PROPOSED RESIDENTIAL HIGH-RISE DEVELOPMENT
176 NEPEAN / 293-307 LISGAR STREET

TRANSPORTATION IMPACT ASSESSMENT REPORT

Submitted to:

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Project 7198

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1.0 EXISTING AND PLANNED CONDITIONS

1.1 PROPOSED DEVELOPMENT

Exhibit 1-1 illustrates the proposed high-rise development located between Nepean and Lisgar Streets just east of Bank Street, at 176 Nepean Street and 293-307 Lisgar Street. The high-rise residential development will consist of 521 residential units. The proposed development is envisioned to consist of:

- a north tower that would accommodate a 27-storey building fronting Nepean Street with 252 units;
- a south tower that would accommodate a 25-storey building fronting Lisgar Street with 251 units; and
- a 4-storey building between the north tower and the south tower with 18 units.

In terms of site accesses, the current site plan illustrates two accesses along Nepean Street and Lisgar Street. The development would accommodate a total of 283 parking stalls and bicycle parking lot at ground level with a total of 261 spaces.

1.2 EXISTING CONDITIONS

Appendix "C" provides the existing turning movement counts, collision information and traffic signal timing used within this study.

Study Area Roadways

The City of Ottawa TMP (Map 7) was referenced along with a desktop review of aerial photo to document the existing roads that would serve the proposed development:

- **Bank Street** is a north-south existing arterial roadway characterized by a single lane of travel, on-street parking and transit stops along its length;
- **O'Connor Street** is a one-way southbound direction arterial roadway characterized generally by 2-lanes of travel, on-street parking and dedicated north-south cycling lanes.
- **Metcalfe Street** is a one-way northbound direction arterial roadway characterized generally by 2-lanes of travel and on-street parking.
- **Nepean Street** is a one-way eastbound local road with one lane of travel. The corridor provides for on-street parking and sidewalks on either side of the roadway. A speed hump and large corner radii provide for traffic calming measures near the development;
- **Lisgar Street:** is a one-way westbound local road with one lane of travel. The corridor provides for on-street parking and sidewalks on either side of the roadway. A speed hump and large corner radii provide for traffic calming measures near the development;

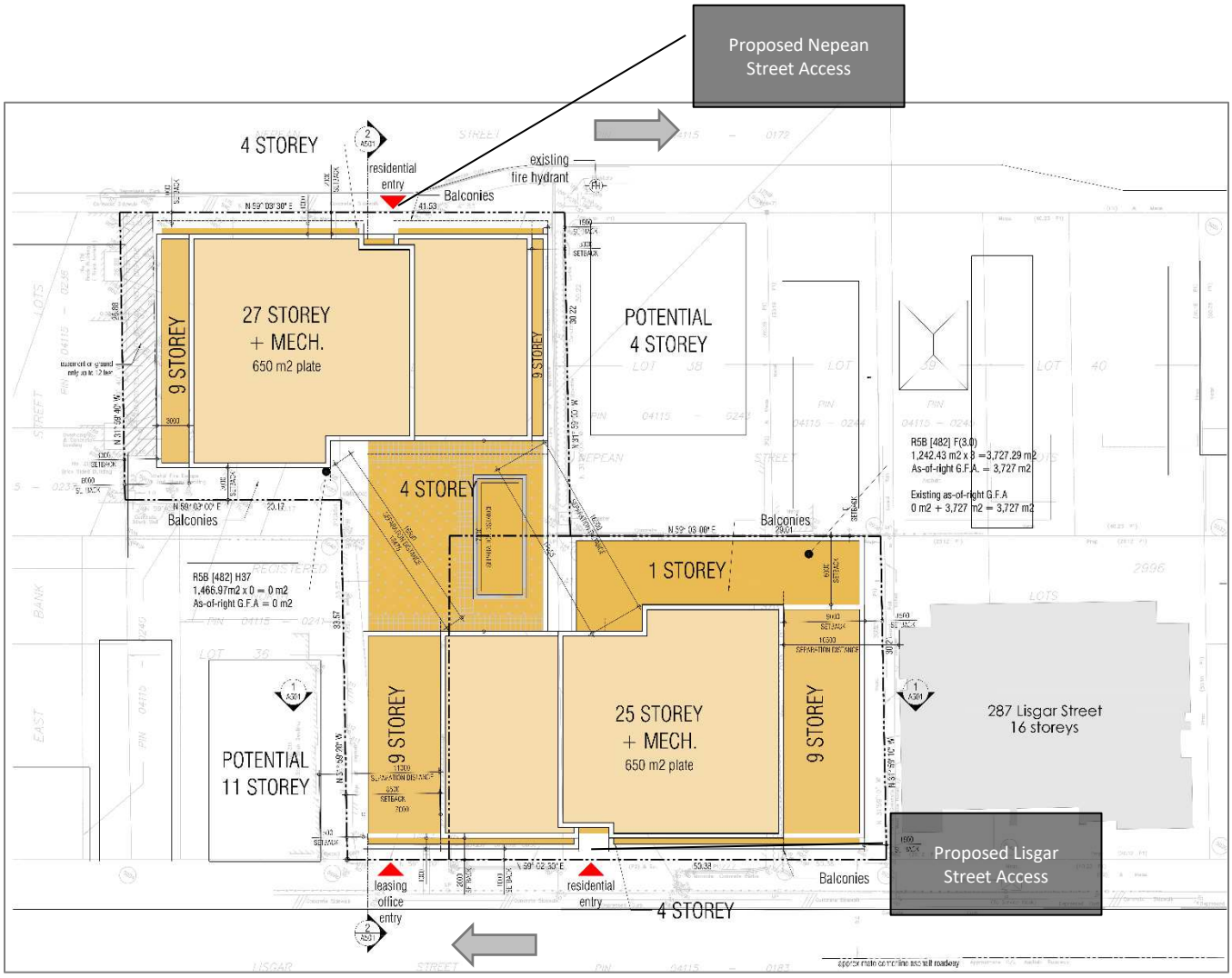


Exhibit 1-1: Site Plan of Proposed Development

Study Area Traffic Management

Nepean Street and Lisgar Street both provide for on-street parking, a speed hump and large corner radii to minimize cut-through traffic and roadway speeds within the study area.

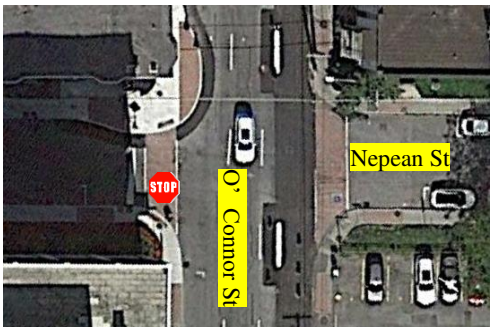
Study Area Intersections

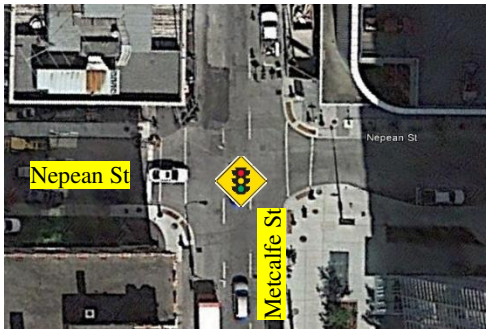
- **Nepean Street / Bank Street:** The intersection is controlled by a STOP sign on the eastbound movement and a free-flow condition along Bank Street. All of the approaches are characterized by a shared movement, although, the northbound approach has a wide pavement width to allow vehicles to make a right movement without queuing behind through movements.

- **Nepean Street / O'Connor Street:** The intersection is controlled by a STOP sign on the eastbound movement and free-flow conditions in the southbound direction. The eastbound direction is characterized by a single shared lane, while the southbound direction is characterized by 2-lanes of travel (SB-TH and SB-TH/LT).

- **Nepean Street / Metcalfe Street:** The traffic control signal intersection provides a single shared eastbound lane. The northbound is characterized by 3-lanes of travel (two NB-TH lanes and the inner lane accommodates on-street parking and motorist can use portion of the lane as a right-turn lane to avoid stacking behind NB-TH movements).

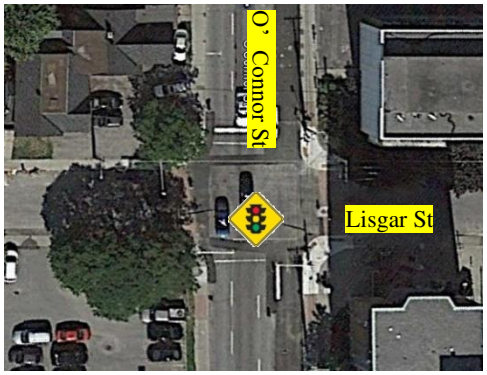
- **Bank Street / Lisgar Street:** The traffic control signal intersection provides a single Shared lane in each direction of travel.





- **Lisgar Street / O'Connor Street:** The intersection is controlled by a traffic signal that provides a single shared lane of travel in the westbound and 3-lanes in the southbound direction (2-SB-TH and the 3rd lane accommodates on-street parking where portion of the lane can be used by motorists as a dedicated SB-RT lane).

- **Lisgar Street / Metcalfe Street:** The traffic control signal intersection provides a single shared lane for the westbound movement. The northbound movement is characterized by 3-lanes (NB-TH, NB-TH/RT and a lane for on-street parking).



Existing Transit Provisions

Exhibit 1-2 illustrates the transit routes within the vicinity of the proposed development. Line 1 is located north of the study area (~500m walk from the proposed development to Queen Station).

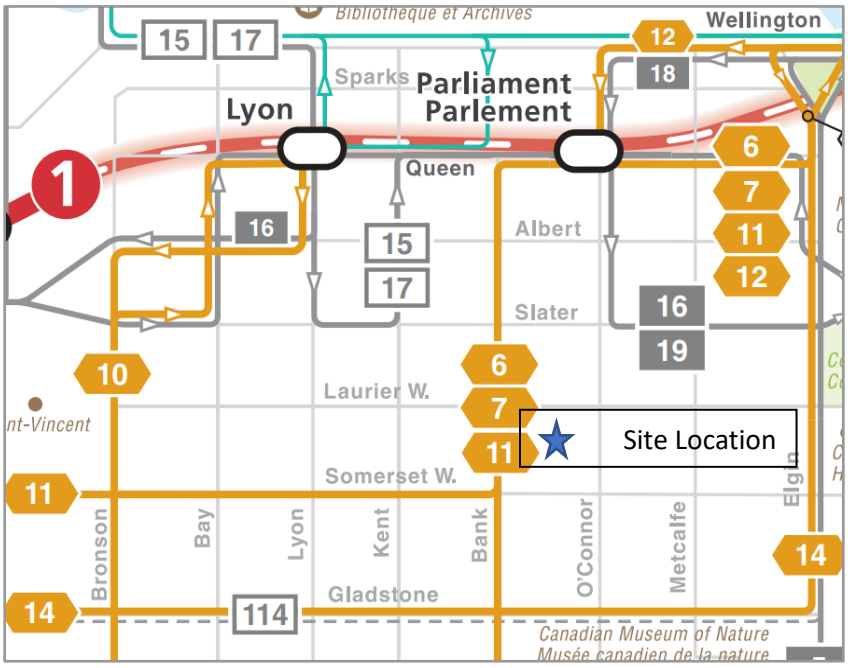


Exhibit 1-2: Existing Transit Routes

The proposed developed is served by the Line 1 LRT to the north and the following three main bus routes that utilize Bank Street frequently:

- Bus Route 6 – This bus route runs from/to Greenboro station in the south and Rockcliffe in the north;
- Bus Route 7 – This bus routes travels from/to Carleton University, the Rideau Line 1 station and the St-Laurent Line 1 station; and
- Bus Route 11 – This bus routes runs from/to Bayshore station in the west and Parliament Station in the east.

The southbound bus routes are accessed from Stop 2487, located approximately 200m west of the development at the Lisgar Street / Bank Street intersection. The northbound bus routes are accessed approximately 150m to the northwest at Stop 2484, south of the Bank Street / Gloucester Street intersection.

Existing Cycling Facilities

The City of Ottawa's "*Map 1: Cycling Network – Primary Urban"* from the Transportation Master Plan Metcalfe Street as a cycling spine route; while O'Connor as a cycling spine route and a cross-town bikeway. Dedicated cycling lanes are available on O'Connor Street in the north and south direction. Table 1-1 summarizes the existing cycling activities within the study area during both peak hours of travel demand.

- The intersection of Bank Street and Lisgar resulted in highest cycling activities with a total of 117 cyclist approaching the intersection during the afternoon peak hour of travel demand. About 60% of those cyclists were heading in the southbound direction; and
- The intersection of Bank Street and Nepean resulted in second highest cycling activities with 90 cyclists during the afternoon peak hour of travel demand.

Table 1-1: Existing Cycling Demand on Study Area Intersections

Intersections	AM Peak Period					PM Peak Period				
	NB	SB	EB	WB	Total	NB	SB	EB	WB	Total
Bank/Nepean (August 2017)	40	9	11		60	30	48	10	2	90
Bank/Lisgar (August 2015)	45	16		6	67	27	71	2	17	117
O'Connor/Nepean (July 2011)	1	11	14		26		44	13	2	59
O'Connor/Lisgar (March 2017)	18	1		2	21	1	26		8	35
Metcalfe/Nepean (April 2017)	2		3		5	1		1		2
Metcalfe/Lisgar (April 2017)	5			2	7	1			3	4

Existing Pedestrian Facilities

Pedestrian provisions are afforded on each of the boundary streets to the proposed development Table 2.2 depicts the pedestrian activities within the study area during the peak hours of travel demand. The following is an observation of the highest pedestrian activities at each of the intersections:

- ***Bank Street / Nepean Street**:* The highest pedestrian activity was observed along the west leg of the intersection with 614 pedestrians crossing during the PM peak hour;
- ***Bank Street / Lisgar Street**:* The highest pedestrian activity was observed along the west leg of the intersection with 469 pedestrians crossing during the PM peak hour;
- ***O'Connor Street / Nepean Street:*** The highest pedestrian activity was observed along the west leg of the intersection with 113 pedestrians crossing during the AM peak hour;
- ***O'Connor Street / Lisgar Street:*** The highest pedestrian activity was observed along the east leg of the intersection with 203 pedestrians crossing during the PM peak hour;
- ***Metcalfe Street / Nepean Street**:* The highest pedestrian activity was observed along the west leg of the intersection with 418 pedestrians crossing during the AM peak hour; and
- ***Metcalfe Street / Lisgar Street:*** The highest pedestrian activity was observed along the east leg of the intersection with 304 pedestrians crossing during the PM peak hour.

Table 2.2: Existing Pedestrian Activities

Intersections	AM Peak Period				PM Peak Period			
	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
Bank/Nepean	32	23	424	296	60	19	522	614
Bank/Lisgar	51	70	204	201	47	121	229	469
O'Connor/Nepean	49	87	26	113	103	44	93	50
O'Connor/Lisgar	52	62	156	85	109	132	203	136
Metcalfe/Nepean	163	136	213	418	127	210	313	402
Metcalfe/Lisgar	131	126	219	298	115	91	304	256

Existing Road Safety Information

Five (5) year collision information was reviewed for the study area intersections. The collision information provides:

- the date and time of each collision;
- the type of collision (i.e. angle collision, rear-end);
- the level of damage involved;
- vehicle details (truck, passenger vehicle, etc.);
- vehicle path/maneuver characteristics; and
- the number of pedestrians involved (in the collision).

Table 1-2 summarizes the 60 collisions that occurred at the study area intersections (28% occurred at the Nepean-O'Connor Street). The following provides a summary of the collisions:

- ***Nepean-Bank***: A total of 10 collisions occurred at this intersection where 70% (7) of collisions were angle collisions (Based on collision information reported: 2 collisions occurred where an EB vehicle collided with NB through vehicle and 2 collisions occurred where an EB vehicle collided with southbound through vehicle). The same percentage of collisions resulted in property damage.
- ***Nepean-O-Connor***: A total of 17 collisions occurred at this intersection where 41% (7) of collisions were turning collisions and 35% (6) of collisions were angle collisions. (4 of the angle collisions reported occurred where southbound vehicle collided with EB vehicle. As regards to turning collisions, 4 of the 7 collisions occurred in the southbound directions where a vehicle was turning left and the other going ahead). About 82% of collisions resulted in property damage.
- ***Nepean-Metcalfe***: A total of 5 collisions occurred at this intersection where 80% (4) of collisions were angle collisions. The same percentage of the collisions resulted in property damage.
- ***Lisgar-Bank***: A total of 11 collisions occurred at this intersection where 36% (4) of collisions involved a single vehicle and 27% (3) were classified as sideswipe collisions. About 45% resulted in property damage with 55% classified as non-fatal. Four of the collisions involved pedestrians.
- ***Lisgar-O'Connor***: A total of 10 collisions occurred at this intersection where 80% (8) of collisions were angle collisions (Based on the available collision information: 6 collision involved southbound vehicle colliding with WB vehicle; where 3 collisions occurred with both SB and WB vehicles going ahead, while the remaining 3 involved SB vehicles colliding with WB vehicles making a left-turn – It should be noted that the intersection is signalized with signage prohibiting WB left-turn on red). About 70% of the collisions resulted in property damage and 2 collisions involved pedestrians.
- ***Lisgar-Metcalfe***: A total of 7 collisions occurred at this intersection where 29% (2) of the collisions were single and turning collisions. About 70% of the collisions resulted in property damage and 2 collisions involved pedestrians.

The collision information indicated that there appears to be no discernable pattern given the incidence of collisions over the 5-year period.

Existing (2020) Traffic Volumes

Traffic counts for the study area were obtained from the City of Ottawa at the following intersections:

- Nepean Street / Bank Street (2017);
- Nepean Street / O'Connor Street (2011);
- Nepean Street / Metcalfe Street (2017);
- Lisgar Street / Bank Street (2015);
- Lisgar Street / O'Connor Street (2017); and
- Lisgar Street / Metcalfe Street (2017).

The traffic counts were updated to reflect current traffic conditions by applying 1 percent annual growth. Exhibit 1.3 illustrates the resulting existing (2020) traffic volumes at the study area intersections.

Table 1-2: 5-Year Collision Summary

Intersection		Nepean-Bank	Nepean-O'Connor	Nepean-Metcalfe	Lisgar-Bank	Lisgar-O'Connor	Lisgar-Metcalfe
Impact Type	Rear End	1	3		2		1
	Single Vehicle			1	4	2	2
	Angle	**7**	**6**	4	1	**8**	
	Sideswipe				3		1
	Turning	2	**7**		1		2
	Approaching						
	Other		1				1
Class	Property damage only	7	14	4	5	7	5
	Non-fatal	3	3	1	6	3	2
	Fatal						
Pedestrian involved				1	4	2	2
No. of Collisions		**10**	**17**	**5**	**11**	**10**	**7**

Nepean-Bank			*Nepean-O'Connor*			*Nepean-Metcalfe*			*Lisgar-Bank*			*Lisgar-O'Connor*			*Lisgar-Metcalfe*		
Rear End	1	**10%**	Rear End	3	**18%**	Rear End	0	**0%**	Rear End	2	**18%**	Rear End	0	**0%**	Rear End	1	**14%**
Single Vehicle	0	**0%**	Single Vehicle	0	**0%**	Single Vehicle	1	**20%**	Single Vehicle	4	**36%**	Single Vehicle	2	**20%**	Single Vehicle	2	**29%**
Angle	7	**70%**	Angle	6	**35%**	Angle	4	**80%**	Angle	1	**9%**	Angle	8	**80%**	Angle	0	**0%**
Sideswipe	0	**0%**	Sideswipe	0	**0%**	Sideswipe	0	**0%**	Sideswipe	3	**27%**	Sideswipe	0	**0%**	Sideswipe	1	**14%**
Turning	2	**20%**	Turning	7	**41%**	Turning	0	**0%**	Turning	1	**9%**	Turning	0	**0%**	Turning	2	**29%**
Approaching	0	**0%**	Approaching	0	**0%**	Approaching	0	**0%**	Approaching	0	**0%**	Approaching	0	**0%**	Approaching	0	**0%**
Other	0	**0%**	Other	1	**6%**	Other	0	**0%**	Other	0	**0%**	Other	0	**0%**	Other	1	**14%**
Property Damage	7	70%	Property Damage	14	82%	Property Damag	4	80%	Property Damage	5	**45%**	Property Damage	7	**70%**	Property Damag	5	**71%**
Non-Fatal	3	30%	Non-Fatal	3	18%	Non-Fatal	1	20%	Non-Fatal	6	**55%**	Non-Fatal	3	**30%**	Non-Fatal	2	**29%**
Fatal	0	0%	Fatal	0	0%	Fatal	0	0%	Fatal	0	**0%**	Fatal	0	**0%**	Fatal	0	**0%**
Pedestrians	0	0%	Pedestrians	0	0%	Pedestrians	1	20%	Pedestrians	4	**36%**	Pedestrians	2	**20%**	Pedestrians	2	**29%**

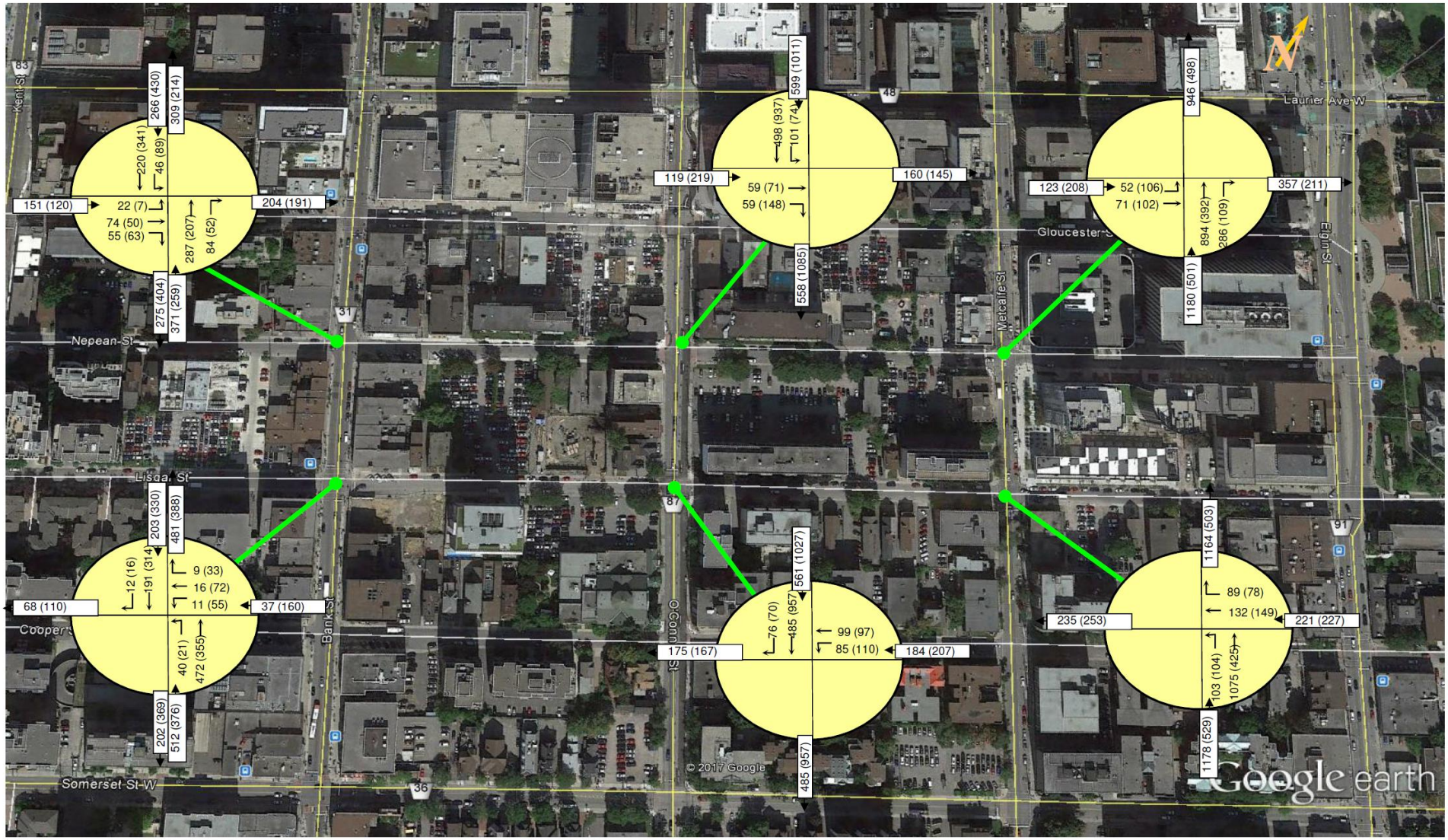


Exhibit 1-3: Existing Traffic Volumes (2020) – Morning Peak Hour (Afternoon Peak Hour)

1.3 PLANNED CONDITIONS

Planned Transportation Network Changes

A review of the City of Ottawa's documents indicated that the LRT Line 1 which was completed in 2019 would be extended to Trim Road in the east and Moodie Drive in the west. This improvement improves the accessibility to the Ottawa region for the proposed development. No planned roadway improvements have bee indicated in the study area.

Other Adjacent Development Initiatives

A review of other adjacent developments planned within the greater study area was undertaken as part of this scoping report. The following summarizes the adjacent developments within the immediate study area that would be included part of this TIA:

- *280 Slater Street and 333 Laurier Avenue:* The proposed development would be located at the north-west corner of Bank Street / Laurier Avenue. The proposed development envisions approximately 48,000 m^2 of office area and 1,300 m^2 of retail space.
- *180 Metcalfe Street Development:* The proposed development would be located at the south-west corner of Nepean Street / Metcalfe Street. The development will accommodate a 27-storey building consisting of approximately 206 residential units, 140 hotel units and 2,815 ft^2 of retail.
- *98 Nepean Street Residential Development:* The proposed development would consist of 199 condominium units and 2 townhouses.
- *Proposed In-fill Condominium Development*: The proposed development would be located at the south-east corner of Bank Street / Lisgar Street. The development will accommodate a 22-unit residential building with ground floor commercial.
- *199 Slater Street Development:* The proposed development would be located on north side of Slater between Bank Street and O'Connor Street. The development will accommodate a 148 hotel rooms and 160 condominium units.

2.0 STUDY AREA AND TIME PERIODS

2.1 THE PROPOSED STUDY AREA

The traffic study will analyze the following adjacent study area intersections:

- Nepean Street / Bank Street;
- Nepean Street / O'Connor Street;
- Nepean Street / Metcalfe Street
- Lisgar Street / Bank Street;
- Lisgar Street / O'Connor Street; and
- Lisgar Street / Metcalfe Street.

2.2 TIME PERIODS

The study will analyze two-time periods (morning and afternoon peak hours) of travel demand as they were envisioned to represent the "worst-case" scenario in terms of traffic volumes.

2.3 HORIZON YEARS

The traffic study will analyze build-out year (2021 horizon year) and 5-year post development (2026).

2.4 EXEMPTION REVIEW

Table 2-1 is an extract from the TIA Guidelines (2017) in regards to possible reduction in scope of work of the traffic study. We would request the City to exempt sections 4.1, 4.2 and 4.8 from the TIA report.

Table 2-1: Exemptions as per TIA Guidelines

Module	Element	Exemption Considerations	Include Module in TIA
Design Review Component			
4.1 Development Design	**4.1.2 Circulation and Access**	Required for site plan.	**Yes**
	4.1.3 New Street Networks	Only required for plans of subdivision	No
4.2 Parking	**4.2.1 Parking Supply**	Required for site plan.	Yes
	4.2.2 Spillover Parking	Parking supply not anticipated to exceed minimum	No
Network Impact Component			
4.5 Transportation Demand Management	**All elements**		**Yes**
4.6 Neighbourhood Traffic Management	**4.6.1 Adjacent Neighbourhoods**	The development trips are not anticipated to exceed ATM thresholds	**Yes**
4.8 Network Concept		The proposed development is not anticipated to generate 200-person-trips more than the permitted zoning	No

3.0 FORECASTING

3.1 DEVELOPMENT-GENERATED TRAVEL DEMAND

3.1.1 Auto Trip Generation

Table 3-1 summarizes the auto trip generation rate utilized for the Nepean-Lisgar development. The trip generation rates were referenced from Table 6.3 of the TRANS Trip Generation Residential Trip Rates Study (2009). Vehicle trip directional splits were referenced from Table 6.2 of the "*TRANS Trip Generation Study*".

Table 3-1: Trip Generation Rates adopted for the Nepean-Lisgar Development

Land Use	*Source*	*Independent Variable*	*Morning Peak Hour*			*Afternoon Peak Hour*		
			Rate	*In %*	*Out %*	*Rate*	*In %*	*Out %*
High-Rise Apartment	TRANS (Table 6.2, 6.3) ITE LU 231	Dwelling Units	0.26	22%	78%	0.2	64%	36%

Table 3-2 demonstrates the anticipated auto vehicle trips generated by the proposed development assuming full build-out.

Table 3-2: Base Auto Trips Generated for the Nepean-Lisgar Development

Land Use	*Source*	*Size*	*Morning Peak Hour (veh/hr)*			*Afternoon Peak Hour (veh/hr)*		
			In	*Out*	*Total*	*In*	*Out*	*Total*
High-Rise Apartment	TRANS (Table 6.2, 6.3) ITE LU 231	521 Dwelling Units	30	105	135	67	37	104

3.1.2 Estimate of Total Development Generated Person Trips

The base auto trips generated by the development were then converted to an equivalent number of person-trips.

Table 3-3 summarizes the conversion from auto-trips to person-trips for the apartment dwelling units. Table 3.13 of the "*TRANS Trip Generation Study*" was referenced for the applicable mode share rates for the development.

Table 3-3: Mode Share and Person Trips-per-Hour – High Rise Apartments

Travel Mode	*Mode Share*	*Morning Peak Hour (person trips/hr)*			*Mode Share*	*Afternoon Peak Hour (person trips/hr)*		
		In	*Out*	*Total*		*In*	*Out*	*Total*
Auto Driver	40%	30	105	135	43%	67	37	104
Auto Passenger	7%	5	18	24	11%	17	9	27
Transit	25%	19	66	84	22%	34	19	53
Non-Motorized	28%	21	74	95	24%	37	21	58
Total	100%	75	263	338	100%	156	86	242

3.1.3 Existing and Future Mode Shares

Table 3-4 summarizes the existing and future mode shares adopted for the proposed development, as well as a rationale for the future mode shares. The existing and future mode shares for the proposed development were based on discussions with City staff regarding anticipated mode shares after the LRT becomes available The future mode shares would likely involve a substantial shift to a transit mode share due to the presence of the LRT to the north and the availability of connecting transit routes along Bank Street.

Table 3-4: Existing and Future Mode Shares

Land Use	*Travel Mode*	*Peak Existing Mode Shares*		*Forecast (2021 and 2026)*	*Rationale*
		AM	*PM*	*AM & PM*	
High Rise Apartments	Auto Driver	40%	43%	15%	Auto mode reduced to accommodate increase in transit, active modes
	Auto Passenger	7%	11%	5%	
	Transit	25%	22%	50%	Increase in Transit due to LRT Line 1 located within 600m
	Non-Motorized	28%	24%	30%	Increase in walking and cycling due to sidewalks and O'Connor cycling lanes

3.1.4 Projected Development Trips by Mode

Table 3-5 summarizes the full build-out traffic demand generated by the proposed development.

A review of the table indicated the following:

- Total vehicle trips are not anticipated to exceed 50 vehicles-per-hour in the morning peak hour, and 40 vehicles-per-hour in the afternoon peak hour; and

- An increase of 120-to-160 transit-trips-per-peak-hour that would like utilize the LRT Line 1 to the north;

Table 3-5: Summary of Trip Generation – Nepean-Lisgar Residential

Residential Component – High Rise Apartments								
Travel Mode	*Mode Share*	*Morning Peak Hour (person trips/hr)*			*Mode Share*	*Afternoon Peak Hour (person trips/hr)*		
		In	*Out*	*Total*		*In*	*Out*	*Total*
Auto Driver	15%	11	39	50	15%	23	13	36
Auto Passenger	5%	4	13	17	5%	8	4	12
Transit	50%	38	131	169	50%	78	43	121
Non-Motorized	30%	23	79	101	30%	47	26	73
Total	100%	76	262	338	100%	156	86	242

3.1.5 Trip Reduction Factors

The proposed development would consist entirely of residential apartment units. Therefore, no trip reduction factors were considered applicable for the development.

3.1.6 Trip Distribution and Assignment

The trip distributions for the proposed development were based on the existing travel patterns for the Ottawa Inner Area from the 2011 Trans-OD Survey Report. It was determined that nearly 60% of trips are remain within the Inner Area or Centre/Core Area.

Table 3-6 summarizes the traffic distribution adopted for the proposed site.

Exhibit 3-1 illustrates the site generated auto demand assigned to the surrounding roadway network and the distribution of traffic at each intersection.

Table 3-6: Traffic Distribution

To/From	*Residential Traffic Distribution*
North	30%
East	20%
South	35-40%
West	10-15%

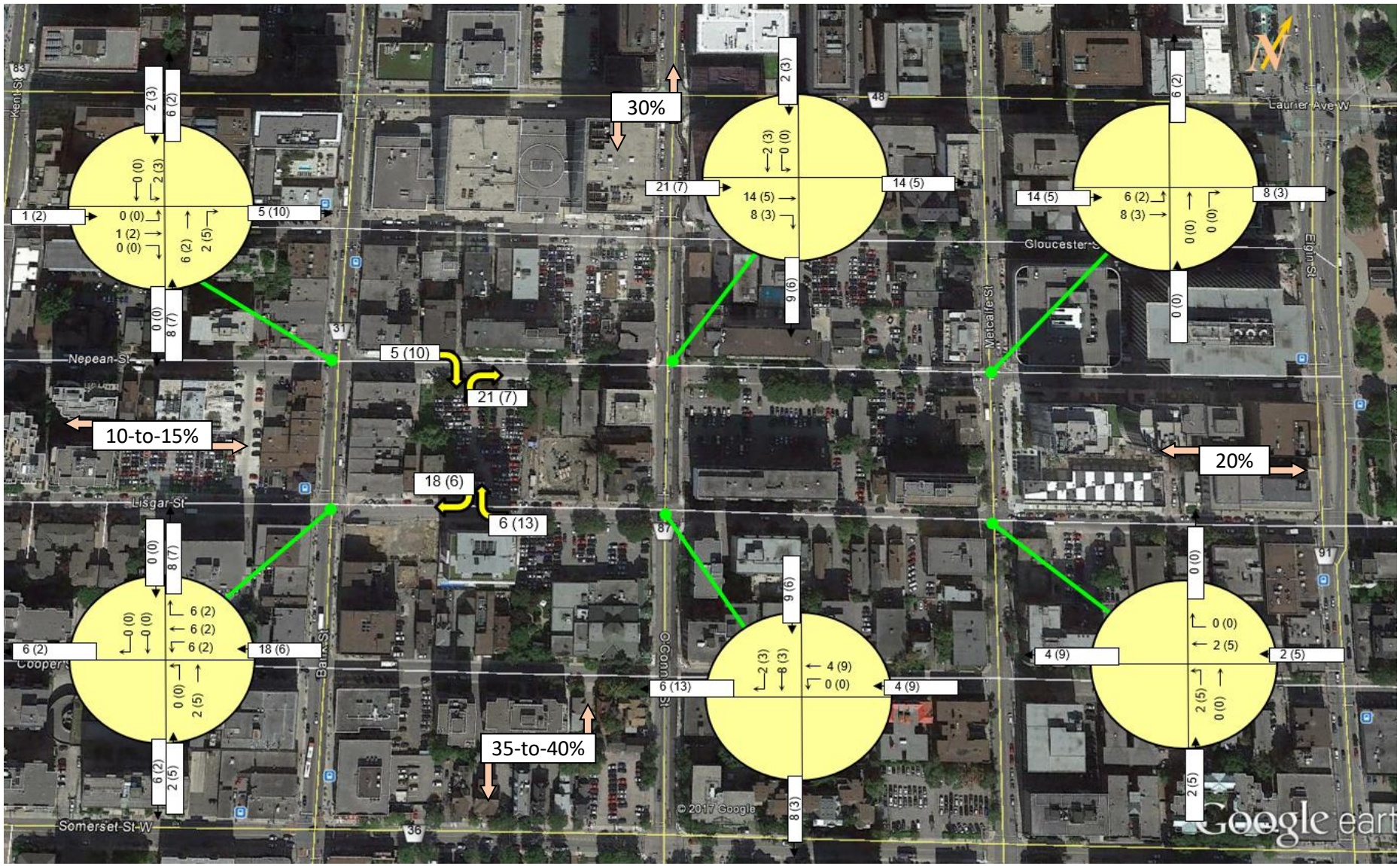


Exhibit 3-1: Site Generated Traffic Volumes: Full Build – AM (PM)

4.0 BACKGROUND NETWORK TRAFFIC

4.1 HISTORICAL BACKGROUND GROWTH RATE

The Transportation Master Plan population growth for the Inner Area was reviewed to determine the general growth within the study area. It was determined that on average the annual growth within the study area is anticipated to be 1 percent. This growth assumption would be applied to the base traffic volumes above and beyond the adjacent development background traffic volumes.

4.2 OTHER AREA DEVELOPMENTS

The following summarizes the adjacent developments within the immediate study area that would be included part of this TIA:

- *180 Metcalfe Street Development:* The proposed development would be located at the south-west corner of Nepean Street / Metcalfe Street. The development will accommodate a 27-storey building consisting of approximately 206 residential units, 140 hotel units and 2,815 ft^2 of retail.
- *98 Nepean Street Residential Development:* The proposed development would consist of 199 condominium units and 2 townhouses.
- *Proposed In-fill Condominium Development:* The proposed development would be located at the south-east corner of Bank Street / Lisgar Street. The development will accommodate a 22-unit residential building with ground floor commercial.

4.3 FORECAST BACKGROUND TRAFFIC

Exhibit 4-1 and Exhibit 4-2 illustrate the 2021 and 2026 forecast background traffic, respectively.

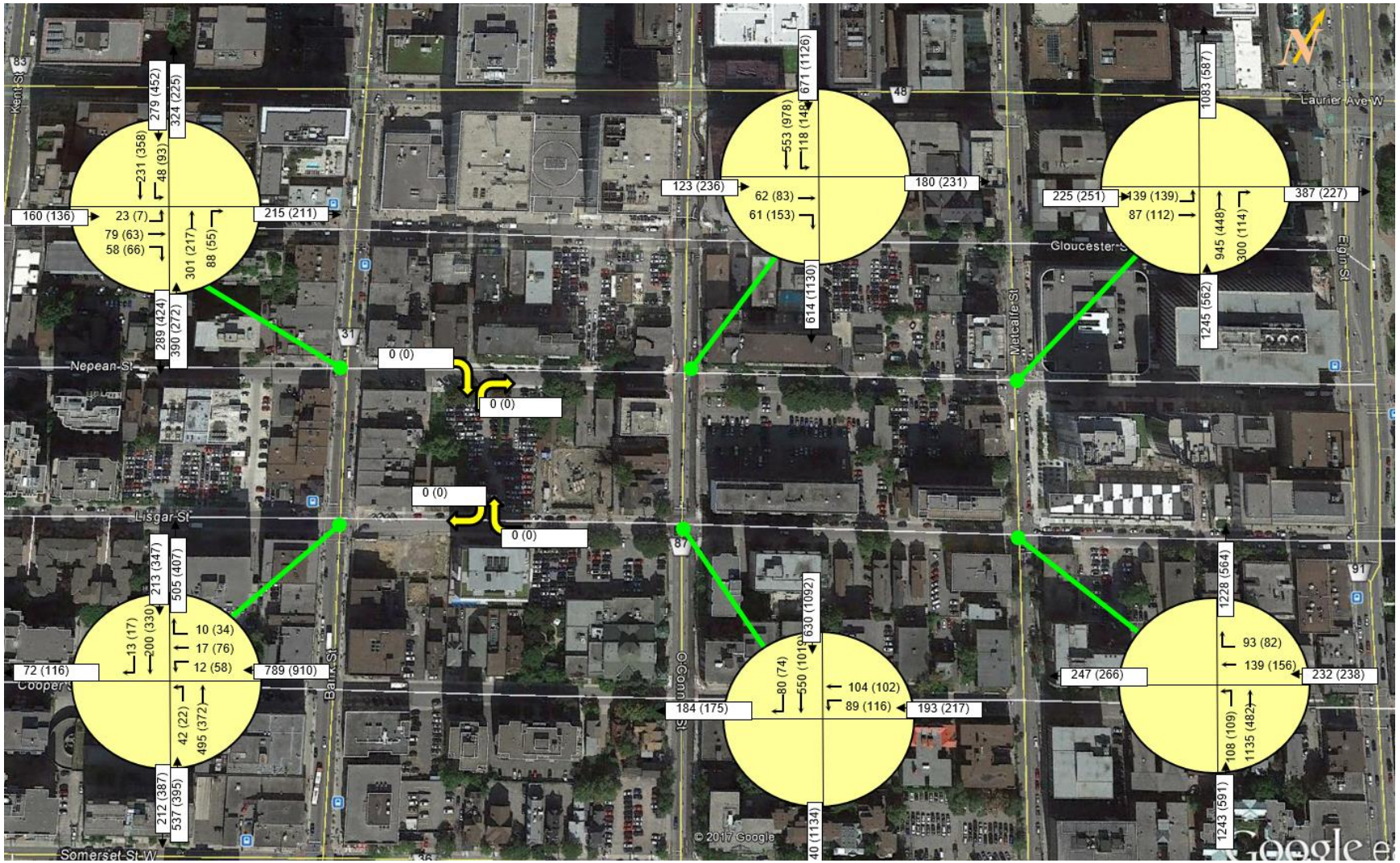


Exhibit 4-1: 2021 Forecast Background Traffic – AM Peak Hour (PM Peak Hour)

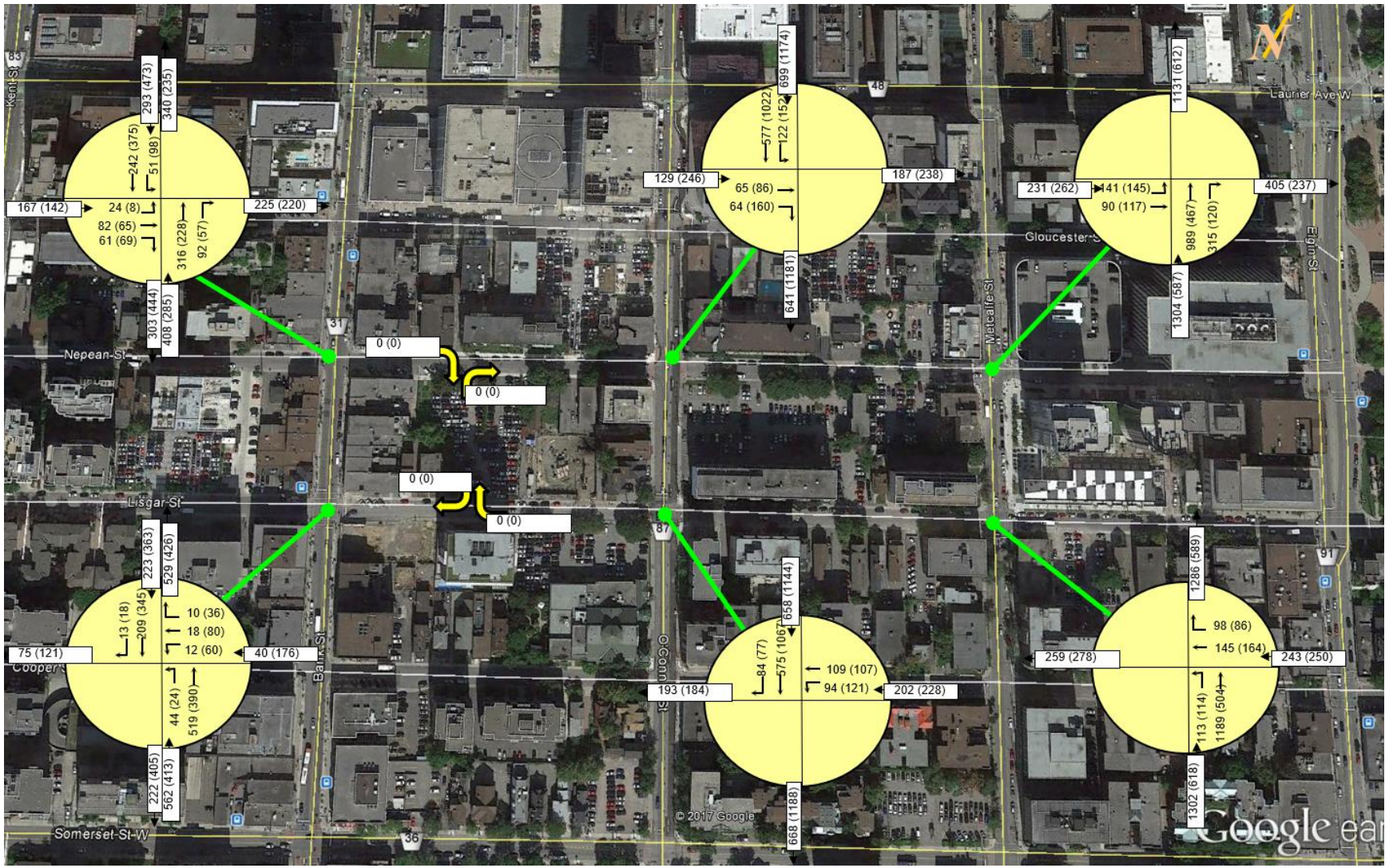


Exhibit 4-2: 2026 Forecast Background Traffic – AM Peak Hour (PM Peak Hour)

5.0 DEMAND RATIONALIZATION

This section rationalizes the future travel demands for the area to determine if there are any auto capacity limitations within the transportation network.

5.1 REVIEW OF EXISTING NETWORK CONSTRAINTS

Table 5-1 summarizes the intersection capacity analysis for the 2020 morning and afternoon peak hours of travel demand assuming the current timing plans are in place. The table denotes the most critical movements at the study area intersections based on level-of-service (v/c ratio for traffic signals, delay for non-signalized). Appendix "D" provides the existing synchro analysis prints.

The target auto level-of-service for the development, which is located within 600m of a rapid transit station, is auto LOS "E". A review of the table was found to indicate that all traffic signal controlled intersections would operate with acceptable levels of service in both peak hours.

Table 5-1 indicates the following critical movements within the study area:

- the EB approach to the Bank Street & Nepean Street intersection was found to operate with a poor LOS "F" in both peak hours of travel demand; and
- The WB approach to the O'Connor Street & Nepean Street intersection was found to exhibit a LOS "F" during the afternoon peak hour of travel demand.

The poor levels of service are attributed to the high pedestrian traffic flows along O'Connor Street and Bank Street that limit opportunities for the minor leg traffic to find gaps in the primary traffic flow.

Table 5-1: Existing (2020) Intersection Capacity Analysis Summary

Intersection	***Weekday Morning Peak Hour (Afternoon Peak Hour)***						
	Critical Movement				***Overall Intersection***		
	Approach / Movement	Delay (seconds)	LOS	v/c	Delay (seconds)	LOS	v/c
Signalized							
Bank & Lisgar	***NB-Th/LT (NB-Th/LT)***	14 (12)	B (A)	0.67 (0.53)	13 (12)	A (A)	0.46 (0.44)
O'Connor & Lisgar	***SB-Th (SB-Th)***	8 (7)	A (A)	0.32 (0.51)	11 (12)	A (A)	0.30 (0.50)
Metcalfe & Nepean	***NB-Th (NB-Th)***	4 (7)	A (A)	0.52 (0.23)	5 (11)	A (A)	0.42 (0.28)
Metcalfe & Lisgar	***NB-Th (WB-Th)***	11 (18)	B (A)	0.63 (0.44)	12 (11)	A (A)	0.58 (0.34)
Unsignalized – STOP controlled							
Bank & Nepean	***EB App. (EB App.)***	61 (150)	**F (F)**	0.77 (1.03)	-	-	-
O'Connor & Nepean	***EB Th/RT. (SB-LT/RT)***	19 (60)	C **(F)**	0.33 (0.84)	-	-	-

5.2 REVIEW OF FUTURE NETWORK CONSTRAINTS

Table 5-2 summarizes the intersection capacity analysis for the 2026 background morning and afternoon peak hours of travel demand assuming the current timing plans are in place. The table denotes the most critical movements at the intersection based on level-of-service v/c ratio for traffic signals, delay for non-signalized. The 2021 background traffic analysis is not presented as the results were found to demonstrate overall better traffic operations given less traffic growth on the network has taken place. Exhibit 4-2 illustrates the 2026 background traffic forecasts. Appendix "D" provides the existing 2021 and 2026 background synchro analysis prints.

Inspection of the analysis was found to indicate that, when compared to the existing analysis (Section 6.1), the majority of movements were found to result in poorer levels of service.

Table 5-2: Forecast 2026 Background Intersection Capacity Analysis Summary

Intersection	***Weekday Morning Peak Hour (Afternoon Peak Hour)***						
	Critical Movement				***Overall Intersection***		
	Approach / Movement	Delay (seconds)	LOS	v/c	Delay (seconds)	LOS	v/c
Signalized							
Bank & Lisgar	***NB-Th/LT (NB-Th/LT)***	14 (12)	B (A)	0.67 (0.53)	13 (12)	A (A)	0.46 (0.44)
O'Connor & Lisgar	***SB-Th (SB-Th)***	9 (7)	A (A)	0.34 (0.51)	11 (12)	A (A)	0.31 (0.50)
Metcalfe & Nepean	***NB-Th (NB-Th)***	4 (7)	A (A)	0.52 (0.25)	6 (12)	A (A)	0.47 (0.31)
Metcalfe & Lisgar	***NB-Th (WB-Th)***	11 (18)	B (A)	0.63 (0.44)	12 (11)	A (A)	0.58 (0.34)
Unsignalized – STOP controlled							
Bank & Nepean	***EB App. (EB App.)***	57 (150)	**F (F)**	0.75 (1.03)	-	-	-
O'Connor & Nepean	***EB Th/RT. (SB-LT/RT)***	20 (130)	C **(F)**	0.35 (1.09)	-	-	-

5.3 PROJECTED FUTURE TRAVEL DEMAND

No future travel demand reductions are proposed to accommodate the capacity constraints identified.

