist (m)		174.3			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		425						1086			1117	
Starvation Cap Reductn		0						0			206	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.24						0.28			0.41	

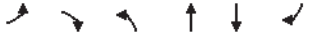
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 6 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 6.8	Intersection LOS: A
Intersection Capacity Utilization 66.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Bank & Gilmour





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	61	302	332	50
Future Volume (vph)	0	0	61	302	332	50
Satd. Flow (prot)	0	0	0	1703	1685	0
Flt Permitted				0.992		
Satd. Flow (perm)	0	0	0	1703	1685	0
Lane Group Flow (vph)	0	0	0	363	382	0
Sign Control	Stop			Free	Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 64.9%		ICU Level of Service C
Analysis Period (min) 15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	185	79	41	131	28	90	276	87	15	339	39
Future Volume (vph)	49	185	79	41	131	28	90	276	87	15	339	39
Satd. Flow (prot)	0	2944	0	0	1638	0	1658	1511	0	0	3059	0
Flt Permitted		0.860			0.862		0.517				0.936	
Satd. Flow (perm)	0	2496	0	0	1377	0	694	1511	0	0	2851	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	313	0	0	200	0	90	363	0	0	393	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	28.0	28.0		28.0	28.0		37.0	37.0		37.0	37.0	
Total Split (%)	37.3%	37.3%		37.3%	37.3%		49.3%	49.3%		49.3%	49.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		17.4			17.4		31.5	31.5			31.5	
Actuated g/C Ratio		0.23			0.23		0.42	0.42			0.42	
v/c Ratio		0.54			0.63		0.31	0.57			0.33	
Control Delay		15.9			34.8		18.3	21.0			8.2	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		15.9			34.8		18.3	21.0			8.2	
LOS		B			C		B	C			A	
Approach Delay		15.9			34.8			20.5			8.2	
Approach LOS		B			C			C			A	
Queue Length 50th (m)		8.3			27.6		8.6	39.8			9.4	
Queue Length 95th (m)		12.8			44.2		20.0	66.5			16.0	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		748			413		291	634			1197	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.42			0.48		0.31	0.57			0.33	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 26 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

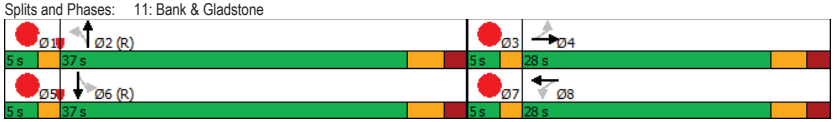
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 11: Bank & Gladstone



Appendix I

Synchro Intersection Worksheets – 2035 Future Background Conditions

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	21	0	0	0	0	0	409	25
Future Volume (vph)	0	0	0	34	21	0	0	0	0	0	409	25
Satd. Flow (prot)	0	0	0	0	1628	0	0	0	0	0	3229	0
Flt Permitted					0.970							
Satd. Flow (perm)	0	0	0	0	1600	0	0	0	0	0	3229	0
Satd. Flow (RTOR)											20	
Lane Group Flow (vph)	0	0	0	0	55	0	0	0	0	0	434	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.4						62.7	
Actuated g/C Ratio					0.14						0.84	
v/c Ratio					0.25						0.16	
Control Delay					26.1						2.5	
Queue Delay					0.0						0.0	
Total Delay					26.1						2.5	
LOS					C						A	
Approach Delay					26.1						2.5	
Approach LOS					C						A	
Queue Length 50th (m)					7.5						7.6	
Queue Length 95th (m)					m11.6						13.2	
Internal Link Dist (m)		102.5			161.6			141.5			55.1	
Turn Bay Length (m)												
Base Capacity (vph)					256						2703	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.21						0.16	

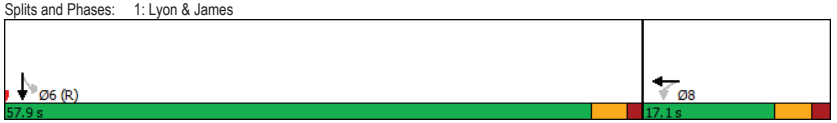
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 16 (21%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 5.1	Intersection LOS: A
Intersection Capacity Utilization 38.9%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 1: Lyon & James



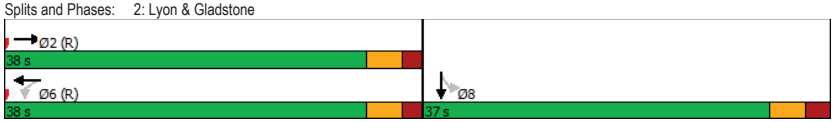
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	185	14	5	143	0	0	0	0	87	159	98
Future Volume (vph)	0	185	14	5	143	0	0	0	0	87	159	98
Satd. Flow (prot)	0	1679	0	0	1709	0	0	0	0	0	3072	0
Flt Permitted					0.992						0.988	
Satd. Flow (perm)	0	1679	0	0	1698	0	0	0	0	0	3038	0
Satd. Flow (RTOR)		6									97	
Lane Group Flow (vph)	0	199	0	0	148	0	0	0	0	0	344	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		17.2		17.2	17.2					22.6	22.6	
Total Split (s)		38.0		38.0	38.0					37.0	37.0	
Total Split (%)		50.7%		50.7%	50.7%					49.3%	49.3%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		C-Max	C-Max					Max	Max	
Act Effct Green (s)		32.8			32.8						31.4	
Actuated g/C Ratio		0.44			0.44						0.42	
v/c Ratio		0.27			0.20						0.26	
Control Delay		14.3			8.5						10.1	
Queue Delay		0.0			0.0						0.0	
Total Delay		14.3			8.5						10.1	
LOS		B			A						B	
Approach Delay		14.3			8.5						10.1	
Approach LOS		B			A						B	
Queue Length 50th (m)		17.6			5.7						12.9	
Queue Length 95th (m)		31.7			14.1						22.0	
Internal Link Dist (m)		110.8			164.9			56.5			141.5	
Turn Bay Length (m)												
Base Capacity (vph)		737			742						1328	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.27			0.20						0.26	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 10 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.27

Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 35.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Lyon & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	172	0	0	150	50	78	1556	184	0	0	0
Future Volume (vph)	63	172	0	0	150	50	78	1556	184	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1610	0	1642	4534	0	0	0	0
Flt Permitted	0.556						0.950					
Satd. Flow (perm)	885	1728	0	0	1610	0	1072	4534	0	0	0	0
Satd. Flow (RTOR)								45				
Lane Group Flow (vph)	63	172	0	0	200	0	78	1740	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	27.0	27.0			27.0		48.0	48.0				
Total Split (%)	36.0%	36.0%			36.0%		64.0%	64.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	15.8	15.8			15.8		48.3	48.3				
Actuated g/C Ratio	0.21	0.21			0.21		0.64	0.64				
v/c Ratio	0.34	0.47			0.59		0.11	0.59				
Control Delay	29.3	29.7			27.1		8.5	9.1				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	29.3	29.7			27.1		8.5	9.1				
LOS	C	C			C		A	A				
Approach Delay		29.6			27.1			9.0				
Approach LOS		C			C			A				
Queue Length 50th (m)	8.0	22.5			29.2		1.6	12.2				
Queue Length 95th (m)	17.8	37.7			49.3		m12.9	63.0				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	253	495			461		690	2937				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.25	0.35			0.43		0.11	0.59				

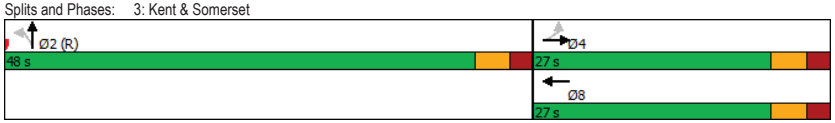
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 66 (88%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 12.8	Intersection LOS: B
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 3: Kent & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	67	0	0	0	0	0	1817	7	0	0	0
Future Volume (vph)	17	67	0	0	0	0	0	1817	7	0	0	0
Satd. Flow (prot)	0	1728	0	0	0	0	0	4757	0	0	0	0
Flt Permitted		0.990										
Satd. Flow (perm)	0	1711	0	0	0	0	0	4757	0	0	0	0
Satd. Flow (RTOR)								1				
Lane Group Flow (vph)	0	84	0	0	0	0	0	1824	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		12.4						56.1				
Actuated g/C Ratio		0.17						0.75				
v/c Ratio		0.30						0.51				
Control Delay		29.3						12.0				
Queue Delay		0.0						0.0				
Total Delay		29.3						12.0				
LOS		C						B				
Approach Delay		29.3						12.0				
Approach LOS		C						B				
Queue Length 50th (m)		11.6						57.8				
Queue Length 95th (m)		22.1						112.6				
Internal Link Dist (m)		69.3			174.3			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		376						3559				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.22						0.51				

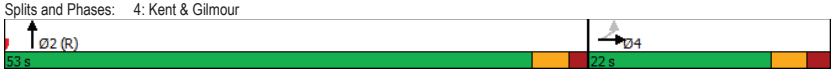
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 5 (7%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 12.8	Intersection LOS: B
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	16	26	46	1798	0	0	0	0
Future Vol, veh/h	0	0	0	0	16	26	46	1798	0	0	0	0
Conflicting Peds, #/hr	23	0	11	11	0	23	72	0	77	77	0	72
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	1048576		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	7	5	7	2	2	2	2	2
Mvmt Flow	0	0	0	0	16	26	46	1798	0	0	0	0

Major/Minor	Minor1			Major1			
Conflicting Flow All	-	1962	922	72	0	-	
Stage 1	-	1890	-	-	-	-	
Stage 2	-	72	-	-	-	-	
Critical Hdwy	-	6.64	7.2	5.44	-	-	
Critical Hdwy Stg 1	-	5.64	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	
Follow-up Hdwy	-	4.07	3.95	3.17	-	-	
Pot Cap-1 Maneuver	0	59	229	1051	-	0	
Stage 1	0	111	-	-	-	0	
Stage 2	0	-	-	-	-	0	
Platoon blocked, %					-		
Mov Cap-1 Maneuver	-	0	229	1051	-	-	
Mov Cap-2 Maneuver	-	0	-	-	-	-	
Stage 1	-	0	-	-	-	-	
Stage 2	-	0	-	-	-	-	

Approach	WB	NB
HCM Control Delay, s	24.2	2.8
HCM LOS	C	

Minor Lane/Major Mvmt	NBL	NBT	WBLn1
Capacity (veh/h)	1051	-	229
HCM Lane V/C Ratio	0.044	-	0.183
HCM Control Delay (s)	8.6	2.7	24.2
HCM Lane LOS	A	A	C
HCM 95th %tile Q(veh)	0.1	-	0.7

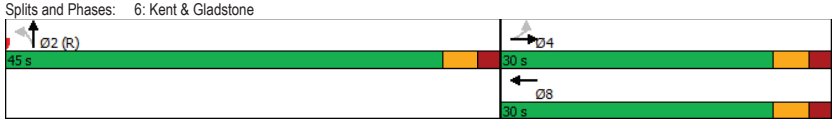
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	187	0	0	85	143	36	1699	97	0	0	0
Future Volume (vph)	83	187	0	0	85	143	36	1699	97	0	0	0
Satd. Flow (prot)	1626	1679	0	0	1461	0	1658	4703	0	0	0	0
Flt Permitted	0.501						0.950					
Satd. Flow (perm)	807	1679	0	0	1461	0	1401	4703	0	0	0	0
Satd. Flow (RTOR)					10			18				
Lane Group Flow (vph)	83	187	0	0	228	0	36	1796	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	30.0	30.0			30.0		45.0	45.0				
Total Split (%)	40.0%	40.0%			40.0%		60.0%	60.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	16.5	16.5			16.5		47.7	47.7				
Actuated g/C Ratio	0.22	0.22			0.22		0.64	0.64				
v/c Ratio	0.47	0.51			0.70		0.04	0.60				
Control Delay	42.0	39.4			32.3		6.8	9.8				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	42.0	39.4			32.3		6.8	9.8				
LOS	D	D			C		A	A				
Approach Delay		40.2			32.3			9.7				
Approach LOS		D			C			A				
Queue Length 50th (m)	13.3	29.8			18.6		1.7	49.3				
Queue Length 95th (m)	19.7	36.0			48.8		6.3	81.7				
Internal Link Dist (m)		164.9			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	264	550			485		891	2998				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.31	0.34			0.47		0.04	0.60				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 36 (48%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 75.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	191	75	21	124	15	12	170	40	2	172	36
Future Volume (vph)	41	191	75	21	124	15	12	170	40	2	172	36
Satd. Flow (prot)	0	1627	1388	1610	1665	0	0	1465	0	0	1465	0
Flt Permitted		0.918		0.502				0.984			0.998	
Satd. Flow (perm)	0	1467	1102	746	1665	0	0	1427	0	0	1459	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	232	75	21	139	0	0	222	0	0	210	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5	20.5	20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0	25.0	25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag	Lag	Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		16.9	16.9	16.9	16.9			47.1			47.1	
Actuated g/C Ratio		0.23	0.23	0.23	0.23			0.63			0.63	
v/c Ratio		0.70	0.30	0.12	0.37			0.25			0.23	
Control Delay		43.2	32.0	22.5	26.1			3.0			7.9	
Queue Delay		0.0	0.0	0.0	0.0			0.2			0.0	
Total Delay		43.2	32.0	22.5	26.1			3.2			7.9	
LOS		D	C	C	C			A			A	
Approach Delay		40.5			25.6			3.2			7.9	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		37.1	11.9	2.5	17.6			3.6			11.9	
Queue Length 95th (m)		58.6	m19.5	7.4	29.6			6.5			27.4	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)			28.0	15.0								
Base Capacity (vph)		395	296	200	448			895			915	
Starvation Cap Reductn		0	0	0	0			244			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.59	0.25	0.10	0.31			0.34			0.23	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

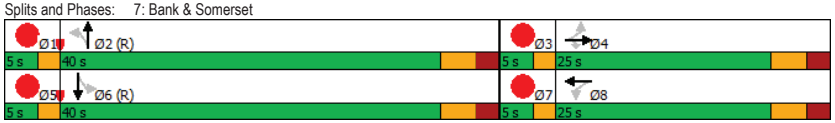
Intersection Summary

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 21.0	Intersection LOS: C
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 7: Bank & Somerset



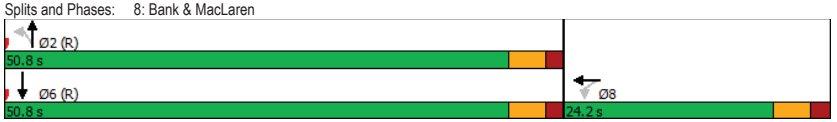
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	11	4	13	36	209	0	0	247	26
Future Volume (vph)	0	0	0	11	4	13	36	209	0	0	247	26
Satd. Flow (prot)	0	0	0	0	1430	0	0	1695	0	0	1552	0
Flt Permitted					0.981			0.934				
Satd. Flow (perm)	0	0	0	0	1376	0	0	1497	0	0	1552	0
Satd. Flow (RTOR)					13						13	
Lane Group Flow (vph)	0	0	0	0	28	0	0	245	0	0	273	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					15.4			57.5			57.5	
Actuated g/C Ratio					0.21			0.77			0.77	
v/c Ratio					0.10			0.21			0.23	
Control Delay					15.8			1.8			7.5	
Queue Delay					0.0			0.1			0.2	
Total Delay					15.8			1.9			7.7	
LOS					B			A			A	
Approach Delay					15.8			1.9			7.7	
Approach LOS					B			A			A	
Queue Length 50th (m)					1.7			8.6			23.7	
Queue Length 95th (m)					7.7			3.4			24.2	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					358			1147			1192	
Starvation Cap Reductn					0			316			362	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.08			0.29			0.33	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 42 (56%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.23

Intersection Signal Delay: 5.5	Intersection LOS: A
Intersection Capacity Utilization 57.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Bank & MacLaren



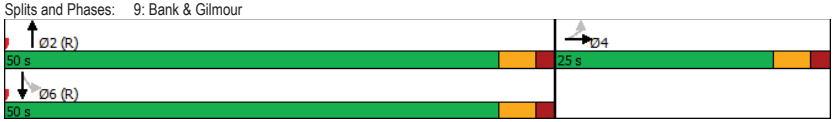
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	63	39	0	0	0	0	232	22	19	253	0
Future Volume (vph)	12	63	39	0	0	0	0	232	22	19	253	0
Satd. Flow (prot)	0	1587	0	0	0	0	0	1536	0	0	1621	0
Flt Permitted		0.995									0.975	
Satd. Flow (perm)	0	1578	0	0	0	0	0	1536	0	0	1565	0
Satd. Flow (RTOR)		34						11				
Lane Group Flow (vph)	0	114	0	0	0	0	0	254	0	0	272	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		13.2						55.6			55.6	
Actuated g/C Ratio		0.18						0.74			0.74	
v/c Ratio		0.37						0.22			0.23	
Control Delay		16.3						3.4			2.8	
Queue Delay		0.0						0.0			0.2	
Total Delay		16.3						3.4			3.1	
LOS		B						A			A	
Approach Delay		16.3						3.4			3.1	
Approach LOS		B						A			A	
Queue Length 50th (m)		12.9						7.2			4.8	
Queue Length 95th (m)		27.6						11.3			9.7	
Internal Link Dist (m)		174.3			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		441						1140			1159	
Starvation Cap Reductn		0						0			390	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.26						0.22			0.35	

