



# 16 Hamilton Avenue

Transportation Impact Study  
– Strategy Report



October 2018

# 16 Hamilton Avenue

## TIA Forecasting and Strategy Report

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# TIA Screening and Scoping Report

## 1. SCREENING FORM

The Screening Form is being submitted in conjunction with the Scoping Report for the subject development to the City of Ottawa staff for review and confirmation of the need for a Transportation Impact Assessment (TIA). Trip generation triggers were not met based on the unit count or commercial and office areas size. The location triggers were met based on the site’s location in a Transit-Oriented Development (TOD) zone. The Screening Form is provided as Appendix A.

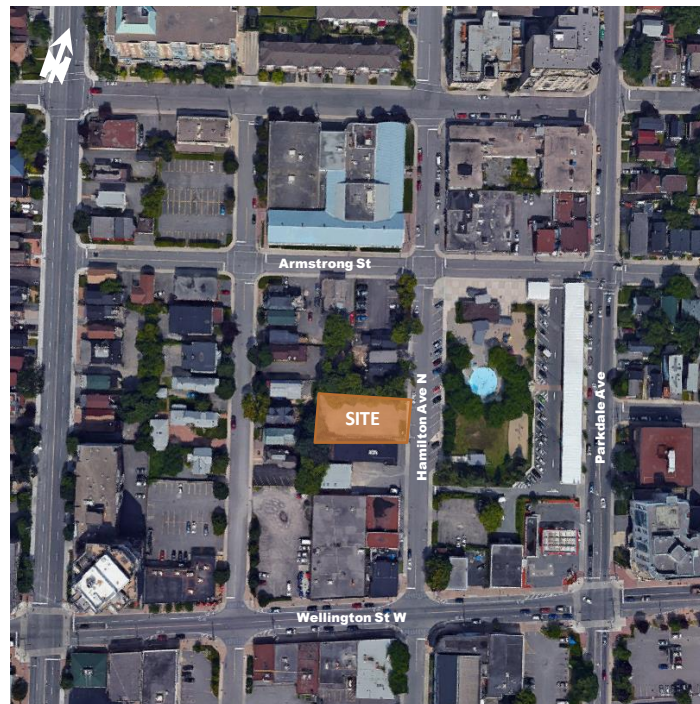
## 2. SCOPING REPORT

### 2.1. EXISTING AND PLANNED CONDITIONS

#### 2.1.1. PROPOSED DEVELOPMENT

Based on the proposed Site Plan provided by Project1 Studio, it is our understanding that the proponent is proposing a multi-use development with ground floor commercial space located at 16 Hamilton Avenue with an expected date of occupancy of 2020. The proposed development will consist of an eight-storey building with 75 residential units, 260 m<sup>2</sup> of office space and 120 m<sup>2</sup> of commercial space. The required parking provisions are 6 spaces for visitors as per City of Ottawa Parking By-Law. The proposed parking includes 60 off-street parking spaces and 39 bicycle parking spaces, meeting the City of Ottawa parking requirements. The main access to the site is proposed via a 4 m driveway connecting to Hamilton Avenue. The site is currently a paved fenced lot. It is zoned as MC6 H(20) – Mixed Use Zone. The local context of the site is provided as Figure 1 and the proposed Site Plan is provided as Figure 2.

Figure 1: Local Context





## 2.1.2. EXISTING CONDITIONS

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### Area Road Network

**Wellington Street West** is an east-west arterial roadway that extends from Somerset Street West in the east to Richmond Road in the west. The unposted speed limit is assumed to be 50 km/h. Within the study area, Wellington Street West has a two-lane cross-section with auxiliary turn lanes provided at major intersections.

**Armstrong Street** is a two-way east-west local roadway with a two-lane cross-section and a posted speed limit of 40 km/h.

**Hamilton Avenue North** is a north-south local roadway that extends from north of Highway 417 in the south to Bullman Street in the north. The posted speed limit is 40 km/h. Within the study area, Loretta Avenue has a two-lane cross-section.