The development travel demand is anticipated to be approximately 50 vph two-way during the morning peak hour of travel demand. This demand is anticipated to have a low-to-negligible impact on the surrounding roadway.

Exhibit 5-1 and Exhibit 5-2 illustrate the 2021 and 2026 forecast traffic with the proposed Nepean-Lisgar development in place, respectively.

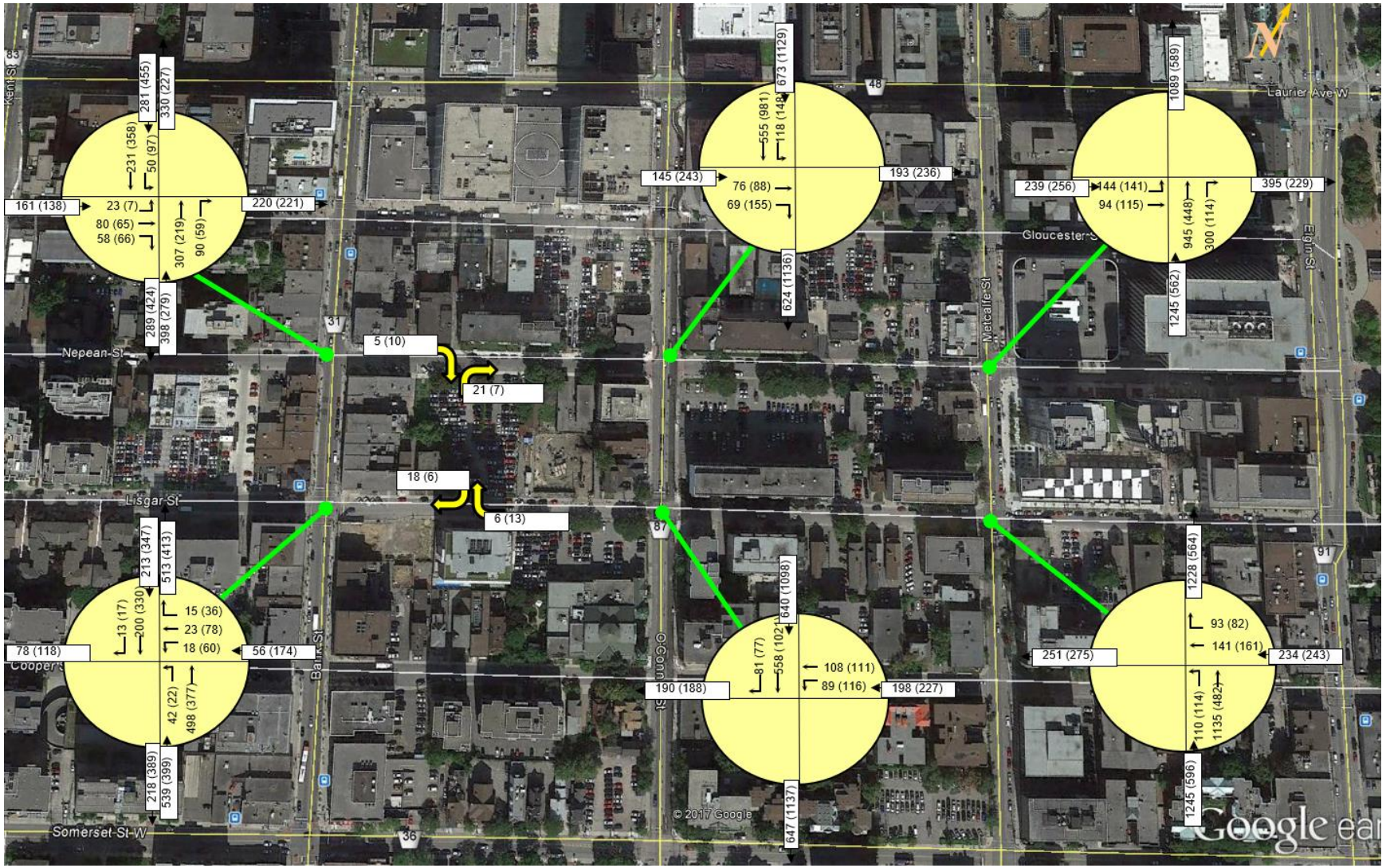


Exhibit 5-1: 2021 Forecast Traffic – Design Traffic (With Development) – AM (PM)

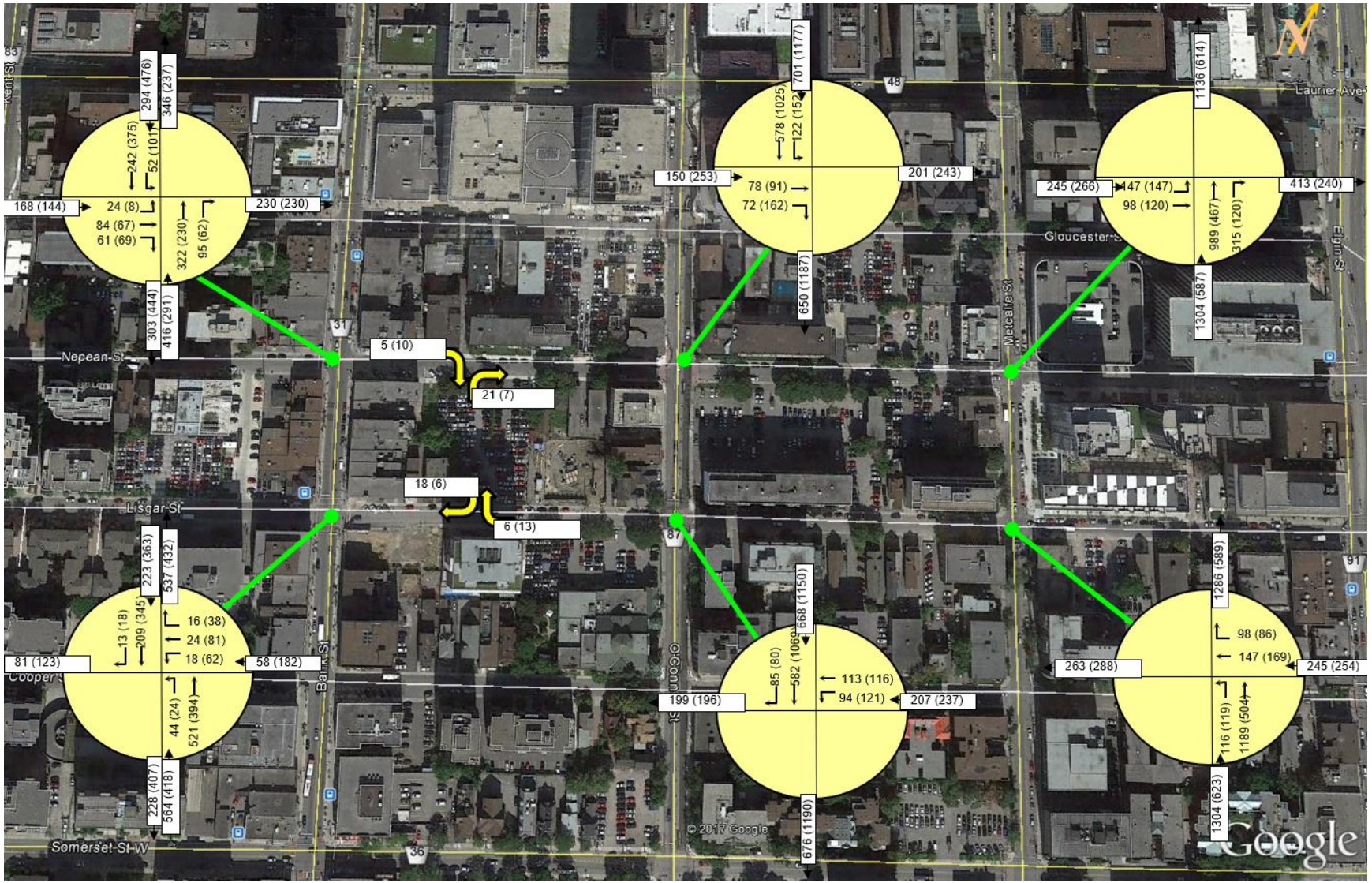


Exhibit 5-2: 2026 Forecast Traffic – Design Traffic (With Development) – AM (PM)

6.0 ANALYSIS AND TIA STRATEGY

6.1 DEVELOPMENT DESIGN

The following section reviews the transportation network elements within the vicinity of the proposed development to ensure they provide efficient access for all users.

6.1.1 Design for Sustainable Modes

The City of Ottawa's TDM-Supportive Development Design and Infrastructure Checklist was completed for the proposed development (See Appendix "E"). The proposed site is located within 600m of the Line 1 LRT providing convenient access to major transit stops. Sidewalks are afforded along the study area streets that provide direct route to transit stops/stations with adequate street lights and visibility. The proposed development also provides secure and indoor bike stalls to further encourage non-auto mode share.

A review of the distances between the center point of the Lisgar-Nepean development and the nearest north-south transit stops along Bank Street east of the development was found to indicate:

- Stop 2487 is located at the NE quadrant of the Lisgar Street / Bank Street intersection, 140m west of the site and provides access to southbound bus routes; and
- Stop 2484 is located in the SW quadrant of the Bank Street / Gloucester Street intersection, approximately 175m to the northwest of the site.

Both transit stops were found to achieve the City of Ottawa standard of 400m to the nearest transit stop.

6.1.2 Circulation and Access

The site proposes to accommodate on-site loading of small-and-medium sized delivery vehicles through the use of parallel parking stalls adjacent to each building and a designated small-vehicle loading area. The on-site loading bay provides for a 7.0m deep by 2.4m wide stall and will be signed for small delivery vehicles, such as delivery vans. Larger sized trucks are anticipated to be infrequent, but would be able to utilize the parallel parking spaces located adjacent to the main drive aisle. In this way, no impact to Nepean Street or Lisgar Street is anticipated from loading vehicles.

Bollards are recommended as a solution to protect column along the primary drive aisle from potential vehicle impacts. The positioning of the bollards should assure that the drive aisle width is maintained and pedestrian mobility not impeded.

Waste bins, which are located adjacent to each building, would be moved to the street front to accommodate disposal and then returned afterward. Refuse areas are provided direct access to Nepean Street and Lisgar Street to facilitate pick-up. Waste disposal vehicles would not enter the site.

6.2 PARKING

6.2.1 Motor Vehicle Parking

Table 6-1 summarizes the parking requirements and proposed supply for the development. The minimum parking requirements are based on:

- Table 101, row R12, for a high-rise apartment dwelling site located in Area "X' of Schedule 1A (Zoning By-law No.2008-250). This results in 255 parking stalls required for the 521 residential units;
- Table 102 for the number of visitor stalls and as per 102(3) no more than 30 visitor stalls are required; and
- As per 101(6)(c)(i), a reduction of 20 auto stalls would apply given all parking stalls are located below grade;

Table 6-1 indicates that the proposed 282 stall parking supply exceeds the minimum parking requirement of 265 auto parking stalls. The development is not anticipated to have an impact on adjacent street parking due to spill-over effects.

Table 6-1: Parking Requirements for the Nepean-Lisgar Development

Parking Type	*Rate*	*Units*	*Parking Requirements*	*Provided Parking**
Residential - Tenant (Table 101)	0.5 stalls / unit After First 12 Units Less 20 stalls	521 Units	235 Stalls	282 Underground Stalls
Residential - Visitor (Table 102)	0.1 stalls / unit Up to 30 stalls		30 Stalls	
Total Parking Stalls			**265 Stalls Required**	**282 Stalls to be Provided**

6.2.2 Bicycle Parking

A review of By-Law Section 111 indicates 0.50 bicycle parking spaces are required per-dwelling-unit. The proposed development would involve 521 apartment units thus requiring 261 bicycle spaces.

The proposed site plan provides for 410 bicycle parking stalls located in secure areas in the underground parking lots P1-thru-P6. An additional 60 stalls are available in an indoor facility on the ground level for a total of 470 stalls, resulting in 90% of the apartments units being provided a bicycle stall. This far exceeds the minimum of 261 stalls and supports cycling as a mode share.

6.3 BOUNDARY STREET DESIGN

6.3.1 Mobility – Segment MMLOS Analysis

The Multi-Modal Level-of-Service (MMLOS) guidelines were used to evaluate the segment level of service for all modes of transportations within the immediate study area. The following boundary road segments were considered with this analysis:

- Nepean Street;
- Lisgar Street;
- Bank Street; and
- O'Connor Street.

Table 6-2 summarizes (and Appendix "F" details) the segment MMLOS analysis fronting the proposed development assuming the existing configurations of each study segment above. The table incorporates the following analysis assumptions:

- The target MMLOS has been referenced from Exhibit 22 from the City of Ottawa Multi Modal Level of Service Guidelines (September 2015). The MMLOS targets are based on the "Within 600m of Rapid Transit Policy Area" as the proposed development is located south of the existing Line 1 LRT;
- The proposed development does not propose significant roadway widenings or changes to the sidewalk arrangements within the study area;
- For the pedestrian and bike LOS analysis, the operating speed for Nepean Street and Lisgar Street was assumed to be 30 km/hr given each one-way local road provides for narrow corridor widths, street parking along both sidewalks and traffic calming measures in the form of speed bumps and large corner radii. These measures would serve to minimize the operating speed along these segments; and
- For the remaining segments, the operating speed has been assumed to be 10 km/hr greater than the roadway posted speed[1].

A review of Table 6-2 was found to indicate the following MMLOS constraints:

Pedestrian LOS (PLOS)

- A PLOS of "B" was achieved for the west side of O'Connor Street as there is no boulevard provided as a buffer between pedestrians and the traffic flow. To achieve the target PLOS of "A", measures are required to deliberately reduced the operating speed to 50 km/hr or additional right-of-way is needed to provide a boulevard greater than 0.5m. However, these measures redundant given that the PLOS is met on the other side of O'Connor Street with the provision of dedicated cycling lanes that provide the boulevard buffer for pedestrians;

1 Section 2.5, "*Addendum to MMLOS Guidelines"*, City of Ottawa, May 2017.

Table 6-2: Segment MMLOS Analysis Summary

Performance Measure	Roadway Segments Adjacent to the Development			
	Nepean Street One Way EB	**Lisgar Street** One way WB	**Bank Street** Northbound	**O'Connor Street** Southbound
Pedestrian LOS (PLOS)				
Sidewalk Width (m)	1.8m	>2.0m	>2.0m	2.0m
Boulevard Width (m)	0	0	1.7m	0
Average Daily Curb Lane Traffic Volume	<3,000	<3,000	<3,000	<3,000
Presence of On-Street Parking	Yes	Yes	Yes	Yes
Operating Speed (km/h)	30	30	50	50
Segment PLOS	A	A	A	**B**
Target PLOS	A	A	A	A
Bicycle LOS (BLOS)				
Bikeway Type	Mixed Traffic	Mixed Traffic	Mixed Traffic	Physically Separated Bike Lanes
Travel Lanes	1	1	2	
Bike Lane Width (m)	N/A	N/A	N/A	N/A
Operating Speed (km/h)	30	30	50	N/A
Bike Lane Blockage	N/A	N/A	N/A	N/A
Segment BLOS	A	A	D	A
Target BLOS	D	D	D	A
Transit LOS (TLOS)				
Facility Type	N/A	N/A	Mixed Traffic	N/A
Level/Exposure to Parking/Driveway Friction			Low	
Segment TLOS			D	
Target TLOS			D	
Truck LOS (TkLOS)				
Number of lanes (in each direction)	N/A	N/A	1	2
Curb Lane Width (m)			3.5m	3.4m
Segment TkLOS			C	C
Target TkLOS			E	D

6.4 ACCESS INTERSECTIONS DESIGN

6.4.1 Location and Design of Site Access

The site accesses would be located approximately 65m east of Bank Street along two local roads, Nepean Street and Lisgar Street. Both the Nepean and Lisgar driveways would be connected through two-way traffic flow interior to the site.

6.4.2 Intersection Control

Both site access would be YIELD-controlled on the minor, such that the right turns from the development would need to yield to traffic on the main thoroughfare.

6.5 TRANSPORTATION DEMAND MANAGEMENT

6.5.1 Context for TDM

The travel patterns for the Ottawa Inner Area within the 2011 Trans O-D Survey Report were reviewed. It was determined that:

- ***Morning Peak Hour:*** Over 70% of trips from the District are work related and just over 10% are school related during the morning peak period. While trips within the District are approximately 70% work (32%) or school related (37%); and
- ***Afternoon Peak Hour:*** Approximately 60% of trips to and within the District are return home trips during the afternoon peak period. Approximately 20-to-25% of trips to and within the District are leisure and shopping related.

The trip purposes are expected to remain similar to existing patterns noted above in that trips to/from the proposed development predominately would be work / school related during the morning peak period with some trips being leisure and shopping related during the afternoon peak period. The likelihood of a residential building site traffic to be greater than forecast is low, particularly as significant transit and multi-modal provisions are available.

6.5.2 Need and Opportunity

The existing and future mode share assumed for the proposed development are depicted in Table 3-4. If the non-auto mode share (transit/walking) and the auto mode share remain unchanged from today (worst-case assumption), the additional auto-trip are not anticipated to have significant impact on the tenants/visitors, other land uses or transportation network.

The proposed development provides the minimum parking supply to both tenants and visitors according to the City of Ottawa by-law.

However, it should be appreciated that the likelihood of not achieving the desired mode share is offset by:

- the proposed development is within a convenient walking distance to/from transit stops and the LRT Line 1;
- sidewalks exist within the study area corridors to accommodate pedestrian activities between local and regional transit amenities;
- indoor and secured bike spaces are available within the building for tenants and visitors; and
- dedicated bike lanes are accommodated along O'Connor Street just east of the proposed development.

All of the above is anticipated to encourage the use of non-auto mode share and meet the target assumed in this study.

6.5.3 TDM Program

The City of Ottawa's TDM-Supportive Development Design and Infrastructure Checklist was completed for the proposed residential development (See Appendix "E").

The development was found to provide excellent pedestrian linkages throughout the site and a significant number of bicycle parking stalls to support sustainable modes. The cycle stalls have been provided in a secure facility accessible to tenants.

6.6 NEIGHBOURHOOD TRAFFIC MANAGEMENT

The purpose of this module is to identify the impact of the proposed development on collector and local roadways. The development is supported by Nepean Street to the north (one way EB) and Lisgar Street to the south (one-way WB), both of which are local roadways according to the City of Ottawa TMP.

6.6.1 Adjacent Neighbourhoods

The site proposes two access points along one-way local roads, Nepean Street and Lisgar Street, which both connect to arterial roadways. Nepean Street is a one-way EB street while Lisgar street provides one-way EB, both of which accommodate on-street parking and traffic calming measures in the form of speed bumps.

Inspection of the morning peak hour existing traffic volumes were found to indicate:

- Between 120-to-205 vph along Nepean Street EB direction; and
- Between 40-to-180 vph along Lisgar Street WB direction.

The City of Ottawa TIA guidelines indicate that the peak hour threshold for a "Local Road" is 120 vehicles during the peak hour. Therefore, the existing Nepean Street and Lisgar Street corridors function much more closely to Collector Roadway (300 vph threshold).

The additional traffic added (worst-case) on the local roads are forecasted to be:

- 5-to-21 vph along Nepean Street EB direction during the morning peak hour; and

- 6-to-18 vph along Lisgar Street WB direction during the morning peak hour.

A review of the 2026 forecast found that peak hour traffic volumes would remain below the 300 vph threshold designated to Collector Roadways. The proposed development is not anticipated to result in significant auto traffic increase on the local roads given the location and proximity to the major transit stations and future LRT line. Therefore, the role/classification of the Nepean Street and Lisgar Street are not anticipated to change given the advent of the proposed Nepean-Lisgar development.

6.7 TRANSIT

6.7.1 Route Capacity

OC Transpo transit service within the vicinity of the site is currently provided north and south along Bank Street and rapid transit is provided via LRT Line 1 to the north. The total projected passenger demand generated by the development in both directions were in the range of 160-to-220 passengers during the peak hour.

The majority of transit passengers are envisioned to be accommodate by Line 1 to the north, which is within walking distance. Should transit riders chose to use the Bank Street transit routes to access Line 1, all 3 transit routes should have sufficient capacity given their 15 minute headways.

6.7.2 Transit Priority

The proposed development would utilize existing transit infrastructure that includes transit stops along Bank Street and the existing Line 1. The development is not anticipated to impact transit travel times of the existing Bank Street routes or trigger the need for transit priority measures within the study area. Stage 2 of the LRT line is expected to extend further east to Trim Road and west to Moodie Drive, further enhancing east west rapid transit services. The Trillium line is also expected to be extended south to Earl Armstrong / Bowesville during the stage.

Based on the above, the proposed development is anticipated to be served by extensive transit service within 5 years. Therefore, the impacts of transit generated demands by the new development are anticipated to be negligible and accommodated by the transit provisions offered by the study area.

6.8 INTERSECTION DESIGN

An assessment of the study area intersections was undertaken to determine their operational characteristics such as levels-of-service, delay, volume-to-capacity ratios and 95th percentile queue lengths. The intersection capacity analysis was undertaken using Synchro 10^{TM} intersection capacity analysis software for traffic signals and STOP-controlled intersections

Appendix "G" provides the Synchro output sheets for both morning and afternoon peak hours of travel demand.

6.8.1 Forecast Auto Capacity Analysis

Table 6-3 summarizes the intersection capacity analysis for the 2026 forecast morning and afternoon peak hours of travel demand assuming the full build-out of the proposed development. The table denotes the most critical movements at the intersection based on level-of-service v/c ratio for traffic signals, delay for non-signalized.

The 2021 forecast traffic analysis is not presented as the results were found to demonstrate overall better traffic operations given less traffic growth on the network has taken place.

Inspection of the analysis was found to indicate that, when compared to the existing analysis (Section 6.1), the majority of movements were found to result in similar level-of-service. The STOP-controlled intersections were found to operate at poor levels of service and delay for the minor leg approaches due to a significant north-south pedestrian volume. The traffic signal controlled intersections were found to well exceed the Auto Target LOS "E" for an area within 600m of rapid transit.

Overall, the development was found to have a negligible impact on the auto level of service.

Table 6-3: Forecast 2026 Background Intersection Capacity Analysis Summary

Intersection	***Weekday Morning Peak Hour (Afternoon Peak Hour)***						
	Critical Movement				***Overall Intersection***		
	Approach / Movement	Delay (seconds)	LOS	v/c	Delay (seconds)	LOS	v/c
Signalized							
Bank & Lisgar	***NB-Th/LT (NB-Th/LT)***	14 (12)	B (A)	0.67 (0.53)	13 (12)	A (A)	0.46 (0.44)
O'Connor & Lisgar	***SB-Th (SB-Th)***	9 (7)	A (A)	0.34 (0.51)	11 (12)	A (A)	0.33 (0.50)
Metcalfe & Nepean	***NB-Th (NB-Th)***	4 (7)	A (A)	0.52 (0.25)	6 (12)	A (A)	0.48 (0.31)
Metcalfe & Lisgar	***NB-Th (WB-Th)***	11 (18)	B (A)	0.62 (0.44)	12 (11)	A (A)	0.57 (0.34)
Unsignalized – STOP controlled							
Bank & Nepean	***EB App. (EB App.)***	57 (156)	**F (F)**	0.75 (1.05)	-	-	-
O'Connor & Nepean	***EB Th/RT. (SB-LT/RT)***	22 (130)	C **(F)**	0.42 (1.09)	-	-	-

6.8.2 Intersection Multi-Modal LOS Analysis

Table 6-4 details the MMLOS for all modes of transportation for the study area traffic-signal controlled intersections and provides a comparison to the target LOS shown in the MMLOS guidelines. The MMLOS targets are based on the "Policy area – Within 600m of Rapid Transit Station" as the development is located less than 600m south of the LRT Line 1.

Table 6-4: Multi-Modal Level of Service Analysis - Summary

Intersections	Pedestrian (PLOS)		Bicycle (BLOS)[2]		Transit (TLOS)		Truck (TkLOS)		Vehicle (LOS)	
	PLOS	Target	BLOS	Target	TLOS	Target	TkLOS	Target	LOS	Target
Nepean/Metcalfe	B	A	B	C			D	E	A	E
Lisgar/Bank	B	A	B	D	D	D[3]	F[4]	E	A	E
Lisgar/O'Connor	C	A	B	A			D	D	B	E
Lisgar/Metcalfe	B	A	**F**	C			D	E	A	E

- Policy Area was assumed for the proposed development.
- Target LOS for Bicycle was based on Main N-S arterial road classifications.
- Bank Street is a transit priority corridor with isolated measures.
- TkLOS is based on turning movement from a local street onto Bank Street. Large trucks are not expected to turn onto these streets unless they are delivery trucks.

The following bullets summaries Table 8.1 above:

- *Pedestrian Level of Service (PLOS)* – All intersections were found to achieve a PLOS "B" which does not meet the target of "A" for areas within 600m of rapid transit. The PLOS "B" is a direct result of the need for pedestrians to cross Bank Street (3-lanes), O'Connor Street (4-lanes) and Metcalfe Street (3 lanes). It is unlikely that reducing the cross distance for pedestrians is a worthy trade off for the transit, bicycle and auto level of service currently offere;
- *Bicycle Level of Service (BLOS)* – All traffic signal controlled intersections were found to achieve their respective BLOS except for Metcalfe Street & Lisgar Street which offers a BLOS "F". The BLOS "F" is attributed to the need for a cyclist to make a left-turn across two lanes of traffic. However, O'Connor Street provides an alternative parallel route with a higher level of service therefore no improvements are suggested for this intersection;
- *Transit Level of Service (TLOS)* – Bank Street is a transit priority corridor (isolated measures) within the study area and accommodates transit stops. The TLOS for Bank Street meets the target for an isolated measures corridor.
- *Truck Level of Service (TkLOS)* – All intersections with the exception of Bank Street / Lisgar Street was found to exceed the TkLOS target. The corner radii of this intersection have been minimized as to provide for pedestrian levels-of-service. Given the infrequency of trucks along Bank Street, a TkLOS "F" is considered an acceptable trade-off;

7.0 TIA STRATEGY

The proposed 176 Nepean Street & 293-307 Lisgar Street would involve 521 apartment units located in three high-rise residential towers. This study does not recommend any additional transportation improvements that would be required to support the proposed development.

It is recommended that the City of Ottawa be encouraged to assemble the appropriate conditions that would permit the development application for the development to proceed.

Yours truly,

Mr. Arthur Gordon B.A. P.Eng
Principal Engineer
Castleglenn Consultants Inc.

Mr. Jake Berube B.Eng. EIT
Traffic Planning Specialist
Castleglenn Consultants Inc.

APPENDIX A: CERTIFICATION FORM FOR TIA STUDY PROJECT MANAGER

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.
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Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at Ottawa (City) this 23 day of October, 20 20.

Name: Arthur Gordon
(Please Print)

Professional Title: Principal Engineer

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

Office Contact Information (Please Print)
Address: Suite 200 - 2460 Lancaster Road
City / Postal Code: Ottawa / K1B 4S5
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E-Mail Address: agordon@castleglenn.ca

Stamp

LICENSED PROFESSIONAL ENGINEER
A.E. GORDON
PROVINCE OF ONTARIO

APPENDIX B: SCREENING FORM

Castleglenn Consultants
Engineers, Project Managers & Planners

2460 Lancaster Road, Suite 200,
Ottawa, Ontario, K1B 4S5
Tel: 613-731-4052

City of Ottawa 2017 TIA Guidelines Screening Form

Mr. Wally Dubyk
Project Manager, City of Ottawa
110 Laurier Avenue West,
Ottawa, ON, K1G 6J9

October 20th, 2017

Please see below the completed screening form for the proposed residential development located at 176 Nepean Street and 293-307 Lisgar Street.

1. Description of Proposed Development

Municipal Address	176 Nepean Street / 293-307 Lisgar Street
Description of Location	Bordered by Bank St to the west, Nepean St to the north, O'Connor St to the east and Lisgar St to the South
Land Use Classification	Residential
Development Size (units)	~ 500 units
Development Size (m^2)	~ 320,000 SF
Number of Accesses and Locations	Two Access locations, one by way of Nepean St and the other by way of Lisgar St.
Phase of Development	Unknown at this stage
Buildout Year	Unknown

2. Trip Generation Trigger

The development will consist of about 500 units in the form of 2 towers; where both are proposed to consist of over 20 storeys.

Land Use Type	Development Size
High Rise Condominium	~ 500 units

The proposed development size is greater than the minimum threshold size (of 90 units) and therefore, the Trip Generation Trigger is satisfied.

Castleglenn Consultants
Engineers, Project Managers & Planners

2460 Lancaster Road, Suite 200,
Ottawa, Ontario, K1B 4S5
Tel: 613-731-4052

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?		X
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone? *	X	

**DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).*

The Study area is within the DPA (General Urban Area) as per Schedule B and TOD as per Annex 6. There fore, <u>the Location Trigger is satisfied</u>.

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?		X
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?		X
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)?	X	
Is the proposed driveway within auxiliary lanes of an intersection?		X
Does the proposed driveway make use of an existing median break that serves an existing site?		X
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		X[1]
Does the development include a drive-thru facility?		X

1- To best of Castleglenn's Knowledge, we are not aware at this time of traffic operations or safety concerns within the study area. The study area intersections will be analyzed part of this assignment to determine any traffic operation concerns.

The proposed driveway is within the area of influence of an adjacent traffic signal, therefore, <u>the Safety Trigger is satisfied</u>.

2460 Lancaster Road, Suite 200,
Ottawa, Ontario, K1B 4S5
Tel: 613-731-4052

5. Summary

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

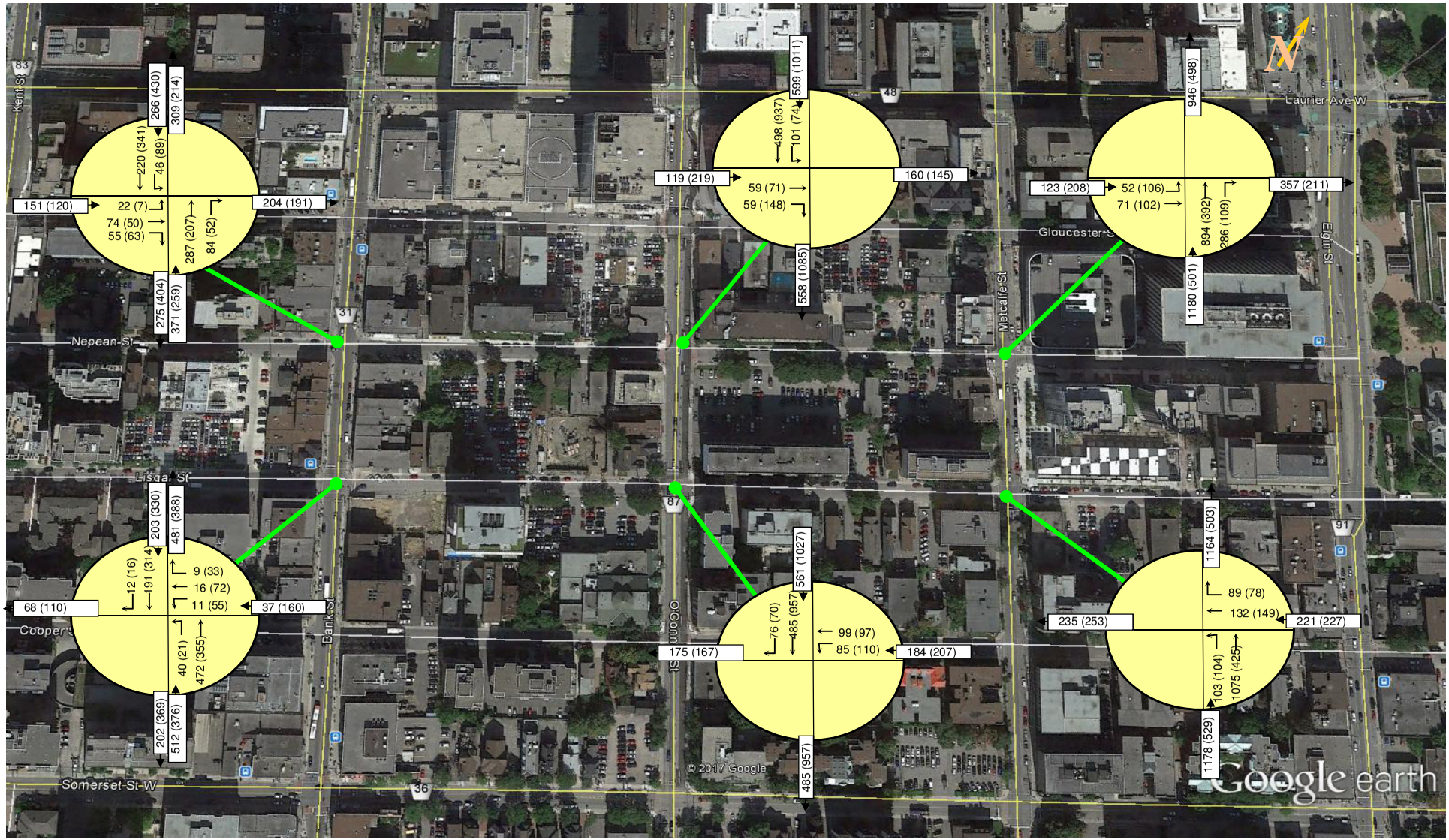
Please review the above screening information and let us know your comments or questions before proceeding to the next step of the TIA.

Yours Truly,

Arman Matti

Arman Matti, P.Eng.
Transportation Engineer
Castleglenn Consultants Inc.

APPENDIX C: EXISTING TRAFFIC VOLUMES AND COLLISIONS


Kent St
Nepean St
Lisgar St
Somerset St W
Bank St
O'Connor St
Metcalfe St
Gloucester St
Laurier Ave W
E 90 St
Cooper St
© 2017 Google
Google earth
151 (120)
22 (7)
74 (50)
55 (63)
204 (191)
220 (341)
46 (89)
266 (430)
309 (214)
287 (207)
84 (52)
275 (404)
371 (259)
119 (219)
59 (71)
59 (148)
160 (145)
498 (937)
101 (74)
599 (1011)
558 (1085)
123 (208)
52 (106)
71 (102)
357 (211)
946 (498)
894 (392)
286 (109)
1180 (501)
68 (110)
12 (16)
191 (314)
9 (33)
16 (72)
11 (55)
37 (160)
203 (330)
481 (388)
40 (21)
472 (355)
202 (369)
512 (376)
175 (167)
76 (70)
485 (957)
99 (97)
85 (110)
184 (207)
561 (1027)
485 (957)
235 (253)
89 (78)
132 (149)
221 (227)
1164 (503)
103 (104)
1075 (425)
1178 (529)

Transportation Services - Traffic Services

W.O. 36837

Turning Movement Count - 15 Minute Summary Report

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		METCALFE ST									LISGAR 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	20	179	0	**199**	0	0	0	**0**	**199**	0	0	0	**0**	0	6	23	**29**	**29**	**228**
07:15	07:30	10	199	0	**209**	0	0	0	**0**	**209**	0	0	0	**0**	0	23	15	**38**	**38**	**247**
07:30	07:45	33	269	0	**302**	0	0	0	**0**	**302**	0	0	0	**0**	0	30	20	**50**	**50**	**352**
07:45	08:00	20	247	0	**267**	0	0	0	**0**	**267**	0	0	0	**0**	0	18	25	**43**	**43**	**310**
08:00	08:15	22	271	0	**293**	0	0	0	**0**	**293**	0	0	0	**0**	0	25	12	**37**	**37**	**330**
08:15	08:30	22	302	0	**324**	0	0	0	**0**	**324**	0	0	0	**0**	0	30	26	**56**	**56**	**380**
08:30	08:45	34	275	0	**309**	0	0	0	**0**	**309**	0	0	0	**0**	0	34	24	**58**	**58**	**367**
08:45	09:00	18	240	0	**258**	0	0	0	**0**	**258**	0	0	0	**0**	0	34	15	**49**	**49**	**307**
09:00	09:15	29	258	0	**287**	0	0	0	**0**	**287**	0	0	0	**0**	0	34	24	**58**	**58**	**345**
09:15	09:30	22	191	0	**213**	0	0	0	**0**	**213**	0	0	0	**0**	0	25	21	**46**	**46**	**259**
09:30	09:45	21	149	0	**170**	0	0	0	**0**	**170**	0	0	0	**0**	0	20	17	**37**	**37**	**207**
09:45	10:00	17	130	0	**147**	0	0	0	**0**	**147**	0	0	0	**0**	0	16	21	**37**	**37**	**184**
11:30	11:45	11	100	0	**111**	0	0	0	**0**	**111**	0	0	0	**0**	0	24	13	**37**	**37**	**148**
11:45	12:00	14	93	0	**107**	0	0	0	**0**	**107**	0	0	0	**0**	0	21	19	**40**	**40**	**147**
12:00	12:15	15	92	0	**107**	0	0	0	**0**	**107**	0	0	0	**0**	0	23	8	**31**	**31**	**138**
12:15	12:30	16	82	0	**98**	0	0	0	**0**	**98**	0	0	0	**0**	0	25	15	**40**	**40**	**138**
12:30	12:45	22	102	0	**124**	0	0	0	**0**	**124**	0	0	0	**0**	0	19	11	**30**	**30**	**154**
12:45	13:00	18	92	0	**110**	0	0	0	**0**	**110**	0	0	0	**0**	0	17	13	**30**	**30**	**140**
13:00	13:15	14	88	0	**102**	0	0	0	**0**	**102**	0	0	0	**0**	0	22	12	**34**	**34**	**136**
13:15	13:30	17	100	0	**117**	0	0	0	**0**	**117**	0	0	0	**0**	0	26	14	**40**	**40**	**157**
15:00	15:15	14	87	0	**101**	0	0	0	**0**	**101**	0	0	0	**0**	0	29	19	**48**	**48**	**149**
15:15	15:30	21	73	0	**94**	0	0	0	**0**	**94**	0	0	0	**0**	0	42	14	**56**	**56**	**150**
15:30	15:45	21	85	0	**106**	0	0	0	**0**	**106**	0	0	0	**0**	0	26	21	**47**	**47**	**153**
15:45	16:00	21	108	0	**129**	0	0	0	**0**	**129**	0	0	0	**0**	0	24	16	**40**	**40**	**169**
16:00	16:15	25	91	0	**116**	0	0	0	**0**	**116**	0	0	0	**0**	0	39	20	**59**	**59**	**175**
16:15	16:30	23	106	0	**129**	0	0	0	**0**	**129**	0	0	0	**0**	0	29	18	**47**	**47**	**176**
16:30	16:45	22	96	0	**118**	0	0	0	**0**	**118**	0	0	0	**0**	0	42	20	**62**	**62**	**180**
16:45	17:00	24	111	0	**135**	0	0	0	**0**	**135**	0	0	0	**0**	0	39	23	**62**	**62**	**197**
17:00	17:15	35	112	0	**147**	0	0	0	**0**	**147**	0	0	0	**0**	0	39	17	**56**	**56**	**203**
17:15	17:30	22	97	0	**119**	0	0	0	**0**	**119**	0	0	0	**0**	0	26	29	**55**	**55**	**174**
17:30	17:45	27	97	0	**124**	0	0	0	**0**	**124**	0	0	0	**0**	0	25	20	**45**	**45**	**169**
17:45	18:00	28	98	0	**126**	0	0	0	**0**	**126**	0	0	0	**0**	0	32	12	**44**	**44**	**170**
TOTAL:		678	4620	0	**5298**	0	0	0	**0**	**5298**	0	0	0	**0**	0	864	577	**1441**	**1441**	**6739**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
36837

LISGAR ST @ METCALFE ST

Count Date: Tuesday, April 04, 2017

Start Time: 07:00

	METCALFE ST			LISGAR ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	1	0	**1**	0	0	**0**	**1**
08:00 09:00	7	0	**7**	0	2	**2**	**9**
09:00 10:00	1	0	**1**	0	0	**0**	**1**
11:30 12:30	0	0	**0**	0	1	**1**	**1**
12:30 13:30	1	0	**1**	0	1	**1**	**2**
15:00 16:00	5	0	**5**	0	2	**2**	**7**
16:00 17:00	0	0	**0**	0	3	**3**	**3**
17:00 18:00	2	0	**2**	0	3	**3**	**5**
Total	17	0	**17**	0	12	**12**	**29**

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

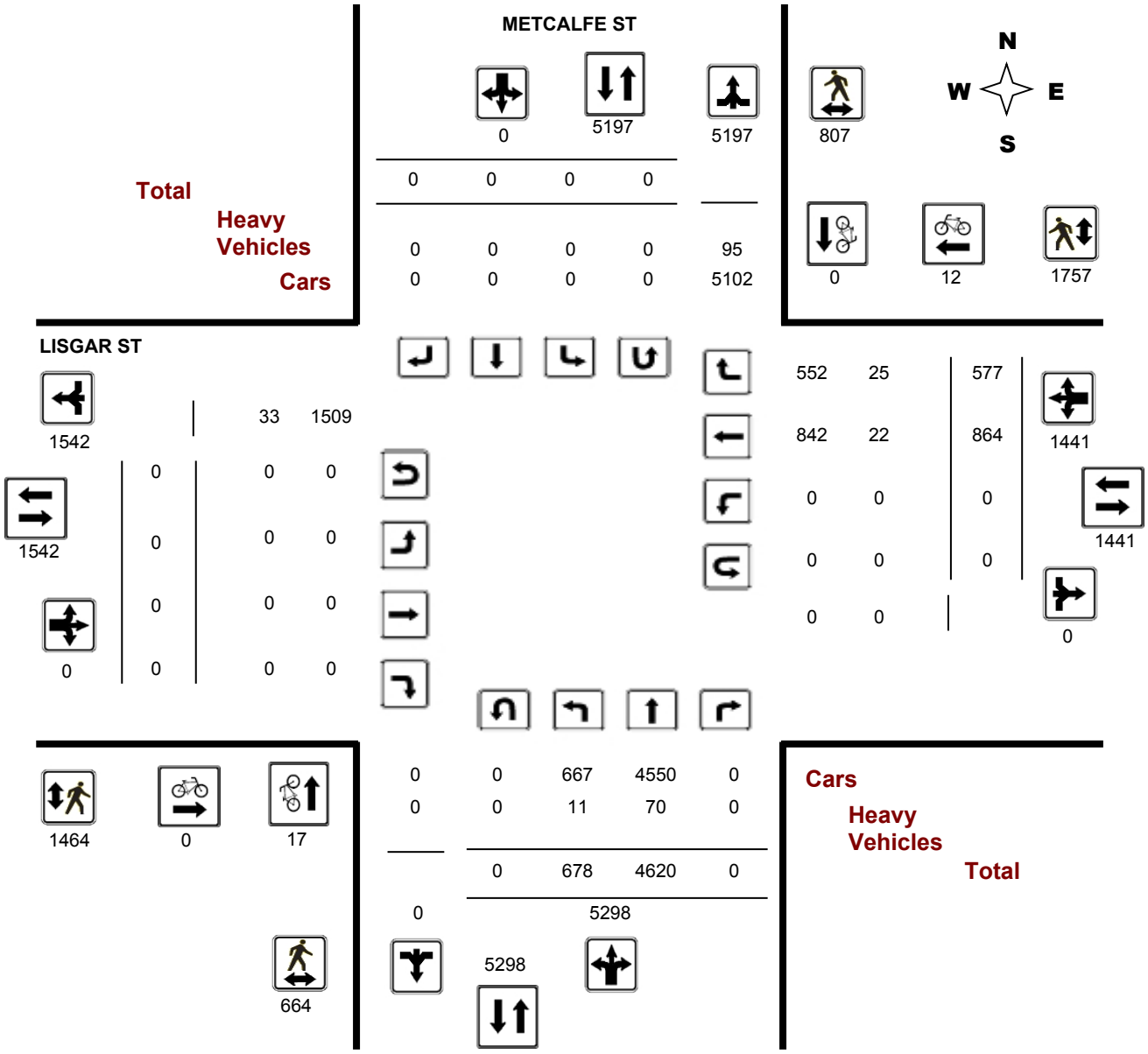
Turning Movement Count - Full Study Diagram

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 2017

WO#: 36837

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 36837

Turning Movement Count - Heavy Vehicle Report

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 2017

		METCALFE ST									LISGAR 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	08:00	1	3	0	**4**	0	0	0	**0**	**4**	0	0	0	**0**	0	5	3	**8**	**8**	**12**
08:00	09:00	0	11	0	**11**	0	0	0	**0**	**11**	0	0	0	**0**	0	5	5	**10**	**10**	**21**
09:00	10:00	0	12	0	**12**	0	0	0	**0**	**12**	0	0	0	**0**	0	1	7	**8**	**8**	**20**
11:30	12:30	2	10	0	**12**	0	0	0	**0**	**12**	0	0	0	**0**	0	2	2	**4**	**4**	**16**
12:30	13:30	4	14	0	**18**	0	0	0	**0**	**18**	0	0	0	**0**	0	3	2	**5**	**5**	**23**
15:00	16:00	0	9	0	**9**	0	0	0	**0**	**9**	0	0	0	**0**	0	3	5	**8**	**8**	**17**
16:00	17:00	1	8	0	**9**	0	0	0	**0**	**9**	0	0	0	**0**	0	3	1	**4**	**4**	**13**
17:00	18:00	3	3	0	**6**	0	0	0	**0**	**6**	0	0	0	**0**	0	0	0	**0**	**0**	**6**
Sub Total		11	70	0	**81**	0	0	0	**0**	**81**	0	0	0	**0**	0	22	25	**47**	**47**	**128**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		11	70	0	**0**	0	0	0	**0**	**81**	0	0	0	**0**	0	22	25	**47**	**47**	**128**

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
36837

Turning Movement Count - Pedestrian Volume Report

LISGAR ST @ METCALFE ST

Count Date: Tuesday, April 04, 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	7	7	**14**	22	26	**48**	**62**
07:15 07:30	15	21	**36**	37	36	**73**	**109**
07:30 07:45	14	22	**36**	46	48	**94**	**130**
07:45 08:00	17	22	**39**	54	59	**113**	**152**
07:00 08:00	53	72	**125**	159	169	**328**	**453**
08:00 08:15	24	29	**53**	70	56	**126**	**179**
08:15 08:30	27	40	**67**	86	68	**154**	**221**
08:30 08:45	46	29	**75**	83	44	**127**	**202**
08:45 09:00	31	34	**65**	85	69	**154**	**219**
08:00 09:00	128	132	**260**	324	237	**561**	**821**
09:00 09:15	22	28	**50**	44	38	**82**	**132**
09:15 09:30	15	10	**25**	59	28	**87**	**112**
09:30 09:45	9	11	**20**	30	40	**70**	**90**
09:45 10:00	11	13	**24**	29	40	**69**	**93**
09:00 10:00	57	62	**119**	162	146	**308**	**427**
11:30 11:45	27	25	**52**	26	32	**58**	**110**
11:45 12:00	20	22	**42**	29	31	**60**	**102**
12:00 12:15	21	32	**53**	28	44	**72**	**125**
12:15 12:30	19	31	**50**	26	53	**79**	**129**
11:30 12:30	87	110	**197**	109	160	**269**	**466**
12:30 12:45	13	18	**31**	33	47	**80**	**111**
12:45 13:00	20	26	**46**	22	71	**93**	**139**
13:00 13:15	16	20	**36**	29	47	**76**	**112**
13:15 13:30	15	14	**29**	36	47	**83**	**112**
12:30 13:30	64	78	**142**	120	212	**332**	**474**
15:00 15:15	29	44	**73**	39	53	**92**	**165**
15:15 15:30	24	28	**52**	25	40	**65**	**117**
15:30 15:45	15	12	**27**	27	42	**69**	**96**
15:45 16:00	20	16	**36**	32	47	**79**	**115**
15:00 16:00	88	100	**188**	123	182	**305**	**493**
16:00 16:15	24	24	**48**	56	77	**133**	**181**
16:15 16:30	19	21	**40**	37	58	**95**	**135**
16:30 16:45	26	27	**53**	85	70	**155**	**208**
16:45 17:00	24	33	**57**	57	88	**145**	**202**
16:00 17:00	93	105	**198**	235	293	**528**	**726**
17:00 17:15	22	34	**56**	77	88	**165**	**221**
17:15 17:30	23	30	**53**	51	93	**144**	**197**
17:30 17:45	24	48	**72**	55	91	**146**	**218**
17:45 18:00	25	36	**61**	49	86	**135**	**196**
17:00 18:00	94	148	**242**	232	358	**590**	**832**
Total	664	807	**1471**	1464	1757	**3221**	**4692**

Comment:

Transportation Services - Traffic Services

Work Order 36837

Turning Movement Count - Full Study Summary Report

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	METCALFE ST									LISGAR 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	83	894	0	**977**	0	0	0	**0**	**977**	0	0	0	**0**	0	77	83	**160**	**160**	**1137**
08:00 09:00	96	1088	0	**1184**	0	0	0	**0**	**1184**	0	0	0	**0**	0	123	77	**200**	**200**	**1384**
09:00 10:00	89	728	0	**817**	0	0	0	**0**	**817**	0	0	0	**0**	0	95	83	**178**	**178**	**995**
11:30 12:30	56	367	0	**423**	0	0	0	**0**	**423**	0	0	0	**0**	0	93	55	**148**	**148**	**571**
12:30 13:30	71	382	0	**453**	0	0	0	**0**	**453**	0	0	0	**0**	0	84	50	**134**	**134**	**587**
15:00 16:00	77	353	0	**430**	0	0	0	**0**	**430**	0	0	0	**0**	0	121	70	**191**	**191**	**621**
16:00 17:00	94	404	0	**498**	0	0	0	**0**	**498**	0	0	0	**0**	0	149	81	**230**	**230**	**728**
17:00 18:00	112	404	0	**516**	0	0	0	**0**	**516**	0	0	0	**0**	0	122	78	**200**	**200**	**716**
Sub Total	678	4620	0	**5298**	0	0	0	**0**	**5298**	0	0	0	**0**	0	864	577	**1441**	**1441**	**6739**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	678	4620	0	**5298**	0	0	0	**0**	**5298**	0	0	0	**0**	0	864	577	**1441**	**1441**	**6739**
EQ 12Hr	942	6422	0	**7364**	0	0	0	**0**	**7364**	0	0	0	**0**	0	1201	802	**2003**	**2003**	**9367**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	848	5780	0	**6628**	0	0	0	**0**	**6628**	0	0	0	**0**	0	1081	722	**1803**	**1803**	**8431**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	1111	7571	0	**8682**	0	0	0	**0**	**8682**	0	0	0	**0**	0	1416	946	**2362**	**2362**	**11044**
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.