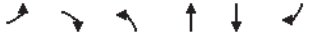
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 37 (49%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 5.6	Intersection LOS: A
Intersection Capacity Utilization 53.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Bank & Gilmour





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	29	259	275	24
Future Volume (vph)	0	0	29	259	275	24
Satd. Flow (prot)	0	0	0	1682	1637	0
Flt Permitted				0.995		
Satd. Flow (perm)	0	0	0	1682	1637	0
Lane Group Flow (vph)	0	0	0	288	299	0
Sign Control	Stop			Free	Free	

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	174	64	20	102	19	57	248	76	6	242	34
Future Volume (vph)	36	174	64	20	102	19	57	248	76	6	242	34
Satd. Flow (prot)	0	2964	0	0	1578	0	1626	1503	0	0	2971	0
Flt Permitted		0.872			0.910		0.579				0.948	
Satd. Flow (perm)	0	2574	0	0	1432	0	862	1503	0	0	2813	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	274	0	0	141	0	57	324	0	0	282	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	23.0	23.0		23.0	23.0		42.0	42.0		42.0	42.0	
Total Split (%)	30.7%	30.7%		30.7%	30.7%		56.0%	56.0%		56.0%	56.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		14.5			14.5		36.5	36.5			36.5	
Actuated g/C Ratio		0.19			0.19		0.49	0.49			0.49	
v/c Ratio		0.55			0.51		0.14	0.44			0.21	
Control Delay		40.0			33.4		11.7	15.0			16.4	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		40.0			33.4		11.7	15.0			16.4	
LOS		D			C		B	B			B	
Approach Delay		40.0			33.4			14.5			16.4	
Approach LOS		D			C			B			B	
Queue Length 50th (m)		22.6			18.8		4.4	29.9			17.5	
Queue Length 95th (m)		33.5			34.4		11.0	50.3			27.0	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		600			334		419	731			1368	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.46			0.42		0.14	0.44			0.21	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 20 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

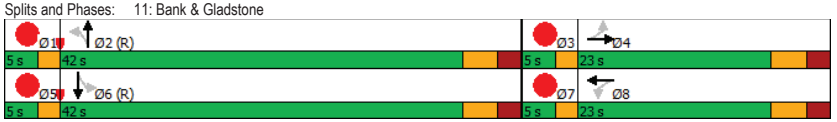
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Bank & Gladstone



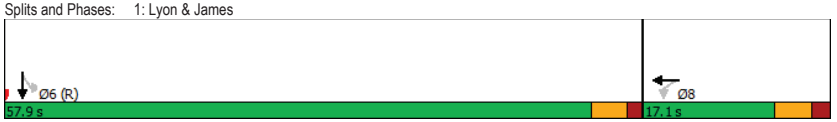
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	48	21	0	0	0	0	0	528	7
Future Volume (vph)	0	0	0	48	21	0	0	0	0	0	528	7
Satd. Flow (prot)	0	0	0	0	1663	0	0	0	0	0	3307	0
Flt Permitted					0.966							
Satd. Flow (perm)	0	0	0	0	1618	0	0	0	0	0	3307	0
Satd. Flow (RTOR)											4	
Lane Group Flow (vph)	0	0	0	0	69	0	0	0	0	0	535	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.8						58.4	
Actuated g/C Ratio					0.14						0.78	
v/c Ratio					0.30						0.21	
Control Delay					29.5						3.3	
Queue Delay					0.0						0.0	
Total Delay					29.5						3.3	
LOS					C						A	
Approach Delay					29.5						3.3	
Approach LOS					C						A	
Queue Length 50th (m)					9.6						10.2	
Queue Length 95th (m)					20.9						16.9	
Internal Link Dist (m)		110.6			164.0			139.6			62.1	
Turn Bay Length (m)												
Base Capacity (vph)					258						2574	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.27						0.21	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 6.3	Intersection LOS: A
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Lyon & James



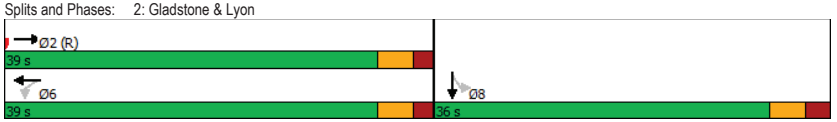
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	248	27	13	314	0	0	0	0	86	329	138
Future Volume (vph)	0	248	27	13	314	0	0	0	0	86	329	138
Satd. Flow (prot)	0	1707	0	0	1742	0	0	0	0	0	3109	0
Flt Permitted					0.985						0.992	
Satd. Flow (perm)	0	1707	0	0	1716	0	0	0	0	0	3092	0
Satd. Flow (RTOR)		10									73	
Lane Group Flow (vph)	0	275	0	0	327	0	0	0	0	0	553	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		23.2		23.6	23.6					23.6	23.6	
Total Split (s)		39.0		39.0	39.0					36.0	36.0	
Total Split (%)		52.0%		52.0%	52.0%					48.0%	48.0%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		Max	Max					Max	Max	
Act Effct Green (s)		33.8			33.8						30.4	
Actuated g/C Ratio		0.45			0.45						0.41	
v/c Ratio		0.36			0.42						0.43	
Control Delay		14.6			12.7						12.3	
Queue Delay		0.0			0.0						0.0	
Total Delay		14.6			12.7						12.3	
LOS		B			B						B	
Approach Delay		14.6			12.7						12.3	
Approach LOS		B			B						B	
Queue Length 50th (m)		24.6			14.5						11.7	
Queue Length 95th (m)		42.1			41.0						22.3	
Internal Link Dist (m)		109.1			166.3			55.5			139.6	
Turn Bay Length (m)												
Base Capacity (vph)		774			773						1296	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.36			0.42						0.43	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 45 (60%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 13.0	Intersection LOS: B
Intersection Capacity Utilization 58.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Gladstone & Lyon



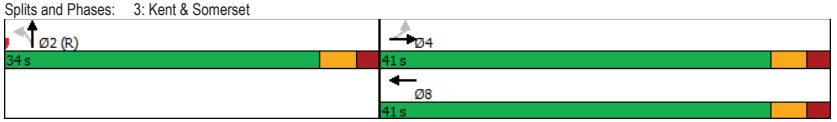
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	252	0	0	213	63	79	708	106	0	0	0
Future Volume (vph)	58	252	0	0	213	63	79	708	106	0	0	0
Satd. Flow (prot)	1658	1745	0	0	1589	0	1658	4323	0	0	0	0
Flt Permitted	0.455						0.950					
Satd. Flow (perm)	681	1745	0	0	1589	0	1028	4323	0	0	0	0
Satd. Flow (RTOR)								43				
Lane Group Flow (vph)	58	252	0	0	276	0	79	814	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	41.0	41.0			41.0		34.0	34.0				
Total Split (%)	54.7%	54.7%			54.7%		45.3%	45.3%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	19.7	19.7			19.7		44.4	44.4				
Actuated g/C Ratio	0.26	0.26			0.26		0.59	0.59				
v/c Ratio	0.33	0.55			0.66		0.13	0.32				
Control Delay	26.1	28.0			31.9		9.4	9.7				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	26.1	28.0			31.9		9.4	9.7				
LOS	C	C			C		A	A				
Approach Delay		27.6			31.9			9.7				
Approach LOS		C			C			A				
Queue Length 50th (m)	7.1	33.1			42.3		4.9	17.7				
Queue Length 95th (m)	15.5	47.9			57.7		10.4	24.9				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	322	825			752		609	2578				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.18	0.31			0.37		0.13	0.32				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 50 (67%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 57.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Kent & Somerset



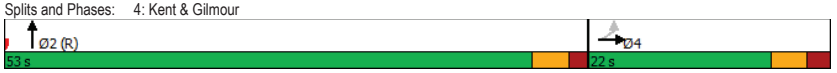
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	83	0	0	0	0	0	850	59	0	0	0
Future Volume (vph)	19	83	0	0	0	0	0	850	59	0	0	0
Satd. Flow (prot)	0	1716	0	0	0	0	0	4626	0	0	0	0
Flt Permitted		0.991										
Satd. Flow (perm)	0	1686	0	0	0	0	0	4626	0	0	0	0
Satd. Flow (RTOR)								29				
Lane Group Flow (vph)	0	102	0	0	0	0	0	909	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		13.6						54.9				
Actuated g/C Ratio		0.18						0.73				
v/c Ratio		0.33						0.27				
Control Delay		29.0						3.5				
Queue Delay		0.0						0.0				
Total Delay		29.0						3.5				
LOS		C						A				
Approach Delay		29.0						3.5				
Approach LOS		C						A				
Queue Length 50th (m)		12.8						11.7				
Queue Length 95th (m)		26.0						14.6				
Internal Link Dist (m)		69.3			174.3			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		370						3395				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.28						0.27				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 47.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	35	57	50	852	0	0	0	0
Future Vol, veh/h	0	0	0	0	35	57	50	852	0	0	0	0
Conflicting Peds, #/hr	25	0	17	17	0	25	95	0	63	63	0	95
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	2293760		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	35	57	50	852	0	0	0	0

Major/Minor			Minor1			Major1		
Conflicting Flow All			-	1047	451	95	0	-
Stage 1			-	952	-	-	-	-
Stage 2			-	95	-	-	-	-
Critical Hdwy			-	6.54	7.14	5.34	-	-
Critical Hdwy Stg 1			-	5.54	-	-	-	-
Critical Hdwy Stg 2			-	-	-	-	-	-
Follow-up Hdwy			-	4.02	3.92	3.12	-	-
Pot Cap-1 Maneuver			0	227	475	1044	-	0
Stage 1			0	336	-	-	-	0
Stage 2			0	-	-	-	-	0
Platoon blocked, %							-	
Mov Cap-1 Maneuver			-	0	475	1044	-	-
Mov Cap-2 Maneuver			-	0	-	-	-	-
Stage 1			-	0	-	-	-	-
Stage 2			-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	14.4	0.7
HCM LOS	B	

Minor Lane/Major Mvmt	NBL	NBT	WBLn1
Capacity (veh/h)	1044	-	475
HCM Lane V/C Ratio	0.048	-	0.194
HCM Control Delay (s)	8.6	0.2	14.4
HCM Lane LOS	A	A	B
HCM 95th %tile Q(veh)	0.2	-	0.7

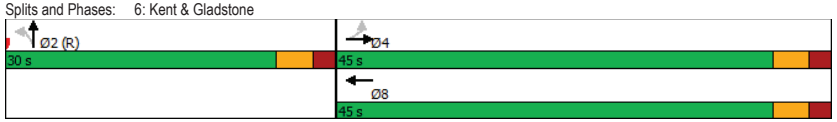
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	250	0	0	244	75	52	736	101	0	0	0
Future Volume (vph)	76	250	0	0	244	75	52	736	101	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1656	0	1658	4554	0	0	0	0
Flt Permitted	0.372						0.950					
Satd. Flow (perm)	624	1728	0	0	1656	0	1471	4554	0	0	0	0
Satd. Flow (RTOR)					31			35				
Lane Group Flow (vph)	76	250	0	0	319	0	52	837	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	45.0	45.0			45.0		30.0	30.0				
Total Split (%)	60.0%	60.0%			60.0%		40.0%	40.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	19.2	19.2			19.2		45.0	45.0				
Actuated g/C Ratio	0.26	0.26			0.26		0.60	0.60				
v/c Ratio	0.47	0.56			0.71		0.06	0.31				
Control Delay	23.4	19.9			35.2		8.5	8.3				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	23.4	19.9			35.2		8.5	8.3				
LOS	C	B			D		A	A				
Approach Delay		20.7			35.2			8.3				
Approach LOS		C			D			A				
Queue Length 50th (m)	5.8	19.1			44.4		2.9	19.0				
Queue Length 95th (m)	10.0	24.4			70.4		9.4	34.2				
Internal Link Dist (m)		166.3			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	329	912			889		881	2744				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.23	0.27			0.36		0.06	0.31				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 23 (31%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 58.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	187	79	33	135	24	21	189	41	5	260	51
Future Volume (vph)	44	187	79	33	135	24	21	189	41	5	260	51
Satd. Flow (prot)	0	1704	1483	1658	1590	0	0	1494	0	0	1479	0
Flt Permitted		0.908		0.515				0.963			0.996	
Satd. Flow (perm)	0	1457	723	601	1590	0	0	1406	0	0	1467	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	231	79	33	159	0	0	251	0	0	316	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5	20.5	20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0	25.0	25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag	Lag	Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		17.9	17.9	17.9	17.9			46.1			46.1	
Actuated g/C Ratio		0.24	0.24	0.24	0.24			0.61			0.61	
v/c Ratio		0.66	0.46	0.23	0.42			0.29			0.35	
Control Delay		28.5	25.8	25.8	26.9			3.2			9.2	
Queue Delay		0.0	0.0	0.0	0.0			0.2			0.0	
Total Delay		28.5	25.8	25.8	26.9			3.5			9.2	
LOS		C	C	C	C			A			A	
Approach Delay		27.8			26.7			3.5			9.2	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		32.4	10.0	4.1	20.5			6.2			19.6	
Queue Length 95th (m)		46.3	20.4	10.5	33.6			8.6			42.9	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)			28.0	15.0								
Base Capacity (vph)		392	194	162	429			863			901	
Starvation Cap Reductn		0	0	0	0			199			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.59	0.41	0.20	0.37			0.38			0.35	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

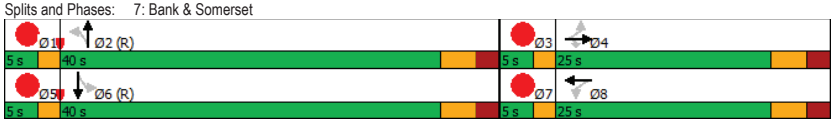
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 16.4	Intersection LOS: B
Intersection Capacity Utilization 66.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Bank & Somerset



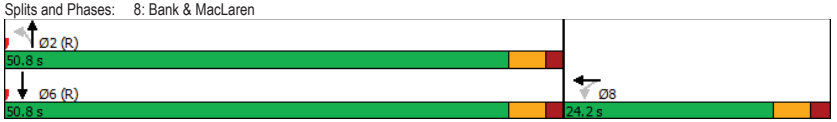
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	11	10	25	247	0	0	341	26
Future Volume (vph)	0	0	0	35	11	10	25	247	0	0	341	26
Satd. Flow (prot)	0	0	0	0	1570	0	0	1674	0	0	1624	0
Flt Permitted					0.970			0.954				
Satd. Flow (perm)	0	0	0	0	1400	0	0	1547	0	0	1624	0
Satd. Flow (RTOR)					10						9	
Lane Group Flow (vph)	0	0	0	0	56	0	0	272	0	0	367	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					17.2			51.6			51.6	
Actuated g/C Ratio					0.23			0.69			0.69	
v/c Ratio					0.17			0.26			0.33	
Control Delay					20.3			4.8			10.5	
Queue Delay					0.0			0.2			0.4	
Total Delay					20.3			4.9			10.9	
LOS					C			A			B	
Approach Delay					20.3			4.9			10.9	
Approach LOS					C			A			B	
Queue Length 50th (m)					5.3			8.6			40.4	
Queue Length 95th (m)					14.2			9.0			26.1	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					362			1065			1121	
Starvation Cap Reductn					0			264			344	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.15			0.34			0.47	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 59.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Bank & MacLaren



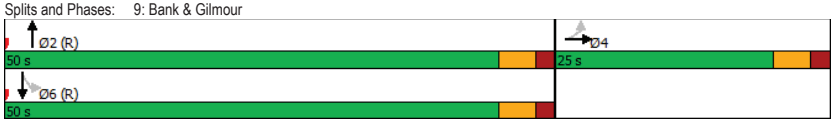
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	65	36	0	0	0	0	277	38	30	341	0
Future Volume (vph)	0	65	36	0	0	0	0	277	38	30	341	0
Satd. Flow (prot)	0	1512	0	0	0	0	0	1556	0	0	1707	0
Flt Permitted											0.961	
Satd. Flow (perm)	0	1512	0	0	0	0	0	1556	0	0	1600	0
Satd. Flow (RTOR)		36						16				
Lane Group Flow (vph)	0	101	0	0	0	0	0	315	0	0	371	0
Turn Type		NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		16.4						52.4			52.4	
Actuated g/C Ratio		0.22						0.70			0.70	
v/c Ratio		0.28						0.29			0.33	
Control Delay		9.6						11.4			2.5	
Queue Delay		0.0						0.0			0.2	
Total Delay		9.6						11.4			2.6	
LOS		A						B			A	
Approach Delay		9.6						11.4			2.6	
Approach LOS		A						B			A	
Queue Length 50th (m)		3.2						24.1			6.6	
Queue Length 95th (m)		10.6						43.7			9.9	
Internal Link Dist (m)		174.3			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		425						1090			1117	
Starvation Cap Reductn		0						0			206	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.24						0.29			0.41	

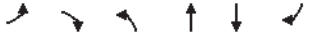
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 6 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 7.0	Intersection LOS: A
Intersection Capacity Utilization 67.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Bank & Gilmour





