BOUTIQUE HOTEL 275 KING EDWARD AVENUE OTTAWA, ONTARIO

TIA STRATEGY REPORT

January 18, 2022

D. J. Halpenny & Associates Ltd.

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Prepared for:

165177 Canada Inc. 22 rue Taschereau, Gatineau QC J87 2V4

737 TIA Analysis.doc

D. J. Halpenny & Associates Ltd.
Consulting Transportation Engineers P.O. BOX 774, MANOTICK, ON K4M 1A7 - TEL (613) 692-8662 - DAVID@DJHALPENNY.COM

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TIA STRATEGY REPORT

INTRODUCTION

The owner of a parcel of land at the corner of King Edward Avenue and Clarence Street is in the process of preparing a Site Plan Application for the construction of an eight storey building which will provide a combination of hotel with a small commercial component. The hotel would be located at 275 King Edward Avenue with the west limit of the site bordering King Edward Avenue. The Boutique Hotel development will contain 121 hotel suites with 134 m² of commercial space on the ground floor which is likely to be a sit-down restaurant. The main entrance to the building will be located at the corner of Clarence Street and King Edward Avenue. Parking will be accommodated in an underground parking garage with access onto Clarence Street.

D. J. Halpenny & Associates Ltd. was retained to prepare a Transportation Impact Assessment in support of the Site Plan Application. The following documents the steps which conform to the City of Ottawa *Transportation Impact Assessment Guidelines* (2017). Exhibit 1.1 in the Appendix presents the consultant Certification Form.

STEP 1 - SCREENING

A Screening Form has been prepared for the project and is provided as Exhibit 1.2 in the Appendix. The Screening Form was submitted to the City of Ottawa which determined that the Trip Generation, Location, and Safety Triggers were all met and a Transportation Impact Assessment (TIA) study must continue onto the next stage. The following will address the requirements of the Scoping Document.

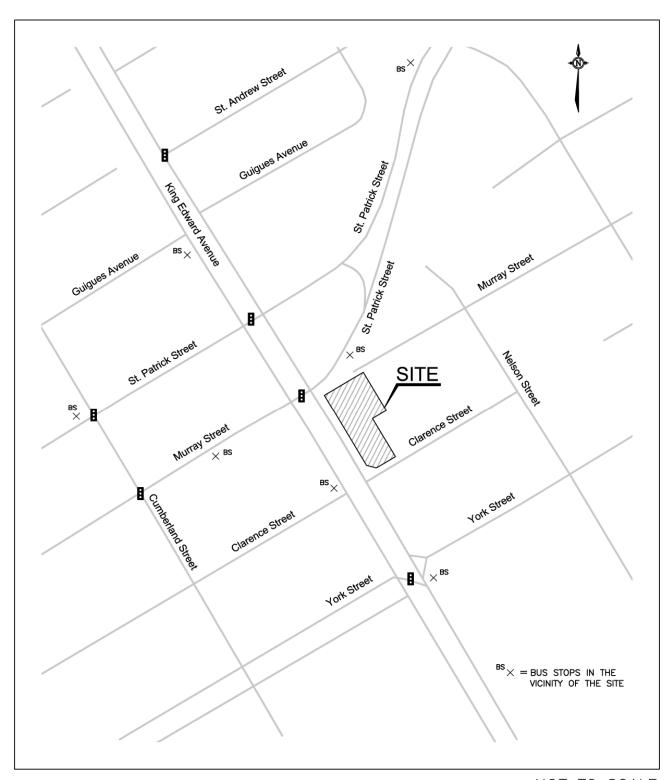
STEP 2 - SCOPING

MODULE 2.1 – Existing and Planned Conditions

<u>Element 2.1.1 – Proposed Development</u>

The Boutique Hotel will be a single eight storey building located at 275 King Edward Avenue. The property is located on the east side of King Edward Avenue with Murray Street at the north limit and Clarence Street at the south limit. Figure 2.1 shows the location of the Boutique Hotel.

FIGURE 2.1 SITE LOCATION PLAN



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The development would contain 121 all suites hotel units intended for short and long term stays, and 134 m² of retail/commercial space on the ground floor. The entrance to the hotel will be located at the building corner at the intersection of King Edward Avenue and Clarence Street. The vehicular access to the underground parking garage will be from Clarence Street. The garage access will be a 6.0 m wide full movement access and will be located approximately 21 m from the centre of the access to the curb line of the northbound King Edward Avenue lanes.

The site access will be to/from a two-level parking garage containing 76 parking spaces which exceeds City By-law requirements. The site will provide 7 bicycle parking spaces plus 27 spaces in the parking garage which also exceeds the City By-law requirements.

The hotel would be located on a 1,590 m² parcel of land. The land is primarily vacant with a small two storey apartment building located at the north end of the property. The property is currently zoned TM 12 + TM (Mature Neighborhood Overlay) "Traditional Mainstreet", which will support the proposed hotel development. The hotel/condominium will be constructed in a single phase with completion expected by the year 2024. Figure 2.2 shows a conceptual site plan of the development.

Element 2.1.2 – Existing Conditions

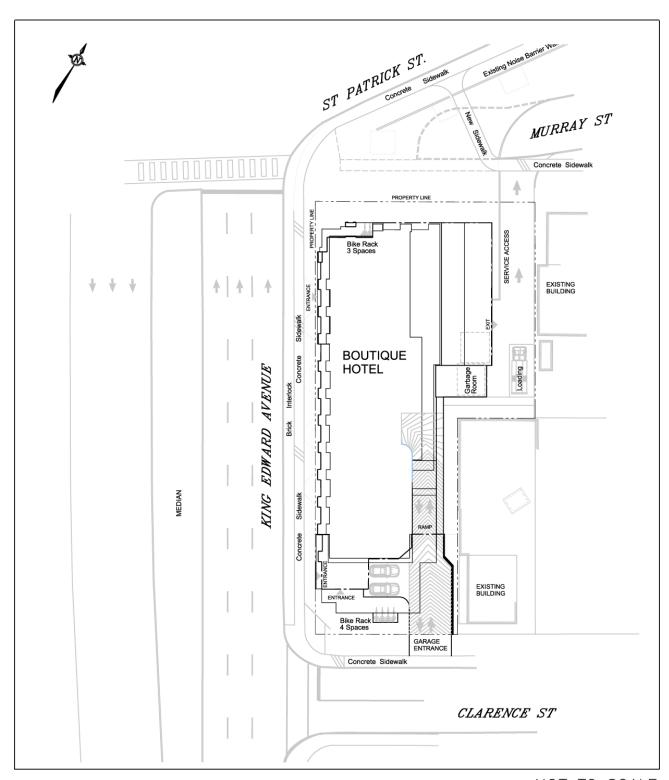
ROADS

The site will front onto King Edward Avenue which is designated as an arterial road in the City of Ottawa *Transportation Master Plan* (TMP). King Edward Avenue is a six lane urban divided road under the jurisdiction of the City of Ottawa. The southbound lanes comprise of the outside lane designated as a bus only lane from 3:30 PM to 5:30 PM Monday to Friday. The street has 1.5 m sidewalks along both sides of the road with a 1.5 m boulevard. There are no bike lanes along King Edward Avenue with no plans for their construction in the TMP. In the northbound lanes across the frontage of the site there are signs posted "No Stopping" between 3:30 PM and 5:30 PM Monday to Friday, with 3 hour parking permitted between 7:00 AM and 3:30 PM Monday to Friday. In the southbound lanes "No Stopping" is posted from 7:00 AM to 9:00 AM and 3:00 PM to 5:30 PM Monday to Friday, with 3 hour parking permitted between 9:00 AM and 3:00 PM Monday to Friday. The posted speed limit along King Edward Avenue is 40 km./h.

Clarence Street borders the south side of the site. Clarence Street is a two lane local street with a pavement width of 8.5 m. The street has 2.0 m sidewalks adjacent to the curb along both sides of the street. Parking is prohibited along the north side of the street, and there is no posted speed limit.

Eastbound St. Patrick Street is an arterial road which borders the north side of the site. The roadway contains two eastbound only lanes west of King Edward Avenue which are designated as Murray Street, with the two eastbound lanes continuing as St. Patrick Street on the east side of King Edward Avenue. Eastbound St. Patrick Street has 2.0 m sidewalks along both sides of the road and no cycling facilities. Westbound St. Patrick Street has two westbound lanes with sidewalks on both sides of the road and no cycling

FIGURE 2.2 CONCEPTUAL SITE PLAN



facilities with the exception of a bicycle pocket between the through and right turn lanes as part of the approach to the St. Patrick/King Edward intersection. St. Patrick Street is designated in the TMP as a Spine Route in the Cycling Network - Primary Urban. "No Stopping" signs are placed along both the eastbound and westbound lanes of the road which prohibits the stopping of vehicles. The speed limit is posted at 50 km./h.

Murray Street east of King Edward Avenue is a local street with an 8.5 m pavement width. The street is approximately 100 m in length between the cul-de-sac adjacent to the site and Nelson Street. The Boutique Hotel proposes to have a service entrance from the site to the cul-de-sac.

INTERSECTIONS

<u>Clarence/King Edward Intersection</u> - The intersection is a two-way stop controlled intersection with a stop sign at the westbound Clarence Street approach. The median along King Edward Avenue prohibits westbound Clarence Street through movements with a "No Enter" sign at the eastbound Clarence Street approach. Below is the lane configuration and aerial photograph of the Clarence/King Edward intersection:

Northbound King Edward Ave. Two through lanes

One through/right lane

Southbound King Edward Ave. Two through lanes

One through/right lane (Peak PM hr. bus only lane)

Eastbound Clarence St. No approach entry

Westbound Clarence St. One right turn lane (Stop sign)

INTERSECTION OF CLARENCE ST. AND KING EDWARD AVE.



St. Patrick (Murray)/King Edward Intersection - The intersection of eastbound St. Patrick Street (Murray Street) and King Edward Avenue is located approximately 85 m north of Clarence Street. The intersection is controlled by traffic signals with King Edward Avenue forming the northbound and southbound approaches, Murray Street the

eastbound (one-way) approach, and St. Patrick Street the receiving street for eastbound one-way traffic on the east side of King Edward Avenue. The intersection has the following lane configuration with an aerial photograph of the intersection provided below:

Northbound King Edward Ave. Two through lanes

One shared through/right lane

Southbound King Edward Ave. Two left turn lanes

Two through lanes

One through lane (Buses only 3:30 - 5:30 M-F)

Eastbound Murray St.

One left turn lane (60 m storage)

One shared left/through lane One shared through/right lane

INTERSECTION OF ST. PATRICK ST. (MURRAY ST.) AND KING EDWARD AVE.



<u>Westbound St. Patrick/King Edward Intersection</u> - The St. Patrick/King Edward intersection is located approximately 165 m north of Clarence Street. The intersection is controlled by traffic signals with King Edward Avenue forming the northbound and southbound approaches, and St. Patrick Street the westbound one-way approach. The intersection has the following lane configuration with an aerial photograph:

Northbound King Edward Ave.

Southbound King Edward Ave.

Westbound St. Patrick St.

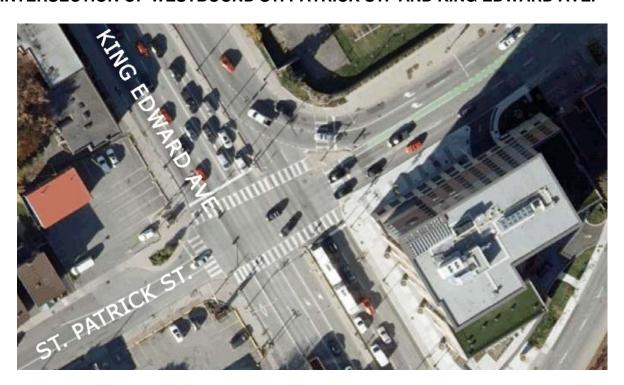
Three through lanes Four through lanes

One shared through/right turn lane One shared left/through turn lane

One through lane

Two channelized right turn lanes

INTERSECTION OF WESTBOUND ST. PATRICK ST. AND KING EDWARD AVE.

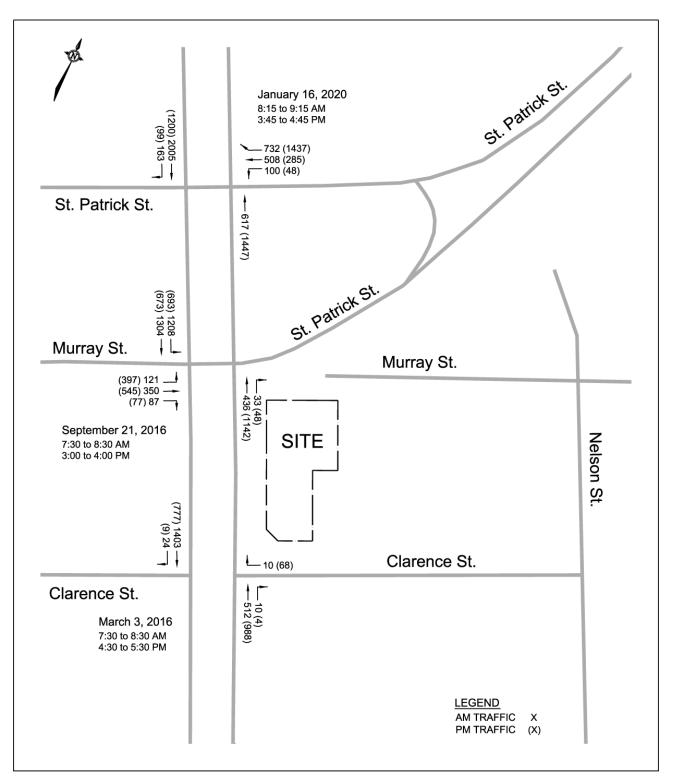


The most recent weekday peak AM and PM hour traffic counts were obtained from the City of Ottawa and are provided in the Appendix as Exhibit 2.1 for the 2016 counts at the intersection of Clarence/King Edward, Exhibit 2.2 for the 2016 counts at the intersection of St. Patrick (Murray)/King Edward, and Exhibit 2.3 for the 2020 counts at the intersection of westbound St. Patrick/King Edward. Figure 2.3 presents the weekday peak hour counts at the intersections within the study area.

TRANSIT

The site is serviced by OC Transpo Local Route 56 which is scheduled during peak periods Monday to Friday and Sundays. The route travels along King Edward Avenue to the downtown core and to the Tunney's Pasture Transit Station. The route schedule provides 15 minute service in the peak direction and 30 minute service in the nonpeak direction all day and weekends. The route map is provided as Exhibit 2.4 in the Appendix.

FIGURE 2.3
PEAK AM AND PM HOUR EXISTING TRAFFIC COUNTS



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Route 6 is a frequent route travelling along St. Patrick Street and Murray Street through the downtown core to the Greenboro Transit Station. The route operates 7 days a week with 15 minute service on weekdays. The route map is provided as Exhibit 2.4.

Bus stops are currently located at the Clarence/King Edward intersection for southbound transit Route 56 to the downtown core, and a block away from the hotel entrance (York/King Edward) for the northbound service. For transit Route 6 the westbound bus stop to the downtown core is located at the Cumberland/St. Patrick intersection, and eastbound bus stop on St. Patrick Street 55 m east of King Edward Avenue. The bus stop locations are shown in Figure 2.1.

COLLISION HISTORY

Collision reports were obtained from the City of Ottawa through Open Data Ottawa for the five year time period between the years January 1, 2015 and December 31, 2019. The collision reports were obtained for the three intersections of Clarence/King Edward, St. Patrick (Murray)/King Edward, and St. Patrick/King Edward. Reported collisions were also obtained along the road segment of King Edward Avenue between Clarence Street and St. Patrick Street. Table 2.1 summarizes the collisions by year and type.

Element 2.1.3 – Planned Conditions

The *Transportation Master Plan 2013* (TMP) has identified the two transit priority projects in the vicinity of the Boutique Hotel development. The first is identified in the TMP under Affordable Network and Network Concept as a transit signal priority along Murray Street, St. Patrick Street and Dalhousie Street between Vanier Parkway and Rideau Street. The project would improve travel time and transit reliability. The second project is identified under Network Concept and consists of transit signal priority along King Edward Avenue which will complement the existing southbound bus lane between Sussex Drive and Rideau Street. The project would improve transit capacity for the large number of STO buses.

The following are proposed or recently developed property within the immediate area of the site:

- The Holiday Inn Express and Suites hotel is located at 235 King Edward Avenue between St. Patrick Street and Murray Street. The hotel was completed in 2019.
- A 48 unit supportive housing project is proposed at 216 Murray Street.
- An application for a Zoning By-law Amendment has been made for the property at 284 King Edward Avenue. The amendment would allow changes to be made to the existing church building or identify potential development of the site.

TABLE 2.1 COLLISION SUMMARY

		COLLISI	ON TYPE				
YEAR	REAR END	ANGULAR	TURNING	SIDESWIPE	OTHER (SMV)	TOTAL	
Clarence	Street at King	g Edward Ave	nue Intersec	tion			
2015						0	
2016	2					2	
2017				1		1	
2018				1		1	
2019						0	
St. Patric	k Street (Muri	ray Street) at	King Edward	Avenue Inter	section		
2015	5	2	2	3	3	15	
2016	8	3		4	1	16	
2017	3			5	1	9	
2018	5	1	1	1	1	9	
2019	5	1	2	3	1	12	
St. Patric	k Street at Kii	ng Edward Av	enue Interse	ction			
2015	6	3	1	10		20	
2016	8	3	2	5	2	20	
2017	6	1		11		18	
2018	5	1	5	4	1	16	
2019	9	2		5		16	
King Edw	King Edward Avenue Road Segment between Clarence Street and St. Patrick Street						
2015	1			1		2	
2016				3	1	4	
2017					1	1	
2018				1		1	
2019	2					2	

MODULE 2.2 – Study Area and Time Periods

Element 2.2.1 – Study Area

The study area for the hotel development will be confined to the section of King Edward Avenue between Clarence Street and St. Patrick Street (westbound). The study area would include the Clarence/King Edward, St. Patrick (Murray)/King Edward and St. Patrick/King Edward intersections.

The study will examine the intersection geometry and roadway segments in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (2017).

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Element 2.2.2 – Time Periods

The time period for the analysis would be the weekday peak AM and PM time period of the background roadway traffic. This would be the peak period of traffic along King Edward Avenue and adjacent streets to the site.

Element 2.2.3 – Horizon Years

The TIA will address the impact of the site generated trips from the proposed Boutique Hotel. The horizon year of the study will be the completion of the development at the year 2024. The analysis will further examine the impact at the year 2029 which represents five years beyond completion.

MODULE 2.3 – Exemptions Review

The exemptions, which provide possible reductions to the scope of work of the TIA Study, were examined using Table 4: Possible Exemptions which is provided in the City's *Transportation Impact Assessment Guidelines (2017)*. Utilizing the table, the following lists the possible exemptions proposed for the TIA Study report:

MODULE ELEMENT		EXEMPTION CONSIDERATIONS					
Design Review Component							
4.1 Development Design	4.1.2 Circulation and Access	No – The intended use and function of the rear service access onto Murray Street will be examined.					
	4.1.3 New Street Networks	Yes - Only required for subdivisions.					
4.2 Parking	4.2.1 Parking Supply	No – The parking supply will be compared to that required as determined from City By-laws.					
4.2 Parking	4.2.2 Spillover Parking	Yes - Parking will meet the City of Ottawa By-laws. All hotel parking will be contained within the site.					
Network Impact Componer	Network Impact Component						
4.5 Transportation Demand Management	All Elements	No – TDM measures will be examined.					
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	No – The site will have access onto Clarence Street, a local street.					
4.8 Network Concept		Yes - The site would not generate more than 200 person-trips per peak hour in excess of the volume permitted by established zoning.					

STEP 3 - FORECASTING

MODULE 3.1 - Development-generated Travel Demand

Element 3.1.1 – Trip Generation and Mode Shares

The Boutique Hotel will have a mixed use consisting of an all suites hotel and some leasable space likely comprising of a high-turnover sit-down restaurant. presents an inventory of the type and size of development for each use.

TABLE 3.1 INVENTORY OF DEVELOPMENT USE

TYPE OF USE	NUMBER OF UNITS GROSS FLOOR		
All Suites Hotel	121 units		
Sit-Down Restaurant	134 m ² (1,442 ft ²)		

The number of expected site generated trips utilized the trip statistical data in the Institute of Transportation Engineers (ITE) document, Trip Generation Manual 10th Edition. The trip generation data was determined from the average vehicle trip rate for an All Suites Hotel (ITE 311), and a High-Turnover (Sit-Down) Restaurant) (ITE 932). The trip rates are shown in Table 3.2 with the ITE trip data graphs provided in the Appendix.

TABLE 3.2 VEHICLE TRIP GENERATION RATES

Land Use	Peak AM Hour	Peak PM Hour
All Suites Hotel - ITE 311	0.34 T/Room	0.36 T/Room
Restaurant - ITE 932	9.94 T/1000 ft ² GFA	9.77 T/1000 ft ² GFA

The auto-trips are shown in Table 3.3 and are the product of the number of rooms/units or gross floor area for each of the land uses (Table 3.1) and the trip generation rates of Table 3.2. The number of future person-trips was determined by the number of autotrips calculated from the ITE trip rates, and multiplied by 1.28 (from the TIA Guidelines) to convert auto-trips to person-trips. Table 3.3 shows the future peak hour auto-trips and person-trips.

TABLE 3.3
PEAK HOUR SITE GENERATED TRIPS

Tring	AUTO-TRIP O	GENERATION	FUTURE PERSON-TRIPS		
Trips	Peak AM Hr.	Peak PM Hr.	Peak AM Hr.	Peak PM Hr.	
All Suites Hotel	41 veh.	44 veh.	52 per.	56 per.	
Restaurant	14 veh.	<u>14 veh.</u>	18 per.	<u>18 per.</u>	
Total Trips	55 veh.	58 veh.	70 per.	74 per.	

The Trip Reduction Factors which were provided in the TIA Guidelines were applied to the land uses as discussed below:

- Deduction of Existing Development Trips A small two floor residential building is located at the northwest corner of the site. The building is expected to generate few trips and therefore no existing trip deduction was applied.
- 2) Pass-by Vehicle Trips Pass-by trips are trips that are already on the road and are passing by the site on their way to their primary destination. With the location of the restaurant on a high volume road with limited accessibility and on-street parking, the study has not assigned any pass-by trips to the restaurant use.
- 3) Synergy or Internalization The site consists of an all suites hotel with limited space for food preparation and dining. With few restaurants or coffee shops in the immediate area, the TIA analysis has assumed a 50 percent reduction of the primary trips to/from the leased use (restaurant) which would be person-trips shared with the hotel.

The expected number of person-trips following the application of the three Trip Reduction Factors is shown in Table 3.4.

TABLE 3.4
TOTAL PEAK HOUR SITE GENERATED PRIMARY PERSON-TRIPS

Tuine	FUTURE PERSON-TRIPS			
Trips	Peak AM Hr.	Peak PM Hr.		
All Suites Hotel	52 per.	56 per.		
Restaurant	18 per.	18 per.		
Internal Trip Reduction (50%)	<u>-9 per.</u>	<u>-9 per.</u>		
Total Trips	61 per.	65 per.		

The Boutique Hotel is located along the east side of King Edward Avenue in what the City of Ottawa designates as the "Ottawa Inner Area". The mode share for peak hour trips was determined from Table 8 in the TRANS Trip Generation Manual - Summary Report 2020 for High-Rise Multifamily Housing. The multifamily housing category was assumed due to the all suites hotel which caters to long term stays. Table 3.5 presents the peak AM and PM hour mode share, and the peak AM and PM hour primary and pass-by person-trips.

TABLE 3.5 MODE SHARE SUMMARY (Peak Hour Person-Trips)

FUTURE MODE SHARE TARGETS FOR HIGH-RISE HOUSING						
Travel Mode	AM % Peak Hr.	AM Peak Hr. Per. Trips	PM % Peak Hr.	PM Peak Hr. Per. Trips		
Auto Driver	26%	16	25%	16		
Auto Passenger	6%	4	8%	5		
Transit	28%	17	21%	15		
Cycling	5%	3	6%	4		
Walking	34%	21	39%	25		
Total	99%	61 Trips	99%	65 Trips		

Element 3.1.2 – Trip Distribution

The distribution of the peak hour site generated primary trips from the Boutique Hotel was determined by examining the 2011 NCR Household Origin-Destination Survey for the origin/destination of peak AM hour trips for the Ottawa Inner Area, and the peak hour traffic counts at the surrounding intersections. The survey and counts would represent trips to/from work for the long term occupants of the hotel and trips to the downtown core for visitors. The trip distribution percentage for the site trips during the weekday peak AM and PM hours are as follows:

	Peak AM & PM
To/From the north along King Edward Avenue	10%
To/From the south along King Edward Ave. and Nelson St.	30%
To/From the east along St. Patrick St., Nelson St. & King Edward A	Ave. 15%
To/From the west along Murray St. and King Edward Ave.	45%

Below shows the percentage of peak AM and PM hour trips entering/exiting the site.

BOUTIQUE HOTEL PRIMARY TRIP DISTRIBUTION



Element 3.1.3 – Trip Assignment

The distribution of site generated vehicle-trips entering and exiting was determined by applying the directional distribution shown in the ITE *Trip Generation Manual* 10th *Edition* for an All Suites Hotel (ITE 311), and a High-Turnover (Sit-Down) Restaurant) (ITE 932). Table 3.6 presents the distribution of vehicle-trips entering and exiting the hotel site.

TABLE 3.6
PEAK HOUR ASSIGNMENT OF VEHICLE-TRIPS

PEAK HOUR	WEEKDAY PEAK AM HR.			WEEKDAY PEAK PM HR.		
TRIPS TRIP TYPE	TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
All Suites Hotel	14	7 (53%)	7 (47%)	14	7 (48%)	7 (52%)
Restaurant	2	1 (55%)	1 (45%)	2	1 (62%)	1 (36%)
Total Vehicle-Trips	16	8	8	16	8	8

The trip distribution, as discussed in Element 3.1.2, was applied to the peak AM and PM peak hour vehicle-trips shown in Table 3.6. Figure 3.1 presents the peak AM and PM hour trips to/from the site.

MODULE 3.2 - Background Network Travel Demands

Element 3.2.1 – Transportation Network Plans

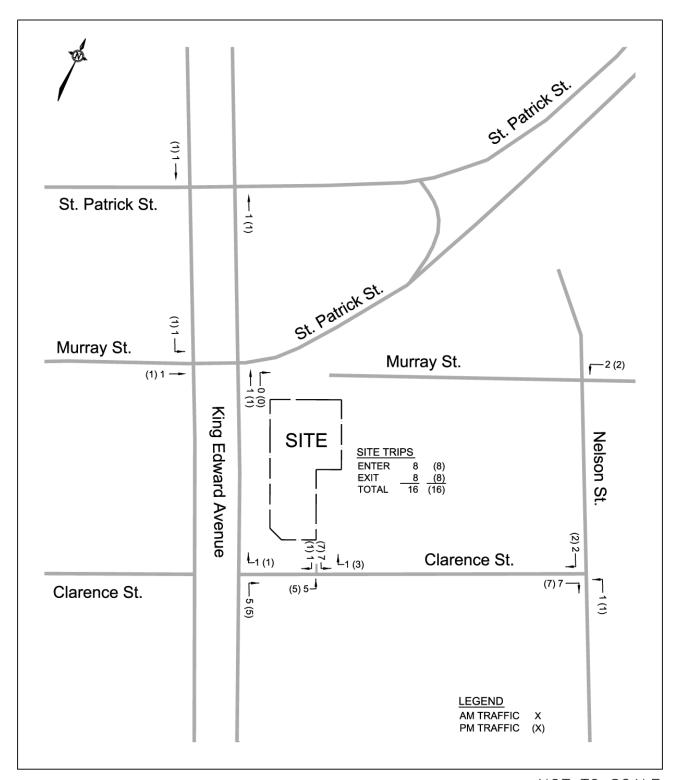
The City of Ottawa *Transportation Master Plan (TMP) 2013* was reviewed to identify transit and roadway projects in the vicinity of the development. Transit signal priority projects were identified along Murray Street, St. Patrick Street and Dalhousie Street between Vanier Parkway and Rideau Street under the Affordable Network and Network Concept which would reduce travel time and improve OC Transpo reliability. Under the Network Concept, transit signal priority is proposed along King Edward Avenue to complement the existing southbound bus lane between Sussex Drive and Rideau Street. There are no roadway modification projects proposed in the vicinity of the site.