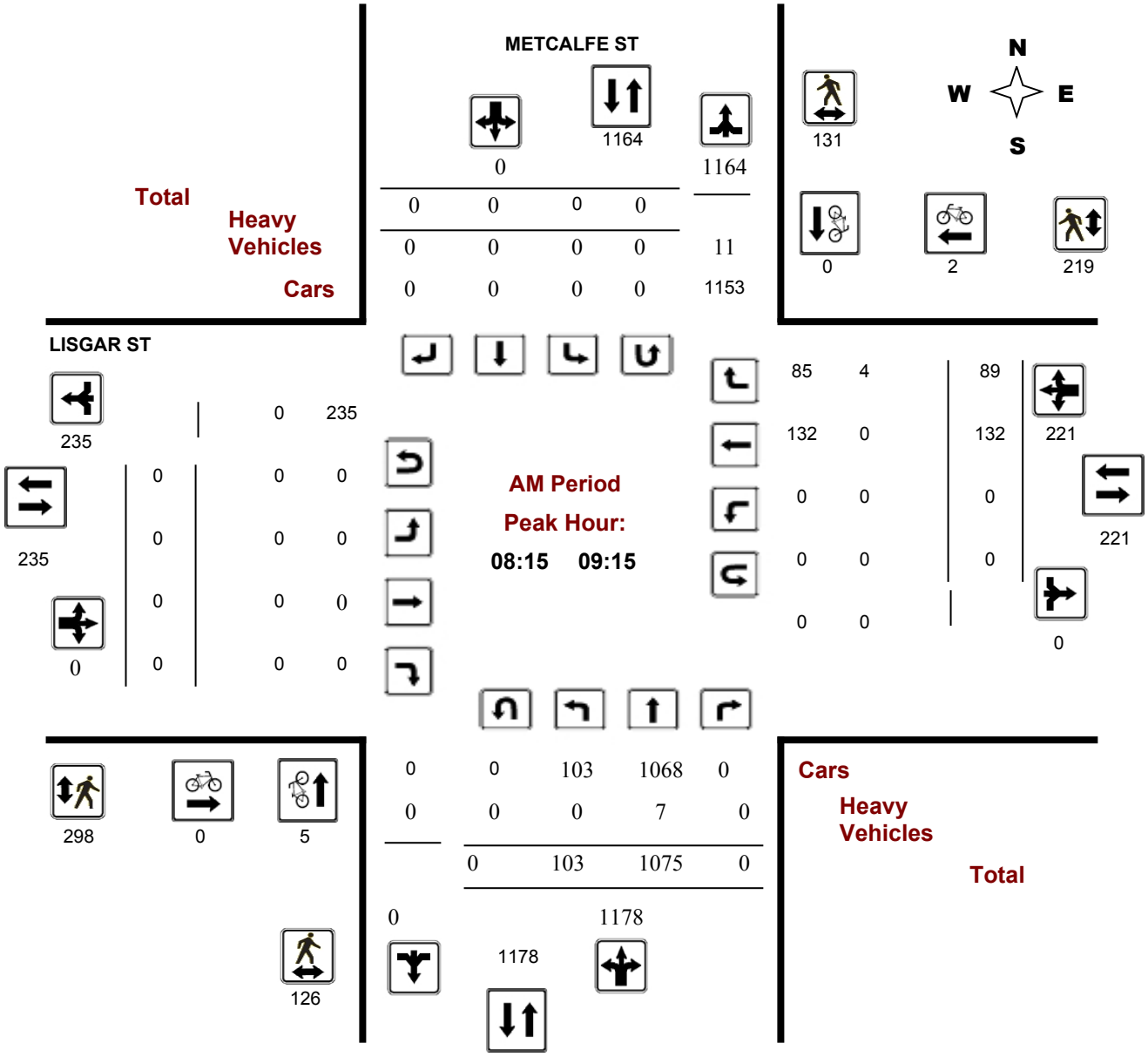
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 2017
Start Time: 07:00

WO No: 36837
Device: Miovision



Comments

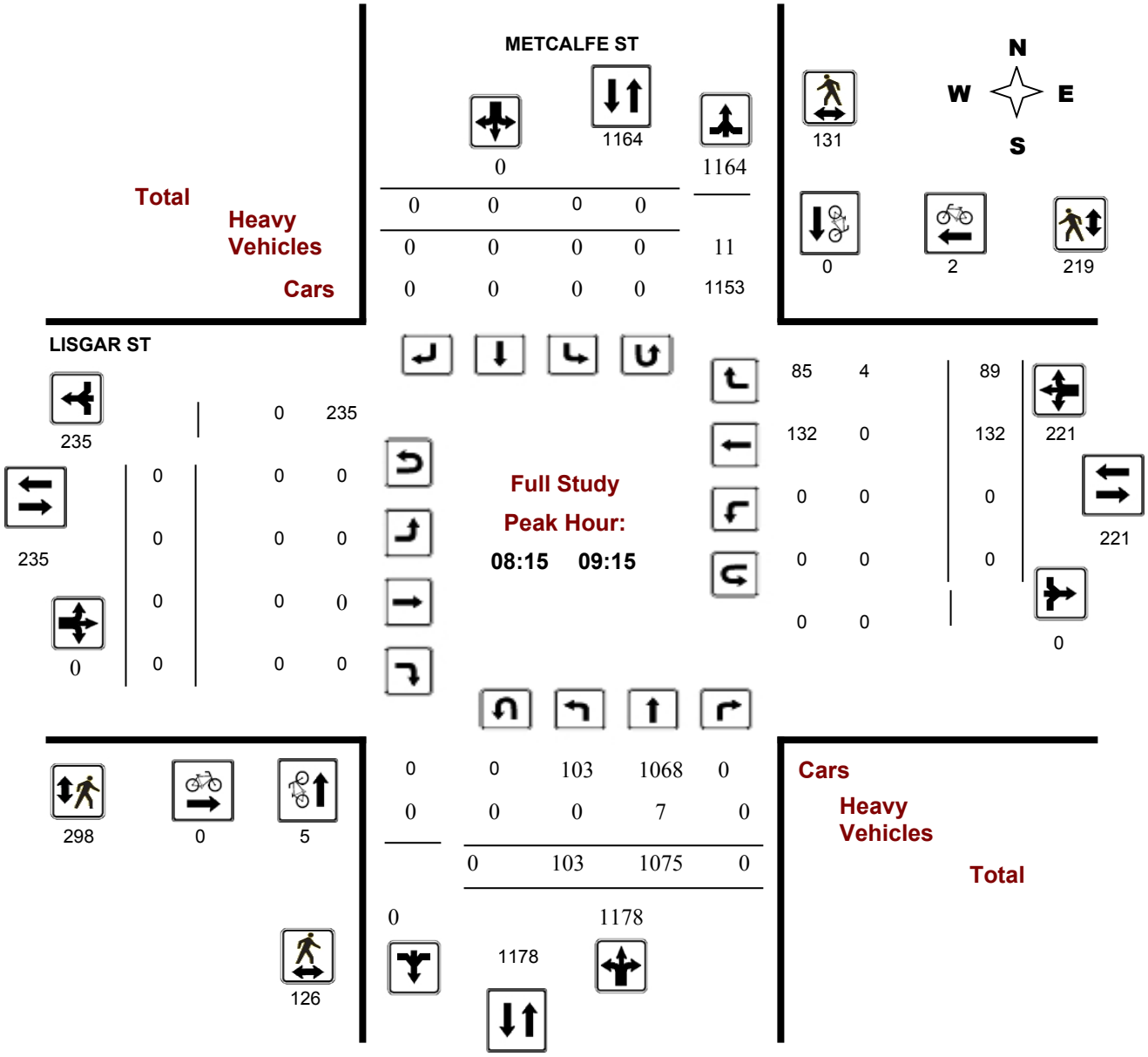
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 2017
Start Time: 07:00

WO No: 36837
Device: Miovision



Comments

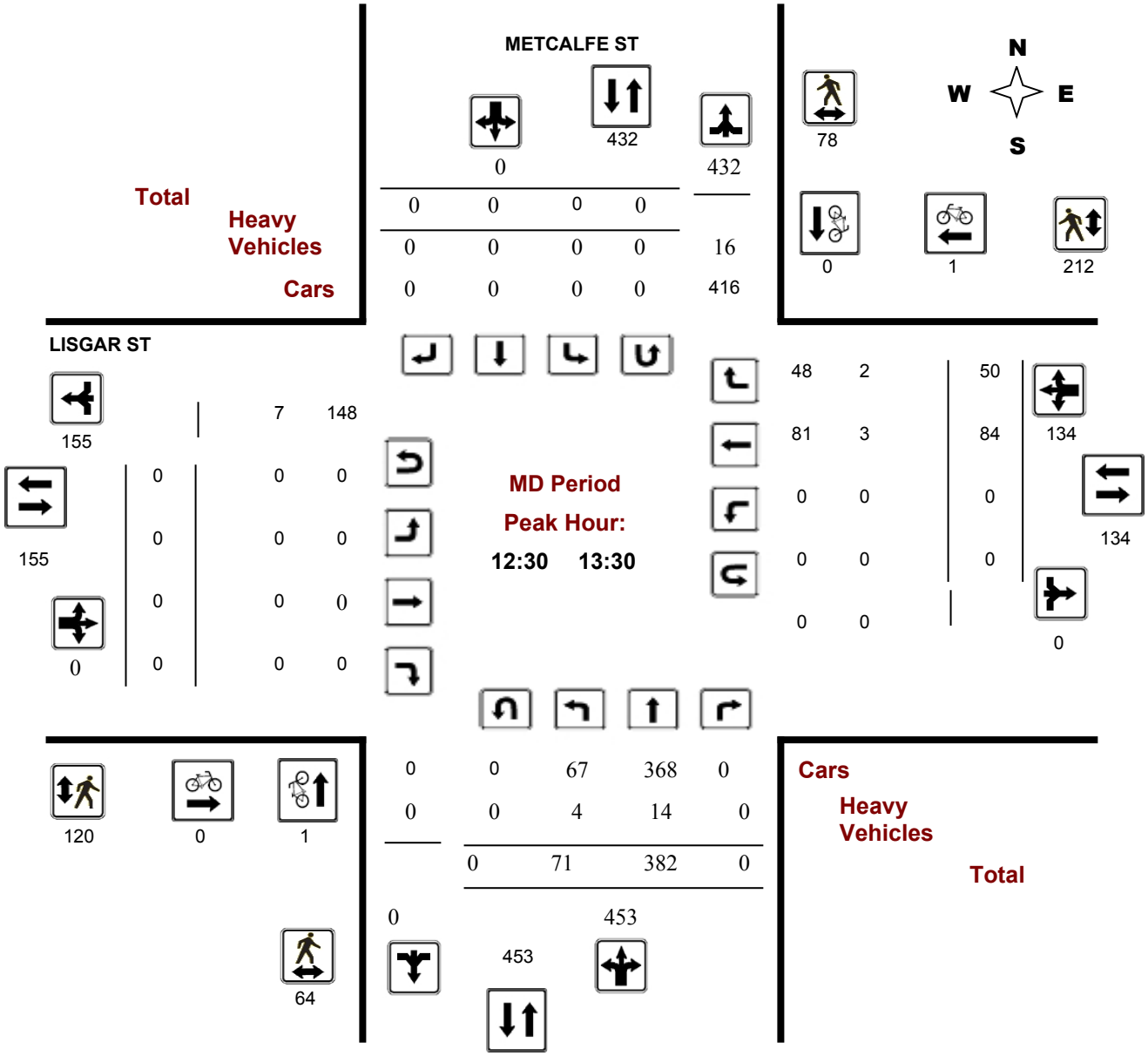
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 2017
Start Time: 07:00

WO No: 36837
Device: Miovision



Comments

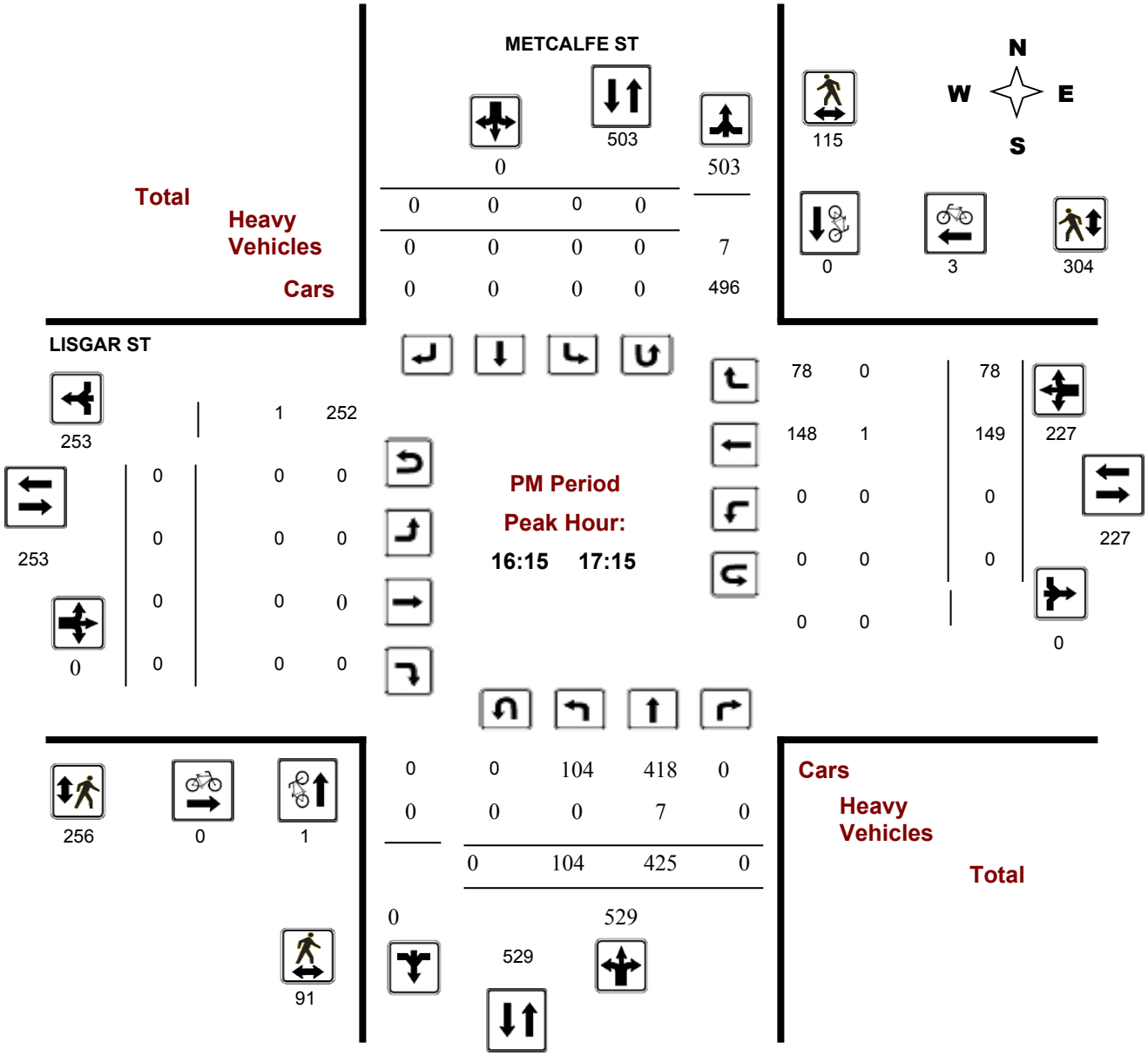
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 2017
Start Time: 07:00

WO No: 36837
Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order
36837

Turning Movement Count - 15 Min U-Turn Total Report

LISGAR ST @ METCALFE ST

Survey Date: Tuesday, April 04, 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

W.O. 36784

Turning Movement Count - 15 Minute Summary Report

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		O'CONNOR ST									LISGAR 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	92	11	**103**	**103**	0	0	0	**0**	12	12	0	**24**	**24**	**127**
07:15	07:30	0	0	0	**0**	0	84	9	**93**	**93**	0	0	0	**0**	18	16	0	**34**	**34**	**127**
07:30	07:45	0	0	0	**0**	0	106	9	**115**	**115**	0	0	0	**0**	25	20	0	**45**	**45**	**160**
07:45	08:00	0	0	0	**0**	0	118	9	**127**	**127**	0	0	0	**0**	19	28	0	**47**	**47**	**174**
08:00	08:15	0	0	0	**0**	0	126	11	**137**	**137**	0	0	0	**0**	30	23	0	**53**	**53**	**190**
08:15	08:30	0	0	0	**0**	0	108	11	**119**	**119**	0	0	0	**0**	18	25	0	**43**	**43**	**162**
08:30	08:45	0	0	0	**0**	0	111	8	**119**	**119**	0	0	0	**0**	18	29	0	**47**	**47**	**166**
08:45	09:00	0	0	0	**0**	0	124	13	**137**	**137**	0	0	0	**0**	25	31	0	**56**	**56**	**193**
09:00	09:15	0	0	0	**0**	0	120	17	**137**	**137**	0	0	0	**0**	20	25	0	**45**	**45**	**182**
09:15	09:30	0	0	0	**0**	0	105	24	**129**	**129**	0	0	0	**0**	17	29	0	**46**	**46**	**175**
09:30	09:45	0	0	0	**0**	0	136	22	**158**	**158**	0	0	0	**0**	23	14	0	**37**	**37**	**195**
09:45	10:00	0	0	0	**0**	0	138	8	**146**	**146**	0	0	0	**0**	15	11	0	**26**	**26**	**172**
11:30	11:45	0	0	0	**0**	0	123	19	**142**	**142**	0	0	0	**0**	28	18	0	**46**	**46**	**188**
11:45	12:00	0	0	0	**0**	0	117	13	**130**	**130**	0	0	0	**0**	28	11	0	**39**	**39**	**169**
12:00	12:15	0	0	0	**0**	0	133	12	**145**	**145**	0	0	0	**0**	18	12	0	**30**	**30**	**175**
12:15	12:30	0	0	0	**0**	0	113	16	**129**	**129**	0	0	0	**0**	23	12	0	**35**	**35**	**164**
12:30	12:45	0	0	0	**0**	0	118	11	**129**	**129**	0	0	0	**0**	23	19	0	**42**	**42**	**171**
12:45	13:00	0	0	0	**0**	0	132	12	**144**	**144**	0	0	0	**0**	25	14	0	**39**	**39**	**183**
13:00	13:15	0	0	0	**0**	0	120	11	**131**	**131**	0	0	0	**0**	26	17	0	**43**	**43**	**174**
13:15	13:30	0	0	0	**0**	0	110	16	**126**	**126**	0	0	0	**0**	22	12	0	**34**	**34**	**160**
15:00	15:15	0	0	0	**0**	0	215	16	**231**	**231**	0	0	0	**0**	27	18	0	**45**	**45**	**276**
15:15	15:30	0	0	0	**0**	0	219	7	**226**	**226**	0	0	0	**0**	19	14	0	**33**	**33**	**259**
15:30	15:45	0	0	0	**0**	0	204	9	**213**	**213**	0	0	0	**0**	27	12	0	**39**	**39**	**252**
15:45	16:00	0	0	0	**0**	0	211	7	**218**	**218**	0	0	0	**0**	22	11	0	**33**	**33**	**251**
16:00	16:15	0	0	0	**0**	0	229	11	**240**	**240**	0	0	0	**0**	35	20	0	**55**	**55**	**295**
16:15	16:30	0	0	0	**0**	0	253	8	**261**	**261**	0	0	0	**0**	21	16	0	**37**	**37**	**298**
16:30	16:45	0	0	0	**0**	0	241	18	**259**	**259**	0	0	0	**0**	34	23	0	**57**	**57**	**316**
16:45	17:00	0	0	0	**0**	0	230	23	**253**	**253**	0	0	0	**0**	24	23	0	**47**	**47**	**300**
17:00	17:15	0	0	0	**0**	0	242	14	**256**	**256**	0	0	0	**0**	30	23	0	**53**	**53**	**309**
17:15	17:30	0	0	0	**0**	0	244	15	**259**	**259**	0	0	0	**0**	22	28	0	**50**	**50**	**309**
17:30	17:45	0	0	0	**0**	0	233	11	**244**	**244**	0	0	0	**0**	30	23	0	**53**	**53**	**297**
17:45	18:00	0	0	0	**0**	0	194	14	**208**	**208**	0	0	0	**0**	19	34	0	**53**	**53**	**261**
TOTAL:		0	0	0	**0**	0	5049	415	**5464**	**5464**	0	0	0	**0**	743	623	0	**1366**	**1366**	**6830**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
36784

LISGAR ST @ O'CONNOR ST

Count Date: Tuesday, March 21, 2017

Start Time: 07:00

	O'CONNOR ST			LISGAR ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	1	2	**3**	**3**
08:00 09:00	27	1	**28**	0	1	**1**	**29**
09:00 10:00	14	1	**15**	0	2	**2**	**17**
11:30 12:30	8	4	**12**	0	0	**0**	**12**
12:30 13:30	0	4	**4**	0	0	**0**	**4**
15:00 16:00	2	6	**8**	0	6	**6**	**14**
16:00 17:00	0	15	**15**	0	3	**3**	**18**
17:00 18:00	4	26	**30**	0	6	**6**	**36**
Total	55	57	**112**	1	20	**21**	**133**

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

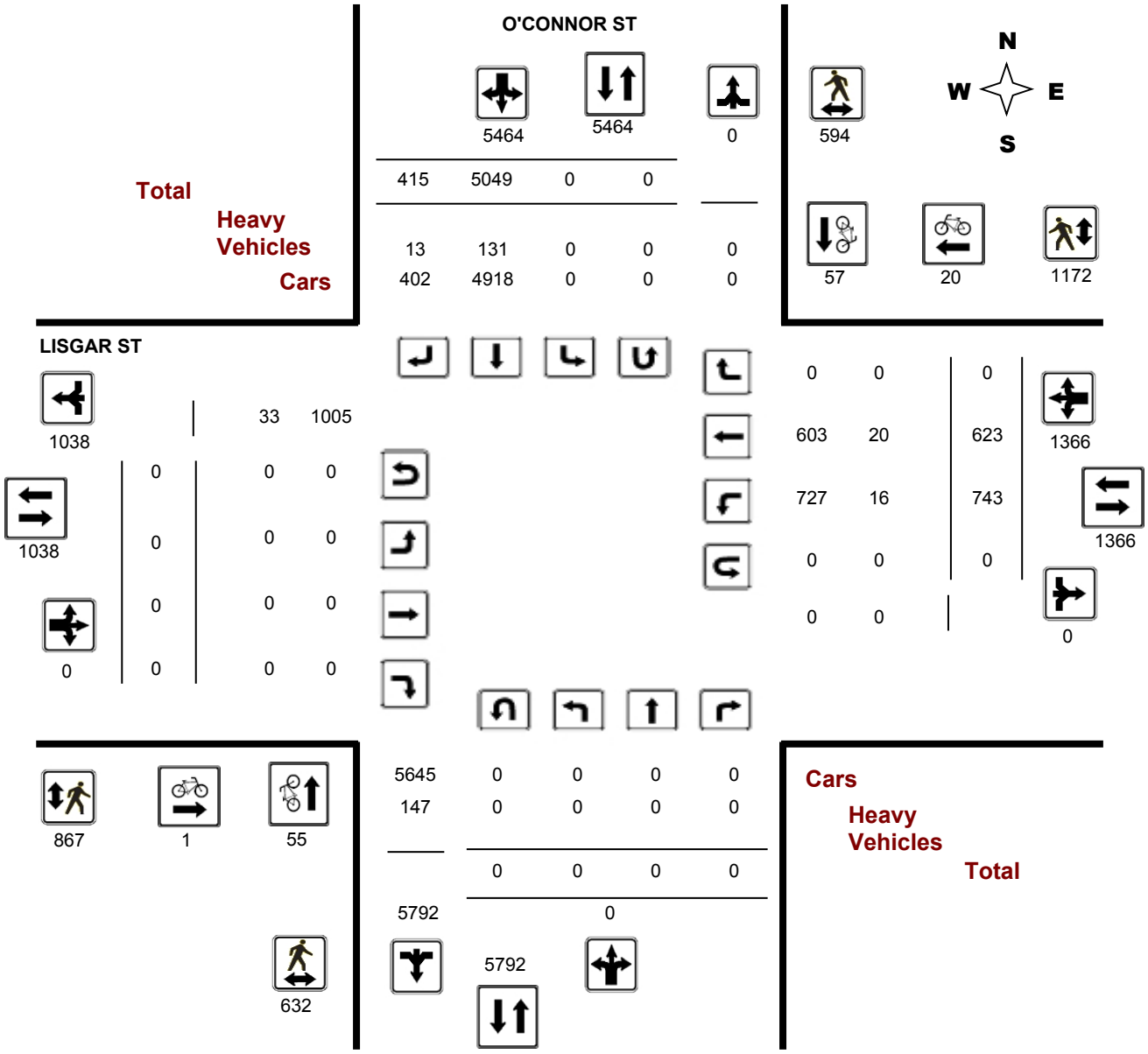
Turning Movement Count - Full Study Diagram

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017

WO#: 36784

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 36784

Turning Movement Count - Heavy Vehicle Report

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017

Time Period		O'CONNOR ST Northbound LT	ST	RT	N TOT	O'CONNOR ST Southbound LT	ST	RT	S TOT	STR TOT	LISGAR ST Eastbound LT	ST	RT	E TOT	LISGAR ST Westbound LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	08:00	0	0	0	**0**	0	19	2	**21**	**21**	0	0	0	**0**	2	1	0	**3**	**3**	**24**
08:00	09:00	0	0	0	**0**	0	20	1	**21**	**21**	0	0	0	**0**	4	4	0	**8**	**8**	**29**
09:00	10:00	0	0	0	**0**	0	26	0	**26**	**26**	0	0	0	**0**	2	2	0	**4**	**4**	**30**
11:30	12:30	0	0	0	**0**	0	16	4	**20**	**20**	0	0	0	**0**	1	4	0	**5**	**5**	**25**
12:30	13:30	0	0	0	**0**	0	14	4	**18**	**18**	0	0	0	**0**	5	3	0	**8**	**8**	**26**
15:00	16:00	0	0	0	**0**	0	9	0	**9**	**9**	0	0	0	**0**	0	2	0	**2**	**2**	**11**
16:00	17:00	0	0	0	**0**	0	17	2	**19**	**19**	0	0	0	**0**	2	4	0	**6**	**6**	**25**
17:00	18:00	0	0	0	**0**	0	10	0	**10**	**10**	0	0	0	**0**	0	0	0	**0**	**0**	**10**
Sub Total		0	0	0	**0**	0	131	13	**144**	**144**	0	0	0	**0**	16	20	0	**36**	**36**	**180**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		0	0	0	**0**	0	131	13	**144**	**144**	0	0	0	**0**	16	20	0	**36**	**36**	**180**

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
36784

Turning Movement Count - Pedestrian Volume Report

LISGAR ST @ O'CONNOR ST

Count Date: Tuesday, March 21, 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	6	**9**	11	7	**18**	**27**
07:15 07:30	9	8	**17**	14	16	**30**	**47**
07:30 07:45	8	15	**23**	18	24	**42**	**65**
07:45 08:00	16	15	**31**	38	55	**93**	**124**
07:00 08:00	36	44	**80**	81	102	**183**	**263**
08:00 08:15	18	17	**35**	27	54	**81**	**116**
08:15 08:30	25	25	**50**	36	50	**86**	**136**
08:30 08:45	27	30	**57**	39	61	**100**	**157**
08:45 09:00	20	23	**43**	30	69	**99**	**142**
08:00 09:00	90	95	**185**	132	234	**366**	**551**
09:00 09:15	23	13	**36**	22	44	**66**	**102**
09:15 09:30	11	9	**20**	21	22	**43**	**63**
09:30 09:45	8	7	**15**	12	21	**33**	**48**
09:45 10:00	8	10	**18**	17	19	**36**	**54**
09:00 10:00	50	39	**89**	72	106	**178**	**267**
11:30 11:45	18	11	**29**	14	21	**35**	**64**
11:45 12:00	13	25	**38**	25	27	**52**	**90**
12:00 12:15	13	26	**39**	35	29	**64**	**103**
12:15 12:30	13	25	**38**	28	25	**53**	**91**
11:30 12:30	57	87	**144**	102	102	**204**	**348**
12:30 12:45	19	15	**34**	30	44	**74**	**108**
12:45 13:00	17	18	**35**	30	46	**76**	**111**
13:00 13:15	16	21	**37**	20	32	**52**	**89**
13:15 13:30	7	13	**20**	18	28	**46**	**66**
12:30 13:30	59	67	**126**	98	150	**248**	**374**
15:00 15:15	29	20	**49**	32	22	**54**	**103**
15:15 15:30	29	17	**46**	24	25	**49**	**95**
15:30 15:45	19	15	**34**	27	23	**50**	**84**
15:45 16:00	24	12	**36**	18	29	**47**	**83**
15:00 16:00	101	64	**165**	101	99	**200**	**365**
16:00 16:15	40	9	**49**	37	44	**81**	**130**
16:15 16:30	25	25	**50**	38	42	**80**	**130**
16:30 16:45	37	27	**64**	33	51	**84**	**148**
16:45 17:00	38	13	**51**	32	43	**75**	**126**
16:00 17:00	140	74	**214**	140	180	**320**	**534**
17:00 17:15	37	41	**78**	35	53	**88**	**166**
17:15 17:30	20	28	**48**	36	56	**92**	**140**
17:30 17:45	24	32	**56**	41	49	**90**	**146**
17:45 18:00	18	23	**41**	29	41	**70**	**111**
17:00 18:00	99	124	**223**	141	199	**340**	**563**
Total	632	594	**1226**	867	1172	**2039**	**3265**

Comment:

Transportation Services - Traffic Services

Work Order
36784

Turning Movement Count - Full Study Summary Report

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
1.00

Full Study

	O'CONNOR ST									LISGAR 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	400	38	**438**	**438**	0	0	0	**0**	74	76	0	**150**	**150**	**588**
08:00 09:00	0	0	0	**0**	0	469	43	**512**	**512**	0	0	0	**0**	91	108	0	**199**	**199**	**711**
09:00 10:00	0	0	0	**0**	0	499	71	**570**	**570**	0	0	0	**0**	75	79	0	**154**	**154**	**724**
11:30 12:30	0	0	0	**0**	0	486	60	**546**	**546**	0	0	0	**0**	97	53	0	**150**	**150**	**696**
12:30 13:30	0	0	0	**0**	0	480	50	**530**	**530**	0	0	0	**0**	96	62	0	**158**	**158**	**688**
15:00 16:00	0	0	0	**0**	0	849	39	**888**	**888**	0	0	0	**0**	95	55	0	**150**	**150**	**1038**
16:00 17:00	0	0	0	**0**	0	953	60	**1013**	**1013**	0	0	0	**0**	114	82	0	**196**	**196**	**1209**
17:00 18:00	0	0	0	**0**	0	913	54	**967**	**967**	0	0	0	**0**	101	108	0	**209**	**209**	**1176**
Sub Total	0	0	0	**0**	0	5049	415	**5464**	**5464**	0	0	0	**0**	743	623	0	**1366**	**1366**	**6830**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	0	0	0	**0**	0	5049	415	**5464**	**5464**	0	0	0	**0**	743	623	0	**1366**	**1366**	**6830**
EQ 12Hr	0	0	0	**0**	0	7018	577	**7595**	**7595**	0	0	0	**0**	1033	866	0	**1899**	**1899**	**9494**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	0	0	0	**0**	0	7018	577	**7595**	**7595**	0	0	0	**0**	1033	866	0	**1899**	**1899**	**9494**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	0	0	0	**0**	0	9194	756	**9949**	**9949**	0	0	0	**0**	1353	1134	0	**2487**	**2487**	**12436**
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.

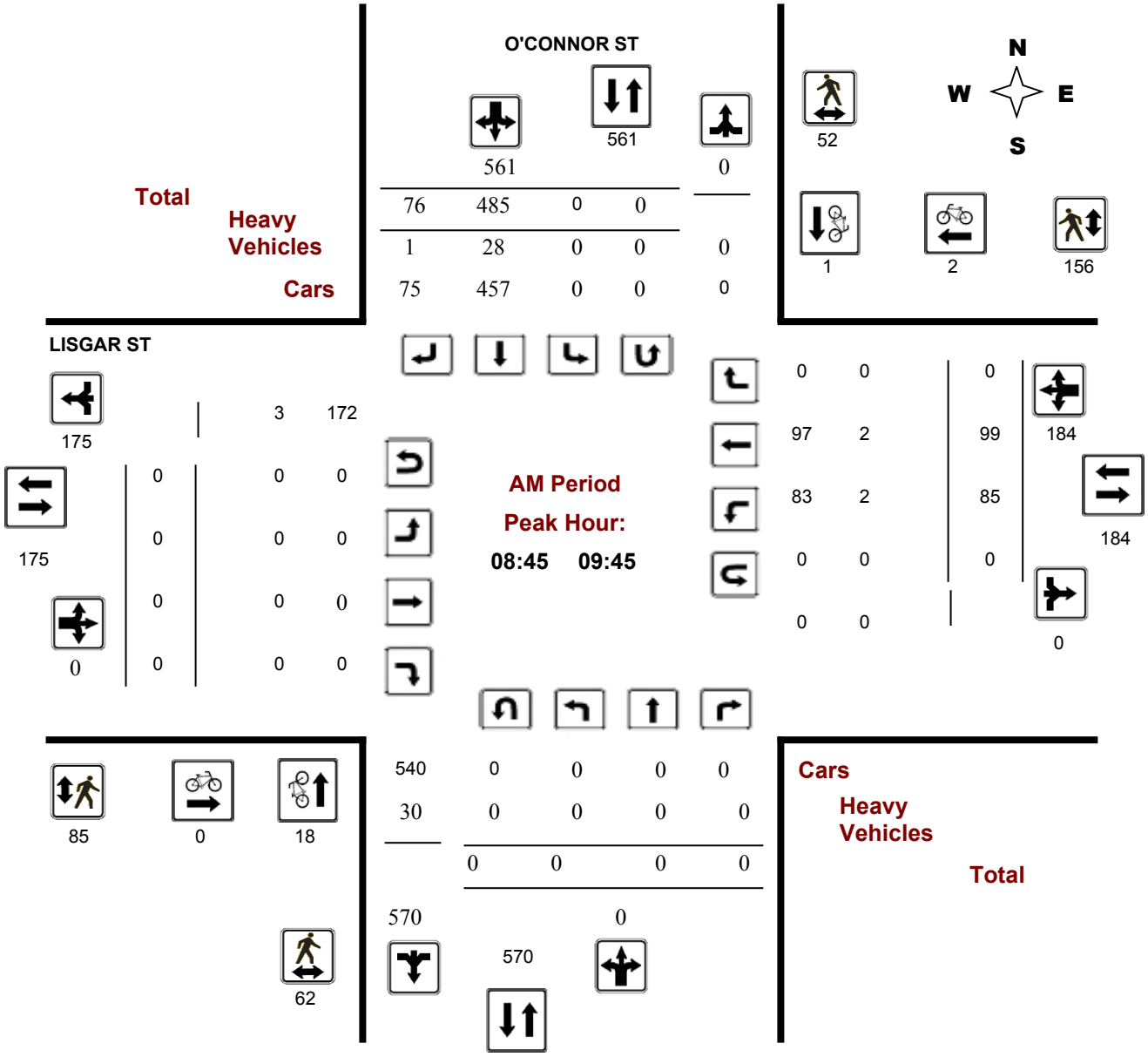
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017 **WO No:** 36784

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



Comments

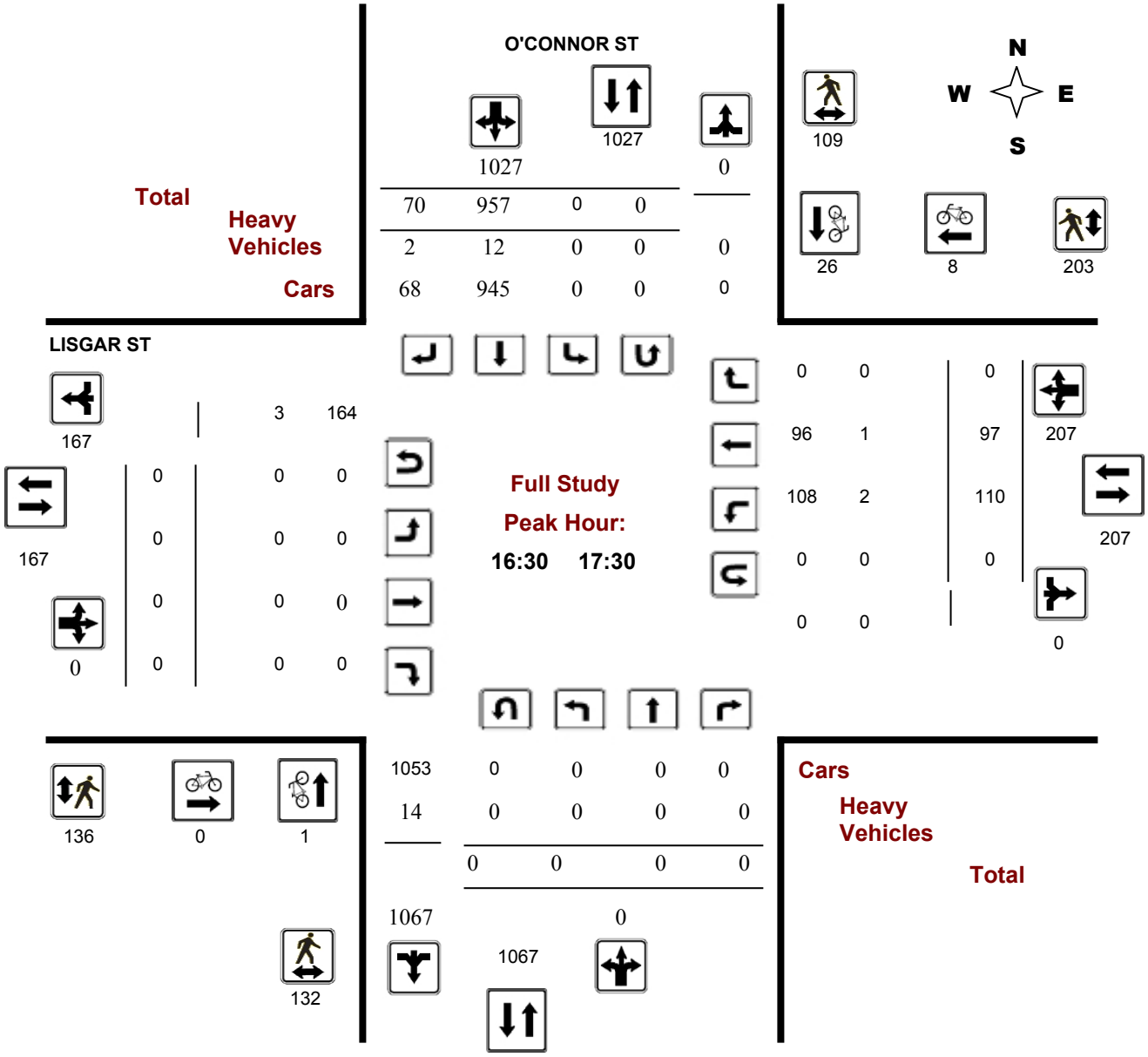
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017
Start Time: 07:00

WO No: 36784
Device: Miovision



Comments

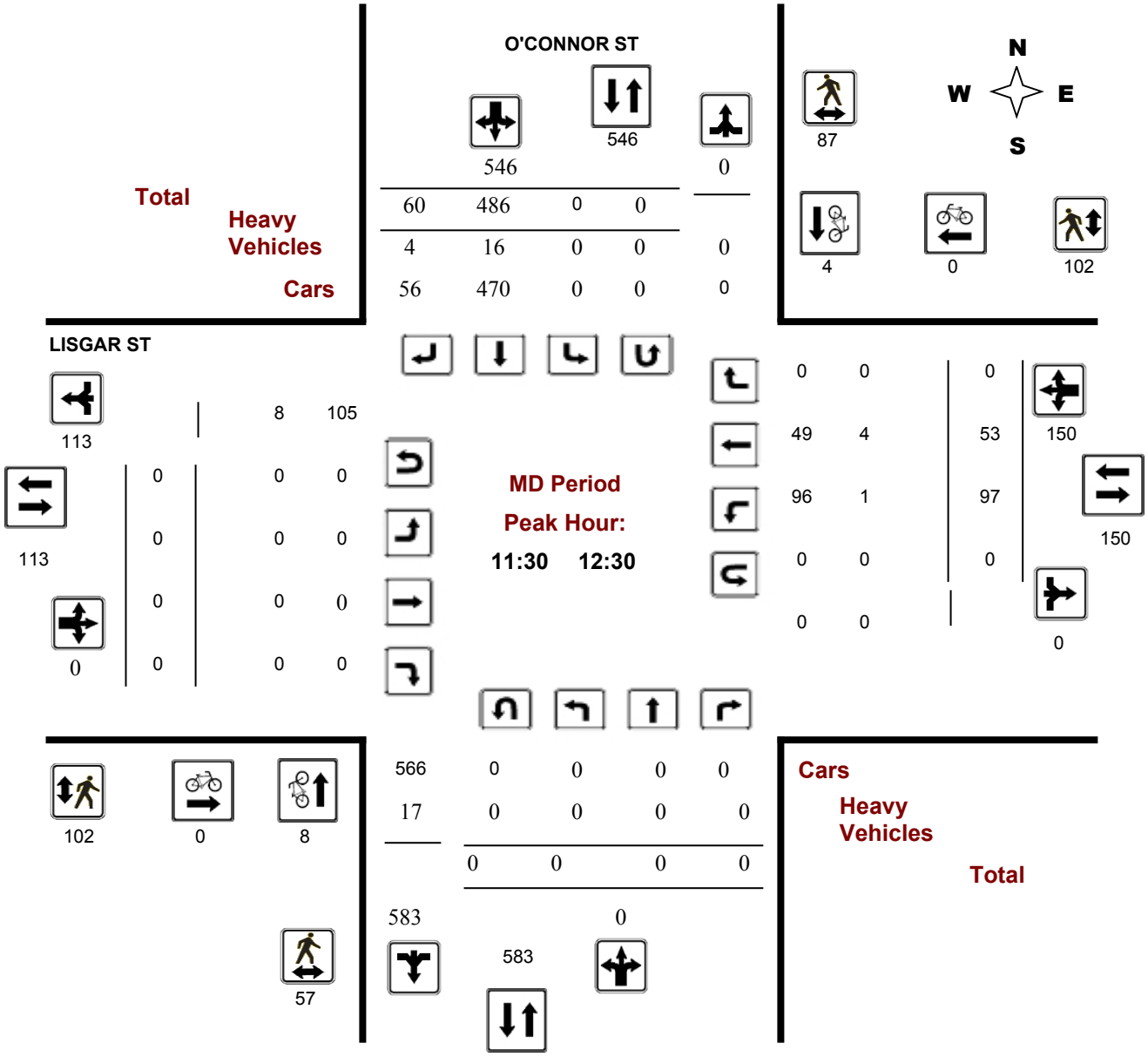
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017 **WO No:** 36784

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



Comments

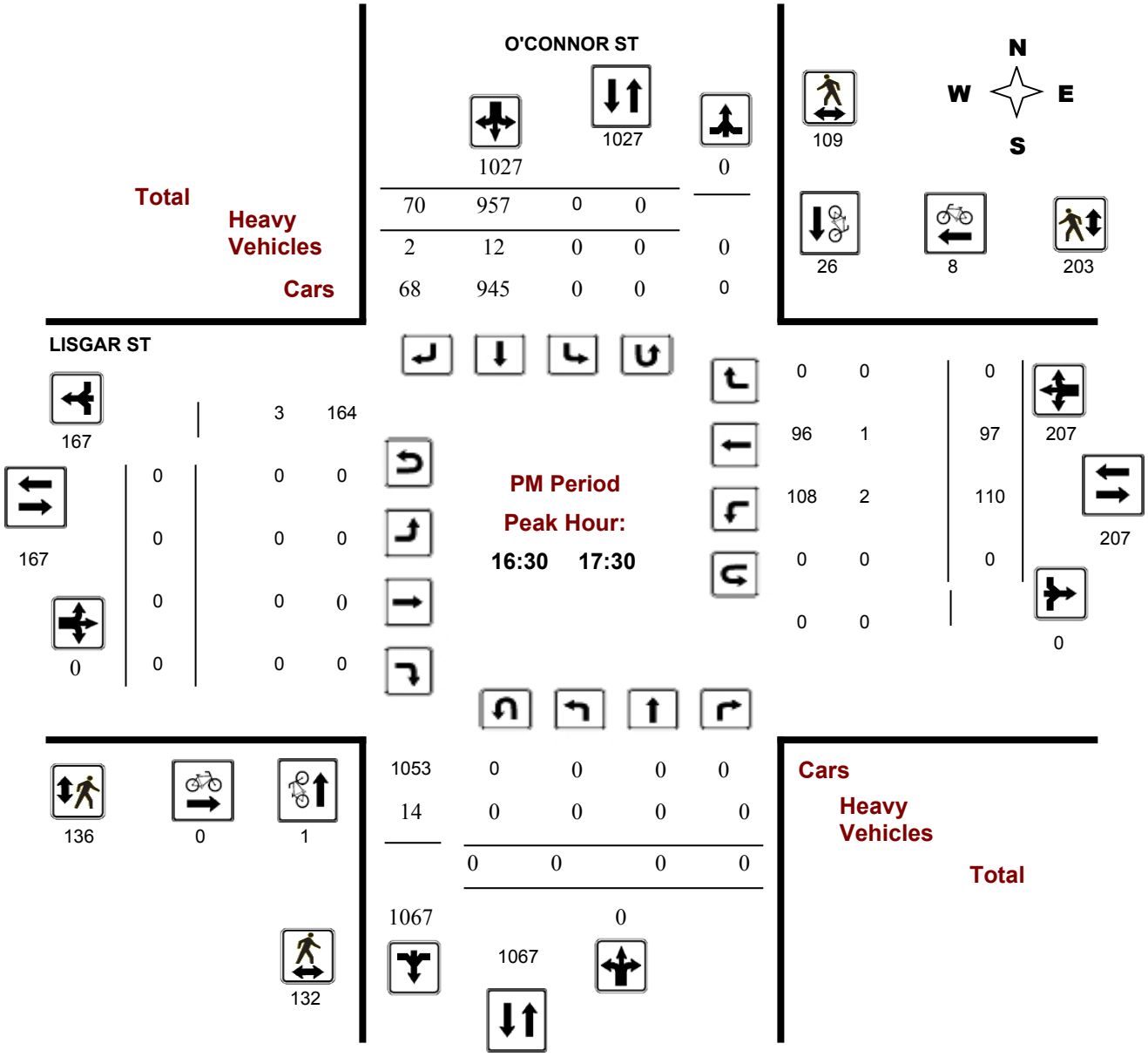
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017 **WO No:** 36784

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



Comments

Transportation Services - Traffic Services

Work Order
36784

Turning Movement Count - 15 Min U-Turn Total Report

LISGAR ST @ O'CONNOR ST

Survey Date: Tuesday, March 21, 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