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	61	318	332	50
Future Volume (vph)	0	0	61	318	332	50
Satd. Flow (prot)	0	0	0	1703	1685	0
Flt Permitted				0.992		
Satd. Flow (perm)	0	0	0	1703	1685	0
Lane Group Flow (vph)	0	0	0	379	382	0
Sign Control	Stop			Free	Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 65.7%		ICU Level of Service C
Analysis Period (min) 15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	185	79	41	131	28	90	289	87	15	339	39
Future Volume (vph)	49	185	79	41	131	28	90	289	87	15	339	39
Satd. Flow (prot)	0	2944	0	0	1638	0	1658	1517	0	0	3059	0
Flt Permitted		0.860			0.862		0.517				0.936	
Satd. Flow (perm)	0	2496	0	0	1377	0	694	1517	0	0	2852	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	313	0	0	200	0	90	376	0	0	393	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	28.0	28.0		28.0	28.0		37.0	37.0		37.0	37.0	
Total Split (%)	37.3%	37.3%		37.3%	37.3%		49.3%	49.3%		49.3%	49.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		17.4			17.4		31.5	31.5			31.5	
Actuated g/C Ratio		0.23			0.23		0.42	0.42			0.42	
v/c Ratio		0.54			0.63		0.31	0.59			0.33	
Control Delay		15.9			34.8		18.3	21.5			8.2	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		15.9			34.8		18.3	21.5			8.2	
LOS		B			C		B	C			A	
Approach Delay		15.9			34.8			20.9			8.2	
Approach LOS		B			C			C			A	
Queue Length 50th (m)		8.3			27.6		8.6	41.7			9.4	
Queue Length 95th (m)		12.8			44.2		20.0	69.3			16.0	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		748			413		291	637			1197	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.42			0.48		0.31	0.59			0.33	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 26 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

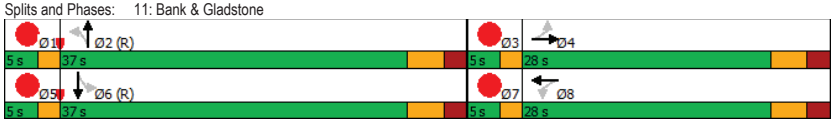
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 79.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 11: Bank & Gladstone



Appendix J

Synchro Intersection Worksheets – 2030 Future Total Conditions

CGH TRANSPORTATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	21	0	0	0	0	0	389	25
Future Volume (vph)	0	0	0	34	21	0	0	0	0	0	389	25
Satd. Flow (prot)	0	0	0	0	1628	0	0	0	0	0	3228	0
Flt Permitted					0.970							
Satd. Flow (perm)	0	0	0	0	1600	0	0	0	0	0	3228	0
Satd. Flow (RTOR)											21	
Lane Group Flow (vph)	0	0	0	0	55	0	0	0	0	0	414	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.4						62.7	
Actuated g/C Ratio					0.14						0.84	
v/c Ratio					0.25						0.15	
Control Delay					26.2						2.4	
Queue Delay					0.0						0.0	
Total Delay					26.2						2.4	
LOS					C						A	
Approach Delay					26.2						2.4	
Approach LOS					C						A	
Queue Length 50th (m)					7.5						7.2	
Queue Length 95th (m)					m11.4						12.5	
Internal Link Dist (m)		102.5			161.6			141.5			55.1	
Turn Bay Length (m)												
Base Capacity (vph)					256						2703	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.21						0.15	

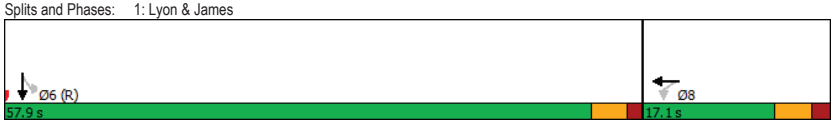
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 16 (21%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 38.9%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 1: Lyon & James



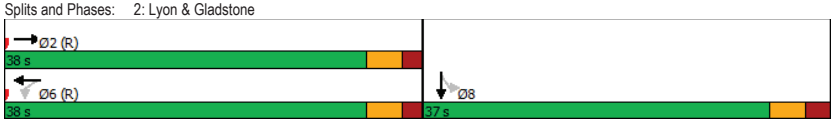
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	185	14	5	146	0	0	0	0	87	152	98
Future Volume (vph)	0	185	14	5	146	0	0	0	0	87	152	98
Satd. Flow (prot)	0	1679	0	0	1709	0	0	0	0	0	3064	0
Flt Permitted					0.992						0.987	
Satd. Flow (perm)	0	1679	0	0	1698	0	0	0	0	0	3030	0
Satd. Flow (RTOR)		6									98	
Lane Group Flow (vph)	0	199	0	0	151	0	0	0	0	0	337	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		17.2		17.2	17.2					22.6	22.6	
Total Split (s)		38.0		38.0	38.0					37.0	37.0	
Total Split (%)		50.7%		50.7%	50.7%					49.3%	49.3%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		C-Max	C-Max					Max	Max	
Act Effct Green (s)		32.8			32.8						31.4	
Actuated g/C Ratio		0.44			0.44						0.42	
v/c Ratio		0.27			0.20						0.25	
Control Delay		14.3			8.4						10.0	
Queue Delay		0.0			0.0						0.0	
Total Delay		14.3			8.4						10.0	
LOS		B			A						B	
Approach Delay		14.3			8.4						10.0	
Approach LOS		B			A						B	
Queue Length 50th (m)		17.6			5.7						12.5	
Queue Length 95th (m)		31.7			14.1						21.5	
Internal Link Dist (m)		110.8			164.9			56.5			141.5	
Turn Bay Length (m)												
Base Capacity (vph)		737			742						1325	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.27			0.20						0.25	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 10 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.27

Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 35.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Lyon & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	172	0	0	153	51	78	1555	184	0	0	0
Future Volume (vph)	63	172	0	0	153	51	78	1555	184	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1610	0	1642	4534	0	0	0	0
Flt Permitted	0.549						0.950					
Satd. Flow (perm)	874	1728	0	0	1610	0	1072	4534	0	0	0	0
Satd. Flow (RTOR)								45				
Lane Group Flow (vph)	63	172	0	0	204	0	78	1739	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	27.0	27.0			27.0		48.0	48.0				
Total Split (%)	36.0%	36.0%			36.0%		64.0%	64.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	15.9	15.9			15.9		48.2	48.2				
Actuated g/C Ratio	0.21	0.21			0.21		0.64	0.64				
v/c Ratio	0.34	0.47			0.60		0.11	0.59				
Control Delay	29.2	29.5			27.5		8.7	9.2				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	29.2	29.5			27.5		8.7	9.2				
LOS	C	C			C		A	A				
Approach Delay		29.4			27.5			9.1				
Approach LOS		C			C			A				
Queue Length 50th (m)	8.0	22.5			29.8		1.6	12.3				
Queue Length 95th (m)	17.7	37.5			49.3		m13.1	63.3				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	250	495			461		688	2929				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.25	0.35			0.44		0.11	0.59				

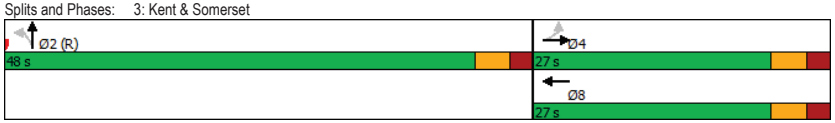
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 66 (88%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 3: Kent & Somerset



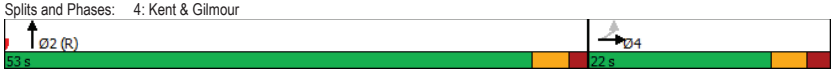
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	72	0	0	0	0	0	1816	17	0	0	0
Future Volume (vph)	17	72	0	0	0	0	0	1816	17	0	0	0
Satd. Flow (prot)	0	1729	0	0	0	0	0	4753	0	0	0	0
Flt Permitted		0.991										
Satd. Flow (perm)	0	1714	0	0	0	0	0	4753	0	0	0	0
Satd. Flow (RTOR)								3				
Lane Group Flow (vph)	0	89	0	0	0	0	0	1833	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		12.4						56.1				
Actuated g/C Ratio		0.17						0.75				
v/c Ratio		0.31						0.52				
Control Delay		29.7						12.3				
Queue Delay		0.0						0.0				
Total Delay		29.7						12.3				
LOS		C						B				
Approach Delay		29.7						12.3				
Approach LOS		C						B				
Queue Length 50th (m)		12.3						60.1				
Queue Length 95th (m)		23.2						114.5				
Internal Link Dist (m)		69.3			25.1			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		377						3557				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.24						0.52				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 5 (7%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 59.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



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	0	0	0	0	16	27	46	1806	0	0	0	0
Future Vol, veh/h	0	0	0	0	16	27	46	1806	0	0	0	0
Conflicting Peds, #/hr	23	0	11	11	0	23	72	0	77	77	0	72
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	1048576		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	7	5	7	2	2	2	2	2
Mvmt Flow	0	0	0	0	16	27	46	1806	0	0	0	0

Major/Minor			Minor1			Major1		
Conflicting Flow All			-	1970	926	72	0	-
Stage 1			-	1898	-	-	-	-
Stage 2			-	72	-	-	-	-
Critical Hdwy			-	6.64	7.2	5.44	-	-
Critical Hdwy Stg 1			-	5.64	-	-	-	-
Critical Hdwy Stg 2			-	-	-	-	-	-
Follow-up Hdwy			-	4.07	3.95	3.17	-	-
Pot Cap-1 Maneuver			0	58	228	1051	-	0
Stage 1			0	110	-	-	-	0
Stage 2			0	-	-	-	-	0
Platoon blocked, %							-	
Mov Cap-1 Maneuver			-	0	228	1051	-	-
Mov Cap-2 Maneuver			-	0	-	-	-	-
Stage 1			-	0	-	-	-	-
Stage 2			-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	24.4	0.2
HCM LOS	C	

Minor Lane/Major Mvmt	NBL	NBTWBLn1
Capacity (veh/h)	1051	- 228
HCM Lane V/C Ratio	0.044	- 0.189
HCM Control Delay (s)	8.6	0 24.4
HCM Lane LOS	A	A C
HCM 95th %tile Q(veh)	0.1	- 0.7

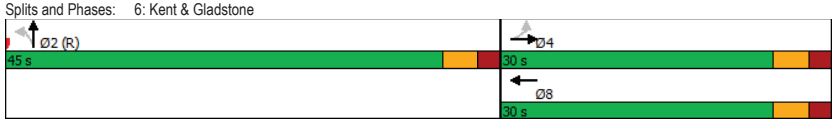
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	187	0	0	88	147	36	1704	97	0	0	0
Future Volume (vph)	83	187	0	0	88	147	36	1704	97	0	0	0
Satd. Flow (prot)	1626	1679	0	0	1463	0	1658	4703	0	0	0	0
Flt Permitted	0.491						0.950					
Satd. Flow (perm)	791	1679	0	0	1463	0	1401	4703	0	0	0	0
Satd. Flow (RTOR)					10			18				
Lane Group Flow (vph)	83	187	0	0	235	0	36	1801	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	30.0	30.0			30.0		45.0	45.0				
Total Split (%)	40.0%	40.0%			40.0%		60.0%	60.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	16.8	16.8			16.8		47.4	47.4				
Actuated g/C Ratio	0.22	0.22			0.22		0.63	0.63				
v/c Ratio	0.47	0.50			0.70		0.04	0.60				
Control Delay	41.2	38.3			32.4		7.0	10.1				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	41.2	38.3			32.4		7.0	10.1				
LOS	D	D			C		A	B				
Approach Delay		39.2			32.4			10.0				
Approach LOS		D			C			B				
Queue Length 50th (m)	13.2	29.7			19.0		1.8	50.5				
Queue Length 95th (m)	19.2	34.9			51.3		6.4	83.4				
Internal Link Dist (m)		164.9			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	259	550			486		885	2980				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.32	0.34			0.48		0.04	0.60				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 36 (48%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 15.6	Intersection LOS: B
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	191	75	21	124	15	16	177	40	2	164	36
Future Volume (vph)	41	191	75	21	124	15	16	177	40	2	164	36
Satd. Flow (prot)	0	1627	1388	1610	1665	0	0	1467	0	0	1459	0
Flt Permitted		0.918		0.502				0.979			0.998	
Satd. Flow (perm)	0	1467	1102	746	1665	0	0	1417	0	0	1453	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	232	75	21	139	0	0	233	0	0	202	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5	20.5	20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0	25.0	25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag	Lag	Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		16.9	16.9	16.9	16.9			47.1			47.1	
Actuated g/C Ratio		0.23	0.23	0.23	0.23			0.63			0.63	
v/c Ratio		0.70	0.30	0.12	0.37			0.26			0.22	
Control Delay		43.2	31.9	22.5	26.1			2.9			7.9	
Queue Delay		0.0	0.0	0.0	0.0			0.2			0.0	
Total Delay		43.2	31.9	22.5	26.1			3.2			7.9	
LOS		D	C	C	C			A			A	
Approach Delay		40.4			25.6			3.2			7.9	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		37.0	11.9	2.5	17.6			3.7			11.4	
Queue Length 95th (m)		58.6	m19.4	7.4	29.6			6.5			26.4	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)			28.0	15.0								
Base Capacity (vph)		395	296	200	448			889			912	
Starvation Cap Reductn		0	0	0	0			229			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.59	0.25	0.10	0.31			0.35			0.22	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

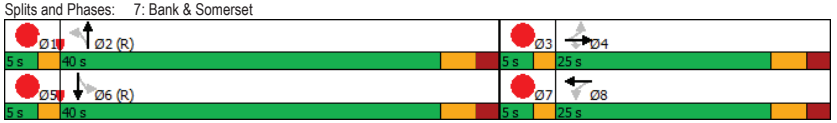
Intersection Summary

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 63.6%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 7: Bank & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	11	4	13	36	220	0	0	236	26
Future Volume (vph)	0	0	0	11	4	13	36	220	0	0	236	26
Satd. Flow (prot)	0	0	0	0	1430	0	0	1695	0	0	1547	0
Flt Permitted					0.981			0.938				
Satd. Flow (perm)	0	0	0	0	1376	0	0	1506	0	0	1547	0
Satd. Flow (RTOR)					13						14	
Lane Group Flow (vph)	0	0	0	0	28	0	0	256	0	0	262	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					15.4			57.5			57.5	
Actuated g/C Ratio					0.21			0.77			0.77	
v/c Ratio					0.10			0.22			0.22	
Control Delay					15.8			2.4			7.7	
Queue Delay					0.0			0.2			0.2	
Total Delay					15.8			2.6			7.8	
LOS					B			A			A	
Approach Delay					15.8			2.6			7.8	
Approach LOS					B			A			A	
Queue Length 50th (m)					1.7			10.3			23.0	
Queue Length 95th (m)					7.7			6.0			24.1	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					358			1154			1189	
Starvation Cap Reductn					0			319			371	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.08			0.31			0.32	

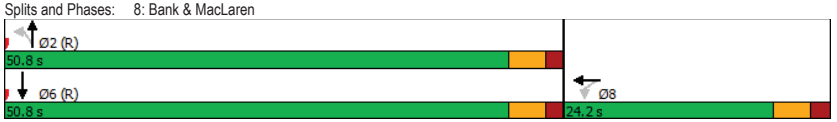
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 42 (56%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.22

Intersection Signal Delay: 5.8	Intersection LOS: A
Intersection Capacity Utilization 57.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Bank & MacLaren



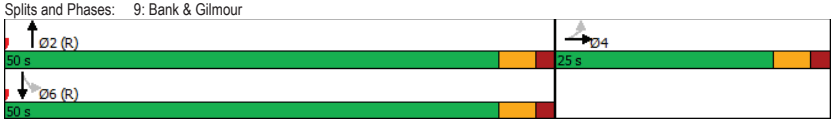
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	71	54	0	0	0	0	232	22	19	241	0
Future Volume (vph)	23	71	54	0	0	0	0	232	22	19	241	0
Satd. Flow (prot)	0	1573	0	0	0	0	0	1536	0	0	1619	0
Flt Permitted		0.992									0.974	
Satd. Flow (perm)	0	1560	0	0	0	0	0	1536	0	0	1562	0
Satd. Flow (RTOR)		37						11				
Lane Group Flow (vph)	0	148	0	0	0	0	0	254	0	0	260	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		13.4						51.3			51.3	
Actuated g/C Ratio		0.18						0.68			0.68	
v/c Ratio		0.48						0.24			0.24	
Control Delay		25.0						3.8			3.1	
Queue Delay		0.0						0.0			0.3	
Total Delay		25.0						3.8			3.5	
LOS		C						A			A	
Approach Delay		25.0						3.8			3.5	
Approach LOS		C						A			A	
Queue Length 50th (m)		15.5						7.2			4.4	
Queue Length 95th (m)		29.4						11.3			9.2	
Internal Link Dist (m)		125.3			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		439						1054			1069	
Starvation Cap Reductn		0						0			394	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.34						0.24			0.39	

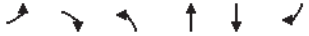
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 37 (49%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 8.4	Intersection LOS: A
Intersection Capacity Utilization 55.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 9: Bank & Gilmour