### Existing Study Area Intersections

#### **Wellington/Hamilton**

The Wellington/Hamilton intersection is an unsignalized four-legged intersection with stop controls on the minor approaches. The east and westbound approaches consist of a single full movement lane and a parking lane. The north and southbound approaches consist of a single full movement lane. All movements are permitted at this location.

#### **Armstrong/Hamilton**

The Armstrong/Hamilton intersection is an unsignalized four-legged intersection with stop controls in all approaches. All approaches consist of a single full-movement lane. All movements are permitted at this location.

### Existing Driveways to Adjacent Developments

There are five private driveways located along both sides of Hamilton Avenue between Wellington and Armstrong. There are also 17 on-street angled parking spaces on the east side of Hamilton Avenue.

### Pedestrian/Cycling Network

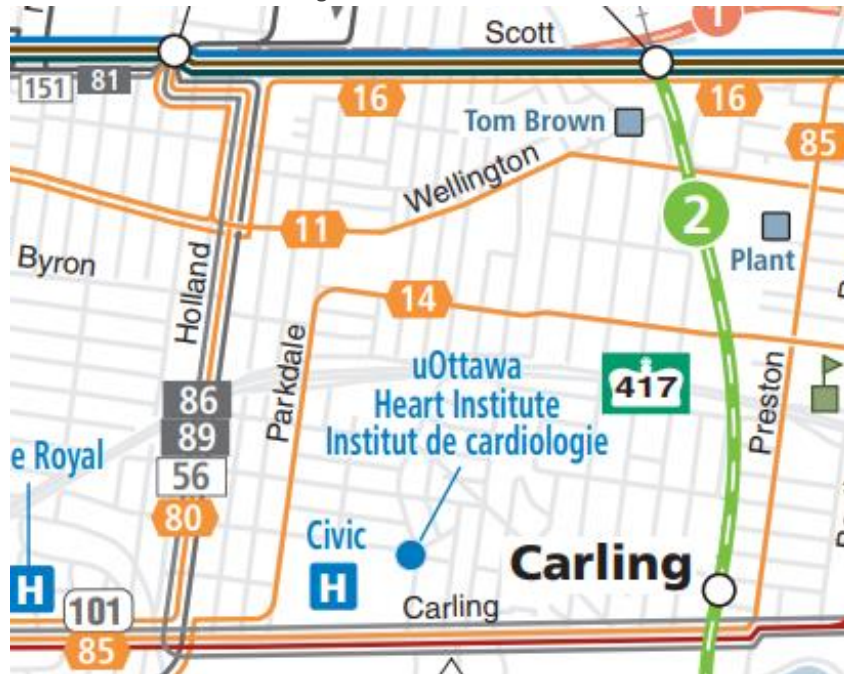
Sidewalk facilities in the vicinity of the site are provided along both sides of Hamilton Avenue, on both sides of Wellington Street and on both sides of Armstrong Street. Pathways are also provided in Parkdale Park.

Regarding Cyclists, Wellington Street West is currently a “Suggested Routed”, with painted advisory bike lanes and dooring zones.

### Transit Network

Transit service within the vicinity of the site is currently provided by OC Transpo frequent route #11 on Wellington Street West, which provides frequent all-day service. The closest existing bus stop (ID:2302) is located on Wellington Street West approximately 25 meters to the west of Parkdale Avenue Albert Street. The current transit area network is provided as Figure 3.

Figure 3: Area Transit Network



**Existing Road Safety Conditions**

Collision history for study area intersections and roads (2013 to 2017, inclusive) was obtained from the City of Ottawa and most collisions (79%) involved only property damage, indicating low impact speeds, and 22% involved personal injuries. The primary causes of collisions cited by police include; rear end (73%), turning movement (9%), angle (3%), Sideswipe (9%), Single Vehicle Other (4%) and other (2%) type collisions.

A standard unit of measure for assessing collisions at an intersection is based on the number collisions per million entering vehicles (MEV). At intersections within the study area, reported collisions have historically take place at a rate of:

- 0.68/MEV at the Wellington/Hamilton intersection;
- 0.72/MEV at Hamilton Avenue, between Armstrong Street and Wellington Street; and
- 0.34/MEV at the Hamilton/Armstrong intersection.

