

**COMMERCIAL DEVELOPMENT
2015 ROBERTSON ROAD
OTTAWA, ONTARIO**

TRANSPORTATION BRIEF

Prepared for:

First Bay Properties Inc.
311 Richmond Road, Suite 203
Ottawa, ON K1Z 6X3

August 8, 2017

117-663
Brief_1.doc

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**COMMERCIAL DEVELOPMENT
2015 ROBERTSON ROAD
OTTAWA, ONTARIO**

TRANSPORTATION BRIEF

1.0 BACKGROUND

First Bay Properties Inc. has purchased property at 2015 Robertson Road in the community of Bells Corners. The land is located on the north side of Robertson Road approximately 100 m west of the intersection of Robertson Road and Old Richmond Road. The property is 6,537 m² in size and contains two buildings of which only the west building (Cash Money) is currently occupied. It is the intent of the owner to redevelop the site by renovating the east building while retaining the existing lease and tenants at the west building. One of the potential tenants for the east building is a fast-food restaurant with a drive-through window. The City of Ottawa *Transportation Assessment Guidelines* states that the addition of a drive-through window at the east building would trigger the requirement of a Transportation Assessment Study of the site.

Discussions with City staff has determined the scope of the assessment study as being an analysis of the drive-through which will demonstrate that sufficient on-site storage is being provided with no adverse impact on the safety and operation of the site access. The study will examine the operation of the main access (access between the east and west buildings) and expected queuing and available storage at the access. The time period would be for the peak hours of the development and would be completed for the expected traffic following the redevelopment of the site and at five years beyond redevelopment.

2.0 REDEVELOPMENT OF THE SITE

The site will consist of the existing west building (Store A) which has a total gross floor area of 158 m² with Cash Money as the current tenant. The building was previously leased by Second Cup which accommodated a site-down clientele, walk-in patrons, and a drive-through window. The drive-through still exists but is not utilized by Cash Money as part of their operation.

The east building is currently vacant but was previously occupied by the Local Heroes restaurant. The building has a total gross floor area of 627 m². It is intended that the building be divided into three stores with separate leasing agreements. Store B will be a fast-food restaurant with a drive-through window and is expected to be a KFC restaurant. Gear Head will occupy Store C and is a motorcycle parts, accessories and apparel. Store D will be a retail store which has not been leased.

The redevelopment of the site consists of renovations to the east building (Store B, C and D), and modifications to the curbing on site to accommodate the drive-through. Most of the current curbing and site accesses will remain. The site will provide 99 parking spaces including barrier

free spaces, and a drive-through aisle which provides storage for 6 vehicles up to the window. Figure 2.1 shows a conceptual site plan of the proposed redevelopment which is expected to be completed by 2018. Table 2.1 provides an inventory of the gross floor area of each store use.

**TABLE 2.1
 SITE INVENTORY**

LAND USE	BUILDING AREA	
STORE A – Cash Money	158 m ²	1,701 ft ²
STORE B – KFC Restaurant	237 m ²	2,551 ft ²
STORE C – Gear Head	195 m ²	2,099 ft ²
STORE D – Proposed Retail	195 m ²	2,099 ft ²

3.0 SITE GENERATED TRIPS

The expected number of site generated trips was determined using the Institute of Transportation Engineers (ITE) document, *Trip Generation, 9th Edition*. The analysis used the statistical data for a “Fast-Food Restaurant with Drive-Through Window” land use (ITE Land Use Code 934) for the KFC restaurant, and a “Specialty Retail Center” land use (ITE Land Use Code 826) for the retail space yet to be leased. The analysis has used the average trip rate during the peak hours of the adjacent street traffic to calculate the trips for the weekday peak PM hour. The analysis has only examined the impact during the peak PM hour since a KFC restaurant opens at 11:00 AM Monday to Saturday and at 12:00 PM on Sunday.

The number of trips for the existing Cash Money store was determined from parking lot observations and Google mapping. The number of trips for the Gear Head store was determined from trips generated by a similar store in the Ottawa region. Table 3.1 shows the trip rates used in the analysis.