Element 3.2.2 – Background Growth

The growth in background traffic was determined utilizing the City of Ottawa *Transportation Master Plan (TMP) 2013* population growth and employment growth statistics. The data in Exhibit 2.10 of the TMP presented the 2011 actual and 2031 projected growth for the Ottawa Inner Area. The statistical data determined the population to increase at an annual average compounded growth of 0.91 percent and employment growth at 0.84 percent.

The study has therefore assumed that the background traffic would experience an annual average compounded increase of 1.0 percent. The 1.0 percent annual increase would translate to the following growth factors which were applied to all intersection approaches:

FIGURE 3.1
PEAK AM AND PM HOUR SITE GENERATED TRIPS



Growth Factor at the Clarence/King Edward and Murray/King Edward Intersections

```
2016 \rightarrow 2024 = 1.083 Completion 2016 \rightarrow 2029 = 1.138 Completion + 5 Years
```

Growth Factor at the St. Patrick/King Edward Intersection

```
2020 \rightarrow 2024 = 1.041 Completion
2020 \rightarrow 2029 = 1.094 Completion + 5 Years
```

<u>Element 3.2.3 – Other Developments</u>

Other development in the area which would contribute to the increase in background traffic is the Holiday Inn Express & Suites hotel at 235 King Edward Avenue located at the corner of King Edward Avenue and St. Patrick Street. The hotel was completed in 2019 and contains 167 rooms. The expected trips to/from the site were determined using the trip generation procedure from this study, and applied to the background traffic at the Murray/King Edward and Clarence/King Edward intersections. The Holiday Inn trips were not applied to the background traffic at the St. Patrick/King Edward intersection since the background traffic was based on the 2020 traffic counts which would already include the Holiday Inn trips.

Figure 3.2 presents the 2024 peak AM and PM peak hour background vehicle traffic (does not include trips from the proposed Boutique Hotel). Figure 3.3 shows the expected 2029 peak hour background traffic which represents five years beyond completion of the development.

MODULE 3.3 - Demand Rationalization

The Boutique Hotel is located in the Ottawa Inner Area in close proximity to employment, entertainment, and other amenities. The hotel would be a low trip generator adjacent to a major roadway. The expected trip demand would have a minor impact on the surrounding roadway network. The trip demand would not result in an issue with capacity of the intersections within the study area.

The total vehicular traffic is the sum of the peak hour site generated primary as shown in Figure 3.1, and the peak hour background traffic (Figure 3.2 for the year 2024 and Figure 3.3 for the year 2029). Figure 3.4 presents the total unbalanced 2024 peak hour vehicular traffic and Figure 3.5 the total 2029 peak hour vehicular traffic.

FIGURE 3.2 2024 PEAK AM AND PM HOUR BACKGROUND TRAFFIC

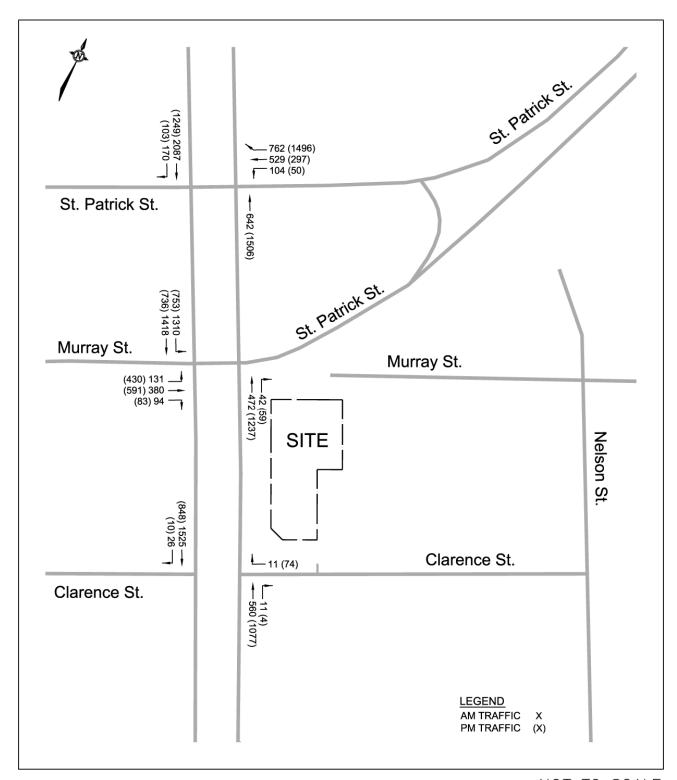


FIGURE 3.3 2029 PEAK AM AND PM HOUR BACKGROUND TRAFFIC

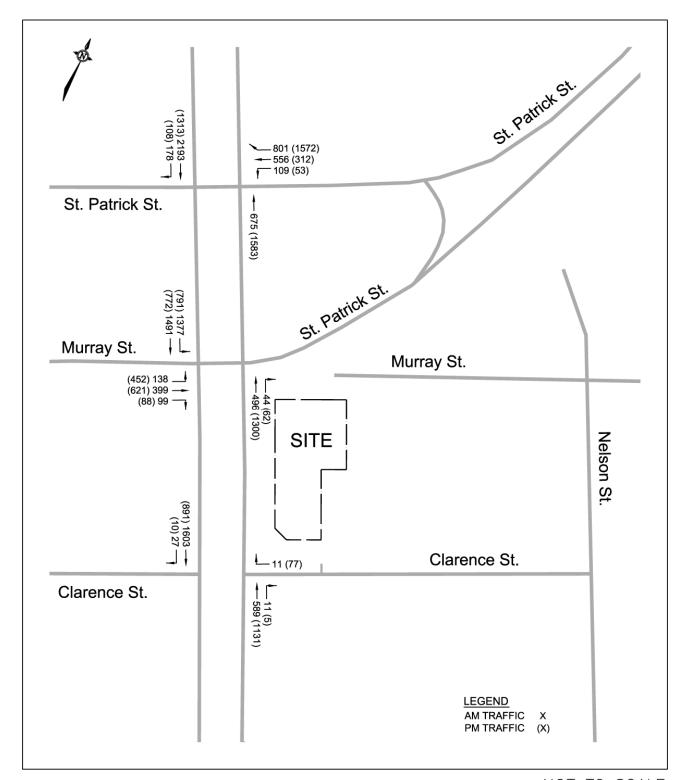


FIGURE 3.4 2024 PEAK AM AND PM HOUR TOTAL TRAFFIC

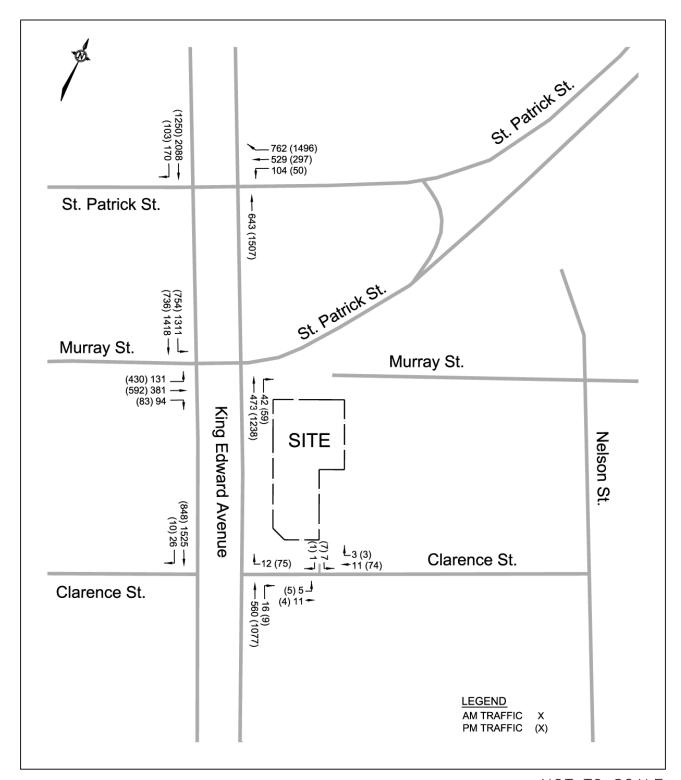
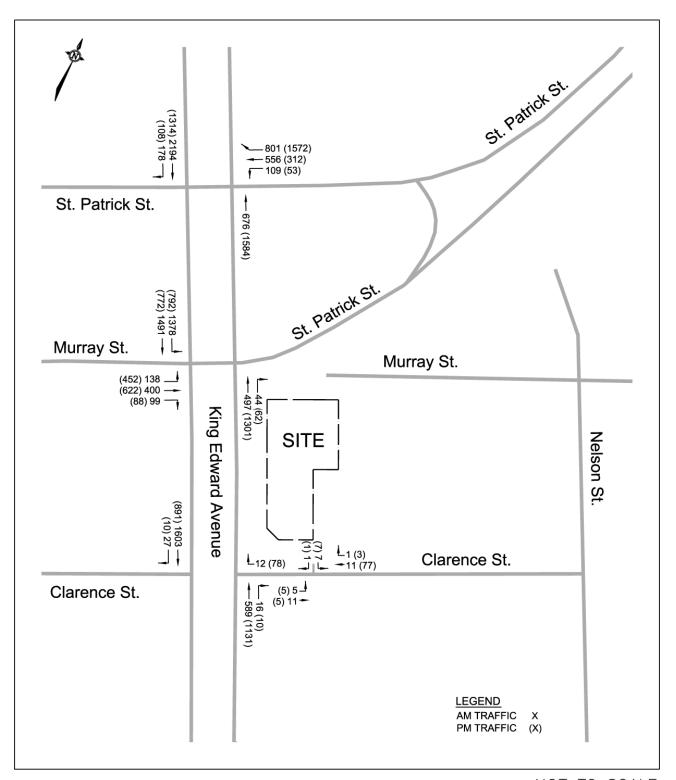


FIGURE 3.5 2029 PEAK AM AND PM HOUR TOTAL TRAFFIC



STEP 4 - ANALYSIS

MODULE 4.1 – Development Design

Element 4.1.1 – Design for Sustainable Modes

The Boutique Hotel will be providing 76 parking spaces within the two level parking garage and an additional 2 spaces on the ground level next to the Clarence Street hotel entrance for a total of 78 parking spaces.

The site will provide bicycle storage racks for 7 bikes, 4 bike spaces at the Clarence Street entrance and 3 storage spaces close to the entrance at the north end of the building along St. Patrick Street. There will be storage for 27 bicycles on the first floor of the parking garage. The number of spaces for bicycle storage meets the City of Ottawa By-law.

All of the urban streets within the study area have pedestrian sidewalks along both sides of the road. St. Patrick Street and Murray Street west of King Edward Avenue are designated in the TMP as a Spine Route in the Cycling Network - Primary Urban.

Transit service is provided along King Edward Avenue, Murray Street and St. Patrick Street by Routes 6 and 56. Route 6 provides peak AM and PM hour service every 15 minutes, and Route 56 peak AM hour service every 25 minutes and peak PM hour every 20 minutes. The route maps are provided in Exhibit 2.4 in the Appendix, with the bus stop locations shown in Figure 1.1.

The study has utilized the TDM - Supportive Development Design and Infrastructure Checklist for a Non-Residential Development which is provided below. The checklist examines the opportunity to implement facilities which are supportive of sustainable modes.

TDM-Supportive Development Design and Infrastructure Checklist:

Non-Residential Developments (office, institutional, retail or industrial)

Legend The Official Plan or Zoning By-law provides related guidance that must be followed The measure is generally feasible and effective, and in most cases would benefit the development and its users The measure could maximize support for users of sustainable modes, and optimize development performance

	TDM-s	supportive design & infrastructure measures: Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	1.	WALKING & CYCLING: ROUTES	
	1.1	Building location & access points	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	
	1.2	Facilities for walking & cycling	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations (see Official Plan policy 4.3.3)	Bus stops are located along the street either past the site or within a block along adjacent streets. The Rideau Centre LRT station is located approximately 1000 m from the site
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 building is located close to the sidewalk providing safe access to the entrance

	TDM-s	supportive design & infrastructure measures: Non-residential developments	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks (see Official Plan policy 4.3.10)	
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps (see Official Plan policy 4.3.10)	
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and onroad cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians (see Official Plan policy 4.3.11)	
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	\boxtimes
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	
	1.3	Amenities for walking & cycling	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐ The building is close to the road
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	

TDM-supportive design & infrastructure measures: Non-residential developments			Check if completed & add descriptions, explanations or plan/drawing references
	2.	WALKING & CYCLING: END-OF-TRIP FACILI	TIES
	2.1	Bicycle parking	
REQUIRED		Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible (see Official Plan policy 4.3.6)	Bicycle racks are located close to the building entrance
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)	The number of bicycle parking spaces will meet the required spaces under the zoning by-laws
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored (see Zoning By-law Section 111)	
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	
	2.2	Secure bicycle parking	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers (see Zoning By-law Section 111)	
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	
	2.3	Shower & change facilities	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	
	2.4	Bicycle repair station	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	

	TDM-supportive design & infrastructure measures: Non-residential developments		Check if completed & add descriptions, explanations or plan/drawing references	
	3.	TRANSIT		
	3.1	Customer amenities		
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐ There are 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		
	4.	RIDESHARING		
	4.1	Pick-up & drop-off facilities		
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones		
	4.2	Carpool parking		
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools		
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement		
	5.	CARSHARING & BIKESHARING		
	5.1	Carshare parking spaces		
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces (see Zoning By-law Section 94)		
	5.2	Bikeshare station location		
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection		

	TDM-supportive design & infrastructure measures: Non-residential developments		Check if completed & add descriptions, explanations or plan/drawing references		
	6.	PARKING			
	6.1	Number of parking spaces			
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for			
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking			
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly (see Zoning By-law Section 104)	Parking may be shared between the hotel and the restaurant		
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking (see Zoning By-law Section 111)			
	6.2	Separate long-term & short-term parking areas			
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)			
	7.	OTHER			
	7.1	On-site amenities to minimize off-site trips			
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☐ The 134 m² leasable space may consist of a sit-down restaurant open to patrons of the hotel and the public		

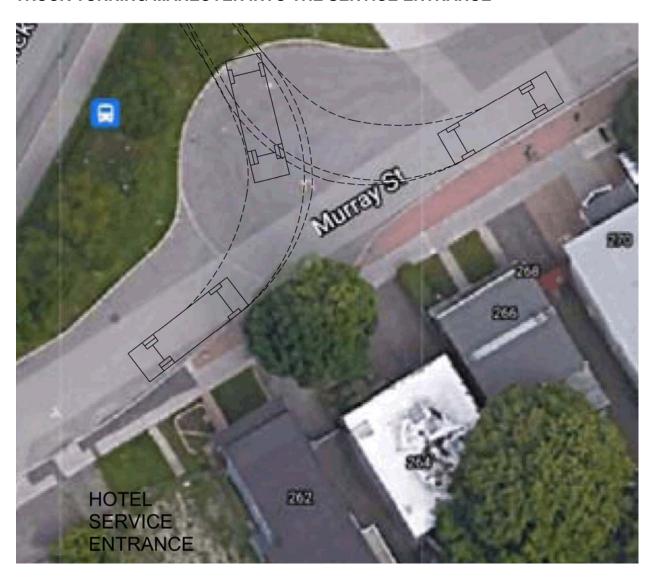
Element 4.1.2 – Circulation and Access

The site will have one access point to the underground parking garage. The access will be located onto Clarence Street approximately 21 m east of King Edward Avenue (centre of access to the edge of the outside curb of the northbound lane of King Edward Avenue). The entrance to the garage would be 6.0 m in width at the curb line of the street.

The ramp to the underground parking garage would be 4.3 m wide and would be restricted to one-way traffic entering and exiting the garage. The garage entrance would be secured by a garage door which would be controlled by an access card to enter, and a floor loop which would actuate and open the garage door for exiting vehicles. A flashing "Do Not Enter" sign would be placed at the garage entrance ramp and exit ramp which would be actuated when a vehicle uses the access card to enter warning vehicles inside the garage to not exit. Upon exiting the garage, a vehicle would travel over the actuation loop in the floor which would open the garage door and trigger the "Do Not Enter" sign to warn vehicles not to enter the garage.

The service entrance is from the 18 m diameter cul-de-sac at the west end of Murray Street. Service and delivery trucks would enter from Murray Street, and exit by backing up and turning around at the cul-de-sac, or they may back in if preferable. The garbage containers are kept in an enclosure next to the building. The containers are moved out of the enclosures and the garbage trucks drive in to empty, then back out to the cul-desac where they would turn around in a three point turn. On-street parking is prohibited within the cul-de-sac and driveway entrance to the Boutique Hotel service entrance. A truck turning template is provided below showing the maneuver for a service truck to back into the hotel service entrance.

TRUCK TURNING MANEUVER INTO THE SERVICE ENTRANCE



<u>Element 4.1.3 – New Street Networks</u>

Exempt as determined in the Scoping Document.

MODULE 4.2 – Parking

Element 4.2.1 – Parking Supply

The Boutique Hotel development will provide 76 vehicle parking spaces in a two level parking garage with 2 surface parking spaces by the Clarence Street entrance for a total of 78 parking spaces. The City of Ottawa parking By-law requires a minimum of 35 vehicle parking spaces consisting of 27 spaces for the hotel and 8 spaces for the restaurant.

The development will provide 27 bicycle storage spaces in the underground parking garage, and an additional 7 spaces in surface bike storage racks for a total of 34 available bike spaces. The City of Ottawa By-law requires a minimum of 5 bicycle parking spaces.

Element 4.2.2 – Spillover Parking

Exempt as determined in the Scoping Document.

MODULE 4.3 – Boundary Street Design

The City of Ottawa Complete Streets concept allows for the safe movement of everyone whether they choose to walk, bike, drive, or take public transit. The boundary roads to the hotel development would consist of King Edward Avenue which borders the west side of the site. King Edward Avenue is designated as an arterial road with a posted speed limit of 40 km./h. past the site. The roadway has an urban divided cross section.

The multi-modal level of service for the King Edward Avenue street segment between Clarence Street and St. Patrick Street was determined utilizing the City of Ottawa publication, *Multi-Modal Level of Service (MMLOS) Guidelines*. The following examined the MMLOS for the various modes of travel along the King Edward Avenue street segment.

PEDESTRIAN LEVEL OF SERVICE (PLOS)

Sidewalks exist on both the east and west sides of King Edward Avenue. Sidewalks on King Edward Avenue along the road segment between Clarence Street and St. Patrick Street consists of a 1.5 m sidewalk and 1.5 m boulevard. The hotel site between Clarence Street and Murray Street will provide a 1.5 m boulevard, 1.5 m sidewalk, and a paving stone landscaped area between the sidewalk and building face.

The pedestrian Level of Service (PLOS) for the King Edward Avenue road segment as determined in the City of Ottawa *Multi-Modal Level of Service (MMLOS) Worksheet* was a PLOS "C". The worksheet is provided as Exhibit 4.1 in the Appendix.

BICYCLE LEVEL OF SERVICE (BLOS)

King Edward Avenue is designated as an arterial road in the City of Ottawa *Transportation Master Plan* (TMP). The TMP does not identify King Edward Avenue as a cycling Spine Route. There are no designated cycling lanes along King Edward Avenue. The southbound lanes designate a transit priority lane between 3:30 PM and 5:30 PM Monday to Friday which is a shared bus/bike lane. The MMLOS Worksheet shown in Exhibit 4.1 determined the road segment to be a BLOS "E".

TRANSIT LEVEL OF SERVICE (TLOS)

OC Transpo provides service along King Edward Avenue past the site with bus stops for Route 56 located across from the site for southbound service, and approximately 100 m from the site at the York/King Edward intersection for northbound service. Transit Route 6 along Murray Street for eastbound service and along St. Patrick Street for westbound service have bus stops within a couple of blocks of the site. The location of the bus stops are shown in Figure 2.1 with the transit route schedule provided as Exhibit 2.4.

The street segment was determined to operate at a TLOS "D" which was mainly attributed to the travel time delay and mixed traffic along King Edward Avenue. The bus priority lane along the southbound lanes was not considered in the analysis since it was designated only during peak PM hours Monday to Friday. The MMLOS Worksheet is provided as Exhibit 4.1.

TRUCK LEVEL OF SERVICE (TkLOS)

The street segment past the site was determined to have a TkLOS "A" for trucks as shown in the Appendix as Exhibit 4.1.

Traffic collisions along the King Edward Avenue street segment between Clarence Street and St. Patrick Street are shown in Table 2.1 in Element 2.1.2. Over the five year period between January 1, 2015 and December 31, 2019, 10 collisions were recorded along the King Edward Avenue road segment. Of the 10 collisions, 5 were labeled sideswipe with 3 of the sideswipe collisions occurring in 2016. The pattern of collisions did not identify any measures which could be taken to reduce the number of collisions.

The King Edward Avenue road segment was analyzed to determine the level of service which was compared to the MMLOS targets for pedestrians, bicycles, and transit. The calculated Level of Service (LOS) was determined using the Multi-Modal Level of Service Worksheet provided as Exhibit 4.1 in the Appendix. The LOS targets were

obtained from Exhibit 22 of the Multi-Modal Level of Service (MMLOS) Guidelines for a Traditional Mainstreet as designated in the Official Plan - Urban Policy Plan. Table 4.1 summarizes the MMLOS results for the road segments and targets.

TABLE 4.1 MULTI-MODAL (MMLOS) SEGMENT SUMMARY TABLE - King Edward Ave.

STREET SEGMENT	Level of Service (LOS) – 2029				
STREET SEGMENT	Pedestrian	Bicycle	Transit	Auto	Truck
Calculated	С	E	D	-	А
Target	В	D	D	-	D

The pedestrian LOS (PLOS) did not meet the target due to the volume of traffic along King Edward Avenue. If possible, decreasing the traffic would allow the road segment to meet the PLOS target.

The lower level of the bicycle LOS (BLOS) was due to the number of roadway lanes, volume of traffic and speed of vehicles. The level of service would be improved by providing a dedicated cycling lane or physically separating the cycling lane from the travel lanes

The transit level of service (TLOS) meets the target value.

The truck level of service (TkLOS) meets the target value.

MODULE 4.4 – Access Intersection Design

Element 4.4.1 – Location and Design of Access

The main access to the site would be a full movement access located on the north side of Clarence Street approximately 21 m from the centre of the access to the curb line of the northbound King Edward Avenue lanes. The intersection of Clarence Street and King Edward Avenue is a right-in/right/out stop-controlled intersection.

The access would be 6.0 m in width and would provide access to an underground parking garage. There are two surface parking spaces at the site access which are short term spaces for guest check-in. There is an existing driveway directly across the street on the south side of Clarence Street which provides access to apartment buildings on Clarence Street.

There is a service access at the north side of the building which would be restricted to garbage trucks and service vehicles. The access would be located onto the west side of the cul-de-sac on Murray Street which is designated as a local street.

Element 4.4.2 – Intersection Control

The site access will be a private driveway onto Clarence Street. The access would be a full movement access which would be controlled by a stop sign at the southbound exit approach.

The intersection of Clarence Street and King Edward Avenue is a right-in/right-out "T" The intersection would be a two-way stop-controlled intersection with Clarence Avenue forming the westbound stop approach.

Both the Murray/King Edward and St. Patrick/King Edward intersections are controlled by traffic signals.

Isolated transit priority measures are already in place along the King Edward Avenue southbound lanes which designated the outside lane to shared transit/bicvcles between 3:30 PM and 5:30 PM Monday to Friday. The TMP has identified under Network Concept transit signal priority along King Edward Avenue between Sussex Drive and Rideau Street which will complement the existing southbound transit priority lanes.

Element 4.4.3 – Intersection Design

The analysis of the Clarence/King Edward, Murray/King Edward and St. Patrick/King Edward intersections were completed for all modes using the Multi-Modal Level of Service (MMLOS) Guidelines and the Highway Capacity Manual (HCM) 2010. Each mode will be addressed in the following sections:

VEHICLE LEVEL OF SERVICE (LOS) – Intersection Capacity Analysis

The analysis of the intersections will use the *Highway Capacity Software*, Version 7.9.5, which uses the capacity analysis procedure as documented in the Highway Capacity Manual (HCM) 2010 and HCM 6th Edition.

For unsignalized intersections, the level of service of each lane movement and approach is determined as a function of the average control delay of vehicles at the approach. The following relates the level of service of each lane movement with the expected control delay at the approach.

LEVEL OF SERVICE	AVERAGE CONTRO	OL DELAY
Level of Service A	0-10 sec./vehicle	Little or No Delay
Level of Service B	>10-15 sec./vehicle	Short Traffic Delays
Level of Service C	>15-25 sec./vehicle	Average Traffic Delays
Level of Service D	>25-35 sec./vehicle	Long Traffic Delays
Level of Service E	>35-50 sec./vehicle	Very Long Traffic Delays
Level of Service F	>50 sec./vehicle	Extreme Delays – Demand Exceeds Capacity

The expected length of queue at the critical lane movements for an unsignalized intersection was determined by the calculation of the 95th percentile queue at the lane TIA Strategy Report

approach as shown on the analysis work sheets provided in the Appendix. The 95th percentile queue length is the calculated 95th greatest queue length out of 100 occurrences at a movement during a 15-minute peak period. The 95th percentile queue length is a function of the capacity of a movement and the total expected traffic, with the calculated value determining the magnitude of the gueue by representing the gueue length as fractions of vehicles.

For a signalized intersection, the operation or level of service of an intersection is determined from the volume to capacity ratio (v/c) for each lane movement as documented by the City of Ottawa in the Transportation Impact Assessment Guidelines (2017). The following relates the level of service with the volume to capacity ratio at each lane movement.

LEVEL OF SERVICE	VOLUME TO CAPACITY RATIO
Level of Service A	0 to 0.60
Level of Service B	0.61 to 0.70
Level of Service C	0.71 to 0.80
Level of Service D	0.81 to 0.90
Level of Service E	0.91 to 1.00
Level of Service F	> 1.00

The results of the analysis are discussed in detail in the following sections:

Clarence Street and King Edward Avenue Intersection

The intersection of Clarence Street and King Edward Avenue is a right-in/right/out "T" intersection controlled by a centre median along King Edward Avenue. The intersection is a two-way stop-controlled intersection with a stop sign at the westbound Clarence Street approach.

The operational analysis determined that using the 2016 traffic counts, the intersection would function at a LOS "B" during the peak AM hour and a LOS "C" during the peak PM hour. The operation of the intersection is summarized in Table 4.2 with the 2016 analysis sheets provided as Exhibit 4.2 and 4.3.

TABLE 4.2 CLARENCE/KING EDWARD INTERSECTION – LOS & Delay (sec/veh)

APPROACH	Existing Backgro	WEEKDAY PEAK AM HOUR Existing - 2016 Background - 2024 2029 Total - 2024 (2029)		AY PEAK PM HOUR - 2016 ound - 2024 <i>2029</i> (2024 (2029)
	LOS	Approach Delay	LOS	Approach Delay
WB Right	B B B B (B)	10.1 10.3 <i>10.4</i> 10.4 (10.5)	C C C C (C)	15.4 16.6 <i>17.4</i> 16.7 (17.5)

The intersection would continue to operate at a LOS "B" during the peak AM hour and LOS "C" during the peak PM hour for the 2024 background and total traffic when the development is expected to be completed, and during the 2029 background and total analysis periods. Table 4.2 summarizes the operation of the intersection with the analysis sheets provided as Exhibit 4.4 to Exhibit 4.11.

The 95th percentile queue at the westbound Clarence Street approach would be 0.9 vehicles (7 m) during the peak PM hour. The queue would not interfere with the operation of the site access to the parking garage.

The intersection would operate at an acceptable level of service following the development of the site. There would be no requirement for any intersection modification due to the hotel development.

Murray Street and King Edward Avenue Intersection

The intersection of Murray Street and King Edward Avenue is controlled by traffic signals with King Edward Avenue forming the northbound and southbound approaches, and Murray Street the eastbound approach.

The operational analysis using the 2016 traffic counts determined that the intersection functioned at a LOS "A" during the peak AM hour and a LOS "B" during the peak PM hour. Table 4.3 summarizes the operation of the intersection with the analysis sheets provided as Exhibit 4.12 for the peak AM hour and Exhibit 4.13 for the peak PM hour.