W.O. 36838

Turning Movement Count - 15 Minute Summary Report

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		METCALFE ST									NEPEAN 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	146	58	**204**	0	0	0	**0**	**204**	9	3	0	**12**	0	0	0	**0**	**12**	**216**
07:15	07:30	0	158	52	**210**	0	0	0	**0**	**210**	11	0	0	**11**	0	0	0	**0**	**11**	**221**
07:30	07:45	0	208	75	**283**	0	0	0	**0**	**283**	19	4	0	**23**	0	0	0	**0**	**23**	**306**
07:45	08:00	0	189	81	**270**	0	0	0	**0**	**270**	12	0	0	**12**	0	0	0	**0**	**12**	**282**
08:00	08:15	0	228	59	**287**	0	0	0	**0**	**287**	9	18	0	**27**	0	0	0	**0**	**27**	**314**
08:15	08:30	0	238	73	**311**	0	0	0	**0**	**311**	15	13	0	**28**	0	0	0	**0**	**28**	**339**
08:30	08:45	0	229	92	**321**	0	0	0	**0**	**321**	14	23	0	**37**	0	0	0	**0**	**37**	**358**
08:45	09:00	0	199	62	**261**	0	0	0	**0**	**261**	14	17	0	**31**	0	0	0	**0**	**31**	**292**
09:00	09:15	0	204	68	**272**	0	0	0	**0**	**272**	14	21	0	**35**	0	0	0	**0**	**35**	**307**
09:15	09:30	0	138	49	**187**	0	0	0	**0**	**187**	16	26	0	**42**	0	0	0	**0**	**42**	**229**
09:30	09:45	0	139	37	**176**	0	0	0	**0**	**176**	15	21	0	**36**	0	0	1	**1**	**37**	**213**
09:45	10:00	0	115	28	**143**	0	0	0	**0**	**143**	19	15	0	**34**	0	0	0	**0**	**34**	**177**
11:30	11:45	0	87	25	**112**	0	0	0	**0**	**112**	22	16	0	**38**	0	0	0	**0**	**38**	**150**
11:45	12:00	0	89	27	**116**	0	0	0	**0**	**116**	32	14	0	**46**	0	0	0	**0**	**46**	**162**
12:00	12:15	0	81	16	**97**	0	0	0	**0**	**97**	21	15	0	**36**	0	0	0	**0**	**36**	**133**
12:15	12:30	0	82	16	**98**	0	0	0	**0**	**98**	19	20	0	**39**	0	0	0	**0**	**39**	**137**
12:30	12:45	0	86	21	**107**	0	0	0	**0**	**107**	10	26	0	**36**	0	0	0	**0**	**36**	**143**
12:45	13:00	0	84	21	**105**	0	0	0	**0**	**105**	19	22	0	**41**	0	0	0	**0**	**41**	**146**
13:00	13:15	0	88	22	**110**	0	0	0	**0**	**110**	17	14	0	**31**	0	0	0	**0**	**31**	**141**
13:15	13:30	0	91	18	**109**	0	0	0	**0**	**109**	22	20	0	**42**	0	0	0	**0**	**42**	**151**
15:00	15:15	0	87	21	**108**	0	0	0	**0**	**108**	25	20	0	**45**	0	0	0	**0**	**45**	**153**
15:15	15:30	0	75	17	**92**	0	0	0	**0**	**92**	12	18	0	**30**	0	0	0	**0**	**30**	**122**
15:30	15:45	0	75	27	**102**	0	0	0	**0**	**102**	13	33	0	**46**	0	0	0	**0**	**46**	**148**
15:45	16:00	0	89	33	**122**	0	0	0	**0**	**122**	18	20	0	**38**	0	0	0	**0**	**38**	**160**
16:00	16:15	0	90	30	**120**	0	0	0	**0**	**120**	26	20	0	**46**	0	0	0	**0**	**46**	**166**
16:15	16:30	0	93	27	**120**	0	0	0	**0**	**120**	22	29	0	**51**	0	0	0	**0**	**51**	**171**
16:30	16:45	0	88	29	**117**	0	0	0	**0**	**117**	28	24	0	**52**	0	0	0	**0**	**52**	**169**
16:45	17:00	0	102	33	**135**	0	0	0	**0**	**135**	21	17	0	**38**	0	0	0	**0**	**38**	**173**
17:00	17:15	0	99	23	**122**	0	0	0	**0**	**122**	30	30	0	**60**	0	0	0	**0**	**60**	**182**
17:15	17:30	0	103	24	**127**	0	0	0	**0**	**127**	27	31	0	**58**	0	0	0	**0**	**58**	**185**
17:30	17:45	0	93	19	**112**	0	0	0	**0**	**112**	17	25	0	**42**	0	0	0	**0**	**42**	**154**
17:45	18:00	0	91	17	**108**	0	0	0	**0**	**108**	12	13	0	**25**	0	1	0	**1**	**26**	**134**
TOTAL:		0	3964	1200	**5164**	0	0	0	**0**	**5164**	580	588	0	**1168**	0	1	1	**2**	**1170**	**6334**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
36838

METCALFE ST @ NEPEAN ST

Count Date: Tuesday, April 04, 2017

Start Time: 07:00

	METCALFE ST			NEPEAN ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	2	0	**2**	3	0	**3**	**5**
09:00 10:00	1	0	**1**	2	0	**2**	**3**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	0	0	**0**	0	0	**0**	**0**
15:00 16:00	4	0	**4**	1	0	**1**	**5**
16:00 17:00	0	0	**0**	1	0	**1**	**1**
17:00 18:00	2	0	**2**	0	0	**0**	**2**
Total	9	0	**9**	7	0	**7**	**16**

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

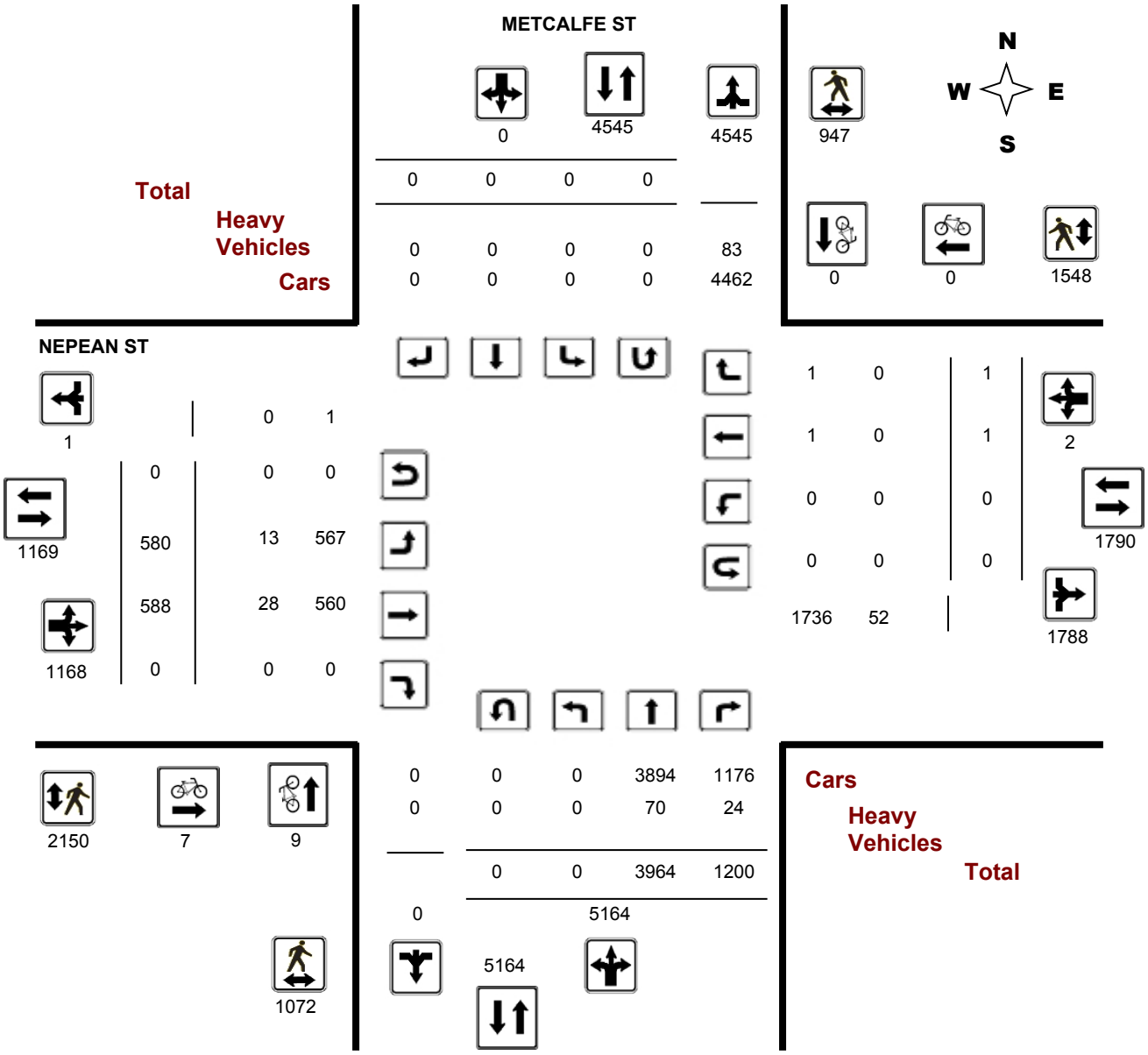
Turning Movement Count - Full Study Diagram

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 2017

WO#: 36838

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 36838

Turning Movement Count - Heavy Vehicle Report

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 2017

		METCALFE ST									NEPEAN 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	08:00	0	3	2	**5**	0	0	0	**0**	**5**	1	0	0	**1**	0	0	0	**0**	**1**	**6**
08:00	09:00	0	12	5	**17**	0	0	0	**0**	**17**	3	4	0	**7**	0	0	0	**0**	**7**	**24**
09:00	10:00	0	13	4	**17**	0	0	0	**0**	**17**	1	5	0	**6**	0	0	0	**0**	**6**	**23**
11:30	12:30	0	11	2	**13**	0	0	0	**0**	**13**	2	3	0	**5**	0	0	0	**0**	**5**	**18**
12:30	13:30	0	13	1	**14**	0	0	0	**0**	**14**	3	5	0	**8**	0	0	0	**0**	**8**	**22**
15:00	16:00	0	7	6	**13**	0	0	0	**0**	**13**	1	8	0	**9**	0	0	0	**0**	**9**	**22**
16:00	17:00	0	8	4	**12**	0	0	0	**0**	**12**	0	0	0	**0**	0	0	0	**0**	**0**	**12**
17:00	18:00	0	3	0	**3**	0	0	0	**0**	**3**	2	3	0	**5**	0	0	0	**0**	**5**	**8**
Sub Total		0	70	24	**94**	0	0	0	**0**	**94**	13	28	0	**41**	0	0	0	**0**	**41**	**135**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		0	70	24	**0**	0	0	0	**0**	**94**	13	28	0	**41**	0	0	0	**0**	**41**	**135**

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
36838

Turning Movement Count - Pedestrian Volume Report

METCALFE ST @ NEPEAN ST

Count Date: Tuesday, April 04, 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	9	25	**34**	30	29	**59**	**93**
07:15 07:30	10	25	**35**	53	29	**82**	**117**
07:30 07:45	27	25	**52**	73	42	**115**	**167**
07:45 08:00	29	42	**71**	83	49	**132**	**203**
07:00 08:00	75	117	**192**	239	149	**388**	**580**
08:00 08:15	27	30	**57**	90	52	**142**	**199**
08:15 08:30	36	41	**77**	108	56	**164**	**241**
08:30 08:45	32	50	**82**	106	53	**159**	**241**
08:45 09:00	41	42	**83**	114	52	**166**	**249**
08:00 09:00	136	163	**299**	418	213	**631**	**930**
09:00 09:15	37	38	**75**	65	26	**91**	**166**
09:15 09:30	22	25	**47**	74	21	**95**	**142**
09:30 09:45	20	37	**57**	42	25	**67**	**124**
09:45 10:00	9	23	**32**	35	24	**59**	**91**
09:00 10:00	88	123	**211**	216	96	**312**	**523**
11:30 11:45	26	22	**48**	31	26	**57**	**105**
11:45 12:00	24	24	**48**	41	32	**73**	**121**
12:00 12:15	52	33	**85**	46	47	**93**	**178**
12:15 12:30	39	36	**75**	56	60	**116**	**191**
11:30 12:30	141	115	**256**	174	165	**339**	**595**
12:30 12:45	50	40	**90**	76	62	**138**	**228**
12:45 13:00	38	34	**72**	58	62	**120**	**192**
13:00 13:15	38	33	**71**	54	42	**96**	**167**
13:15 13:30	17	24	**41**	37	42	**79**	**120**
12:30 13:30	143	131	**274**	225	208	**433**	**707**
15:00 15:15	28	17	**45**	63	28	**91**	**136**
15:15 15:30	14	16	**30**	35	32	**67**	**97**
15:30 15:45	20	22	**42**	49	36	**85**	**127**
15:45 16:00	23	12	**35**	42	44	**86**	**121**
15:00 16:00	85	67	**152**	189	140	**329**	**481**
16:00 16:15	40	27	**67**	60	60	**120**	**187**
16:15 16:30	41	19	**60**	68	47	**115**	**175**
16:30 16:45	55	25	**80**	119	63	**182**	**262**
16:45 17:00	49	30	**79**	90	67	**157**	**236**
16:00 17:00	185	101	**286**	337	237	**574**	**860**
17:00 17:15	53	34	**87**	105	82	**187**	**274**
17:15 17:30	53	38	**91**	88	101	**189**	**280**
17:30 17:45	56	31	**87**	78	81	**159**	**246**
17:45 18:00	57	27	**84**	81	76	**157**	**241**
17:00 18:00	219	130	**349**	352	340	**692**	**1041**
Total	1072	947	**2019**	2150	1548	**3698**	**5717**

Comment:

Transportation Services - Traffic Services

Work Order
36838

Turning Movement Count - Full Study Summary Report

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 0

AADT Factor
.90

Full Study

	METCALFE ST									NEPEAN 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	701	266	**967**	0	0	0	**0**	**967**	51	7	0	**58**	0	0	0	**0**	**58**	**1025**
08:00 09:00	0	894	286	**1180**	0	0	0	**0**	**1180**	52	71	0	**123**	0	0	0	**0**	**123**	**1303**
09:00 10:00	0	596	182	**778**	0	0	0	**0**	**778**	64	83	0	**147**	0	0	1	**1**	**148**	**926**
11:30 12:30	0	339	84	**423**	0	0	0	**0**	**423**	94	65	0	**159**	0	0	0	**0**	**159**	**582**
12:30 13:30	0	349	82	**431**	0	0	0	**0**	**431**	68	82	0	**150**	0	0	0	**0**	**150**	**581**
15:00 16:00	0	326	98	**424**	0	0	0	**0**	**424**	68	91	0	**159**	0	0	0	**0**	**159**	**583**
16:00 17:00	0	373	119	**492**	0	0	0	**0**	**492**	97	90	0	**187**	0	0	0	**0**	**187**	**679**
17:00 18:00	0	386	83	**469**	0	0	0	**0**	**469**	86	99	0	**185**	0	1	0	**1**	**186**	**655**
Sub Total	0	3964	1200	**5164**	0	0	0	**0**	**5164**	580	588	0	**1168**	0	1	1	**2**	**1170**	**6334**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	0	3964	1200	**5164**	0	0	0	**0**	**5164**	580	588	0	**1168**	0	1	1	**2**	**1170**	**6334**
EQ 12Hr	0	5510	1668	**7178**	0	0	0	**0**	**7178**	806	817	0	**1624**	0	1	1	**3**	**1627**	**8805**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	0	4959	1501	**6460**	0	0	0	**0**	**6460**	726	736	0	**1461**	0	1	1	**3**	**1464**	**7924**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	0	6496	1967	**8463**	0	0	0	**0**	**8463**	951	964	0	**1914**	0	2	2	**3**	**1917**	**10380**
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.

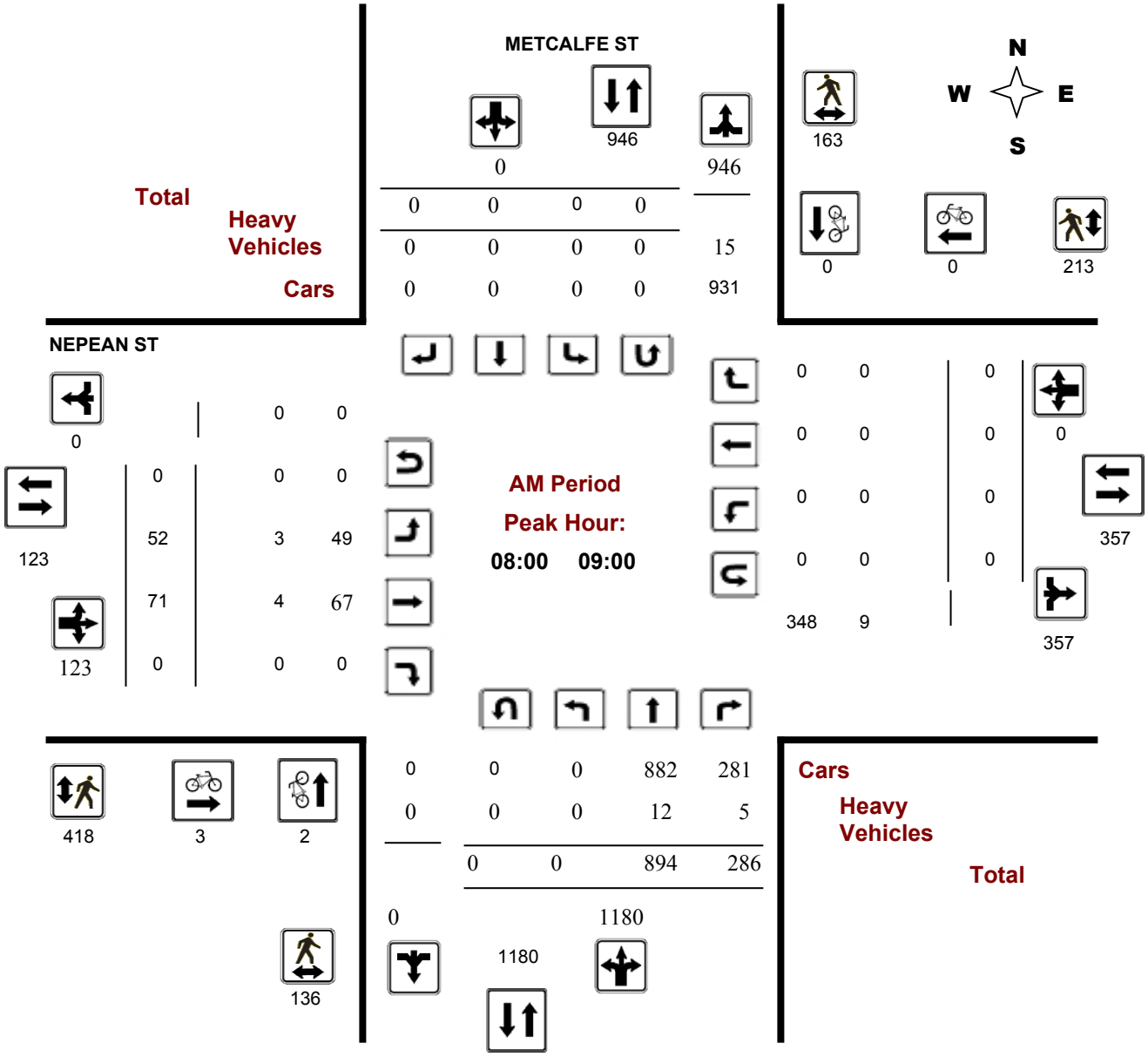
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 2017
Start Time: 07:00

WO No: 36838
Device: Miovision



Comments

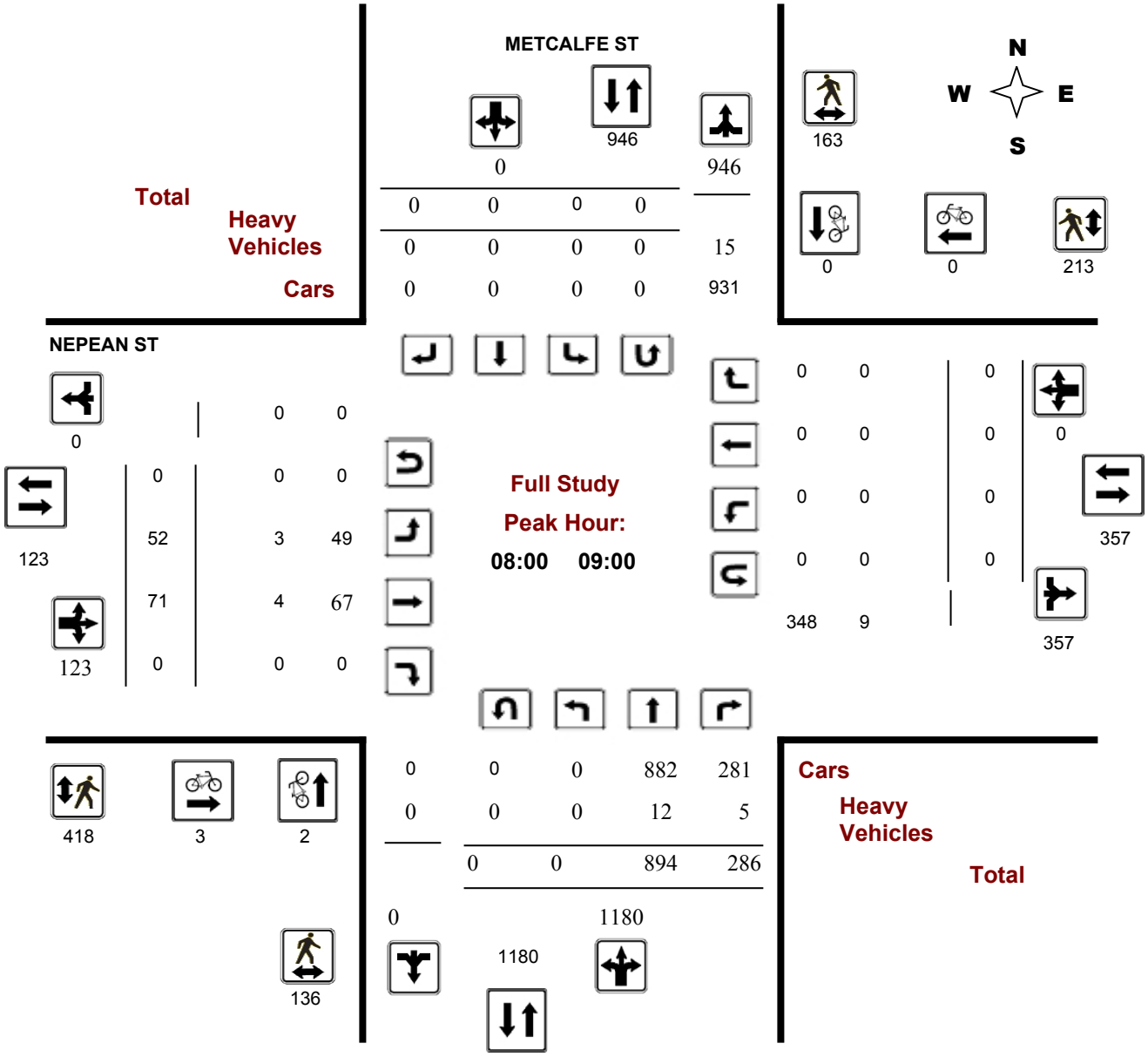
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 2017
Start Time: 07:00

WO No: 36838
Device: Miovision



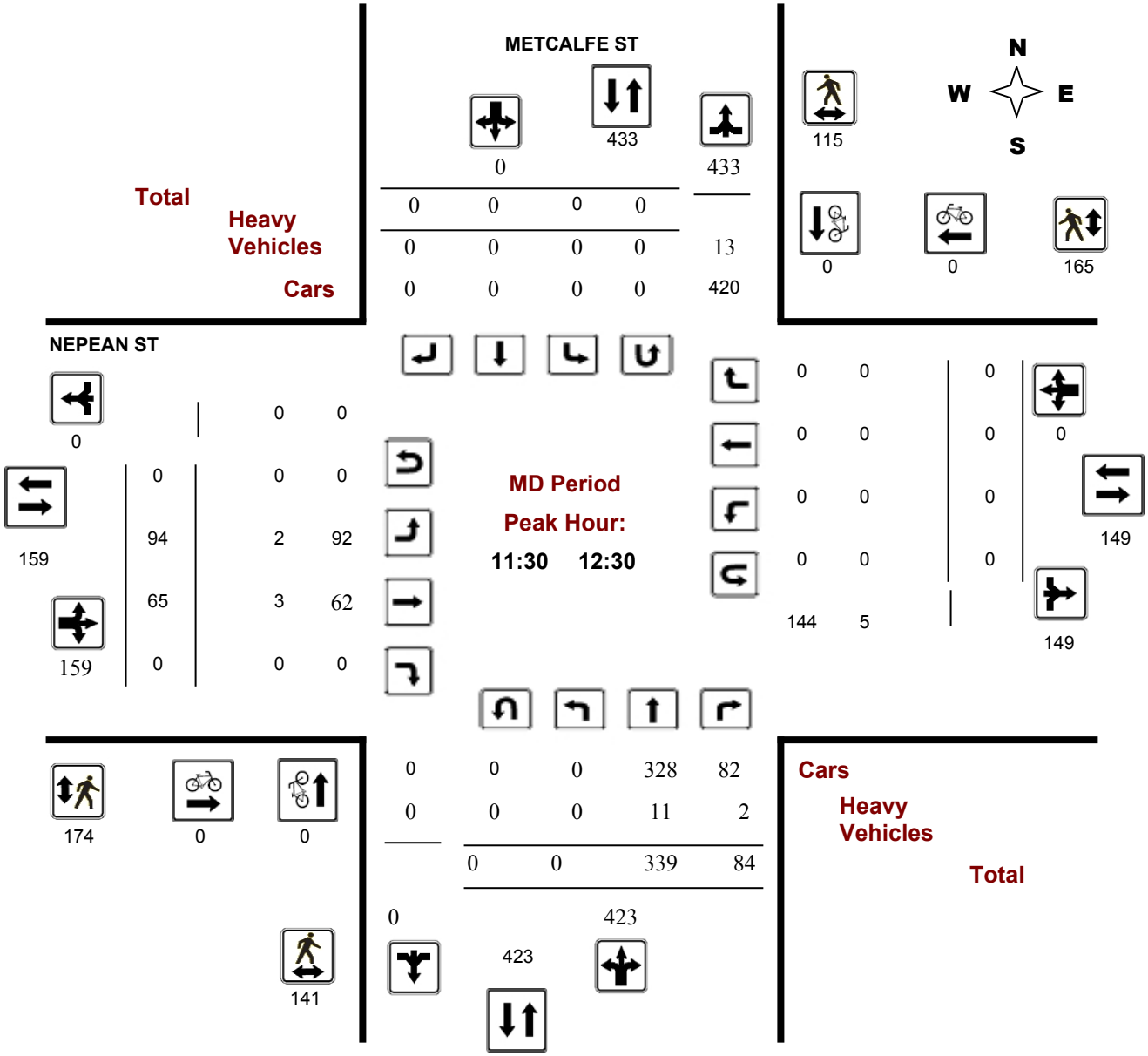
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 2017
Start Time: 07:00

WO No: 36838
Device: Miovision



Comments

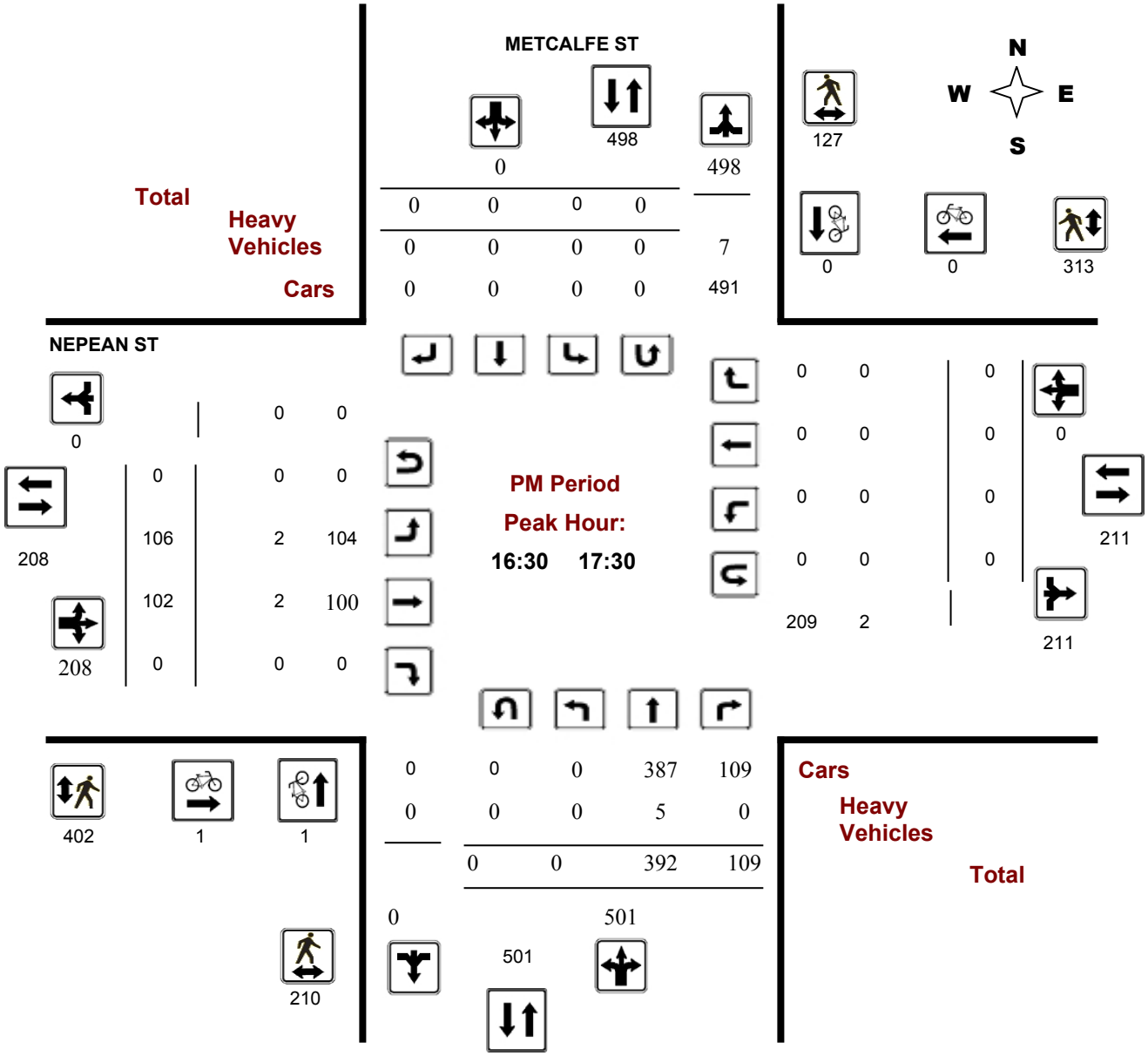
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 2017
Start Time: 07:00

WO No: 36838
Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order
36838

Turning Movement Count - 15 Min U-Turn Total Report

METCALFE ST @ NEPEAN ST

Survey Date: Tuesday, April 04, 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

W.O. 37211

Turning Movement Count - 15 Minute Summary Report

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 2

Eastbound: 0 Westbound: 0

		BANK ST									NEPEAN 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	54	15	**69**	11	40	0	**51**	**120**	1	15	6	**22**	0	0	0	**0**	**22**	**142**
07:15	07:30	0	47	22	**69**	10	47	0	**58**	**127**	0	20	10	**30**	0	0	0	**0**	**30**	**157**
07:30	07:45	0	61	20	**81**	7	45	0	**52**	**133**	1	18	19	**38**	0	0	0	**0**	**38**	**171**
07:45	08:00	0	84	18	**102**	11	56	0	**67**	**169**	8	16	12	**36**	0	0	0	**0**	**36**	**205**
08:00	08:15	0	59	24	**83**	12	51	0	**63**	**146**	3	11	8	**22**	0	0	0	**0**	**22**	**168**
08:15	08:30	0	69	26	**95**	9	52	0	**61**	**156**	6	23	22	**51**	0	0	0	**0**	**51**	**207**
08:30	08:45	0	75	16	**91**	14	61	0	**75**	**166**	5	24	13	**42**	0	0	0	**0**	**42**	**208**
08:45	09:00	0	66	17	**83**	16	57	0	**73**	**156**	6	17	11	**34**	0	0	0	**0**	**34**	**190**
09:00	09:15	0	60	18	**78**	15	51	0	**66**	**144**	0	17	14	**31**	0	0	0	**0**	**31**	**175**
09:15	09:30	0	49	14	**63**	10	37	0	**47**	**110**	3	10	10	**23**	0	0	0	**0**	**23**	**133**
09:30	09:45	0	47	15	**62**	22	61	0	**83**	**145**	2	10	8	**20**	0	0	0	**0**	**20**	**165**
09:45	10:00	0	52	16	**68**	9	59	0	**68**	**136**	4	10	3	**17**	0	0	0	**0**	**17**	**153**
11:30	11:45	0	45	9	**54**	6	45	0	**51**	**105**	3	11	16	**30**	0	0	0	**0**	**30**	**135**
11:45	12:00	0	45	11	**56**	12	75	0	**87**	**143**	1	5	20	**26**	0	0	0	**0**	**26**	**169**
12:00	12:15	0	60	11	**71**	9	60	0	**69**	**140**	5	8	16	**29**	0	0	0	**0**	**29**	**169**
12:15	12:30	0	51	9	**60**	13	63	0	**76**	**136**	2	10	16	**28**	0	0	0	**0**	**28**	**164**
12:30	12:45	0	51	13	**64**	9	64	0	**73**	**137**	2	10	9	**21**	0	0	0	**0**	**21**	**158**
12:45	13:00	0	48	14	**62**	7	57	0	**64**	**126**	3	6	18	**27**	0	0	0	**0**	**27**	**153**
13:00	13:15	0	50	12	**62**	12	63	0	**75**	**137**	2	12	11	**25**	0	0	0	**0**	**25**	**162**
13:15	13:30	0	54	7	**61**	4	76	0	**80**	**141**	2	9	10	**21**	0	0	0	**0**	**21**	**162**
15:00	15:15	0	58	9	**67**	23	70	0	**93**	**160**	2	5	17	**24**	0	0	0	**0**	**24**	**184**
15:15	15:30	0	66	14	**80**	19	81	0	**100**	**180**	3	7	19	**29**	0	0	0	**0**	**29**	**209**
15:30	15:45	0	59	8	**67**	6	84	0	**91**	**158**	2	5	16	**23**	0	0	0	**0**	**23**	**181**
15:45	16:00	0	50	11	**61**	20	91	0	**111**	**172**	2	9	17	**28**	0	0	0	**0**	**28**	**200**
16:00	16:15	0	56	16	**72**	27	69	0	**96**	**168**	0	13	21	**34**	0	0	0	**0**	**34**	**202**
16:15	16:30	0	53	17	**70**	26	92	0	**118**	**188**	3	15	14	**32**	0	0	0	**0**	**32**	**220**
16:30	16:45	0	48	8	**56**	16	89	0	**105**	**161**	2	13	11	**26**	0	0	0	**0**	**26**	**187**
16:45	17:00	0	41	7	**48**	25	83	0	**108**	**156**	1	9	18	**28**	0	0	0	**0**	**28**	**184**
17:00	17:15	0	47	10	**57**	17	72	0	**89**	**146**	3	14	22	**39**	0	0	0	**0**	**39**	**185**
17:15	17:30	0	56	7	**63**	10	83	0	**93**	**156**	1	16	17	**34**	0	0	0	**0**	**34**	**190**
17:30	17:45	0	62	12	**74**	13	69	0	**82**	**156**	3	9	12	**24**	0	0	0	**0**	**24**	**180**
17:45	18:00	0	50	11	**61**	15	61	0	**76**	**137**	1	12	13	**26**	0	0	0	**0**	**26**	**163**
TOTAL:		0	1773	437	**2210**	435	2064	0	**2501**	**4711**	82	389	449	**920**	0	0	0	**0**	**920**	**5631**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
37211

NEPEAN ST @ BANK ST

Count Date: Tuesday, August 29, 2017 **Start Time:** 07:00

	BANK ST			NEPEAN ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	26	9	**35**	10	1	**11**	**46**
08:00 09:00	47	11	**58**	10	0	**10**	**68**
09:00 10:00	27	20	**47**	7	0	**7**	**54**
11:30 12:30	24	25	**49**	5	0	**5**	**54**
12:30 13:30	17	25	**42**	2	0	**2**	**44**
15:00 16:00	26	27	**53**	5	1	**6**	**59**
16:00 17:00	31	61	**92**	15	1	**16**	**108**
17:00 18:00	37	76	**113**	10	0	**10**	**123**
Total	235	254	**489**	64	3	**67**	**556**

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

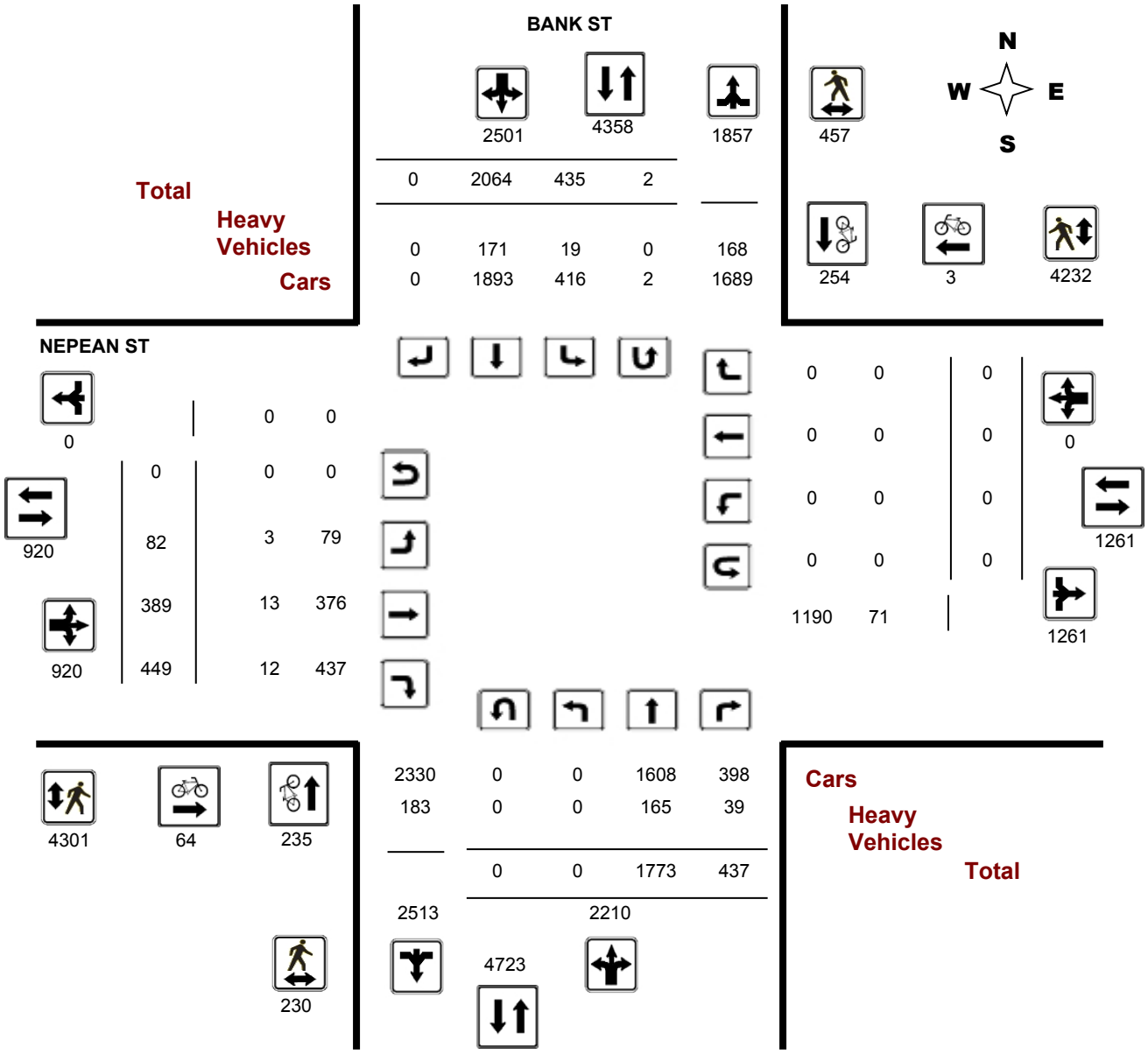
Turning Movement Count - Full Study Diagram

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 2017

WO#: 37211

Device: Miovision



Comments

Transportation Services - Traffic Services

W.O. 37211

Turning Movement Count - Heavy Vehicle Report

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 2017

		BANK ST									NEPEAN 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	08:00	0	23	3	**26**	2	22	0	**24**	**50**	1	0	1	**2**	0	0	0	**0**	**2**	**52**
08:00	09:00	0	25	7	**32**	4	24	0	**28**	**60**	0	3	1	**4**	0	0	0	**0**	**4**	**64**
09:00	10:00	0	22	8	**30**	4	22	0	**26**	**56**	1	1	2	**4**	0	0	0	**0**	**4**	**60**
11:30	12:30	0	18	10	**28**	3	19	0	**22**	**50**	0	1	2	**3**	0	0	0	**0**	**3**	**53**
12:30	13:30	0	15	8	**23**	2	23	0	**25**	**48**	1	5	3	**9**	0	0	0	**0**	**9**	**57**
15:00	16:00	0	21	0	**21**	1	17	0	**18**	**39**	0	1	1	**2**	0	0	0	**0**	**2**	**41**
16:00	17:00	0	23	1	**24**	1	18	0	**19**	**43**	0	0	1	**1**	0	0	0	**0**	**1**	**44**
17:00	18:00	0	18	2	**20**	2	26	0	**28**	**48**	0	2	1	**3**	0	0	0	**0**	**3**	**51**
Sub Total		0	165	39	**204**	19	171	0	**190**	**394**	3	13	12	**28**	0	0	0	**0**	**28**	**422**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		0	165	39	**0**	19	171	0	**190**	**394**	3	13	12	**28**	0	0	0	**0**	**28**	**422**

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
37211

Turning Movement Count - Pedestrian Volume Report

NEPEAN ST @ BANK ST

Count Date: Tuesday, August 29, 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	1	8	**9**	27	57	**84**	**93**
07:15 07:30	2	7	**9**	53	61	**114**	**123**
07:30 07:45	1	3	**4**	43	56	**99**	**103**
07:45 08:00	5	8	**13**	71	85	**156**	**169**
07:00 08:00	9	26	**35**	194	259	**453**	**488**
08:00 08:15	2	6	**8**	68	98	**166**	**174**
08:15 08:30	5	7	**12**	80	111	**191**	**203**
08:30 08:45	11	11	**22**	77	130	**207**	**229**
08:45 09:00	4	15	**19**	102	123	**225**	**244**
08:00 09:00	22	39	**61**	327	462	**789**	**850**
09:00 09:15	6	10	**16**	78	116	**194**	**210**
09:15 09:30	2	9	**11**	57	79	**136**	**147**
09:30 09:45	4	14	**18**	67	81	**148**	**166**
09:45 10:00	1	15	**16**	74	57	**131**	**147**
09:00 10:00	13	48	**61**	276	333	**609**	**670**
11:30 11:45	6	7	**13**	152	133	**285**	**298**
11:45 12:00	8	25	**33**	185	165	**350**	**383**
12:00 12:15	10	23	**33**	216	186	**402**	**435**
12:15 12:30	13	27	**40**	288	259	**547**	**587**
11:30 12:30	37	82	**119**	841	743	**1584**	**1703**
12:30 12:45	22	30	**52**	304	260	**564**	**616**
12:45 13:00	15	25	**40**	183	248	**431**	**471**
13:00 13:15	12	10	**22**	160	190	**350**	**372**
13:15 13:30	8	15	**23**	152	156	**308**	**331**
12:30 13:30	57	80	**137**	799	854	**1653**	**1790**
15:00 15:15	5	11	**16**	126	107	**233**	**249**
15:15 15:30	11	11	**22**	144	128	**272**	**294**
15:30 15:45	12	15	**27**	120	116	**236**	**263**
15:45 16:00	3	15	**18**	136	105	**241**	**259**
15:00 16:00	31	52	**83**	526	456	**982**	**1065**
16:00 16:15	7	15	**22**	145	124	**269**	**291**
16:15 16:30	1	14	**15**	158	132	**290**	**305**
16:30 16:45	8	16	**24**	175	161	**336**	**360**
16:45 17:00	7	14	**21**	172	177	**349**	**370**
16:00 17:00	23	59	**82**	650	594	**1244**	**1326**
17:00 17:15	10	28	**38**	219	169	**388**	**426**
17:15 17:30	10	14	**24**	186	125	**311**	**335**
17:30 17:45	6	14	**20**	163	120	**283**	**303**
17:45 18:00	12	15	**27**	120	117	**237**	**264**
17:00 18:00	38	71	**109**	688	531	**1219**	**1328**
Total	230	457	**687**	4301	4232	**8533**	**9220**

Comment:

Transportation Services - Traffic Services

Work Order 37211

Turning Movement Count - Full Study Summary Report

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 2017

Total Observed U-Turns

Northbound: 0 Southbound: 2

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	BANK ST									NEPEAN 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	246	75	**321**	39	188	0	**227**	**548**	10	69	47	**126**	0	0	0	**0**	**126**	**674**
08:00 09:00	0	269	83	**352**	51	221	0	**272**	**624**	20	75	54	**149**	0	0	0	**0**	**149**	**773**
09:00 10:00	0	208	63	**271**	56	208	0	**264**	**535**	9	47	35	**91**	0	0	0	**0**	**91**	**626**
11:30 12:30	0	201	40	**241**	40	243	0	**283**	**524**	11	34	68	**113**	0	0	0	**0**	**113**	**637**
12:30 13:30	0	203	46	**249**	32	260	0	**292**	**541**	9	37	48	**94**	0	0	0	**0**	**94**	**635**
15:00 16:00	0	233	42	**275**	68	326	0	**394**	**669**	9	26	69	**104**	0	0	0	**0**	**104**	**773**
16:00 17:00	0	198	48	**246**	94	333	0	**427**	**673**	6	50	64	**120**	0	0	0	**0**	**120**	**793**
17:00 18:00	0	215	40	**255**	55	285	0	**340**	**595**	8	51	64	**123**	0	0	0	**0**	**123**	**718**
Sub Total	0	1773	437	**2210**	435	2064	0	**2499**	**4709**	82	389	449	**920**	0	0	0	**0**	**920**	**5629**
U Turns				**0**				**2**	**2**				**0**				**0**	**0**	**2**
Total	0	1773	437	**2210**	435	2064	0	**2501**	**4711**	82	389	449	**920**	0	0	0	**0**	**920**	**5631**
EQ 12Hr	0	2464	607	**3072**	605	2869	0	**3476**	**6548**	114	541	624	**1279**	0	0	0	**0**	**1279**	**7827**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	0	2218	547	**2765**	544	2582	0	**3129**	**5894**	103	487	562	**1151**	0	0	0	**0**	**1151**	**7045**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	0	2906	716	**3622**	713	3383	0	**4099**	**7721**	134	637	736	**1508**	0	0	0	**0**	**1508**	**9229**
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.