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	29	259	277	25
Future Volume (vph)	0	0	29	259	277	25
Satd. Flow (prot)	0	0	0	1682	1638	0
Flt Permitted				0.995		
Satd. Flow (perm)	0	0	0	1682	1638	0
Lane Group Flow (vph)	0	0	0	288	302	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Control Type: Unsignalized	
Intersection Capacity Utilization 49.6%	ICU Level of Service A
Analysis Period (min) 15	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	174	64	20	106	19	57	248	76	6	242	37
Future Volume (vph)	36	174	64	20	106	19	57	248	76	6	242	37
Satd. Flow (prot)	0	2964	0	0	1579	0	1626	1503	0	0	2964	0
Flt Permitted		0.900			0.918		0.577				0.949	
Satd. Flow (perm)	0	2657	0	0	1446	0	860	1503	0	0	2809	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	274	0	0	145	0	57	324	0	0	285	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	23.0	23.0		23.0	23.0		42.0	42.0		42.0	42.0	
Total Split (%)	30.7%	30.7%		30.7%	30.7%		56.0%	56.0%		56.0%	56.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		14.5			14.5		36.5	36.5			36.5	
Actuated g/C Ratio		0.19			0.19		0.49	0.49			0.49	
v/c Ratio		0.53			0.52		0.14	0.44			0.21	
Control Delay		39.3			33.7		11.7	15.0			15.7	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		39.3			33.7		11.7	15.0			15.7	
LOS		D			C		B	B			B	
Approach Delay		39.3			33.7			14.5			15.7	
Approach LOS		D			C			B			B	
Queue Length 50th (m)		22.6			19.4		4.4	29.9			16.8	
Queue Length 95th (m)		33.2			35.3		11.0	50.3			25.8	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		619			337		418	731			1367	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.44			0.43		0.14	0.44			0.21	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 20 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

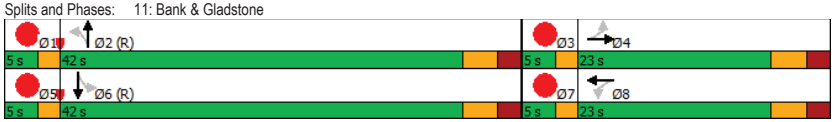
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 23.7	Intersection LOS: C
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Bank & Gladstone



Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	15	0	0	0	34
Future Vol, veh/h	94	15	0	0	0	34
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	94	15	0	0	0	34
Number of Lanes	1	0	0	0	0	1

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.4	6.7
HCM LOS	A	A

Lane	NBLn1	EBLn1
Vol Left, %	0%	0%
Vol Thru, %	0%	86%
Vol Right, %	100%	14%
Sign Control	Stop	Stop
Traffic Vol by Lane	34	109
LT Vol	0	0
Through Vol	0	94
RT Vol	34	15
Lane Flow Rate	34	109
Geometry Grp	1	1
Degree of Util (X)	0.033	0.118
Departure Headway (Hd)	3.524	3.91
Convergence, Y/N	Yes	Yes
Cap	1010	921
Service Time	1.565	1.916
HCM Lane V/C Ratio	0.034	0.118
HCM Control Delay	6.7	7.4
HCM Lane LOS	A	A
HCM 95th-tile Q	0.1	0.4

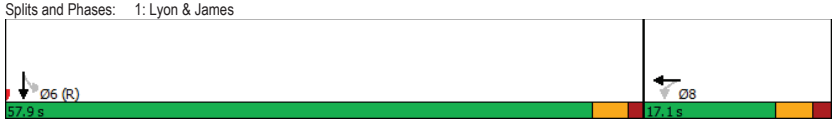
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	48	21	0	0	0	0	0	502	7
Future Volume (vph)	0	0	0	48	21	0	0	0	0	0	502	7
Satd. Flow (prot)	0	0	0	0	1663	0	0	0	0	0	3307	0
Flt Permitted					0.966							
Satd. Flow (perm)	0	0	0	0	1618	0	0	0	0	0	3307	0
Satd. Flow (RTOR)											4	
Lane Group Flow (vph)	0	0	0	0	69	0	0	0	0	0	509	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.8						58.4	
Actuated g/C Ratio					0.14						0.78	
v/c Ratio					0.30						0.20	
Control Delay					29.4						3.3	
Queue Delay					0.0						0.0	
Total Delay					29.4						3.3	
LOS					C						A	
Approach Delay					29.4						3.3	
Approach LOS					C						A	
Queue Length 50th (m)					9.6						9.5	
Queue Length 95th (m)					21.1						16.0	
Internal Link Dist (m)		110.6			164.0			139.6			62.1	
Turn Bay Length (m)												
Base Capacity (vph)					258						2574	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.27						0.20	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 6.4	Intersection LOS: A
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Lyon & James



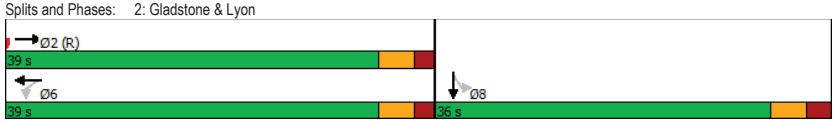
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	248	27	13	316	0	0	0	0	86	313	138
Future Volume (vph)	0	248	27	13	316	0	0	0	0	86	313	138
Satd. Flow (prot)	0	1707	0	0	1742	0	0	0	0	0	3101	0
Flt Permitted					0.985						0.992	
Satd. Flow (perm)	0	1707	0	0	1716	0	0	0	0	0	3083	0
Satd. Flow (RTOR)		10									77	
Lane Group Flow (vph)	0	275	0	0	329	0	0	0	0	0	537	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		23.2		23.6	23.6					23.6	23.6	
Total Split (s)		39.0		39.0	39.0					36.0	36.0	
Total Split (%)		52.0%		52.0%	52.0%					48.0%	48.0%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		Max	Max					Max	Max	
Act Effct Green (s)		33.8			33.8						30.4	
Actuated g/C Ratio		0.45			0.45						0.41	
v/c Ratio		0.36			0.43						0.41	
Control Delay		14.6			13.1						12.0	
Queue Delay		0.0			0.0						0.0	
Total Delay		14.6			13.1						12.0	
LOS		B			B						B	
Approach Delay		14.6			13.1						12.0	
Approach LOS		B			B						B	
Queue Length 50th (m)		24.6			15.8						11.0	
Queue Length 95th (m)		42.1			41.9						21.6	
Internal Link Dist (m)		109.1			166.3			55.5			139.6	
Turn Bay Length (m)												
Base Capacity (vph)		774			773						1295	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.36			0.43						0.41	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 45 (60%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 57.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Gladstone & Lyon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	252	0	0	215	65	79	706	106	0	0	0
Future Volume (vph)	58	252	0	0	215	65	79	706	106	0	0	0
Satd. Flow (prot)	1658	1745	0	0	1587	0	1658	4322	0	0	0	0
Flt Permitted	0.449						0.950					
Satd. Flow (perm)	673	1745	0	0	1587	0	1028	4322	0	0	0	0
Satd. Flow (RTOR)								43				
Lane Group Flow (vph)	58	252	0	0	280	0	79	812	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	41.0	41.0			41.0		34.0	34.0				
Total Split (%)	54.7%	54.7%			54.7%		45.3%	45.3%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	19.8	19.8			19.8		44.3	44.3				
Actuated g/C Ratio	0.26	0.26			0.26		0.59	0.59				
v/c Ratio	0.33	0.55			0.67		0.13	0.32				
Control Delay	26.1	27.7			32.1		9.3	9.6				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	26.1	27.7			32.1		9.3	9.6				
LOS	C	C			C		A	A				
Approach Delay		27.4			32.1			9.6				
Approach LOS		C			C			A				
Queue Length 50th (m)	7.1	33.0			43.0		4.8	17.5				
Queue Length 95th (m)	15.4	47.5			57.7		10.4	23.3				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	318	825			751		607	2570				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.18	0.31			0.37		0.13	0.32				

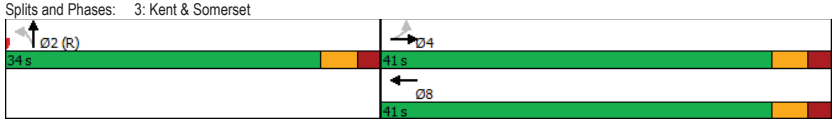
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 50 (67%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Kent & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	93	0	0	0	0	0	848	79	0	0	0
Future Volume (vph)	19	93	0	0	0	0	0	848	79	0	0	0
Satd. Flow (prot)	0	1717	0	0	0	0	0	4598	0	0	0	0
Flt Permitted		0.992										
Satd. Flow (perm)	0	1690	0	0	0	0	0	4598	0	0	0	0
Satd. Flow (RTOR)								40				
Lane Group Flow (vph)	0	112	0	0	0	0	0	927	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		13.6						54.9				
Actuated g/C Ratio		0.18						0.73				
v/c Ratio		0.37						0.27				
Control Delay		29.7						3.4				
Queue Delay		0.0						0.0				
Total Delay		29.7						3.4				
LOS		C						A				
Approach Delay		29.7						3.4				
Approach LOS		C						A				
Queue Length 50th (m)		14.1						11.6				
Queue Length 95th (m)		28.3						14.6				
Internal Link Dist (m)		69.3			21.3			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		371						3377				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.30						0.27				

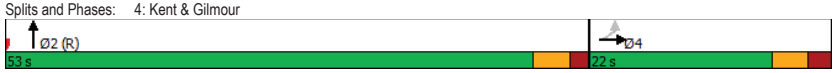
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 6.2	Intersection LOS: A
Intersection Capacity Utilization 47.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	35	58	50	869	0	0	0	0
Future Vol, veh/h	0	0	0	0	35	58	50	869	0	0	0	0
Conflicting Peds, #/hr	25	0	17	17	0	25	95	0	63	63	0	95
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	2293760		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	35	58	50	869	0	0	0	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	-	1064	460	95	0	-
Stage 1	-	969	-	-	-	-
Stage 2	-	95	-	-	-	-
Critical Hdwy	-	6.54	7.14	5.34	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	3.92	3.12	-	-
Pot Cap-1 Maneuver	0	221	469	1044	-	0
Stage 1	0	330	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %					-	
Mov Cap-1 Maneuver	-	0	469	1044	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-
Stage 1	-	0	-	-	-	-
Stage 2	-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	14.6	0.7
HCM LOS	B	

Minor Lane/Major Mvmt	NBL	NBT	WBLn1
Capacity (veh/h)	1044	-	469
HCM Lane V/C Ratio	0.048	-	0.198
HCM Control Delay (s)	8.6	0.2	14.6
HCM Lane LOS	A	A	B
HCM 95th %tile Q(veh)	0.2	-	0.7

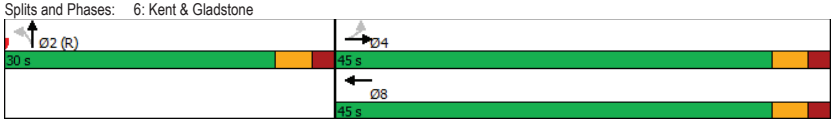
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	250	0	0	246	82	52	746	101	0	0	0
Future Volume (vph)	76	250	0	0	246	82	52	746	101	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1650	0	1658	4555	0	0	0	0
Flt Permitted	0.365						0.950					
Satd. Flow (perm)	613	1728	0	0	1650	0	1471	4555	0	0	0	0
Satd. Flow (RTOR)					34			35				
Lane Group Flow (vph)	76	250	0	0	328	0	52	847	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	45.0	45.0			45.0		30.0	30.0				
Total Split (%)	60.0%	60.0%			60.0%		40.0%	40.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	19.7	19.7			19.7		44.5	44.5				
Actuated g/C Ratio	0.26	0.26			0.26		0.59	0.59				
v/c Ratio	0.47	0.55			0.72		0.06	0.31				
Control Delay	23.1	19.4			35.3		8.8	8.6				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	23.1	19.4			35.3		8.8	8.6				
LOS	C	B			D		A	A				
Approach Delay		20.2			35.3			8.6				
Approach LOS		C			D			A				
Queue Length 50th (m)	5.8	18.9			45.8		2.9	19.6				
Queue Length 95th (m)	9.8	23.9			72.2		9.6	35.3				
Internal Link Dist (m)		166.3			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	323	912			887		873	2719				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.24	0.27			0.37		0.06	0.31				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 23 (31%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 16.7	Intersection LOS: B
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	187	79	33	135	24	25	183	41	5	261	51
Future Volume (vph)	44	187	79	33	135	24	25	183	41	5	261	51
Satd. Flow (prot)	0	1704	1483	1658	1590	0	0	1492	0	0	1480	0
Flt Permitted		0.908		0.515				0.953			0.996	
Satd. Flow (perm)	0	1457	723	601	1590	0	0	1383	0	0	1467	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	231	79	33	159	0	0	249	0	0	317	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5	20.5	20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0	25.0	25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag	Lag	Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		17.9	17.9	17.9	17.9			46.1			46.1	
Actuated g/C Ratio		0.24	0.24	0.24	0.24			0.61			0.61	
v/c Ratio		0.66	0.46	0.23	0.42			0.29			0.35	
Control Delay		28.6	25.9	25.8	26.9			3.3			9.2	
Queue Delay		0.0	0.0	0.0	0.0			0.2			0.0	
Total Delay		28.6	25.9	25.8	26.9			3.5			9.2	
LOS		C	C	C	C			A			A	
Approach Delay		27.9			26.7			3.5			9.2	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		32.1	10.0	4.1	20.5			6.1			19.7	
Queue Length 95th (m)		46.3	20.5	10.5	33.6			8.5			43.1	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)			28.0	15.0								
Base Capacity (vph)		392	194	162	429			849			901	
Starvation Cap Reductn		0	0	0	0			191			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.59	0.41	0.20	0.37			0.38			0.35	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

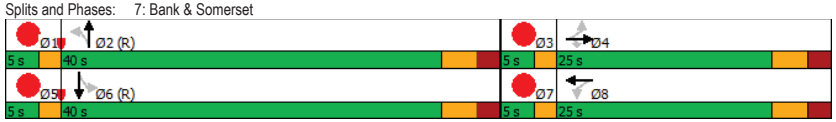
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 69.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Bank & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	11	10	25	243	0	0	342	26
Future Volume (vph)	0	0	0	35	11	10	25	243	0	0	342	26
Satd. Flow (prot)	0	0	0	0	1570	0	0	1674	0	0	1624	0
Flt Permitted					0.970			0.954				
Satd. Flow (perm)	0	0	0	0	1400	0	0	1546	0	0	1624	0
Satd. Flow (RTOR)					10						9	
Lane Group Flow (vph)	0	0	0	0	56	0	0	268	0	0	368	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					17.2			51.6			51.6	
Actuated g/C Ratio					0.23			0.69			0.69	
v/c Ratio					0.17			0.25			0.33	
Control Delay					20.3			5.2			10.5	
Queue Delay					0.0			0.2			0.4	
Total Delay					20.3			5.3			10.9	
LOS					C			A			B	
Approach Delay					20.3			5.3			10.9	
Approach LOS					C			A			B	
Queue Length 50th (m)					5.3			9.6			40.5	
Queue Length 95th (m)					14.2			10.6			26.1	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					362			1064			1121	
Starvation Cap Reductn					0			279			343	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.15			0.34			0.47	

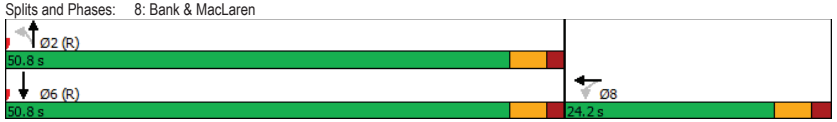
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 9.5	Intersection LOS: A
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Bank & MacLaren



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	70	45	0	0	0	0	263	38	30	342	0
Future Volume (vph)	8	70	45	0	0	0	0	263	38	30	342	0
Satd. Flow (prot)	0	1502	0	0	0	0	0	1549	0	0	1707	0
Flt Permitted		0.997									0.962	
Satd. Flow (perm)	0	1478	0	0	0	0	0	1549	0	0	1600	0
Satd. Flow (RTOR)		38						17				
Lane Group Flow (vph)	0	123	0	0	0	0	0	301	0	0	372	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		16.4						48.3			48.3	
Actuated g/C Ratio		0.22						0.64			0.64	
v/c Ratio		0.35						0.30			0.36	
Control Delay		19.8						11.3			2.8	
Queue Delay		0.0						0.0			0.2	
Total Delay		19.8						11.3			3.1	
LOS		B						B			A	
Approach Delay		19.8						11.3			3.1	
Approach LOS		B						B			A	
Queue Length 50th (m)		10.2						22.2			6.6	
Queue Length 95th (m)		24.3						41.1			9.9	
Internal Link Dist (m)		129.1			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		418						1003			1030	
Starvation Cap Reductn		0						0			205	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.29						0.30			0.45	