**TABLE 3.1
 TRIP GENERATION RATES**

LAND USE	TRIP GENERATION RATES	TRIP GENERATION RATE
		Peak PM Hr.
Store A - Cash Money	Parking Lot Observations	10 Trips/hr.
Store B - KFC	ITE 934 – Land Use Code	32.65 Trips/1000 ft ² gross floor area
Store C -.Gear Head	Similar Motorcycle Dealership	20 Trips/hr.
Store D - Proposed Retail	ITE 826 – Land Use Code	2.71 Trips/1000 ft ² gross floor area

**FIGURE 2.1
 CONCEPTUAL SITE PLAN**



The trip generation rates from Table 3.1 were applied to the individual uses with Table 3.2 showing the number of expected peak PM hour site generated trips. The analysis has used a trip reduction factor of 15 percent to account for transit, pedestrian and cycling trips to the site. The factor was determined by examining the existing bus routes past the site and the type of uses which the site will be providing.

**TABLE 3.2
 SITE GENERATED TRIPS**

LAND USE	WEEKDAY PEAK PM HOUR		
	Total	Enter	Exit
Store A - Cash Money	10	5 (50%)	5 (50%)
Store B - KFC	83	43 (52%)	40 (48%)
Store C - Gear Head	20	10 (50%)	10 (50%)
Store D - Proposed Retail	6	3 (44%)	3 (56%)
Sub Total Trips	119	61	58
Transit/Cycle/Pedestrian Share 15%	<u>-18</u>	<u>-9</u>	<u>-9</u>
Total Peak Hour Trips	101	52	49

The site trips were split between the west access which is the main access to the site, and the east access. Trips generated from the Cash Money store and the KFC restaurant (Stores A & B) were distributed to the west access, and trips from the Gear Head store and retail store (Stores C & D) were distributed to the east access which would be more convenient to the entrance to their stores. The trips were proportioned onto Robertson Road at 60% to/from the west and 40% to/from the east following an examination of the 2017 traffic counts along Robertson Road and development in the area. The analysis did not examine pass-by trips as they would have little impact on the analysis.

4.0 TRANSPORTATION IMPACT

The study will examine the operation of the east and west site access points onto Robertson Road during the weekday peak PM hour. The time period for the analysis would be at the year 2018 following the redevelopment of the site, and at the year 2023 which represents five years beyond completion.

The analysis will use the *Highway Capacity Software Version 7.1*, which utilizes the intersection capacity analysis procedure as documented in the *Highway Capacity Manual, 6th Edition*.

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

LEVEL OF SERVICE	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 approach. 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 queue by representing the queue length as fractions of vehicles.

4.1 Background Traffic

Traffic counts were obtained from the City of Ottawa for the intersection of Robertson Road and Old Richmond Road. The traffic counts were taken on March 8, 2017 with the peak PM hour traffic count shown in Exhibit 1 in the Appendix.