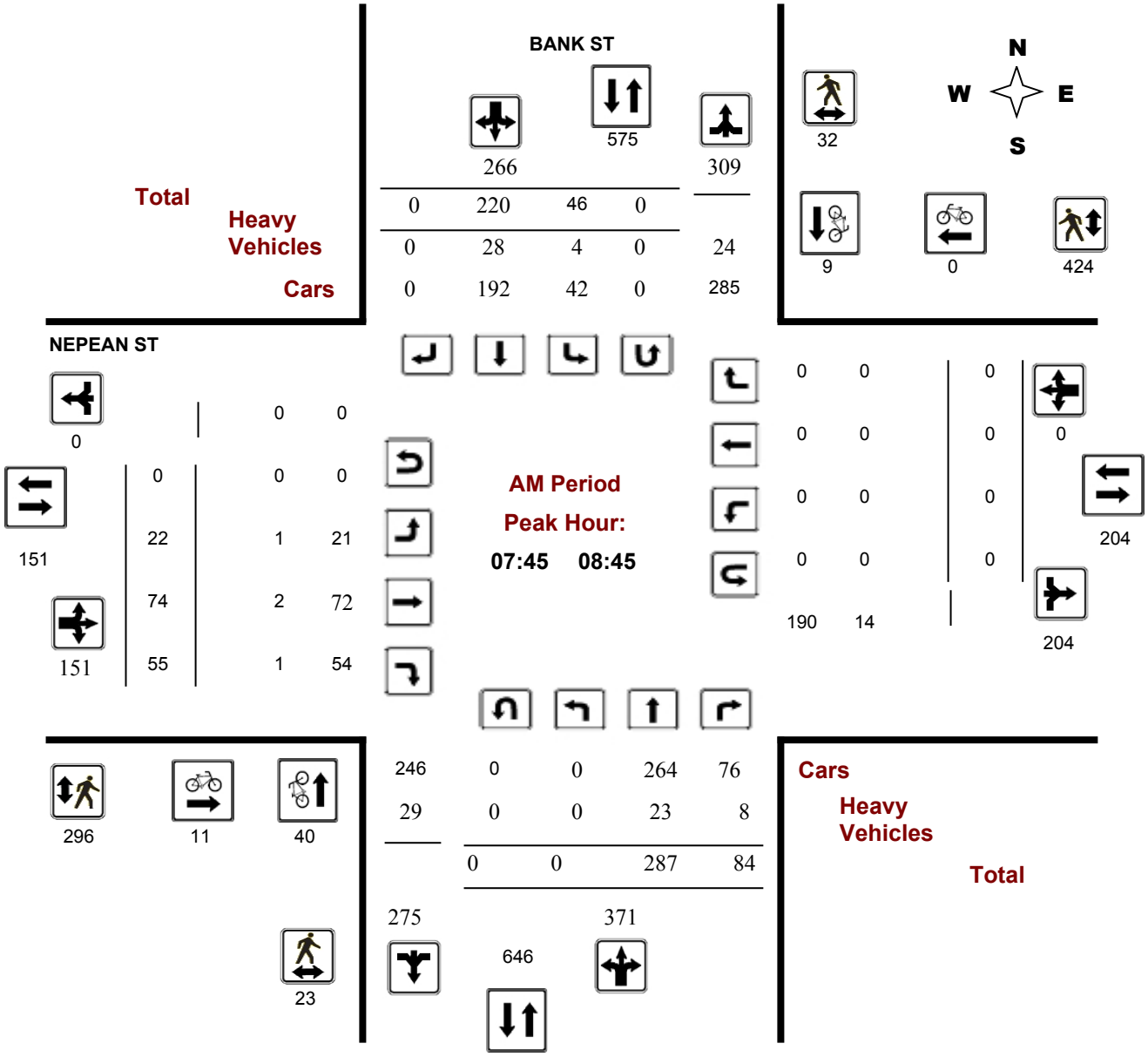
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 2017
Start Time: 07:00

WO No: 37211
Device: Miovision



Comments

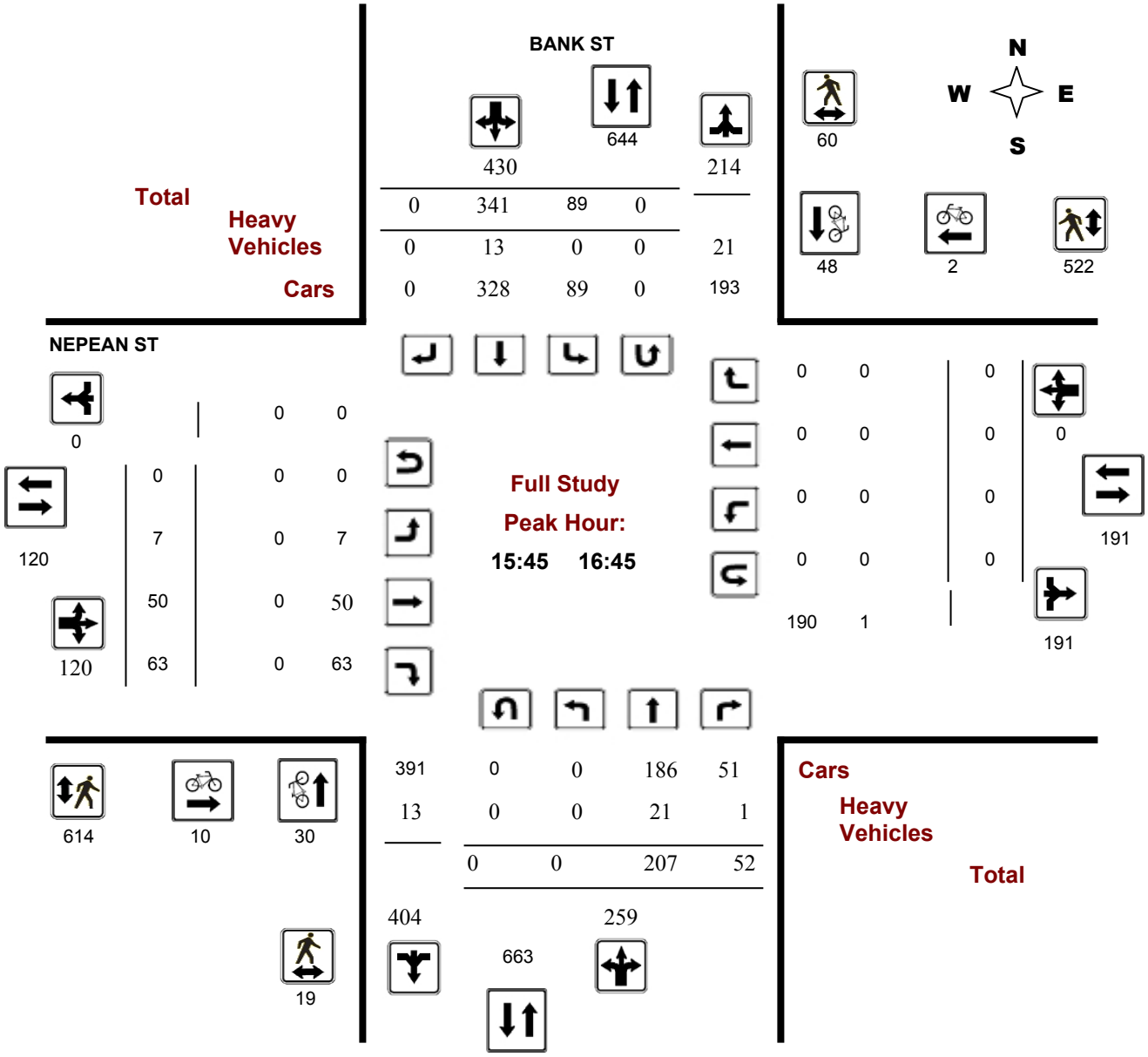
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 2017
Start Time: 07:00

WO No: 37211
Device: Miovision



Comments

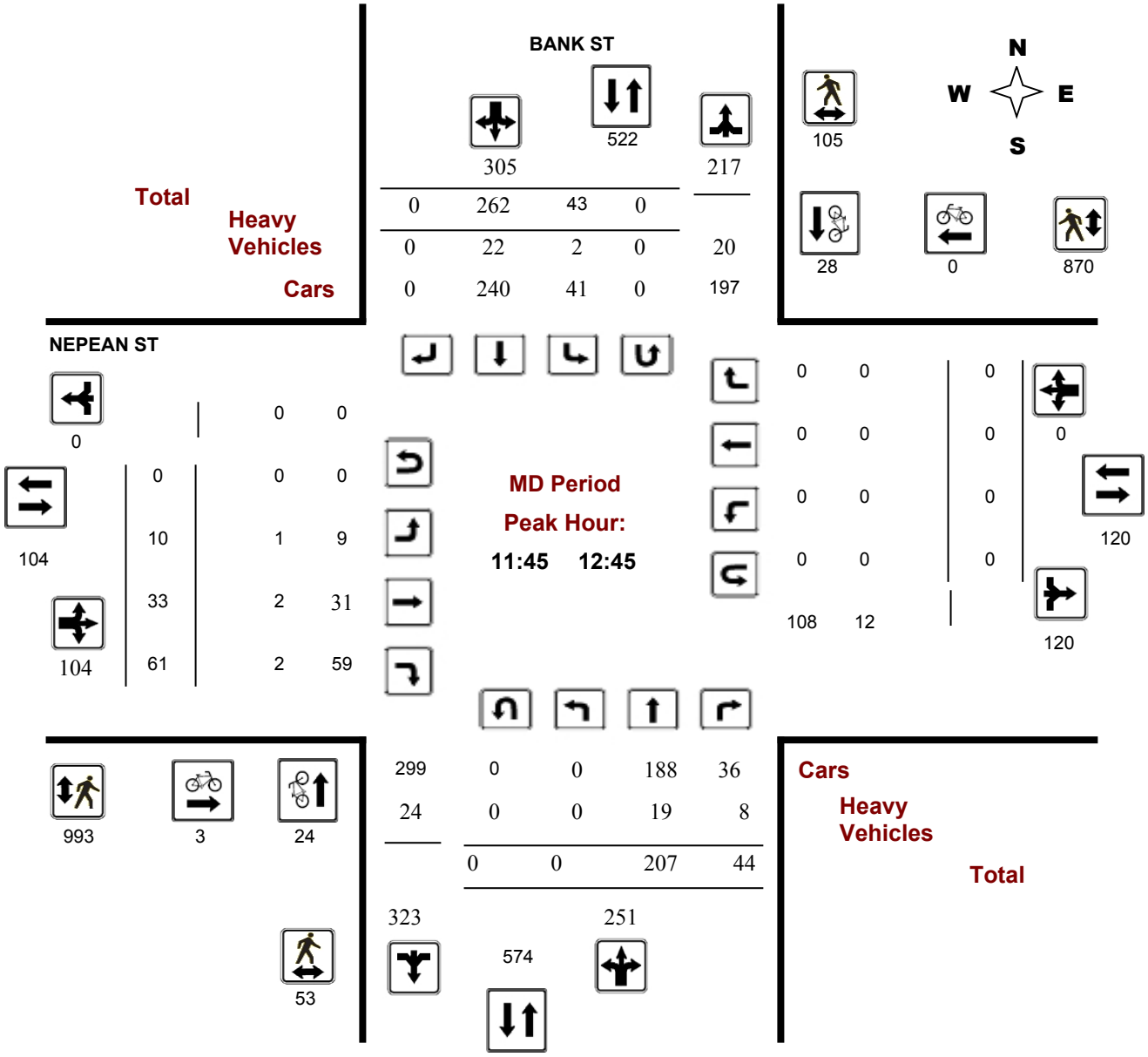
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 2017
Start Time: 07:00

WO No: 37211
Device: Miovision



Comments

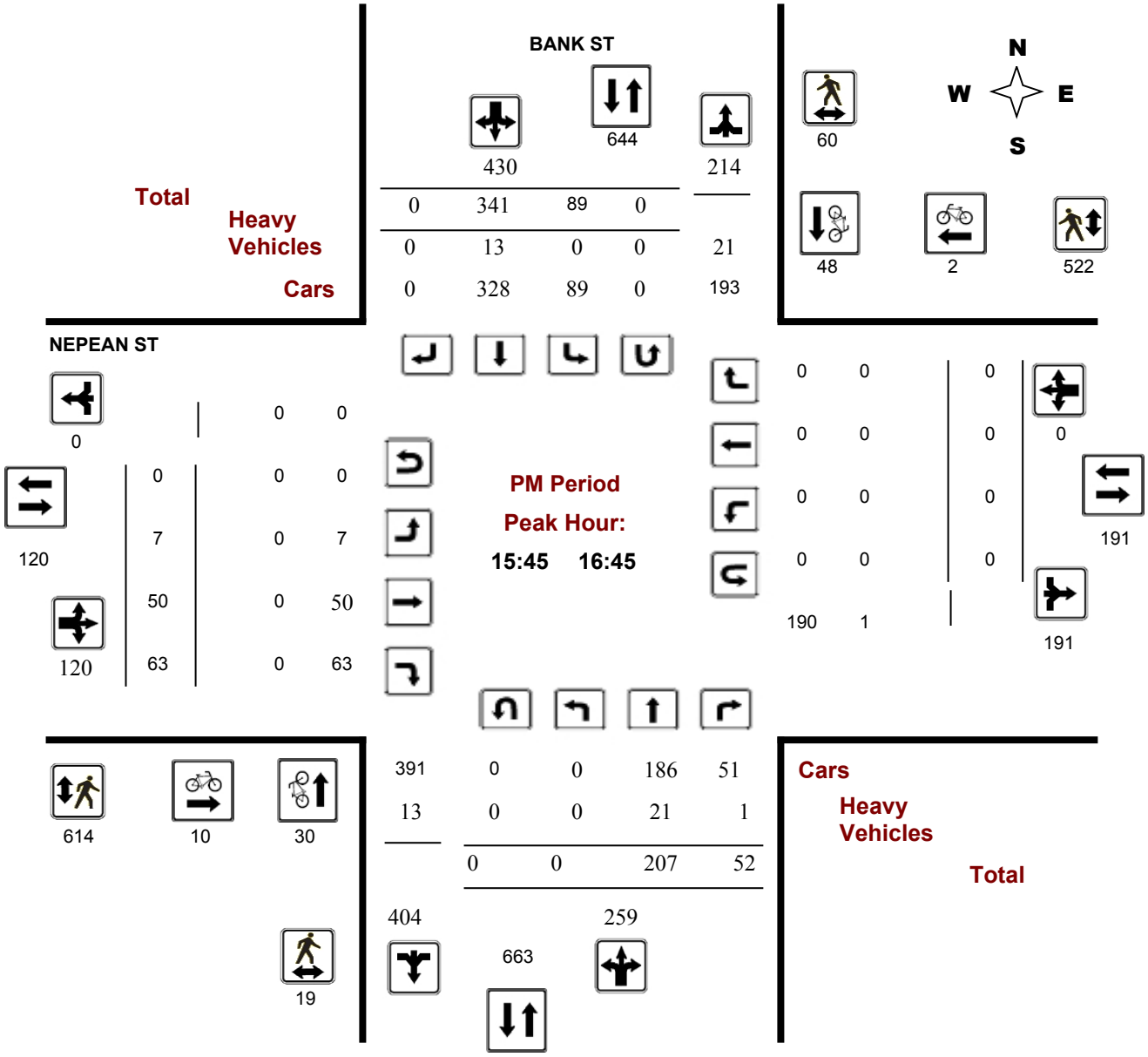
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 2017
Start Time: 07:00

WO No: 37211
Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order
37211

Turning Movement Count - 15 Min U-Turn Total Report

NEPEAN ST @ BANK ST

Survey Date: Tuesday, August 29, 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	1	0	0	1
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	1	0	0	1
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	2	0	0	2

Transportation Services - Traffic Services

W.O. 30413

Turning Movement Count - 15 Minute Summary Report

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		O'CONNOR ST									NEPEAN 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**	10	64	0	**74**	**74**	0	7	10	**17**	0	0	0	**0**	**17**	**91**
07:15	07:30	0	0	0	**0**	21	83	0	**104**	**104**	0	8	8	**16**	0	0	0	**0**	**16**	**120**
07:30	07:45	0	0	0	**0**	21	90	0	**111**	**111**	0	14	5	**19**	0	0	0	**0**	**19**	**130**
07:45	08:00	0	0	0	**0**	18	110	0	**128**	**128**	0	11	14	**25**	0	0	0	**0**	**25**	**153**
08:00	08:15	0	0	0	**0**	18	115	0	**133**	**133**	0	21	13	**34**	0	0	0	**0**	**34**	**167**
08:15	08:30	0	0	0	**0**	22	122	0	**144**	**144**	0	15	10	**25**	0	0	0	**0**	**25**	**169**
08:30	08:45	0	0	0	**0**	28	122	0	**150**	**150**	0	12	11	**23**	0	0	0	**0**	**23**	**173**
08:45	09:00	0	0	0	**0**	27	111	0	**138**	**138**	0	8	22	**30**	0	0	0	**0**	**30**	**168**
09:00	09:15	0	0	0	**0**	25	108	0	**133**	**133**	0	11	11	**22**	0	0	0	**0**	**22**	**155**
09:15	09:30	0	0	0	**0**	12	102	0	**114**	**114**	0	14	12	**26**	0	0	0	**0**	**26**	**140**
09:30	09:45	0	0	0	**0**	10	80	0	**90**	**90**	0	17	10	**27**	0	0	0	**0**	**27**	**117**
09:45	10:00	0	0	0	**0**	10	75	0	**85**	**85**	0	11	10	**21**	0	0	0	**0**	**21**	**106**
11:30	11:45	0	0	0	**0**	15	119	0	**134**	**134**	0	9	25	**34**	0	0	0	**0**	**34**	**168**
11:45	12:00	0	0	0	**0**	10	170	0	**180**	**180**	0	9	30	**39**	0	0	0	**0**	**39**	**219**
12:00	12:15	0	0	0	**0**	17	190	0	**207**	**207**	0	8	21	**29**	0	0	0	**0**	**29**	**236**
12:15	12:30	0	0	0	**0**	18	162	0	**180**	**180**	0	15	24	**39**	0	0	0	**0**	**39**	**219**
12:30	12:45	0	0	0	**0**	13	161	0	**174**	**174**	0	11	15	**26**	0	0	0	**0**	**26**	**200**
12:45	13:00	0	0	0	**0**	14	174	0	**188**	**188**	0	13	31	**44**	0	0	0	**0**	**44**	**232**
13:00	13:15	0	0	0	**0**	12	163	0	**175**	**175**	0	14	18	**32**	0	0	0	**0**	**32**	**207**
13:15	13:30	0	0	0	**0**	16	160	0	**176**	**176**	0	13	21	**34**	0	0	0	**0**	**34**	**210**
15:00	15:15	0	0	0	**0**	10	209	0	**219**	**219**	0	15	32	**47**	0	0	0	**0**	**47**	**266**
15:15	15:30	0	0	0	**0**	20	208	0	**228**	**228**	0	19	26	**45**	0	0	0	**0**	**45**	**273**
15:30	15:45	0	0	0	**0**	18	224	0	**242**	**242**	0	12	37	**49**	0	0	0	**0**	**49**	**291**
15:45	16:00	0	0	0	**0**	20	192	0	**212**	**212**	0	11	30	**41**	0	0	0	**0**	**41**	**253**
16:00	16:15	0	0	0	**0**	12	225	0	**237**	**237**	0	19	38	**57**	0	0	0	**0**	**57**	**294**
16:15	16:30	0	0	0	**0**	20	243	0	**263**	**263**	0	25	35	**60**	0	0	0	**0**	**60**	**323**
16:30	16:45	0	0	0	**0**	19	198	0	**217**	**217**	0	22	42	**64**	0	0	0	**0**	**64**	**281**
16:45	17:00	0	0	0	**0**	15	192	0	**207**	**207**	0	14	31	**45**	0	0	0	**0**	**45**	**252**
17:00	17:15	0	0	0	**0**	14	192	0	**206**	**206**	0	11	24	**35**	0	0	0	**0**	**35**	**241**
17:15	17:30	0	0	0	**0**	16	153	0	**169**	**169**	0	15	21	**36**	0	0	0	**0**	**36**	**205**
17:30	17:45	0	0	0	**0**	10	158	0	**168**	**168**	0	5	30	**35**	0	0	0	**0**	**35**	**203**
17:45	18:00	0	0	0	**0**	7	141	0	**148**	**148**	0	11	24	**35**	0	0	0	**0**	**35**	**183**
TOTAL:		0	0	0	**0**	518	4816	0	**5334**	**5334**	0	420	691	**1111**	0	0	0	**0**	**1111**	**6445**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
30413

NEPEAN ST @ O'CONNOR ST

Count Date: Friday, July 29, 2011 **Start Time:** 07:00

	O'CONNOR ST			NEPEAN ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	2	3	**5**	4	0	**4**	**9**
08:00 09:00	1	11	**12**	14	0	**14**	**26**
09:00 10:00	0	11	**11**	15	1	**16**	**27**
11:30 12:30	1	14	**15**	7	1	**8**	**23**
12:30 13:30	2	14	**16**	16	1	**17**	**33**
15:00 16:00	0	30	**30**	12	0	**12**	**42**
16:00 17:00	0	49	**49**	9	3	**12**	**61**
17:00 18:00	1	49	**50**	11	1	**12**	**62**
Total	7	181	**188**	88	7	**95**	**283**

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

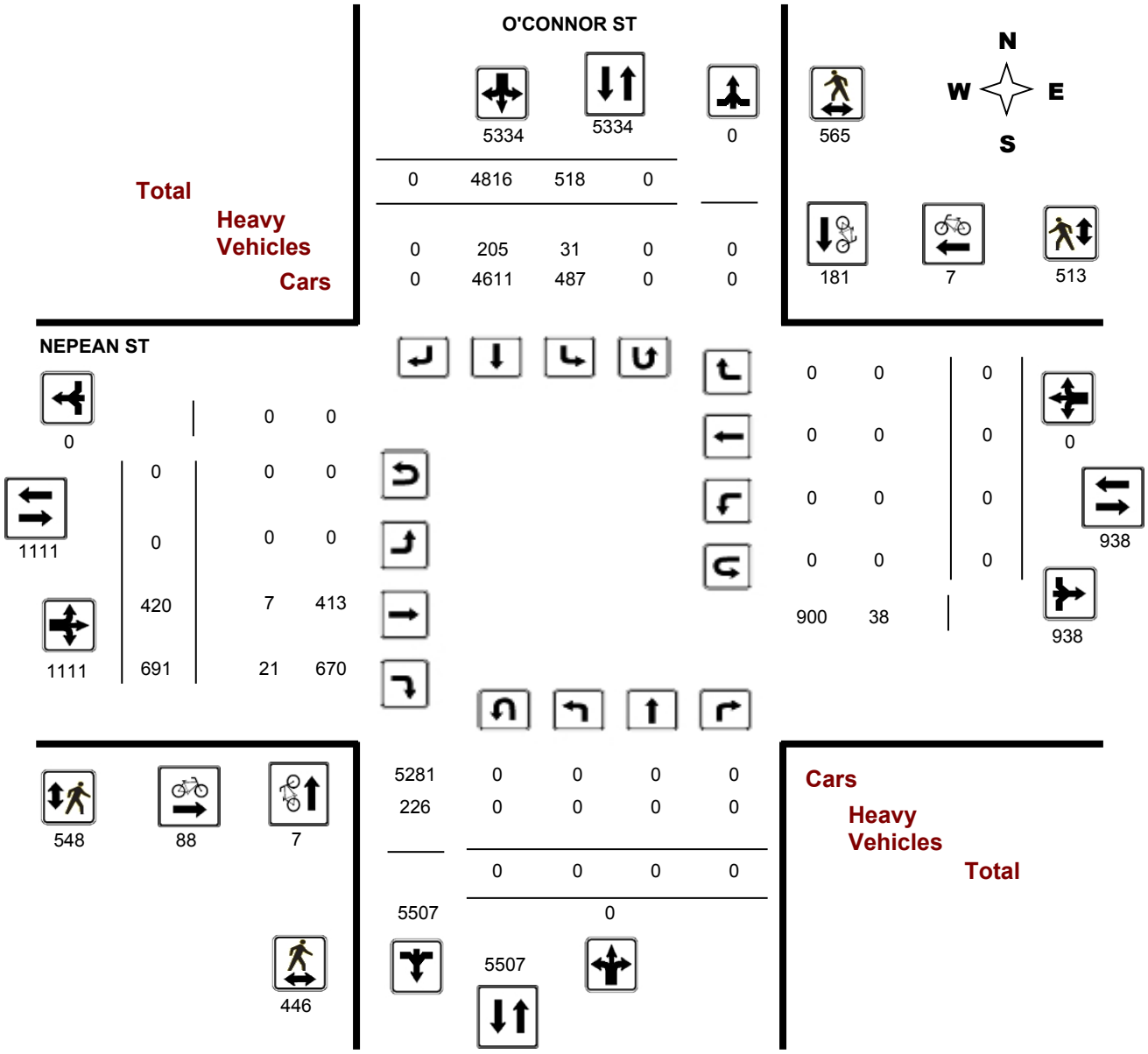
Turning Movement Count - Full Study Diagram

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011

WO#: 30413

Device:



Comments

Transportation Services - Traffic Services

W.O. 30413

Turning Movement Count - Heavy Vehicle Report

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011

		O'CONNOR ST									NEPEAN 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	08:00	0	0	0	**0**	3	18	0	**21**	**21**	0	1	1	**2**	0	0	0	**0**	**2**	**23**
08:00	09:00	0	0	0	**0**	5	38	0	**43**	**43**	0	4	1	**5**	0	0	0	**0**	**5**	**48**
09:00	10:00	0	0	0	**0**	4	36	0	**40**	**40**	0	0	5	**5**	0	0	0	**0**	**5**	**45**
11:30	12:30	0	0	0	**0**	9	40	0	**49**	**49**	0	1	2	**3**	0	0	0	**0**	**3**	**52**
12:30	13:30	0	0	0	**0**	1	33	0	**34**	**34**	0	0	4	**4**	0	0	0	**0**	**4**	**38**
15:00	16:00	0	0	0	**0**	6	19	0	**25**	**25**	0	0	6	**6**	0	0	0	**0**	**6**	**31**
16:00	17:00	0	0	0	**0**	2	12	0	**14**	**14**	0	0	1	**1**	0	0	0	**0**	**1**	**15**
17:00	18:00	0	0	0	**0**	1	9	0	**10**	**10**	0	1	1	**2**	0	0	0	**0**	**2**	**12**
Sub Total		0	0	0	**0**	31	205	0	**236**	**236**	0	7	21	**28**	0	0	0	**0**	**28**	**264**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		0	0	0	**0**	31	205	0	**236**	**236**	0	7	21	**28**	0	0	0	**0**	**28**	**264**

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
30413

Turning Movement Count - Pedestrian Volume Report

NEPEAN ST @ O'CONNOR ST

Count Date: Friday, July 29, 2011 **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	7	6	**13**	6	10	**16**	**29**
07:15 07:30	19	5	**24**	12	6	**18**	**42**
07:30 07:45	19	7	**26**	23	9	**32**	**58**
07:45 08:00	27	11	**38**	34	10	**44**	**82**
07:00 08:00	72	29	**101**	75	35	**110**	**211**
08:00 08:15	16	8	**24**	25	4	**29**	**53**
08:15 08:30	27	17	**44**	36	7	**43**	**87**
08:30 08:45	21	13	**34**	22	9	**31**	**65**
08:45 09:00	23	11	**34**	30	6	**36**	**70**
08:00 09:00	87	49	**136**	113	26	**139**	**275**
09:00 09:15	23	12	**35**	31	4	**35**	**70**
09:15 09:30	12	14	**26**	24	14	**38**	**64**
09:30 09:45	18	10	**28**	19	6	**25**	**53**
09:45 10:00	16	11	**27**	5	21	**26**	**53**
09:00 10:00	69	47	**116**	79	45	**124**	**240**
11:30 11:45	15	12	**27**	8	6	**14**	**41**
11:45 12:00	13	17	**30**	17	25	**42**	**72**
12:00 12:15	12	17	**29**	18	17	**35**	**64**
12:15 12:30	12	16	**28**	13	14	**27**	**55**
11:30 12:30	52	62	**114**	56	62	**118**	**232**
12:30 12:45	13	11	**24**	24	18	**42**	**66**
12:45 13:00	17	28	**45**	32	12	**44**	**89**
13:00 13:15	10	29	**39**	21	14	**35**	**74**
13:15 13:30	8	21	**29**	14	12	**26**	**55**
12:30 13:30	48	89	**137**	91	56	**147**	**284**
15:00 15:15	9	16	**25**	13	19	**32**	**57**
15:15 15:30	5	21	**26**	11	21	**32**	**58**
15:30 15:45	11	21	**32**	11	18	**29**	**61**
15:45 16:00	9	29	**38**	10	21	**31**	**69**
15:00 16:00	34	87	**121**	45	79	**124**	**245**
16:00 16:15	9	24	**33**	16	19	**35**	**68**
16:15 16:30	15	29	**44**	13	35	**48**	**92**
16:30 16:45	18	32	**50**	11	21	**32**	**82**
16:45 17:00	11	30	**41**	4	33	**37**	**78**
16:00 17:00	53	115	**168**	44	108	**152**	**320**
17:00 17:15	4	17	**21**	6	40	**46**	**67**
17:15 17:30	7	28	**35**	13	22	**35**	**70**
17:30 17:45	8	19	**27**	15	23	**38**	**65**
17:45 18:00	12	23	**35**	11	17	**28**	**63**
17:00 18:00	31	87	**118**	45	102	**147**	**265**
Total	446	565	**1011**	548	513	**1061**	**2072**

Comment:

Transportation Services - Traffic Services

Work Order 30413

Turning Movement Count - Full Study Summary Report

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	O'CONNOR ST									NEPEAN 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**	70	347	0	**417**	**417**	0	40	37	**77**	0	0	0	**0**	**77**	**494**
08:00 09:00	0	0	0	**0**	95	470	0	**565**	**565**	0	56	56	**112**	0	0	0	**0**	**112**	**677**
09:00 10:00	0	0	0	**0**	57	365	0	**422**	**422**	0	53	43	**96**	0	0	0	**0**	**96**	**518**
11:30 12:30	0	0	0	**0**	60	641	0	**701**	**701**	0	41	100	**141**	0	0	0	**0**	**141**	**842**
12:30 13:30	0	0	0	**0**	55	658	0	**713**	**713**	0	51	85	**136**	0	0	0	**0**	**136**	**849**
15:00 16:00	0	0	0	**0**	68	833	0	**901**	**901**	0	57	125	**182**	0	0	0	**0**	**182**	**1083**
16:00 17:00	0	0	0	**0**	66	858	0	**924**	**924**	0	80	146	**226**	0	0	0	**0**	**226**	**1150**
17:00 18:00	0	0	0	**0**	47	644	0	**691**	**691**	0	42	99	**141**	0	0	0	**0**	**141**	**832**
Sub Total	0	0	0	**0**	518	4816	0	**5334**	**5334**	0	420	691	**1111**	0	0	0	**0**	**1111**	**6445**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	0	0	0	**0**	518	4816	0	**5334**	**5334**	0	420	691	**1111**	0	0	0	**0**	**1111**	**6445**
EQ 12Hr	0	0	0	**0**	720	6694	0	**7414**	**7414**	0	584	960	**1544**	0	0	0	**0**	**1544**	**8958**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	0	0	0	**0**	648	6025	0	**6673**	**6673**	0	525	864	**1390**	0	0	0	**0**	**1390**	**8063**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	0	0	0	**0**	849	7893	0	**8741**	**8741**	0	688	1132	**1821**	0	0	0	**0**	**1821**	**10562**
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.

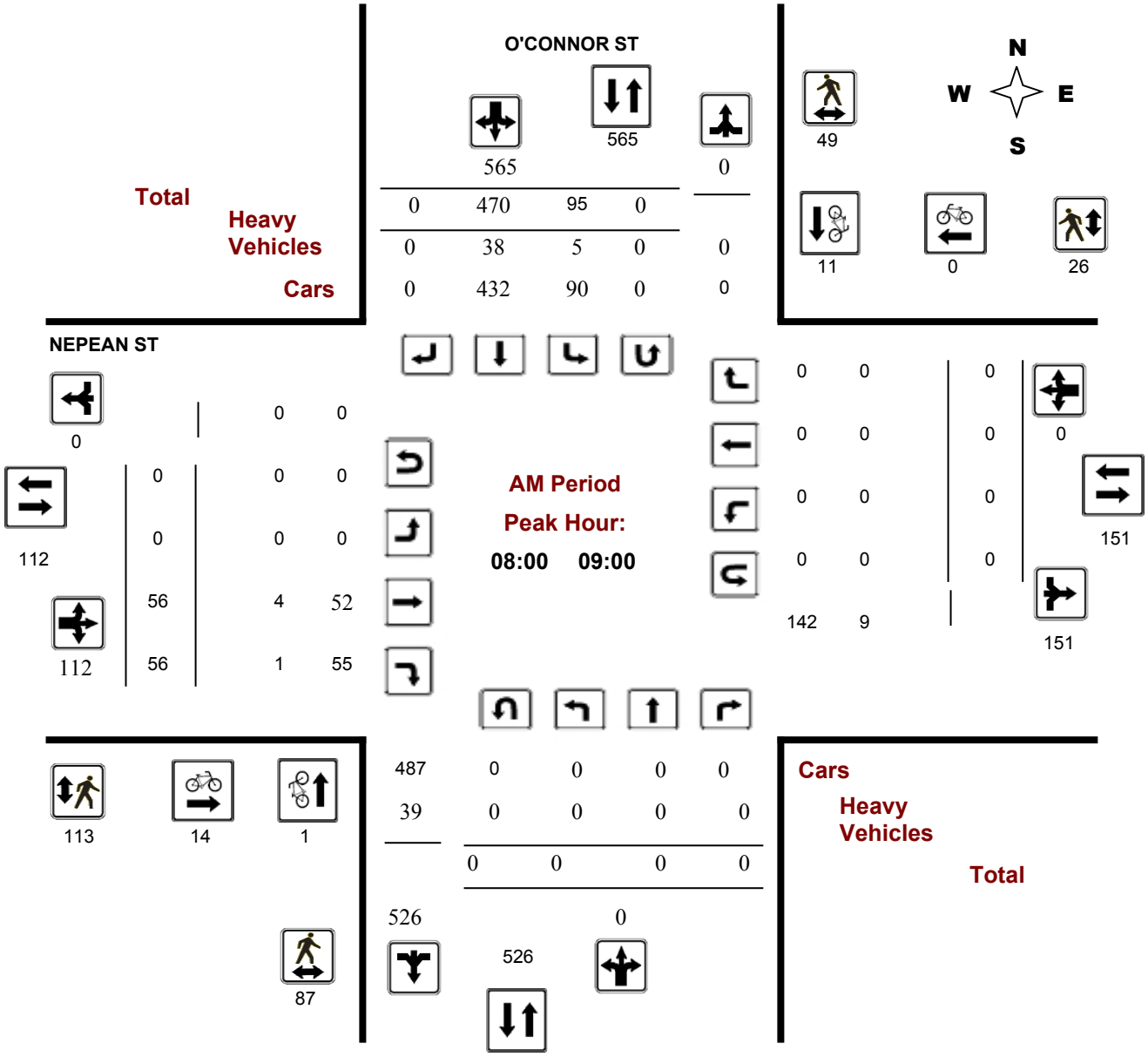
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011 **WO No:** 30413

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



Comments

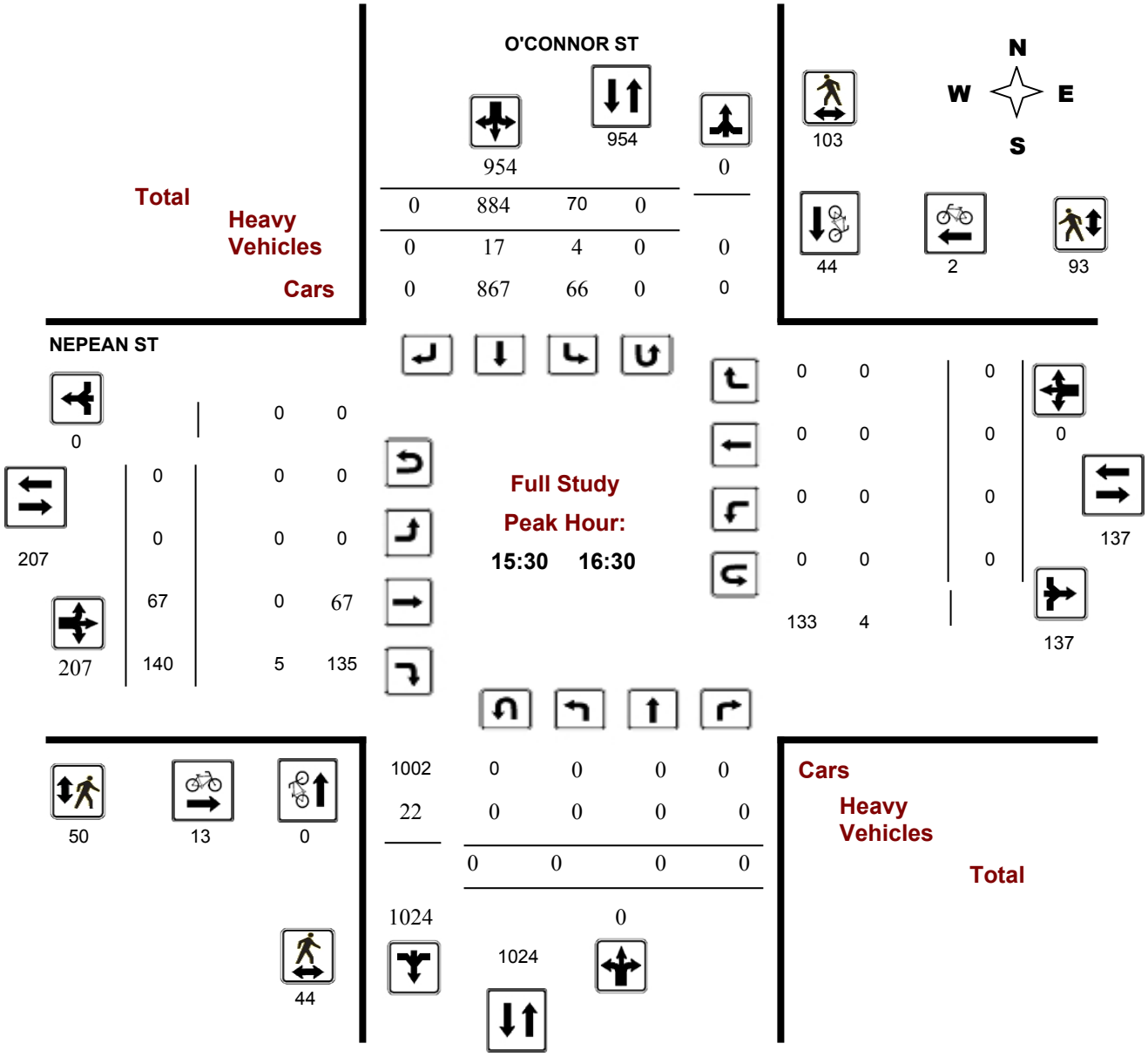
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011 **WO No:** 30413

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



Comments

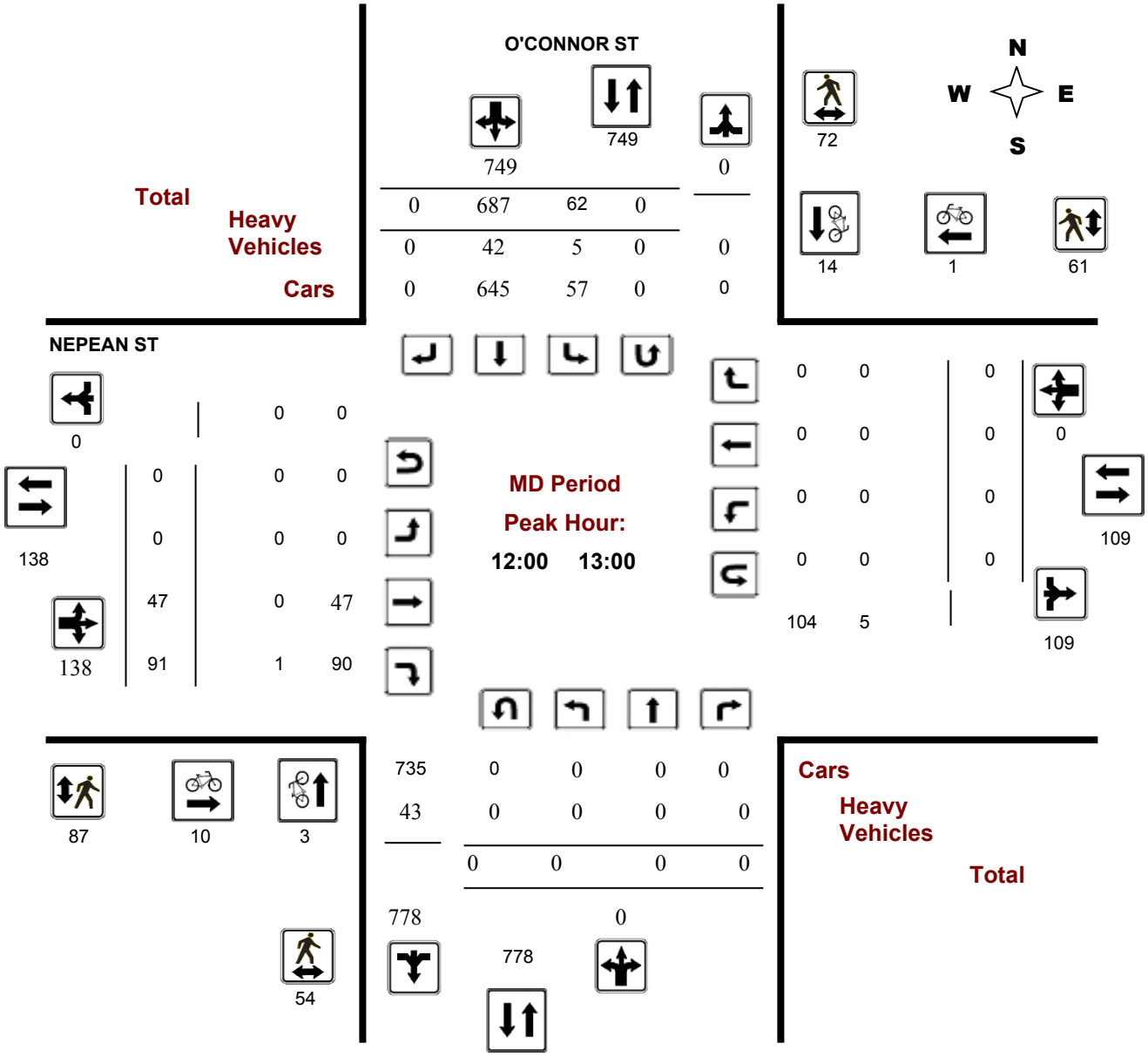
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011 **WO No:** 30413

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



Comments

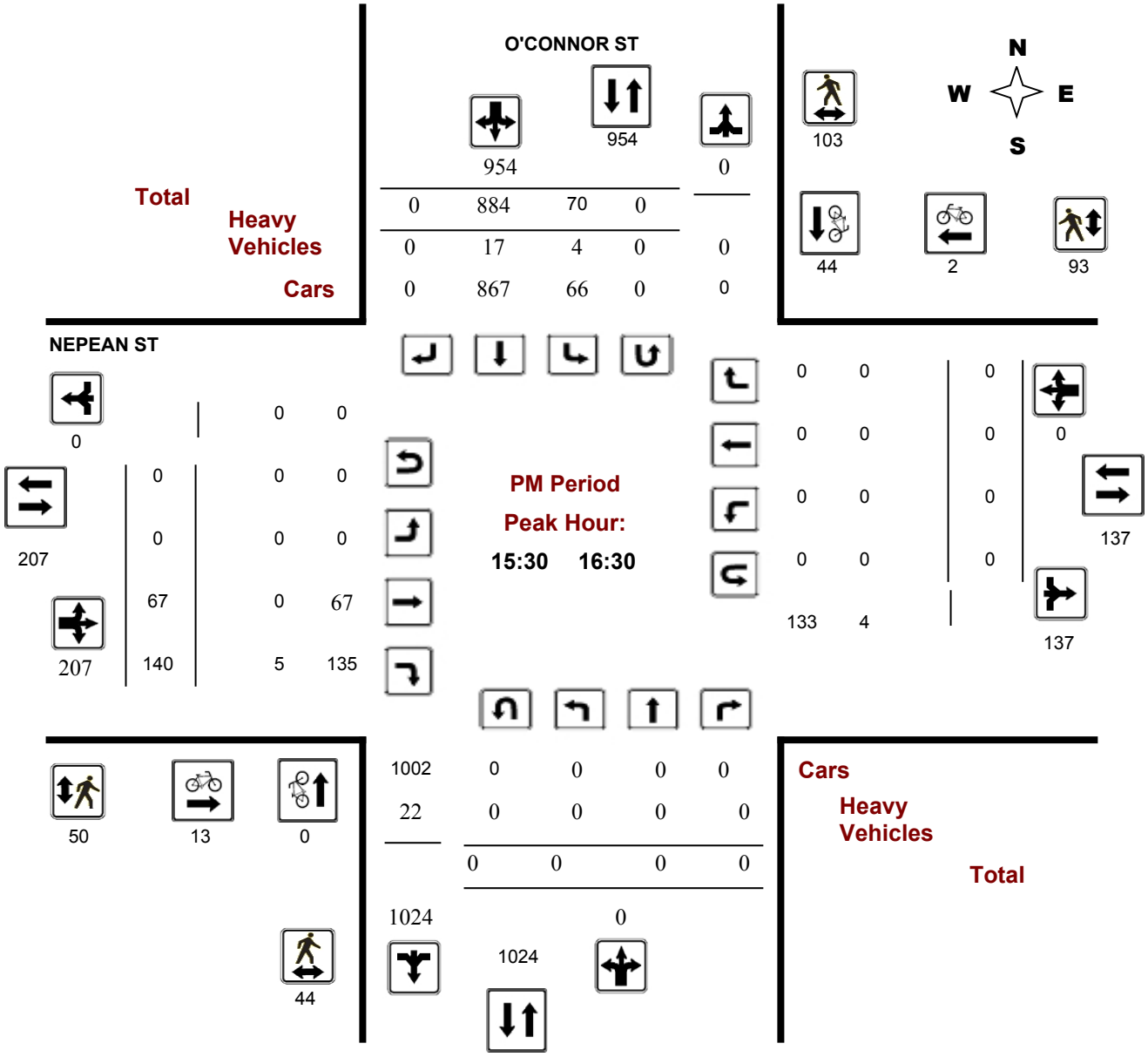
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011 **WO No:** 30413

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



Comments

Transportation Services - Traffic Services

Work Order
30413

Turning Movement Count - 15 Min U-Turn Total Report

NEPEAN ST @ O'CONNOR ST

Survey Date: Friday, July 29, 2011

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

W.O. 35285

Turning Movement Count - 15 Minute Summary Report

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		BANK ST									LISGAR 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	6	58	0	**64**	0	26	6	**32**	**96**	0	0	0	**0**	1	5	3	**9**	**9**	**105**
07:15	07:30	9	63	0	**72**	0	32	4	**36**	**108**	0	0	0	**0**	1	1	2	**4**	**4**	**112**
07:30	07:45	11	124	0	**135**	0	26	6	**32**	**167**	0	0	0	**0**	2	0	6	**8**	**8**	**175**
07:45	08:00	10	121	0	**131**	0	29	2	**31**	**162**	0	0	0	**0**	2	2	2	**6**	**6**	**168**
08:00	08:15	5	97	0	**102**	0	47	3	**50**	**152**	0	0	0	**0**	2	4	5	**11**	**11**	**163**
08:15	08:30	8	88	0	**96**	0	47	3	**50**	**146**	0	0	0	**0**	2	5	1	**8**	**8**	**154**
08:30	08:45	7	120	0	**127**	0	38	3	**41**	**168**	0	0	0	**0**	3	2	1	**6**	**6**	**174**
08:45	09:00	13	133	0	**146**	0	55	5	**60**	**206**	0	0	0	**0**	3	3	5	**11**	**11**	**217**
09:00	09:15	11	122	0	**133**	0	47	1	**48**	**181**	0	0	0	**0**	3	6	2	**11**	**11**	**192**
09:15	09:30	4	86	0	**90**	0	44	0	**44**	**134**	0	0	0	**0**	7	6	5	**18**	**18**	**152**
09:30	09:45	12	74	0	**86**	0	37	3	**40**	**126**	0	0	0	**0**	2	6	1	**9**	**9**	**135**
09:45	10:00	34	53	0	**87**	0	37	1	**38**	**125**	0	0	0	**0**	1	2	3	**6**	**6**	**131**
11:30	11:45	2	89	0	**91**	0	40	2	**42**	**133**	0	0	0	**0**	4	8	9	**21**	**21**	**154**
11:45	12:00	10	86	0	**96**	0	87	4	**91**	**187**	0	0	0	**0**	4	7	5	**16**	**16**	**203**
12:00	12:15	10	59	0	**69**	0	79	5	**84**	**153**	0	0	0	**0**	4	5	3	**12**	**12**	**165**
12:15	12:30	12	99	0	**111**	0	57	3	**60**	**171**	0	0	0	**0**	5	2	2	**9**	**9**	**180**
12:30	12:45	12	77	0	**89**	0	57	4	**61**	**150**	0	0	0	**0**	11	13	5	**29**	**29**	**179**
12:45	13:00	3	49	0	**52**	0	77	7	**84**	**136**	0	0	0	**0**	4	6	3	**13**	**13**	**149**
13:00	13:15	12	42	0	**54**	0	59	4	**63**	**117**	0	0	0	**0**	5	8	3	**16**	**16**	**133**
13:15	13:30	22	79	0	**101**	0	67	9	**76**	**177**	0	0	0	**0**	4	4	6	**14**	**14**	**191**
15:00	15:15	6	102	0	**108**	0	64	4	**68**	**176**	0	0	0	**0**	2	16	5	**23**	**23**	**199**
15:15	15:30	8	77	0	**85**	0	54	4	**58**	**143**	0	0	0	**0**	3	11	4	**18**	**18**	**161**
15:30	15:45	8	80	0	**88**	0	74	4	**78**	**166**	0	0	0	**0**	7	14	5	**26**	**26**	**192**
15:45	16:00	2	93	0	**95**	0	69	6	**75**	**170**	0	0	0	**0**	13	17	8	**38**	**38**	**208**
16:00	16:15	7	89	0	**96**	0	75	3	**78**	**174**	0	0	0	**0**	21	24	11	**56**	**56**	**230**
16:15	16:30	1	81	0	**82**	0	70	6	**76**	**158**	0	0	0	**0**	10	24	10	**44**	**44**	**202**
16:30	16:45	11	85	0	**96**	0	94	1	**95**	**191**	0	0	0	**0**	10	6	3	**19**	**19**	**210**
16:45	17:00	11	80	0	**91**	0	56	8	**64**	**155**	0	0	0	**0**	8	17	7	**32**	**32**	**187**
17:00	17:15	4	77	0	**81**	0	76	2	**78**	**159**	0	0	0	**0**	4	12	9	**25**	**25**	**184**
17:15	17:30	15	114	0	**129**	0	91	5	**96**	**225**	0	0	0	**0**	8	11	7	**26**	**26**	**251**
17:30	17:45	5	89	0	**94**	0	80	5	**85**	**179**	0	0	0	**0**	8	15	6	**29**	**29**	**208**
17:45	18:00	4	56	0	**60**	0	53	7	**60**	**120**	0	0	0	**0**	11	10	9	**30**	**30**	**150**
TOTAL:		295	2742	0	**3037**	0	1844	130	**1974**	**5011**	0	0	0	**0**	175	272	156	**603**	**603**	**5614**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
35285

BANK ST @ LISGAR ST

Count Date: Friday, August 21, 2015

Start Time: 07:00

	BANK ST			LISGAR ST			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	27	8	**35**	0	4	**4**	**39**
08:00 09:00	43	15	**58**	0	8	**8**	**66**
09:00 10:00	33	9	**42**	0	3	**3**	**45**
11:30 12:30	17	28	**45**	1	8	**9**	**54**
12:30 13:30	11	26	**37**	1	3	**4**	**41**
15:00 16:00	23	50	**73**	0	7	**7**	**80**
16:00 17:00	27	69	**96**	2	16	**18**	**114**
17:00 18:00	34	69	**103**	3	12	**15**	**118**
Total	215	274	**489**	7	61	**68**	**557**