TABLE 4.3
MURRAY/KING EDWARD INTERSECTION – LOS & v/c

APPROACH	Existing Backgro	AY PEAK AM HOUR - 2016 ound - 2024 <i>2029</i> 2024 (2029)	WEEKDAY PEAK PM HOUR Existing - 2016 Background - 2024 2029 Total - 2024 (2029)		
	LOS	v/c	LOS	v/c	
EB Left	A A A A (A)	0.496 0.502 <i>0.508</i> 0.501 (0.507)	D D D D (D)	0.878 0.891 <i>0.901</i> 0.891 (0.901)	
EB Through	D D D D (D)	0.813 0.827 <i>0.834</i> 0.827 (0.835)	B B B B (B)	0.684 0.695 <i>0.703</i> 0.696 (0.704)	
EB Right	D D D D (D)	0.835 0.845 <i>0.850</i> 0.845 (0.851)	B B B B (B)	0.688 0.697 <i>0.705</i> 0.698 (0.706)	
NB Through	A A A A (A)	0.425 0.517 <i>0.543</i> 0.518 (0.544)	D D <i>E</i> D (E)	0.831 0.906 <i>0.952</i> 0.907 (0.953)	
NB Right	A A A A (A)	0.434 0.528 <i>0.554</i> 0.529 (0.555)	D D <i>E</i> D (E)	0.831 0.906 <i>0.952</i> 0.907 (0.953)	
SB Left	D E E E (E)	0.872 0.921 <i>0.984</i> 0.922 (0.986)	E E F E (F)	0.838 0.980 <i>1.082</i> 0.982 (1.084)	
SB Through	A A A A (A)	0.434 0.480 <i>0.510</i> 0.480 (0.511)	A A A A (A)	0.408 0.462 <i>0.496</i> 0.462 (0.496)	
Total	A B B B (B)	0.565 0.621 <i>0.656</i> 0.621 (0.656)	B C <i>C</i> C (C)	0.679 0.742 <i>0.782</i> 0.742 (0.783)	

At the year 2024 when the hotel development is expected to be completed and at 2029 which is five years beyond completion, the intersection would function at a LOS "B" during the peak AM hour and LOS "C" during the peak PM hour for both the background traffic (without site trips) and total traffic which includes the site generated trips. The analysis of the intersection is shown in Table 4.3 and Exhibits 4.14 to 4.21.

All analysis scenarios used the existing lane configuration and traffic signal timing plan with no modifications to signal timing. The intersection would operate at an acceptable level of service following the development of the site. There would be no requirement for any intersection modification due to the development of the site.

St. Patrick Street and King Edward Avenue Intersection

The intersection of St. Patrick Street and King Edward Avenue is controlled by traffic signals with King Edward Avenue forming the northbound and southbound approaches and St. Patrick Street the westbound approach.

The operational analysis was conducted for the existing 2020 traffic counts, and the 2024 and 2029 background and total traffic. The analysis determined that for all scenarios, the intersection functioned at a LOS "A" as shown in Table 4.4. The analysis sheets are provided as Exhibit 4.22 to Exhibit 4.31.

TABLE 4.4 ST. PATRICK/KING EDWARD INTERSECTION – LOS & v/c

APPROACH	Existing Backgro	AY PEAK AM HOUR - 2020 ound - 2024 <i>2029</i> 2024 (2029)	WEEKDAY PEAK PM HOUR Existing - 2020 Background - 2024 2029 Total - 2024 (2029)		
	LOS	v/c	LOS	v/c	
WB Left	D D D D (D)	0.881 0.886 <i>0.892</i> 0.886 (0.892)	C D D D (D)	0.807 0.813 <i>0.820</i> 0.813 (0.820)	
WB Through	C C D C (D)	0.800 0.805 <i>0.811</i> 0.805 (0.811)	C C C C (C)	0.727 0.733 <i>0.740</i> 0.733 (0.740)	
NB Through	A A A A (A)	0.484 0.516 <i>0.560</i> 0.517 (0.561)	B B <i>C</i> B (C)	0.641 0.673 <i>0.716</i> 0.673 (0.716)	
SB Through	A A A A (A)	0.444 0.466 <i>0.494</i> 0.466 (0.494)	A A A A (A)	0.252 0.263 <i>0.277</i> 0.263 (0.277)	
SB Right	A A A A (A) 0.426 0.452 0.488 0.453 (0.488		A A A A (A)	0.215 0.228 <i>0.244</i> 0.228 (0.244)	
Total	A A A A (A)	0.329 0.514 <i>0.546</i> 0.515 (0.546)	A A A A (A)	0.384 0.401 <i>0.425</i> 0.402 (0.425)	

The existing, background and total 2024 and 2029 analysis scenarios used the existing lane configuration and traffic signal timing plan with no modifications to signal timing. The intersection would operate at an acceptable level of service following the

development of the site. There would be no requirement for any intersection modification due to the hotel development.

The MMLOS level of service was determined for all modes utilizing the City of Ottawa publication, Multi-Modal Level of Service (MMLOS) Guidelines and the Multi-Modal Level of Service (MMLOS) Worksheet. The multi-modal level of service for intersections was examined for the signalized Murray/King Edward and St. Patrick/King Edward intersections utilizing the 2029 traffic and roadway geometry.

PEDESTRIAN LEVEL OF SERVICE (PLOS) - Intersection Capacity Analysis

Both the Murray/King Edward and St. Patrick/King Edward intersections have pedestrian activated traffic signals. The Murray/King Edward intersection has a pedestrian cross walk at the south, east and west approaches. The St. Patrick/King Edward intersection has pedestrian cross walks at all intersection approaches including the westbound channelized right turn approach.

The MMLOS analysis worksheet provided as Exhibit 4.32 determined both intersections to have a PLOS "F". The low level of service is mainly attributed to the number of lanes crossed by pedestrians.

BICYCLE LEVEL OF SERVICE (BLOS) - Intersection Capacity Analysis

There are no bike lanes along King Edward Avenue, Murray Street and St. Patrick Street. There is a shared bus priority lane along southbound King Edward Avenue between 3:30 PM and 5:30 PM Monday to Friday. Murray Street and St. Patrick Street are both designated as Spine Routes in the City of Ottawa TMP.

The MMLOS worksheet analysis provided in Exhibit 4.32 determined the Murray/King Edward intersection to function at a BLOS "E" and the St. Patrick/King Edward intersection at a BLOS "F". The lower level of service is mainly attributed to the lack of dedicated cycling facilities and the number of lanes to be crossed in making a left turn movement.

TRANSIT LEVEL OF SERVICE (TLOS) - Intersection Capacity Analysis

OC Transpo provides transit service along King Edward Avenue with Route 56, and along Murray Street and St. Patrick Street with Route 6. Both intersections determined a TLOS "D" which meets target as shown in Exhibit 4.32. King Edward Avenue in the vicinity of the development does have a transit priority lane along the southbound lanes during the weekday PM time period.

TRUCK LEVEL OF SERVICE (TkLOS) - Intersection Capacity Analysis

The analysis determined the Murray/King Edward intersection to have a TkLOS "D" and the St. Patrick/King Edward intersection to have a TkLOS "B" which meets the MMLOS target. The analysis sheet is provided as Exhibit 4.32.

INTERSECTION MMLOS SUMMARY

The Murray/King Edward and St. Patrick intersections were analyzed to determine the level of service which was compared to the MMLOS targets for pedestrians, bicycles, trucks, transit and autos. The calculated Level of Service (LOS) was determined using the *Multi-Modal Level of Service Worksheet* provided as Exhibit 4.32 in the Appendix, and the *Highway Capacity Software, Version 7.9.5* for the vehicle LOS. The LOS targets were obtained from Exhibit 22 of the *Multi-Modal Level of Service (MMLOS) Guidelines* for a Traditional Mainstreet as designated in the Official Plan - Urban Policy Plan. Table 4.5 summarizes the MMLOS results for the intersections and targets.

TABLE 4.5
MULTI-MODAL (MMLOS) INTERSECTION SUMMARY TABLE

INTERSECTION	Level of Service (LOS) – 2029					
INTERSECTION	Pedestrian	Bicycle	Transit	Auto	Truck	
Murray/King Edward Calculated Target	F B	E D	D D	C D	D D	
St. Patrick/King Edward Calculated Target	F B	F D	D D	A D	B D	

The pedestrian level of service (PLOS) did not meet the target mainly due to the number of lanes crossed by pedestrians at the intersections.

The lower bicycle level of service (BLOS) was due to the mixed use traffic along the road and the number of lanes crossed in making a left turn movement at intersections. The level of service would be improved by providing a dedicated cycling lane or physically separating the cycling lane from the travel lanes.

The transit level of service (TLOS) meets the target value.

The auto or vehicle level of service (LOS) meets the target value

The truck level of service (TkLOS) meets the target value.

MODULE 4.5 – Transportation Demand Management

Element 4.5.1 – Context for TDM

The hotel development is located on King Edward Avenue, a divided arterial road with mainly commercial uses and a hotel at the St. Patrick/King Edward intersection. To the east of the development the uses are mainly apartment/multi-family residential with some commercial.

The study has distributed the expected site trips following an examination of the existing traffic counts taken at adjacent intersections, and origin-destination surveys for the Ottawa-Carleton region. With the low number of site generated trips, site trips higher than expected would have a very minor impact along King Edward Avenue and the residential area east of the proposed development. Any additional trips would not trigger the need for additional TDM measures to be implemented.

Element 4.5.2 – Need and Opportunity

The hotel development would not require a program to promote various mode shares as the development is close to the downtown core with available transit routes and pedestrian/cycling facilities which would promote the use of alternative modes of travel. The site does provide parking which exceeds the By-law requirements which would eliminate spillage of parking onto the surrounding neighbourhood.

Element 4.5.3 – TDM Program

TDM measures could be implemented to encourage travel by sustainable modes which would be applied to the hotel development. The TDM measures which would reduce the number of vehicle trips would consist of the encouragement of transit by providing transit schedules/routes maps and short term transit passes to patrons when they are checking into the hotel.

The study has utilized the TDM Measures Checklist for a Non-Residential Development which examines the implementation of facilities that are supportive of sustainable modes. The following provides the checklist which examines the Site Plan and transportation components for the proposed hotel development.

TDM Measures Checklist:

Non-Residential Developments (office, institutional, retail or industrial)

Legend The measure is generally feasible and effective, and in most cases would benefit the development and its users The measure could maximize support for users of sustainable modes, and optimize development performance The measure is one of the most dependably effective tools to encourage the use of sustainable modes

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	1.	TDM PROGRAM MANAGEMENT	
	1.1	Program coordinator	
BASIC	1.1.1	Designate an internal coordinator, or contract with an external coordinator	
	1.2	Travel surveys	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	
	2.	WALKING AND CYCLING	
	2.1	Information on walking/cycling routes & destin	ations
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances	Walking/cycling maps can be made available in the lobby
	2.2	Bicycle skills training	
		Commuter travel	
BETTER 🖈	2.2.1	Offer on-site cycling courses for commuters, or subsidize off-site courses	
	2.3	Valet bike parking	
		Visitor travel	
BETTER	2.3.1	Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	

	TDI	I measures: Non-residential developments	Check if proposed & add descriptions
	3.	TRANSIT	
	3.1	Transit information	
BASIC	3.1.	Display relevant transit schedules and route maps at entrances	☐ Transit Maps can be made available in the lobby and/or at check-in
BASIC	3.1.2	2 Provide online links to OC Transpo and STO information	
BETTER	3.1.3	Provide real-time arrival information display at entrances	
	3.2	Transit fare incentives	
		Commuter travel	
BETTER	3.2.	Offer preloaded PRESTO cards to encourage commuters to use transit	Preloaded PRESTO cards could be provided at check-in of the hotel
BETTER	★ 3.2.2	2 Subsidize or reimburse monthly transit pass purchases by employees	
		Visitor travel	
BETTER	3.2.3	Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	
	3.3	Enhanced public transit service	
BETTER	3.3.	Commuter travel Contract with OC Transpo to provide enhanced transit	
		services (e.g. for shift changes, weekends)	
		Visitor travel	
BETTER	3.3.2	2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	
	3.4	Private transit service	
		Commuter travel	:
BETTER	3.4.	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	
		Visitor travel	
BETTER	3.4.2	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	

	TDM	measures: Non-residential developments	Check if proposed & add descriptions		
	4.	RIDESHARING			
	4.1	Ridematching service			
		Commuter travel			
BASIC	★ 4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com			
	4.2	Carpool parking price incentives			
		Commuter travel			
BETTER	4.2.1	Provide discounts on parking costs for registered carpools			
	4.3	Vanpool service			
		Commuter travel			
BETTER	4.3.1	Provide a vanpooling service for long-distance commuters			
	5.	CARSHARING & BIKESHARING			
	5.1	Bikeshare stations & memberships			
BETTER	5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors			
		Commuter travel			
BETTER	5.1.2	Provide employees with bikeshare memberships for local business travel			
	5.2	Carshare vehicles & memberships			
		Commuter travel			
BETTER	5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants			
BETTER	5.2.2	Provide employees with carshare memberships for local business travel			
	6.	PARKING			
	6.1	Priced parking			
		Commuter travel			
BASIC	★ 6.1.1	Charge for long-term parking (daily, weekly, monthly)	Parking charges could be part of the check-in		
BASIC	6.1.2	Unbundle parking cost from lease rates at multi-tenant sites			
		Visitor travel			
BETTER	6.1.3	Charge for short-term parking (hourly)	On-site parking could be charged which may reduce vehicle trips from visitors		

	TDM	measures: Non-residential developments	Check if proposed & add descriptions
	7.	TDM MARKETING & COMMUNICATIONS	
	7.1	Multimodal travel information	
		Commuter travel	
BASIC	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	
	_	Visitor travel	
BETTER *	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	
	7.2	Personalized trip planning	
		Commuter travel	
BETTER *	7.2.1	Offer personalized trip planning to new/relocating employees	
	7.3	Promotions	
		Commuter travel	
BETTER	7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	
	8.	OTHER INCENTIVES & AMENITIES	
	8.1	Emergency ride home	
	8.1	Emergency ride home Commuter travel	
BETTER *			
BETTER *		Commuter travel Provide emergency ride home service to non-driving	
BETTER *	8.1.1	Commuter travel Provide emergency ride home service to non-driving commuters	
	8.1.1 8.2	Commuter travel Provide emergency ride home service to non-driving commuters Alternative work arrangements	
	8.1.1 8.2 8.2.1	Commuter travel Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel	
BASIC *	8.1.1 8.2 8.2.1 8.2.2	Commuter travel Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours	
BASIC *BETTER	8.1.1 8.2 8.2.1 8.2.2	Commuter travel Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours Encourage compressed workweeks	
BASIC *BETTER	8.1.1 8.2 8.2.1 8.2.2 8.2.3	Commuter travel Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours Encourage compressed workweeks Encourage telework	
BASIC *BETTER	8.1.1 8.2 8.2.1 8.2.2 8.2.3	Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours Encourage compressed workweeks Encourage telework Local business travel options	
BASIC ABETTER A	8.1.1 8.2 8.2.1 8.2.2 8.2.3 8.3	Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours Encourage compressed workweeks Encourage telework Local business travel options Commuter travel Provide local business travel options that minimize the	
BASIC ABETTER A	8.1.1 8.2 8.2.1 8.2.2 8.2.3 8.3 8.3.1	Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours Encourage compressed workweeks Encourage telework Local business travel options Commuter travel Provide local business travel options that minimize the need for employees to bring a personal car to work	
BASIC ABETTER A	8.1.1 8.2 8.2.1 8.2.2 8.2.3 8.3 8.3 8.4	Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours Encourage compressed workweeks Encourage telework Local business travel options Commuter travel Provide local business travel options that minimize the need for employees to bring a personal car to work Commuter incentives	
BASIC #	8.1.1 8.2 8.2.1 8.2.2 8.2.3 8.3 8.3 8.4	Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours Encourage compressed workweeks Encourage telework Local business travel options Commuter travel Provide local business travel options that minimize the need for employees to bring a personal car to work Commuter incentives Commuter travel Offer employees a taxable, mode-neutral commuting	
BASIC #	8.1.1 8.2 8.2.1 8.2.2 8.2.3 8.3 8.3.1 8.4 8.4.1	Provide emergency ride home service to non-driving commuters Alternative work arrangements Commuter travel Encourage flexible work hours Encourage compressed workweeks Encourage telework Local business travel options Commuter travel Provide local business travel options that minimize the need for employees to bring a personal car to work Commuter incentives Commuter travel Offer employees a taxable, mode-neutral commuting allowance	

MODULE 4.6 – Neighbourhood Traffic Management

<u>Element 4.6.1 – Adjacent Neighbourhoods</u>

The Boutique Hotel has the main access onto Clarence Street which is designated in the TMP as a local street. Hotel trips generated by the site would travel along Clarence Street to King Edward Avenue, or along Clarence Street to Nelson Street and then to Rideau Street. Nelson Street is also designated as a local street.

Traffic counts taken in 2016 along Clarence Street showed the average 24 hour count to be 435 vehicles. The addition of the expected site trips would not increase vehicular traffic beyond the maximum threshold of a local street. Nelson Street would have a similar volume of traffic at the north end which is predominately residential, but may increase at the approach to the signalized Nelson/Rideau intersection due to the commercial uses close to Rideau Street. The impact of expected trips from the site would be minor and would not change the existing classification of the surrounding streets.

MODULE 4.7 - Transit

Element 4.7.1 – Route Capacity

The site is well served by OC Transpo bus routes. With the number of expected transit person trips to be low, it would be doubtful if the number of site generated transit trips would determine the need to provide additional capacity to the existing transit routes.

Element 4.7.2 – Transit Priority

Transit priority measures are already in place along King Edward Avenue. The transit priority measures would reduce transit travel time and increases reliability along King Edward Avenue. The TMP has identified as a Network Concept the installation of signal priority along King Edward Avenue between Sussex Drive and Rideau Street which will complement the existing southbound bus lane.

MODULE 4.8 – Review of Network Concept

Exempt as determined in the Scoping Document.

MODULE 4.9 – Intersection Design

Element 4.9.1 – Intersection Control

Three intersections were examined in the TIA study. The Murray/King Edward and the St. Patrick/King Edward intersections located north of the site are both controlled by traffic signals. The third intersection is Clarence/King Edward intersection which is a right-in/right-out "T" intersection controlled by a stop sign at the westbound Clarence

Street (local street) approach. There would be no requirement to change the method of traffic controls at the intersections.

Isolated transit priority measures are already in place along the southbound lanes of King Edward Avenue past the site.

Element 4.9.2 – Intersection Design

The Clarence/King Edward, Murray/King Edward and St. Patrick/King Edward intersections were all examined utilizing the *Multi-Modal Level of Service (MMLOS) Guidelines* and the *Highway Capacity Software, Version 7.9.5,* which uses the capacity analysis procedure as documented in the *Highway Capacity Manual (HCM) 2010 and HCM 6th Edition.*

The intersections were analyzed in Element 4.4.3 - Intersection Design to determine the level of service for each mode of travel. The level of service was completed for the existing traffic counts, background traffic, and total traffic at all three intersections. The analysis years were at the completion of the hotel in 2024 and at five years beyond completion in 2029.

The calculated 2029 level of service was compared to the level of service targets listed in Exhibit 22 of the *Multi-Modal Level of Service (MMLOS) Guidelines*. The MMLOS for each signalized intersection is presented in Table 4.5 - MULTI-MODAL (MMLOS) INTERSECTION SUMMARY TABLE contained in this study report.

The following summarizes the calculated 2029 operation of the Murray/King Edward and St. Patrick/King Edward intersections, and the factors for why they have not met targets for all modes:

Pedestrian (PLOS) - The pedestrian level of service did not meet target due to the number of lanes crossed by pedestrians at the intersections.

Bicycle (BLOS) - The bicycle level of service did not meet target due to the mixed use traffic along the roads (no separate cycling lane), and the number of lanes crossed in making a left turn movement at intersections.

Transit (TLOS) - The transit level of service met the MMLOS target.

Auto (LOS) - The vehicle level of service met the MMLOS target.

Truck (TkLOS) - The truck level of service met the MMLOS target.

ue Hotel Page 46

SUMMARY

A Site Plan has been prepared for the development of a 1,590 m² parcel of land at 275 King Edward Avenue. The site is located at the northeast corner of the intersection of King Edward Avenue and Clarence Street. The Site Plan proposes the land to be developed as an all suites hotel.

The site proposal would contain one 8 storey building which will provide 121 hotel suites for short and long term stays. The site will also contain a 134 m² leasable area on the ground floor which would possibly be a high-turnover sit-down restaurant servicing patrons of the hotel and general public. The site would have one access point to an underground parking garage with access onto Clarence Street. The centre of the access will be located approximately 21 m east of the outside curb of the northbound King Edward Avenue lanes. The garage will contain 76 parking spaces with an additional 2 short term surface parking spaces for hotel check in. The hotel development is expected to be completed and occupied by the year 2024.

The Transportation Impact Assessment report has established a study area which would include the King Edward Avenue road segment and the Clarence/King Edward, Murray/King Edward and St. Patrick/King Edward intersections. The operational analysis will be conducted for the weekday peak AM and PM hours at the completion of the hotel development in 2024, and at five years beyond completion at the year 2029. The TIA analysis has examined all modes of transportation along the King Edward Avenue road segment and the intersections within the study area. The transportation analysis has determined the following:

- 1. The proposed hotel development would consist of 121 all suites units. The hotel plus restaurant uses are expected to generate 8 vehicle trips arriving and 8 vehicle trips departing for a total of 16 trips during both the weekday peak AM hour and PM hour.
- 2. The development would provide 2 surface parking spaces and 76 spaces in an underground parking garage for a total of 78 parking spaces. Bicycle racks for the storage of 7 bikes will be provided close to the building entrance, plus additional racks for 27 bikes in the parking garage. The number of parking spaces provided for vehicles and bikes meet City of Ottawa By-laws.
- 3. The site access onto Clarence Street would have a width of 6.0 m and would provide full movement access. The vehicle analysis determined that the expected vehicular queuing at the westbound Clarence Street approach to the Clarence/King Edward intersection would not extend and block the access to the hotel parking garage.
- 4. The MMLOS analysis of the King Edward Avenue street segment between Clarence Street and St. Patrick Street determined that the transit TLOS and the truck TkLOS met the MMLOS targets, but the pedestrian PLOS and bicycle

BLOS targets were not met. The low level of service of the PLOS and BLOS was

BLOS targets were not met. The low level of service of the PLOS and BLOS was attributed to the number of travel lanes and the volume and speed of traffic along King Edward Avenue. The hotel development would have a minor impact on the level of service of the road segment with no requirement for modifications to King Edward Avenue.

5. The MMLOS analysis examined the operation of the Clarence/King Edward, Murray/King Edward and St. Patrick/King Edward intersections. The 2029 analysis determined that the transit TLOS, auto LOS and truck TkLOS met the MMLOS targets. The pedestrian PLOS and bicycle BLOS did not meet the target due to the number of lanes crossed by pedestrians at intersections, and the mixed use traffic and the number of lanes bicycles crossed in making left turn movements at intersections. The BLOS could be improved by the provision of exclusive bike lanes along the road. The hotel development would have a minor impact on the level of service of the intersections within the study area. There would be no requirement for intersection modifications due to the hotel development.

Prepared by:

David & Hole

David J. Halpenny, M. Eng., P. Eng.



APPENDIX

CERTIFICATION FORM

SCREENING FORM

TRAFFIC COUNTS

OC TRANSPO BUS ROUTES

ITE TRIP GENERATION GRAPHS

MMLOS ROAD SEGMENT ANALYSIS WORKSHEET

HCM OPERATIONAL ANALYSIS WORKSHEETS

MMLOS INTERSECTION ANALYSIS WORKSHEET

EXHIBIT 1.1 CERTIFICATION FORM

Transportation Impact Assessment Guidelines



Certification Form for TIA Study PM

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

X	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;
X	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;
X	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
X	I am either a licensed¹ or registered² professional in good standing, whose field of expertise is either transportation engineering or transportation planning.

City Of Ottawa Infrastructure Services and Community Sustainability Planning and Growth Management 110 Laurier Avenue West, 4th fl. Ottawa, ON K1P 1J1

Tel.: 613-580-2424 Fax: 613-560-6006

in

^{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.

Transportation Impact Assessment Guidelines

Dated at	Ottaw	<i>r</i> a	this	2nd	day of	September	, ₂₀ 21
		(City)					
Name :	David	I J. Halpenn	/				
Professio	nal title:	Presiden	t, D. J. I	Halper	nny & Asso	ciates Ltd.	

Signature of individual certifier that s/he meets the above criteria

Office Contact Information (Please Print)			
Address: P.	O. Box 774		
City / Postal Cod	e: Manotick ON K4M 1A7		
Telephone / Ext	nsion: 613-692-8662		
E-Mail Address:	David@DJHalpenny.com		

Stamp

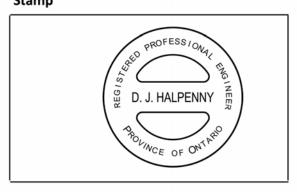


EXHIBIT 1.2 SCREENING FORM

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	275 King Edward Avenue, Ottawa
Description of Location	Boutique Hotel - northeast corner of Clarence St. & King Edward Ave.
Land Use Classification	"TM 12 + TM (Mature Neighborhood Overlay)" Zoning - Traditional Mainstreet
Development Size (units)	121 Hotel Suites and 134 m ² retail/commercial
Development Size (m²)	1,574 m² Lot Area
Number of Accesses and Locations	Entrance from Clarence St. Service entrance from Murray St.
Phase of Development	Single Phase of development
Buildout Year	2024

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

2. Trip Generation Trigger

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

Land Use Type	Minimum Development Size	
Hotel Suites and Condominium units	121 units	
Retail/commercial	134 m²	

	Yes	No
121 Hotel Suites = 56 Person Trips		
Retail/Commercial = <u>18</u> Person Trips	X	
Total Development = 74 Person Trips > 60 Peak Hour Person Trips		

^{*} If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.

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

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?		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).