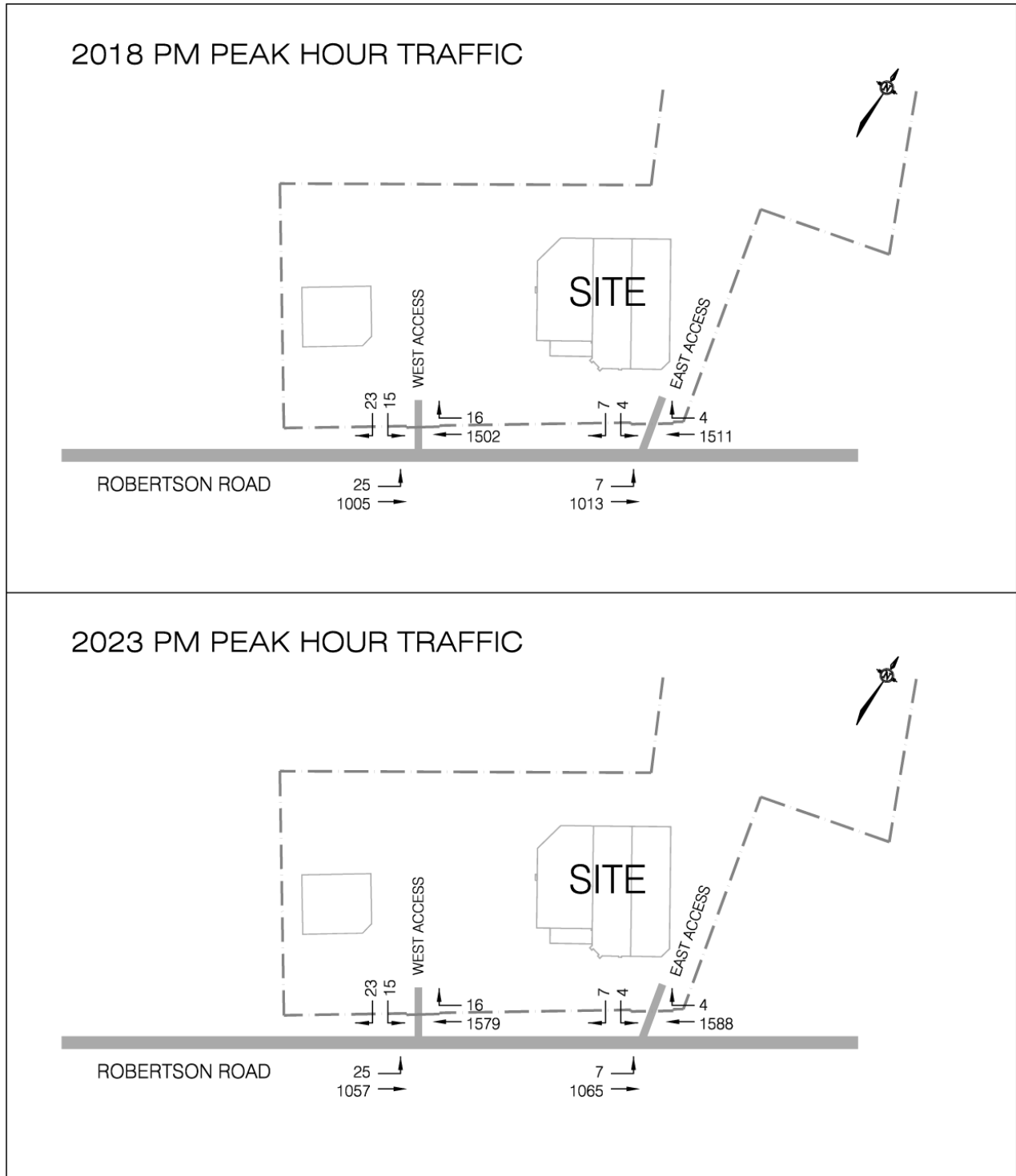
The growth in background traffic was determined following a comparison of the 2017 volume of traffic along Robertson Road and counts obtained from the City of Ottawa which were taken on July 12, 2007. During the ten year period, peak PM hour traffic was determined to decrease at an average annual rate of 0.34 percent in the westbound direction and 0.41 percent in the eastbound direction. The traffic analysis has increased the background traffic by applying a 1.0 percent average annual compounded rate to the traffic to account for development not associated with the site.

4.2 Traffic Analysis

Robertson Road is designated as an arterial road. The road is a four lane roadway with a shared centre left turn lane. The road has sidewalks along both sides of the road. The posted speed limit along Robertson Road in the vicinity of the site is 60 km/h. The east access is located approximately 73 m (centreline to centreline) from the Robertson/Old Richmond intersection, and the west access approximately 118 m.

The analysis has examined the east and west accesses for the expected traffic at the years 2018 and 2023. Figure 4.1 shows the peak PM hour traffic which utilized the expected trips from Table 3.2 and the growth in background traffic discussed above.

FIGURE 4.1
WEEKDAY PEAK PM HOUR TOTAL TRAFFIC



NOT TO SCALE

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

West Access (Main Access) and Robertson Road

The west access is the main access to the site and would be used by patrons of Cash Money (Store A) and the KFC restaurant (Store B). The site access onto Robertson Road would be approximately 6.7 m in width and would provide one lane entering and one lane exiting the site. All eastbound Robertson Road left turn movements into the site would be from an exclusive shared centre left turn lane. The only on-site changes to the curbing were completed to accommodate the proposed KFC drive-through, with the access and most of the parking lot curbing remaining unchanged.