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

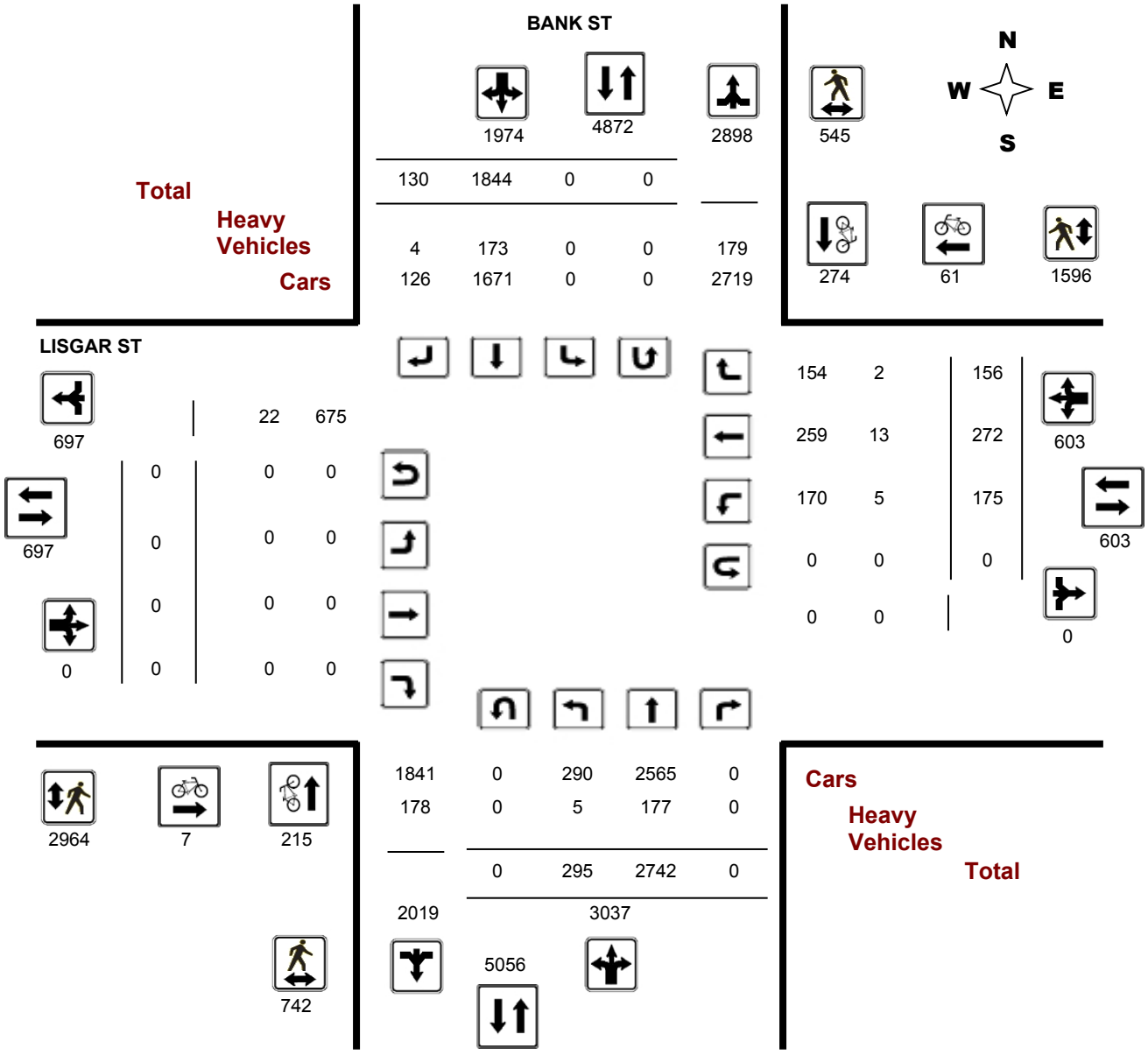
Turning Movement Count - Full Study Diagram

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015

WO#: 35285

Device: Jamar Technologies, Inc



Comments

Transportation Services - Traffic Services

W.O. 35285

Turning Movement Count - Heavy Vehicle Report

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015

		BANK ST									LISGAR 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	08:00	0	25	0	**25**	0	20	0	**20**	**45**	0	0	0	**0**	0	1	1	**2**	**2**	**47**
08:00	09:00	0	35	0	**35**	0	27	0	**27**	**62**	0	0	0	**0**	1	2	0	**3**	**3**	**65**
09:00	10:00	2	21	0	**23**	0	26	1	**27**	**50**	0	0	0	**0**	1	3	0	**4**	**4**	**54**
11:30	12:30	1	21	0	**22**	0	20	1	**21**	**43**	0	0	0	**0**	2	2	0	**4**	**4**	**47**
12:30	13:30	2	18	0	**20**	0	18	2	**20**	**40**	0	0	0	**0**	1	3	0	**4**	**4**	**44**
15:00	16:00	0	22	0	**22**	0	21	0	**21**	**43**	0	0	0	**0**	0	0	1	**1**	**1**	**44**
16:00	17:00	0	19	0	**19**	0	20	0	**20**	**39**	0	0	0	**0**	0	0	0	**0**	**0**	**39**
17:00	18:00	0	16	0	**16**	0	21	0	**21**	**37**	0	0	0	**0**	0	2	0	**2**	**2**	**39**
Sub Total		5	177	0	**182**	0	173	4	**177**	**359**	0	0	0	**0**	5	13	2	**20**	**20**	**379**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		5	177	0	**0**	0	173	4	**177**	**359**	0	0	0	**0**	5	13	2	**20**	**20**	**379**

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
35285

Turning Movement Count - Pedestrian Volume Report

BANK ST @ LISGAR ST

Count Date: Friday, August 21, 2015 **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	6	2	**8**	12	9	**21**	**29**
07:15 07:30	5	6	**11**	22	7	**29**	**40**
07:30 07:45	12	2	**14**	43	22	**65**	**79**
07:45 08:00	6	8	**14**	27	15	**42**	**56**
07:00 08:00	29	18	**47**	104	53	**157**	**204**
08:00 08:15	19	2	**21**	33	74	**107**	**128**
08:15 08:30	13	8	**21**	40	48	**88**	**109**
08:30 08:45	22	22	**44**	57	58	**115**	**159**
08:45 09:00	15	5	**20**	49	70	**119**	**139**
08:00 09:00	69	37	**106**	179	250	**429**	**535**
09:00 09:15	20	16	**36**	55	28	**83**	**119**
09:15 09:30	13	8	**21**	40	40	**80**	**101**
09:30 09:45	12	3	**15**	57	27	**84**	**99**
09:45 10:00	2	6	**8**	35	58	**93**	**101**
09:00 10:00	47	33	**80**	187	153	**340**	**420**
11:30 11:45	7	23	**30**	36	52	**88**	**118**
11:45 12:00	38	29	**67**	118	86	**204**	**271**
12:00 12:15	27	32	**59**	152	102	**254**	**313**
12:15 12:30	41	60	**101**	253	112	**365**	**466**
11:30 12:30	113	144	**257**	559	352	**911**	**1168**
12:30 12:45	46	30	**76**	217	44	**261**	**337**
12:45 13:00	78	32	**110**	169	42	**211**	**321**
13:00 13:15	23	24	**47**	86	58	**144**	**191**
13:15 13:30	39	15	**54**	127	79	**206**	**260**
12:30 13:30	186	101	**287**	599	223	**822**	**1109**
15:00 15:15	16	5	**21**	120	44	**164**	**185**
15:15 15:30	14	25	**39**	49	50	**99**	**138**
15:30 15:45	30	27	**57**	101	27	**128**	**185**
15:45 16:00	39	12	**51**	95	67	**162**	**213**
15:00 16:00	99	69	**168**	365	188	**553**	**721**
16:00 16:15	30	4	**34**	167	41	**208**	**242**
16:15 16:30	29	27	**56**	100	80	**180**	**236**
16:30 16:45	23	4	**27**	107	41	**148**	**175**
16:45 17:00	26	31	**57**	92	55	**147**	**204**
16:00 17:00	108	66	**174**	466	217	**683**	**857**
17:00 17:15	31	21	**52**	164	34	**198**	**250**
17:15 17:30	17	19	**36**	174	41	**215**	**251**
17:30 17:45	34	11	**45**	107	46	**153**	**198**
17:45 18:00	9	26	**35**	60	39	**99**	**134**
17:00 18:00	91	77	**168**	505	160	**665**	**833**
Total	742	545	**1287**	2964	1596	**4560**	**5847**

Comment:

Transportation Services - Traffic Services

Work Order 35285

Turning Movement Count - Full Study Summary Report

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor .90

Full Study

	BANK ST									LISGAR 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	36	366	0	**402**	0	113	18	**131**	**533**	0	0	0	**0**	6	8	13	**27**	**27**	**560**
08:00 09:00	33	438	0	**471**	0	187	14	**201**	**672**	0	0	0	**0**	10	14	12	**36**	**36**	**708**
09:00 10:00	61	335	0	**396**	0	165	5	**170**	**566**	0	0	0	**0**	13	20	11	**44**	**44**	**610**
11:30 12:30	34	333	0	**367**	0	263	14	**277**	**644**	0	0	0	**0**	17	22	19	**58**	**58**	**702**
12:30 13:30	49	247	0	**296**	0	260	24	**284**	**580**	0	0	0	**0**	24	31	17	**72**	**72**	**652**
15:00 16:00	24	352	0	**376**	0	261	18	**279**	**655**	0	0	0	**0**	25	58	22	**105**	**105**	**760**
16:00 17:00	30	335	0	**365**	0	295	18	**313**	**678**	0	0	0	**0**	49	71	31	**151**	**151**	**829**
17:00 18:00	28	336	0	**364**	0	300	19	**319**	**683**	0	0	0	**0**	31	48	31	**110**	**110**	**793**
Sub Total	295	2742	0	**3037**	0	1844	130	**1974**	**5011**	0	0	0	**0**	175	272	156	**603**	**603**	**5614**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	295	2742	0	**3037**	0	1844	130	**1974**	**5011**	0	0	0	**0**	175	272	156	**603**	**603**	**5614**
EQ 12Hr	410	3811	0	**4221**	0	2563	181	**2744**	**6965**	0	0	0	**0**	243	378	217	**838**	**838**	**7803**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	369	3430	0	**3799**	0	2307	163	**2469**	**6268**	0	0	0	**0**	219	340	195	**754**	**754**	**7022**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**.90**						
AVG 24Hr	483	4494	0	**4977**	0	3022	213	**3235**	**8212**	0	0	0	**0**	287	446	256	**988**	**988**	**9200**
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.

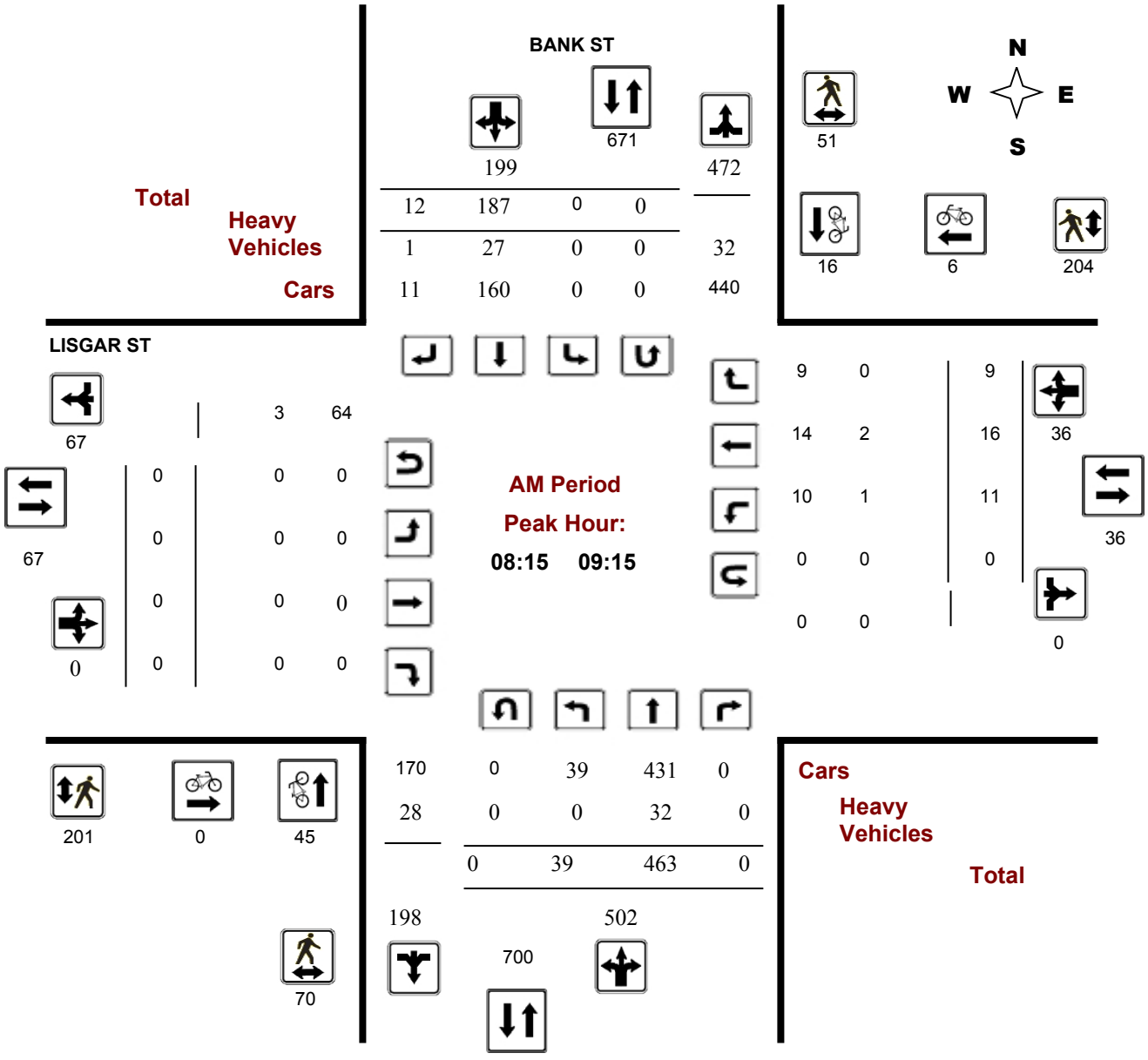
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015
Start Time: 07:00

WO No: 35285
Device: Jamar Technologies, Inc



Comments

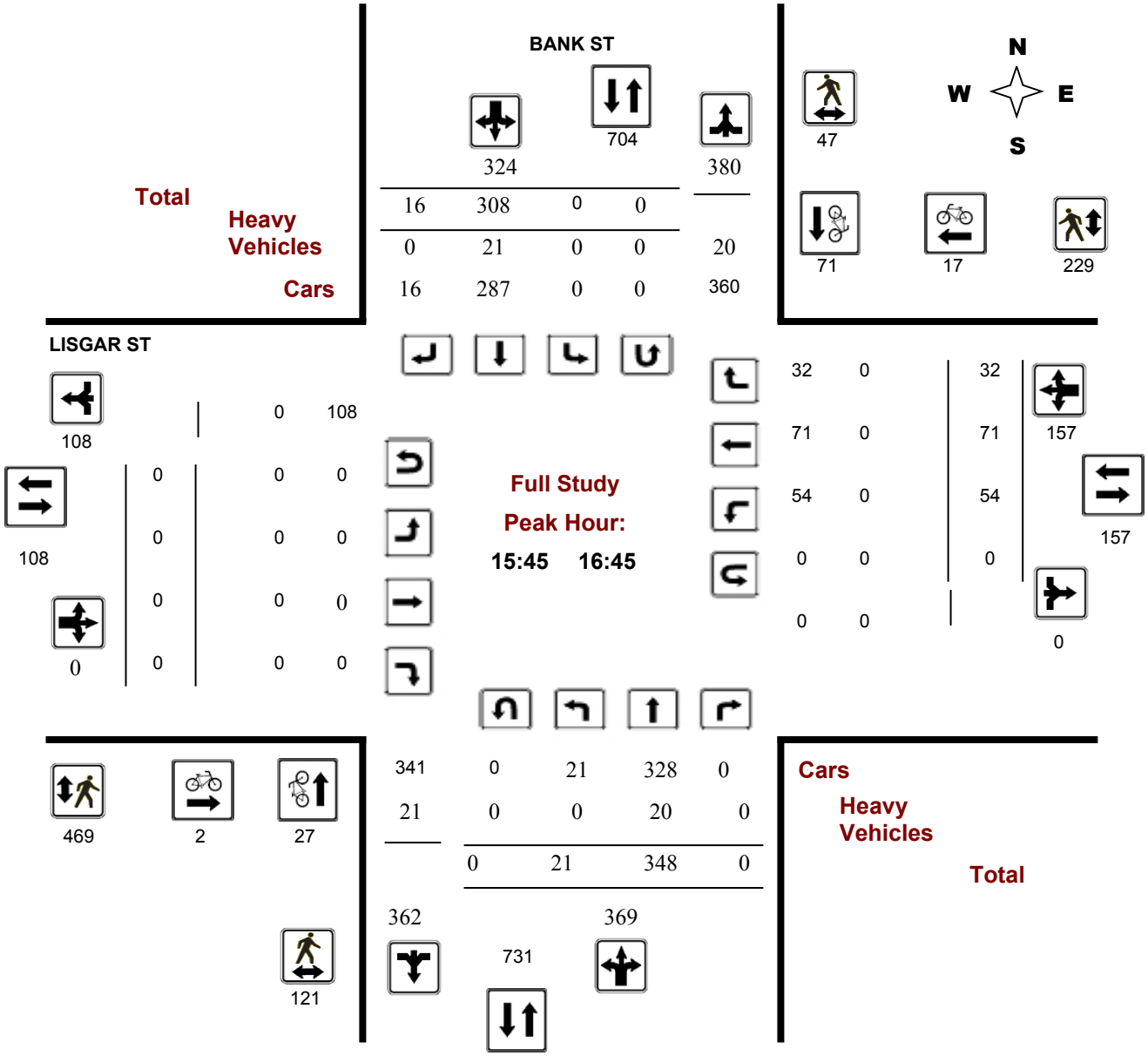
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015
Start Time: 07:00

WO No: 35285
Device: Jamar Technologies, Inc



Comments

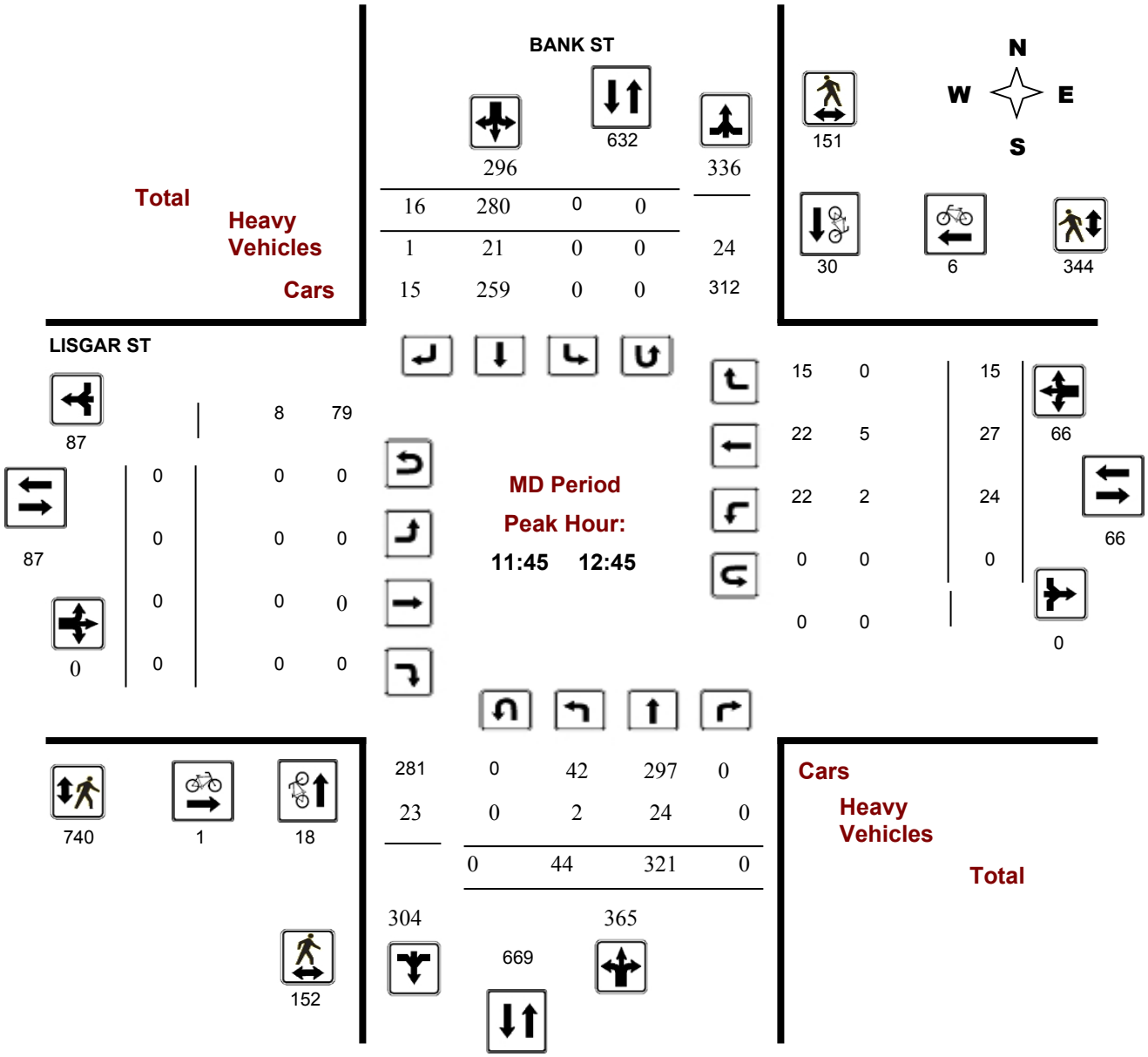
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015
Start Time: 07:00

WO No: 35285
Device: Jamar Technologies, Inc



Comments

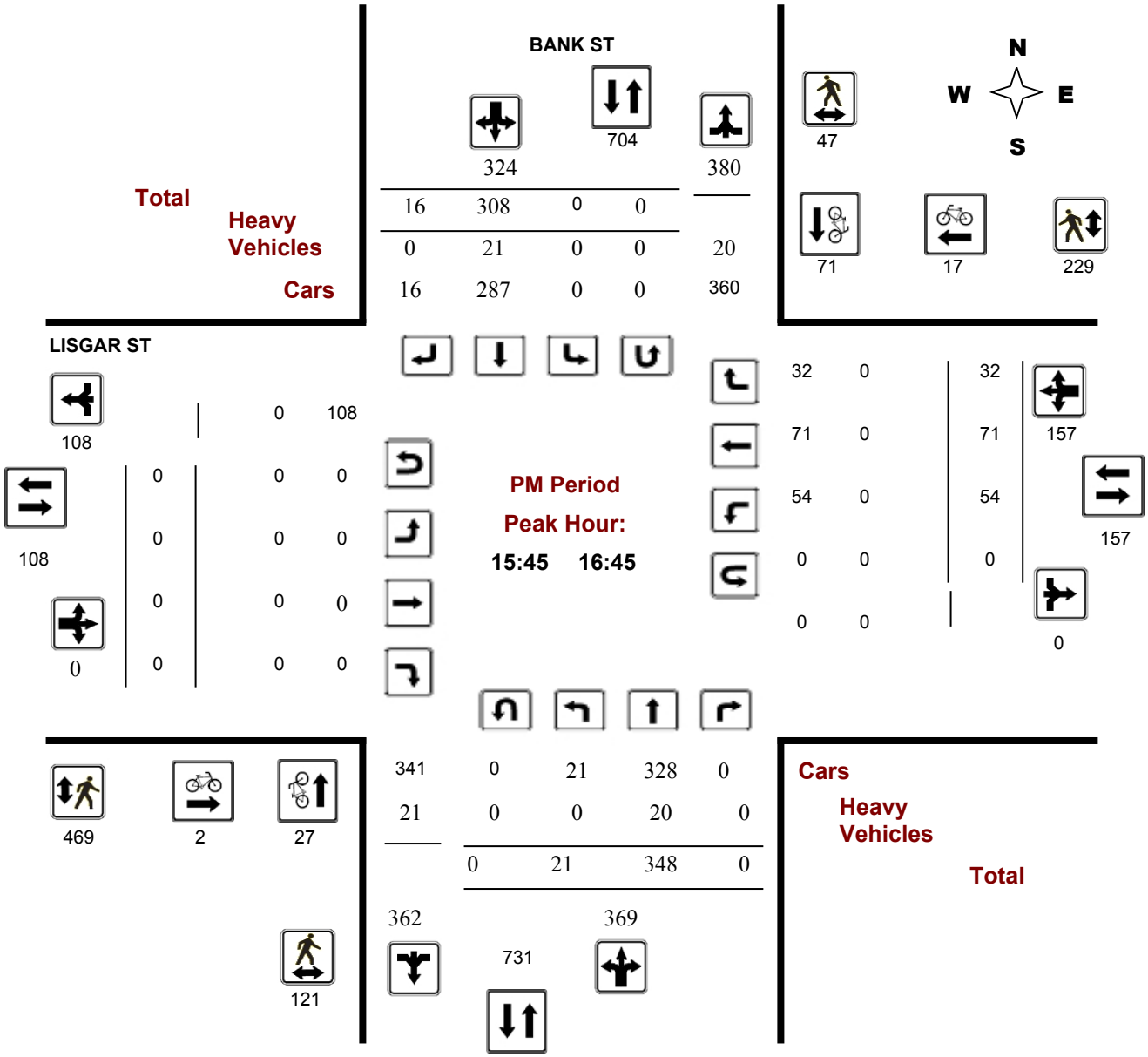
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015
Start Time: 07:00

WO No: 35285
Device: Jamar Technologies, Inc



Comments

Transportation Services - Traffic Services

Work Order
35285

Turning Movement Count - 15 Min U-Turn Total Report

BANK ST @ LISGAR ST

Survey Date: Friday, August 21, 2015

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

Collision Main Detail Summary

OnTRAC Reporting System

FROM: 2011-01-01 TO: 2014-01-01

BANK ST & COOPER ST

Former Municipality: **Ottawa** Traffic Control: **Stop sign** Number of Collisions: **7**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
1	2011-06-08	We	10:40	Clear	Daylight	Turning	P.D. only	V1 N	Dry	Turning right	Pick-up truck	Cyclist		0
								V2 S	Dry	Going ahead	Bicycle	Other motor vehicle		
2	2011-09-08	Thu	08:42	Clear	Daylight	Angle	Non-fatal	V1 E	Dry	Turning right	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Going ahead	Municipal transit bus	Other motor vehicle		
3	2011-11-19	Sat	18:40	Clear	Dark	Angle	P.D. only	V1 E	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Going ahead	Automobile, station	Other motor vehicle		
4	2011-11-26	Sat	18:45	Clear	Dark	Angle	Non-fatal	V1 E	Dry	Going ahead	Passenger van	Other motor vehicle		0
								V2 N	Dry	Going ahead	Automobile, station	Other motor vehicle		
5	2012-01-23	Mo	16:57	Rain	Dusk	Angle	P.D. only	V1 E	Slush	Going ahead	Pick-up truck	Other motor vehicle		0
								V2 N	Slush	Going ahead	Automobile, station	Other motor vehicle		
6	2012-10-19	Fri	10:39	Rain	Daylight	Angle	Non	V1 E	Wet	Going ahead	Bicycle	Other motor vehicle		0
								V2 S	Wet	Going ahead	Automobile, station	Cyclist		
7	2013-06-14	Fri	13:36	Clear	Daylight	Angle	P.D. only	V1 N	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 E	Dry	Going ahead	Automobile, station	Other motor vehicle		

BANK ST, COOPER ST to LISGAR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **2**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
8	2011-08-16	Tue	11:38	Clear	Daylight	Rear end	P.D. only	V1 S	Dry	Going ahead	Bicycle	Other motor vehicle		0
								V2 S	Dry	Stopped	Automobile, station	Cyclist		
9	2013-06-15	Sat	17:10	Clear	Daylight	Sideswipe	P.D. only	V1 S	Dry	Stopped	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

BANK ST & GLOUCESTER ST

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **8**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
10	2011-01-19	We	11:53	Clear	Daylight	Sideswipe	P.D. only	V1 W	Wet	Going ahead	Automobile, station	Other motor vehicle		0
								V2 W	Wet	Stopped	Automobile, station	Other motor vehicle		
11	2011-03-16	We	09:11	Rain	Daylight	Sideswipe	P.D. only	V1 N	Wet	Turning left	Truck - closed	Other motor vehicle		0
								V2 N	Wet	Stopped	Municipal transit bus	Other motor vehicle		
12	2011-12-21	We	09:20	Rain	Daylight	Single vehicle	Non-fatal	V1 W	Wet	Turning left	Automobile, station	Pedestrian		1
13	2012-06-25	Mo	18:01	Clear	Daylight	Angle	P.D. only	V1 N	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2 W	Dry	Going ahead	Automobile, station	Other motor vehicle		
14	2013-01-18	Fri	12:05	Clear	Daylight	Single vehicle	Non-fatal	V1 S	Dry	Going ahead	Pick-up truck	Pedestrian		1
15	2013-03-07	Thu	10:43	Clear	Daylight	Sideswipe	P.D. only	V1 S	Dry	Overtaking	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Going ahead	Municipal transit bus	Other motor vehicle		
16	2013-03-23	Sat	12:16	Clear	Daylight	Single vehicle	Non-fatal	V1 N	Dry	Going ahead	Automobile, station	Pedestrian		1
17	2013-06-21	Fri	15:57	Clear	Daylight	Sideswipe	P.D. only	V1 S	Dry	Overtaking	Passenger van	Other motor vehicle		0
								V2 S	Dry	Stopped	Municipal transit bus	Other motor vehicle		

BANK ST, GLOUCESTER ST to NEPEAN ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **5**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
18	2011-02-28	Mo	21:00	Snow	Dark	Single vehicle	P.D. only	V1 U	Slush	Unknown	Unknown	Unattended vehicle		0
19	2011-06-18	Sat	11:46	Clear	Daylight	Sideswipe	Non-fatal	V1 N	Dry	Stopped	Automobile, station	Cyclist		0
								V2 N	Dry	Going ahead	Bicycle	Other motor vehicle		
20	2011-11-24	Thu	19:27	Clear	Dark	Single vehicle	P.D. only	V1 N	Dry	Pulling onto	Municipal transit bus	Unattended vehicle		0
21	2012-08-18	Sat	10:16	Clear	Daylight	Sideswipe	P.D. only	V1 N	Dry	Pulling away	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Going ahead	Pick-up truck	Other motor vehicle		
22	2013-02-16	Sat	15:02	Clear	Daylight	Single vehicle	P.D. only	V1 N	Dry	Changing lanes	Municipal transit bus	Unattended vehicle		0

(Note: Time of Day = "00:00" represents unknown collision time

BANK ST & LISGAR ST

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **6**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
23	2011-05-19	Thu	10:15	Rain	Daylight	Sideswipe	Non-fatal	V1 N	Wet	Going ahead	Bicycle	Other motor vehicle		0
								V2 N	Wet	Stopped	Municipal transit bus	Cyclist		
24	2012-05-22	Tue	20:10	Clear	Dusk	Sideswipe	P.D. only	V1 S	Dry	Changing lanes	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle		
25	2013-03-02	Sat	21:41	Clear	Dark	Sideswipe	P.D. only	V1 W	Wet	Overtaking	Automobile, station	Other motor vehicle		0
								V2 W	Wet	Going ahead	Truck - dump	Other motor vehicle		
26	2013-09-13	Fri	09:44	Clear	Daylight	Single vehicle	Non-fatal	V1 S	Dry	Going ahead	Municipal transit bus	Pedestrian		1
27	2013-11-25	Mo	01:43	Clear	Dark	Rear end	P.D. only	V1 S	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Stopped	Truck and trailer	Other motor vehicle		
28	2013-12-16	Mo	18:45	Clear	Dark	Turning	P.D. only	V1 N	Slush	Turning left	Automobile, station	Other motor vehicle		0
								V2 S	Slush	Going ahead	Automobile, station	Other motor vehicle		

BANK ST, LISGAR ST to NEPEAN ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **3**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
29	2012-08-13	Mo	16:04	Clear	Daylight	Single vehicle	P.D. only	V1 S	Dry	Reversing	Automobile, station	Unattended vehicle		0
30	2013-02-13	We	15:32	Clear	Daylight	Sideswipe	P.D. only	V1 S	Dry	Overtaking	Trucktor semi trailer	Other motor vehicle		0
								V2 S	Dry	Stopped	Municipal transit bus	Other motor vehicle		
31	2013-06-06	Thu	15:10	Rain	Daylight	Turning	P.D. only	V1 N	Wet	Making U-Turn	Automobile, station	Other motor vehicle		0
								V2 S	Unknown	Going ahead	Passenger van	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

BANK ST & NEPEAN ST

Former Municipality: **Ottawa** Traffic Control: **Stop sign** Number of Collisions: **7**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
32	2012-01-09	Mo	12:50	Clear	Daylight	Angle	P.D. only	V1 S	Loose snow	Going ahead	Automobile, station	Other motor vehicle		0
								V2 W	Loose snow	Going ahead	Automobile, station	Other motor vehicle		
33	2012-07-16	Mo	12:57	Clear	Daylight	Angle	P.D. only	V1 E	Dry	Turning left	Passenger van	Other motor vehicle		0
								V2 S	Dry	Going ahead	Municipal transit bus	Other motor vehicle		
34	2013-03-21	Thu	12:15	Clear	Daylight	Turning	P.D. only	V1 S	Dry	Turning left	Pick-up truck	Other motor vehicle		0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle		
35	2013-03-28	Thu	09:58	Clear	Daylight	Angle	Non-fatal	V1 E	Dry	Going ahead	Passenger van	Cyclist		0
								V2 N	Dry	Going ahead	Bicycle	Other motor vehicle		
36	2013-06-16	Sun	18:06	Clear	Daylight	Angle	Non-fatal	V1 E	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Going ahead	Automobile, station	Other motor vehicle		
								V3 S	Dry	Stopped	Automobile, station	Other motor vehicle		
37	2013-07-12	Fri	17:06	Clear	Daylight	Angle	P.D. only	V1 E	Dry	Turning left	Passenger van	Other motor vehicle		0
								V2 S	Dry	Going ahead	Municipal transit bus	Other motor vehicle		
38	2013-07-13	Sat	22:23	Clear	Dark	Turning	P.D. only	V1 S	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Going ahead	Pick-up truck	Other motor vehicle		

COOPER ST & METCALFE ST

Former Municipality: **Ottawa** Traffic Control: **Stop sign** Number of Collisions: **4**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
39	2011-02-19	Sat	10:11	Strong	Daylight	Angle	P.D. only	V1 E	Wet	Going ahead	Pick-up truck	Other motor vehicle		0
								V2 N	Wet	Going ahead	Automobile, station	Other motor vehicle		
40	2011-04-13	We	09:44	Clear	Daylight	Angle	Non-fatal	V1 E	Dry	Going ahead	Automobile, station	Other motor vehicle		0
41	2012-02-28	Tue	14:24	Clear	Daylight	Angle	Non-fatal	V1 E	Wet	Going ahead	Automobile, station	Other motor vehicle		0
								V2 N	Wet	Going ahead	Automobile, station	Other motor vehicle		
42	2012-09-14	Fri	18:33	Rain	Dusk	Angle	P.D. only	V1 E	Wet	Unknown	Unknown	Other motor vehicle		0
								V2 N	Wet	Going ahead	Automobile, station	Other motor vehicle		
								V2 N	Dry	Going ahead	Passenger van	Other motor vehicle		

COOPER ST, METCALFE ST to O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **1**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
43	2013-02-09	Sat	00:00	Snow	Unknown	Single vehicle	P.D. only	V1 U	Loose snow		Unknown	Unattended vehicle	Unknown	0

(Note: Time of Day = "00:00" represents unknown collision time

COOPER ST & O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **Stop sign** Number of Collisions: **6**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
44	2011-03-31	Thu	15:45	Clear	Daylight	Turning	P.D. only	V1 S	Dry	Going ahead	Pick-up truck	Other motor vehicle		0
								V2 S	Dry	Turning left	Automobile, station	Other motor vehicle		
45	2011-04-15	Fri	14:00	Clear	Daylight	Sideswipe	P.D. only	V1 S	Dry	Changing lanes	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Going ahead	Pick-up truck	Other motor vehicle		
46	2011-05-02	Mo	19:26	Clear	Daylight	Rear end	Non-fatal	V1 S	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Turning left	Automobile, station	Other motor vehicle		
47	2011-12-02	Fri	18:10	Clear	Dark	Turning	P.D. only	V1 S	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Turning left	Automobile, station	Other motor vehicle		
48	2012-01-18	We	20:14	Clear	Dark	Rear end	Non-fatal	V1 E	Ice	Slowing or	Automobile, station	Skidding/Sliding		0
								V2 E	Wet	Stopped	Automobile, station	Other motor vehicle		
49	2012-08-05	Sun	07:45	Clear	Daylight	Sideswipe	P.D. only	V1 S	Dry	Changing lanes	Pick-up truck	Other motor vehicle		0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle		

GLOUCESTER ST, BANK ST to O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **11**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
50	2011-12-08	Thu	22:20	Clear	Dark	Other	P.D. only	V1 E	Wet	Reversing	Pick-up truck	Other motor vehicle		0
								V2 W	Wet	Stopped	Automobile, station	Other motor vehicle		
51	2012-01-04	We	13:22	Clear	Daylight	Other	P.D. only	V1 E	Dry	Reversing	Truck - closed	Other motor vehicle		0
								V2 W	Dry	Stopped	Automobile, station	Other motor vehicle		
52	2012-03-05	Mo	14:14	Clear	Daylight	Sideswipe	P.D. only	V1 W	Dry	Pulling away	Automobile, station	Other motor vehicle		0
								V2 W	Dry	Going ahead	Automobile, station	Other motor vehicle		
53	2012-11-28	We	10:25	Clear	Daylight	Sideswipe	P.D. only	V1 W	Dry	Stopped	Truck - dump	Other motor vehicle		0
								V2 W	Dry	Going ahead	Automobile, station	Other motor vehicle		
54	2013-02-01	Fri	19:45	Clear	Dark	Angle	P.D. only	V1 N	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2 W	Dry	Going ahead	Automobile, station	Other motor vehicle		
55	2013-04-17	We	13:20	Clear	Daylight	Single vehicle	P.D. only	V1 W	Dry	Pulling onto	Delivery van	Unattended vehicle		0
56	2013-07-10	We	11:05	Clear	Daylight	Single vehicle	P.D. only	V1 E	Dry	Reversing	Delivery van	Unattended vehicle		0
57	2013-08-22	Thu	11:49	Clear	Daylight	Sideswipe	P.D. only	V1 W	Dry	Pulling onto	Delivery van	Other motor vehicle		0
								V2 W	Dry	Stopped	Automobile, station	Other motor vehicle		
58	2013-09-12	Thu	15:35	Rain	Daylight	Rear end	P.D. only	V1 W	Wet	Going ahead	Automobile, station	Other motor vehicle		0
								V2 W	Wet	Stopped	Pick-up truck	Other motor vehicle		
59	2013-10-22	Tue	17:16	Clear	Daylight	Single vehicle	P.D. only	V1 W	Dry	Going ahead	Automobile, station	Unattended vehicle		0
60	2013-12-30	Mo	17:39	Clear	Dark	Single vehicle	P.D. only	V1 U	Dry	Unknown	Unknown	Unattended vehicle		0

(Note: Time of Day = "00:00" represents unknown collision time

GLOUCESTER ST & METCALFE ST

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **4**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
61	2011-11-18	Fri	18:27	Clear	Dark	Sideswipe	P.D. only	V1 N	Dry	Changing lanes	Pick-up truck	Other motor vehicle		0
								V2 N	Dry	Going ahead	Passenger van	Other motor vehicle		
62	2012-01-22	Sun	13:45	Clear	Daylight	Turning	P.D. only	V1 N	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Going ahead	Passenger van	Other motor vehicle		
63	2012-03-24	Sat	12:15	Clear	Daylight	Sideswipe	P.D. only	V1 N	Dry	Turning left	Pick-up truck	Other motor vehicle		0
								V2 N	Dry	Going ahead	Automobile, station	Other motor vehicle		
64	2013-07-19	Fri	08:30	Clear	Daylight	Rear end	P.D. only	V1 N	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Stopped	Pick-up truck	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

GLOUCESTER ST, METCALFE ST to O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **2**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
65	2012-12-20	Thu	21:00	Snow	Dark	Single vehicle	P.D. only	V1 U	Loose snow	Unknown	Unknown	Unattended vehicle		0
66	2013-01-15	Tue	09:00	Clear	Daylight	Single vehicle	P.D. only	V1 W	Dry	Going ahead	Snow plow	Unattended vehicle		0

GLOUCESTER ST & O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **3**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
67	2011-02-28	Mo	06:55	Snow	Dawn	Sideswipe	P.D. only	V1 W	Loose snow	Changing lanes	Automobile, station	Other motor vehicle		0
								V2 W	Loose snow	Going ahead	Automobile, station	Other motor vehicle		
68	2011-10-25	Tue	16:35	Clear	Daylight	Angle	P.D. only	V1 W	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle		
69	2013-03-14	Thu	12:42	Clear	Daylight	Single vehicle	Non-fatal	V1 S	Dry	Turning right	Automobile, station	Pedestrian		1

LISGAR ST, BANK ST to O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **3**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
70	2011-04-02	Sat	13:30	Rain	Daylight	Single vehicle	P.D. only	V1 U	Wet	Unknown	Unknown	Unattended vehicle		0
71	2013-05-14	Tue	14:10	Clear	Daylight	Angle	P.D. only	V1 S	Dry	Reversing	Automobile, station	Other motor vehicle		0
								V2 W	Dry	Stopped	Pick-up truck	Other motor vehicle		
72	2013-12-16	Mo	11:54	Clear	Daylight	Other	P.D. only	V1 E	Packed snow	Reversing	Truck - dump	Other motor vehicle		0
								V2 W	Packed snow	Stopped	Automobile, station	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

LISGAR ST & METCALFE ST

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **5**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
73	2011-09-12	Mo	16:25	Clear	Daylight	Single vehicle	Non-fatal	V1 N	Dry	Turning left	Automobile, station	Pedestrian		1
74	2011-11-02	We	20:03	Clear	Dark	Single vehicle	Non-fatal	V1 N	Dry	Turning left	Automobile, station	Pedestrian		1
75	2012-07-05	Thu	18:00	Clear	Daylight	Rear end	P.D. only	V1 W	Dry	Going ahead	Pick-up truck	Other motor vehicle		0
								V2 W	Dry	Stopped	Passenger van	Other motor vehicle		
76	2012-07-23	Mo	17:50	Clear	Daylight	Other	P.D. only	V1 E	Dry	Reversing	Pick-up truck	Other motor vehicle		0
								V2 W	Dry	Stopped	Automobile, station	Other motor vehicle		
77	2012-08-17	Fri	16:30	Clear	Daylight	Turning	P.D. only	V1 N	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Going ahead	Pick-up truck	Other motor vehicle		

LISGAR ST, METCALFE ST to O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **2**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
78	2012-01-28	Sat	23:14	Strong	Dark	Single vehicle	P.D. only	V1 N	Ice	Going ahead	Police vehicle	Skidding/Sliding		0
79	2013-05-10	Fri	22:43	Rain	Dark	Single vehicle	P.D. only	V1 W	Wet	Going ahead	Municipal transit bus	Tree, shrub, stump		0

LISGAR ST & O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **6**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
80	2011-01-11	Tue	11:55	Clear	Daylight	Angle	P.D. only	V1 S	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 W	Dry	Going ahead	Pick-up truck	Other motor vehicle		
81	2012-02-24	Fri	17:20	Snow	Dusk	Angle	P.D. only	V1 S	Loose snow	Going ahead	Automobile, station	Other motor vehicle		0
								V2 W	Loose snow	Turning left	Automobile, station	Other motor vehicle		
82	2012-09-27	Thu	19:55	Clear	Dark	Angle	P.D. only	V1 S	Dry	Slowing or	Pick-up truck	Other motor vehicle		0
								V2 W	Dry	Going ahead	Automobile, station	Other motor vehicle		
83	2012-11-18	Sun	14:08	Clear	Daylight	Angle	Non-fatal	V1 S	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 W	Dry	Turning left	Automobile, station	Other motor vehicle		
84	2013-04-05	Fri	19:00	Clear	Daylight	Angle	P.D. only	V1 W	Dry	Going ahead	Pick-up truck	Other motor vehicle		0
								V2 S	Dry	Going ahead	Unknown	Other motor vehicle		
85	2013-06-18	Tue	09:09	Clear	Daylight	Angle	P.D. only	V1 S	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 W	Dry	Turning left	Automobile, station	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

METCALFE ST, COOPER ST to LISGAR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **1**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
86	2011-10-25	Tue	15:00	Clear	Daylight	Single vehicle	P.D. only	V1 N	Dry	Pulling onto	Pick-up truck	Unattended vehicle		0

METCALFE ST, GLOUCESTER ST to NEPEAN ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **1**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
87	2013-10-15	Tue	16:22	Clear	Daylight	Single vehicle	Non-fatal	V1 N	Dry	Going ahead	Automobile, station	Pedestrian		1

METCALFE ST, LISGAR ST to NEPEAN ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **1**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
88	2011-01-24	Mo	16:38	Clear	Daylight	Rear end	P.D. only	V1 N	Dry	Slowing or	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Going ahead	Automobile, station	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

METCALFE ST & NEPEAN ST

Former Municipality: **Ottawa** Traffic Control: **Stop sign** Number of Collisions: **3**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
89	2011-03-31	Thu	09:12	Clear	Daylight	Angle	P.D. only	V1 E	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 N	Dry	Going ahead	Automobile, station	Other motor vehicle		
90	2013-10-02	We	08:35	Clear	Daylight	Angle	P.D. only	V1 W	Dry	Going ahead	Passenger van	Other motor vehicle		0
								V2 N	Dry	Going ahead	Pick-up truck	Other motor vehicle		
91	2013-12-15	Sun	15:00	Snow	Daylight	Angle	P.D. only	V1 E	Loose snow	Going ahead	Automobile, station	Other motor vehicle		0
								V2 N	Loose snow	Going ahead	Automobile, station	Other motor vehicle		

NEPEAN ST, BANK ST to O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **2**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
92	2011-03-20	Sun	12:52	Clear	Daylight	Single vehicle	P.D. only	V1 E	Dry	Going ahead	Automobile, station	Pedestrian		1
93	2011-08-04	Thu	10:18	Clear	Daylight	Single vehicle	P.D. only	V1 E	Dry	Going ahead	Automobile, station	Unattended vehicle		0

NEPEAN ST, METCALFE ST to O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **1**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
94	2013-08-31	Sat	13:30	Clear	Daylight	Single vehicle	P.D. only	V1 W	Dry	Reversing	Delivery van	Unattended vehicle		0

(Note: Time of Day = "00:00" represents unknown collision time

NEPEAN ST & O'CONNOR ST

Former Municipality: **Ottawa** Traffic Control: **Stop sign** Number of Collisions: **11**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
95	2011-02-01	Tue	23:07	Clear	Dark	Turning	P.D. only	V1 S	Wet	Turning left	Automobile, station	Other motor vehicle		0
								V2 S	Wet	Going ahead	Pick-up truck	Other motor vehicle		
96	2011-09-25	Sun	13:30	Clear	Daylight	Rear end	P.D. only	V1 S	Dry	Slowing or	Police vehicle	Other motor vehicle		0
								V2 S	Dry	Stopped	Automobile, station	Other motor vehicle		
97	2011-10-15	Sat	21:29	Rain	Dark	Turning	Non-fatal	V1 S	Wet	Turning left	Automobile, station	Other motor vehicle		0
								V2 S	Wet	Going ahead	Police vehicle	Other motor vehicle		
98	2012-01-19	Thu	11:10	Clear	Daylight	Rear end	P.D. only	V1 E	Ice	Slowing or	Pick-up truck	Skidding/Sliding		0
								V2 E	Ice	Stopped	Automobile, station	Other motor vehicle		
99	2012-01-22	Sun	17:37	Clear	Dusk	Angle	P.D. only	V1 E	Loose snow	Going ahead	Automobile, station	Other motor vehicle		0
								V2 S	Loose snow	Going ahead	Automobile, station	Other motor vehicle		
100	2012-02-25	Sat	12:57	Clear	Daylight	Turning	P.D. only	V1 S	Wet	Turning left	Automobile, station	Other motor vehicle		0
								V2 S	Wet	Going ahead	Automobile, station	Other motor vehicle		
101	2012-04-02	Mo	10:01	Clear	Daylight	Turning	P.D. only	V1 S	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle		
102	2012-06-21	Thu	17:14	Clear	Daylight	Angle	P.D. only	V1 E	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle		
103	2012-09-11	Tue	13:20	Clear	Daylight	Other	P.D. only	V1 W	Dry	Reversing	Pick-up truck	Other motor vehicle		0
								V2 E	Dry	Stopped	Automobile, station	Other motor vehicle		
104	2013-03-28	Thu	20:00	Clear	Dark	Angle	Non-fatal	V1 E	Wet	Slowing or	Automobile, station	Other motor vehicle		0
								V2 S	Wet	Going ahead	Construction	Other motor vehicle		
105	2013-04-26	Fri	14:52	Clear	Daylight	Angle	Non-fatal	V1 E	Wet	Going ahead	Automobile, station	Other motor vehicle		0
								V2 S	Wet	Going ahead	Passenger van	Other motor vehicle		

O'CONNOR ST, GLOUCESTER ST to NEPEAN ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **1**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
106	2012-05-16	We	10:50	Clear	Daylight	Sideswipe	P.D. only	V1 S	Dry	Changing lanes	Automobile, station	Other motor vehicle		
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

O'CONNOR ST, LISGAR ST to NEPEAN ST

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **2**

COLLISION ID	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR		SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	DRIVER ACTION	No. PED
	2011-07-07	Thu	11:36	Clear	Daylight	Sideswipe	Non	V1	S	Dry	Changing lanes	Pick-up truck	Other motor vehicle		0
								V2	S	Dry	Going ahead	Police vehicle	Other motor vehicle		
	2011-09-20	Tue	14:50	Clear	Daylight	Sideswipe	P.D. only	V1	S	Dry	Pulling away	Passenger van	Other motor vehicle		0
								V2	S	Dry	Going ahead	Automobile, station	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: BANK ST @ LISGAR ST