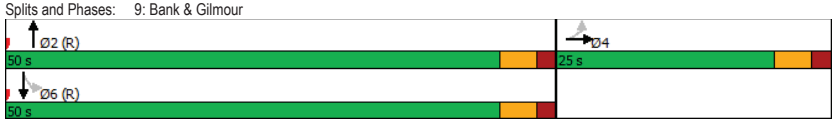
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 6 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 68.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Bank & Gilmour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	61	302	341	51
Future Volume (vph)	0	0	61	302	341	51
Satd. Flow (prot)	0	0	0	1703	1685	0
Flt Permitted				0.992		
Satd. Flow (perm)	0	0	0	1703	1685	0
Lane Group Flow (vph)	0	0	0	363	392	0
Sign Control	Stop			Free	Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 65.4%		ICU Level of Service C
Analysis Period (min) 15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	185	79	41	138	28	90	276	87	15	346	41
Future Volume (vph)	49	185	79	41	138	28	90	276	87	15	346	41
Satd. Flow (prot)	0	2944	0	0	1642	0	1658	1511	0	0	3056	0
Flt Permitted		0.856			0.866		0.511				0.937	
Satd. Flow (perm)	0	2485	0	0	1388	0	690	1511	0	0	2851	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	313	0	0	207	0	90	363	0	0	402	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	28.0	28.0		28.0	28.0		37.0	37.0		37.0	37.0	
Total Split (%)	37.3%	37.3%		37.3%	37.3%		49.3%	49.3%		49.3%	49.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		17.5			17.5		31.5	31.5			31.5	
Actuated g/C Ratio		0.23			0.23		0.42	0.42			0.42	
v/c Ratio		0.54			0.64		0.31	0.57			0.34	
Control Delay		15.9			35.0		18.3	21.0			8.7	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		15.9			35.0		18.3	21.0			8.7	
LOS		B			D		B	C			A	
Approach Delay		15.9			35.0			20.5			8.7	
Approach LOS		B			D			C			A	
Queue Length 50th (m)		8.3			28.6		8.6	39.8			10.5	
Queue Length 95th (m)		13.0			45.5		20.0	66.5			16.8	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		745			416		289	634			1197	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.42			0.50		0.31	0.57			0.34	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 26 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

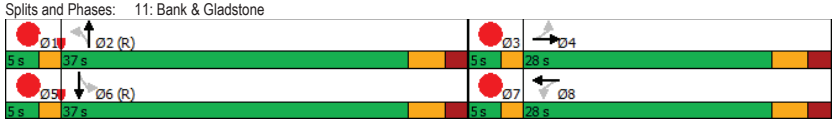
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 79.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 11: Bank & Gladstone



Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	84	30	0	0	0	22
Future Vol, veh/h	84	30	0	0	0	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	30	0	0	0	22
Number of Lanes	1	0	0	0	0	1

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.3	6.7
HCM LOS	A	A

Lane	NBLn1	EBLn1
Vol Left, %	0%	0%
Vol Thru, %	0%	74%
Vol Right, %	100%	26%
Sign Control	Stop	Stop
Traffic Vol by Lane	22	114
LT Vol	0	0
Through Vol	0	84
RT Vol	22	30
Lane Flow Rate	22	114
Geometry Grp	1	1
Degree of Util (X)	0.022	0.121
Departure Headway (Hd)	3.532	3.815
Convergence, Y/N	Yes	Yes
Cap	1008	944
Service Time	1.571	1.819
HCM Lane V/C Ratio	0.022	0.121
HCM Control Delay	6.7	7.3
HCM Lane LOS	A	A
HCM 95th-tile Q	0.1	0.4

Appendix K

Synchro Intersection Worksheets – 2035 Future Total Conditions

CGH TRANSPORTATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	21	0	0	0	0	0	409	25
Future Volume (vph)	0	0	0	34	21	0	0	0	0	0	409	25
Satd. Flow (prot)	0	0	0	0	1628	0	0	0	0	0	3229	0
Flt Permitted					0.970							
Satd. Flow (perm)	0	0	0	0	1600	0	0	0	0	0	3229	0
Satd. Flow (RTOR)											20	
Lane Group Flow (vph)	0	0	0	0	55	0	0	0	0	0	434	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.4						62.7	
Actuated g/C Ratio					0.14						0.84	
v/c Ratio					0.25						0.16	
Control Delay					26.2						2.5	
Queue Delay					0.0						0.0	
Total Delay					26.2						2.5	
LOS					C						A	
Approach Delay					26.2						2.5	
Approach LOS					C						A	
Queue Length 50th (m)					7.5						7.6	
Queue Length 95th (m)					m11.4						13.2	
Internal Link Dist (m)		102.5			161.6			141.5			55.1	
Turn Bay Length (m)												
Base Capacity (vph)					256						2703	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.21						0.16	

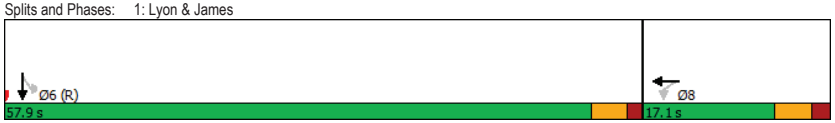
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 16 (21%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 5.1	Intersection LOS: A
Intersection Capacity Utilization 38.9%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 1: Lyon & James



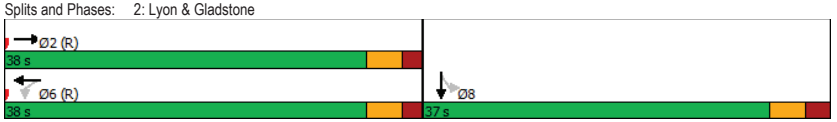
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	185	14	5	146	0	0	0	0	87	159	98
Future Volume (vph)	0	185	14	5	146	0	0	0	0	87	159	98
Satd. Flow (prot)	0	1679	0	0	1709	0	0	0	0	0	3072	0
Flt Permitted					0.992						0.988	
Satd. Flow (perm)	0	1679	0	0	1698	0	0	0	0	0	3038	0
Satd. Flow (RTOR)		6									97	
Lane Group Flow (vph)	0	199	0	0	151	0	0	0	0	0	344	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		17.2		17.2	17.2					22.6	22.6	
Total Split (s)		38.0		38.0	38.0					37.0	37.0	
Total Split (%)		50.7%		50.7%	50.7%					49.3%	49.3%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		C-Max	C-Max					Max	Max	
Act Effct Green (s)		32.8			32.8						31.4	
Actuated g/C Ratio		0.44			0.44						0.42	
v/c Ratio		0.27			0.20						0.26	
Control Delay		14.3			8.4						10.1	
Queue Delay		0.0			0.0						0.0	
Total Delay		14.3			8.4						10.1	
LOS		B			A						B	
Approach Delay		14.3			8.4						10.1	
Approach LOS		B			A						B	
Queue Length 50th (m)		17.6			5.7						12.9	
Queue Length 95th (m)		31.7			14.1						22.1	
Internal Link Dist (m)		110.8			164.9			56.5			141.5	
Turn Bay Length (m)												
Base Capacity (vph)		737			742						1328	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.27			0.20						0.26	

Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 10 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
Natural Cycle: 40
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.27
Intersection Signal Delay: 10.9 — Intersection LOS: B
Intersection Capacity Utilization 35.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Lyon & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	172	0	0	153	51	78	1555	184	0	0	0
Future Volume (vph)	63	172	0	0	153	51	78	1555	184	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1610	0	1642	4534	0	0	0	0
Flt Permitted	0.549						0.950					
Satd. Flow (perm)	874	1728	0	0	1610	0	1072	4534	0	0	0	0
Satd. Flow (RTOR)								45				
Lane Group Flow (vph)	63	172	0	0	204	0	78	1739	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	27.0	27.0			27.0		48.0	48.0				
Total Split (%)	36.0%	36.0%			36.0%		64.0%	64.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	15.9	15.9			15.9		48.2	48.2				
Actuated g/C Ratio	0.21	0.21			0.21		0.64	0.64				
v/c Ratio	0.34	0.47			0.60		0.11	0.59				
Control Delay	29.2	29.5			27.6		8.7	9.2				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	29.2	29.5			27.6		8.7	9.2				
LOS	C	C			C		A	A				
Approach Delay		29.4			27.6			9.1				
Approach LOS		C			C			A				
Queue Length 50th (m)	8.0	22.5			29.8		1.6	12.3				
Queue Length 95th (m)	17.7	37.5			49.4		m13.1	63.3				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	250	495			461		688	2929				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.25	0.35			0.44		0.11	0.59				

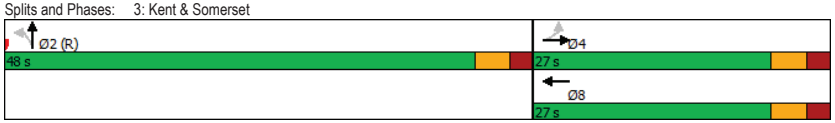
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 66 (88%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

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

Splits and Phases: 3: Kent & Somerset



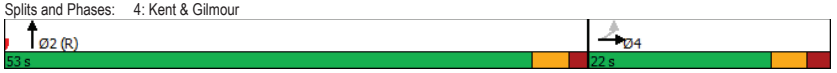
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	72	0	0	0	0	0	1816	17	0	0	0
Future Volume (vph)	17	72	0	0	0	0	0	1816	17	0	0	0
Satd. Flow (prot)	0	1729	0	0	0	0	0	4753	0	0	0	0
Flt Permitted		0.991										
Satd. Flow (perm)	0	1714	0	0	0	0	0	4753	0	0	0	0
Satd. Flow (RTOR)								3				
Lane Group Flow (vph)	0	89	0	0	0	0	0	1833	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		12.4						56.1				
Actuated g/C Ratio		0.17						0.75				
v/c Ratio		0.31						0.52				
Control Delay		29.7						12.3				
Queue Delay		0.0						0.0				
Total Delay		29.7						12.3				
LOS		C						B				
Approach Delay		29.7						12.3				
Approach LOS		C						B				
Queue Length 50th (m)		12.3						60.1				
Queue Length 95th (m)		23.2						114.5				
Internal Link Dist (m)		69.3			25.1			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		377						3557				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.24						0.52				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 5 (7%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 59.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



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	0	0	0	0	16	27	46	1806	0	0	0	0
Future Vol, veh/h	0	0	0	0	16	27	46	1806	0	0	0	0
Conflicting Peds, #/hr	23	0	11	11	0	23	72	0	77	77	0	72
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	1048576		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	7	5	7	2	2	2	2	2
Mvmt Flow	0	0	0	0	16	27	46	1806	0	0	0	0

Major/Minor			Minor1			Major1		
Conflicting Flow All			-	1970	926	72	0	-
Stage 1			-	1898	-	-	-	-
Stage 2			-	72	-	-	-	-
Critical Hdwy			-	6.64	7.2	5.44	-	-
Critical Hdwy Stg 1			-	5.64	-	-	-	-
Critical Hdwy Stg 2			-	-	-	-	-	-
Follow-up Hdwy			-	4.07	3.95	3.17	-	-
Pot Cap-1 Maneuver			0	58	228	1051	-	0
Stage 1			0	110	-	-	-	0
Stage 2			0	-	-	-	-	0
Platoon blocked, %							-	
Mov Cap-1 Maneuver			-	0	228	1051	-	-
Mov Cap-2 Maneuver			-	0	-	-	-	-
Stage 1			-	0	-	-	-	-
Stage 2			-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	24.4	0.2
HCM LOS	C	

Minor Lane/Major Mvmt	NBL	NBTWBLn1
Capacity (veh/h)	1051	- 228
HCM Lane V/C Ratio	0.044	- 0.189
HCM Control Delay (s)	8.6	0 24.4
HCM Lane LOS	A	A C
HCM 95th %tile Q(veh)	0.1	- 0.7

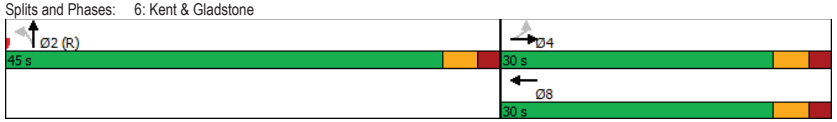
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	187	0	0	88	147	36	1704	97	0	0	0
Future Volume (vph)	83	187	0	0	88	147	36	1704	97	0	0	0
Satd. Flow (prot)	1626	1679	0	0	1463	0	1658	4703	0	0	0	0
Flt Permitted	0.491						0.950					
Satd. Flow (perm)	791	1679	0	0	1463	0	1401	4703	0	0	0	0
Satd. Flow (RTOR)					10			18				
Lane Group Flow (vph)	83	187	0	0	235	0	36	1801	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	30.0	30.0			30.0		45.0	45.0				
Total Split (%)	40.0%	40.0%			40.0%		60.0%	60.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	16.8	16.8			16.8		47.4	47.4				
Actuated g/C Ratio	0.22	0.22			0.22		0.63	0.63				
v/c Ratio	0.47	0.50			0.70		0.04	0.60				
Control Delay	41.2	38.3			32.4		7.0	10.1				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	41.2	38.3			32.4		7.0	10.1				
LOS	D	D			C		A	B				
Approach Delay		39.2			32.4			10.0				
Approach LOS		D			C			B				
Queue Length 50th (m)	13.3	29.8			19.0		1.8	50.5				
Queue Length 95th (m)	19.2	35.0			51.3		6.4	83.4				
Internal Link Dist (m)		164.9			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	259	550			486		885	2980				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.32	0.34			0.48		0.04	0.60				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 36 (48%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 15.6	Intersection LOS: B
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	191	75	21	124	15	16	177	40	2	173	36
Future Volume (vph)	41	191	75	21	124	15	16	177	40	2	173	36
Satd. Flow (prot)	0	1627	1388	1610	1665	0	0	1467	0	0	1465	0
Flt Permitted		0.918		0.502				0.978			0.998	
Satd. Flow (perm)	0	1467	1102	746	1665	0	0	1416	0	0	1460	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	232	75	21	139	0	0	233	0	0	211	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5	20.5	20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0	25.0	25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag	Lag	Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		16.9	16.9	16.9	16.9			47.1			47.1	
Actuated g/C Ratio		0.23	0.23	0.23	0.23			0.63			0.63	
v/c Ratio		0.70	0.30	0.12	0.37			0.26			0.23	
Control Delay		43.2	31.9	22.5	26.1			2.9			7.9	
Queue Delay		0.0	0.0	0.0	0.0			0.2			0.0	
Total Delay		43.2	31.9	22.5	26.1			3.2			7.9	
LOS		D	C	C	C			A			A	
Approach Delay		40.4			25.6			3.2			7.9	
Approach LOS		D			C			A			A	
Queue Length 50th (m)		37.0	11.9	2.5	17.6			3.7			12.0	
Queue Length 95th (m)		58.6	m19.4	7.4	29.6			6.5			27.5	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)			28.0	15.0								
Base Capacity (vph)		395	296	200	448			889			916	
Starvation Cap Reductn		0	0	0	0			228			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.59	0.25	0.10	0.31			0.35			0.23	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 46 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

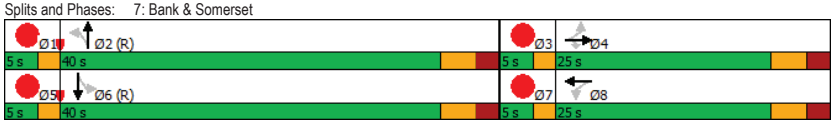
Intersection Summary

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 63.7%	ICU Level of Service B
Analysis Period (min) 15	

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

Splits and Phases: 7: Bank & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	11	4	13	36	220	0	0	248	26
Future Volume (vph)	0	0	0	11	4	13	36	220	0	0	248	26
Satd. Flow (prot)	0	0	0	0	1430	0	0	1695	0	0	1552	0
Flt Permitted					0.981			0.937				
Satd. Flow (perm)	0	0	0	0	1376	0	0	1507	0	0	1552	0
Satd. Flow (RTOR)					13						13	
Lane Group Flow (vph)	0	0	0	0	28	0	0	256	0	0	274	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					15.4			57.5			57.5	
Actuated g/C Ratio					0.21			0.77			0.77	
v/c Ratio					0.10			0.22			0.23	
Control Delay					15.8			2.4			7.4	
Queue Delay					0.0			0.2			0.2	
Total Delay					15.8			2.6			7.6	
LOS					B			A			A	
Approach Delay					15.8			2.6			7.6	
Approach LOS					B			A			A	
Queue Length 50th (m)					1.7			10.3			24.2	
Queue Length 95th (m)					7.7			6.0			24.2	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					358			1155			1192	
Starvation Cap Reductn					0			319			360	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.08			0.31			0.33	

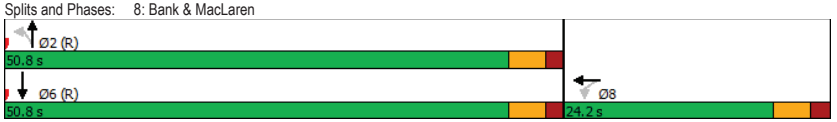
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 42 (56%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.23

Intersection Signal Delay: 5.7	Intersection LOS: A
Intersection Capacity Utilization 58.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Bank & MacLaren



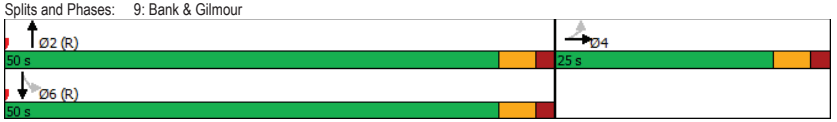
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	71	54	0	0	0	0	232	22	19	254	0
Future Volume (vph)	23	71	54	0	0	0	0	232	22	19	254	0
Satd. Flow (prot)	0	1573	0	0	0	0	0	1536	0	0	1621	0
Flt Permitted		0.992									0.975	
Satd. Flow (perm)	0	1560	0	0	0	0	0	1536	0	0	1565	0
Satd. Flow (RTOR)		37						11				
Lane Group Flow (vph)	0	148	0	0	0	0	0	254	0	0	273	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		13.4						51.3			51.3	
Actuated g/C Ratio		0.18						0.68			0.68	
v/c Ratio		0.48						0.24			0.25	
Control Delay		25.0						3.8			3.2	
Queue Delay		0.0						0.0			0.3	
Total Delay		25.0						3.8			3.5	
LOS		C						A			A	
Approach Delay		25.0						3.8			3.5	
Approach LOS		C						A			A	
Queue Length 50th (m)		15.5						7.2			4.8	
Queue Length 95th (m)		29.4						11.3			9.8	
Internal Link Dist (m)		125.3			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		439						1054			1071	
Starvation Cap Reductn		0						0			377	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.34						0.24			0.39	