The operational analysis determined that the eastbound left turn movement would function at a Level of Service (LoS) “B” during the 2018 peak PM hour and at a LoS “C” during the 2023 peak PM period. The 95th percentile queue for the eastbound left turn movement was 0.2 vehicles for the expected 2023 traffic.

The southbound site exit would function at a LoS “F” for the 2018 peak PM hour with a delay of 100.7 seconds, and a LoS “F” with a delay of 132.7 seconds during the 2023 peak PM hour. The 95th percentile queue was 2.8 vehicles for the 2023 peak PM hour traffic. The approach delay during peak hours was due to the high volume of background traffic along Robertson Road.

Table 4.1 summarizes the operation of the west access with the analysis sheets provided in the Appendix as Exhibit 2 for the 2018 traffic and Exhibit 3 for the 2023 traffic.

**TABLE 4.1
 WEST ACCESS AND ROBERTSON ROAD INTERSECTION – LoS & Delay**

Intersection Approach	WEEKDAY PEAK PM HOUR YEAR 2018 (2023)	
	LoS	Delay (sec.)
EB Left/Through – Robertson Road	B (C)	14.7 (15.5)
SB Left/Right – West Access	F (F)	100.2 (132.7)

East Access and Robertson Road

The east access is located at the east limit of the site and would provide access to the rear parking lot of the development. The east access would be the preferred access to the Gear Head store (Store C) and the proposed retail store (Store D). The access is approximately 6 m in width with one lane entering and one lane exiting the site.

The eastbound left turn movement into the site would use the shared centre left turn lane along Robertson Road. The operational analysis determined that the eastbound left turn movement would function at a LoS ‘B’ during both the 2018 and 2023 peak PM hour. The 95th percentile queue at the eastbound left turn would be 0.1 vehicles for the 2023 traffic.

The southbound site exit would function at a LoS ‘F’ with a delay of 50.1 seconds during the 2018 peak PM hour and at a LoS ‘F’ with a delay of 59.2 seconds during the 2023 peak PM hour. The 95th percentile queue at the southbound approach would be 0.5 vehicles during the 2023 peak PM hour.

Table 4.2 summarizes the operation of the east access with the analysis sheets provided in the Appendix as Exhibit 4 for the 2018 traffic and Exhibit 5 for the 2023 traffic.

**TABLE 4.2
 EAST ACCESS AND ROBERTSON ROAD INTERSECTION – LoS & Delay**

Intersection Approach	WEEKDAY PEAK PM HOUR YEAR 2018 (2023)	
	LoS	Delay (sec.)
EB Left/Through – Robertson Road	B (B)	14.2 (15.0)
SB Left/Right – East Access	F (F)	50.1 (59.2)

4.3 Site Circulation

The site has two main parking areas. The first area provides 37 parking spaces and is located between the east and west buildings providing access to the Cash Money store and KFC with access from the site’s west access. The second area is the rear parking lot behind the east building and provides 62 parking spaces mainly for Gear Head and the proposed retail space with access from the east access. The two parking areas are connected internally, but the connection would be mainly used by delivery vehicles and for fire protection.

The site is relatively small with little problem with site circulation of vehicles. The 95th percentile queuing of vehicles exiting the site at the west access was determined to be 2.8 vehicles for the expected 2023 traffic. The west access provides a clear throat length of 10 m or space for 1 vehicle. The *Geometric Design Guide for Canadian Roads* (TAC) suggests a clear throat length of 15 m for a development with a gross floor area of <25,000 m² onto an arterial road. The total site has a gross floor area of 785 m². During the peak PM hour there may be some queuing within the site which may periodically block a couple of parking spaces near the site access. Any queuing within the site would not obstruct vehicles entering the site from Robertson Road or have an adverse impact on the operation of the site entrance intersection.

The east access was determined to experience a 95th percentile queue of 0.5 vehicles for the 2023 peak PM hour traffic. The east access provides a clear throat length of approximately 45 m.