Traffic Control: Traffic signal

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-09, Sun,12:52	Clear	SMV other	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Pedestrian	1
2014-Mar-23, Sun,18:40	Clear	SMV other	P.D. only	Dry	West	Turning left	Automobile, station wagon	Pedestrian	1
2015-Aug-23, Sun,11:28	Clear	SMV other	Non-fatal injury	Dry	West	Turning right	Pick-up truck	Pedestrian	1
2015-Aug-26, Wed,10:30	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Bicycle	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Cyclist	
2015-Apr-05, Sun,11:00	Clear	Rear end	Non-fatal injury	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Passenger van	Other motor vehicle	

Location: LISGAR ST @ METCALFE ST

Traffic Control: Traffic signal

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Aug-18, Mon,09:45	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	

2015-Dec-24, Thu,17:30	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Passenger van	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: LISGAR ST @ O'CONNOR ST

Traffic Control: Traffic signal **Total Collisions:** 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Nov-30, Sun,21:29	Rain	SMV other	Non-fatal injury	Wet	West	Turning left	Passenger van	Pedestrian	1
2014-Oct-22, Wed,20:01	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Dec-22, Mon,18:00	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2015-Jul-21, Tue,10:21	Rain	SMV other	Non-fatal injury	Wet	South	Turning left	Unknown	Pedestrian	1

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2016

Location: METCALFE ST @ NEPEAN ST

Traffic Control: Stop sign **Total Collisions:** 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Oct-27, Mon,08:05	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Delivery van	Pedestrian	1
2015-Nov-16, Mon,08:30	Clear	Angle	P.D. only	Dry	North	Turning left	Bicycle	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Cyclist	

Location: NEPEAN ST @ BANK ST

Traffic Control: Stop sign **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jan-26, Mon,08:50	Clear	Rear end	Non-fatal injury	Wet	North	Slowing or stopping	Pick-up truck	Other motor vehicle	
					North	Slowing or stopping	Pick-up truck	Other motor vehicle	
2015-Apr-22, Wed,12:41	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Dec-09, Wed,09:15	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: NEPEAN ST @ O'CONNOR ST

Traffic Control: Stop sign

Total Collisions: 6

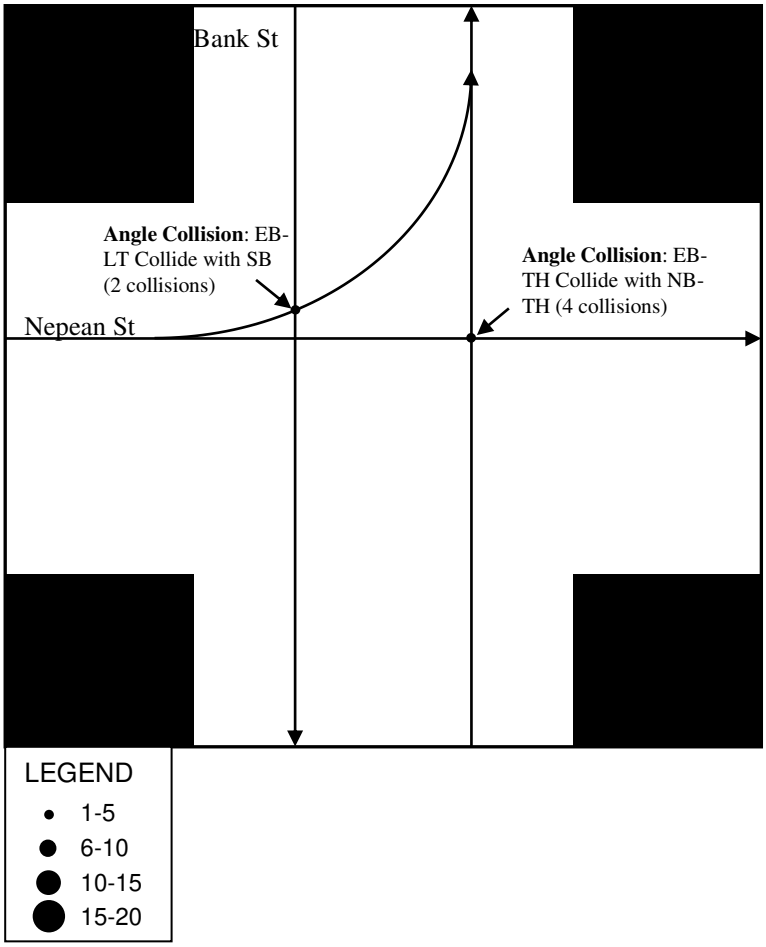
Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-12, Wed,18:05	Snow	Rear end	P.D. only	Loose snow	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2014-Mar-27, Thu,09:49	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Passenger van	Other motor vehicle	
2014-Jun-02, Mon,17:25	Clear	Angle	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jan-02, Fri,07:42	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Aug-28, Fri,10:59	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Passenger van	Other motor vehicle	
2015-Sep-12, Sat,10:03	Rain	Turning movement	P.D. only	Wet	South	Turning left	Pick-up truck	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	

COLLISION DIAGRAM

LOCATION: Nepean St-Bank St

PERIOD: 01 Jan 12 TO 31 Dec 16

TRAFFIC CONTROL: STOP-Controlled (EB Direction)



Other collisions for this intersection include:

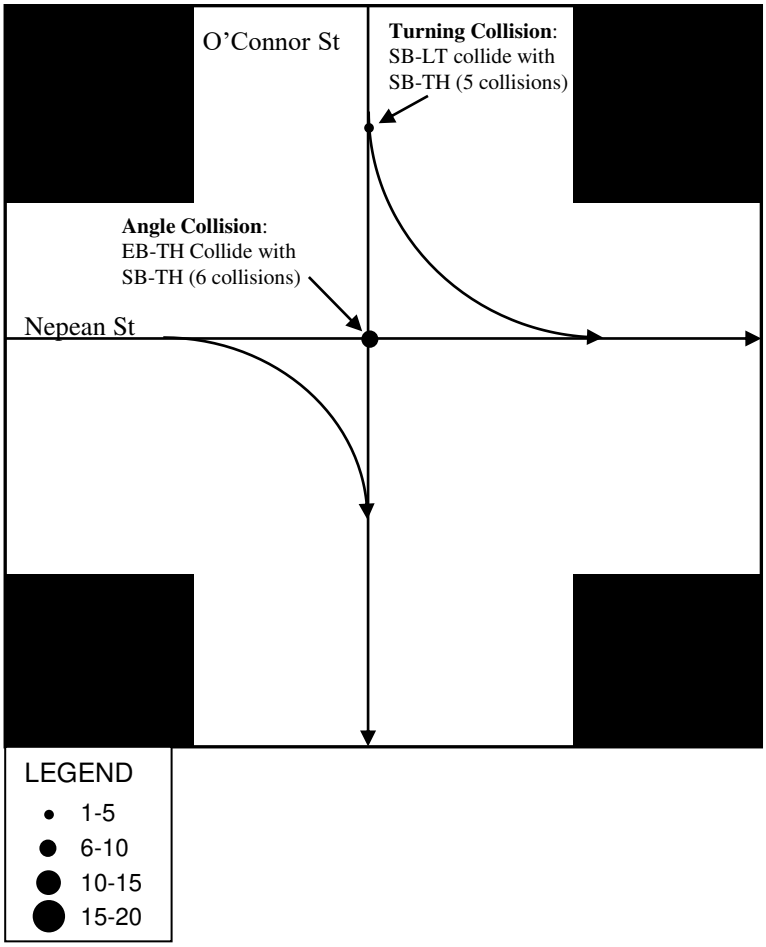
- A single collision occurred where a WB vehicle collided with a SB vehicle. It would appear that the WB vehicle was heading in the wrong direction.
- A single rear-end collision occurred in the NB direction.
- Two turning movement collisions occurred in the southbound and northbound direction.

COLLISION DIAGRAM

LOCATION: Nepean St-O'Connor St

PERIOD: 01 Jan 12 TO 31 Dec 16

TRAFFIC CONTROL: STOP-Controlled (EB Direction)



Other collisions for this intersection include:

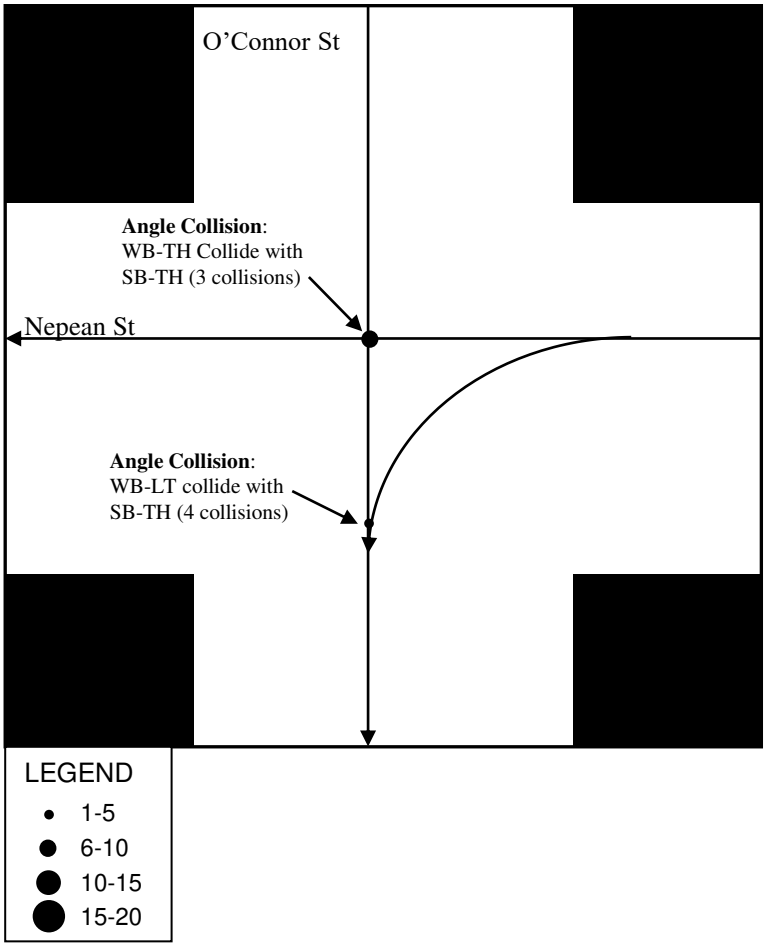
- Two rear-end collisions occurred, where one was in the EB direction and the other in the SB direction.
- A single collision occurred where a vehicle reversed onto a stopped vehicle in along EB direction.
- Two turning movement collisions occurred in the southbound and northbound direction.

COLLISION DIAGRAM

LOCATION: Lisgar St-O'Connor St

PERIOD: 01 Jan 12 TO 31 Dec 16

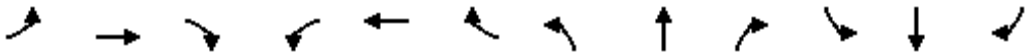
TRAFFIC CONTROL: Traffic Signals



Other collisions for this intersection include:

- Two single vehicle non-fatal collisions occurred, where both involved pedestrians.

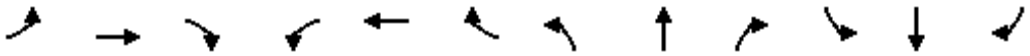
APPENDIX D: SYNCHRO INTERSECTION CAPACITY ANALYSIS
EXISTING, 2021 BACKGROUND FORECAST, 2026 BACKGROUND FORECAST



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	76	57	0	0	0	0	296	87	47	227	0
Future Volume (Veh/h)	23	76	57	0	0	0	0	296	87	47	227	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	83	62	0	0	0	0	322	95	51	247	0
Pedestrians					424			296			296	
Lane Width (m)					0.0			3.7			3.7	
Walking Speed (m/s)					1.2			1.2			1.2	
Percent Blockage					0			25			25	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	967	1190	543	1494	1095	1042	247			841		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	967	1190	543	1494	1095	1042	247			841		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.3			2.3		
p0 queue free %	85	53	85	100	100	100	100			93		
cM capacity (veh/h)	167	176	406	37	201	203	1285			753		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	170	322	95	298
Volume Left	25	0	0	51
Volume Right	62	0	95	0
cSH	220	1700	1700	753
Volume to Capacity	0.77	0.19	0.06	0.07
Queue Length 95th (m)	43.1	0.0	0.0	1.7
Control Delay (s)	61.4	0.0	0.0	2.4
Lane LOS	F			A
Approach Delay (s)	61.4	0.0		2.4
Approach LOS	F			

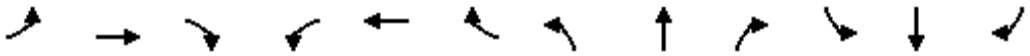
Intersection Summary			
Average Delay	12.6		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	12	17	9	41	486	0	0	196	13
Future Volume (vph)	0	0	0	12	17	9	41	486	0	0	196	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.97			1.00			0.97	
Flpb, ped/bikes					0.96			0.98			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					0.98			1.00			1.00	
Satd. Flow (prot)					1549			1671			1553	
Flt Permitted					0.98			0.96			1.00	
Satd. Flow (perm)					1549			1615			1553	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	13	18	10	45	528	0	0	213	14
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	34	0	0	573	0	0	223	0
Confl. Peds. (#/hr)				70		51	201					201
Confl. Bikes (#/hr)						6						45
Heavy Vehicles (%)	0%	0%	0%	8%	0%	8%	6%	6%	0%	0%	14%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			31.8			31.8	
Effective Green, g (s)					17.8			31.8			31.8	
Actuated g/C Ratio					0.30			0.53			0.53	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					459			855			823	
v/s Ratio Prot											0.14	
v/s Ratio Perm					0.02			c0.35				
v/c Ratio					0.07			0.67			0.27	
Uniform Delay, d1					15.2			10.3			7.7	
Progression Factor					0.94			1.00			1.00	
Incremental Delay, d2					0.3			4.2			0.8	
Delay (s)					14.5			14.4			8.6	
Level of Service					B			B			A	
Approach Delay (s)		0.0			14.5			14.4			8.6	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

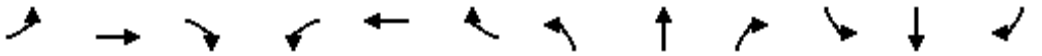
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	60	60	0	0	0	0	0	0	102	503	0
Future Volume (Veh/h)	0	60	60	0	0	0	0	0	0	102	503	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	65	65	0	0	0	0	0	0	111	547	0
Pedestrians					26			113				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	769	795	386	732	795	26	547			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	769	795	386	732	795	26	547			26		
tC, single (s)	7.5	6.6	7.0	7.5	6.5	6.9	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	78	89	100	100	100	100			93		
cM capacity (veh/h)	278	292	606	219	299	1050	1033			1544		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	130	293	365
Volume Left	0	111	0
Volume Right	65	0	0
cSH	394	1544	1700
Volume to Capacity	0.33	0.07	0.21
Queue Length 95th (m)	11.2	1.8	0.0
Control Delay (s)	18.5	3.2	0.0
Lane LOS	C	A	
Approach Delay (s)	18.5	1.4	
Approach LOS	C		

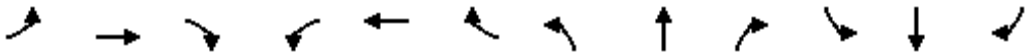
Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	37.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	102	88	0	0	0	0	0	500	78
Future Volume (vph)	0	0	0	102	88	0	0	0	0	0	500	78
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.79
Flpb, ped/bikes					0.97						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.97						1.00	1.00
Satd. Flow (prot)					1680						3293	1165
Flt Permitted					0.97						1.00	1.00
Satd. Flow (perm)					1680						3293	1165
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	111	96	0	0	0	0	0	543	85
RTOR Reduction (vph)	0	0	0	0	70	0	0	0	0	0	0	40
Lane Group Flow (vph)	0	0	0	0	138	0	0	0	0	0	543	45
Confl. Peds. (#/hr)				62								85
Confl. Bikes (#/hr)						2						18
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	5%	5%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						30.8	30.8
Effective Green, g (s)					18.3						30.8	30.8
Actuated g/C Ratio					0.31						0.51	0.51
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					512						1690	598
v/s Ratio Prot											c0.16	
v/s Ratio Perm					0.08							0.04
v/c Ratio					0.27						0.32	0.07
Uniform Delay, d1					15.8						8.5	7.4
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					1.3						0.5	0.2
Delay (s)					17.1						9.0	7.6
Level of Service					B						A	A
Approach Delay (s)		0.0			17.1			0.0			8.8	
Approach LOS		A			B			A			A	

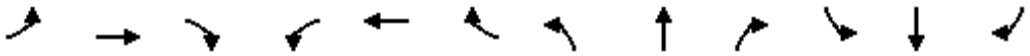
Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	73	0	0	0	0	0	921	295	0	0	0
Future Volume (vph)	54	73	0	0	0	0	0	921	295	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.73			
Flpb, ped/bikes		0.92						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.98						1.00	1.00			
Satd. Flow (prot)		1547						3424	1111			
Flt Permitted		0.98						1.00	1.00			
Satd. Flow (perm)		1547						3424	1111			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	79	0	0	0	0	0	1001	321	0	0	0
RTOR Reduction (vph)	0	43	0	0	0	0	0	0	82	0	0	0
Lane Group Flow (vph)	0	95	0	0	0	0	0	1001	239	0	0	0
Confl. Peds. (#/hr)	163								213			
Heavy Vehicles (%)	6%	6%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		426						1908	619			
v/s Ratio Prot								c0.29				
v/s Ratio Perm		0.06							0.22			
v/c Ratio		0.22						0.52	0.39			
Uniform Delay, d1		17.1						8.4	7.6			
Progression Factor		1.00						0.34	0.07			
Incremental Delay, d2		1.2						0.8	1.4			
Delay (s)		18.3						3.7	2.0			
Level of Service		B						A	A			
Approach Delay (s)		18.3			0.0			3.3			0.0	
Approach LOS		B			A			A			A	

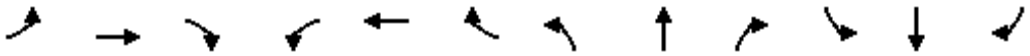
Intersection Summary			
HCM 2000 Control Delay	4.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	136	92	106	1107	0	0	0	0
Future Volume (vph)	0	0	0	0	136	92	106	1107	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.93		1.00	1.00				
Flpb, ped/bikes					1.00		0.64	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1577		1100	3424				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1577		1100	3424				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	148	100	115	1203	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	40	0	31	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	208	0	84	1203	0	0	0	0
Confl. Peds. (#/hr)						131	298					
Confl. Bikes (#/hr)						5						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	1%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		34.0	34.0				
Effective Green, g (s)					16.8		34.0	34.0				
Actuated g/C Ratio					0.28		0.56	0.56				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					434		613	1908				
v/s Ratio Prot					c0.13			c0.35				
v/s Ratio Perm							0.08					
v/c Ratio					0.48		0.14	0.63				
Uniform Delay, d1					18.5		6.5	9.2				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					3.8		0.5	1.6				
Delay (s)					22.2		6.9	10.8				
Level of Service					C		A	B				
Approach Delay (s)		0.0			22.2			10.5			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		

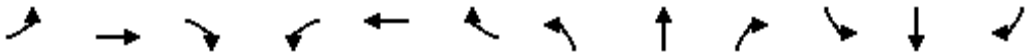
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	52	65	0	0	0	0	213	54	92	351	0
Future Volume (Veh/h)	7	52	65	0	0	0	0	213	54	92	351	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	57	71	0	0	0	0	232	59	100	382	0
Pedestrians		60			60			614			614	
Lane Width (m)		3.7			0.0			3.7			3.7	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		5			0			53			53	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	1488	993	1056	1588	934	906	442			351		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1488	993	1056	1588	934	906	442			351		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	74	43	100	100	100	100			92		
cM capacity (veh/h)	42	215	124	13	233	160	1071			1219		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	136	232	59	482
Volume Left	8	0	0	100
Volume Right	71	0	59	0
cSH	132	1700	1700	1219
Volume to Capacity	1.03	0.14	0.03	0.08
Queue Length 95th (m)	58.2	0.0	0.0	2.1
Control Delay (s)	150.5	0.0	0.0	2.4
Lane LOS	F			A
Approach Delay (s)	150.5	0.0		2.4
Approach LOS	F			

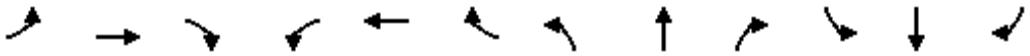
Intersection Summary			
Average Delay	23.8		
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	57	75	34	22	365	0	0	323	17
Future Volume (vph)	0	0	0	57	75	34	22	365	0	0	323	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.98			1.00			0.97	
Flpb, ped/bikes					0.93			0.98			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					0.98			1.00			1.00	
Satd. Flow (prot)					1586			1686			1661	
Flt Permitted					0.98			0.97			1.00	
Satd. Flow (perm)					1586			1639			1661	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	62	82	37	24	397	0	0	351	18
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	164	0	0	421	0	0	365	0
Confl. Peds. (#/hr)				121		47	469					469
Confl. Bikes (#/hr)						17						27
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	6%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			26.8			26.8	
Effective Green, g (s)					17.8			26.8			26.8	
Actuated g/C Ratio					0.32			0.49			0.49	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					513			798			809	
v/s Ratio Prot											0.22	
v/s Ratio Perm					0.10			c0.26				
v/c Ratio					0.32			0.53			0.45	
Uniform Delay, d1					14.0			9.7			9.3	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					1.6			2.5			1.8	
Delay (s)					15.7			12.2			11.1	
Level of Service					B			B			B	
Approach Delay (s)		0.0			15.7			12.2			11.1	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

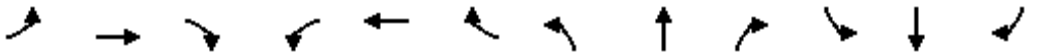
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	72	150	0	0	0	0	0	0	75	946	0
Future Volume (Veh/h)	0	72	150	0	0	0	0	0	0	75	946	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	78	163	0	0	0	0	0	0	82	1028	0
Pedestrians					93			50				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	1192	1285	564	1023	1285	93	1028			93		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1192	1285	564	1023	1285	93	1028			93		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	50	65	100	100	100	100			95		
cM capacity (veh/h)	139	157	469	74	157	952	683			1499		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	241	425	685
Volume Left	0	82	0
Volume Right	163	0	0
cSH	285	1499	1700
Volume to Capacity	0.84	0.05	0.40
Queue Length 95th (m)	56.3	1.4	0.0
Control Delay (s)	60.2	1.9	0.0
Lane LOS	F	A	
Approach Delay (s)	60.2	0.7	
Approach LOS	F		

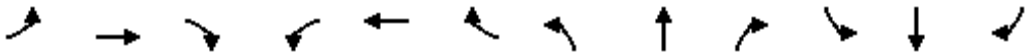
Intersection Summary				
Average Delay	11.3			
Intersection Capacity Utilization	53.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	113	100	0	0	0	0	0	986	72
Future Volume (vph)	0	0	0	113	100	0	0	0	0	0	986	72
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.61
Flpb, ped/bikes					0.91						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.97						1.00	1.00
Satd. Flow (prot)					1610						3424	938
Flt Permitted					0.97						1.00	1.00
Satd. Flow (perm)					1610						3424	938
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	123	109	0	0	0	0	0	1072	78
RTOR Reduction (vph)	0	0	0	0	54	0	0	0	0	0	0	15
Lane Group Flow (vph)	0	0	0	0	178	0	0	0	0	0	1072	63
Confl. Peds. (#/hr)				132								136
Confl. Bikes (#/hr)												28
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						45.8	45.8
Effective Green, g (s)					18.3						45.8	45.8
Actuated g/C Ratio					0.24						0.61	0.61
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					392						2090	572
v/s Ratio Prot											c0.31	
v/s Ratio Perm					0.11							0.07
v/c Ratio					0.45						0.51	0.11
Uniform Delay, d1					24.1						8.3	6.1
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					3.7						0.9	0.4
Delay (s)					27.8						9.2	6.5
Level of Service					C						A	A
Approach Delay (s)		0.0			27.8			0.0			9.0	
Approach LOS		A			C			A			A	

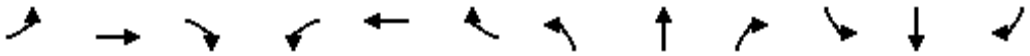
Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	105	0	0	0	0	0	404	112	0	0	0
Future Volume (vph)	109	105	0	0	0	0	0	404	112	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.61			
Flpb, ped/bikes		0.93						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.98						1.00	1.00			
Satd. Flow (prot)		1612						3390	919			
Flt Permitted		0.98						1.00	1.00			
Satd. Flow (perm)		1612						3390	919			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	118	114	0	0	0	0	0	439	122	0	0	0
RTOR Reduction (vph)	0	61	0	0	0	0	0	0	54	0	0	0
Lane Group Flow (vph)	0	171	0	0	0	0	0	439	68	0	0	0
Confl. Peds. (#/hr)	127								313			
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	2%	2%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		443						1889	512			
v/s Ratio Prot								c0.13				
v/s Ratio Perm		0.11							0.07			
v/c Ratio		0.39						0.23	0.13			
Uniform Delay, d1		17.9						6.9	6.5			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		2.5						0.3	0.5			
Delay (s)		20.5						7.2	7.0			
Level of Service		C						A	A			
Approach Delay (s)		20.5			0.0			7.1			0.0	
Approach LOS		C			A			A			A	

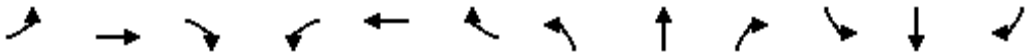
Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	153	80	107	438	0	0	0	0
Future Volume (vph)	0	0	0	0	153	80	107	438	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.96		1.00	1.00				
Flpb, ped/bikes					1.00		0.72	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1647		1242	3390				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1647		1242	3390				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	166	87	116	476	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	34	0	57	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	219	0	59	476	0	0	0	0
Confl. Peds. (#/hr)						115	256					
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		28.0	28.0				
Effective Green, g (s)					16.8		28.0	28.0				
Actuated g/C Ratio					0.31		0.51	0.51				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					503		632	1725				
v/s Ratio Prot					c0.13			c0.14				
v/s Ratio Perm							0.05					
v/c Ratio					0.44		0.09	0.28				
Uniform Delay, d1					15.3		7.0	7.7				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					2.7		0.3	0.4				
Delay (s)					18.0		7.3	8.1				
Level of Service					B		A	A				
Approach Delay (s)		0.0			18.0			7.9			0.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

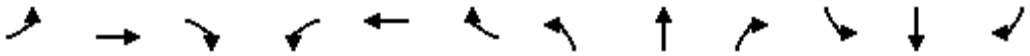
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	79	58	0	0	0	0	301	88	48	231	0
Future Volume (Veh/h)	23	79	58	0	0	0	0	301	88	48	231	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	23	79	58	0	0	0	0	301	88	48	231	0
Pedestrians					424			296			296	
Lane Width (m)					0.0			3.7			3.7	
Walking Speed (m/s)					1.2			1.2			1.2	
Percent Blockage					0			25			25	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	924	1140	527	1446	1052	1021	231			813		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	924	1140	527	1446	1052	1021	231			813		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.3			2.3		
p0 queue free %	87	58	86	100	100	100	100			94		
cM capacity (veh/h)	179	190	414	44	214	209	1302			772		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	160	301	88	279
Volume Left	23	0	0	48
Volume Right	58	0	88	0
cSH	234	1700	1700	772
Volume to Capacity	0.68	0.18	0.05	0.06
Queue Length 95th (m)	34.8	0.0	0.0	1.6
Control Delay (s)	48.3	0.0	0.0	2.3
Lane LOS	E			A
Approach Delay (s)	48.3	0.0		2.3
Approach LOS	E			

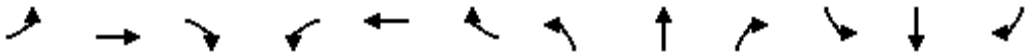
Intersection Summary			
Average Delay	10.1		
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	12	16	10	42	495	0	0	200	13
Future Volume (vph)	0	0	0	12	16	10	42	495	0	0	200	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.97			1.00			0.97	
Flpb, ped/bikes					0.96			0.98			1.00	
Frt					0.96			1.00			0.99	
Flt Protected					0.98			1.00			1.00	
Satd. Flow (prot)					1539			1670			1553	
Flt Permitted					0.98			0.96			1.00	
Satd. Flow (perm)					1539			1618			1553	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	12	16	10	42	495	0	0	200	13
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	31	0	0	537	0	0	209	0
Confl. Peds. (#/hr)				70		51	201					201
Confl. Bikes (#/hr)						6						45
Heavy Vehicles (%)	0%	0%	0%	8%	0%	8%	6%	6%	0%	0%	14%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			31.8			31.8	
Effective Green, g (s)					17.8			31.8			31.8	
Actuated g/C Ratio					0.30			0.53			0.53	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					456			857			823	
v/s Ratio Prot											0.13	
v/s Ratio Perm					0.02			c0.33				
v/c Ratio					0.07			0.63			0.25	
Uniform Delay, d1					15.1			9.9			7.7	
Progression Factor					0.92			1.00			1.00	
Incremental Delay, d2					0.3			3.5			0.7	
Delay (s)					14.3			13.4			8.4	
Level of Service					B			B			A	
Approach Delay (s)		0.0			14.3			13.4			8.4	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		

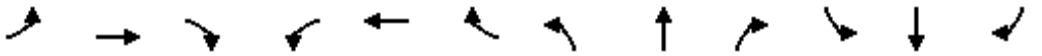
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	62	61	0	0	0	0	0	0	118	553	0
Future Volume (Veh/h)	0	62	61	0	0	0	0	0	0	118	553	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	62	61	0	0	0	0	0	0	118	553	0
Pedestrians					26			113				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	789	815	390	744	815	26	553			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	789	815	390	744	815	26	553			26		
tC, single (s)	7.5	6.6	7.0	7.5	6.5	6.9	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	78	90	100	100	100	100			92		
cM capacity (veh/h)	268	283	604	217	290	1050	1027			1544		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	123	302	369
Volume Left	0	118	0
Volume Right	61	0	0
cSH	384	1544	1700
Volume to Capacity	0.32	0.08	0.22
Queue Length 95th (m)	10.7	2.0	0.0
Control Delay (s)	18.7	3.3	0.0
Lane LOS	C	A	
Approach Delay (s)	18.7	1.5	
Approach LOS	C		

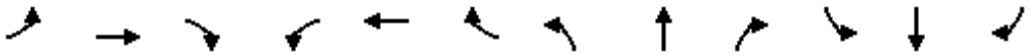
Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	39.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	89	104	0	0	0	0	0	550	80
Future Volume (vph)	0	0	0	89	104	0	0	0	0	0	550	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.79
Flpb, ped/bikes					0.97						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.98						1.00	1.00
Satd. Flow (prot)					1694						3293	1165
Flt Permitted					0.98						1.00	1.00
Satd. Flow (perm)					1694						3293	1165
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	89	104	0	0	0	0	0	550	80
RTOR Reduction (vph)	0	0	0	0	51	0	0	0	0	0	0	38
Lane Group Flow (vph)	0	0	0	0	142	0	0	0	0	0	550	42
Confl. Peds. (#/hr)				62								85
Confl. Bikes (#/hr)						2						18
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	5%	5%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						30.8	30.8
Effective Green, g (s)					18.3						30.8	30.8
Actuated g/C Ratio					0.31						0.51	0.51
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					516						1690	598
v/s Ratio Prot											c0.17	
v/s Ratio Perm					0.08							0.04
v/c Ratio					0.27						0.33	0.07
Uniform Delay, d1					15.8						8.5	7.4
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					1.3						0.5	0.2
Delay (s)					17.1						9.0	7.6
Level of Service					B						A	A
Approach Delay (s)		0.0			17.1			0.0			8.9	
Approach LOS		A			B			A			A	

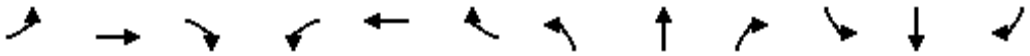
Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	87	0	0	0	0	0	945	300	0	0	0
Future Volume (vph)	139	87	0	0	0	0	0	945	300	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.73			
Flpb, ped/bikes		0.89						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.97						1.00	1.00			
Satd. Flow (prot)		1475						3424	1111			
Flt Permitted		0.97						1.00	1.00			
Satd. Flow (perm)		1475						3424	1111			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	87	0	0	0	0	0	945	300	0	0	0
RTOR Reduction (vph)	0	84	0	0	0	0	0	0	81	0	0	0
Lane Group Flow (vph)	0	142	0	0	0	0	0	945	219	0	0	0
Confl. Peds. (#/hr)	163								213			
Heavy Vehicles (%)	6%	6%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		406						1908	619			
v/s Ratio Prot								c0.28				
v/s Ratio Perm		0.10							0.20			
v/c Ratio		0.35						0.50	0.35			
Uniform Delay, d1		17.7						8.3	7.4			
Progression Factor		1.00						0.35	0.06			
Incremental Delay, d2		2.4						0.8	1.3			
Delay (s)		20.1						3.7	1.8			
Level of Service		C						A	A			
Approach Delay (s)		20.1			0.0			3.2			0.0	
Approach LOS		C			A			A			A	

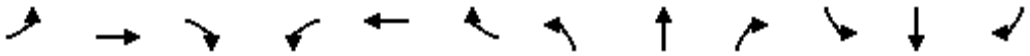
Intersection Summary			
HCM 2000 Control Delay	5.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	139	93	108	1135	0	0	0	0
Future Volume (vph)	0	0	0	0	139	93	108	1135	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.94		1.00	1.00				
Flpb, ped/bikes					1.00		0.64	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1578		1100	3424				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1578		1100	3424				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	139	93	108	1135	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	39	0	31	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	193	0	77	1135	0	0	0	0
Confl. Peds. (#/hr)						131	298					
Confl. Bikes (#/hr)						5						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	1%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		34.0	34.0				
Effective Green, g (s)					16.8		34.0	34.0				
Actuated g/C Ratio					0.28		0.56	0.56				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					434		613	1908				
v/s Ratio Prot					c0.12			c0.33				
v/s Ratio Perm							0.07					
v/c Ratio					0.44		0.13	0.59				
Uniform Delay, d1					18.2		6.4	8.9				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					3.3		0.4	1.4				
Delay (s)					21.5		6.8	10.3				
Level of Service					C		A	B				
Approach Delay (s)		0.0			21.5			10.0			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

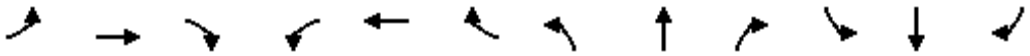
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	63	66	0	0	0	0	217	55	93	358	0
Future Volume (Veh/h)	7	63	66	0	0	0	0	217	55	93	358	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	63	66	0	0	0	0	217	55	93	358	0
Pedestrians					522			614			614	
Lane Width (m)					0.0			3.7			3.7	
Walking Speed (m/s)					1.2			1.2			1.2	
Percent Blockage					0			53			53	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	1375	1338	972	1994	1283	1353	358			794		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1375	1338	972	1994	1283	1353	358			794		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	54	55	100	100	100	100			89		
cM capacity (veh/h)	54	137	147	7	148	88	1212			836		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	136	217	55	451
Volume Left	7	0	0	93
Volume Right	66	0	55	0
cSH	131	1700	1700	836
Volume to Capacity	1.04	0.13	0.03	0.11
Queue Length 95th (m)	59.1	0.0	0.0	3.0
Control Delay (s)	155.4	0.0	0.0	3.1
Lane LOS	F			A
Approach Delay (s)	155.4	0.0		3.1
Approach LOS	F			

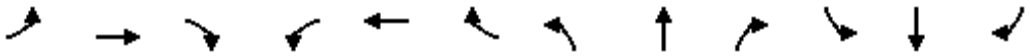
Intersection Summary			
Average Delay	26.2		
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	58	76	34	22	372	0	0	330	17
Future Volume (vph)	0	0	0	58	76	34	22	372	0	0	330	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.98			1.00			0.97	
Flpb, ped/bikes					0.93			0.98			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					0.98			1.00			1.00	
Satd. Flow (prot)					1586			1685			1661	
Flt Permitted					0.98			0.97			1.00	
Satd. Flow (perm)					1586			1643			1661	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	58	76	34	22	372	0	0	330	17
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	151	0	0	394	0	0	343	0
Confl. Peds. (#/hr)				121		47	469					469
Confl. Bikes (#/hr)						17						27
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	6%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			26.8			26.8	
Effective Green, g (s)					17.8			26.8			26.8	
Actuated g/C Ratio					0.32			0.49			0.49	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					513			800			809	
v/s Ratio Prot											0.21	
v/s Ratio Perm					0.10			c0.24				
v/c Ratio					0.29			0.49			0.42	
Uniform Delay, d1					13.9			9.5			9.1	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					1.5			2.2			1.6	
Delay (s)					15.4			11.7			10.7	
Level of Service					B			B			B	
Approach Delay (s)		0.0			15.4			11.7			10.7	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

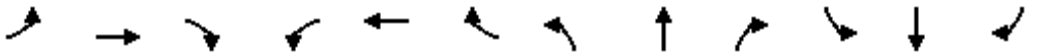
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	83	153	0	0	0	0	0	0	148	978	0
Future Volume (Veh/h)	0	83	153	0	0	0	0	0	0	148	978	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	83	153	0	0	0	0	0	0	148	978	0
Pedestrians		60			60			614			614	
Lane Width (m)		3.7			0.0			0.0			3.7	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		5			0			0			53	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	1948	1394	1163	1654	1394	674	1038			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1948	1394	1163	1654	1394	674	1038			60		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	32	14	100	100	100	100			90		
cM capacity (veh/h)	16	123	178	4	123	191	643			1542		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	236	474	652
Volume Left	0	148	0
Volume Right	153	0	0
cSH	154	1542	1700
Volume to Capacity	1.54	0.10	0.38
Queue Length 95th (m)	125.4	2.5	0.0
Control Delay (s)	324.5	3.0	0.0
Lane LOS	F	A	
Approach Delay (s)	324.5	1.3	
Approach LOS	F		

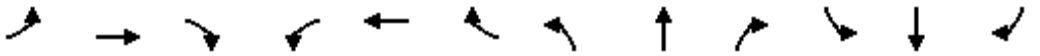
Intersection Summary				
Average Delay	57.3			
Intersection Capacity Utilization	64.4%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	116	102	0	0	0	0	0	1019	74
Future Volume (vph)	0	0	0	116	102	0	0	0	0	0	1019	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.61
Flpb, ped/bikes					0.91						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.97						1.00	1.00
Satd. Flow (prot)					1610						3424	938
Flt Permitted					0.97						1.00	1.00
Satd. Flow (perm)					1610						3424	938
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	116	102	0	0	0	0	0	1019	74
RTOR Reduction (vph)	0	0	0	0	54	0	0	0	0	0	0	15
Lane Group Flow (vph)	0	0	0	0	164	0	0	0	0	0	1019	59
Confl. Peds. (#/hr)				132								136
Confl. Bikes (#/hr)												28
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						45.8	45.8
Effective Green, g (s)					18.3						45.8	45.8
Actuated g/C Ratio					0.24						0.61	0.61
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					392						2090	572
v/s Ratio Prot											c0.30	
v/s Ratio Perm					0.10							0.06
v/c Ratio					0.42						0.49	0.10
Uniform Delay, d1					23.9						8.1	6.1
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					3.2						0.8	0.4
Delay (s)					27.1						8.9	6.4
Level of Service					C						A	A
Approach Delay (s)		0.0			27.1			0.0			8.7	
Approach LOS		A			C			A			A	

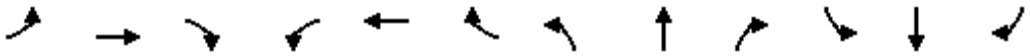
Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	112	0	0	0	0	0	448	114	0	0	0
Future Volume (vph)	139	112	0	0	0	0	0	448	114	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.61			
Flpb, ped/bikes		0.92						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.97						1.00	1.00			
Satd. Flow (prot)		1597						3390	919			
Flt Permitted		0.97						1.00	1.00			
Satd. Flow (perm)		1597						3390	919			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	112	0	0	0	0	0	448	114	0	0	0
RTOR Reduction (vph)	0	73	0	0	0	0	0	0	50	0	0	0
Lane Group Flow (vph)	0	178	0	0	0	0	0	448	64	0	0	0
Confl. Peds. (#/hr)	127								313			
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	2%	2%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		439						1889	512			
v/s Ratio Prot								c0.13				
v/s Ratio Perm		0.11							0.07			
v/c Ratio		0.41						0.24	0.12			
Uniform Delay, d1		18.0						6.9	6.4			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		2.8						0.3	0.5			
Delay (s)		20.8						7.2	6.9			
Level of Service		C						A	A			
Approach Delay (s)		20.8			0.0			7.1			0.0	
Approach LOS		C			A			A			A	

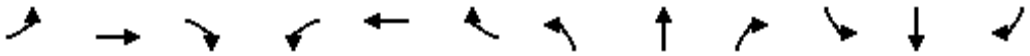
Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	156	82	109	482	0	0	0	0
Future Volume (vph)	0	0	0	0	156	82	109	482	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.96		1.00	1.00				
Flpb, ped/bikes					1.00		0.72	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1647		1242	3390				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1647		1242	3390				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	156	82	109	482	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	35	0	54	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	203	0	55	482	0	0	0	0
Confl. Peds. (#/hr)						115	256					
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		28.0	28.0				
Effective Green, g (s)					16.8		28.0	28.0				
Actuated g/C Ratio					0.31		0.51	0.51				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					503		632	1725				
v/s Ratio Prot					c0.12			c0.14				
v/s Ratio Perm							0.04					
v/c Ratio					0.40		0.09	0.28				
Uniform Delay, d1					15.1		6.9	7.7				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					2.4		0.3	0.4				
Delay (s)					17.5		7.2	8.1				
Level of Service					B		A	A				
Approach Delay (s)		0.0			17.5			8.0			0.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

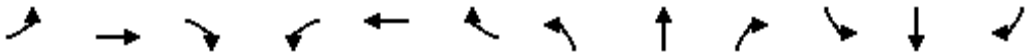
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	82	61	0	0	0	0	316	92	51	242	0
Future Volume (Veh/h)	24	82	61	0	0	0	0	316	92	51	242	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	82	61	0	0	0	0	316	92	51	242	0
Pedestrians					424			296			296	
Lane Width (m)					0.0			3.7			3.7	
Walking Speed (m/s)					1.2			1.2			1.2	
Percent Blockage					0			25			25	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	956	1176	538	1482	1084	1036	242			832		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	956	1176	538	1482	1084	1036	242			832		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.3			2.3		
p0 queue free %	86	54	85	100	100	100	100			93		
cM capacity (veh/h)	170	180	408	39	204	204	1290			759		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	167	316	92	293
Volume Left	24	0	0	51
Volume Right	61	0	92	0
cSH	224	1700	1700	759
Volume to Capacity	0.75	0.19	0.05	0.07
Queue Length 95th (m)	40.5	0.0	0.0	1.7
Control Delay (s)	57.1	0.0	0.0	2.4
Lane LOS	F			A
Approach Delay (s)	57.1	0.0		2.4
Approach LOS	F			

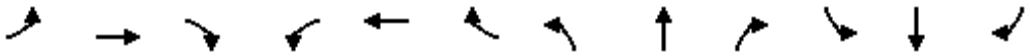
Intersection Summary				
Average Delay	11.8			
Intersection Capacity Utilization	57.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	12	18	10	44	519	0	0	209	13
Future Volume (vph)	0	0	0	12	18	10	44	519	0	0	209	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.97			1.00			0.97	
Flpb, ped/bikes					0.96			0.98			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					0.99			1.00			1.00	
Satd. Flow (prot)					1552			1671			1555	
Flt Permitted					0.99			0.96			1.00	
Satd. Flow (perm)					1552			1616			1555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	12	18	10	44	519	0	0	209	13
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	33	0	0	563	0	0	218	0
Confl. Peds. (#/hr)				70		51	201					201
Confl. Bikes (#/hr)						6						45
Heavy Vehicles (%)	0%	0%	0%	8%	0%	8%	6%	6%	0%	0%	14%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			31.8			31.8	
Effective Green, g (s)					17.8			31.8			31.8	
Actuated g/C Ratio					0.30			0.53			0.53	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					460			856			824	
v/s Ratio Prot											0.14	
v/s Ratio Perm					0.02			c0.35				
v/c Ratio					0.07			0.66			0.26	
Uniform Delay, d1					15.2			10.2			7.7	
Progression Factor					0.94			1.00			1.00	
Incremental Delay, d2					0.3			3.9			0.8	
Delay (s)					14.5			14.1			8.5	
Level of Service					B			B			A	
Approach Delay (s)		0.0			14.5			14.1			8.5	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

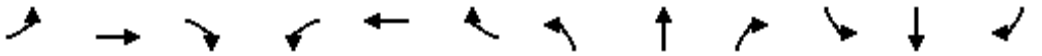
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	65	64	0	0	0	0	0	0	122	577	0
Future Volume (Veh/h)	0	65	64	0	0	0	0	0	0	122	577	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	65	64	0	0	0	0	0	0	122	577	0
Pedestrians					26			113				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	821	847	402	768	847	26	577			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	821	847	402	768	847	26	577			26		
tC, single (s)	7.5	6.6	7.0	7.5	6.5	6.9	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	76	89	100	100	100	100			92		
cM capacity (veh/h)	254	270	593	202	277	1050	1006			1544		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	129	314	385
Volume Left	0	122	0
Volume Right	64	0	0
cSH	370	1544	1700
Volume to Capacity	0.35	0.08	0.23
Queue Length 95th (m)	12.1	2.0	0.0
Control Delay (s)	19.8	3.3	0.0
Lane LOS	C	A	
Approach Delay (s)	19.8	1.5	
Approach LOS	C		

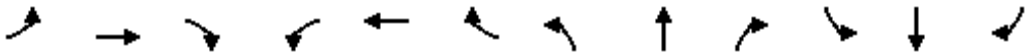
Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	40.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	109	94	0	0	0	0	0	575	84
Future Volume (vph)	0	0	0	109	94	0	0	0	0	0	575	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.79
Flpb, ped/bikes					0.97						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.97						1.00	1.00
Satd. Flow (prot)					1680						3293	1165
Flt Permitted					0.97						1.00	1.00
Satd. Flow (perm)					1680						3293	1165
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	109	94	0	0	0	0	0	575	84
RTOR Reduction (vph)	0	0	0	0	70	0	0	0	0	0	0	38
Lane Group Flow (vph)	0	0	0	0	134	0	0	0	0	0	575	46
Confl. Peds. (#/hr)				62								85
Confl. Bikes (#/hr)						2						18
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	5%	5%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						30.8	30.8
Effective Green, g (s)					18.3						30.8	30.8
Actuated g/C Ratio					0.31						0.51	0.51
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					512						1690	598
v/s Ratio Prot											c0.17	
v/s Ratio Perm					0.08							0.04
v/c Ratio					0.26						0.34	0.08
Uniform Delay, d1					15.7						8.6	7.4
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					1.2						0.5	0.3
Delay (s)					17.0						9.2	7.6
Level of Service					B						A	A
Approach Delay (s)		0.0			17.0			0.0			9.0	
Approach LOS		A			B			A			A	

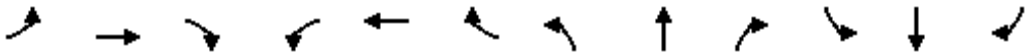
Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	90	0	0	0	0	0	989	315	0	0	0
Future Volume (vph)	141	90	0	0	0	0	0	989	315	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.73			
Flpb, ped/bikes		0.89						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.97						1.00	1.00			
Satd. Flow (prot)		1477						3424	1111			
Flt Permitted		0.97						1.00	1.00			
Satd. Flow (perm)		1477						3424	1111			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	141	90	0	0	0	0	0	989	315	0	0	0
RTOR Reduction (vph)	0	75	0	0	0	0	0	0	81	0	0	0
Lane Group Flow (vph)	0	156	0	0	0	0	0	989	234	0	0	0
Confl. Peds. (#/hr)	163								213			
Heavy Vehicles (%)	6%	6%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		406						1908	619			
v/s Ratio Prot								c0.29				
v/s Ratio Perm		0.11							0.21			
v/c Ratio		0.38						0.52	0.38			
Uniform Delay, d1		17.9						8.4	7.6			
Progression Factor		1.00						0.35	0.07			
Incremental Delay, d2		2.7						0.8	1.4			
Delay (s)		20.6						3.7	1.9			
Level of Service		C						A	A			
Approach Delay (s)		20.6			0.0			3.3			0.0	
Approach LOS		C			A			A			A	

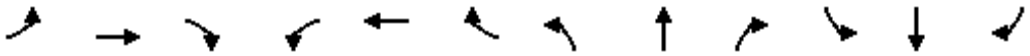
Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	145	98	113	1189	0	0	0	0
Future Volume (vph)	0	0	0	0	145	98	113	1189	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.93		1.00	1.00				
Flpb, ped/bikes					1.00		0.64	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1577		1100	3424				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1577		1100	3424				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	145	98	113	1189	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	40	0	31	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	203	0	82	1189	0	0	0	0
Confl. Peds. (#/hr)						131	298					
Confl. Bikes (#/hr)						5						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	1%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		34.0	34.0				
Effective Green, g (s)					16.8		34.0	34.0				
Actuated g/C Ratio					0.28		0.56	0.56				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					434		613	1908				
v/s Ratio Prot					c0.13			c0.35				
v/s Ratio Perm							0.07					
v/c Ratio					0.47		0.13	0.62				
Uniform Delay, d1					18.4		6.5	9.2				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					3.6		0.5	1.5				
Delay (s)					22.0		6.9	10.7				
Level of Service					C		A	B				
Approach Delay (s)		0.0			22.0			10.4			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