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

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?		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 a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		X
Does the development include a drive-thru facility?		X

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

5. Summary

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

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

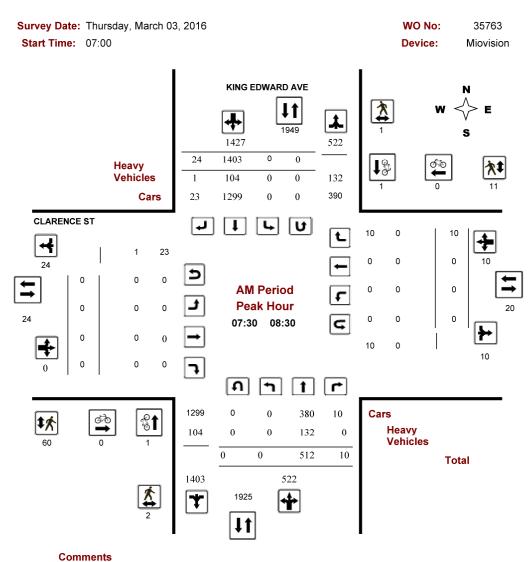
EXHIBIT 2.1 2016 PEAK AM HOUR TRAFFIC COUNTS - Clarence/King Edward



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CLARENCE ST @ KING EDWARD AVE



Comments

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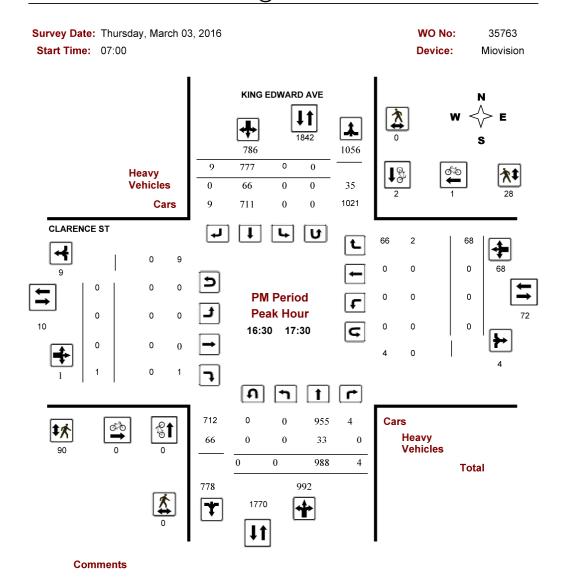
2016 PEAK PM HOUR TRAFFIC COUNTS - Clarence/King Edward



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

CLARENCE ST @ KING EDWARD AVE



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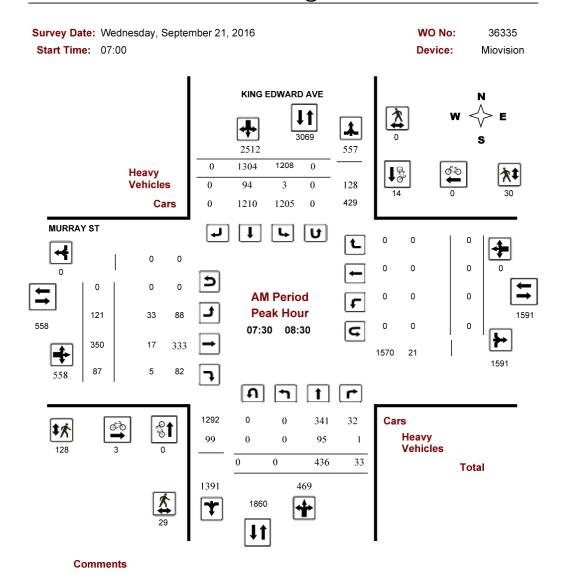
EXHIBIT 2.2 2016 PEAK AM HOUR TRAFFIC COUNTS - St. Patrick (Murray)/King Edward



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

KING EDWARD AVE @ MURRAY ST



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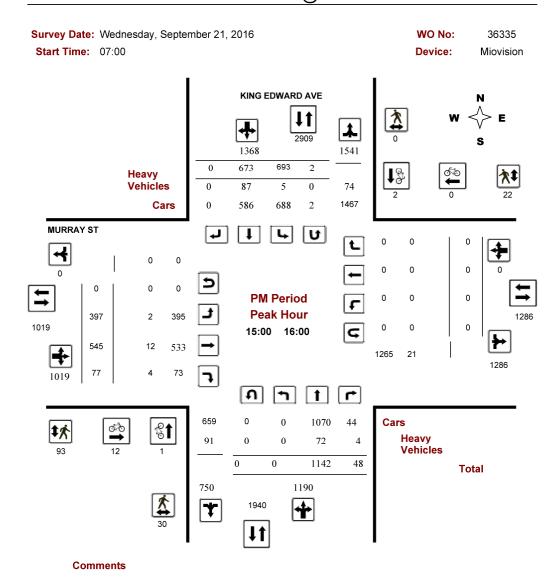
2016 PEAK PM HOUR TRAFFIC COUNTS - St. Patrick (Murray)/King Edward



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

KING EDWARD AVE @ MURRAY ST



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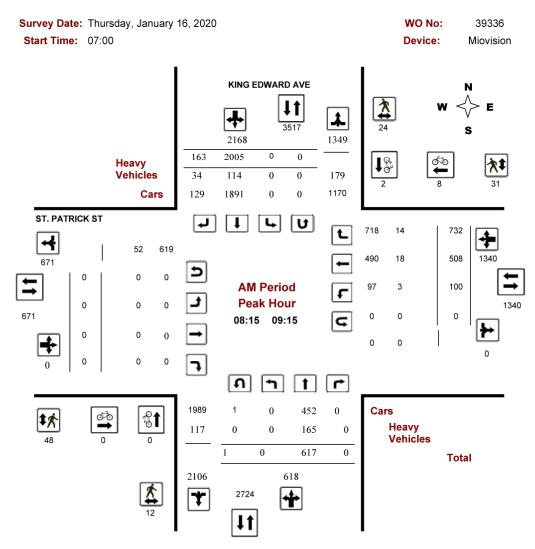
EXHIBIT 2.3 2020 PEAK AM HOUR TRAFFIC COUNTS - St. Patrick/King Edward



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

KING EDWARD AVE @ ST. PATRICK ST



Comments 5470821 - THU JAN 16, 2020 - 8HRS - LORETTA

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2020 PEAK PM HOUR TRAFFIC COUNTS - St. Patrick/King Edward



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

KING EDWARD AVE @ ST. PATRICK ST

Survey Date: Thursday, January 16, 2020 WO No: Start Time: 07:00 Device: Miovision KING EDWARD AVE Heavy Vehicles Cars ST. PATRICK ST U Ł PM Period **Peak Hour** 15:45 16:45 G คโ Cars Heavy **Vehicles** Total *

Comments 5470821 - THU JAN 16, 2020 - 8HRS - LORETTA

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EXHIBIT 2.4 OC TRANSPO BUS ROUTES

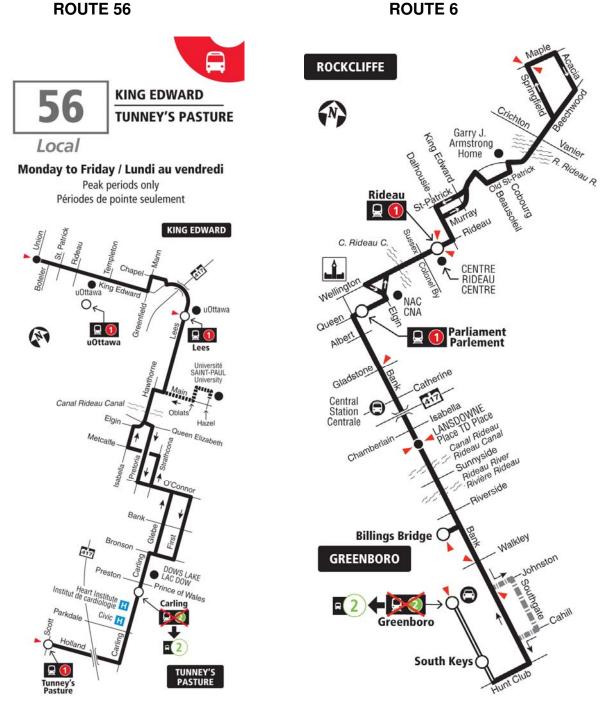


EXHIBIT 3.1 ITE TRIP GENERATION 10th Ed. – All Suites Hotel - Peak AM Hr.

All Suites Hotel

(311)

Vehicle Trip Ends vs: Rooms

On a: Weekday,

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 8 Avg. Num. of Rooms: 177

Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.34	0.13 - 0.51	0.13

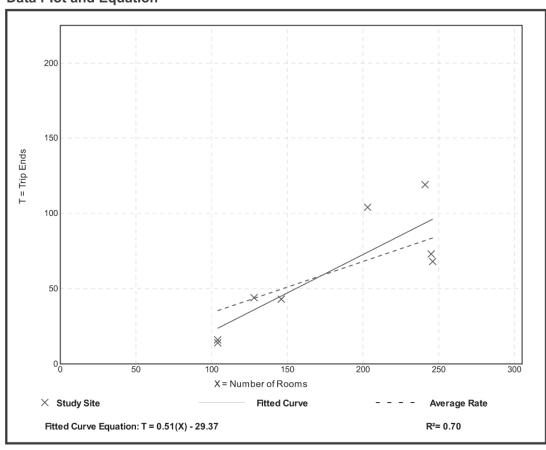




EXHIBIT 3.2 ITE TRIP GENERATION 10th Ed. – All Suites Hotel - Peak PM Hr.

All Suites Hotel

(311)

Vehicle Trip Ends vs: Rooms

On a: Weekday,

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 9 Avg. Num. of Rooms: 171

Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.36	0.22 - 0.47	0.08

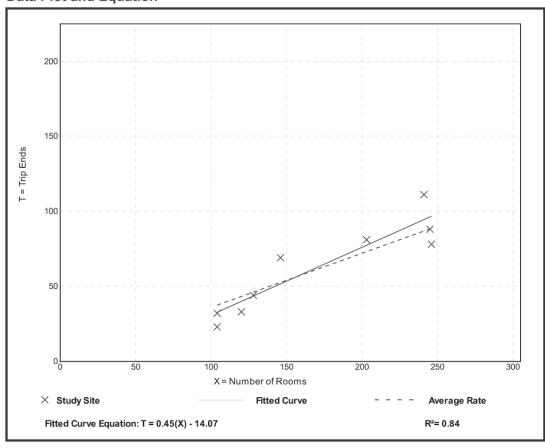




EXHIBIT 3.3 ITE TRIP GENERATION 10th Ed. – High-Turnover (Sit-Down) Restaurant - Peak AM Hr.

High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 1000 Sq. Ft. GFA:

Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.94	0.76 - 102.39	11.33

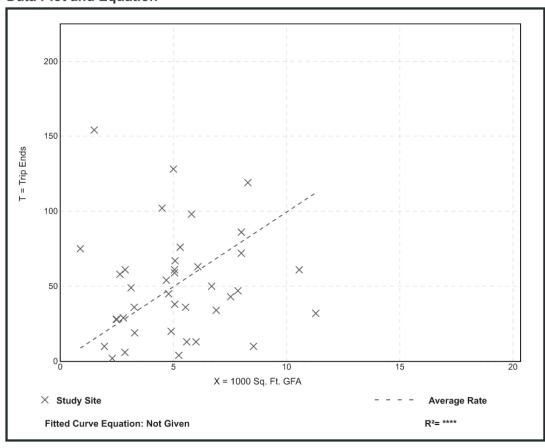




EXHIBIT 3.4 ITE TRIP GENERATION 10th Ed. – High-Turnover (Sit-Down) Restaurant - Peak PM Hr.

High-Turnover (Sit-Down) Restaurant (932)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 107 1000 Sq. Ft. GFA: 6

Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.77	0.92 - 62.00	7.37

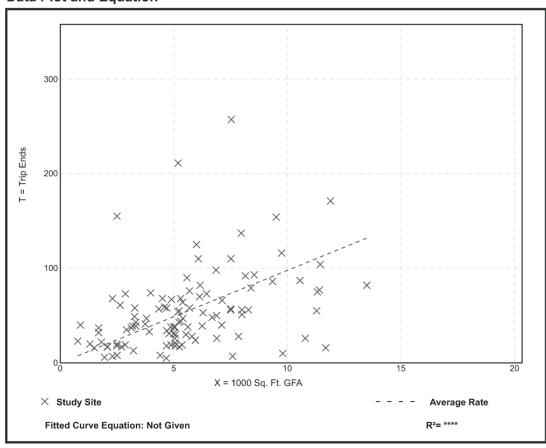




EXHIBIT 4.1 2029 MMLOS ROAD SEGMENT - King Edward Avenue

Multi-Modal Level of Service - Segments Form

Consultant		Project	Boutique	Hotel
Scenario	Total 2029 Traffic	Date	Jan-22	
Comments	King Edward Avenue			
	Clarence St. to St. Patrick St.			

0=04=4=0			Clarence-Murra	Murray-St.Patrick	Section
SEGMENTS		King Edward	1	2	3
	Sidewalk Width		1.8 m	1.8 m	
	Boulevard Width		0.5 - 2 m	0.5 - 2 m	
_	Avg Daily Curb Lane Traffic Volume		> 3000	> 3000	
ian	Operating Speed On-Street Parking		> 30 to 50 km/h	> 30 to 50 km/h	
Ě	ū	_	yes C	yes C	
Pedestrian	Exposure to Traffic PLoS Effective Sidewalk Width	С	3.0 m	3.0 m	-
ဓိ	Pedestrian Volume		250 ped/hr	250 ped/hr	
	Crowding PLoS		A	A	-
	Level of Service		С	С	-
	Type of Cycling Facility		Mixed Traffic	Mixed Traffic	
	Number of Travel Lanes		4-5 lanes total	4-5 lanes total	
	Operating Speed		>40 to <50 km/h	>40 to <50 km/h	
	# of Lanes & Operating Speed LoS		Е	E	-
Bicycle	Bike Lane (+ Parking Lane) Width		≥ 1.8 m	≥ 1.8 m	
Š	Bike Lane Width LoS	E	A	A	-
ä	Bike Lane Blockages		Rare	Rare	
	Blockage LoS Median Refuge Width (no median = < 1.8 m)		A A S m refuge	A 1 9 m refuge	•
	No. of Lanes at Unsignalized Crossing		< 1.8 m refuge ≤ 3 lanes	< 1.8 m refuge ≤ 3 lanes	
	Sidestreet Operating Speed		>40 to 50 km/h	>40 to 50 km/h	
	Unsignalized Crossing - Lowest LoS		В	В	-
	Level of Service		E	E	-
Ħ	Facility Type		Mixed Traffic	Mixed Traffic	
Transit	Friction or Ratio Transit:Posted Speed	D	Vt/Vp ≥ 0.8	Vt/Vp ≥ 0.8	
프	Level of Service		D	D	-
Lu .	Truck Lane Width		> 3.7 m	> 3.7 m	
<u>5</u>	Travel Lanes per Direction	Δ.	> 1	> 1	
Truck	Level of Service	Α	Α	Α	-

EXHIBIT 4.2 2016 EXISTING PEAK AM HOUR ANALYSIS - Clarence/King Edward

		Н	CS/	I WO-	-Way	' Sto _l	o-Co	ntrol	Rep	ort						
General Information							Site	Inforr	natio	n						
Analyst	Τ						Inters	ection			Clare	nce/King	Edward	ı		
Agency/Co.							Jurisc	liction			City c	of Ottaw	a			
Date Performed	11/15	/2021					East/	West Str	eet		Clare	nce Stre	et			
Analysis Year	2016						North	/South S	Street		King	Edward .	Avenue			
Time Analyzed	Peak	AM Hou	r				Peak	Hour Fac	ctor		0.92					
Intersection Orientation	North	-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Bouti	que Hot	el													
Lanes																
				7 4 4 X 4 4 C		† ት ተ ቀ Y r Street: Noi										
Vehicle Volumes and Ad	justme	nts														
Approach		Eastb	ound			Westl	bound			North	bound		Southbound			
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes	_	0	0	0		0	0	1	0	0	2	0	0	0	3	0
Configuration	_							R			Т	TR			T	TR
Volume (veh/h)	_							10			512	10			1403	24
Percent Heavy Vehicles (%)								1								
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized						١	lo									
Median Type Storage				Undi	vided											
Critical and Follow-up H	eadwa	ys														
Base Critical Headway (sec)	$\overline{}$							6.9							$\overline{}$	
Critical Headway (sec)								6.92								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.31								
Delay, Queue Length, an	d Leve	l of S	ervice													
Flow Rate, v (veh/h)	Т			П	Π	Π		11		Π	Π	Г	Π	П	Π	
Capacity, c (veh/h)								716								
v/c Ratio								0.02								
95% Queue Length, Q ₉₅ (veh)								0.0								
Control Delay (s/veh)								10.1								
	1							В								
Level of Service (LOS)																
Level of Service (LOS) Approach Delay (s/veh)	1					10	0.1									

EXHIBIT 4.3 2016 EXISTING PEAK PM HOUR ANALYSIS - Clarence/King Edward

		Н	CS7	Two-	Way	Sto	o-Co	ntrol	Rep	ort							
General Information		_	_	_	_	_	Site	Inforr	natio	n	_	_	_	_	_	_	
Analyst	Т						Inters	ection			Clare	nce/Kind	Edward				
Agency/Co.							Jurisc	liction				of Ottaw					
Date Performed	11/15	5/2021						West Str	eet		-	nce Stre					
Analysis Year	2016						-	n/South S				Edward					
Time Analyzed	Peak	PM Hou	r					Hour Fac			0.92						
Intersection Orientation	_	n-South						sis Time		hrs)	0.25						
Project Description	_	que Hot	el														
Lanes	_	<u> </u>															
				7 4 4 X 4 4 Y	្សាក្ Major	ተ ተ r Street: Nor	ት ተ ት ና th-South	14471									
Vehicle Volumes and Ad	ljustme	nts															
Approach		Eastb	ound			Westl	bound			North	bound		Southbound				
Movement	U	L	Т	R	U L T R				U	L	Т	R	U L T R				
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	0	1	0	0	3	0	0	0	2	0	
Configuration	_							R			T	TR			T	TR	
Volume (veh/h)	_							68			988	4			777	9	
Percent Heavy Vehicles (%)	_							1									
Proportion Time Blocked																	
Percent Grade (%)	+-						0										
Right Turn Channelized	_					١	lo										
Median Type Storage				Undi	vided												
Critical and Follow-up H	leadwa	ys															
Base Critical Headway (sec)								7.1									
Critical Headway (sec)								7.12									
Base Follow-Up Headway (sec)								3.9								\perp	
Follow-Up Headway (sec)								3.91									
Delay, Queue Length, ar	nd Leve	l of S	ervice	•													
Flow Rate, v (veh/h)								74									
Capacity, c (veh/h)								419									
v/c Ratio								0.18									
95% Queue Length, Q ₉₅ (veh)								0.6									
								15.4									
Control Delay (s/veh)	_																
Control Delay (s/veh) Level of Service (LOS)								С									
·						15	5.4	С									

EXHIBIT 4.4 2024 BACKGROUND PEAK AM HOUR ANALYSIS - Clarence/King Edward

		Н	CS7	Two-	-Way	Sto	р-Со	ntrol	Rep	ort							
General Information	_						Site	Inforr	natio	n					_		
Analyst	Т						Inters	ection			Clare	nce/Kind	Edward				
Agency/Co.								diction			_	of Ottaw		-			
Date Performed	11/15	/2021					East/	West Str	eet		-	nce Stre					
Analysis Year	2024						North	n/South !	Street		King	Edward .	Avenue				
Time Analyzed	Peak	AM Hou	r (Backo	round)				Hour Fa			0.92						
Intersection Orientation	_	-South					Analy	sis Time	Period (hrs)	0.25						
Project Description	Bouti	que Hot	el														
Lanes		<u> </u>															
				74 47 1 7 7		† † † † r Street: Nor		7 4 4 7 1									
Vehicle Volumes and Ad	justme	nts															
Approach		Eastb	ound			Westl	bound			North	bound		Southbound U L T R				
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	R			
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6	
Number of Lanes	-	0	0	0		0	0	1	0	0	2	0	0	0	3	0	
Configuration	_							R			T	TR			T	TR	
Volume (veh/h)	+							11			560	11			1525	26	
Percent Heavy Vehicles (%)	_							1									
Proportion Time Blocked	-																
Percent Grade (%)	+						0										
Right Turn Channelized	+						10										
Median Type Storage				Undi	vided												
Critical and Follow-up H	eadwa	ys															
Base Critical Headway (sec)				_				6.9			_					<u> </u>	
Critical Headway (sec)								6.92									
Base Follow-Up Headway (sec)								3.3								_	
Follow-Up Headway (sec)								3.31									
Delay, Queue Length, ar	nd Leve	l of S	ervice	•													
Flow Rate, v (veh/h)								12									
Capacity, c (veh/h)								688									
v/c Ratio								0.02									
95% Queue Length, Q ₉₅ (veh)								0.1									
Control Delay (s/veh)								10.3									
Level of Service (LOS)								В									
Approach Delay (s/veh)						10	0.3										
Approach LOS							В										

Generated: 11/16/2021 8:42:46 AM

EXHIBIT 4.5 2024 BACKGROUND PEAK PM HOUR ANALYSIS - Clarence/King Edward

Priority 10 11 12 7 8 9 10 1 2 3 40 4 5 6 Number of Lanes 0 0 0 0 0 0 1 0 0 3 0 0 0 2 0 Configuration 0 0 0 0 0 0 1 0 0 3 0 0 0 2 0 Configuration 0 0 0 0 0 0 1 0 0 3 0 0 0 2 0 Configuration 0 0 0 0 0 0 1 0 0 3 0 0 0 2 0 Configuration 0 0 0 0 0 0 0 0 1 0 0			Н	CS7	Two-	-Way	Sto	р-Со	ntrol	Rep	ort							
Agency/Co.	General Information	_						Site	Inforr	natio	n							
Agency/Co.	Analyst	Т						Inters	ection			Clare	nce/Kind	Edward				
Part								Juriso	diction			_			-			
Analysis Year Analyses Peak PM Hour (Background) Peak Hour Factor Ozg Oz		11/15	/2021							eet		-						
Time Analyzed Peak PM Hour (Background) Peak Hour Factor Peak		_						-				-						
Intersection Orientation North-South Boulique Hotel	·	Peak	PM Hou	r (Backg	round)							-						
Project Description Boulique Hotel		-									hrs)	-						
Vehicle Volumes and Adjustments	Project Description	Bouti	que Hot	el														
Vehicle Volumes and Adjustments			<u> </u>															
Movement								ት ↑ ት ሶ rth-South	7 4 4 7									
Movement U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R U L T R R U L T R R U L T R R U L T R R U L T R R U L T R R U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R R V U L T R V U R V U L T V R V U R V U L T V R V U	Vehicle Volumes and Ad	ljustme	nts															
Priority 10 11 12 7 8 9 10 1 2 3 40 4 5 6 Number of Lanes 0 0 0 0 0 0 1 0 0 3 0 0 0 2 0 Configuration 0 0 0 0 0 0 1 0 0 3 0 0 0 2 0 Configuration 0 0 0 0 0 0 1 0 0 3 0 0 0 2 0 Configuration 0 0 0 0 0 0 1 0 0 3 0 0 0 2 0 Configuration 0 0 0 0 0 0 0 0 1 0 0	Approach		Eastb	ound			Westl	bound			North	bound		 				
Number of Lanes	Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R	
Configuration		_			-							_	_	_	_		-	
Volume (veh/h)		+	0	0	0		0	0	_	0	0	-	-	0	0	_	-	
Percent Heavy Vehicles (%)		-							_			-	-			-	TR	
Proportion Time Blocked		_										1077	4			848	10	
Percent Grade (%)	·	-							1								<u> </u>	
No Median Type Storage Undivided	<u> </u>	+																
Median Type Storage Undivided Critical and Follow-up Headways Base Critical Headway (sec) 7.1 1		-																
Critical and Follow-up Headways Base Critical Headway (sec) 7.1		+			Undi	uidad	N.	10										
Base Critical Headway (sec) 7.1 Critical Headway (sec) 7.12 Base Follow-Up Headway (sec) 3.9 Follow-Up Headway (sec) 3.91 Delay, Queue Length, and Level of Service Flow Rate, v (veh/h) 80 Capacity, c (veh/h) 390 v/c Ratio 0.21 95% Queue Length, Q ₉₅ (veh) 0.8 Control Delay (s/veh) 16.6 Level of Service (LOS) C Approach Delay (s/veh) 16.6		loadwa			Undi	vided												
Critical Headway (sec) 7.12 Base Follow-Up Headway (sec) 3.9 Follow-Up Headway (sec) 3.91 Delay, Queue Length, and Level of Service Flow Rate, v (veh/h) 80 Capacity, c (veh/h) 390 V/c Ratio 0.21 95% Queue Length, Q9s (veh) 0.8 Control Delay (s/veh) 16.6 Level of Service (LOS) C Approach Delay (s/veh) 16.6		leauwa	ys 						7.1									
Base Follow-Up Headway (sec) 3.9 3.9																		
Follow-Up Headway (sec) 3.91 Delay, Queue Length, and Level of Service Flow Rate, v (veh/h) 80 Capacity, c (veh/h) 390 V/c Ratio 0.21 95% Queue Length, Q ₉₅ (veh) 0.8 Control Delay (s/veh) 16.6 Level of Service (LOS) C Approach Delay (s/veh) 16.6	<u> </u>																	
Delay, Queue Length, and Level of Service Flow Rate, v (veh/h) 80																		
Flow Rate, v (veh/h) 80		al Laura	l of C	- mr! -					3.91									
Capacity, c (veh/h) 390<		ia Leve	1 01 5	ervice	,													
v/c Ratio 0.21 95% Queue Length, Q ₉₅ (veh) 0.8 Control Delay (s/veh) 16.6 Level of Service (LOS) C Approach Delay (s/veh) 16.6									_									
95% Queue Length, Q95 (veh) 0.8 0.8 Control Delay (s/veh) 16.6 0 Level of Service (LOS) C 0 Approach Delay (s/veh) 16.6 0									_									
Control Delay (s/veh) 16.6 Level of Service (LOS) C Approach Delay (s/veh) 16.6									_									
Level of Service (LOS) Approach Delay (s/veh) C C C C C C C C C C C C C	-								_									
Approach Delay (s/veh) 16.6									_									
							1/	5.6										
	Approach LOS																	

EXHIBIT 4.6 2029 BACKGROUND PEAK AM HOUR ANALYSIS - Clarence/King Edward

		Н	CS/	Two-	·Way	Stop	o-Co	ntroi	кер	ort 						
General Information							Site	Inforn	natio	า						
Analyst	T						Inters	ection			Clare	nce/King	Edward	l		
Agency/Co.							Juriso	liction			City c	f Ottaw	a			
Date Performed	11/15	/2021					East/\	West Stre	eet		Clare	nce Stre	et			
Analysis Year	2029						North	/South S	Street		King	Edward .	Avenue			
Time Analyzed	Peak .	AM Hou	r (Backg	round)			Peak	Hour Fac	tor		0.92					
Intersection Orientation	North	-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Bouti	que Hote	el													
Lanes																
				7 4 4 7 7 7 7	ብ ጎ Major	† † † † Y Street: Nor	ተ ኮ ቦ th-South	7 4 4 Y 1								
Phicle Volumes and Adjustments pproach Eastbound Westbound Northbound Southbound																
Approach		Eastb	ound			Westl	oound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	3	0
Configuration								R			Т	TR			Т	TR
Volume (veh/h)								11			589	11			1603	27
Percent Heavy Vehicles (%)	_							1								
Proportion Time Blocked																
Percent Grade (%)	-						0									
Right Turn Channelized	+					N	lo									
Median Type Storage				Undi	vided											
Critical and Follow-up H	eadwa	ys														
Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.92								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.31								
Delay, Queue Length, an	d Leve	l of S	ervice													
Flow Rate, v (veh/h)								12								
Capacity, c (veh/h)								673								
v/c Ratio								0.02								
95% Queue Length, Q ₉₅ (veh)								0.1								
Control Delay (s/veh)								10.4								
Level of Service (LOS)								В								
Approach Delay (s/veh)	1).4									
Approach LOS							В									

EXHIBIT 4.7 2029 BACKGROUND PEAK PM HOUR ANALYSIS - Clarence/King Edward

		Н	CS7	Two-	-Way	Sto	р-Со	ntrol	Rep	ort						
General Information		_	_	_	_	_	Site	Inforr	natio	n	_	_	_	_	_	
Analyst	Т						Inters	ection			Clare	nce/Kinc	Edward			
Agency/Co.								diction			_	of Ottaw		-		
Date Performed	11/15	5/2021					East/	West Str	eet		-	nce Stre				
Analysis Year	2029						-	n/South :			-	Edward .				
Time Analyzed	Peak	PM Hou	r (Backg	round)				Hour Fa			0.92					
Intersection Orientation	_	n-South						sis Time		hrs)	0.25					
Project Description	Bouti	que Hot	el				,			• •						
Lanes		<u> </u>														
				74***		† † ተ ት ፕ r Street: Nor	ት ተ ት ሶ rth-South	7 4 4 C								
Vehicle Volumes and Ad	justme	nts														
Approach		Eastb	ound			Westl	bound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority	_	10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes	+	0	0	0		0	0	1	0	0	3	0	0	0	2	0
Configuration	+							R			Т	TR			T	TR
Volume (veh/h)	+							77			1131	5			891	10
Percent Heavy Vehicles (%)	-							1								₩
Proportion Time Blocked	+															
Percent Grade (%)	+						0									
Right Turn Channelized	+						10									
Median Type Storage				Undi	vided											
Critical and Follow-up H	eadwa	ys														
Base Critical Headway (sec)	+							7.1								\vdash
Critical Headway (sec)	+							7.12	-						-	₩
Base Follow-Up Headway (sec)								3.9								
Follow-Up Headway (sec)								3.91								
Delay, Queue Length, ar	id Leve	l of S	ervice	•												
Flow Rate, v (veh/h)								84								<u> </u>
Capacity, c (veh/h)								373								
v/c Ratio								0.22								_
95% Queue Length, Q ₉₅ (veh)								0.8								
Control Delay (s/veh)								17.4								
Level of Service (LOS)								С								
Approach Delay (s/veh)							7.4									
Approach LOS						(С									