Within the five-years of recorded collision data there has not been any collision involving pedestrians. The source collision data as provided by the City of Ottawa and related analysis is provided as Appendix B.

**2.1.3. PLANNED CONDITIONS**

**Planned Study Area Transportation Network Changes**

Within the study area, notable transportation network changes are described as follows.

Active Transportation Network

The City of Ottawa identifies Wellington Street West as a Cycling Spine Route and Armstrong Street, east of Hamilton Avenue as a local route.

Transit



Within the TMP's affordable network, Wellington Street West is identified as a Transit Priority Corridor with isolated measures. To the north, (LRT)

## Other Area Development

According to the City's development application search tool, the following developments are planned within the vicinity of the subject site.

### 83 Hinton Avenue

The applicant proposes to construct a 7 storey 30 unit apartment building. The site is located on the east side of Hinton Avenue, one block north of Wellington Street (traditional main street), two blocks south of Scott street (Arterial with Tunney's pasture LRT station), one block west of Parkdale Avenue (arterial to Queensway) and two blocks east of Holland Avenue (arterial). Tunney's Pasture LRT station is located within 400 m of walking distance. It is expected to have minimal impact on the study area network.

### 233 Armstrong Street

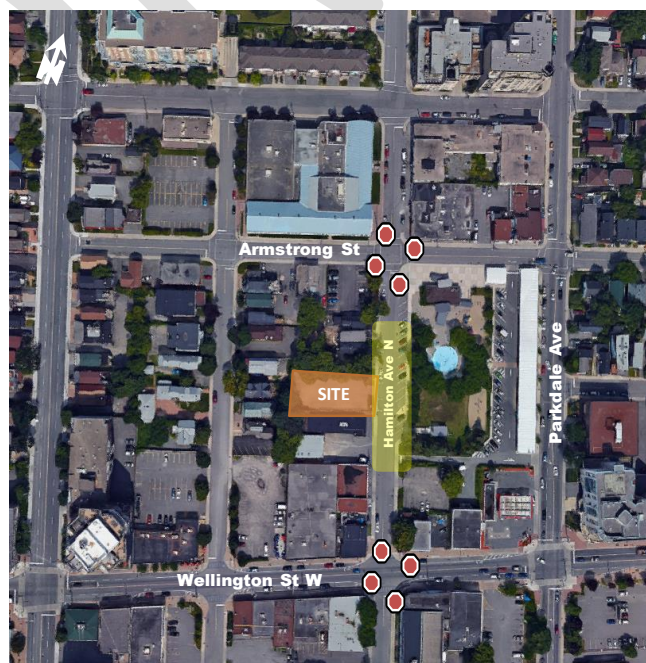
The proposed development consists of a 123 unit, 12-storey residential condominium building, including 465 m<sup>2</sup> of ground floor commercial. The site is located on the east side of Hamilton Avenue and extends the length of the block from Armstrong Street north to Spencer Street. Access/egress for the approximate 110 below-grade parking spaces (3 levels), is proposed to Hamilton Avenue mid-block between Armstrong and Spencer Streets. The associated traffic brief developed by Delcan estimated between 49 to 61 two-way vehicles during the morning and afternoon weekday peak hours.

## 2.2. STUDY AREA AND TIME PERIODS

As the proposed site is largely a residential and office development with retail uses supporting the residences and offices, the time periods assessed will be the weekday morning and afternoon peak hours. The proposed study area is outlined below and highlighted in Figure 4.

- Wellington/Hamilton intersection;
- Armstrong/Hamilton intersection; and
- Hamilton Avenue adjacent to the site.