During the peak PM hour eastbound traffic along Robertson Road which is queued at the approach to the Robertson/Old Richmond intersection may periodically block the accesses to the site and increase delay upon exiting.

4.4 Drive-Through Window

The Site Plan provides a drive-through for the proposed KFC restaurant. The drive-through provides sufficient storage for 6 vehicles in the aisle up to the window. Although it does not meet City of Ottawa by-laws for a drive-through, it may be adequate for a KFC restaurant. If the queue at the drive-through exceeds the available space in the drive-through aisle, any additional queuing would take place within the site with no adverse impact on the operation of the site accesses onto Robertson Road.

5. FINDINGS

The Transportation Brief has examined the expected number and possible distribution of site generated trips for the redeveloped site at 2015 Robertson Road. The site contains two free standing buildings, one currently leased to Cash Money and the second which will be redeveloped as three individual uses. The uses in the west building would comprise of Gear Head motorcycle parts and accessories, a fast-food restaurant with drive-through window which is expected to be a KFC restaurant, and a proposed retail store which has not been leased. Redevelopment of the site consists of the renovation of the east building and providing a drive-through aisle and window for the fast-food restaurant. Most of the parking lot curbs and the accesses will remain and not be reconstructed. The following are the findings of the Brief which examined the traffic at completion of the redevelopment at the year 2018 and at the year 2023 which represents five years beyond completion:

- 1) With the major traffic generator being the KFC restaurant which is not open during the peak AM hours of the adjacent roads, the analysis has determined the traffic impact for only the peak PM hour. The trip generation analysis determined that the total development would generate 52 trips entering and 49 trips exiting the site during the peak PM hour.
- 2) Robertson Road is a four lane roadway with a shared centre left turn lane. This would provide the site with an exclusive eastbound left turn lane into the site. For the expected traffic at 2023, the eastbound left turn movements into the site would function at an acceptable level of service for both the east and west access points. Both the east and west accesses have a single southbound lane exiting the site which provides left and right turning movements. With the high volume of traffic along Robertson Road, the southbound approach at both intersections would experience delays of 133 seconds at the west access and 60 seconds at the east access for the expected 2023 traffic.

- 3) The west access provides a clear throat length of 10 m with the 95th percentile queue analysis calculating a queue of 3 vehicles or 20 m. The east access provides a clear throat length of 45 m. Any queueing at the accesses would be internal to the site with no adverse impact on traffic entering the site or the operation of traffic along Robertson Road.
- 4) The Site Plan proposes a drive-through window aisle which provides storage space for 6 vehicles up to the window. Any additional queueing at the drive-through aisle can be accommodated on the site and would not present any adverse impact on the operation of traffic along Robertson Road.
- 5) The Transportation Brief Check List is provided in the Appendix as Exhibit 6.

Prepared by:

David J. Halpenny

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



APPENDIX

TRAFFIC COUNTS

OPERATIONAL ANALYSIS WORK SHEETS

TRANSPORTATION BRIEF – CHECK LIST

EXHIBIT 1 2017 PEAK PM HOUR TRAFFIC COUNTS – Roberson Road and Richmond Road



Transportation Services - Traffic Services Turning Movement Count - Full Study Peak Hour Diagram RICHMOND RD @ ROBERTSON RD