EXHIBIT 4.8 2024 TOTAL PEAK AM HOUR ANALYSIS - Clarence/King Edward

		Н	CS/	Iwo-	-Way	/ Stop	o-Co	ntrol	Кер	ort						
General Information							Site	Inforn	natio	n						
Analyst	Т						Inters	ection			Clare	nce/King	Edward	d		
Agency/Co.							Jurisc	diction			City o	of Ottaw	a			
Date Performed	11/15	/2021					East/	West Stre	eet		Clare	nce Stre	et			
Analysis Year	2024						North	n/South S	Street		King	Edward .	Avenue			
Time Analyzed	Peak	AM Hou	r (Total)				Peak	Hour Fac	ctor		0.92					
Intersection Orientation	North	-South					Analy	sis Time	Period ((hrs)	0.25					
Project Description	Bouti	que Hot	el													
Lanes																
				74 47 47	↑ ↑ Major	† ት ተ ተ ፕ r Street: Nor	ተ ኮ ር	74474								
Vehicle Volumes and Adj	justme	nts														
Approach		Eastb	ound			Westl	bound			North	bound			South	nbound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	T	R
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes	_	0	0	0		0	0	1	0	0	2	0	0	0	3	0
Configuration								R			Т	TR			T	TR
Volume (veh/h)								12			560	16			1525	26
Percent Heavy Vehicles (%)								1								
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized						١	lo									
Median Type Storage				Undi	vided											
Critical and Follow-up Ho	eadwa	ys														
Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.92								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.31								
Delay, Queue Length, an	d Leve	l of S	ervice													
Flow Rate, v (veh/h)	Т					I		13						Τ	Т	Т
Capacity, c (veh/h)								686								
v/c Ratio								0.02								
95% Queue Length, Q ₉₅ (veh)								0.1								
Control Delay (s/veh)								10.4								
	+															
Level of Service (LOS)								B								
Level of Service (LOS) Approach Delay (s/veh)						1/).4	В								

EXHIBIT 4.9 2024 TOTAL PEAK PM HOUR ANALYSIS - Clarence/King Edward

			C3,	Two-	vvay				1,00	٠, ر						
General Information							Site	Inforr	natio	1						
Analyst	$\overline{}$						Inters	ection			Clare	nce/King	Edward			
Agency/Co.							Jurisc	liction				of Ottaw				
Date Performed	11/15	/2021					East/	West Str	eet		-	nce Stre				
Analysis Year	2024						North	n/South S	Street		King	Edward .	Avenue			
Time Analyzed	Peak	PM Hou	r (Total)					Hour Fac			0.92					
Intersection Orientation	-	n-South	, ,				Analy	sis Time	Period (hrs)	0.25					
Project Description	_	que Hot	el				,									
Lanes		<u> </u>														
				ገፋ ቀጥ ተ ሶ		† † 1 1 약 약 r Street: Nor	1 1 7	7 4 4 7								
Vehicle Volumes and Ad	justme	nts														
Approach		Eastb	ound			Westl	oound			North	bound			South	bound	_
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority	\bot	10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes	\vdash	0	0	0		0	0	1	0	0	3	0	0	0	2	0
Configuration								R			T	TR			T	TR
																-
Volume (veh/h)								75			1077	9			848	10
								75 1			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked											1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%))				1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized)				1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage				Undi	vided						1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized	eadwa	ys		Undi	vided						1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage	eadwa	ys		Undi	vided						1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H	eadwa	ys		Undi	vided			1			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec)	eadwa	ys		Undi	vided			7.1			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec)	eadwa	ys		Undi	vided			7.1 7.12			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)			ervice		vided			7.1 7.12 3.9			1077	9			848	100
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)			ervice		vided			7.1 7.12 3.9			1077	9			848	100
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an			ervice		vided			7.1 7.12 3.9 3.91			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h)			ervice		vided			7.1 7.12 3.9 3.91			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h)			ervice		vided			7.1 7.12 3.9 3.91			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio			ervice		vided			7.1 7.12 3.9 3.91 82 388 0.21			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q95 (veh)			ervice		vided			7.1 7.12 3.9 3.91 82 388 0.21 0.8			1077	9			848	10
Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Pelay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q95 (veh) Control Delay (s/veh)			ervice		vided			7.1 7.12 3.9 3.91 82 388 0.21 0.8 16.7			1077	9			848	10

EXHIBIT 4.10 2029 TOTAL PEAK AM HOUR ANALYSIS - Clarence/King Edward

																_
General Information							Site	Inforn	natio	1						
Analyst							Inters	ection			Clare	nce/King	g Edward			
Agency/Co.							Juriso	liction			City o	f Ottawa	a			
Date Performed	11/15	/2021					East/\	West Stre	eet		Clare	nce Stre	et			
Analysis Year	2029						North	/South S	Street		King	Edward /	Avenue			
Time Analyzed	Peak .	AM Hou	r (Total)				Peak	Hour Fac	ctor		0.92					
Intersection Orientation	North	-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Bouti	que Hot	el													
Lanes																
				7 4 * Y ↑ * C		† ት ተ ም r Street: Nor		7 4 4 7 1 1								
Vehicle Volumes and Adj	ustme	nts														
Approach		Eastb	ound			Westl	bound			North	bound			South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	3	0
Configuration								R			T	TR			T	TR
Volume (veh/h)								12			589	16			1603	27
Percent Heavy Vehicles (%)								1								
Proportion Time Blocked																
Percent Grade (%)	-						0									
Right Turn Channelized	-						lo									
Median Type Storage				Undi	vided											
Critical and Follow-up He	eadwa	ys														
Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.92								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.31								
Delay, Queue Length, and	d Leve	l of S	ervice													
Flow Rate, v (veh/h)								13								
Capacity, c (veh/h)								670								
v/c Ratio								0.02								
95% Queue Length, Q ₉₅ (veh)								0.1								
Control Delay (s/veh)								10.5								
Level of Service (LOS)								В								
Approach Delay (s/veh)							0.5									
Approach LOS							В									

EXHIBIT 4.11 2029 TOTAL PEAK PM HOUR ANALYSIS - Clarence/King Edward

		Н	CS7	Two-	-Way	[,] Stop	o-Co	ntrol	Rep	ort						
General Information							Site	Inforr	natio	n						
Analyst							Inters	ection			Clare	nce/King	Edward	1		
Agency/Co.							Jurisc	liction			City o	of Ottaw	a			
Date Performed	11/15	5/2021					East/	West Str	eet		Clare	nce Stre	et			
Analysis Year	2029						North	/South S	Street		King	Edward .	Avenue			
Time Analyzed	Peak	PM Hou	r (Total)				Peak	Hour Fac	ctor		0.92					
Intersection Orientation	North	n-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Bouti	que Hot	el													
Lanes																
Vohiclo Volumes and 6 di	uga en e	unto		74 47 47	ብ ጎ Major	† † † † † † r Street: Nor	1 ት ሰ	7 4 4 7 1								
Vehicle Volumes and Adj	ustme															
Approach			ound				oound				bound				bound	
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority Number of Lanes		10	11	12		7	8	9	10	0	3	3	4U	4	5	6
Configuration		0	0	0		0	0	1 R	0	0		TR	0	0	2 T	TR
Volume (veh/h)								78			1131	10			891	10
Percent Heavy Vehicles (%)								1			1131	10			031	10
Proportion Time Blocked								<u> </u>								
Percent Grade (%)							0									
Right Turn Channelized							lo									
Median Type Storage				Undi	vided											
Critical and Follow-up He	adwa	ys														
Base Critical Headway (sec)		_	П	П		П		7.1		Г	Т	П	П	П	Т	
Critical Headway (sec)								7.12								
Base Follow-Up Headway (sec)								3.9								
Follow-Up Headway (sec)								3.91								
Delay, Queue Length, and	l Leve	l of S	ervice													
Flow Rate, v (veh/h)				П				85								
Capacity, c (veh/h)								371								
v/c Ratio								0.23								
95% Queue Length, Q ₉₅ (veh)								0.9								
Control Delay (s/veh)								17.5								
Level of Service (LOS)								С								
Approach Delay (s/veh)						17	7.5									
Approach LOS						(2									

EXHIBIT 4.12 2016 EXISTING PEAK AM HOUR ANALYSIS - Murray/King Edward

		HCS7 S	Signaliz	ed	Inte	ersect	tion R	esu	lts	Sum	nmary	,				
General Informati	ion								Inte	rsecti	on Info	ormatic	n		4 시하 1	la lu
Agency									Dura	ation,	h	0.250			1117	
Analyst			Anal	ysis [Date	Nov 1	6, 2021		Area	а Туре)	Other		<u></u>		
Jurisdiction	City of Otta	wa	Time	Peri	iod	Peak A	AM Hou	r	PHF	=		0.92				
Urban Street	King Edwar	d Avenue	Anal	ysis `	Year	2016			Ana	lysis F	Period	1> 7:0	00	7		
Intersection	Murray/King	g Edward	File	Name	е	737_2	016_ex	_AM.:	xus						117	
Project Description	Boutique Ho	otel												Т	41441	7
Demand Informat	ion		_		EB			W	R			NB			SB	
Approach Moveme				_	T	R	L	T	_	R	L	T	R	L	T	R
Demand (v), veh/			121		350	87	-	+ '	-		-	436	33	1208	1304	N
Demand (v), ven/	11		12	•	330	07	-	-	÷			430	33	1200	1304	
Signal Informatio	n			Ŧ.	IJ.	H	$\overline{}$	т			$\overline{}$					
Cycle, s 12	20.0 Reference	Phase 2	2	B	-	Ĭ ,	·B						>	Þ	-	↔
	0 Reference	Point Er	nd Cree	,,	7 /	20.4	20.0	100	\vdash	0.0	0.0		1	2	3	Ŋ
-	No Simult. Gar	p E/W O		en 47 w 3.		3.0	3.3	0.0	-	0.0	0.0				7	
	xed Simult. Gar		TOIL	3.		6.5	3.6	0.0	-	0.0	0.0		5	6	7	
Timer Results			E	BL		EBT	WBI	-	WE	3T	NBL		NBT	SBI	-	SBT
Assigned Phase						4							2	1		6
Case Number					1	10.0							8.3	2.0		4.0
Phase Duration, s					2	26.9							38.9	54.1		93.1
Change Period, ()	nange Period, (Y+R c), s					6.9							9.5	6.7		9.5
Max Allow Headwa	ay (<i>MAH</i>), s					3.1							0.0	3.1		0.0
Queue Clearance	Time (<i>g</i> _s), s		\neg		1	19.0		\neg		\neg				45.4	i	
Green Extension T	ime (<i>g</i> _e), s					1.1							0.0	2.0		0.0
Phase Call Probab	oility				1	1.00								1.00)	
Max Out Probabilit	у					0.00		\perp		\perp				0.62	2	
Movement Group	Results		_	E	EB			WE	3	7		NB			SB	-
Approach Moveme			1	_	Т	R		Т	_	R	L	Т	R	L	T	R
Assigned Moveme			7	_	4	14					_	2	12	1	6	1.
Adjusted Flow Rate			132	_	47	228						343	167	1313	1417	
Adjusted Saturatio		. veh/h/ln	1514	\rightarrow	730	1561				-		1589	1517	1639	1545	
Queue Service Tim		, 2018/1/11	9.4	$\overline{}$	6.5	17.0				\neg		11.2	11.1	43.4	15.6	
Cycle Queue Clear	(0),). s	9.4	-	6.5	17.0				-		11.2	11.1	43.4	15.6	
Green Ratio (g/C)	, , ,	,, -	0.18	-	.18	0.18						0.25	0.25	0.46	0.70	
Capacity (c), veh	,		265	\rightarrow	03	274				-		807	385	1505	3267	
Volume-to-Capacit			0.49	\rightarrow	_	0.835				\neg		0.425	0.434	0.872	0.434	
Back of Queue (Q		rcentile)	_	9 30	$\overline{}$	274.2			+	_		218.2	197.9	615.5	218.7	
Back of Queue (Q			6.4	-	1.6	11.0						7.8	7.9	24.2	8.3	
Queue Storage Ra			0.00	\rightarrow	.00	0.00				-		0.00	0.00	0.00	0.00	
Uniform Delay (d :	. , , ,	p 3. 33. (a. 0)	44.7	-	7.6	47.8				\neg		37.5	37.5	29.3	7.7	
Incremental Delay	**		0.5	$\overline{}$	2.0	2.6				_		1.6	3.5	5.1	0.4	
Initial Queue Delay	, , , , , , , , , , , , , , , , , , , ,		0.0	-	0.0	0.0				\neg		0.0	0.0	0.0	0.0	
Control Delay (d)	, , , , .		45.2	\rightarrow	9.6	50.4				_		39.1	41.1	34.4	8.1	
			D	$\overline{}$	D	D				\dashv		D	D	C	A	
	Level of Service (LOS)				_	D	0.0		_	-	39.7	_	D	20.8		С
	Approach Delay, s/veh / LOS Intersection Delay, s/veh / LOS					27					30.7			C		
,																
Multimodal Resul	lultimodal Results				EΒ			WE				NB			SB	
Pedestrian LOS So	core / LOS		2.	48		В	2.75	5	С		1.71		В	1.86	3	В
Ricycle LOS Score	estrian LOS Score / LOS cle LOS Score / LOS					Α					0.77		Α	1.99)	В

EXHIBIT 4.13

2016 EXISTING PEAK PM HOUR ANALYSIS - Murray/King Edward

		нсѕ	7 Sig	nalize	d Int	ersec	tion R	esu	lts	Sun	nmary	<u>, </u>				
General Inform	4!								lasta.	41		4! -			4 74 1	h U
	lation	I						-			on Info	1		- 1	ŢŢŢŢ	
Agency				A m m h re	ia Dati	Nav. 1	6 2024			ation,		0.250				
Analyst		0.4 6.04				Nov 1				а Туре -)	Other				2
Jurisdiction		City of Ottawa		Time F			PM Hou	r	PHF			0.92		_ ₹ -		
Urban Street		King Edward Avenu		Analys						lysis F	Period	1> 7:0)0			
Intersection		Murray/King Edward	d	File Na	ame	737_2	2016_ex	_PM.:	xus					- 1	111	
Project Descript	tion	Boutique Hotel	_	_	_	_	_	-	-	_	_	_	_		4 I W T	MIL
Demand Inform	nation				EB			W	В			NB		_	SB	
Approach Move				L	T	□ R	L	T	_	R	L	T	□ R	L	T	R
Demand (v), v				397	545	77	1		\rightarrow			1142	_	693	673	
Signal Informa	tion					11		Т				l				
Cycle, s	100.0	Reference Phase	2		P	- 1 -	,)	Y		-	♣.
Offset, s	0	Reference Point	End	Green	19.5	29.5	27.9	0.0	,	0.0	0.0		1	2	3	Y 4
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0	-	0.0	0.0				<i>></i>	
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.7	6.5	3.6	0.0		0.0	0.0		5	6	7	8
Timer Results				EBI	-	EBT	WBI		WB	3T	NBL		NBT	SBI	-	SBT
Assigned Phase	9					4		_		_			2	1		6
Case Number						10.0		_		_			8.3	2.0		4.0
Phase Duration	·				\perp	34.8		\perp		_			39.0	26.2		65.2
Change Period,	ange Period, (Y+R ҫ), s					6.9		_		_			9.5	6.7		9.5
Max Allow Head	ange Period, (Y+ <i>R c</i>), s x Allow Headway (<i>MAH</i>), s					3.1		\perp		_			0.0	3.1		0.0
Queue Clearan	ce Time	e (g s), s				26.2								23.5	5	
Green Extensio	n Time	(g _e), s				1.7							0.0	0.0		0.0
Phase Call Prob	pability				\perp	1.00		_		_				1.00		
Max Out Probal	bility					0.23	oxdot			_				1.00)	
Movement Gro	un Res	sults			EB			WE	3	7		NB			SB	
Approach Move					T	□ R		Т	_	R	L	T	R	L	T	R
Assigned Move				7	4	14			+		_	2	12	1	6	- 11
Adjusted Flow F) veh/h		432	347	329			+			870	424	753	732	
		ow Rate (s), veh/h/l	n	1701	1758	1655			+			1716	1670	1652	1580	
Queue Service				24.2	17.5	17.6						23.5	23.6	21.5	13.0	
Cycle Queue C				24.2	17.5	17.6				_		23.5	23.6	21.5	13.0	
Green Ratio (g		5 mm (g c), c		0.29	0.29	0.29			+	_		0.31	0.31	0.27	0.57	
Capacity (c), v				491	508	478			+			1047	509	899	1792	
Volume-to-Capa		itio (X)		0.878	0.684	_						0.831	0.831	0.838	0.408	
<u> </u>		/In (95 th percentile)		417.5		285.1			+			415.7	419	356.2	212	
		eh/ln (95 th percenti		16.6	11.9	11.4						15.9	16.8	14.1	7.9	
		RQ) (95 th percent		0.00	0.00	0.00			+			0.00	0.00	0.00	0.00	
Uniform Delay (, , , , ,	-,	33.9	31.5	31.6						32.4	32.4	34.3	12.4	
				10.8	1.5	1.7						7.7	14.6	6.7	0.7	
	cremental Delay (<i>d</i> ₂), s/veh itial Queue Delay (<i>d</i> ₃), s/veh			0.0	0.0	0.0						0.0	0.0	0.0	0.0	
Control Delay (44.7	33.0	33.2						40.0	47.0	41.0	13.1	
Level of Service				D	C	C						D	D	D	В	
Approach Delay	` /			37.6	_	D	0.0				42.3	_	D	27.3		С
Intersection Del							5.2							D		
	ultimodal Results				EB		-	WE		\rightarrow	,	NB			SB	
				2.47 1.40	-	В	2.61		С	_	1.70	-	В	1.88	-	В
Bicycle LOS Sc	modal Results strian LOS Score / LOS le LOS Score / LOS)	Α					1.20		Α	1.71		В

EXHIBIT 4.14 2024 BACKGROUND PEAK AM HOUR ANALYSIS - Murray/King Edward

		HCS	7 Sig	nalize	d Int	ersec	tion R	esu	lts :	Sum	nmary	,				
Camanal Inform	41								lasta.	41	If.	41 -			4 1 4 1 .	k U
General Inform	ation	I						-			on Info	1		- 1	TIT.	
Agency				A l	:- D-4	- N 4	0.0004	-		ation,		0.250		- 2		
Analyst		0" 10"		-		e Nov 1	•	-		a Type)	Other				2
Jurisdiction		City of Ottawa		Time F		_	AM Hou	$\overline{}$	PHF			0.92		_ 🖺 😽		
Urban Street		King Edward Avenu		Analys		\rightarrow	Backgro	_			Period	1> 7:0)0			
Intersection		Murray/King Edward	d	File Na	ame	737_2	2024_ba	k_AN	l.xus						117	
Project Descript	tion	Boutique Hotel				_	_	_	_	_					4 1 4 7	r r
Demand Inform	nation				EB		_	W	В	_		NB		_	SB	
Approach Move				L	T	R	L	T 7	_	R	L	T	R	L	T	│ R
Demand (v), v				131	380	94	1		\rightarrow			472	42	1310	1418	1
Demand (V), V	CHATT			101	000	01	-		•			772	72	1010	1410	
Signal Informa	tion				I IL	II	\top	т	\neg		\top			.		
Cycle, s	120.0	Reference Phase	2	1	-	# `▲	,)	_	P	-	-4
Offset, s	0	Reference Point	End	Green	18.0	26.5	21.5	0.0	$\overline{}$	0.0	0.0		1	2	3	Y 4
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0	-	0.0	0.0	-			7	
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.7	6.5	3.6	0.0		0.0	0.0		5	6	7	8
Timer Results				EBL		EBT	WBI	- T	WB	3T	NBL		NBT	SBI	. T	SBT
Assigned Phase	Э					4							2	1		6
Case Number						10.0		\neg		\neg			8.3	2.0		4.0
Phase Duration	·					28.4		\neg		\neg		- ;	36.0	55.6	3	91.6
Change Period,	ange Period, (Y+R ҫ), s					6.9		\neg		\neg			9.5	6.7		9.5
Max Allow Head	ange Period, (<i>Y+R շ</i>), s x Allow Headway (<i>MAH</i>), s					3.1		\neg		\neg			0.0	3.1		0.0
Queue Clearan	ce Time	e (gs), s				20.3								50.7	,	
Green Extensio	n Time	(g e), s				1.2		\neg		\neg			0.0	0.0	\neg	0.0
Phase Call Prob	bability	,,,				1.00								1.00		
Max Out Probal	bility					0.01		工						1.00)	
Movement Gro	un Pos	rulte			EB			WE	2	-		NB			SB	
Approach Move		ouito			Т	R	L	T	_	R	L	T	R		T	R
				7	4	14	-		+			2	12	1	6	I N
Assigned Move) voh/h		142	268	247			+	-		377	182	1424	1541	
Adjusted Flow F		,.	n	1514	1730	1564			+	-		1589	1503	1639	1545	
Queue Service		ow Rate (s), veh/h/l	"	10.1	17.9	18.3			+	-		12.4	12.7	48.7	18.4	
Cycle Queue C				10.1	17.9	18.3			+	-		12.4	12.7	48.7	18.4	
Green Ratio (g		e Tille (<i>g c)</i> , s		0.19	0.19	0.19			+	-		0.23	0.23	0.47	0.69	
Capacity (c), v				284	324	293			+	-		729	345	1546	3211	
Volume-to-Capa		tio (V)		0.502	0.827	_			+	-		0.517	0.528	0.921	0.480	
<u> </u>		/In (95 th percentile)		192	325.6					-		246.1	224	701.2	252	
		eh/In (95 th percenti		6.9	12.5	11.9				-		8.8	9.0	27.6	9.5	
		RQ) (95 th percent		0.00	0.00	0.00			+	-		0.00	0.00	0.00	0.00	
Uniform Delay (, , , , ,	0)	43.7	46.9	47.1				\neg		40.4	40.6	29.6	8.7	
				0.5	3.4	4.8				-		2.6	5.7	9.2	0.5	
	cremental Delay (d 2), s/veh			0.0	0.0	0.0				-		0.0	0.0	0.0	0.0	
	tial Queue Delay (d ȝ), s/veh ontrol Delay (d), s/veh			44.3	50.3	51.9				-		43.1	46.2	38.8	9.2	
Level of Service				D	D	D						D D	D D	D	A	
Approach Delay				49.6	_	D	0.0		_	-	44.1		D	23.4		С
Intersection Del				70.0			0.0			\dashv	- 			C 23.5		
	Itimodal Results				EB			WE				NB			SB	
				2.48	-	В	2.75		С	\Box	1.72	-	В	1.86	-	В
Bicycle LOS Sc	modal Results strian LOS Score / LOS le LOS Score / LOS				<u> </u>	Α					0.79		Α	2.12	2	В

EXHIBIT 4.15 2024 BACKGROUND PEAK PM HOUR ANALYSIS - Murray/King Edward

			7 Sig													
General Inform	nation								Inte	ersecti	ion Info	rmatic	n	1 2	4741	
Agency										ation,		0.250			ttrr	
Analyst				Analys	sis Date	Nov 1	6, 2021		Are	а Туре)	Other		Δ		
Jurisdiction		City of Ottawa		Time F		_	PM Hou	r	PH			0.92				
Urban Street		King Edward Avenu	e	_		-	Backgro	$\overline{}$	Ana	alysis F	Period	1> 7:0	00	- 3 - - 4		
Intersection		Murray/King Edward		File Na		-	024 ba	_		-					+++	
Project Descrip	tion	Boutique Hotel	-			1								i i	1 1 4 7	17
· ·																
Demand Inforr	nation				EB			W	В			NB			SB	
Approach Move	ement			L	T	R	L	1	_	R	L	Т	R	L	T	F
Demand (v), v	eh/h			430	591	83		\perp				1237	59	753	736	┖
Oissan I la fassan	41				b II	h [-				-				
Signal Informa		D. C Di	_		177	- 1 +	حا					Į		Ťя		7
Cycle, s	100.0	Reference Phase	2	-		T ti							1	2	3	4
Offset, s	0	Reference Point	End	Green		29.5	29.8	0.0		0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0		0.0	0.0		-	· [_	_^_	
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.7	6.5	3.6	0.0	,	0.0	0.0		5	6	7	
Timer Results				EBI		EBT	WBI		WI	BT I	NBL		NBT	SBI		SBT
Assigned Phase	e			- 201		4	***	-	771		, VDL		2	1		6
Case Number						10.0	_	\rightarrow					8.3	2.0	_	4.0
	hase Duration, s					36.7	_	_				_	39.0	24.3	_	63.3
	·					6.9	_	\rightarrow				\rightarrow	9.5	6.7	\rightarrow	9.5
	hange Period, (Y+R c), s lax Allow Headway (MAH), s					3.1	_	_				_	0.0	3.1	_	0.0
Queue Clearan				_		28.2	_	\rightarrow		_			0.0	26.6	$\overline{}$	0.0
Green Extension				_	_	1.6	_	-		_		_	0.0	0.0	-	0.0
Phase Call Prol		(90), 3		_		1.00	_	\rightarrow		_			0.0	1.00	-	0.0
Max Out Proba					_	0.46		_		_				1.00	_	
Movement Gro	up Res	ults			EB			WE	3	_		NB			SB	
Approach Move	ement			L	T	R	L	Т	\perp	R	L	Т	R	L	Т	F
Assigned Move	ment			7	4	14						2	12	1	6	
Adjusted Flow F	Rate (v), veh/h		467	376	356						949	460	818	800	
		ow Rate (s), veh/h/l	n	1701	1758	1657						1716	1664	1652	1580	
Queue Service		, ,,		26.2	18.9	18.9						26.5	26.6	24.6	15.3	
Cycle Queue C		e Time (<i>g c</i>), s		26.2	18.9	18.9						26.5	26.6	24.6	15.3	
Green Ratio (g				0.31	0.31	0.31						0.31	0.31	0.25	0.55	
Capacity (c), v	eh/h			524	542	511						1047	508	835	1731	
Volume-to-Cap				0.891	0.695	0.697						0.906	0.906	0.980	0.462	
		In (95 th percentile)		_	324.7	303.8						478.2	486.5	465.5	244.3	
		eh/ln (95 th percenti		18.1	12.7	12.2						18.3	19.5	18.5	9.0	
		RQ) (95 th percent	ile)	0.00	0.00	0.00						0.00	0.00	0.00	0.00	
Uniform Delay	(d1), s	/veh		33.0	30.4	30.5						33.4	33.4	37.1	13.9	
Incremental De	lay (d 2), s/veh		13.3	2.1	2.3						12.8	22.4	26.2	0.9	
Initial Queue De		,		0.0	0.0	0.0						0.0	0.0	0.0	0.0	
Control Delay (d), s/veh				46.3	32.6	32.8						46.1	55.8	63.3	14.8	
evel of Service (LOS)				D	С	С						D	E	Е	В	
Approach Delay		38.0)	D	0.0				49.3		D	39.3	3	D		
Intersection De	ntersection Delay, s/veh / LOS					42	2.3							D		
Multimodal Re			EB			WE	3 C		1.70	NB			SB	_		
Pedestrian LOS		2.47		В	2.61						В	1.89		В		