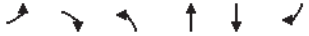
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 37 (49%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 8.3	Intersection LOS: A
Intersection Capacity Utilization 55.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: Bank & Gilmour





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	29	259	290	25
Future Volume (vph)	0	0	29	259	290	25
Satd. Flow (prot)	0	0	0	1682	1637	0
Flt Permitted				0.995		
Satd. Flow (perm)	0	0	0	1682	1637	0
Lane Group Flow (vph)	0	0	0	288	315	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Control Type: Unsignalized			
Intersection Capacity Utilization 50.3%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	174	64	20	106	19	57	248	76	6	254	37
Future Volume (vph)	36	174	64	20	106	19	57	248	76	6	254	37
Satd. Flow (prot)	0	2964	0	0	1579	0	1626	1503	0	0	2966	0
Flt Permitted		0.900			0.918		0.570				0.949	
Satd. Flow (perm)	0	2657	0	0	1446	0	851	1503	0	0	2811	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	274	0	0	145	0	57	324	0	0	297	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	23.0	23.0		23.0	23.0		42.0	42.0		42.0	42.0	
Total Split (%)	30.7%	30.7%		30.7%	30.7%		56.0%	56.0%		56.0%	56.0%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		14.5			14.5		36.5	36.5			36.5	
Actuated g/C Ratio		0.19			0.19		0.49	0.49			0.49	
v/c Ratio		0.53			0.52		0.14	0.44			0.22	
Control Delay		39.3			33.7		11.8	15.0			15.9	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		39.3			33.7		11.8	15.0			15.9	
LOS		D			C		B	B			B	
Approach Delay		39.3			33.7			14.5			15.9	
Approach LOS		D			C			B			B	
Queue Length 50th (m)		22.6			19.4		4.4	29.9			17.7	
Queue Length 95th (m)		33.2			35.3		11.0	50.3			26.9	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		619			337		414	731			1368	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.44			0.43		0.14	0.44			0.22	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 20 (27%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

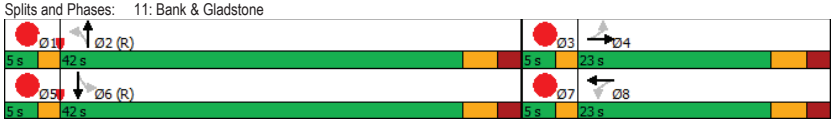
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 23.6	Intersection LOS: C
Intersection Capacity Utilization 72.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Bank & Gladstone



Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	94	15	0	0	0	34
Future Vol, veh/h	94	15	0	0	0	34
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	94	15	0	0	0	34
Number of Lanes	1	0	0	0	0	1

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.4	6.7
HCM LOS	A	A

Lane	NBLn1	EBLn1
Vol Left, %	0%	0%
Vol Thru, %	0%	86%
Vol Right, %	100%	14%
Sign Control	Stop	Stop
Traffic Vol by Lane	34	109
LT Vol	0	0
Through Vol	0	94
RT Vol	34	15
Lane Flow Rate	34	109
Geometry Grp	1	1
Degree of Util (X)	0.033	0.118
Departure Headway (Hd)	3.524	3.91
Convergence, Y/N	Yes	Yes
Cap	1010	921
Service Time	1.565	1.916
HCM Lane V/C Ratio	0.034	0.118
HCM Control Delay	6.7	7.4
HCM Lane LOS	A	A
HCM 95th-tile Q	0.1	0.4

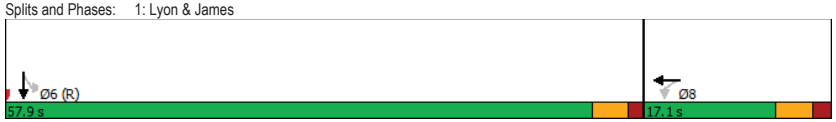
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	48	21	0	0	0	0	0	528	7
Future Volume (vph)	0	0	0	48	21	0	0	0	0	0	528	7
Satd. Flow (prot)	0	0	0	0	1663	0	0	0	0	0	3307	0
Flt Permitted					0.966							
Satd. Flow (perm)	0	0	0	0	1618	0	0	0	0	0	3307	0
Satd. Flow (RTOR)											4	
Lane Group Flow (vph)	0	0	0	0	69	0	0	0	0	0	535	0
Turn Type				Perm	NA						NA	
Protected Phases					8						6	
Permitted Phases				8						6		
Detector Phase				8	8					6	6	
Switch Phase												
Minimum Initial (s)				10.0	10.0					10.0	10.0	
Minimum Split (s)				17.1	17.1					29.7	29.7	
Total Split (s)				17.1	17.1					57.9	57.9	
Total Split (%)				22.8%	22.8%					77.2%	77.2%	
Yellow Time (s)				3.3	3.3					3.3	3.3	
All-Red Time (s)				1.8	1.8					1.4	1.4	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.1						4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None					C-Max	C-Max	
Act Effct Green (s)					10.8						58.4	
Actuated g/C Ratio					0.14						0.78	
v/c Ratio					0.30						0.21	
Control Delay					29.4						3.3	
Queue Delay					0.0						0.0	
Total Delay					29.4						3.3	
LOS					C						A	
Approach Delay					29.4						3.3	
Approach LOS					C						A	
Queue Length 50th (m)					9.6						10.2	
Queue Length 95th (m)					21.1						16.9	
Internal Link Dist (m)		110.6			164.0			139.6			62.1	
Turn Bay Length (m)												
Base Capacity (vph)					258						2574	
Starvation Cap Reductn					0						0	
Spillback Cap Reductn					0						0	
Storage Cap Reductn					0						0	
Reduced v/c Ratio					0.27						0.21	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2: and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 6.3	Intersection LOS: A
Intersection Capacity Utilization 39.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Lyon & James



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	248	27	13	316	0	0	0	0	86	329	138
Future Volume (vph)	0	248	27	13	316	0	0	0	0	86	329	138
Satd. Flow (prot)	0	1707	0	0	1742	0	0	0	0	0	3109	0
Flt Permitted					0.985						0.992	
Satd. Flow (perm)	0	1707	0	0	1716	0	0	0	0	0	3092	0
Satd. Flow (RTOR)		10									73	
Lane Group Flow (vph)	0	275	0	0	329	0	0	0	0	0	553	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			6						8	
Permitted Phases				6						8		
Detector Phase		2		6	6					8	8	
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0					10.0	10.0	
Minimum Split (s)		23.2		23.6	23.6					23.6	23.6	
Total Split (s)		39.0		39.0	39.0					36.0	36.0	
Total Split (%)		52.0%		52.0%	52.0%					48.0%	48.0%	
Yellow Time (s)		3.3		3.3	3.3					3.3	3.3	
All-Red Time (s)		1.9		1.9	1.9					2.3	2.3	
Lost Time Adjust (s)		0.0			0.0						0.0	
Total Lost Time (s)		5.2			5.2						5.6	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		C-Max		Max	Max					Max	Max	
Act Effct Green (s)		33.8			33.8						30.4	
Actuated g/C Ratio		0.45			0.45						0.41	
v/c Ratio		0.36			0.43						0.43	
Control Delay		14.6			13.1						12.3	
Queue Delay		0.0			0.0						0.0	
Total Delay		14.6			13.1						12.3	
LOS		B			B						B	
Approach Delay		14.6			13.1						12.3	
Approach LOS		B			B						B	
Queue Length 50th (m)		24.6			15.8						11.7	
Queue Length 95th (m)		42.1			41.9						22.3	
Internal Link Dist (m)		109.1			166.3			55.5			139.6	
Turn Bay Length (m)												
Base Capacity (vph)		774			773						1296	
Starvation Cap Reductn		0			0						0	
Spillback Cap Reductn		0			0						0	
Storage Cap Reductn		0			0						0	
Reduced v/c Ratio		0.36			0.43						0.43	

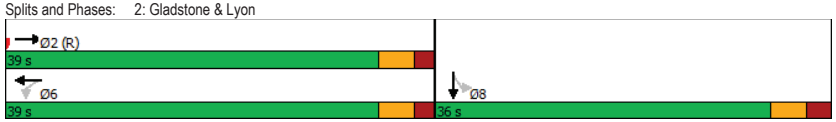
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 45 (60%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 58.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Gladstone & Lyon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	252	0	0	215	65	79	706	106	0	0	0
Future Volume (vph)	58	252	0	0	215	65	79	706	106	0	0	0
Satd. Flow (prot)	1658	1745	0	0	1587	0	1658	4322	0	0	0	0
Flt Permitted	0.449						0.950					
Satd. Flow (perm)	673	1745	0	0	1587	0	1028	4322	0	0	0	0
Satd. Flow (RTOR)								43				
Lane Group Flow (vph)	58	252	0	0	280	0	79	812	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.5	21.5			21.5		21.4	21.4				
Total Split (s)	41.0	41.0			41.0		34.0	34.0				
Total Split (%)	54.7%	54.7%			54.7%		45.3%	45.3%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.2	2.2			2.2		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.5	5.5			5.5		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	19.8	19.8			19.8		44.3	44.3				
Actuated g/C Ratio	0.26	0.26			0.26		0.59	0.59				
v/c Ratio	0.33	0.55			0.67		0.13	0.32				
Control Delay	26.1	27.7			32.1		9.3	9.6				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	26.1	27.7			32.1		9.3	9.6				
LOS	C	C			C		A	A				
Approach Delay		27.4			32.1			9.6				
Approach LOS		C			C			A				
Queue Length 50th (m)	7.1	33.0			43.0		4.8	17.5				
Queue Length 95th (m)	15.4	47.5			57.8		10.5	23.3				
Internal Link Dist (m)		61.7			174.8			152.2			110.1	
Turn Bay Length (m)	25.0						40.0					
Base Capacity (vph)	318	825			751		607	2570				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.18	0.31			0.37		0.13	0.32				

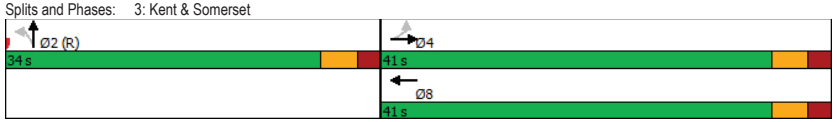
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 50 (67%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Kent & Somerset



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	93	0	0	0	0	0	848	79	0	0	0
Future Volume (vph)	19	93	0	0	0	0	0	848	79	0	0	0
Satd. Flow (prot)	0	1717	0	0	0	0	0	4598	0	0	0	0
Flt Permitted		0.992										
Satd. Flow (perm)	0	1690	0	0	0	0	0	4598	0	0	0	0
Satd. Flow (RTOR)								40				
Lane Group Flow (vph)	0	112	0	0	0	0	0	927	0	0	0	0
Turn Type	Perm	NA						NA				
Protected Phases		4						2				
Permitted Phases	4											
Detector Phase	4	4						2				
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0				
Minimum Split (s)	21.5	21.5						35.1				
Total Split (s)	22.0	22.0						53.0				
Total Split (%)	29.3%	29.3%						70.7%				
Yellow Time (s)	3.3	3.3						3.3				
All-Red Time (s)	2.2	2.2						1.8				
Lost Time Adjust (s)		0.0						0.0				
Total Lost Time (s)		5.5						5.1				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max				
Act Effct Green (s)		13.6						54.9				
Actuated g/C Ratio		0.18						0.73				
v/c Ratio		0.37						0.27				
Control Delay		29.7						3.4				
Queue Delay		0.0						0.0				
Total Delay		29.7						3.4				
LOS		C						A				
Approach Delay		29.7						3.4				
Approach LOS		C						A				
Queue Length 50th (m)		14.1						11.6				
Queue Length 95th (m)		28.3						14.6				
Internal Link Dist (m)		69.3			21.3			57.8			152.2	
Turn Bay Length (m)												
Base Capacity (vph)		371						3377				
Starvation Cap Reductn		0						0				
Spillback Cap Reductn		0						0				
Storage Cap Reductn		0						0				
Reduced v/c Ratio		0.30						0.27				

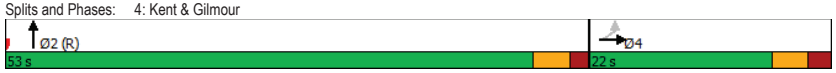
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBT and 6:, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 6.2	Intersection LOS: A
Intersection Capacity Utilization 47.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 4: Kent & Gilmour



Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	0	35	58	50	869	0	0	0	0
Future Vol, veh/h	0	0	0	0	35	58	50	869	0	0	0	0
Conflicting Peds, #/hr	25	0	17	17	0	25	95	0	63	63	0	95
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	2293760		-	-	0	-	-	0	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	0	35	58	50	869	0	0	0	0

Major/Minor	Minor1			Major1		
Conflicting Flow All	-	1064	460	95	0	-
Stage 1	-	969	-	-	-	-
Stage 2	-	95	-	-	-	-
Critical Hdwy	-	6.54	7.14	5.34	-	-
Critical Hdwy Stg 1	-	5.54	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4.02	3.92	3.12	-	-
Pot Cap-1 Maneuver	0	221	469	1044	-	0
Stage 1	0	330	-	-	-	0
Stage 2	0	-	-	-	-	0
Platoon blocked, %					-	
Mov Cap-1 Maneuver	-	0	469	1044	-	-
Mov Cap-2 Maneuver	-	0	-	-	-	-
Stage 1	-	0	-	-	-	-
Stage 2	-	0	-	-	-	-

Approach	WB	NB
HCM Control Delay, s	14.6	0.7
HCM LOS	B	

Minor Lane/Major Mvmt	NBL	NBT	WBLn1
Capacity (veh/h)	1044	-	469
HCM Lane V/C Ratio	0.048	-	0.198
HCM Control Delay (s)	8.6	0.2	14.6
HCM Lane LOS	A	A	B
HCM 95th %tile Q(veh)	0.2	-	0.7

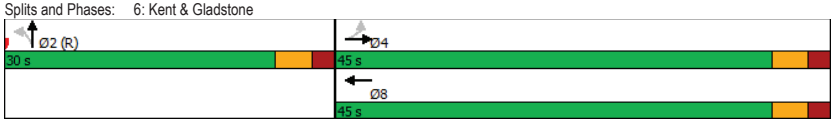
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	250	0	0	246	82	52	746	101	0	0	0
Future Volume (vph)	76	250	0	0	246	82	52	746	101	0	0	0
Satd. Flow (prot)	1658	1728	0	0	1650	0	1658	4555	0	0	0	0
Flt Permitted	0.365						0.950					
Satd. Flow (perm)	613	1728	0	0	1650	0	1471	4555	0	0	0	0
Satd. Flow (RTOR)					34			35				
Lane Group Flow (vph)	76	250	0	0	328	0	52	847	0	0	0	0
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Detector Phase	4	4			8		2	2				
Switch Phase												
Minimum Initial (s)	10.0	10.0			10.0		10.0	10.0				
Minimum Split (s)	21.4	21.4			20.4		21.4	21.4				
Total Split (s)	45.0	45.0			45.0		30.0	30.0				
Total Split (%)	60.0%	60.0%			60.0%		40.0%	40.0%				
Yellow Time (s)	3.3	3.3			3.3		3.3	3.3				
All-Red Time (s)	2.1	2.1			2.1		2.1	2.1				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.4	5.4			5.4		5.4	5.4				
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None		C-Max	C-Max				
Act Effct Green (s)	19.7	19.7			19.7		44.5	44.5				
Actuated g/C Ratio	0.26	0.26			0.26		0.59	0.59				
v/c Ratio	0.47	0.55			0.72		0.06	0.31				
Control Delay	23.0	19.3			35.3		8.8	8.6				
Queue Delay	0.0	0.0			0.0		0.0	0.0				
Total Delay	23.0	19.3			35.3		8.8	8.6				
LOS	C	B			D		A	A				
Approach Delay		20.2			35.3			8.6				
Approach LOS		C			D			A				
Queue Length 50th (m)	5.8	18.9			45.8		2.9	19.6				
Queue Length 95th (m)	9.9	24.0			72.1		9.6	35.3				
Internal Link Dist (m)		166.3			173.9			90.5			139.7	
Turn Bay Length (m)	30.0						40.0					
Base Capacity (vph)	323	912			887		873	2719				
Starvation Cap Reductn	0	0			0		0	0				
Spillback Cap Reductn	0	0			0		0	0				
Storage Cap Reductn	0	0			0		0	0				
Reduced v/c Ratio	0.24	0.27			0.37		0.06	0.31				

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 23 (31%), Referenced to phase 2:NBTL and 6:, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 16.7	Intersection LOS: B
Intersection Capacity Utilization 59.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 6: Kent & Gladstone