Survey Date: Wednesday, March 08, 2017
 Start Time: 07:00

WO No: 36746
 Device: Miovision

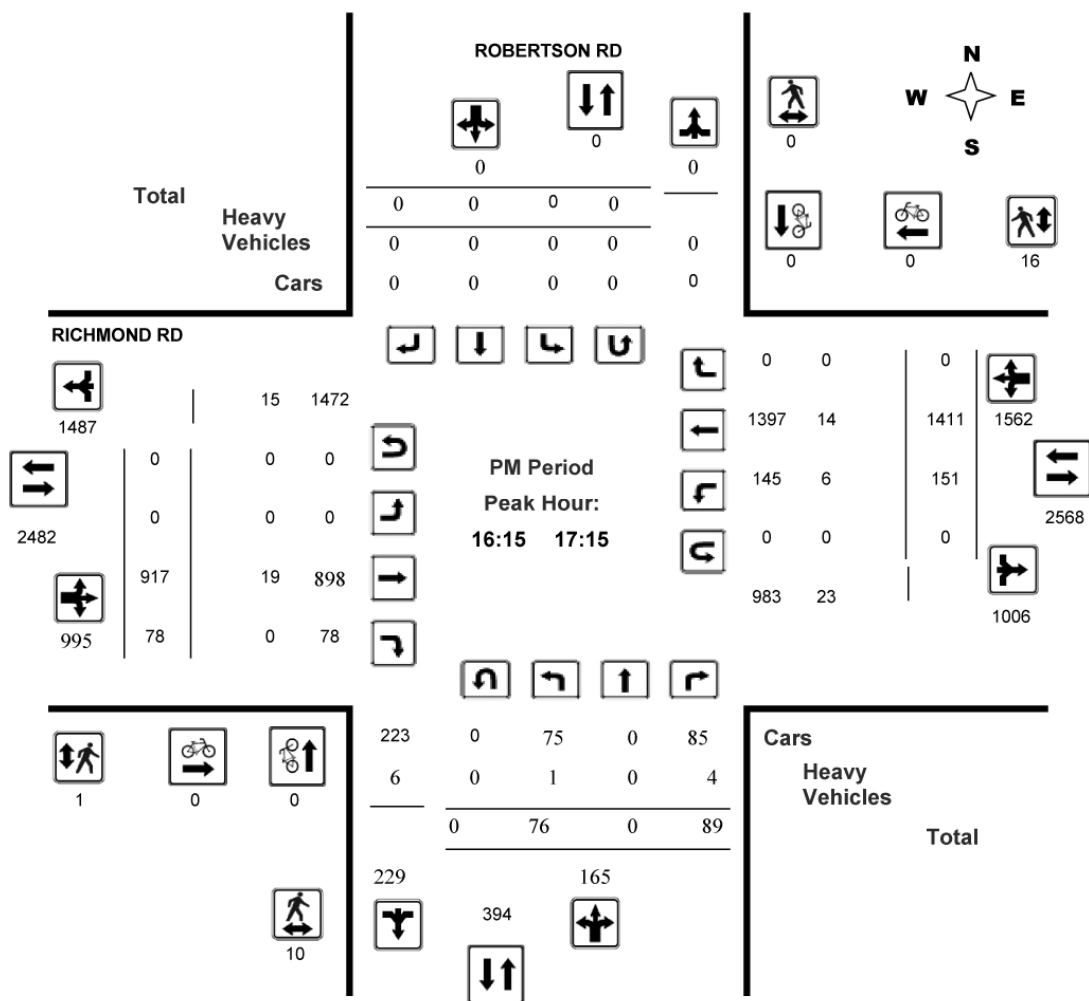


EXHIBIT 2 2018 PEAK PM HOUR TOTAL TRAFFIC – West Access/Robertson

HCS7 Two-Way Stop-Control Report																		
General Information								Site Information										
Analyst								Intersection	West Access/Robertson									
Agency/Co.								Jurisdiction										
Date Performed	8/3/2017							East/West Street	Roberson Road									
Analysis Year	2018							North/South Street	West Access									
Time Analyzed	Peak PM hour							Peak Hour Factor	0.92									
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25									
Project Description	Commercial Development																	
Lanes																		
<p style="text-align: center; font-size: small;">Major Street: East-West</p>																		
Vehicle Volumes and Adjustments																		
Approach	Eastbound				Westbound				Northbound				Southbound					
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Priority	1U	1	2	3	4U	4	5	6			7	8	9			10	11	12
Number of Lanes	0	1	2	0	0	0	2	0			0	0	0			0	1	0
Configuration		L	T				T	TR								LR		
Volume, V (veh/h)		25	1005				1502	16							15		23	
Percent Heavy Vehicles (%)		0													0		0	
Proportion Time Blocked																		
Percent Grade (%)													0					
Right Turn Channelized	No				No				No				No					
Median Type/Storage	Undivided																	
Critical and Follow-up Headways																		
Base Critical Headway (sec)		4.1													7.5		6.9	
Critical Headway (sec)		4.10													6.80		6.90	
Base Follow-Up Headway (sec)		2.2													3.5		3.3	
Follow-Up Headway (sec)		2.20													3.50		3.30	
Delay, Queue Length, and Level of Service																		
Flow Rate, v (veh/h)		27														41		
Capacity, c (veh/h)		397														75		
v/c Ratio		0.07														0.55		
95% Queue Length, Q ₉₅ (veh)		0.2														2.3		
Control Delay (s/veh)		14.7														100.2		
Level of Service, LOS		B														F		
Approach Delay (s/veh)	0.4												100.2					
Approach LOS													F					