EXHIBIT 4.16 2029 BACKGROUND PEAK AM HOUR ANALYSIS - Murray/King Edward

		нсѕ	7 Sig	nalize	d Int	ersec	tion R	esu	lts	Sun	nmary	,				
Camanal Inform	-4!								luta		If.	41 -			47411	L U
General Inform	ation	I						-			on Info	1		- 1	TITL	
Agency				A l	:- D-4	- N 4	0.0004	-		ation,		0.250		-		
Analyst		0" 10"				e Nov 1	•	-		а Туре -)	Other				2
Jurisdiction		City of Ottawa		Time F		_	AM Hou	$\overline{}$	PHF			0.92		_ 🖺 😽		
Urban Street		King Edward Avenu		Analys		\rightarrow	Backgro	_			Period	1> 7:0)0			,
Intersection		Murray/King Edwar	d	File Na	ame	737_2	2029_ba	k_AN	1.xus						117	
Project Descript	tion	Boutique Hotel	_		_			_	_	_	_	_	_	1 1	4 1 4 7	r r
Demand Inform	nation				EB		_	W	B	_		NB		_	SB	
Approach Move				L	T	R	L	T 7	_	R	L	T	T R	L	T	R
Demand (v), v				138	399	99	1		\rightarrow			496	44	1377	1491	1
Bomana (v); v	011111			100	000			ė.				100		1011	1 10 1	
Signal Informa	tion				I IL	II	\top	т			\top					
Cycle, s	120.0	Reference Phase	2	1	-	# `▲	,)	_	P	-	4
Offset, s	0	Reference Point	End	Green	48.0	26.5	22.4	0.0	-	0.0	0.0		1	2	3	Y 4
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0	_	0.0	0.0	-			7	
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.7	6.5	3.6	0.0	_	0.0	0.0		5	6	7	8
Timer Results				EBI		EBT	WBI	- T	WE	3T	NBL		NBT	SBI	-	SBT
Assigned Phase	•					4							2	1		6
Case Number						10.0							8.3	2.0		4.0
Phase Duration						29.3		\neg					36.0	54.7	7	90.7
Change Period,	ange Period, (Y+R ҫ), s					6.9		\neg					9.5	6.7		9.5
Max Allow Head	ange Period, (<i>Y+R c</i>), s x Allow Headway (<i>MAH</i>), s					3.1		\neg		\neg			0.0	3.1		0.0
Queue Clearan	ce Time	e (gs), s				21.2								56.1		
Green Extensio	n Time	(g e), s				1.2		\neg		\neg			0.0	0.0	\neg	0.0
Phase Call Prob	pability	, ,				1.00								1.00		
Max Out Probal	oility					0.01								1.00)	
Movement Gro	un Pos	rulte			EB			WE	2	_		NB			SB	
Approach Move		uits			Т	R	L	T	_	R	L	T	R	L	T	R
Assigned Move				7	4	14	-		-		느	2	12	1	6	11
Adjusted Flow F) voh/h		150	282	260			-	_		396	191	1497	1621	
		,.	n	1514	1730	1565			-	_		1589	1503	1639	1545	
Queue Service		ow Rate (s), veh/h/l	"	10.6	18.8	19.2			+			13.2	13.5	54.1	20.3	
Cycle Queue C				10.6	18.8	19.2			+			13.2	13.5	54.1	20.3	
Green Ratio (g		e Tille (<i>g c)</i> , s		0.20	0.20	0.20			-	_		0.23	0.23	0.46	0.68	
Capacity (c), v				295	337	305			+	_		729	345	1521	3175	
Volume-to-Capa		tio (X)		0.508	0.834	_						0.543	0.554	0.984	0.510	
<u> </u>		/In (95 th percentile)		201	342.5	_			+			257.8	235.1	826.3	275.9	
		eh/In (95 th percentile)		7.2	13.2	12.5			+			9.2	9.4	32.5	10.5	
		RQ) (95 th percent		0.00	0.00	0.00			+			0.00	0.00	0.00	0.00	
Uniform Delay (, , , , , , , , , , , , , , , , , , ,	0)	43.1	46.4	46.6			+			40.7	40.8	31.7	9.3	
Incremental De				0.5	4.7	6.3			+			2.9	6.3	19.3	0.6	
Initial Queue De		,		0.0	0.0	0.0			+			0.0	0.0	0.0	0.0	
Control Delay (43.7	51.1	52.9			+			43.6	47.1	51.0	9.9	
Level of Service				D D	D	D D			+			D	D D	D	A	
Approach Delay	` /			50.1	_	D	0.0				44.8	_	D	29.7	_	С
Intersection Delay				50.1			1.9				14 .0			29.7 C		U
	,, =, , ,															
Multimodal Re	Itimodal Results				EB			WE	3			NB			SB	
Pedestrian LOS	Score	/LOS		2.48		В	2.75		С		1.72		В	1.86	3	В
Bicycle LOS Sc	modal Results strian LOS Score / LOS le LOS Score / LOS				;	Α					0.81		А	2.20)	В

EXHIBIT 4.17

2029 BACKGROUND PEAK PM HOUR ANALYSIS - Murray/King Edward

HCS7 Signalized Intersection Results Summary General Information Intersection Information IILL Duration, h 0.250 Agency Analysis Date Nov 16, 2021 Area Type Other Analyst Peak PM Hour PHF 0.92 Jurisdiction City of Ottawa Time Period Urban Street Analysis Year 2029 Background Analysis Period 1> 7:00 King Edward Avenue Intersection Murray/King Edward File Name 737 2029 bak PM.xus Project Description Boutique Hotel WB **Demand Information** EΒ NB SB Approach Movement Т R Т R Т R R L L L L Demand (v), veh/h 452 621 88 1300 62 791 772 Signal Information \mathbb{L} Cycle, s 100.0 Reference Phase Offset, s 0 Reference Point End 31.0 Green 16.4 29.5 0.0 0.0 0.0 Uncoordinated No Simult. Gap E/W On Yellow 3.0 3.0 3.3 0.0 0.0 0.0 Force Mode Fixed Simult. Gap N/S On Red 3.7 6.5 0.0 0.0 Timer Results EBL EBT WBL WBT NBL NBT SBL SBT Assigned Phase 4 2 1 6 Case Number 10.0 8.3 2.0 4.0 Phase Duration, s 37.9 39.0 23.1 62.1 Change Period, (Y+Rc), s 6.9 9.5 6.7 9.5 Max Allow Headway (MAH), s 3.1 0.0 3.1 0.0 Queue Clearance Time (g_s), s 29.6 26.1 Green Extension Time (ge), s 1.4 0.0 0.0 0.0 1.00 1.00 Phase Call Probability Max Out Probability 0.69 1.00 Movement Group Results WB EB NB Approach Movement R Т R Т R Т R L Т L L L Assigned Movement 14 12 6 7 4 2 1 Adjusted Flow Rate (v), veh/h 374 839 491 396 484 860 997 Adjusted Saturation Flow Rate (s), veh/h/ln 1701 1758 1657 1716 1664 1652 1580 27.6 19.8 28.3 28.5 16.8 Queue Service Time (g_s), s 19.8 24.1 Cycle Queue Clearance Time (g c), s 27.6 19.8 19.8 28.3 28.5 24.1 16.8 Green Ratio (g/C) 0.32 0.32 0.32 0.31 0.31 0.24 0.54 545 531 1047 508 1692 Capacity (c), veh/h 563 794 0.703 0.705 Volume-to-Capacity Ratio (X) 0.901 0.952 0.952 1.082 0.496 Back of Queue (Q), ft/ln (95 th percentile) 482.3 338.9 316.8 529.3 540.4 583.1 264.7 Back of Queue (Q), veh/ln (95 th percentile) 13.2 12.7 21.6 9.8 19.1 20.2 23.1 Queue Storage Ratio (RQ) (95 th percentile) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Uniform Delay (d 1), s/veh 32.5 29.8 29.8 34.0 34.0 38.0 14.9 Incremental Delay (d 2), s/veh 15.2 2.5 2.7 18.5 29.7 56.5 1.0 Initial Queue Delay (d 3), s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Control Delay (d), s/veh 47.6 32.3 32.6 52.5 63.8 94.5 16.0 Level of Service (LOS) С D Ε D В Approach Delay, s/veh / LOS 38.4 56.2 55.7 0.0 Ε Intersection Delay, s/veh / LOS 50.9 D **Multimodal Results** EΒ WB NB SB Pedestrian LOS Score / LOS 2.47 В 2.61 С 1.70 В 1.89 В Bicycle LOS Score / LOS 1.53 В 1.30 Α 1.89 В

EXHIBIT 4.18 2024 TOTAL PEAK AM HOUR ANALYSIS - Murray/King Edward

		HCS	7 Sig	nalize	d Int	ersec	tion R	esu	Its Su	mmar	у				
General Inform	ation							_	Interco	ction Inf	ormatio	nn.	1 2	4741	ja l <u>u</u>
Agency	iauon							\rightarrow	Duration		0.250			1111	
				Analys	ic Dot	Nov 1	6 2021	\rightarrow			Other				
Analyst		City of Ottawa		-		Nov 1	•	\rightarrow	Area Ty _l PHF	pe	0.92			wi.	
Jurisdiction		-		Time F		_	AM Hou			Dorind	1> 7:0	20	- <u>₹</u> -₹		
Urban Street		King Edward Avenu		Analys					Analysis	Period	1> 7:1	JU			
Intersection	··	Murray/King Edwar	a	File Na	ame	131_2	2024_tot	_AIVI.)	kus				- 1	111	te C
Project Descript	tion	Boutique Hotel												1,5,1,7,1,	n I I
Demand Inforn	nation				EB		$\overline{}$	WI	3		NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), v	eh/h			131	381	94					473	42	1311	1418	
Signal Informa		D (D)			177	↓	L				Į		Ťπ		7
Cycle, s	120.0	Reference Phase	2		ľ	_[n	1					1	2	3	→
Offset, s	0	Reference Point	End	Green		26.5	21.5	0.0		0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0					_	→	
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.7	6.5	3.6	0.0	0.0	0.0		5	6	7	
Timer Results				EBL		EBT	WBI		WBT	NBI		NBT	SBI		SBT
Assigned Phase	2			EBL	-	4	VVDI	-	VVDI	INDI	-	2	1	-	6
Case Number						10.0						8.3	2.0		4.0
	ase Duration, s				_	28.4	_	-		_	_	36.0	55.6	_	91.6
	<u> </u>					6.9	_	-		-		9.5	6.7	\rightarrow	9.5
	nange Period, (Y+R c), s ax Allow Headway (<i>MAH</i>), s				_	3.1	_	-		_		0.0	3.1	_	0.0
Queue Clearan	-			_	_	20.4	_	_		-		0.0	50.8	$\overline{}$	0.0
Green Extensio				_	-	1.2	_	-		-	-	0.0	0.0		0.0
Phase Call Prob		(<i>g e)</i> , s		_		1.00	_			_		0.0	1.00	\rightarrow	0.0
Max Out Probal						0.01							1.00	_	
Mayramant Con	D.				ED			\A/D			ND			CD	
Movement Gro		suits			EB	T D		WB			NB	В	-	SB	В
Approach Move				L	T	R	L	Т	R	L	T	R	L	T	R
Assigned Move) l- //-		7	4	14			-		2	12	1	6	
Adjusted Flow F		, .		142	268	248			-		377	182	1425	1541	
		ow Rate (s), veh/h/l	П	1514	1730	1565					1589	1503	1639	1545 18.4	
Queue Service				10.1	17.9 17.9	18.4					12.5 12.5	12.8 12.8	48.8	18.4	
Cycle Queue Cl Green Ratio (g		e fille (gc), s		0.19	0.19	0.19					0.23	0.23	0.47	0.69	
Capacity (c), v				284	324	294					729	345	1545	3210	
Volume-to-Capa		atio (X)		0.501	0.827	_					0.518		0.922	0.480	
		rtio (x) /In (95 th percentile)		191.8	326	298.4					246.5	224.5	703.6	252.5	
		eh/ln (95 th percentile)		6.9	12.5	11.9					8.8	9.0	27.7	9.6	
		RQ) (95 th percent		0.00	0.00	0.00					0.00	0.00	0.00	0.00	
Uniform Delay (43.7	46.9	47.1					40.5	40.6	29.6	8.7	
Incremental Del				0.5	3.5	4.9					2.6	5.7	9.3	0.5	
				0.0	0.0	0.0					0.0	0.0	0.0	0.0	
	itial Queue Delay (d 3), s/veh ontrol Delay (d), s/veh			44.2	50.3	52.0					43.1	46.3	39.0	9.2	
, ,	evel of Service (LOS)			D	D	D					D	D	D	A	
	Level of Service (LOS) Approach Delay, s/veh / LOS			49.6		D	0.0			44.1		D	23.5	_	С
	ntersection Delay, s/ven / LOS						0.4						С		
								11.5						-	
	ultimodal Results			0.10	EB		0.55	WB		4 55	NB		4.61	SB	
				2.48 1.03	-	В	2.75	·	С	1.72	-	В	1.86	-	В
Bicycle LOS Sc	ection Delay, s/veh / LOS				3	Α				0.80)	Α	2.12	2	В

EXHIBIT 4.19 2024 TOTAL PEAK PM HOUR ANALYSIS - Murray/King Edward

General Information Agency Analyst Jurisdiction Urban Street															
Agency Analyst Jurisdiction Urban Street	I							Inte	rsecti	on Info	rmatic	n	U	47411	e L
Analyst Jurisdiction Urban Street							\dashv		ation, l		0.250			TTTT	
Jurisdiction Urban Street			Analys	is Date	Nov 1	6 2021	\dashv		a Type		Other		- A		
Urban Street	City of Ottawa		Time F		-	PM Hou	r	PHF			0.92				
	King Edward Avenu			is Year	-		<u>'</u>		lysis F	Pariod	1> 7:0	20			
Intersection	Murray/King Edward		File Na			024 tot	DM.		iyələ i	enou	1-7.0	,,,			
Project Description	Boutique Hotel	u	File IN	anne	131_2	.02400	_F IVI	xus					- h	111	7 (1)
Troject Bescription	Boundae Hotel														
Demand Information				EB			W	В			NB			SB	
Approach Movement			L	Т	R	L	Т		R	L	Т	R	L	T	R
Demand (v), veh/h			430	592	83						1238	59	754	736	
Signal Information	D. C Di	_		177	+	حا					Į		Ťя		Я
Cycle, s 100.0	Reference Phase	2		ſ	- Î ti							1	2	3	\Rightarrow
Offset, s 0	Reference Point	End	Green		29.5	29.8	0.0	-	0.0	0.0					
Uncoordinated No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0		0.0	0.0			· _	∠	
Force Mode Fixed	Simult. Gap N/S	On	Red	3.7	6.5	3.6	0.0)	0.0	0.0		5	6	7	
Timer Results			EBI		EBT	WBI	$\overline{}$	WE	RT.	NBL		NBT	SBL		SBT
Assigned Phase			LDI	-	4	VVDI	+	VVL	-	NDL	_	2	1	-	6
Case Number					10.0	_	_		-		_	8.3	2.0		4.0
Phase Duration, s			_	_	36.7	_	_		-		_	39.0	24.3	_	63.3
Change Period, (Y+R	c) s		_		6.9		\rightarrow		_		\rightarrow	9.5	6.7	\rightarrow	9.5
Max Allow Headway (, .		_	_	3.1	_	_		_		_	0.0	3.1	_	0.0
Queue Clearance Time			_		28.2	_	\rightarrow		_		_	0.0	26.7	\rightarrow	0.0
Green Extension Time			_	_	1.6	_	_		_		_	0.0	0.0	_	0.0
Phase Call Probability	(9 °), 3				1.00							0.0	1.00	-	0.0
Max Out Probability				-	0.46		7		_				1.00	_	
Movement Group Res	eulte			EB			WE		-		NB			SB	
Approach Movement	Juito			T	R		T	_	R	L	T	R	L	T	R
Assigned Movement			7	4	14			+	-	-	2	12	1	6	- 1
Adjusted Flow Rate (v	() veh/h		467	377	357				-		949	460	820	800	
Adjusted Flow Rate (V	,.	n	1701	1758	1657				-		1716	1664	1652	1580	
Queue Service Time (26.2	18.9	19.0			+	-		26.5	26.6	24.7	15.3	
Cycle Queue Clearance			26.2	18.9	19.0				-		26.5	26.6	24.7	15.3	
Green Ratio (g/C)	(g ·), o		0.31	0.31	0.31						0.31	0.31	0.25	0.55	
Capacity (c), veh/h			524	542	511						1047	508	835	1731	
Volume-to-Capacity Ra	atio (X)		0.891	0.696	0.698			+			0.907	0.907	0.982	0.462	
Back of Queue (Q), ft	· · ·		455.2					+		$\overline{}$	478.8	487.2	467.1	244.3	
Back of Queue (Q), v			18.1	12.7	12.2				-		18.3	19.5	18.5	9.0	
Queue Storage Ratio (0.00	0.00	0.00			+	-		0.00	0.00	0.00	0.00	
Uniform Delay (d 1), s	. , , , ,	-,	33.0	30.5	30.5						33.4	33.4	37.1	13.9	
Incremental Delay (d :			13.3	2.1	2.3			\dagger	_		12.8	22.5	26.5	0.9	
Initial Queue Delay (d			0.0	0.0	0.0						0.0	0.0	0.0	0.0	
Control Delay (d), s/v			46.3	32.6	32.8						46.2	55.9	63.6	14.8	
Level of Service (LOS)			D	С	С						D	E	Е	В	
Approach Delay, s/veh			38.0	_	D	0.0			_	49.4		D	39.5		D
Intersection Delay, s/ve					42	2.4			\equiv				D		
Multimodal Bassilts				ED			WE				NB			SB	
Multimodal Results	/1.08		2.47	EB	В	2.61	_	С	\rightarrow	1.70	IND	В	1.89	_	R
Pedestrian LOS Score	7 203		2.4/		D	2.01		U		1.70		D	1.68	, I	В

EXHIBIT 4.20 2029 TOTAL PEAK AM HOUR ANALYSIS - Murray/King Edward

		HCS	7 Sig	nalize	d Int	ersec	tion R	esu	lts :	Sum	nmary	/				
General Inform	ation								Into	reacti	on Info	rmatic	\n	T p	4741	μŲ
Agency	iauon									ation,		0.250			1111	
Analyst				Analys	ic Date	e Nov 1	6 2021			ацоп, а Туре		Other				
Jurisdiction		City of Ottawa		Time F		_	AM Hou	r	PHF		;	0.92				
Urban Street		King Edward Avenu	10	Analys		_		<u>'</u>			Period	1> 7:0	20	- 3 -		
Intersection		Murray/King Edwar		-			10tai 2029 tot	A N 4		iysis r	renou	1 7.0	<i>.</i>			
	tion	Boutique Hotel	a	File Na	ame	131_2	:029_101	_AIVI.	xus					- 4		2 6
Project Descript	LIOII	Boutique notei	_	_	-	_	_				-	-	_			.,,
Demand Inforn	nation				EB			W	В			NB		$\overline{}$	SB	
Approach Move	ment			L	Т	R	L	T		R	L	Т	R	L	Т	R
Demand (v), v	eh/h			138	400	99						497	44	1378	1491	
Signal Informa		I =			17	ļ						Į		4-		_
Cycle, s	120.0	Reference Phase	2		ľ	Î	R						Y	2	3	↔
Offset, s	0	Reference Point	End	Green	48.0	26.5	22.4	0.0		0.0	0.0					_
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0		0.0	0.0			, <u> </u>	→	
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.7	6.5	3.6	0.0		0.0	0.0		5	6	7	
Timer Results				EBI		EBT	WBI		WB	RT I	NBL		NBT	C DI		SBT
Assigned Phase	2			EBI	-	4	VVBI	-	VVB	, 1	INDL		2	SBI 1	-	6
Case Number						10.0		+		-			8.3	2.0		4.0
Phase Duration	•			_	_	29.3	_	-		-			36.0	54.7	-	90.7
Change Period,		a) c		-		6.9	_	_		-			9.5	6.7	\rightarrow	9.5
Max Allow Head	•	, .		_		3.1	_	-		-			0.0	3.1	_	0.0
Queue Clearan				_		21.2	_	-		-			0.0	56.2	\rightarrow	0.0
Green Extensio				_	_	1.2	_	-		-		-	0.0	0.0		0.0
Phase Call Prob		(<i>g e)</i> , s		_		1.00	_	-		-			0.0	1.00	\rightarrow	0.0
Max Out Probal						0.01		7		_				1.00	_	
Mayamant Cra	un Bas	lta			EB			WE				NB			SB	
Movement Gro		suits		L	Т	□ R	L	T	_	R	L	T	R	L	Т	R
Approach Move				_	_	_	-	- 1	-	K	ᆫ			_		K
Assigned Move) voh/h		7	4	14			-	-		2	12	1409	6	
Adjusted Flow F		, .	n	150	282	260			-	-		397	191	1498	1621	
		ow Rate (s), veh/h/l	П	1514 10.6	1730 18.8	1566 19.2			+	-		1589	1504	1639 54.2	1545 20.3	
Queue Service					_	19.2				-			13.5		20.3	
Cycle Queue Cl Green Ratio (g		e nine (<i>g c</i>), s		10.6 0.20	18.8	0.20				-		13.2	13.5	54.2	0.68	
Capacity (c), v				296	338	306				-		729	0.23 345	0.46 1520	3173	
Volume-to-Capa		atio (X)		0.507	0.835				-	\dashv		0.544	0.555	0.986	0.511	
		rtio (x) /In (95 th percentile)		200.9		313.9			+	-		258.2	-	_		
		eh/In (95 th percentile)		7.2	13.2	_			+	\dashv		9.2	9.4	828.6 32.6	275.9 10.5	
		RQ) (95 th percent		0.00	0.00	0.00				-		0.00	0.00	0.00	0.00	
Uniform Delay (43.1	46.4	46.6				\dashv		40.7	40.8	31.8	9.4	
Incremental Del				0.5	4.7	6.3				_		2.9	6.3	19.6	0.6	
Initial Queue De				0.0	0.0	0.0				\neg		0.0	0.0	0.0	0.0	
Control Delay (43.6	51.1	52.9				-		43.6	47.2	51.4	9.9	
Level of Service	, .			D	D D	D D						D	D D	D	A	
Approach Delay				50.2	_	D	0.0			-	44.8	_	D	29.8	_	С
Intersection Del				00.2			5.0				-74.0			D 29.0		
Multimodal Re					EB			WE		\Box		NB			SB	
Pedestrian LOS				2.48	-	В	2.75		С	_	1.72	-	В	1.86	-	В
Bicycle LOS Sc	ore / LO	OS		1.06	6	Α					0.81		Α	2.20)	В

EXHIBIT 4.21

2029 TOTAL PEAK PM HOUR ANALYSIS - Murray/King Edward

HCS7 Signalized Intersection Results Summary General Information Intersection Information IILL Agency Duration, h 0.250 Analysis Date Nov 16, 2021 Area Type Other Analyst Peak PM Hour PHF 0.92 Jurisdiction City of Ottawa Time Period Analysis Year 2029 Total Analysis Period 1> 7:00 **Urban Street** King Edward Avenue Intersection Murray/King Edward File Name 737 2029 tot PM.xus Project Description Boutique Hotel **Demand Information** EΒ WB NB SB Approach Movement Т R R Т R R L L Т L L Demand (v), veh/h 452 622 88 1301 62 792 772 Signal Information \mathbb{L} Cycle, s 100.0 Reference Phase Offset, s 0 Reference Point End 31.0 Green 16.4 29.5 0.0 0.0 0.0 Uncoordinated No Simult. Gap E/W On Yellow 3.0 3.0 3.3 0.0 0.0 0.0 Force Mode Fixed Simult. Gap N/S On Red 3.7 6.5 0.0 0.0 Timer Results EBT WBL WBT NBL NBT SBL SBT **EBL** Assigned Phase 4 2 1 6 Case Number 10.0 8.3 2.0 4.0 Phase Duration, s 37.9 39.0 23.1 62.1 Change Period, (Y+Rc), s 6.9 9.5 6.7 9.5 Max Allow Headway (MAH), s 3.1 0.0 3.1 0.0 Queue Clearance Time (g_s), s 29.6 26.0 Green Extension Time (ge), s 1.5 0.0 0.0 0.0 1.00 Phase Call Probability 1.00 Max Out Probability 0.69 1.00 Movement Group Results WB EB NB Approach Movement R Т R R Т R L Т L L Т L 14 12 6 Assigned Movement 7 4 2 1 Adjusted Flow Rate (v), veh/h 375 839 491 397 484 861 998 1701 1657 1716 1664 1580 Adjusted Saturation Flow Rate (s), veh/h/ln 1758 1652 27.6 19.9 28.5 16.8 Queue Service Time (g_s), s 19.8 28.4 24.0 Cycle Queue Clearance Time (g c), s 27.6 19.8 19.9 28.4 28.5 24.0 16.8 Green Ratio (g/C) 0.32 0.32 0.32 0.31 0.31 0.24 0.54 545 531 1047 508 1692 Capacity (c), veh/h 563 794 Volume-to-Capacity Ratio (X) 0.901 0.704 0.706 0.953 0.953 1.084 0.496 Back of Queue (Q), ft/ln (95 th percentile) 482.3 339.4 317.6 530.1 541.2 585.2 264.7 Back of Queue (Q), veh/ln (95 th percentile) 12.7 21.6 9.8 19.1 13.3 20.2 23.2 Queue Storage Ratio (RQ) (95 th percentile) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 Uniform Delay (d 1), s/veh 32.5 29.8 29.8 34.0 34.0 38.0 14.9 Incremental Delay (d 2), s/veh 2.6 2.8 18.6 15.2 29.9 57.0 1.0 Initial Queue Delay (d 3), s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Control Delay (d), s/veh 47.6 32.4 32.6 52.6 63.9 95.0 16.0 Level of Service (LOS) С D Ε D В Approach Delay, s/veh / LOS 56.3 56.0 38.4 0.0 Ε Intersection Delay, s/veh / LOS D 51.1 **Multimodal Results** EΒ WB NB SB Pedestrian LOS Score / LOS 2.47 В 2.61 С 1.70 В 1.89 В Bicycle LOS Score / LOS 1.53 В 1.30 Α 1.89 В

EXHIBIT 4.22 2020 EXISTING PEAK AM HOUR ANALYSIS - St. Patrick/King Edward

											mary			_		
General Inform	nation							\neg	Inter	rsecti	on Info	ormatic	n	1 1	[4]J.[4]].	h[U]
Agency								\rightarrow		ation, I		0.250	-		4111	
Analyst				Analys	is Date	Nov 16	6. 2021	\rightarrow		Туре		Other		- Z		
Jurisdiction		City of Ottawa		Time P		-	AM Hou	\rightarrow	PHF			0.92		→		±
Urban Street		King Edward Avenu	IE	Analys		+	4411100	\rightarrow		ysis F	Period	1> 7:0	00	- -₹		
Intersection		St. Patrick/King Edv		File Na		_	020_ex	_		yolo i	Crioa	11- 7.0	,,,			
Project Descrip	tion	Boutique Hotel	wara	1 110 140		1707_2	020_0		\u0					- 6	4144	1-1-
. reject Becomp		Doda que 110te.														
Demand Inform	nation				EB			W	В			NB			SB	
Approach Move	ement			L	Т	R	L	Т		R	L	Т	R	L	Т	R
Demand (v), v	eh/h						100	50	8			617		400	1605	163
Signal Informa		5.4			2115	<u>~</u> †										
Cycle, s	120.0	Reference Phase	2		ľ	l ↑	E						1	2	3	
Offset, s	0	Reference Point	End	Green	30.8	38.1	25.1	0.0		0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0	-	0.0	0.0	_ `	■	1		7
Force Mode	Float	Simult. Gap N/S	On	Red	6.5	6.5	3.6	0.0		0.0	0.0		5	6	7	
Timer Results				EBL		EDT	WB		WB ⁻	т	NBL		NDT	SBI		CDT
Assigned Phase	Δ			EBL		EBT	VVB	-	8	-	INDL		NBT 6	5	-	SBT 2
Case Number	<u> </u>			_	_			-	12.0	0			8.3	2.0		4.0
Phase Duration				_	_		_	_	32.0	-			47.6	40.3		88.0
Change Period	·	,) c		_	_			_	6.9	\rightarrow			9.5	9.5		9.5
				_	_	_		-	3.0	_		_	0.0	3.1	_	0.0
	x Allow Headway (<i>MAH</i>), s eue Clearance Time (<i>g</i> s), s			_					24.1	-			0.0	30.1		0.0
Green Extension				_	_			_	1.0	_			0.0	0.7		0.0
Phase Call Pro		(<i>g e)</i> , s		_	_				1.00	_			0.0	1.00		0.0
Max Out Proba				_	_			-	0.03	-		_		0.00	_	
Wax Out 1 10ba	Dility	_							0.00					0.00		
Movement Gro	oup Res	sults			EB			WB		П		NB			SB	
Approach Move	ement			L	Т	R	L	Т	F	R	L	Т	R	L	Т	R
Assigned Move	ment						3	8				6		5	2	12
Adjusted Flow I	Rate (v), veh/h					343	318	\top	П		671		435	1469	452
Adjusted Satura	ation Flo	ow Rate (s), veh/h/l	ln				1721	1758	3	\neg		1379		1634	1716	1584
Queue Service	Time (g s), S					23.1	20.5		П		15.4		29.1	13.0	13.9
Cycle Queue C	learanc	e Time (<i>g c</i>), s					23.1	20.5				15.4		29.1	13.0	13.9
Green Ratio (g	/C)						0.23	0.23				0.33		0.33	0.73	0.73
Capacity (c), v	/eh/h						389	397				1385		541	3748	1063
Volume-to-Cap	acity Ra	itio (X)					0.881	0.800	_			0.484		0.804	0.392	
Back of Queue	(Q), ft	In (95 th percentile))				413.1	366.6	3			260.9		463.3	197.6	202.9
Back of Queue	(Q), ve	eh/ln (95 th percent	ile)				16.5	14.3				9.0		17.7	7.5	8.1
Queue Storage	Ratio (RQ) (95 th percent	tile)				0.00	0.00				0.00		0.00	0.00	0.00
Uniform Delay	(d 1), s.	/veh					44.9	43.9				31.7		36.6	7.5	6.9
Incremental De	lay (d 2), s/veh					12.5	4.6				1.2		4.2	0.3	1.2
Initial Queue De	elay (d	з), s/veh					0.0	0.0				0.0		0.0	0.0	0.0
Control Delay (d), s/ve	eh					57.4	48.5				32.9		40.8	7.8	8.1
Level of Service	e (LOS)						Е	D				С		D	Α	А
Approach Delay	y, s/veh	/LOS		0.0			53.1	1	D		32.9		С	14.0		В
Intersection De	lay, s/ve	eh / LOS				24	1.4							С		
Multimodal Re					EB			WB				NB			SB	
Pedestrian LOS				2.48	\perp	В	2.75	-	С	-	1.93	\rightarrow	В	1.65	_	В
Bicycle LOS So	core / LC	OS					1.03	3	Α		0.86		Α	1.46	5	Α