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	187	79	33	135	24	25	193	41	5	261	51
Future Volume (vph)	44	187	79	33	135	24	25	193	41	5	261	51
Satd. Flow (prot)	0	1704	1483	1658	1590	0	0	1499	0	0	1480	0
Flt Permitted		0.908		0.515				0.955			0.996	
Satd. Flow (perm)	0	1457	723	601	1590	0	0	1394	0	0	1467	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	231	79	33	159	0	0	259	0	0	317	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5	20.5	20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	25.0	25.0	25.0	25.0	25.0		40.0	40.0		40.0	40.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%		53.3%	53.3%		53.3%	53.3%	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.5	5.5	5.5	5.5			5.5			5.5	
Lead/Lag	Lag	Lag	Lag	Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		17.9	17.9	17.9	17.9			46.1			46.1	
Actuated g/C Ratio		0.24	0.24	0.24	0.24			0.61			0.61	
v/c Ratio		0.66	0.46	0.23	0.42			0.30			0.35	
Control Delay		28.6	25.9	25.8	26.9			3.3			9.2	
Queue Delay		0.0	0.0	0.0	0.0			0.2			0.0	
Total Delay		28.6	25.9	25.8	26.9			3.5			9.2	
LOS		C	C	C	C			A			A	
Approach Delay		27.9			26.7			3.5			9.2	
Approach LOS		C			C			A			A	
Queue Length 50th (m)		32.1	10.0	4.1	20.5			6.4			19.7	
Queue Length 95th (m)		46.3	20.5	10.5	33.6			8.6			43.1	
Internal Link Dist (m)		174.8			68.0			65.6			106.3	
Turn Bay Length (m)			28.0	15.0								
Base Capacity (vph)		392	194	162	429			856			901	
Starvation Cap Reductn		0	0	0	0			186			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.59	0.41	0.20	0.37			0.39			0.35	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

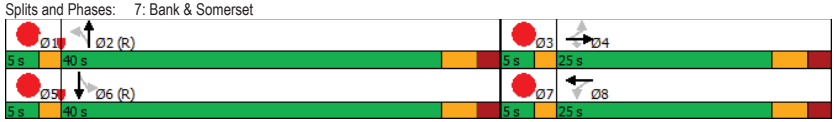
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 16.3	Intersection LOS: B
Intersection Capacity Utilization 69.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Bank & Somerset



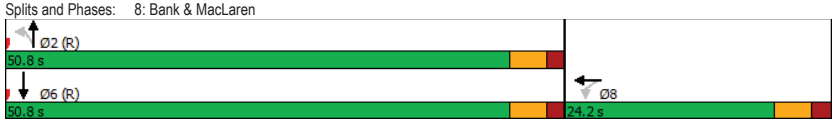
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	35	11	10	25	255	0	0	342	26
Future Volume (vph)	0	0	0	35	11	10	25	255	0	0	342	26
Satd. Flow (prot)	0	0	0	0	1570	0	0	1675	0	0	1624	0
Flt Permitted					0.970			0.955				
Satd. Flow (perm)	0	0	0	0	1400	0	0	1550	0	0	1624	0
Satd. Flow (RTOR)					10						9	
Lane Group Flow (vph)	0	0	0	0	56	0	0	280	0	0	368	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Detector Phase				8	8		2	2			6	
Switch Phase												
Minimum Initial (s)				10.0	10.0		10.0	10.0			10.0	
Minimum Split (s)				24.2	24.2		18.0	18.0			18.0	
Total Split (s)				24.2	24.2		50.8	50.8			50.8	
Total Split (%)				32.3%	32.3%		67.7%	67.7%			67.7%	
Yellow Time (s)				3.3	3.3		3.3	3.3			3.3	
All-Red Time (s)				1.9	1.9		1.7	1.7			1.7	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					5.2			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode				None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)					17.2			51.6			51.6	
Actuated g/C Ratio					0.23			0.69			0.69	
v/c Ratio					0.17			0.26			0.33	
Control Delay					20.3			5.1			10.5	
Queue Delay					0.0			0.2			0.4	
Total Delay					20.3			5.2			10.9	
LOS					C			A			B	
Approach Delay					20.3			5.2			10.9	
Approach LOS					C			A			B	
Queue Length 50th (m)					5.3			9.7			40.5	
Queue Length 95th (m)					14.2			10.7			26.1	
Internal Link Dist (m)		130.7			122.8			60.9			65.6	
Turn Bay Length (m)												
Base Capacity (vph)					362			1067			1121	
Starvation Cap Reductn					0			264			343	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.15			0.35			0.47	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 9.4	Intersection LOS: A
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: Bank & MacLaren



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	70	45	0	0	0	0	277	38	30	342	0
Future Volume (vph)	8	70	45	0	0	0	0	277	38	30	342	0
Satd. Flow (prot)	0	1502	0	0	0	0	0	1556	0	0	1707	0
Flt Permitted		0.997									0.960	
Satd. Flow (perm)	0	1478	0	0	0	0	0	1556	0	0	1599	0
Satd. Flow (RTOR)		38						16				
Lane Group Flow (vph)	0	123	0	0	0	0	0	315	0	0	372	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Detector Phase	4	4						2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0						10.0		10.0	10.0	
Minimum Split (s)	23.2	23.2						20.1		20.1	20.1	
Total Split (s)	25.0	25.0						50.0		50.0	50.0	
Total Split (%)	33.3%	33.3%						66.7%		66.7%	66.7%	
Yellow Time (s)	3.3	3.3						3.3		3.3	3.3	
All-Red Time (s)	1.9	1.9						1.8		1.8	1.8	
Lost Time Adjust (s)		0.0						0.0			0.0	
Total Lost Time (s)		5.2						5.1			5.1	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None						C-Max		C-Max	C-Max	
Act Effct Green (s)		16.4						48.3			48.3	
Actuated g/C Ratio		0.22						0.64			0.64	
v/c Ratio		0.35						0.31			0.36	
Control Delay		19.8						11.7			2.8	
Queue Delay		0.0						0.0			0.2	
Total Delay		19.8						11.7			3.1	
LOS		B						B			A	
Approach Delay		19.8						11.7			3.1	
Approach LOS		B						B			A	
Queue Length 50th (m)		10.2						24.1			6.6	
Queue Length 95th (m)		24.3						43.8			9.9	
Internal Link Dist (m)		129.1			69.2			57.1			60.9	
Turn Bay Length (m)												
Base Capacity (vph)		418						1007			1029	
Starvation Cap Reductn		0						0			204	
Spillback Cap Reductn		0						0			0	
Storage Cap Reductn		0						0			0	
Reduced v/c Ratio		0.29						0.31			0.45	

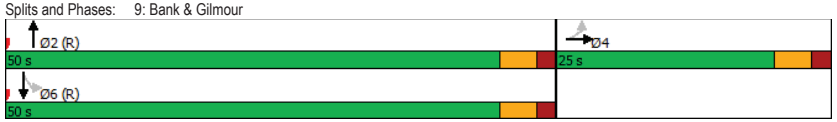
Intersection Summary

Cycle Length: 75
Actuated Cycle Length: 75
Offset: 6 (8%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 9.0	Intersection LOS: A
Intersection Capacity Utilization 68.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: Bank & Gilmour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	61	318	341	51
Future Volume (vph)	0	0	61	318	341	51
Satd. Flow (prot)	0	0	0	1703	1685	0
Flt Permitted				0.992		
Satd. Flow (perm)	0	0	0	1703	1685	0
Lane Group Flow (vph)	0	0	0	379	392	0
Sign Control	Stop			Free	Free	

Intersection Summary		
Control Type: Unsignalized		
Intersection Capacity Utilization 66.3%		ICU Level of Service C
Analysis Period (min) 15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	185	79	41	138	28	90	289	87	15	346	41
Future Volume (vph)	49	185	79	41	138	28	90	289	87	15	346	41
Satd. Flow (prot)	0	2944	0	0	1642	0	1658	1517	0	0	3056	0
Flt Permitted		0.856			0.866		0.511				0.936	
Satd. Flow (perm)	0	2485	0	0	1388	0	690	1517	0	0	2849	0
Satd. Flow (RTOR)												
Lane Group Flow (vph)	0	313	0	0	207	0	90	376	0	0	402	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)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	20.5	20.5		20.5	20.5		20.5	20.5		20.5	20.5	
Total Split (s)	28.0	28.0		28.0	28.0		37.0	37.0		37.0	37.0	
Total Split (%)	37.3%	37.3%		37.3%	37.3%		49.3%	49.3%		49.3%	49.3%	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.2	2.2		2.2	2.2		2.2	2.2		2.2	2.2	
Lost Time Adjust (s)		0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)		5.5			5.5		5.5	5.5			5.5	
Lead/Lag	Lag	Lag		Lag	Lag		Lag	Lag		Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		17.5			17.5		31.5	31.5			31.5	
Actuated g/C Ratio		0.23			0.23		0.42	0.42			0.42	
v/c Ratio		0.54			0.64		0.31	0.59			0.34	
Control Delay		15.9			35.0		18.3	21.5			8.7	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		15.9			35.0		18.3	21.5			8.7	
LOS		B			D		B	C			A	
Approach Delay		15.9			35.0			20.9			8.7	
Approach LOS		B			D			C			A	
Queue Length 50th (m)		8.3			28.6		8.6	41.7			10.5	
Queue Length 95th (m)		13.0			45.5		20.0	69.3			16.8	
Internal Link Dist (m)		173.9			70.9			108.7			139.2	
Turn Bay Length (m)							38.0					
Base Capacity (vph)		745			416		289	637			1196	
Starvation Cap Reductn		0			0		0	0			0	
Spillback Cap Reductn		0			0		0	0			0	
Storage Cap Reductn		0			0		0	0			0	
Reduced v/c Ratio		0.42			0.50		0.31	0.59			0.34	

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 26 (35%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated

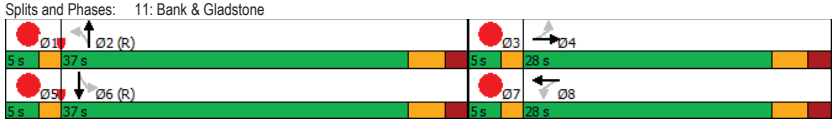
Lane Group	Ø1	Ø3	Ø5	Ø7
Lane Configurations				
Traffic Volume (vph)				
Future Volume (vph)				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Satd. Flow (RTOR)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	3	5	7
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	1.0	1.0	1.0	1.0
Minimum Split (s)	3.0	3.0	3.0	3.0
Total Split (s)	5.0	5.0	5.0	5.0
Total Split (%)	7%	7%	7%	7%
Yellow Time (s)	2.0	2.0	2.0	2.0
All-Red Time (s)	0.0	0.0	0.0	0.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
Control Delay				
Queue Delay				
Total Delay				
LOS				
Approach Delay				
Approach LOS				
Queue Length 50th (m)				
Queue Length 95th (m)				
Internal Link Dist (m)				
Turn Bay Length (m)				
Base Capacity (vph)				
Starvation Cap Reductn				
Spillback Cap Reductn				
Storage Cap Reductn				
Reduced v/c Ratio				

Intersection Summary

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 18.3	Intersection LOS: B
Intersection Capacity Utilization 79.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 11: Bank & Gladstone



Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	84	30	0	0	0	22
Future Vol, veh/h	84	30	0	0	0	22
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	30	0	0	0	22
Number of Lanes	1	0	0	0	0	1

Approach	EB	NB
Opposing Approach		
Opposing Lanes	0	0
Conflicting Approach Left		EB
Conflicting Lanes Left	0	1
Conflicting Approach Right	NB	
Conflicting Lanes Right	1	0
HCM Control Delay	7.3	6.7
HCM LOS	A	A

Lane	NBLn1	EBLn1
Vol Left, %	0%	0%
Vol Thru, %	0%	74%
Vol Right, %	100%	26%
Sign Control	Stop	Stop
Traffic Vol by Lane	22	114
LT Vol	0	0
Through Vol	0	84
RT Vol	22	30
Lane Flow Rate	22	114
Geometry Grp	1	1
Degree of Util (X)	0.022	0.121
Departure Headway (Hd)	3.532	3.815
Convergence, Y/N	Yes	Yes
Cap	1008	944
Service Time	1.571	1.819
HCM Lane V/C Ratio	0.022	0.121
HCM Control Delay	6.7	7.3
HCM Lane LOS	A	A
HCM 95th-tile Q	0.1	0.4

Appendix L

TDM Checklist

CGH TRANSPORTATION

TDM-Supportive Development Design and Infrastructure Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☐
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☐
	1.2	**Facilities for walking & cycling**	
REQUIRED	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 *(see Official Plan policy 4.3.3)*	☑
REQUIRED	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 *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Non-residential developments*	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 *(see Official Plan policy 4.3.10)*	☑
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 *(see Official Plan policy 4.3.10)*	☑
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 *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☐
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
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	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
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)	☐

	TDM-supportive design & infrastructure measures: *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
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 *(see Zoning By-law Section 111)*	☑
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 *(see Zoning By-law Section 111)*	☑
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	☐
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	☐
	2.2	**Secure bicycle parking**	
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 *(see Zoning By-law Section 111)*	☐
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)	☐
	2.3	**Shower & change facilities**	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	☐
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	☐
	2.4	**Bicycle repair station**	
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)	☐

	TDM-supportive design & infrastructure measures: *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
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	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
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	☐
	4.2	**Carpool parking**	
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	☐
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐

	TDM-supportive design & infrastructure measures: *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	6. PARKING		
	6.1 Number of parking spaces		
REQUIRED	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	☑
BASIC	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	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	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 *(see Zoning By-law Section 111)*	☐
	6.2 Separate long-term & short-term parking areas		
BETTER	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)	☐
	7. OTHER		
	7.1 On-site amenities to minimize off-site trips		
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☐

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

	TDM-supportive design & infrastructure measures: *Residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
	1. WALKING & CYCLING: ROUTES		
	1.1 Building location & access points		
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☑
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☑
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☐
	1.2 Facilities for walking & cycling		
REQUIRED	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 *(see Official Plan policy 4.3.3)*	☑
REQUIRED	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 *(see Official Plan policy 4.3.12)*	☑

		TDM-supportive design & infrastructure measures: *Residential developments*	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 *(see Official Plan policy 4.3.10)*	☑
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 *(see Official Plan policy 4.3.10)*	☑
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 *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☐
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☐
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	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
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)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
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 *(see Zoning By-law Section 111)*	☑
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 *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☑
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	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)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
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	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
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	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	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	☑
BASIC	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	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	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 *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

- BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users
- BETTER — 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

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		1.	**TDM PROGRAM MANAGEMENT**	
		1.1	**Program coordinator**	
BASIC	★	1.1.1	Designate an internal coordinator, or contract with an external coordinator	☐
		1.2	**Travel surveys**	
BETTER		1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2.	**WALKING AND CYCLING**	
		2.1	**Information on walking/cycling routes & destinations**	
BASIC		2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances	☐
		2.2	**Bicycle skills training**	
			Commuter travel	
BETTER	★	2.2.1	Offer on-site cycling courses for commuters, or subsidize off-site courses	☐
		2.3	**Valet bike parking**	
			Visitor travel	
BETTER		2.3.1	Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	☐

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC	3.1.1	Display relevant transit schedules and route maps at entrances	☐
BASIC	3.1.2	Provide online links to OC Transpo and STO information	☐
BETTER	3.1.3	Provide real-time arrival information display at entrances	☐
		3.2 Transit fare incentives	
		Commuter travel	
BETTER	3.2.1	Offer preloaded PRESTO cards to encourage commuters to use transit	☐
BETTER ★	3.2.2	Subsidize or reimburse monthly transit pass purchases by employees	☐
		Visitor travel	
BETTER	3.2.3	Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐
		3.3 Enhanced public transit service	
		Commuter travel	
BETTER	3.3.1	Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐
		Visitor travel	
BETTER	3.3.2	Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐
		3.4 Private transit service	
		Commuter travel	
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)	☐
		Visitor travel	
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)	☐

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		4. RIDESHARING	
		4.1 Ridematching service	
		Commuter travel	
BASIC ★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	☐
		4.2 Carpool parking price incentives	
		Commuter travel	
BETTER	4.2.1	Provide discounts on parking costs for registered carpools	☐
		4.3 Vanpool service	
		Commuter travel	
BETTER	4.3.1	Provide a vanpooling service for long-distance commuters	☐
		5. CARSHARING & BIKESHARING	
		5.1 Bikeshare stations & memberships	
BETTER	5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	☐
		Commuter travel	
BETTER	5.1.2	Provide employees with bikeshare memberships for local business travel	☐
		5.2 Carshare vehicles & memberships	
		Commuter travel	
BETTER	5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	☐
BETTER	5.2.2	Provide employees with carshare memberships for local business travel	☐
		6. PARKING	
		6.1 Priced parking	
		Commuter travel	
BASIC ★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	☐
BASIC	6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	☐
		Visitor travel	
BETTER	6.1.3	Charge for short-term parking (hourly)	☐

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		7.	**TDM MARKETING & COMMUNICATIONS**	
		7.1	**Multimodal travel information**	
			Commuter travel	
BASIC	★	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	☑
			Visitor travel	
BETTER	★	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	☐
		7.2	**Personalized trip planning**	
			Commuter travel	
BETTER	★	7.2.1	Offer personalized trip planning to new/relocating employees	☐
		7.3	**Promotions**	
			Commuter travel	
BETTER		7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	☐
		8.	**OTHER INCENTIVES & AMENITIES**	
		8.1	**Emergency ride home**	
			Commuter travel	
BETTER	★	8.1.1	Provide emergency ride home service to non-driving commuters	☐
		8.2	**Alternative work arrangements**	
			Commuter travel	
BASIC	★	8.2.1	Encourage flexible work hours	☐
BETTER		8.2.2	Encourage compressed workweeks	☐
BETTER	★	8.2.3	Encourage telework	☐
		8.3	**Local business travel options**	
			Commuter travel	
BASIC	★	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	☐
		8.4	**Commuter incentives**	
			Commuter travel	
BETTER		8.4.1	Offer employees a taxable, mode-neutral commuting allowance	☐
		8.5	**On-site amenities**	
			Commuter travel	
BETTER		8.5.1	Provide on-site amenities/services to minimize mid-day or mid-commute errands	☐