EXHIBIT 3 2023 PEAK PM HOUR TOTAL TRAFFIC – West Access/Robertson

HCS7 Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst								Intersection	West Access/Robertson								
Agency/Co.								Jurisdiction									
Date Performed	8/3/2017							East/West Street	Roberson Road								
Analysis Year	2023							North/South Street	West Access								
Time Analyzed	Peak PM hour							Peak Hour Factor	0.92								
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25								
Project Description	Commercial Development																
Lanes																	
<p style="text-align: center; font-size: small;">Major Street: East-West</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6			7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	0	2	0			0	0	0		0	1	0
Configuration		L	T				T	TR							LR		
Volume, V (veh/h)		25	1057				1579	16							15		23
Percent Heavy Vehicles (%)		0													0		0
Proportion Time Blocked																	
Percent Grade (%)													0				
Right Turn Channelized	No				No				No				No				
Median Type/Storage	Undivided																
Critical and Follow-up Headways																	
Base Critical Headway (sec)		4.1												7.5		6.9	
Critical Headway (sec)		4.10												6.80		6.90	
Base Follow-Up Headway (sec)		2.2												3.5		3.3	
Follow-Up Headway (sec)		2.20												3.50		3.30	
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		27													41		
Capacity, c (veh/h)		369													64		
v/c Ratio		0.07													0.64		
95% Queue Length, Q ₉₅ (veh)		0.2													2.8		
Control Delay (s/veh)		15.5													132.7		
Level of Service, LOS		C													F		
Approach Delay (s/veh)	0.4												132.7				
Approach LOS													F				

EXHIBIT 4 2018 PEAK PM HOUR TOTAL TRAFFIC – East Access/Robertson

HCS7 Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst								Intersection	East Access/Robertson								
Agency/Co.								Jurisdiction									
Date Performed	8/3/2017							East/West Street	Roberson Road								
Analysis Year	2018							North/South Street	East Access								
Time Analyzed	Peak PM hour							Peak Hour Factor	0.92								
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25								
Project Description	Commercial Development																
Lanes																	
<p style="text-align: center; font-size: small;">Major Street: East-West</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6			7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	0	2	0			0	0	0		0	1	0
Configuration		L	T				T	TR							LR		
Volume, V (veh/h)		7	1013				1511	4						4		7	
Percent Heavy Vehicles (%)		0												0		0	
Proportion Time Blocked																	
Percent Grade (%)													0				
Right Turn Channelized	No				No				No				No				
Median Type/Storage	Undivided																
Critical and Follow-up Headways																	
Base Critical Headway (sec)		4.1												7.5		6.9	
Critical Headway (sec)		4.10												6.80		6.90	
Base Follow-Up Headway (sec)		2.2												3.5		3.3	
Follow-Up Headway (sec)		2.20												3.50		3.30	
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		8													12		
Capacity, c (veh/h)		398													92		
v/c Ratio		0.02													0.13		
95% Queue Length, Q ₉₅ (veh)		0.1													0.4		
Control Delay (s/veh)		14.2													50.1		
Level of Service, LOS		B													F		
Approach Delay (s/veh)	0.1												50.1				
Approach LOS													F				