EXHIBIT 4.23 2020 EXISTING PEAK PM HOUR ANALYSIS - St. Patrick/King Edward

			J	nalize	u mit				to oun	·					
General Inform	nation							T I	ntersecti	on Info	rmatio	n	1 1	4 14 4 1	h[l]
Agency								1	Duration,	h	0.250			4111	,
Analyst				Analysi	is Date	Nov 1	6. 2021	-	Area Type		Other		4		
Jurisdiction		City of Ottawa		Time P		-	PM Hou	-	PHF		0.92		→		+
Urban Street		King Edward Avenu	ie .	Analys		+		\rightarrow	Analysis F	Period	1> 7:0	00			
Intersection		St. Patrick/King Edv		File Na			020_ex	_		01100	1				
Project Descript	tion	Boutique Hotel	rara	1 110 110		1.01_2	020_0		<u></u>					4144	1- (*)
Demand Inforn					EB		<u> </u>	WB	3		NB			SB	
Approach Move				ᆫ	Т	R	L	T	R	L	T	R	L	T	R
Demand (v), v	eh/h						48	285	5		1447		300	900	99
Signal Informa	tion				b III	b II									
	120.0	Reference Phase	2		247	₹4	5	=					ļ l		
Cycle, s	_					1 1						1	2	3	
Offset, s	0 No	Reference Point Simult. Gap E/W	End	Green		60.0	14.6	0.0	0.0	0.0					—
Uncoordinated Force Mode	No Float	Simult. Gap E/VV	On On	Yellow Red	3.0 6.5	3.0 6.5	3.3	0.0	0.0	0.0		M	T	7	
Force Mode	rioat	Simuit. Gap N/S	On	Red	0.5	0.5	3.0	0.0	10.0	0.0		0	0	7	
Timer Results				EBL		EBT	WBI		WBT	NBL		NBT	SBI		SBT
Assigned Phase	e						- ,,,,,		8	.,,,,,		6	5		2
Case Number									12.0			8.3	2.0		4.0
Phase Duration	ı, s		-		\neg				21.5		-	39.5	29.0	_	98.5
Change Period,		c). s							6.9		\rightarrow	9.5	9.5	_	9.5
	x Allow Headway (<i>MAH</i>), s		\neg						3.1		-	0.0	3.1		0.0
	eue Clearance Time (g_s), s								14.0				23.8	3	
Green Extensio			\neg						0.6			0.0	0.0	_	0.0
Phase Call Prob		(g ·), ·							1.00			0.0	1.00	-	0.0
Max Out Probal			-		\neg				0.00				1.00	_	
Movement Gro	up Res	ults			EB			WB			NB			SB	
Approach Move				L	T	R	L	Т	R	L	T	R	L	Т	R
Assigned Move	ment						3	8	\vdash		6		5	2	12
															258
•				\sqcup			188	174	\longrightarrow	$\overline{}$	1573		326	828	_
Adjusted Satura	ation Flo	ow Rate (s), veh/h/l	ln				1688	1730			1583		1634	1716	157
Adjusted Satura Queue Service	ation Flo	ow Rate (s), veh/h/lg s), s	ln				1688 13.0	1730 11.6			1583 28.7		1634 22.8	1716 4.2	157 4.8
Queue Service Cycle Queue C	ation Flo Time (o learance	ow Rate (s), veh/h/lg s), s	ln				1688 13.0 13.0	1730 11.6 11.6			1583 28.7 28.7		1634 22.8 22.8	1716 4.2 4.2	157 4.8 4.8
Adjusted Satura Queue Service Cycle Queue C Green Ratio (<i>g</i>	ation Flo Time (g learance //C)	ow Rate (s), veh/h/lg s), s	In				1688 13.0 13.0 0.14	1730 11.6 11.6 0.14			1583 28.7 28.7 0.52		1634 22.8 22.8 0.24	1716 4.2 4.2 0.82	157 4.8 4.8 0.8
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio (<i>g</i> Capacity (<i>c</i>), v	ation Flo Time (g learance I/C) reh/h	ow Rate (s), veh/h/l gs), s e Time (gc), s	ln				1688 13.0 13.0 0.14 233	1730 11.6 11.6 0.14 239			1583 28.7 28.7 0.52 2455		1634 22.8 22.8 0.24 387	1716 4.2 4.2 0.82 4200	157 4.8 4.8 0.82 119
Adjusted Satura Queue Service Cycle Queue Cl Green Ratio (g. Capacity (c), v Volume-to-Capa	ation Flo Time (g learance I/C) veh/h acity Ra	ow Rate (s) , veh/h/l gs), s e Time (gc) , s					1688 13.0 13.0 0.14 233 0.807	1730 11.6 11.6 0.14 239 0.727			1583 28.7 28.7 0.52 2455 0.641		1634 22.8 22.8 0.24 387 0.843	1716 4.2 4.2 0.82 4200 0.197	157 4.8 4.8 0.8 119 0.21
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue	ation Flo Time (o learance VC) veh/h acity Ra (Q), ft/	bw Rate (s), veh/h/l gs), s e Time (gc), s tito (X))				1688 13.0 13.0 0.14 233 0.807 236.6	1730 11.6 11.6 0.14 239 0.727 227.4			1583 28.7 28.7 0.52 2455 0.641 407.2		1634 22.8 22.8 0.24 387 0.843 420.4	1716 4.2 4.2 0.82 4200 0.197 48.6	157 4.8 4.8 0.8 119 0.21 54.6
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g. Capacity (c), v Volume-to-Capa Back of Queue Back of Queue	ation Flo Time (g learance /C) yeh/h acity Ra (Q), ft/ (Q), ve	bw Rate (s), veh/h/l gs), s e Time (gc), s tito (X) In (95 th percentile) eh/ln (95 th percentile)) ile)				1688 13.0 13.0 0.14 233 0.807 236.6 9.5	1730 11.6 11.6 0.14 239 0.727 227.4 8.7			1583 28.7 28.7 0.52 2455 0.641 407.2 15.8		1634 22.8 22.8 0.24 387 0.843 420.4 16.0	1716 4.2 4.2 0.82 4200 0.197 48.6 1.9	157 4.8 4.8 0.83 119 0.21 54.0 2.2
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g. Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage	ation Floation Floati	bw Rate (s), veh/h/l g s), s e Time (g c), s etitio (X) f/In (95 th percentile) eh/In (95 th percentile)) ile)				1688 13.0 13.0 0.14 233 0.807 236.6 9.5 0.00	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00			1583 28.7 28.7 0.52 2455 0.641 407.2 15.8 0.00		1634 22.8 22.8 0.24 387 0.843 420.4 16.0 0.00	1716 4.2 4.2 0.82 4200 0.197 48.6 1.9 0.00	157 4.8 4.8 0.82 119 0.21 54.6 2.2
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g. Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (ation Flo Time (glearance //C) //eh/h acity Ra (Q), ft/ (Q), ve Ratio ((d1), s	bw Rate (s), veh/h/l g s), s e Time (g c), s witio (X) In (95 th percentile), eh/ln (95 th percentile), RQ) (95 th percentiveh) ile)				1688 13.0 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5			1583 28.7 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9		1634 22.8 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7	1716 4.2 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2	157 4.8 0.83 119 0.21 54.6 2.2 0.00 2.8
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (Incremental De	ation Flo Time (g learance //C) veh/h acity Ra (Q), fb (Q), ve Ratio ((d 1), s.	bw Rate (s), veh/h/l g s), s e Time (g c), s titio (X) In (95 th percentile), eh/ln (95 th percentile), RQ) (95 th percentiveh), s /veh) ile)				1688 13.0 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2 2.5	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5 1.6			1583 28.7 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9 1.3		1634 22.8 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7 14.7	1716 4.2 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2 0.1	157 4.8 0.8 119 0.21 54.0 2.2 0.00 2.8 0.4
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (Incremental Del Initial Queue De	ation Flot Time (g learance VC) veh/h acity Ra (Q), ft (Q), ve Ratio ((d r), s, lay (d z elay (d	bw Rate (s), veh/h/l g s), s e Time (g c), s titio (X) In (95 th percentile), eh/ln (95 th percentile), RQ) (95 th percentiveh), s /veh g 3), g 3, g 4, g 5) ile)				1688 13.0 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2 2.5 0.0	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5 1.6			1583 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9 1.3 0.0		1634 22.8 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7 14.7	1716 4.2 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2 0.1	157 4.8 0.8 119 0.21 54.4 2.2 0.0 2.8 0.4
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (Incremental Del Initial Queue C Control Delay (ation Floation Floation Floation Floation Floation (C) weh/h acity Ratio (Q), fto (Q), veh (Q), veh (Q), so (Q	bw Rate (s), veh/h/l g s), s e Time (g c), s titio (X) In (95 th percentile), eh/ln (95 th percentile), RQ) (95 th percentiveh), s /veh g 3), s /veh) ile)				1688 13.0 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2 2.5 0.0 52.7	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5 1.6 0.0 51.1			1583 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9 1.3 0.0 22.2		1634 22.8 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7 14.7 0.0 58.4	1716 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2 0.1 0.0 3.4	157 4.8 0.8 119 0.21 54. 2.2 0.0 2.8 0.4 0.0
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g. Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Storage Uniform Delay (Incremental Del Initial Queue C Control Delay (Level of Service	ation Floation Floation Floation Floation Floation Floation (Q) learned (Q), for each (Q), so for each (Q),	ow Rate (s), veh/h/l gs), s e Time (gc), s tio (X) fin (95 th percentile) eh/ln (95 th percentile) (veh), s/veh 3), s/veh eh) ile)				1688 13.0 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2 2.5 0.0 52.7	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5 1.6 0.0 51.1			1583 28.7 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9 1.3 0.0 22.2 C		1634 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7 14.7 0.0 58.4 E	1716 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2 0.1 0.0 3.4	157 4.8 0.8 119 0.21 54. 2.2 0.0 2.8 0.4 0.0 3.2 A
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g. Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (Incremental Del Initial Queue De Control Delay (Level of Service Approach Delay	ation Floation Floation Floation Floation Floation (Q) learned (Q), floation (Q), state	ow Rate (s), veh/h/l gs), s e Time (gc), s tio (X) fin (95 th percentile) eh/ln (95 th percentile) (veh), s/veh gs), s/veh eh) ile)	0.0			1688 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2 2.5 0.0 52.7 D	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5 1.6 0.0 51.1	D	22.2	1583 28.7 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9 1.3 0.0 22.2 C	C	1634 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7 14.7 0.0 58.4 E	1716 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2 0.1 0.0 3.4	157 4.8 0.8 119 0.21 54. 2.2 0.0 2.8 0.4 0.0
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g. Capacity (c), v Volume-to-Capa Back of Queue Back of Queue	ation Floation Floation Floation Floation Floation (Q) learned (Q), floation (Q), state	ow Rate (s), veh/h/l gs), s e Time (gc), s tio (X) fin (95 th percentile) eh/ln (95 th percentile) (veh), s/veh gs), s/veh eh) ile)	0.0		22	1688 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2 2.5 0.0 52.7 D	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5 1.6 0.0 51.1		22.2	1583 28.7 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9 1.3 0.0 22.2 C		1634 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7 14.7 0.0 58.4 E	1716 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2 0.1 0.0 3.4	157 4.8 4.8 0.8; 119 0.21 54.6 2.2 0.00 2.8 0.4 0.0 3.2 A
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g. Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (Incremental Del Initial Queue De Control Delay (Level of Service Approach Delay Intersection Interse	ation Floation Floation Floation Floation Floation Floation (Q) learned (Q), ftd (Q), verification (Q), state	ow Rate (s), veh/h/l gs), s e Time (gc), s tio (X) fin (95 th percentile) eh/ln (95 th percentile) (veh), s/veh gs), s/veh eh) ile)	0.0		22	1688 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2 2.5 0.0 52.7 D	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5 1.6 0.0 51.1		22.2	1583 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9 1.3 0.0 22.2 C		1634 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7 14.7 0.0 58.4 E	1716 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2 0.1 0.0 3.4 A	157 4.8 0.8 119 0.21 54.0 2.2 0.0 2.8 0.4 0.0 3.2 A
Adjusted Satura Queue Service Cycle Queue C Green Ratio (g. Capacity (c), v Volume-to-Capa Back of Queue Back of Queue Queue Storage Uniform Delay (Incremental Del Initial Queue De Control Delay (Level of Service Approach Delay	ation Floation Floation Floation Floation Floation Floation (glear and floation) which we have a control floation Floation (Q), which we have floating fl	by Rate (s), veh/h/l/gs), s e Time (gc), s tio (X) fin (95 th percentile) eh/ln (95 th percentile) eh/ln (95 th percentile) yeh yeh y, s/veh sh / LOS) ile)	0.0	EB	222 B	1688 13.0 0.14 233 0.807 236.6 9.5 0.00 50.2 2.5 0.0 52.7 D	1730 11.6 11.6 0.14 239 0.727 227.4 8.7 0.00 49.5 1.6 0.0 51.1 D		22.2	1583 28.7 28.7 0.52 2455 0.641 407.2 15.8 0.00 20.9 1.3 0.0 22.2 C		1634 22.8 0.24 387 0.843 420.4 16.0 0.00 43.7 14.7 0.0 58.4 E	1716 4.2 0.82 4200 0.197 48.6 1.9 0.00 3.2 0.1 0.0 3.4 A	157 4.8 4.8 0.82 119 0.21 54.6 2.2 0.00 2.8 0.4 0.0 3.2 A

EXHIBIT 4.24 2024 BACKGROUND PEAK AM HOUR ANALYSIS - St. Patrick/King Edward

		HCS	7 Sig	nalize	d Inte	ersec	tion F	Resul	ts Su	mmar	y				
General Inform	ation								Intersec	tion Inf	_		_	4741	
Agency									Duration	, h	0.250)	-		
Analyst				Analys	is Date	Nov 1	6, 2021		Area Typ	е	Other	-	<i>∆</i> ,		
Jurisdiction		City of Ottawa		Time F	eriod	Peak /	AM Hou	ır I	PHF		0.92		4		-
Urban Street		King Edward Avenu	е	Analys	is Year	2024	Backgro	ound /	Analysis	Period	1> 7:	00	7		
Intersection		St. Patrick/King Edv	vard	File Na	ame	737_2	2024_ba	k_AM.	xus					111	
Project Descript	tion	Boutique Hotel											T 1	1 1 4 Y	1- 1
Demand Inforn	nation				EB			WE	3		NB			SB	
Approach Move	ment			L	Т	R	L	Т	R	L	Т	R	L	T	R
Demand (v), v	eh/h						104	529	9	$\overline{}$	642		400	1687	170
Signal Informa	tion				211	1	-	_							
Cycle, s	120.0	Reference Phase	2		P	₽ +	è						t		
Offset, s	0	Reference Point	End	Green	30.8	37.2	26.1	0.0	0.0	0.0		1	2	3	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	_	3.0	3.3	0.0	0.0	0.0	— \		†		7
Force Mode	Float	Simult. Gap N/S	On	Red	6.5	6.5	3.6	0.0	0.0	0.0		6	6	7	
Timer Results				EBL		EBT	WB	L	WBT	NB	L	NBT	SBI		SBT
Assigned Phase	9								8			6	5		2
Case Number	-								12.0			8.3	2.0		4.0
Phase Duration	•			_	_		_	_	33.0		_	46.7	40.3	_	87.0
Change Period,		-) c		_			_		6.9		_	9.5	9.5	_	9.5
				_	_		_	-		_	_			_	
Max Allow Head	_ , ,			_	_		_	_	3.0	_	_	0.0	3.1	$\overline{}$	0.0
Queue Clearand				_	-		-	-	25.0	-	-		30.1	_	
Green Extensio		(<i>g</i> _e), s		_	_		_	_	1.0	_	_	0.0	0.7	_	0.0
Phase Call Prob				_	-		_	-	1.00	-	_		1.00	_	
Max Out Probat	bility				_		_	_	0.05		_		0.00)	
Movement Gro	up Res	sults			EB			WB			NB			SB	
Approach Move	•			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Assigned Move					-		3	8	1		6		5	2	12
Adjusted Flow F) veh/h					357	331	_		698		435	1543	475
		ow Rate (s), veh/h/l	n				1722	1758			1379		1634	1716	1585
Queue Service		. ,,					24.0	21.3			16.4		29.1	14.4	15.3
		- ,					-	_			_		_		_
Cycle Queue Cl		e fille (gc), S					24.0	21.3			16.4		29.1	14.4	15.3
Green Ratio (g							0.23	0.23			0.33		0.33	0.72	0.72
Capacity (c), v		P - () ()					403	411			1352		541	3707	1050
Volume-to-Capa							0.886	_			0.516		0.804	0.416	0.452
	, ,	/In (95 th percentile)					431.1	381			274.6		463.3	215.5	221.1
	, .	eh/ln (95 th percenti					17.2	14.9	-		9.5		17.7	8.2	8.8
		RQ) (95 th percent	ile)				0.00	0.00	-		0.00		0.00	0.00	0.00
Uniform Delay (d 1), s	/veh					44.4	43.4			32.7		36.6	8.1	7.4
Incremental Del	lay (d 2), s/veh					13.8	5.3			1.4		4.2	0.3	1.4
Initial Queue De	elay (d	з), s/veh					0.0	0.0			0.0		0.0	0.0	0.0
Control Delay (d), s/ve	eh					58.2	48.7			34.1		40.8	8.4	8.8
Level of Service	(LOS)						E	D			С		D	Α	А
Approach Delay				0.0			53.6	3	D	34.	1	С	14.2	2	В
Intersection Del						24	1.9						С		
Maritima a stat D								\A(C)			ND			CD.	
Multimodal Res		// 00		0.15	EB	_	2.5	WB		4.6	NB		1.0	SB	
Pedestrian LOS				2.48	-	В	2.7	-	С	1.93	-	В	1.65	_	В
Bicycle LOS Sc	ore / LC	DS					1.06	j	Α	0.87	7	Α	1.50)	Α

EXHIBIT 4.25 2024 BACKGROUND PEAK PM HOUR ANALYSIS - St. Patrick/King Edward

	HCS7 Sig	. iuii26	a 11110	350		Jou	Juli	aı	,				
General Information						$\overline{}$	Intersect	ion Infe	ormatio	n	<u> </u>	14741	
Agency						\rightarrow	Duration,		0.250	-		4111	
Analyst		Analys	is Date	Nov 1	6, 2021	\rightarrow	Area Type		Other				
Jurisdiction	City of Ottawa	Time P		-	PM Hou	\rightarrow	PHF		0.92		→ +		
Urban Street	King Edward Avenue	_		-	Backgro	\rightarrow	Analysis l	Period	1> 7:0	nn	-4		•
Intersection	St. Patrick/King Edward	File Na		_	2024_ba	_		Cilou	12 7.0	,	-		
Project Description	Boutique Hotel	THE IN	iiie	131_2	2024_ba	IK_F IVI	.xus					111	1-1
1 Toject Description	Dodtique Flotei	_			_		_						
Demand Information			EB		\top	VVE	3		NB		$\overline{}$	SB	
Approach Movement		L	Т	R	L	T	R	L	Т	R	L	T	R
Demand (v), veh/h					50	29	7		1506		300	949	103
Signal Information			211	1		_				4			
Cycle, s 120.0	Reference Phase 2		ľ	ľ ↑	, e					K ,	,	3	
Offset, s 0	Reference Point End	Green	19.5	59.5	15.1	0.0	0.0	0.0					
Uncoordinated No	Simult. Gap E/W On	Yellow	3.0	3.0	3.3	0.0	0.0	0.0		■	†		T
Force Mode Float	Simult. Gap N/S On	Red	6.5	6.5	3.6	0.0	0.0	0.0		5	6	7	
Timer Results		EBL		EBT	WBI	L	WBT	NBI	-	NBT	SBI	-	SBT
Assigned Phase						_	8		_	6	5	_	2
Case Number			_		_	-	12.0		_	8.3	2.0	-	4.0
Phase Duration, s		_	_		_	_	22.0		\rightarrow	39.0	29.0	_	98.0
Change Period, (Y+R		_	-		_	-	6.9		_	9.5	9.5	_	9.5
Max Allow Headway (_	_		_	_	3.1		_	0.0	3.1	-	0.0
Queue Clearance Time	, ,		_		_	-	14.5		_		23.8	_	
Green Extension Time	(g _e), s	_	_		_	_	0.6		_	0.0	0.0	_	0.0
Phase Call Probability		_	-		-	-	1.00		-		1.00		
Max Out Probability			_		_	_	0.00		_		1.00	,	
Movement Group Res	sults		EB			WB			NB			SB	
Approach Movement		L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					3	8			6		5	2	12
Adjusted Flow Rate (v	·) veh/h				196	181			1637		326	872	271
Adjusted Saturation Flo	,-				1688	1730			1583		1634	1716	1579
Queue Service Time (13.5	12.0	_		30.8		22.8	4.6	5.3
Cycle Queue Clearance	- /-				13.5	12.0	-		30.8		22.8	4.6	5.3
Green Ratio (g/C)	5 mm (g v), v				0.14	0.14	_		0.51		0.24	0.81	0.81
Capacity (c), veh/h					241	247			2433		387	4176	1191
Volume-to-Capacity Ra	atio (X)				0.813	_	3		0.673		0.843	0.209	0.228
Back of Queue (Q), ft					244.3	_	_		433.7		420.4	54.6	60.8
	eh/ln (95 th percentile)				9.8	9.0			16.8		16.0	2.1	2.4
	RQ) (95 th percentile)				0.00	0.00			0.00		0.00	0.00	0.00
Uniform Delay (d 1), s	, , , , ,				49.9	49.2	_		21.8		43.7	3.4	3.0
Incremental Delay (d 2					2.5	1.6			1.5		14.7	0.1	0.4
Initial Queue Delay (d	,				0.0	0.0			0.0		0.0	0.0	0.0
Control Delay (d), s/v	,.				52.4	50.8			23.3		58.4	3.5	3.4
Level of Service (LOS)					D	D			C		E	A	A
Approach Delay, s/veh		0.0			51.6		D	23.3	_	С	15.7		В
Intersection Delay, s/ven		0.5		23	3.2						C		
, ,													
			EB			WB			NB			SB	
Multimodal Results												OD	
Multimodal Results Pedestrian LOS Score	/LOS	2.48		В	2.75	_	С	1.91		В	1.63		В

EXHIBIT 4.26 2029 BACKGROUND PEAK AM HOUR ANALYSIS - St. Patrick/King Edward

											ımary					
General Inform	nation							\neg	Inte	rsecti	on Info	ormatio	n	1 1	41441	R[U]
Agency								\neg	Dura	ation, I	h	0.250			4111	
Analyst				Analys	is Date	Nov 16	6. 2021	\neg		а Туре		Other		4		
Jurisdiction		City of Ottawa		Time P		-	AM Hou	ır	PHF			0.92		→ - -		-
Urban Street		King Edward Avenu	ıe	Analys		+	Backgro	\rightarrow		lysis F	Period	1> 7:0	00			
Intersection		St. Patrick/King Edv		File Na		_	029_ba	_			01100	1				
Project Descrip	tion	Boutique Hotel	,, a, a	1 110 110		101_2	020_00								4144	1- 1
Demand Inform					EB		₩	W	_			NB		-	SB	
Approach Move				L	Т	R	L	T	-	R	느	T	R	느	Т	R
Demand (v), v	eh/h		_			_	109	55	6		_	675		400	1793	178
Signal Informa	ntion				a JII	a.JI		_			_					
Cycle, s	120.0	Reference Phase	2	1	EA2		1 2	Ħ								
Offset, s	0	Reference Point	End			I I	ļ	٠	\Box		ļ.,		1	2	3	_
Uncoordinated	No	Simult. Gap E/W	On	Green Yellow		36.0	27.3	0.0	-	0.0	0.0	_ լ		•		+
Force Mode	Float	Simult. Gap N/S	On	Red	6.5	3.0 6.5	3.3	0.0	\rightarrow	0.0	0.0		5	6	7	Y
Timer Results				EBL		EBT	WB	L	WE	ЗТ	NBL	.	NBT	SBI	-	SBT
Assigned Phase	е								8				6	5		2
Case Number									12.	.0			8.3	2.0		4.0
Phase Duration	1, S								34.	.2		4	45.5	40.3	3	85.8
Change Period	ange Period, (Y+R c), s								6.9	9			9.5	9.5		9.5
Max Allow Head	ax Allow Headway (<i>MAH</i>), s								3.0	0			0.0	3.1		0.0
Queue Clearan	eue Clearance Time (g $_{s}$), $_{s}$								26.	.3				30.1		
Green Extension	n Time	(g _e), s							1.0	0			0.0	0.7		0.0
Phase Call Pro	bability							\perp	1.0	00				1.00)	
Max Out Proba	bility								0.1	0				0.00)	
Movement Gro	nun Res	ulte			EB			WB		_		NB			SB	
Approach Move		Juito		L	T	R	L	Т	_	R	L	T	R	L	T	R
Assigned Move				-		- 1	3	8	-	*	-	6	- ' '	5	2	12
Adjusted Flow I) veh/h					375	348				734		435	1637	505
-		ow Rate (s), veh/h/l	ln				1722	1758	_			1379		1634	1716	1587
Queue Service		, ,,					25.3	22.4	-	_		17.7		29.1	16.2	17.2
Cycle Queue C							25.3	22.4	_			17.7		29.1	16.2	17.2
Green Ratio (g		(30),0					0.24	0.24	_	\neg		0.32		0.33	0.71	0.71
Capacity (c), v							420	429	-	_		1310		541	3655	1036
Volume-to-Cap		tio (X)					0.892	0.81	_	\neg		0.560		0.804	0.448	_
		In (95 th percentile))				454	399.2		_		292.8		463.3	240.6	
		eh/ln (95 th percent					18.2	15.6	$\overline{}$	-		10.1		17.7	9.2	9.8
	, .	RQ) (95 th percent					0.00	0.00	\rightarrow	_		0.00		0.00	0.00	0.00
Uniform Delay		, , , , ,	,				43.8	42.8	$\overline{}$	\neg		34.1		36.6	8.8	8.1
Incremental De							15.4	6.2	$\overline{}$	_		1.7		4.2	0.4	1.6
Initial Queue De		,					0.0	0.0	-	-		0.0		0.0	0.0	0.0
Control Delay (,.					59.2	49.0	_	_		35.8		40.8	9.2	9.8
Level of Service							E	D				D		D	A	A
Approach Delay		/LOS		0.0			54.3		D		35.8	_	D	14.7		В
Intersection De	•					25								C		
										في						
Multimodal Re	sults				EB			WB				NB			SB	
Pedestrian LOS				2.48		В	2.75	5	С	-	1.93	\rightarrow	В	1.66	3	В
Bicycle LOS So	ore / LC)S					1.08	3	Α		0.89		Α	1.55	5	В