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

- BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users
- BETTER — 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

			TDM measures: *Residential developments*	Check if proposed & add descriptions
		1.	**TDM PROGRAM MANAGEMENT**	
		1.1	**Program coordinator**	
BASIC	★	1.1.1	Designate an internal coordinator, or contract with an external coordinator	☐
		1.2	**Travel surveys**	
BETTER		1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2.	**WALKING AND CYCLING**	
		2.1	**Information on walking/cycling routes & destinations**	
BASIC		2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☑
		2.2	**Bicycle skills training**	
BETTER		2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☐

		TDM measures: *Residential developments*	Check if proposed & add descriptions
	3.	**TRANSIT**	
	3.1	**Transit information**	
BASIC	3.1.1	Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☑
BETTER	3.1.2	Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
	3.2	**Transit fare incentives**	
BASIC ★	3.2.1	Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☐
BETTER	3.2.2	Offer at least one year of free monthly transit passes on residence purchase/move-in	☑
	3.3	**Enhanced public transit service**	
BETTER ★	3.3.1	Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
	3.4	**Private transit service**	
BETTER	3.4.1	Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
	4.	**CARSHARING & BIKESHARING**	
	4.1	**Bikeshare stations & memberships**	
BETTER	4.1.1	Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER	4.1.2	Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
	4.2	**Carshare vehicles & memberships**	
BETTER	4.2.1	Contract with provider to install on-site carshare vehicles and promote their use by residents	☐
BETTER	4.2.2	Provide residents with carshare memberships, either free or subsidized	☐
	5.	**PARKING**	
	5.1	**Priced parking**	
BASIC ★	5.1.1	Unbundle parking cost from purchase price *(condominium)*	☐
BASIC ★	5.1.2	Unbundle parking cost from monthly rent *(multi-family)*	☑

		TDM measures: *Residential developments*	Check if proposed & add descriptions
	6.	**TDM MARKETING & COMMUNICATIONS**	
	6.1	**Multimodal travel information**	
BASIC ★	6.1.1	Provide a multimodal travel option information package to new residents	☑
	6.2	**Personalized trip planning**	
BETTER ★	6.2.1	Offer personalized trip planning to new residents	☐

Appendix M

MMLOS Analysis

CGH TRANSPORTATION

Multi-Modal Level of Service - Intersections Form

Consultant	**CGH Transportation Inc.**	**Project**	**381 Kent Street**
Scenario	**Existing/Future**	**Date**	**8/30/2023**
Comments			

INTERSECTIONS		Kent & Somerset				Kent & Gilmour				Kent & Gladstone				Bank & Somerset				Bank & MacLaren			
Crossing Side		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Pedestrian	Lanes	3	4	4	3	3	3	0 - 2	0 - 2	3	4	4	4	4	0 - 2	3	3	3	3	0 - 2	0 - 2
	Median	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
	Conflicting Left Turns	Permissive	No left turn / Prohib.	No left turn / Prohib.	Permissive	Permissive	No left turn / Prohib.	No left turn / Prohib.	No left turn / Prohib.	Permissive	No left turn / Prohib.	No left turn / Prohib.	Permissive	Permissive	Permissive	No left turn / Prohib.	No left turn / Prohib.	No left turn / Prohib.	Permissive	Permissive	Permissive
	Conflicting Right Turns	Permissive or yield control	No right turn	Permissive or yield control	No right turn	No right turn	Permissive or yield control	No right turn	No right turn	Permissive or yield control	No right turn	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	No right turn
	Right Turns on Red (RTOR) ?	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited
	Ped Signal Leading Interval?	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
	Right Turn Channel	No Channel	No Right Turn	No Channel	No Right Turn	No Right Turn	No Right Turn	No Channel	No Right Turn	No Channel	No Right Turn	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Right Turn	No Channel
	Corner Radius	3-5m	No Right Turn	3-5m	No Right Turn	No Right Turn	No Right Turn	5-10m	No Right Turn	3-5m	No Right Turn	3-5m	No Right Turn	10-15m	5-10m	3-5m	5-10m	5-10m	No Right Turn	No Right Turn	5-10m
	Crosswalk Type	Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement	Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement	Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Textured/coloured pavement	Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement
	PETSI Score	**75**	**76**	**66**	**91**	**88**	**88**	**105**	**114**	**75**	**76**	**66**	**74**	**56**	**89**	**83**	**82**	**79**	**88**	**98**	**97**
	Ped. Exposure to Traffic LoS	**B**	**B**	**C**	**A**	**B**	**B**	**A**	**A**	**B**	**B**	**C**	**C**	**D**	**B**	**B**	**B**	**B**	**B**	**A**	**A**
	Cycle Length		75	75	75		75		75	75	75	75	75	75	75	75	75	75	75		75
	Effective Walk Time		20	13	13		43		8	27	27	12	12	27	27	12	12	40	40		10
	Average Pedestrian Delay		**20**	**26**	**26**		**7**		**30**	**15**	**15**	**26**	**26**	**15**	**15**	**26**	**26**	**8**	**8**		**28**
	Pedestrian Delay LoS	**-**	**C**	**C**	**C**	**-**	**A**	**-**	**D**	**B**	**B**	**C**	**C**	**B**	**B**	**C**	**C**	**A**	**A**	**-**	**C**
	Level of Service	**B**	**C**	**C**	**C**	**B**	**B**	**A**	**D**	**B**	**B**	**C**	**C**	**D**	**B**	**C**	**C**	**B**	**B**	**A**	**C**
		C				**D**				**C**				**D**				**C**			
Approach From		NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Bicycle	Bicycle Lane Arrangement on Approach		Mixed Traffic	Mixed Traffic			Mixed Traffic				Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	
	Right Turn Lane Configuration															≤ 50 m					
	Right Turning Speed															≤ 25 km/h					
	Cyclist relative to RT motorists	**-**	**#N/A**	**#N/A**	**-**	**-**	**#N/A**	**-**	**-**	**-**	**#N/A**	**#N/A**	**-**	**#N/A**	**#N/A**	**D**	**#N/A**	**#N/A**	**#N/A**	**#N/A**	**-**
	Separated or Mixed Traffic	**-**	**Mixed Traffic**	**Mixed Traffic**	**-**	**-**	**Mixed Traffic**	**-**	**-**	**-**	**Mixed Traffic**	**Mixed Traffic**	**-**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**-**
	Left Turn Approach		≥ 2 lanes crossed		One lane crossed				No lane crossed		≥ 2 lanes crossed		One lane crossed	No lane crossed	No lane crossed	One lane crossed	One lane crossed		No lane crossed	No lane crossed	
	Operating Speed		> 50 to < 60 km/h		> 50 to < 60 km/h				≤ 40 km/h		> 40 to ≤ 50 km/h		> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h		> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	
	Left Turning Cyclist	**-**	**F**	**-**	**E**	**-**	**-**	**-**	**B**	**-**	**E**	**-**	**D**	**B**	**B**	**D**	**D**	**-**	**B**	**B**	**-**
	Level of Service	**-**	**#N/A**	**#N/A**	**-**	**-**	**#N/A**	**-**	**-**	**-**	**#N/A**	**#N/A**	**-**	**#N/A**	**#N/A**	**D**	**#N/A**	**#N/A**	**#N/A**	**#N/A**	**-**
		#N/A				**#N/A**				**#N/A**				**#N/A**				**#N/A**			
Transit	Average Signal Delay			≤ 40 sec	≤ 30 sec							≤ 40 sec	≤ 40 sec	≤ 20 sec	≤ 10 sec		≤ 30 sec	≤ 10 sec	≤ 10 sec		
	Level of Service	**-**	**-**	**E**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**E**	**E**	**C**	**B**	**-**	**D**	**B**	**B**	**-**	**-**
		E				**-**				**E**				**D**				**B**			
Truck	Effective Corner Radius		10 - 15 m	< 10 m							< 10 m	< 10 m									
	Number of Receiving Lanes on Departure from Intersection		1	≥ 2							≥ 2	≥ 2									
	Level of Service	**-**	**E**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**D**	**D**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		E				**-**				**D**				**-**				**-**			
Auto	Volume to Capacity Ratio	0.0 - 0.60				0.0 - 0.60				0.61 - 0.70				0.0 - 0.60				0.0 - 0.60			
	Level of Service	**A**				**A**				**B**				**A**				**A**			

Bank & Gilmour				Bank & Gladstone				Lyon & James (Existing)				Lyon & James (Future)				Lyon & Gladstone			
NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
3	3	0 - 2	0 - 2	4	4	3	4	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	3	3
No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m	No Median - 2.4 m
Permissive	No left turn / Prohib.	Permissive	No left turn / Prohib.	Permissive	Permissive	Permissive	Permissive	No left turn / Prohib.	Permissive	No left turn / Prohib.	No left turn / Prohib.	No left turn / Prohib.	Permissive	No left turn / Prohib.	No left turn / Prohib.	No left turn / Prohib.	Permissive	Permissive	No left turn / Prohib.
No right turn	Permissive or yield control	Permissive or yield control	No right turn	Permissive or yield control	Permissive or yield control	Permissive or yield control	Permissive or yield control	No right turn	No right turn	No right turn	Permissive or yield control	No right turn	No right turn	No right turn	Permissive or yield control	No right turn	Permissive or yield control	No right turn	Permissive or yield control
RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR allowed	RTOR prohibited	RTOR prohibited	RTOR allowed
No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
No Right Turn	No Channel	No Channel	No Right Turn	No Channel	No Channel	No Channel	No Channel	No Right Turn	No Right Turn	No Right Turn	No Channel	No Right Turn	No Right Turn	No Right Turn	No Channel	No Right Turn	No Channel	No Right Turn	No Channel
No Right Turn	5-10m	5-10m	No Right Turn	3-5m	3-5m	3-5m	3-5m	No Right Turn	No Right Turn	No Right Turn	3-5m	No Right Turn	No Right Turn	No Right Turn	3-5m	No Right Turn	5-10m	No Right Turn	3-5m
Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement	Std transverse markings	Std transverse markings	Textured/coloured pavement	Textured/coloured pavement	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings	Zebra stripe hi-vis markings
88	**79**	**92**	**111**	**58**	**58**	**75**	**58**	**111**	**100**	**114**	**101**	**111**	**100**	**114**	**101**	**111**	**92**	**91**	**83**
B	**B**	**A**	**A**	**D**	**D**	**B**	**D**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**A**	**B**
75	75		75	75	75	75	75	75		75		75		75		75		75	75
40	40		11	27	27	13	13	48		7		48		7		21		28	28
8	**8**		**27**	**15**	**15**	**26**	**26**	**5**		**31**		**5**		**31**		**19**		**15**	**15**
A	**A**	**-**	**C**	**B**	**B**	**C**	**C**	**A**	**-**	**D**	**-**	**A**	**-**	**D**	**-**	**B**	**-**	**B**	**B**
B	**B**	**A**	**C**	**D**	**D**	**C**	**D**	**A**	**A**	**D**	**A**	**A**	**A**	**D**	**A**	**B**	**A**	**B**	**B**
C				**D**				**D**				**D**				**B**			
NORTH	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**	**NORTH**	**SOUTH**	**EAST**	**WEST**
Mixed Traffic	Mixed Traffic		Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP Not Applicable Not Applicable		Mixed Traffic	Mixed Traffic	Curb Bike Lane, Cycletrack or MUP Not Applicable Not Applicable		Mixed Traffic	Curb Bike Lane, Cycletrack or MUP Not Applicable Not Applicable	Curb Bike Lane, Cycletrack or MUP Not Applicable Not Applicable		Mixed Traffic	Mixed Traffic
#N/A	**#N/A**	**-**	**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**	**Not Applicable**	**-**	**#N/A**	**#N/A**	**Not Applicable**	**-**	**#N/A**	**Not Applicable**	**Not Applicable**	**-**	**#N/A**	**#N/A**
Mixed Traffic	**Mixed Traffic**	**-**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**-**	**Mixed Traffic**	**Mixed Traffic**	**Separated**	**-**	**Mixed Traffic**	**Separated**	**Separated**	**-**	**Mixed Traffic**	**Mixed Traffic**
No lane crossed > 40 to ≤ 50 km/h			No lane crossed > 40 to ≤ 50 km/h	One lane crossed > 40 to ≤ 50 km/h	One lane crossed > 40 to ≤ 50 km/h	No lane crossed > 40 to ≤ 50 km/h	One lane crossed > 40 to ≤ 50 km/h	No lane crossed > 40 to ≤ 50 km/h				No lane crossed > 40 to ≤ 50 km/h				2-stage, LT box > 40 to ≤ 50 km/h	No lane crossed > 40 to ≤ 50 km/h		
B	**-**	**-**	**B**	**D**	**D**	**B**	**D**	**-**	**-**	**B**	**-**	**-**	**-**	**B**	**-**	**A**	**-**	**B**	**-**
#N/A	**#N/A**	**-**	**#N/A**	**#N/A**	**#N/A**	**#N/A**	**#N/A**	**-**	**-**	**#N/A**	**#N/A**	**-**	**-**	**#N/A**	**-**	**A**	**-**	**#N/A**	**#N/A**
#N/A				**#N/A**				**#N/A**				**#N/A**				**#N/A**			
≤ 10 sec	≤ 20 sec			≤ 20 sec	≤ 30 sec	≤ 40 sec	≤ 40 sec												
B	**C**	**-**	**-**	**C**	**D**	**E**	**E**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
C				**E**				**-**				**-**				**-**			
-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
-				**-**				**-**				**-**				**-**			
0.0 - 0.60				0.0 - 0.60				0.0 - 0.60				0.0 - 0.60				0.0 - 0.60			
A				**A**				**A**				**A**				**A**			

Multi-Modal Level of Service - Segments Form

Consultant	**CGH Transportation Inc.**	**Project**	**381 Kent Street**
Scenario	**Existing/Future**	**Date**	**8/30/2023**
Comments			

SEGMENTS			James St	James St	Kent St	Kent St	Gilmour St	Gilmour St
			Existing	Future	Existing	Future	Existing	Future
Pedestrian	Sidewalk Width Boulevard Width	-	1.8 m < 0.5 m	≥ 2 m < 0.5	1.8 m < 0.5 m	≥ 2 m < 0.5	1.8 m < 0.5 m	1.8 m < 0.5 m
	Avg Daily Curb Lane Traffic Volume		≤ 3000	≤ 3000	> 3000	> 3000	≤ 3000	≤ 3000
	Operating Speed On-Street Parking		> 50 to 60 km/h yes	> 50 to 60 km/h yes	> 50 to 60 km/h yes	> 50 to 60 km/h yes	> 50 to 60 km/h yes	> 50 to 60 km/h yes
	Exposure to Traffic PLoS		**C**	**C**	**D**	**D**	**C**	**C**
	Effective Sidewalk Width							
	Pedestrian Volume							
	Crowding PLoS		**-**	**-**	**-**	**-**	**-**	**-**
	Level of Service		**-**	**-**	**-**	**-**	**-**	**-**
Bicycle	Type of Cycling Facility	E	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Curbside Bike Lane
	Number of Travel Lanes		≤ 2 (no centreline)	≤ 2 (no centreline)	2-3 lanes total	2-3 lanes total	≤ 2 (no centreline)	≤ 1 each direction
	Operating Speed		≥ 50 to 60 km/h	≥ 50 to 60 km/h	≥ 50 to 60 km/h	≥ 50 to 60 km/h	≥ 50 to 60 km/h	>50 to 70 km/h
	# of Lanes & Operating Speed LoS		**D**	**D**	**E**	**E**	**D**	**C**
	Bike Lane (+ Parking Lane) Width							≥ 1.8 m
	Bike Lane Width LoS		**-**	**-**	**-**	**-**	**-**	**A**
	Bike Lane Blockages							Rare
	Blockage LoS		**-**	**-**	**-**	**-**	**-**	**A**
	Median Refuge Width (no median = < 1.8 m)		< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge	< 1.8 m refuge
	No. of Lanes at Unsignalized Crossing		≤ 3 lanes	≤ 3 lanes	≤ 3 lanes	≤ 3 lanes	≤ 3 lanes	≤ 3 lanes
	Sidestreet Operating Speed		≤ 40 km/h	≤ 40 km/h	≤ 40 km/h	≤ 40 km/h	≤ 40 km/h	≤ 40 km/h
	Unsignalized Crossing - Lowest LoS		**A**	**A**	**A**	**A**	**A**	**A**
	Level of Service		**D**	**D**	**E**	**E**	**D**	**C**
Transit	Facility Type	-						
	Friction or Ratio Transit:Posted Speed							
	Level of Service		**-**	**-**	**-**	**-**	**-**	**-**
Truck	Truck Lane Width	A			≤ 3.5 m	≤ 3.5 m		
	Travel Lanes per Direction				> 1	> 1		
	Level of Service		**-**	**-**	**A**	**A**	**-**	**-**