EXHIBIT 5 2023 PEAK PM HOUR TOTAL TRAFFIC – East Access/Robertson

HCS7 Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst								Intersection	East Access/Robertson								
Agency/Co.								Jurisdiction									
Date Performed	8/3/2017							East/West Street	Roberson Road								
Analysis Year	2023							North/South Street	East Access								
Time Analyzed	Peak PM hour							Peak Hour Factor	0.92								
Intersection Orientation	East-West							Analysis Time Period (hrs)	0.25								
Project Description	Commercial Development																
Lanes																	
<p style="text-align: center; font-size: small;">Major Street: East-West</p>																	
Vehicle Volumes and Adjustments																	
Approach	Eastbound				Westbound				Northbound				Southbound				
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Priority	1U	1	2	3	4U	4	5	6			7	8	9		10	11	12
Number of Lanes	0	1	2	0	0	0	2	0			0	0	0		0	1	0
Configuration		L	T				T	TR							LR		
Volume, V (veh/h)		7	1065				1588	4						4		7	
Percent Heavy Vehicles (%)		0												0		0	
Proportion Time Blocked																	
Percent Grade (%)													0				
Right Turn Channelized	No				No				No				No				
Median Type/Storage	Undivided																
Critical and Follow-up Headways																	
Base Critical Headway (sec)		4.1												7.5		6.9	
Critical Headway (sec)		4.10												6.80		6.90	
Base Follow-Up Headway (sec)		2.2												3.5		3.3	
Follow-Up Headway (sec)		2.20												3.50		3.30	
Delay, Queue Length, and Level of Service																	
Flow Rate, v (veh/h)		8													12		
Capacity, c (veh/h)		370													78		
v/c Ratio		0.02													0.15		
95% Queue Length, Q ₉₅ (veh)		0.1													0.5		
Control Delay (s/veh)		15.0													59.2		
Level of Service, LOS		B													F		
Approach Delay (s/veh)	0.1												59.2				
Approach LOS													F				

EXHIBIT 6 TRANSPORTATION BRIEF – CHECK LIST

Address Commercial Development - 2015 Robertson Road TIS / **TB** / CTS

File # 117-663

Date August 4, 2017

Check list

- Municipal address;
- Location relative to major elements of the existing transportation system (eg., the site is location in the southwest quadrant of the intersection of Main Street/ First Street, 600 metres from the Maple Street Rapid Transit Station);
- Existing land uses or permitted use provisions in the Official Plan, Zoning By-law, etc.;
- Proposed land uses and relevant planning regulations to be used in the analysis;
- Proposed development size (building size, number of residential units, etc.) and location on site;
- Estimated date of occupancy;
- Planned phasing of development;
- Proposed number of parking spaces (not relevant for Draft Plans of Subdivision); and
- Proposed access points and type of access (full turns, right-in / right-out, turning restrictions, etc.
- Study area;
- Time periods and phasing; and
- Horizon years (include reference to phased development).

Existing Contitions

- Existing roads and ramps in the study area, including jurisdiction, classification, number of lanes, and posted speed limit;
- Existing intersections, including type of control, lane configurations, turning restrictions, and any other relevant data (eg., extraordinary lane widths, grades, etc.);
- Existing access points to adjacent developments (both sides of all roads bordering the site);
- Existing transit system, including stations and stops;
- Existing on- and off-road bicycle facilities and pedestrian sidewalks and pathway networks;
- Existing system operations (V/C, LOS); and

- Major trip generators / attractors within the Study Area should be indicated.

Demand Forecasting

- General background growth;
- Other study area developments;
- Changes to the study area road network;
- Future background system operations (V/C, LOS, queue lengths);
- Trip generation rates;
- Trip distribution and assignment;

Impact Analysis

- Total future system operations (V/C, LOS, queue lengths);
- Signal and auxiliary lane (device) warrants;
- Operational / safety assessment (eg., sight line assessment where grades are an issue);
- Storage analysis for closely spaced intersections;
- Pedestrian and bicycle network connections and continuity;
- On-site circulation and design;
- Potential for neighbourhood impacts; and
- TDM.
- Synchro Files (Highway Capacity Software)

CTS

Impact Analysis

- Network Capacity Analysis;
- Non-auto network connections and continuity;
- Potential for community impacts, and
- TDM.
- Synchro Files (Highway Capacity Software)
- Screenline Analysis