EXHIBIT 4.27 2029 BACKGROUND PEAK PM HOUR ANALYSIS - St. Patrick/King Edward

1100	,, old	IIaiiZC	u iiit	313661		Cou	ito oui	ııııaı					
						\neg	Intersec	tion Info	ormatic	n	[2		p[f]
						\neg	Duration,	, h	0.250			4111	
		Analys	is Date	Nov 16	6, 2021		Area Typ	е	Other		4		
City of Ottawa				-		\rightarrow			0.92		÷		÷
-	ue	_		_		\rightarrow	Analysis	Period	_	00	- F		
-				_		_						+++	
Boutique Hotel											T I	4144	1- 1
						\ A /F			NID			0.0	
						_	_		_			_	
		ᆫ		R	-	_		<u> </u>	_		_	-	R
_	_				53	312	2	-	1583		300	1013	108
				IJI.	Τ.		$\overline{}$	$\overline{}$					
Reference Phase	2	1	F. 4.7		į ž	7				4	l I		
Reference Point	End	C	10 E	50.7	1	-		-		1	2	3	-
Simult, Gap E/W	On						_		_ار		+		
Simult. Gap N/S	On	Red	6.5	6.5	3.6	0.0	-	0.0		5	6	7	_
		EBL		EBT	WBI	L	WBT	NBL		NBT	SBL	-	SBT
		_	_		_	+		_	_		_	_	2
			_		_	-						_	4.0
			_			_						\rightarrow	97.2
ange Period, (Y+R c), s x Allow Headway (<i>MAH</i>), s		_	_			_			_			_	9.5
ax Allow Headway (MAH), s			_		_	_				0.0			0.0
eue Clearance Time (g s), s						_						_	
(g _e), s			_		_	_			_	0.0	_	_	0.0
			_			-			_			_	
		_	_		_	_	0.00	_	_		1.00)	_
sults			EB			WB			NB			SB	
		L	Т	R	L	Т	R	L	Т	R	L	Т	R
					3	8			6		5	2	12
/), veh/h					206	191			1721		326	930	289
ow Rate (s), veh/h/	'In				1689	1730	1		1583		1634	1716	1581
g s), s					14.2	12.6			33.7		22.8	5.2	5.8
ce Time (g c), s					14.2	12.6			33.7		22.8	5.2	5.8
					0.15	0.15			0.51		0.24	0.81	0.81
					251	258			2404		387	4145	1182
atio (X)					0.820	0.740			0.716		0.843	0.224	0.244
l/ln (95 th percentile)				254.1	243.8	3		469.8		420.4	62.4	69.1
					10.2	9.4			18.2		16.0	2.4	2.8
(RQ) (95 th percen	tile)				0.00	0.00			0.00		0.00	0.00	0.00
s/veh					49.5	48.8			22.9		43.7	3.7	3.2
					2.5	1.6			1.9		14.7	0.1	0.5
з), s/veh					0.0	0.0			0.0		0.0	0.0	0.0
eh					52.0	50.4			24.8		58.4	3.8	3.7
)					D	D			С		Е	Α	Α
/LOS		0.0			51.3	3	D	24.8		С	15.3	3	В
				23	3.7						С		
LICS		2.48	EB	В	2.75	WB	С	1.91	NB	В	1.63	SB	В
	City of Ottawa King Edward Avenum St. Patrick/King Ed Boutique Hotel Reference Phase Reference Point Simult. Gap E/W Simult. Gap N/S Co, s MAH), s e (gs), s e (ge), s Sults Sults V), veh/h ow Rate (s), veh/h/gs), s ce Time (gc), s atio (X) Vin (95 th percentile veh/ln (City of Ottawa King Edward Avenue St. Patrick/King Edward Boutique Hotel Reference Phase 2 Reference Point End Simult. Gap E/W On Simult. Gap N/S On Simult. Gap N/S On Co, s MAH), s e (gs), s e Time (gc), s atio (X) t/In (95 th percentile) eh/In (95 th percentile) (RQ) (95 th percentile) (RQ) (95 th percentile) (S/Veh 2), s/veh eh 1 LOS	Reference Phase 2 Reference Phase 2 Reference Point End Simult. Gap E/W On Simult. Gap N/S On Red Column C	Analysis Date	Analysis Date Nov 10	Analysis Date Nov 16, 2021	Analysis Date Nov 16, 2021 Time Period Peak PM Hour King Edward Avenue Analysis Year 2029 Background St. Patrick/King Edward File Name 737_2029_bak_PM Boutique Hotel EB	Intersect	Analysis Date	Intersection Information Duration, h 0.250	Intersection Information Duration, h 0.250	Intersection Information	Analysis Date Nov 16, 2021 Area Type Other

EXHIBIT 4.28 2024 TOTAL PEAK AM HOUR ANALYSIS - St. Patrick/King Edward

	HCS	7 Sig	nalize	d Inte	ersec	tion F	Resul	lts Sui	nmar	у				
General Information								Intersec	tion Inf	0 mm 0 ti d		į į	4 4 4 1	h U
	T						\rightarrow			0.250		- 1	4111	
Agency	-		A	:- D-4-	Nav. 4	0.0004	\rightarrow	Duration		_		- 2		
Analyst	City of Ottown		Time P		Nov 1		\rightarrow	Area Typ PHF	е	Other		-		
Jurisdiction	City of Ottawa		_		_	AM Hou	\rightarrow		Daviad	0.92	20	- 4		
Urban Street	King Edward Avenu		Analys		_		_	Analysis	Period	1> 7:0	30	- 5		
Intersection	St. Patrick/King Ed	ward	File Na	ıme	/3/_2	2024_tot	_AIVI.X	us				- 4	111	1907
Project Description	Boutique Hotel											_	[N I NY T	r II
Demand Information				EB	_	$\overline{}$	WE	3	$\overline{}$	NB			SB	_
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	Т	R
Demand (v), veh/h						104	529			643		400	1688	170
` /														
Signal Information				211	1									
Cycle, s 120.0	Reference Phase	2		1	¹ <u></u>	1 2						.		
Offset, s 0	Reference Point	End	Green	30.8	37.2	26.1	0.0	0.0	0.0		1	2	3	4
Uncoordinated No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0	0.0	0.0	_ (1		7
Force Mode Float	Simult. Gap N/S	On	Red	6.5	6.5	3.6	0.0	0.0	0.0		6	6	7	8
Timer Results			EBL		EBT	WB	L	WBT	NBI	_	NBT	SBI	-	SBT
Assigned Phase				_		_	_	8		_	6	5	_	2
Case Number			_	-		_	-	12.0	_	_	8.3	2.0	_	4.0
Phase Duration, s				_		_	_	33.0	_	_	46.7	40.3	$\overline{}$	87.0
Change Period, (Y+F				_			_	6.9	_		9.5	9.5	_	9.5
	x Allow Headway (MAH), s			_			_	3.0			0.0	3.1		0.0
	eue Clearance Time (g s), s			_			_	25.0				30.1	_	
Green Extension Time				_		_	_	1.0	_	_	0.0	0.7	_	0.0
Phase Call Probability	1			_		_	_	1.00	_	_		1.00	_	
Max Out Probability							_	0.05			_	0.00)	_
Movement Group Re	sults			EB			WB			NB			SB	
Approach Movement			L	T	R	L	Т	T R	L	T	R	L	T	R
Assigned Movement			-			3	8	 ``		6		5	2	12
Adjusted Flow Rate (v) veh/h					357	331			699		435	1544	476
Adjusted Saturation F		ln				1722	1758			1379		1634	1716	1585
Queue Service Time (24.0	21.3	_		16.4		29.1	14.4	15.3
Cycle Queue Clearan	-					24.0	21.3	_		16.4		29.1	14.4	15.3
Green Ratio (g/C)	50 Time (g v), 0					0.23	0.23	_		0.33		0.33	0.72	0.72
Capacity (c), veh/h						403	411			1352		541	3707	1051
Volume-to-Capacity R	atio (X)					0.886	_	5		0.517		0.804	-	
Back of Queue (Q),	, ,)				431.1				275		463.3		
Back of Queue (Q),						17.2	14.9	_		9.5		17.7	8.2	8.8
Queue Storage Ratio						0.00	0.00	-		0.00		0.00	0.00	0.00
Uniform Delay (d 1),	. , ,					44.4	43.4			32.7		36.6	8.1	7.4
Incremental Delay (d						13.8	5.3			1.4		4.2	0.3	1.4
Initial Queue Delay (, .					0.0	0.0			0.0		0.0	0.0	0.0
Control Delay (d), s/	,.					58.2	48.7			34.1		40.8	8.4	8.8
Level of Service (LOS						E	D			C		D	A	A
Approach Delay, s/vel			0.0			53.6		D	34.1		С	14.2		В
Intersection Delay, s/ve			3.0		24	1.9			J-1.			C		
	, 200													
	ultimodal Basulta													
Multimodal Results				EB			WB			NB			SB	
Multimodal Results Pedestrian LOS Score	e/LOS		2.48	_	В	2.75		С	1.93	NB 3	В	1.65	SB	В

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EXHIBIT 4.29 2024 TOTAL PEAK PM HOUR ANALYSIS - St. Patrick/King Edward

General Inform	nation							\neg	Interse	ction I	nform	atio	n	Į.	[4][],	k U
Agency								\neg	Duratio	n, h	0.:	250			4111	
Analyst				Analys	is Date	Nov 1	6, 2021	\neg	Area Ty	pe	Of	ther		- A		
Jurisdiction		City of Ottawa		Time P		-	PM Hou	\rightarrow	PHF	<u> </u>	\rightarrow	92		4		:
Urban Street		King Edward Avenu	ie	Analys		_		\rightarrow	Analysi	s Perio	-	> 7:00	0	- 3		
Intersection		St. Patrick/King Edv		File Na			024_tot	_						-	+++	
Project Descrip	tion	Boutique Hotel												- n	4144	1- 1
								\ A #				NID.			0.0	
Demand Inform					EB	T 5		WE	_			NB		+ -	SB	
Approach Move				L	Т	R	L	T		-	-	T	R	L	T	R
Demand (v), v	eh/h	_	_				50	29	7	-	1	507		300	950	103
Signal Informa	ation				IJĻ.	IJI			$\overline{}$	$\overline{}$						
Cycle, s	120.0	Reference Phase	2	1	l v	F .	1 2	7					4	ļ		
Offset, s	0	Reference Point	End	C	10.5	50.5	45.4	-	-	.	_		1	2	3	
Uncoordinated	No	Simult. Gap E/W	On	Green Yellow		59.5 3.0	3.3	0.0	-		.0	ι		•		
Force Mode	Float	Simult. Gap N/S	On	Red	6.5	6.5	3.6	0.0	-	-	_	2	5	6	7	_
Timer Results				EBL		EBT	WB	L	WBT	N	IBL	١	1BT	SBL	-	SBT
Assigned Phase	е				\perp			\perp	8	_			6	5		2
Case Number					_			_	12.0	_		3	3.3	2.0		4.0
Phase Duration	1, S				\perp		\vdash	\rightarrow	22.0	_		6	9.0	29.0		98.0
Change Period	ange Period, (Y+R c), s x Allow Headway (MAH) s								6.9	_			9.5	9.5		9.5
Max Allow Hea	ax Allow Headway (MAH), s				\perp				3.1	_		(0.0	3.1		0.0
Queue Clearan	eue Clearance Time (g s), s				\perp			\perp	14.5	_				23.8		
Green Extension	n Time	(g ⊕), s			\perp		\vdash	\rightarrow	0.6	_		(0.0	0.0		0.0
Phase Call Pro	bability				_			_	1.00	_				1.00		
Max Out Proba	bility							_	0.00	_				1.00		
Movement Gro	oup Res	sults			EB			WB		$\overline{}$	N	NB			SB	
Approach Move				L	Т	R	L	Т	R	T	Т 7	тТ	R	L	Т	R
Assigned Move	ment						3	8			- 6	6		5	2	12
Adjusted Flow I), veh/h					196	181		-	16	38		326	873	272
•		ow Rate (s), veh/h/l	ln				1688	1730			15	83		1634	1716	1579
Queue Service		, ,,					13.5	12.0	$\overline{}$	1	30	0.8		22.8	4.6	5.3
Cycle Queue C		- ,					13.5	12.0			30	0.8		22.8	4.6	5.3
Green Ratio (g		(0),					0.14	0.14	_		_	51		0.24	0.81	0.81
Capacity (c), v							241	247	_		\rightarrow	33		387	4176	1191
Volume-to-Cap		itio (X)					0.813		_		_	373		0.843	0.209	0.228
		/In (95 th percentile))				244.3					34		420.4	54.7	60.9
		eh/ln (95 th percent					9.8	9.0			_	5.8		16.0	2.1	2.4
	, .	RQ) (95 th percent					0.00	0.00			\rightarrow	00		0.00	0.00	0.00
Uniform Delay		, , , , ,					49.9	49.2	-		$\overline{}$	1.8		43.7	3.4	3.0
Incremental De	` ,.						2.5	1.6			\rightarrow	.5		14.7	0.1	0.4
Initial Queue De		, .					0.0	0.0			-	.0		0.0	0.0	0.0
Control Delay (,.					52.4	50.8			\rightarrow	3.3		58.4	3.5	3.4
Level of Service							D	D			$\overline{}$	0		Е	Α	А
Approach Delay				0.0			51.6		D	2	3.3	_	С	15.7		В
Intersection De						23								С		
Multimodal Re					EB			WB			_	I B			SB	
Pedestrian LOS				2.48	\perp	В	2.75	-	С	-	.91	_	В	1.63	_	В
Bicycle LOS So	core / L C	OS					0.80)	Α	1	.39		A	1.09)	Α

EXHIBIT 4.30 2029 TOTAL PEAK AM HOUR ANALYSIS - St. Patrick/King Edward

		HCS	7 Sig	nalize	d Int	ersect	tion F	Resul	ts Sur	nmar	у				
General Inform	4:								ntersec	tian Inf	4 : -			4 4 4 1	k U
	nation	I						_			0.250		- 1	4111	
Agency				Analus	in Date	Nov. 16	2 2024	-	Duration		_				
Analyst		City of Ottown		-		Nov 16		\rightarrow	Area Typ PHF	е	Other		-		←
Jurisdiction		City of Ottawa		Time P		_	AM Hou	-		Daviad	0.92	20	- 4		*
Urban Street		King Edward Avenu		Analys					Analysis	Perioa	1> 7:0	30	- 5		
Intersection	41	St. Patrick/King Edv	ward	File Na	ıme	/3/_2	029_tot	t_AIVI.X	us				- 4	111	2.14
Project Descrip	tion	Boutique Hotel												[[1][1]T,[]	ALUE .
Demand Inform	nation				EB			WE	3		NB			SB	
Approach Move				L	T	□ R	L	T	R	L	T	R	L	T	R
Demand (v), v						1	109	_	_		676	1	400	1794	178
															-
Signal Informa	ation					T.J.			\neg	\top					
Cycle, s	120.0	Reference Phase	2	1				7					l		
Offset, s	0	Reference Point	End	Green	30.8	36.0	27.3	0.0	0.0	0.0		1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow		3.0	3.3	0.0	0.0	0.0	_ \		+		★
Force Mode	Float	Simult. Gap N/S	On	Red	6.5	6.5	3.6	0.0	0.0	0.0		- 6	6	7	8
Timer Results				EBL		EBT	WB	L	WBT	NBI	_	NBT	SBI	-	SBT
Assigned Phase	e				$\neg \vdash$				8			6	5		2
Case Number									12.0			8.3	2.0		4.0
Phase Duration	1, S				$\neg \vdash$				34.2			45.5	40.3	3	85.8
Change Period	, (Y+R	c), S							6.9			9.5	9.5		9.5
Max Allow Head	dway (/	<i>MAH</i>), s			$\neg \vdash$				3.0			0.0	3.1		0.0
Queue Clearan	ce Time	e (gs), s							26.3				30.1		
Green Extension	n Time	(ge), s			$\neg \vdash$			\neg	1.0			0.0	0.7		0.0
Phase Call Pro	bability								1.00				1.00		
Max Out Proba	bility								0.10				0.00		
Movement Gro		sults			EB			WB	T 5		NB			SB	
Approach Move				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Move		`		\vdash			3	8			6		5	2	12
Adjusted Flow I				\vdash			375	348		_	735		435	1638	505
		ow Rate (s), veh/h/l	ın	\vdash			1722	1758			1379		1634	1716	1587
Queue Service		- /-		\vdash			25.3	22.4			17.7		29.1	16.2	17.2
Cycle Queue C		e Time (<i>g c</i>), s		\vdash			25.3	22.4		_	17.7		29.1	16.2	17.2
Green Ratio (g				\vdash			0.24	0.24		_	0.32		0.33	0.71	0.71
Capacity (c), v				\vdash			420	429		_	1310		541	3655	1036
Volume-to-Cap							0.892				0.561		0.804	0.448	0.488
		/In (95 th percentile)		\vdash			454	399.2			293.4		463.3	240.7	245.9
		eh/ln (95 th percent	,				18.2	15.6			10.1		17.7	9.2	9.8
		RQ) (95 th percent	tile)				0.00	0.00			0.00		0.00	0.00	0.00
Uniform Delay							43.8	42.8			34.1		36.6	8.8	8.1
Incremental De	• •	,.					15.4	6.2			1.7		4.2	0.4	1.6
Initial Queue De		, .					0.0	0.0			0.0		0.0	0.0	0.0
Control Delay (59.2	49.0			35.8		40.8	9.2	9.8
Level of Service							E	D			D		D	A	_ A
Approach Delay				0.0			54.3	3	D	35.8	3	D	14.7		В
Intersection De	lay, s/ve	eh / LOS				25	5.6						С		
Multimodal Re	eulte				EB			WB			NB			SB	
Pedestrian LOS		/LOS		2.48	_	В	2.75		С	1.93		В	1.66		В
Bicycle LOS So				2.70	+		1.08	-	A	0.89	-	A	1.55	-	В
Diayolo LOO 30	JOIC / LC						1.00		A	0.08		~	1.00		D

EXHIBIT 4.31 2029 TOTAL PEAK PM HOUR ANALYSIS - St. Patrick/King Edward

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							ntersect	ion Info	rmatio	n	Į.		H[U]
							Duration,	h	0.250			4111	
		Analysi	is Date	Nov 1	6, 2021		Area Type	9	Other		4		
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Boutique Hotel											T I	4144	1- 1
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Reference Phase	2	1	1 × × ×		1 2	7				4	l I		
Reference Point	End		10.5	50.7	45.0	-		-		1	2	3	
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ax Allow Headway (MAH), s			_		_	_	-		_	0.0		_	0.0
eue Clearance Time (g s), s			_		_	_	_						
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), veh/h					206	191			1722		326	931	289
ow Rate (s), veh/h/	ln				1689	1730			1583		1634	1716	1581
g s), S					14.2	12.6			33.7		22.8	5.2	5.8
e Time (<i>g c</i>), s					14.2	12.6			33.7		22.8	5.2	5.8
					0.15	0.15			0.51		0.24	0.81	0.81
					251	258			2404		387	4145	1182
itio (X)					0.820	0.740			0.716		0.843	0.225	0.244
/In (95 th percentile))				254.1	243.8			470		420.4	62.4	69.2
					10.2	9.4			18.2		16.0	2.4	2.8
RQ) (95 th percen	tile)				0.00	0.00			0.00		0.00	0.00	0.00
/veh					49.5	48.8			23.0		43.7	3.7	3.2
), s/veh					2.5	1.6			1.9		14.7	0.1	0.5
з), s/veh					0.0	0.0			0.0		0.0	0.0	0.0
eh					52.0	50.4			24.8		58.4	3.8	3.7
					D	D			С		Е	Α	Α
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/LOS		2.48	EB	В	2.75	WB	С	1.91	NB	В	1.63	SB	В
	Reference Phase Reference Point Simult. Gap E/W Simult. Gap N/S sults (ge), s (ge	Reference Phase 2 Reference Point End Simult. Gap E/W On Simult. Gap N/S On Simult. Gap N	City of Ottawa	City of Ottawa Time Period King Edward Avenue St. Patrick/King Edward File Name Boutique Hotel	City of Ottawa King Edward Avenue St. Patrick/King Edward File Name 737_2	Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference Phase 3 Red 6.5 6.5 3.6 Reference Phase 2 Reference 4 R	Analysis Date	City of Ottawa	Analysis Date	Analysis Date	Analysis Date Nov 16, 2021 Area Type Other	Analysis Date Nov 16, 2021	City of Ottawa

EXHIBIT 4.32 2029 MMLOS INTERSECTIONS - Murray/King Edward & St. Patrick/King Edward

NTERSECTIONS Crossing Side	de NORTH Redian > 2.4 Permissive No right turn No Right Tur No Right Tur Std transvers markings 13 F 110 30 29 C C C	Murray Street and King Edward Avenue Soluth 6 0-2 m Median > 2.4 m No Median - 2.4 m No No left turn / Prohib. Protected No io Tontrol control No No No Channel No Right Turn 10-15m No Right Turn 10-15m No Right Turn 110 30 15 29 411 C E	ng Edward Aven EAST 0 - 2 No Median - 2.4 m Protected Protected Control No Right Turn No Right Turn No Right Turn Sid transverse markings 110 A 110 F	No Median - 2.4 m No left turn / Prohib. No right turn No Channel 10-15m Sid transverse markings 86 86 110 110 15	Throad / Production / Productio	Patrick Street an sourt 8 Redian > 2.4 m Permissive No right turn RTOR prohibited No No No No Table a stripe hi-vis markings	St. Patrick Street and King Edward Ave South EAST 8 4 M Median > 2.4 m No Median - 2.4 m No hib. Permissive No right turn Prohib. No night turn Per No right turn Per No night tur	4Ve WEST
Lanes Median Conflicting Left Turns Conflicting Right Turns Conflicting Right Turns Conflicting Right Turns Right Turn Channel Corner Radius Crosswalk Type PETSI Sco Ped. Exposure to T Cycle Length Effective Walk Time Average Pedestri Average Pedestri Right Turning Speed Cyclist relative to R Separated or Mixx Left Turning Speed Cyclist relative to R Separated or Mixx Left Turn Approach Operating Speed Cyclist relative to R Separated or Mixx Left Turning Cycle Cyclist relative to R Separated or Mixx Left Turning Cycle Cyclist relative to R Separated or Mixx Left Turning Cycle Cyclist relative to R Separated or Mixx Left Turning Cycle Cyclist relative to R Separated or Mixx	Ace NORTH B Median > 2.4 Permissive No right turn No Right Tur No Right Tur Std transvers markings 13 F 110 30 29 C C F	Sourth 6 Sourth 6 Median > 2.4 m No left turn / Prohib. Control RTOR allowed No Channel 10-15m Zebra stripe hivis markings as E 110 30 C C	DISTINGTON AVERAGE TO 10 - 2 Months and 10 - 2 Months and 10 Months and	No Median - 2.4 m No left turn / Prohib. No right turn No channel 10-15m Std transverse markings 86 86 86 110 75 710 75 710	St. NORTH 9 9 Median > 2.4 m No left turn / Prohib. Protected / Permissive RTOR prohibited No Conventional with Receiving Lane 15-25m Zebra stripe hi-vis markings	Patrick Street an SOUTH 8 Median > 2.4 m Permissive No right turn RTOR prohibited No No No Channel 5-10m Zebra stripe hi-vis markings 7 F	nd King Edward A EAST 4 No Median - 2.4 m No left turn / Prohib. No right turn No nght turn	
Lanes Lenes Median Conflicting Left Turns Median Conflicting Right Turns Right Turns on Red (RTOR) Ped Signal Leading Interval? Right Turn Channel Cones Radius Crosswalk Type PETSI Sco Ped. Exposure to 1 Oycle Length Effective Walk Time Average Pedestri Average Pedestri Right Turn Lane Configurating Speed Cyclist relative to R Separated or Mixx Left Turn Approach Operating Speed Cyclist relative to R Separated or Mixx Left Turn Sproach Operating Speed Cyclist Cyclist Speed Cyclist Cyclist Speed Cyclist Turn Sproach	Median > 2.4 Permissive No right turn No Right Tur No Right Tur Sit transvers markings 110 30 29 C C	Sourre Sourre 6 Median > 2.4 m No left turn / Prohib. Permissive or yield control No Channel 10-15m Zebra stripe hivis markings 36 E 110 30 C C	ng Edward Aven EAST 0-2 No Median - 2.4 m Protected Protected Protected No N	No Median - 2.4 m No left turn / Prohib. No right turn No right turn No Channel 10-15m Std transverse markings 66 8 110 75 710 75	St. NORTH 9 9 Median > 2.4 m No left turn / Prohib. Protected Permissive RTOR prohibited No Conventional with Receiving Lane 15-25m Zebra stripe hi-vis markings	Patrick Street an South 8 Redian > 2.4 m Permissive No right turn RTOR prohibited No No No Channel 5-10m Zebra stripe hivis markings 7 F	EAST EAST A No Median - 2.4 m No right turn / Prohib. No right turn RTOR prohibited	
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Crosswalk Type PETSI Score Ped. Exposure to Traffic L Oyde Length Effective Walk Time Average Pedestrian Dela Redestrian Delay LoS Level of Service Approach Bicycle Lane Arrangement on Approach Right Turning Speed Cyclist relative to RT moto Separated or Mixed Traff Left Turn Approach Operating Speed Left Turn Speed Left Turn Approach Operating Speed	Std transverse markings 13	Zebra stripe hi-vis markings 36 E E 110 30 29 C C	Sld transverse markings 103 A 110 15 15 E 15 E 15 E 15 E 15 E 15 E 15	Std transverse markings 86 8 8 110 110 15 141	Zebra stripe hi-vis markings -7 F	Zebra stripe hi-vis markings 7 F	10-15m	10-15m
PETSI Score Ped. Exposure to Traffic L Ocycle Length Effective Walk Time Average Pedestrian Delay LoS Level of Service Approach Bicycle Lane Arrangement on Approa Right Turning Speed Cyclist relative to RT moto Separated or Mixed Traff Left Turn Approach Operating Speed Left Turning Speed Left Turning Speed	13 F F 110 30 29 C C	36 110 30 29 C	103 110 15	88 B 110 110 12 14	7 F	7 F	Std transverse markings	Std transverse markings
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Cycle Length Effective Walk Time Average Pedestrian Delay LoS Pedestrian Delay LoS Level of Service Approach Bicycle Lane Arrangement on Approa Right Turning Speed Cyclist relative to RT moto Separated or Mixed Traff Left Turn Approach Operating Speed Left Turning Speed Left Turning Speed	110 30 29 C	110 30 C C	110	110 15 41	110	110	O	4
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A pproach Bicycle Lane Arrangement on Approa Right Turning Speed Cyclist relative to RT moto Separated or Mixed Traft Left Turn Approach Operating Speed Left Turn Approach Left Turn Approach			ш	ш	F	L	D	ш
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BI RING	от мовтн	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST
Prigary Rigge	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic
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Left T	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Miyod Traffic	Mixed Traffic	Mixed Traffic
Operating	possession of C.	Post of the second of the seco	possession of the	position deal and	Post of the second of the seco	postorio de di civ	Post of Co.	No long geograph
Operating Speed Left Turning Cyclist	z z laries crossed	No larie Crossed	No larie crossed	One lane crossed	No lane crossed	No lane crossed	z z lanes crossed	No lane crossed
Left Lurning Cyclist	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h	> 40 to ≤ 50 km/h	> 40 to ≤ 50 km/h	> 50 to < 60 km/h	> 50 to < 60 km/h
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Consider	ш	ш	a	ш	ш	ш	L	ū
PARAMETER OF SELVICE		ш					L	
Average Signal Delay	≤ 30 sec	≤ 30 sec	≤ 30 sec	≤ 30 sec	≤ 30 sec	≤ 30 sec	≤ 30 sec	≤ 30 sec
isui	Q	٥	D	D	D	Q	Q	Q
Trace Level of Service		O					0	
Effective Corner Radius	× 10 m	10 - 15 m	10 - 15 m	10 - 15 m	10 - 15 m	10 - 15 m	10 - 15 m	10 - 15 m
Number of Receiving Lanes on Departure from Intersection	2.2	≥2	≥2	≥ 2	≥ 2	2.2	≥ 2	≥ 2
⊔1 I	D	В	В	В	В	В	В	В
Level of Service		O D					В	
Volume to Capacity Ratio		0.71 - 0.80	08.0		s	- 0.0	0.0 - 0.60	
Aut.		C			ė.		A	