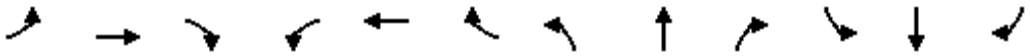
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	65	69	0	0	0	0	228	57	98	375	0
Future Volume (Veh/h)	8	65	69	0	0	0	0	228	57	98	375	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	65	69	0	0	0	0	228	57	98	375	0
Pedestrians		60			68			614			614	
Lane Width (m)		3.7			0.0			3.7			3.7	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		5			0			53			53	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	1473	984	1049	1582	927	910	435			353		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1473	984	1049	1582	927	910	435			353		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	81	70	45	100	100	100	100			92		
cM capacity (veh/h)	43	218	125	13	236	159	1077			1217		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	142	228	57	473
Volume Left	8	0	0	98
Volume Right	69	0	57	0
cSH	137	1700	1700	1217
Volume to Capacity	1.03	0.13	0.03	0.08
Queue Length 95th (m)	60.0	0.0	0.0	2.1
Control Delay (s)	149.5	0.0	0.0	2.4
Lane LOS	F			A
Approach Delay (s)	149.5	0.0		2.4
Approach LOS	F			

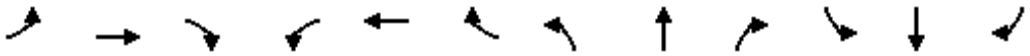
Intersection Summary			
Average Delay	24.8		
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	60	80	36	24	390	0	0	345	18
Future Volume (vph)	0	0	0	60	80	36	24	390	0	0	345	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.98			1.00			0.97	
Flpb, ped/bikes					0.93			0.98			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					0.98			1.00			1.00	
Satd. Flow (prot)					1587			1685			1660	
Flt Permitted					0.98			0.97			1.00	
Satd. Flow (perm)					1587			1638			1660	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	60	80	36	24	390	0	0	345	18
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	159	0	0	414	0	0	359	0
Confl. Peds. (#/hr)				121		47	469					469
Confl. Bikes (#/hr)						17						27
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	6%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			26.8			26.8	
Effective Green, g (s)					17.8			26.8			26.8	
Actuated g/C Ratio					0.32			0.49			0.49	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					513			798			808	
v/s Ratio Prot											0.22	
v/s Ratio Perm					0.10			c0.25				
v/c Ratio					0.31			0.52			0.44	
Uniform Delay, d1					14.0			9.7			9.2	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					1.6			2.4			1.8	
Delay (s)					15.6			12.1			11.0	
Level of Service					B			B			B	
Approach Delay (s)		0.0			15.6			12.1			11.0	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

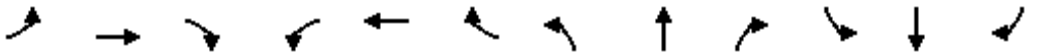
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	91	162	0	0	0	0	0	0	157	1022	0
Future Volume (Veh/h)	0	91	162	0	0	0	0	0	0	157	1022	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	91	162	0	0	0	0	0	0	157	1022	0
Pedestrians					93			50				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	1336	1429	561	1176	1429	93	1022			93		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1336	1429	561	1176	1429	93	1022			93		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	25	66	100	100	100	100			90		
cM capacity (veh/h)	104	122	471	35	122	952	687			1499		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	253	498	681
Volume Left	0	157	0
Volume Right	162	0	0
cSH	232	1499	1700
Volume to Capacity	1.09	0.10	0.40
Queue Length 95th (m)	88.1	2.8	0.0
Control Delay (s)	130.6	3.1	0.0
Lane LOS	F	A	
Approach Delay (s)	130.6	1.3	
Approach LOS	F		

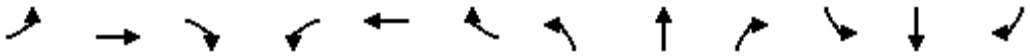
Intersection Summary				
Average Delay	24.2			
Intersection Capacity Utilization	59.4%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	121	107	0	0	0	0	0	1067	77
Future Volume (vph)	0	0	0	121	107	0	0	0	0	0	1067	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.61
Flpb, ped/bikes					0.91						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.97						1.00	1.00
Satd. Flow (prot)					1610						3424	938
Flt Permitted					0.97						1.00	1.00
Satd. Flow (perm)					1610						3424	938
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	121	107	0	0	0	0	0	1067	77
RTOR Reduction (vph)	0	0	0	0	54	0	0	0	0	0	0	15
Lane Group Flow (vph)	0	0	0	0	174	0	0	0	0	0	1067	62
Confl. Peds. (#/hr)				132								136
Confl. Bikes (#/hr)												28
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						45.8	45.8
Effective Green, g (s)					18.3						45.8	45.8
Actuated g/C Ratio					0.24						0.61	0.61
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					392						2090	572
v/s Ratio Prot											c0.31	
v/s Ratio Perm					0.11							0.07
v/c Ratio					0.44						0.51	0.11
Uniform Delay, d1					24.0						8.3	6.1
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					3.6						0.9	0.4
Delay (s)					27.6						9.2	6.5
Level of Service					C						A	A
Approach Delay (s)		0.0			27.6			0.0			9.0	
Approach LOS		A			C			A			A	

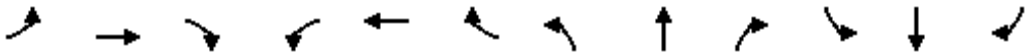
Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	145	117	0	0	0	0	0	467	120	0	0	0
Future Volume (vph)	145	117	0	0	0	0	0	467	120	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.61			
Flpb, ped/bikes		0.92						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.97						1.00	1.00			
Satd. Flow (prot)		1597						3390	919			
Flt Permitted		0.97						1.00	1.00			
Satd. Flow (perm)		1597						3390	919			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	145	117	0	0	0	0	0	467	120	0	0	0
RTOR Reduction (vph)	0	73	0	0	0	0	0	0	53	0	0	0
Lane Group Flow (vph)	0	189	0	0	0	0	0	467	67	0	0	0
Confl. Peds. (#/hr)	127								313			
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	2%	2%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		439						1889	512			
v/s Ratio Prot								c0.14				
v/s Ratio Perm		0.12							0.07			
v/c Ratio		0.43						0.25	0.13			
Uniform Delay, d1		18.2						6.9	6.4			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		3.1						0.3	0.5			
Delay (s)		21.2						7.2	7.0			
Level of Service		C						A	A			
Approach Delay (s)		21.2			0.0			7.2			0.0	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	164	86	114	504	0	0	0	0
Future Volume (vph)	0	0	0	0	164	86	114	504	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.96		1.00	1.00				
Flpb, ped/bikes					1.00		0.72	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1647		1242	3390				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1647		1242	3390				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	164	86	114	504	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	34	0	56	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	216	0	58	504	0	0	0	0
Confl. Peds. (#/hr)						115	256					
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		28.0	28.0				
Effective Green, g (s)					16.8		28.0	28.0				
Actuated g/C Ratio					0.31		0.51	0.51				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					503		632	1725				
v/s Ratio Prot					c0.13			c0.15				
v/s Ratio Perm							0.05					
v/c Ratio					0.43		0.09	0.29				
Uniform Delay, d1					15.3		7.0	7.8				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					2.7		0.3	0.4				
Delay (s)					17.9		7.2	8.2				
Level of Service					B		A	A				
Approach Delay (s)		0.0			17.9			8.0			0.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

APPENDIX E: TDM SUPPORTIVE DEVELOPMENT DESIGN AND INFRASTRUCTURE CHECKLIST

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	☒ Building frontages provide windows
	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)*	☒ Entrances are located adjacent to Municipal sidewalks that provide a direct connection to Line 1
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)*	☒ The site provides for an open pedestrian area that connects building entrances to one another and to adjacent Municipal sidewalks

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)*	☒ The ground floor provides for an alternate material and curbing to designate the area for pedestrians
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	☒ Direct walking route to transit stops via sidewalks
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☒ Walking routes have adequate street lights and visibility
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	☒ Thru-road designed to minimize traffic, provide narrow drive aisles, parking and wide corners
	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)*	☒ Above ground cycle parking is located within a shelter, while public bike parking is located beneath a sheltered building over hang
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)*	☒ More than minimum bike parking stalls provided
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(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)*	☒ More than 90% of stalls are located in sheltered areas.
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	☐ No 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	☒ Minimum auto parking provided on-site
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:
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)*	☒ Local maps could be placed at major entrances of the buildings
	2.2	**Bicycle skills training**	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☐

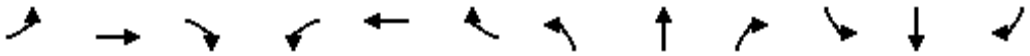
			TDM measures: *Residential developments*	Check if proposed & add descriptions
		3.	**TRANSIT**	
		3.1	**Transit information**	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☒ Recommended to present material within residential lobbies
BETTER		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)*	☒ Recommended to unbundle parking from rent / purchase price
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 F: MULTI-MODAL LEVEL OF SERVICE ANALYSIS DETAILS –SEGMENTS

	Intersections	Nepean St-MetCalfe St				Lisgar St-Bank St				Lisgar St-O'Connor St				Lisgar St-Metcalf St		
	Crossing Side	***North***	***South***	***East***	***West***	***North***	***South***	***East***		***North***	***South***	***East***		***South***	***East***	
Pedestrian	Lanes		3 (105)		2 (120)	3 (105)	3 (105)	2 (120)		3 (105)		2 (120)		3 (105)	2 (120)	
	Median		No (-4)		No (-4)	No (-4)	No (-4)	No (-4)		No (-4)		No (-4)		No (-4)	No (-4)	
	Conflicting LT		LT Prohibited (0)		Permissive (-8)	LT Prohibited (0)	Permissive (-8)	Permissive (-8)		LT Prohibited (0)		Permissive (-8)		Permissive (-8)	LT prohibited (0)	
	Conflicting RT		Perm/yield control (-5)		No right turn (0)	Perm/yield control (-5)	No right-turn (0)	Perm/yield control (-5)		Perm/yield control (-5)		No right turn (0)		No right turn (0)	Perm/yield control (-5)	
	RTOR		Allowed (-3)		Prohibited (0)	Allowed (-3)	Prohibited (0)	Allowed (-3)		Allowed (-3)		Prohibited (0)		Allowed (-3)	Allowed (-3)	
	Leading Ped Interval		No (-2)		No (-2)	No (-2)	No (-2)	No (-2)		No (-2)		No (-2)		No (-2)	No (-2)	
	Corner Radius		>3m-to-5m (-4)		>3m-to-5m (-4)	>3m-to-5m (-4)	>3m-to-5m (-4)	>3m-to-5m (-4)		>3m-to-5m (-4)		>3m-to-5m (-4)		>3m-to-5m (-4)	>3m-to-5m (-4)	
	Crosswalk Treatment		Standard transverse markings (-4)		Standard transverse markings (-4)	Standard transverse markings (-7)	Standard transverse markings (-4)	Standard transverse markings (-4)		Standard transverse markings (-7)		Texture/coloured pavement (-4)		Standard transverse markings (-4)	Standard transverse markings (-4)	
	PETSI Score		83		98	80 pts	80 pts	87 pts		80		98		80	98	
	Ped. Exposure to traffic LOS		B		A	B	B	B		B		A		B	A	
	Cycle Length		60		60	60 sec	60 sec	60 sec		75 sec		75 sec		60 sec	60 sec	
	Effective Walk Time		35		24	25	25	23		26		26		37	22	
	Avg Ped Delay		5		11	10	10	11		16		16		4	12	
	Ped Delay LOS		A		B	B	B	B		B		B		A	B	
	LOS		B		B	B	B	B		B		B		B	B	
			B			B				B				B		
	Approach From	***North***	***South***	***East***	***West***	***North***	***South***	***East***		***North***	***South***	***East***		***South***	***East***	
Bicycle	Bike lane arrangment on approach		Mixed Traffic		Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic		Bike Lanes	Bike Lanes	Mixed traffic		Mixed Traffic	Mixed Traffic	
	Right-turn lane configuration		Shared		Prohibited	Shared	Prohibited	Shared		No Impact	No Impact	Shared		Prohibited	Shared	
	Right turning speed															
	Cyclists relative to RT motorists		NA		NA	NA	NA	NA		NA	NA	NA		NA	NA	
	Left turn approach				No lane crossed	Prohibited	No lane crossed	No lane crossed			2-stages	No lane crossed		One lane crossed		
	Left-turn Operating speed				<=50km/hr		<=50km/hr	<=50km/hr			<=50km/hr	<=50km/hr		50km/hr		
	Left turn cyclists - LOS		NA		B	NA	B	B		NA	A	B		D	NA	
Transit	Avg. Delay					<=20 sec	<=20 sec									
	LOS					C	C									
						C										
Truck	Effective corner radius		< 10m			< 10m		< 10m		< 10					< 10m	
	No. of receiving lanes on departure from intersection		2 (wide lane)			2 (wide lane)		1		2 (wide lane)					2	
	LOS		D			D		F		D					D	
			D			F				D					D	

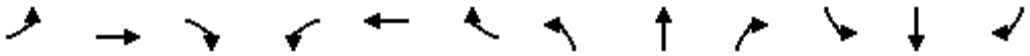
APPENDIX G: SYNCHRO INTERSECTION CAPACITY ANALYSIS
2021 DESIGN FORECAST, 2026 DESIGN FORECAST



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	80	58	0	0	0	0	307	90	50	231	0
Future Volume (Veh/h)	23	80	58	0	0	0	0	307	90	50	231	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	23	80	58	0	0	0	0	307	90	50	231	0
Pedestrians					424			296			296	
Lane Width (m)					0.0			3.7			3.7	
Walking Speed (m/s)					1.2			1.2			1.2	
Percent Blockage					0			25			25	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	934	1152	527	1456	1062	1027	231			821		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	934	1152	527	1456	1062	1027	231			821		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.3			2.3		
p0 queue free %	87	57	86	100	100	100	100			93		
cM capacity (veh/h)	176	186	414	43	211	207	1302			766		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	161	307	90	281
Volume Left	23	0	0	50
Volume Right	58	0	90	0
cSH	230	1700	1700	766
Volume to Capacity	0.70	0.18	0.05	0.07
Queue Length 95th (m)	36.1	0.0	0.0	1.7
Control Delay (s)	50.6	0.0	0.0	2.4
Lane LOS	F			A
Approach Delay (s)	50.6	0.0		2.4
Approach LOS	F			

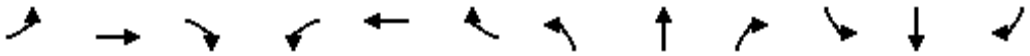
Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	18	23	15	42	498	0	0	200	13
Future Volume (vph)	0	0	0	18	23	15	42	498	0	0	200	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.97			1.00			0.97	
Flpb, ped/bikes					0.96			0.98			1.00	
Frt					0.96			1.00			0.99	
Flt Protected					0.98			1.00			1.00	
Satd. Flow (prot)					1534			1671			1553	
Flt Permitted					0.98			0.96			1.00	
Satd. Flow (perm)					1534			1618			1553	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	18	23	15	42	498	0	0	200	13
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	45	0	0	540	0	0	209	0
Confl. Peds. (#/hr)				70		51	201					201
Confl. Bikes (#/hr)						6						45
Heavy Vehicles (%)	0%	0%	0%	8%	0%	8%	6%	6%	0%	0%	14%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			31.8			31.8	
Effective Green, g (s)					17.8			31.8			31.8	
Actuated g/C Ratio					0.30			0.53			0.53	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					455			857			823	
v/s Ratio Prot											0.13	
v/s Ratio Perm					0.03			c0.33				
v/c Ratio					0.10			0.63			0.25	
Uniform Delay, d1					15.3			9.9			7.7	
Progression Factor					0.91			1.00			1.00	
Incremental Delay, d2					0.4			3.5			0.7	
Delay (s)					14.3			13.5			8.4	
Level of Service					B			B			A	
Approach Delay (s)		0.0			14.3			13.5			8.4	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

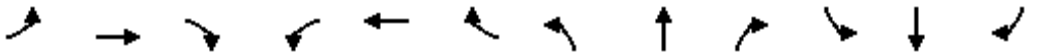
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	76	69	0	0	0	0	0	0	118	55	0
Future Volume (Veh/h)	0	76	69	0	0	0	0	0	0	118	55	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	76	69	0	0	0	0	0	0	118	55	0
Pedestrians					26			113				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	291	317	140	510	317	26	55			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	291	317	140	510	317	26	55			26		
tC, single (s)	7.5	6.6	7.0	7.5	6.5	6.9	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	86	92	100	100	100	100			92		
cM capacity (veh/h)	606	548	875	350	556	1050	1563			1544		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	145	136	37
Volume Left	0	118	0
Volume Right	69	0	0
cSH	667	1544	1700
Volume to Capacity	0.22	0.08	0.02
Queue Length 95th (m)	6.5	2.0	0.0
Control Delay (s)	11.9	6.6	0.0
Lane LOS	B	A	
Approach Delay (s)	11.9	5.2	
Approach LOS	B		

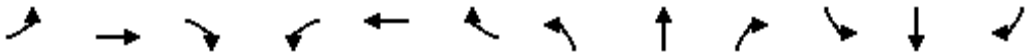
Intersection Summary				
Average Delay	8.2			
Intersection Capacity Utilization	26.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	89	108	0	0	0	0	0	558	81
Future Volume (vph)	0	0	0	89	108	0	0	0	0	0	558	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.79
Flpb, ped/bikes					0.97						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.98						1.00	1.00
Satd. Flow (prot)					1696						3293	1165
Flt Permitted					0.98						1.00	1.00
Satd. Flow (perm)					1696						3293	1165
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	89	108	0	0	0	0	0	558	81
RTOR Reduction (vph)	0	0	0	0	49	0	0	0	0	0	0	37
Lane Group Flow (vph)	0	0	0	0	148	0	0	0	0	0	558	44
Confl. Peds. (#/hr)				62								85
Confl. Bikes (#/hr)						2						18
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	5%	5%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						30.8	30.8
Effective Green, g (s)					18.3						30.8	30.8
Actuated g/C Ratio					0.31						0.51	0.51
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					517						1690	598
v/s Ratio Prot											c0.17	
v/s Ratio Perm					0.09							0.04
v/c Ratio					0.29						0.33	0.07
Uniform Delay, d1					15.9						8.6	7.4
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					1.4						0.5	0.2
Delay (s)					17.3						9.1	7.6
Level of Service					B						A	A
Approach Delay (s)		0.0			17.3			0.0			8.9	
Approach LOS		A			B			A			A	

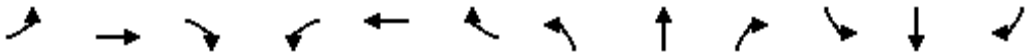
Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	94	0	0	0	0	0	945	300	0	0	0
Future Volume (vph)	144	94	0	0	0	0	0	945	300	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.73			
Flpb, ped/bikes		0.89						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.97						1.00	1.00			
Satd. Flow (prot)		1479						3424	1111			
Flt Permitted		0.97						1.00	1.00			
Satd. Flow (perm)		1479						3424	1111			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	144	94	0	0	0	0	0	945	300	0	0	0
RTOR Reduction (vph)	0	84	0	0	0	0	0	0	81	0	0	0
Lane Group Flow (vph)	0	154	0	0	0	0	0	945	219	0	0	0
Confl. Peds. (#/hr)	163								213			
Heavy Vehicles (%)	6%	6%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		407						1908	619			
v/s Ratio Prot								c0.28				
v/s Ratio Perm		0.10							0.20			
v/c Ratio		0.38						0.50	0.35			
Uniform Delay, d1		17.9						8.3	7.4			
Progression Factor		1.00						0.33	0.08			
Incremental Delay, d2		2.7						0.8	1.3			
Delay (s)		20.5						3.5	1.9			
Level of Service		C						A	A			
Approach Delay (s)		20.5			0.0			3.1			0.0	
Approach LOS		C			A			A			A	

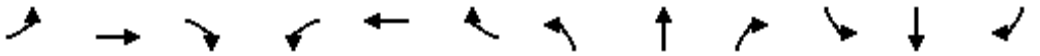
Intersection Summary			
HCM 2000 Control Delay	5.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	11	93	110	1135	0	0	0	0
Future Volume (vph)	0	0	0	0	11	93	110	1135	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.86		1.00	1.00				
Flpb, ped/bikes					1.00		0.64	1.00				
Frt					0.88		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1310		1100	3424				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1310		1100	3424				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	11	93	110	1135	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	52	0	31	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	52	0	79	1135	0	0	0	0
Confl. Peds. (#/hr)						131	298					
Confl. Bikes (#/hr)						5						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	1%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		34.0	34.0				
Effective Green, g (s)					16.8		34.0	34.0				
Actuated g/C Ratio					0.28		0.56	0.56				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					360		613	1908				
v/s Ratio Prot					c0.04			c0.33				
v/s Ratio Perm							0.07					
v/c Ratio					0.14		0.13	0.59				
Uniform Delay, d1					16.7		6.4	8.9				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					0.8		0.4	1.4				
Delay (s)					17.5		6.9	10.3				
Level of Service					B		A	B				
Approach Delay (s)		0.0			17.5			10.0			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

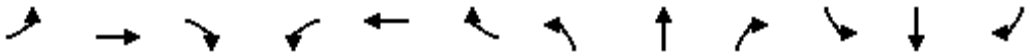
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	65	66	0	0	0	0	219	59	97	358	0
Future Volume (Veh/h)	7	65	66	0	0	0	0	219	59	97	358	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	7	65	66	0	0	0	0	219	59	97	358	0
Pedestrians		60			68			314			314	
Lane Width (m)		3.7			0.0			3.7			3.7	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		5			0			27			27	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	1145	958	732	1252	899	601	418			346		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1145	958	732	1252	899	601	418			346		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	71	78	100	100	100	100			92		
cM capacity (veh/h)	112	227	294	60	245	368	1093			1224		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	138	219	59	455
Volume Left	7	0	0	97
Volume Right	66	0	59	0
cSH	240	1700	1700	1224
Volume to Capacity	0.57	0.13	0.03	0.08
Queue Length 95th (m)	25.5	0.0	0.0	2.0
Control Delay (s)	38.4	0.0	0.0	2.4
Lane LOS	E			A
Approach Delay (s)	38.4	0.0		2.4
Approach LOS	E			

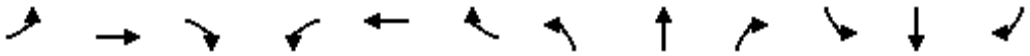
Intersection Summary				
Average Delay	7.3			
Intersection Capacity Utilization	67.3%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	60	78	36	22	377	0	0	330	17
Future Volume (vph)	0	0	0	60	78	36	22	377	0	0	330	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.98			1.00			0.97	
Flpb, ped/bikes					0.93			0.98			1.00	
Frt					0.97			1.00			0.99	
Flt Protected					0.98			1.00			1.00	
Satd. Flow (prot)					1584			1686			1661	
Flt Permitted					0.98			0.97			1.00	
Satd. Flow (perm)					1584			1644			1661	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	60	78	36	22	377	0	0	330	17
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	157	0	0	399	0	0	343	0
Confl. Peds. (#/hr)				121		47	469					469
Confl. Bikes (#/hr)						17						27
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	6%	0%	0%	6%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			26.8			26.8	
Effective Green, g (s)					17.8			26.8			26.8	
Actuated g/C Ratio					0.32			0.49			0.49	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					512			801			809	
v/s Ratio Prot											0.21	
v/s Ratio Perm					0.10			c0.24				
v/c Ratio					0.31			0.50			0.42	
Uniform Delay, d1					14.0			9.5			9.1	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					1.5			2.2			1.6	
Delay (s)					15.5			11.8			10.7	
Level of Service					B			B			B	
Approach Delay (s)		0.0			15.5			11.8			10.7	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

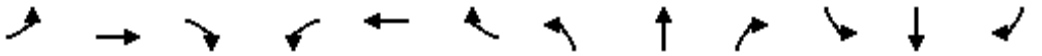
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	88	155	0	0	0	0	0	0	148	981	0
Future Volume (Veh/h)	0	88	155	0	0	0	0	0	0	148	981	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	88	155	0	0	0	0	0	0	148	981	0
Pedestrians					93			50				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	1277	1370	540	1128	1370	93	981			93		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1277	1370	540	1128	1370	93	981			93		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	34	68	100	100	100	100			90		
cM capacity (veh/h)	116	133	486	48	133	952	712			1499		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	243	475	654
Volume Left	0	148	0
Volume Right	155	0	0
cSH	248	1499	1700
Volume to Capacity	0.98	0.10	0.38
Queue Length 95th (m)	73.0	2.6	0.0
Control Delay (s)	95.2	3.0	0.0
Lane LOS	F	A	
Approach Delay (s)	95.2	1.3	
Approach LOS	F		

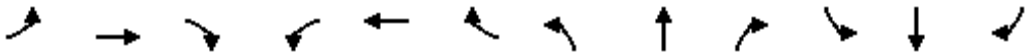
Intersection Summary				
Average Delay	17.9			
Intersection Capacity Utilization	57.3%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	116	111	0	0	0	0	0	1021	77
Future Volume (vph)	0	0	0	116	111	0	0	0	0	0	1021	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.61
Flpb, ped/bikes					0.92						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.98						1.00	1.00
Satd. Flow (prot)					1617						3424	938
Flt Permitted					0.98						1.00	1.00
Satd. Flow (perm)					1617						3424	938
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	116	111	0	0	0	0	0	1021	77
RTOR Reduction (vph)	0	0	0	0	50	0	0	0	0	0	0	16
Lane Group Flow (vph)	0	0	0	0	177	0	0	0	0	0	1021	61
Confl. Peds. (#/hr)				132								136
Confl. Bikes (#/hr)												28
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	1%	1%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						45.8	45.8
Effective Green, g (s)					18.3						45.8	45.8
Actuated g/C Ratio					0.24						0.61	0.61
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					394						2090	572
v/s Ratio Prot											c0.30	
v/s Ratio Perm					0.11							0.07
v/c Ratio					0.45						0.49	0.11
Uniform Delay, d1					24.1						8.1	6.1
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					3.7						0.8	0.4
Delay (s)					27.7						8.9	6.5
Level of Service					C						A	A
Approach Delay (s)		0.0			27.7			0.0			8.7	
Approach LOS		A			C			A			A	

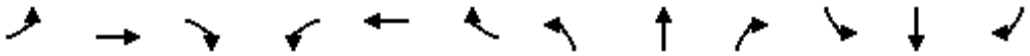
Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	139	112	0	0	0	0	0	448	114	0	0	0
Future Volume (vph)	139	112	0	0	0	0	0	448	114	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.61			
Flpb, ped/bikes		0.92						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.97						1.00	1.00			
Satd. Flow (prot)		1597						3390	919			
Flt Permitted		0.97						1.00	1.00			
Satd. Flow (perm)		1597						3390	919			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	139	112	0	0	0	0	0	448	114	0	0	0
RTOR Reduction (vph)	0	73	0	0	0	0	0	0	50	0	0	0
Lane Group Flow (vph)	0	178	0	0	0	0	0	448	64	0	0	0
Confl. Peds. (#/hr)	127								313			
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	2%	2%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		439						1889	512			
v/s Ratio Prot								c0.13				
v/s Ratio Perm		0.11							0.07			
v/c Ratio		0.41						0.24	0.12			
Uniform Delay, d1		18.0						6.9	6.4			
Progression Factor		1.00						1.00	1.00			
Incremental Delay, d2		2.8						0.3	0.5			
Delay (s)		20.8						7.2	6.9			
Level of Service		C						A	A			
Approach Delay (s)		20.8			0.0			7.1			0.0	
Approach LOS		C			A			A			A	

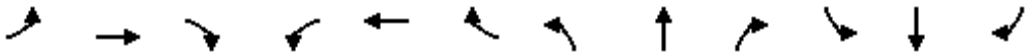
Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	161	82	11	482	0	0	0	0
Future Volume (vph)	0	0	0	0	161	82	11	482	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.96		1.00	1.00				
Flpb, ped/bikes					1.00		0.72	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1650		1242	3390				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1650		1242	3390				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	161	82	11	482	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	33	0	5	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	210	0	6	482	0	0	0	0
Confl. Peds. (#/hr)						115	256					
Confl. Bikes (#/hr)						3						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		28.0	28.0				
Effective Green, g (s)					16.8		28.0	28.0				
Actuated g/C Ratio					0.31		0.51	0.51				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					504		632	1725				
v/s Ratio Prot					c0.13			c0.14				
v/s Ratio Perm							0.00					
v/c Ratio					0.42		0.01	0.28				
Uniform Delay, d1					15.2		6.7	7.7				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					2.5		0.0	0.4				
Delay (s)					17.7		6.7	8.1				
Level of Service					B		A	A				
Approach Delay (s)		0.0			17.7			8.1			0.0	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

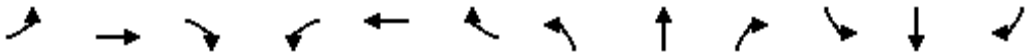
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	81	61	0	0	0	0	322	95	52	242	0
Future Volume (Veh/h)	24	81	61	0	0	0	0	322	95	52	242	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	24	81	61	0	0	0	0	322	95	52	242	0
Pedestrians					424			296			296	
Lane Width (m)					0.0			3.7			3.7	
Walking Speed (m/s)					1.2			1.2			1.2	
Percent Blockage					0			25			25	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	964	1187	538	1490	1092	1042	242			841		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	964	1187	538	1490	1092	1042	242			841		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.3			2.3		
p0 queue free %	86	54	85	100	100	100	100			93		
cM capacity (veh/h)	167	177	408	38	201	203	1290			753		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	166	322	95	294
Volume Left	24	0	0	52
Volume Right	61	0	95	0
cSH	221	1700	1700	753
Volume to Capacity	0.75	0.19	0.06	0.07
Queue Length 95th (m)	40.8	0.0	0.0	1.8
Control Delay (s)	58.2	0.0	0.0	2.5
Lane LOS	F			A
Approach Delay (s)	58.2	0.0		2.5
Approach LOS	F			

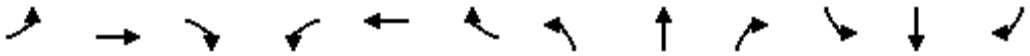
Intersection Summary			
Average Delay	11.8		
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	18	24	16	44	521	0	0	209	13
Future Volume (vph)	0	0	0	18	24	16	44	521	0	0	209	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.97			1.00			0.97	
Flpb, ped/bikes					0.96			0.98			1.00	
Frt					0.96			1.00			0.99	
Flt Protected					0.98			1.00			1.00	
Satd. Flow (prot)					1535			1671			1555	
Flt Permitted					0.98			0.96			1.00	
Satd. Flow (perm)					1535			1616			1555	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	18	24	16	44	521	0	0	209	13
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	0	47	0	0	565	0	0	218	0
Confl. Peds. (#/hr)				70		51	201					201
Confl. Bikes (#/hr)						6						45
Heavy Vehicles (%)	0%	0%	0%	8%	0%	8%	6%	6%	0%	0%	14%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			31.8			31.8	
Effective Green, g (s)					17.8			31.8			31.8	
Actuated g/C Ratio					0.30			0.53			0.53	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					455			856			824	
v/s Ratio Prot											0.14	
v/s Ratio Perm					0.03			c0.35				
v/c Ratio					0.10			0.66			0.26	
Uniform Delay, d1					15.3			10.2			7.7	
Progression Factor					0.94			1.00			1.00	
Incremental Delay, d2					0.4			4.0			0.8	
Delay (s)					14.8			14.2			8.5	
Level of Service					B			B			A	
Approach Delay (s)		0.0			14.8			14.2			8.5	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

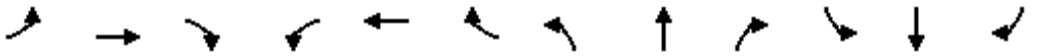
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	78	76	0	0	0	0	0	0	122	578	0
Future Volume (Veh/h)	0	78	76	0	0	0	0	0	0	122	578	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	78	76	0	0	0	0	0	0	122	578	0
Pedestrians					26			113				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	822	848	402	787	848	26	578			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	822	848	402	787	848	26	578			26		
tC, single (s)	7.5	6.6	7.0	7.5	6.5	6.9	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	71	87	100	100	100	100			92		
cM capacity (veh/h)	253	270	592	182	277	1050	1006			1544		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	154	315	385
Volume Left	0	122	0
Volume Right	76	0	0
cSH	369	1544	1700
Volume to Capacity	0.42	0.08	0.23
Queue Length 95th (m)	15.8	2.0	0.0
Control Delay (s)	21.6	3.3	0.0
Lane LOS	C	A	
Approach Delay (s)	21.6	1.5	
Approach LOS	C		

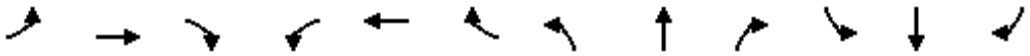
Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	40.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	94	113	0	0	0	0	0	582	85
Future Volume (vph)	0	0	0	94	113	0	0	0	0	0	582	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.79
Flpb, ped/bikes					0.97						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.98						1.00	1.00
Satd. Flow (prot)					1696						3293	1165
Flt Permitted					0.98						1.00	1.00
Satd. Flow (perm)					1696						3293	1165
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	94	113	0	0	0	0	0	582	85
RTOR Reduction (vph)	0	0	0	0	50	0	0	0	0	0	0	38
Lane Group Flow (vph)	0	0	0	0	157	0	0	0	0	0	582	47
Confl. Peds. (#/hr)				62								85
Confl. Bikes (#/hr)						2						18
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	5%	5%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						30.8	30.8
Effective Green, g (s)					18.3						30.8	30.8
Actuated g/C Ratio					0.31						0.51	0.51
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					517						1690	598
v/s Ratio Prot											c0.18	
v/s Ratio Perm					0.09							0.04
v/c Ratio					0.30						0.34	0.08
Uniform Delay, d1					16.0						8.6	7.4
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					1.5						0.6	0.3
Delay (s)					17.5						9.2	7.7
Level of Service					B						A	A
Approach Delay (s)		0.0			17.5			0.0			9.0	
Approach LOS		A			B			A			A	

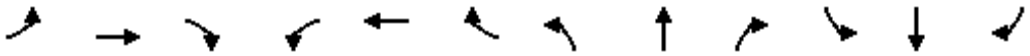
Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	37.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	98	0	0	0	0	0	989	315	0	0	0
Future Volume (vph)	147	98	0	0	0	0	0	989	315	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.73			
Flpb, ped/bikes		0.89						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.97						1.00	1.00			
Satd. Flow (prot)		1481						3424	1111			
Flt Permitted		0.97						1.00	1.00			
Satd. Flow (perm)		1481						3424	1111			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	147	98	0	0	0	0	0	989	315	0	0	0
RTOR Reduction (vph)	0	75	0	0	0	0	0	0	81	0	0	0
Lane Group Flow (vph)	0	170	0	0	0	0	0	989	234	0	0	0
Confl. Peds. (#/hr)	163								213			
Heavy Vehicles (%)	6%	6%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		407						1908	619			
v/s Ratio Prot								c0.29				
v/s Ratio Perm		0.11							0.21			
v/c Ratio		0.42						0.52	0.38			
Uniform Delay, d1		18.1						8.4	7.6			
Progression Factor		1.00						0.35	0.07			
Incremental Delay, d2		3.1						0.8	1.4			
Delay (s)		21.2						3.7	1.9			
Level of Service		C						A	A			
Approach Delay (s)		21.2			0.0			3.3			0.0	
Approach LOS		C			A			A			A	

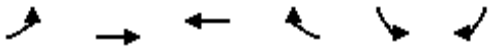
Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	147	98	116	1189	0	0	0	0
Future Volume (vph)	0	0	0	0	147	98	116	1189	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.94		1.00	1.00				
Flpb, ped/bikes					1.00		0.64	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1579		1100	3424				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1579		1100	3424				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	147	98	116	1189	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	39	0	31	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	206	0	85	1189	0	0	0	0
Confl. Peds. (#/hr)						131	298					
Confl. Bikes (#/hr)						5						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	1%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		34.0	34.0				
Effective Green, g (s)					16.8		34.0	34.0				
Actuated g/C Ratio					0.28		0.56	0.56				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					434		613	1908				
v/s Ratio Prot					c0.13			c0.35				
v/s Ratio Perm							0.08					
v/c Ratio					0.47		0.14	0.62				
Uniform Delay, d1					18.4		6.5	9.2				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					3.7		0.5	1.5				
Delay (s)					22.1		6.9	10.7				
Level of Service					C		A	B				
Approach Delay (s)		0.0			22.1			10.4			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	193	6	0	18
Future Volume (Veh/h)	0	0	193	6	0	18
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	193	6	0	18
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		100	86			
pX, platoon unblocked						
vC, conflicting volume	199				196	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	199				196	196
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	98
cM capacity (veh/h)	1373				793	845

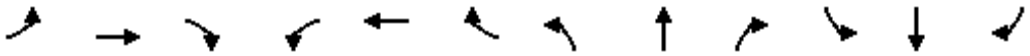
Direction, Lane #	WB 1	SB 1
Volume Total	199	18
Volume Left	0	0
Volume Right	6	18
cSH	1700	845
Volume to Capacity	0.12	0.02
Queue Length 95th (m)	0.0	0.5
Control Delay (s)	0.0	9.4
Lane LOS		A
Approach Delay (s)	0.0	9.4
Approach LOS		A

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	215	5	0	0	0	21
Future Volume (Veh/h)	215	5	0	0	0	21
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	215	5	0	0	0	21
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			220		218	218
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			220		218	218
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	97
cM capacity (veh/h)			1349		771	822

Direction, Lane #	EB 1	NB 1
Volume Total	220	21
Volume Left	0	0
Volume Right	5	21
cSH	1700	822
Volume to Capacity	0.13	0.03
Queue Length 95th (m)	0.0	0.6
Control Delay (s)	0.0	9.5
Lane LOS		A
Approach Delay (s)	0.0	9.5
Approach LOS		A

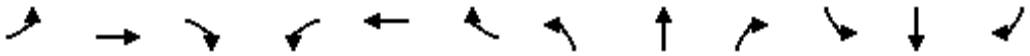
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	67	69	0	0	0	0	230	62	101	375	0
Future Volume (Veh/h)	8	67	69	0	0	0	0	230	62	101	375	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	8	67	69	0	0	0	0	230	62	101	375	0
Pedestrians		60			68			614			614	
Lane Width (m)		3.7			0.0			3.7			3.7	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		5			0			53			53	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								79				
pX, platoon unblocked												
vC, conflicting volume	1481	997	1049	1592	935	912	435			360		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1481	997	1049	1592	935	912	435			360		
tC, single (s)	7.1	6.5	6.2	7.2	6.5	6.3	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.0	3.4	2.3			2.3		
p0 queue free %	81	69	45	100	100	100	100			91		
cM capacity (veh/h)	42	213	125	12	232	153	1037			1156		

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	144	230	62	476
Volume Left	8	0	0	101
Volume Right	69	0	62	0
cSH	137	1700	1700	1156
Volume to Capacity	1.05	0.14	0.04	0.09
Queue Length 95th (m)	61.8	0.0	0.0	2.3
Control Delay (s)	156.1	0.0	0.0	2.5
Lane LOS	F			A
Approach Delay (s)	156.1	0.0		2.5
Approach LOS	F			

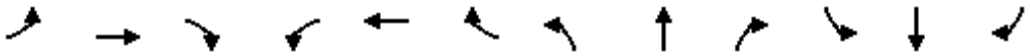
Intersection Summary				
Average Delay	26.0			
Intersection Capacity Utilization	70.4%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	38	81	62	244	394	0	0	345	18
Future Volume (vph)	0	0	0	38	81	62	244	394	0	0	345	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2			5.2			5.2	
Lane Util. Factor					1.00			1.00			1.00	
Frpb, ped/bikes					0.94			1.00			0.97	
Flpb, ped/bikes					0.96			0.89			1.00	
Frt					0.95			1.00			0.99	
Flt Protected					0.99			0.98			1.00	
Satd. Flow (prot)					1493			1495			1553	
Flt Permitted					0.99			0.70			1.00	
Satd. Flow (perm)					1493			1066			1553	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	38	81	62	244	394	0	0	345	18
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	160	0	0	638	0	0	361	0
Confl. Peds. (#/hr)				70		51	201					201
Confl. Bikes (#/hr)						6						45
Heavy Vehicles (%)	0%	0%	0%	8%	0%	8%	6%	6%	0%	0%	14%	0%
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					17.8			61.8			61.8	
Effective Green, g (s)					17.8			61.8			61.8	
Actuated g/C Ratio					0.20			0.69			0.69	
Clearance Time (s)					5.2			5.2			5.2	
Lane Grp Cap (vph)					295			731			1066	
v/s Ratio Prot											0.23	
v/s Ratio Perm					0.11			c0.60				
v/c Ratio					0.54			0.87			0.34	
Uniform Delay, d1					32.4			11.0			5.8	
Progression Factor					1.00			1.00			1.00	
Incremental Delay, d2					7.0			13.6			0.9	
Delay (s)					39.5			24.7			6.6	
Level of Service					D			C			A	
Approach Delay (s)		0.0			39.5			24.7			6.6	
Approach LOS		A			D			C			A	

Intersection Summary			
HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.4
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		

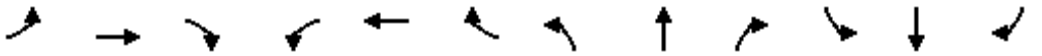
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	91	162	0	0	0	0	0	0	152	1025	0
Future Volume (Veh/h)	0	91	162	0	0	0	0	0	0	152	1025	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	91	162	0	0	0	0	0	0	152	1025	0
Pedestrians					26			113				
Lane Width (m)					0.0			0.0				
Walking Speed (m/s)					1.2			1.2				
Percent Blockage					0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								74				
pX, platoon unblocked												
vC, conflicting volume	1329	1355	626	1163	1355	26	1025			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1329	1355	626	1163	1355	26	1025			26		
tC, single (s)	7.5	6.6	7.0	7.5	6.5	6.9	4.1			4.3		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	100	31	62	100	100	100	100			90		
cM capacity (veh/h)	106	131	422	39	136	1050	685			1544		

Direction, Lane #	EB 1	SB 1	SB 2
Volume Total	253	494	683
Volume Left	0	152	0
Volume Right	162	0	0
cSH	235	1544	1700
Volume to Capacity	1.08	0.10	0.40
Queue Length 95th (m)	86.3	2.6	0.0
Control Delay (s)	125.3	3.0	0.0
Lane LOS	F	A	
Approach Delay (s)	125.3	1.3	
Approach LOS	F		

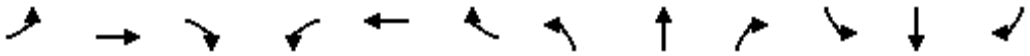
Intersection Summary				
Average Delay	23.2			
Intersection Capacity Utilization	60.8%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	121	116	0	0	0	0	0	1069	80
Future Volume (vph)	0	0	0	121	116	0	0	0	0	0	1069	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.7						5.2	5.2
Lane Util. Factor					1.00						0.95	1.00
Frpb, ped/bikes					1.00						1.00	0.79
Flpb, ped/bikes					0.97						1.00	1.00
Frt					1.00						1.00	0.85
Flt Protected					0.98						1.00	1.00
Satd. Flow (prot)					1685						3293	1165
Flt Permitted					0.98						1.00	1.00
Satd. Flow (perm)					1685						3293	1165
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	121	116	0	0	0	0	0	1069	80
RTOR Reduction (vph)	0	0	0	0	47	0	0	0	0	0	0	24
Lane Group Flow (vph)	0	0	0	0	190	0	0	0	0	0	1069	56
Confl. Peds. (#/hr)				62								85
Confl. Bikes (#/hr)						2						18
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	5%	5%
Turn Type				Perm	NA						NA	Perm
Protected Phases					8						6	
Permitted Phases				8								6
Actuated Green, G (s)					18.3						30.8	30.8
Effective Green, g (s)					18.3						30.8	30.8
Actuated g/C Ratio					0.31						0.51	0.51
Clearance Time (s)					5.7						5.2	5.2
Lane Grp Cap (vph)					513						1690	598
v/s Ratio Prot											c0.32	
v/s Ratio Perm					0.11							0.05
v/c Ratio					0.37						0.63	0.09
Uniform Delay, d1					16.3						10.5	7.5
Progression Factor					1.00						1.00	1.00
Incremental Delay, d2					2.0						1.8	0.3
Delay (s)					18.4						12.3	7.8
Level of Service					B						B	A
Approach Delay (s)		0.0			18.4			0.0			12.0	
Approach LOS		A			B			A			B	

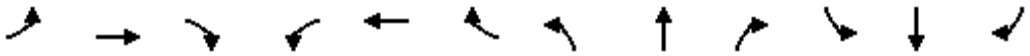
Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.9
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	120	0	0	0	0	0	467	120	0	0	0
Future Volume (vph)	147	120	0	0	0	0	0	467	120	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		5.2						5.0	5.0			
Lane Util. Factor		1.00						0.95	1.00			
Frpb, ped/bikes		1.00						1.00	0.73			
Flpb, ped/bikes		0.90						1.00	1.00			
Frt		1.00						1.00	0.85			
Flt Protected		0.97						1.00	1.00			
Satd. Flow (prot)		1499						3424	1111			
Flt Permitted		0.97						1.00	1.00			
Satd. Flow (perm)		1499						3424	1111			
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	147	120	0	0	0	0	0	467	120	0	0	0
RTOR Reduction (vph)	0	72	0	0	0	0	0	0	53	0	0	0
Lane Group Flow (vph)	0	195	0	0	0	0	0	467	67	0	0	0
Confl. Peds. (#/hr)	163								213			
Heavy Vehicles (%)	6%	6%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%
Turn Type	Perm	NA						NA	Perm			
Protected Phases		4						2				
Permitted Phases	4								2			
Actuated Green, G (s)		16.8						34.0	34.0			
Effective Green, g (s)		16.8						34.0	34.0			
Actuated g/C Ratio		0.28						0.56	0.56			
Clearance Time (s)		5.2						5.0	5.0			
Lane Grp Cap (vph)		412						1908	619			
v/s Ratio Prot								c0.14				
v/s Ratio Perm		0.13							0.06			
v/c Ratio		0.47						0.24	0.11			
Uniform Delay, d1		18.4						6.9	6.4			
Progression Factor		1.00						0.50	0.06			
Incremental Delay, d2		3.8						0.3	0.3			
Delay (s)		22.3						3.7	0.7			
Level of Service		C						A	A			
Approach Delay (s)		22.3			0.0			3.1			0.0	
Approach LOS		C			A			A			A	

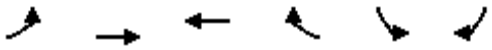
Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	169	86	119	504	0	0	0	0
Future Volume (vph)	0	0	0	0	169	86	119	504	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)					5.2		5.0	5.0				
Lane Util. Factor					1.00		1.00	0.95				
Frpb, ped/bikes					0.95		1.00	1.00				
Flpb, ped/bikes					1.00		0.64	1.00				
Frt					0.95		1.00	1.00				
Flt Protected					1.00		0.95	1.00				
Satd. Flow (prot)					1615		1100	3424				
Flt Permitted					1.00		0.95	1.00				
Satd. Flow (perm)					1615		1100	3424				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	169	86	119	504	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	30	0	53	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	225	0	66	504	0	0	0	0
Confl. Peds. (#/hr)						131	298					
Confl. Bikes (#/hr)						5						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	5%	0%	1%	0%	0%	0%	0%
Turn Type					NA		Perm	NA				
Protected Phases					8			2				
Permitted Phases							2					
Actuated Green, G (s)					16.8		34.0	34.0				
Effective Green, g (s)					16.8		34.0	34.0				
Actuated g/C Ratio					0.28		0.56	0.56				
Clearance Time (s)					5.2		5.0	5.0				
Lane Grp Cap (vph)					444		613	1908				
v/s Ratio Prot					c0.14			c0.15				
v/s Ratio Perm							0.06					
v/c Ratio					0.51		0.11	0.26				
Uniform Delay, d1					18.6		6.4	7.0				
Progression Factor					1.00		1.00	1.00				
Incremental Delay, d2					4.1		0.4	0.3				
Delay (s)					22.7		6.7	7.3				
Level of Service					C		A	A				
Approach Delay (s)		0.0			22.7			7.2			0.0	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	10.2
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	180	13	0	6
Future Volume (Veh/h)	0	0	180	13	0	6
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	0	0	180	13	0	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		100	86			
pX, platoon unblocked						
vC, conflicting volume	193				186	186
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	193				186	186
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1380				803	856

Direction, Lane #	WB 1	SB 1
Volume Total	193	6
Volume Left	0	0
Volume Right	13	6
cSH	1700	856
Volume to Capacity	0.11	0.01
Queue Length 95th (m)	0.0	0.2
Control Delay (s)	0.0	9.2
Lane LOS		A
Approach Delay (s)	0.0	9.2
Approach LOS		A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	20.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	220	10	0	0	0	7
Future Volume (Veh/h)	220	10	0	0	0	7
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	220	10	0	0	0	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			230		225	225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			230		225	225
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	99
cM capacity (veh/h)			1338		763	814

Direction, Lane #	EB 1	NB 1
Volume Total	230	7
Volume Left	0	0
Volume Right	10	7
cSH	1700	814
Volume to Capacity	0.14	0.01
Queue Length 95th (m)	0.0	0.2
Control Delay (s)	0.0	9.5
Lane LOS		A
Approach Delay (s)	0.0	9.5
Approach LOS		A

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		