Figure 4: Study Area





## 2.3. EXEMPTION REVIEW

Based on the City's TIA guidelines and the subject site, the following modules/elements of the TIA process, summarized in Table 1, are recommended to be exempt in the subsequent steps of the TIA process:

Table 1: Exemptions Review Summary

Module	Element	Exemption Consideration
4.1 Development Design	4.1.2 New Streets Network	Not required for applications involving site plans.
4.2 Parking	4.2.1 Parking Supply	The proposed development is required to provide 6 visitor parking spaces and 39 bicycle spaces, as per City of Ottawa Zoning By-Law Section 101, 102 and Clause 192(16)(i). With 60 proposed parking spaces and 39 bicycle parking spaces, the site is meeting By-Law requirements.
	4.2.2 Spillover Parking	
4.5 Transportation Demand Management	All elements	Residential development with less than 60 auto trips.
4.6 Neighbourhood Traffic Management	All elements	Residential development with less than 60 auto trips, relying mostly on arterial roadways for access. Therefore, minimal impact anticipated on adjacent neighbourhood roads.
4.8 Review of Network Concept	All elements	The site is not expected to generate 200 trips more than the established zoning. This will be confirmed in Step 3.

In addition to the above recommendations of the Exemptions Review, the following exemptions are also proposed for both Step 3 – Forecasting and Step 4 – Analysis and are summarized in Table 2.

Table 2: Additional Recommended Exemptions Summary

Module	Element	Exemption Consideration
3.1 Development-generated Travel Demand	3.1.2 Trip Distribution	Minimal auto share anticipated given only 75 residential units on site, and negligible impact anticipated on road network.
	3.1.3 Trip Assignment	Minimal auto share anticipated given only 75 residential units on site, and negligible impact anticipated on road network.
3.2 Background Network Travel Demand	All Elements	Minimal auto share anticipated given only 75 residential units on site, and negligible impact anticipated on road network.
3.3 Demand Rationalization	All Elements	Minimal auto share anticipated given only 75 residential units on site, and negligible impact anticipated on road network.
4..4 Access Intersection Design	4.4.2 Intersection Control	Site access will operate at a local road with minimal impact site-generated traffic. Therefore, intersection screening for a signal or roundabout is not required.
	4.4.3 Intersection Design	The Site access will operate at a local road with two unsignalized intersections.
4.7 Transit	4.7.2 Transit Priority	Site access will operate at a local road with no transit service and two unsignalized intersections. Therefore, it will not require a transit priority measures analysis.
4.9 Intersection Design	4.91. Intersection Control	The Site access will operate at a local road with two unsignalized intersections.

### 3. FORECASTING

#### 3.1. DEVELOPMENT GENERATED TRAVEL DEMAND

##### 3.1.1. TRIP GENERATION AND MODE SHARES

Appropriate trip generation rates for the proposed development were obtained from the City’s TRANS Trip Generation – Residential Trip Rates (Table 3.16 of the TRANS Trip Generation Study) for residential uses and from the 10th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual. Trip generation rates are summarized in Table 3.

Table 3: Trip Generation Rates

Land Use	Data Source	Trip Rates	
		AM Peak	PM Peak
Mid-Rise Apartment	TRANS	$T = 0.24(du)$	$T = 0.28(du)$
Shopping Center	ITE 820	$T = 0.94(X)$ $T = 0.71(X) + 4.80$	$T = 3.81(X);$ $Ln(T) = 0.96Ln(X) + 0.20$
General Office Building	ITE 710	$T = 1.16(X)$ $Ln(T) = 0.95Ln(X) - 0.51$	$T = 1.15(X);$ $Ln(T) = 0.89Ln(X) + 0.020$
Notes: $T$ = Average Vehicle Trip Ends $X$ = 1000 ft <sup>2</sup> Gross Floor Area $du$ = Dwelling unit			

As ITE trip generation surveys only record vehicle trips and typically reflect highly suburban locations (with little to no access by travel modes other than private automobiles), adjustment factors appropriate to the more urban study area context were applied to attain estimates of person trips for the proposed development. This approach is considered appropriate within the industry for urban infill developments.

To convert ITE vehicle trip rates to person trips, an auto occupancy factor and a non-auto trip factor were applied to the ITE vehicle trip rates. Our review of available literature suggests that a combined factor of approximately 1.28 is considered reasonable to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%. The person trip generation for the proposed development is summarized in **Error! Reference source not found.**

Table 4: Modified Person Trip Generation

Land Use	Area	AM Peak (Person Trips/h)			PM Peak (Person Trips/h)		
		In	Out	Total	In	Out	Total
Mid-Rise Apartment	73 units	10	35	45	25	17	42
Shopping Center	1,292 ft <sup>2</sup>	1	6	7	1	1	2
General Office Building	2,799 ft <sup>2</sup>	1	1	2	1	2	3
<b>Total Person Trips</b>		<b>12</b>	<b>42</b>	<b>54</b>	<b>27</b>	<b>20</b>	<b>47</b>
Note: 1.28 factor to account for typical North American auto occupancy values of approximately 1.15 and combined transit and non-motorized modal shares of less than 10%							

The person trips shown in Table 4 for the proposed site were then reduced by modal share values. Based on the mode shares outlined in Table 3.6 from the TRANS report, appropriate modal splits were applied to the residential person trip generation. The following Table 4 provides the mode shares for residential trips.

Table 5: Mid-Rise Apartment Modal Site Trip Generation

Travel Mode	AM Mode Share	AM Peak (persons/h)			PM Mode Share	PM Peak (persons/h)		
		In	Out	Total		In	Out	Total
Auto Driver	40%	4	14	18	49%	12	8	20
Auto Passenger	4%	0	2	2	11%	3	2	5
Transit	42%	5	14	19	36%	9	6	15
Non-motorized	14%	1	5	6	4%	1	1	2
Total People Trips	100%	10	35	45	100%	25	17	42
<b>Total 'New' Mid-Rise Apartments Auto Trips</b>		<b>4</b>	<b>14</b>	<b>18</b>		<b>12</b>	<b>8</b>	<b>20</b>

Based on the TRANS District mode shares outlined for from the West District, appropriate modal splits were applied to the residential person trip generation. Table 5 provides mode shares for retail and office trips and provides total site trip generation.

Table 5: Retail and Office Modal Site Trip Generation

Travel Mode	Mode Share	AM Peak (Person Trips/hr)			PM Peak (Person Trips/hr)		
		In	Out	Total	In	Out	Total
Auto Driver	46%	1	4	5	1	2	3
Auto Passenger	11%	1	0	1	0	0	0
Transit	31%	0	3	3	1	1	2
Non-motorized	12%	0	0	0	0	0	0
Total Person Trips	100%	2	7	9	2	3	5
Less Pass-by (0%)		0	0	0	0	0	0
<b>Total 'New' Retail and Office Auto Trips</b>		<b>1</b>	<b>4</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>3</b>

Table 6: Total Site Trip Generation

Travel Mode	AM Peak (Person Trips/hr)			PM Peak (Person Trips/hr)			
	In	Out	Total	In	Out	Total	
Auto Driver	5	18	23	13	10	23	
Auto Passenger	1	2	3	3	2	5	
Transit	5	17	22	10	7	17	
Non-motorized	1	5	6	1	1	2	
Total Person Trips	12	42	54	27	20	47	
<b>Total 'New' Site Auto Trips</b>		<b>5</b>	<b>18</b>	<b>23</b>	<b>13</b>	<b>10</b>	<b>23</b>

As shown in Table 6, the resulting number of potential 'new' two-way vehicle trips for the proposed development is approximately 23 veh/h during the weekday morning and afternoon peak hours, respectively. Based on the low site-generated traffic expected, minimal impact is expected on the adjacent transportation network. As such, the analysis will focus on the design review component.



## 4. ANALYSIS

### 4.1. DEVELOPMENT DESIGN

#### 4.1.1. DESIGN FOR SUSTAINABLE MODES

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A total of 39 bicycle parking spaces are proposed to serve 16 Hamilton Avenue proposed development, which meets the City's By-Law minimum requirements. Bicycle parking should be located in well-lit areas and close to main entrances, whenever possible.

The proposed frontage on Hamilton Avenue includes a 4.8 m wide street edge from property line to the nearest sidewalk edge. This proposed street edge includes green elements and a 4.0 m driveway connecting to the garage door. This added public realm will in practice act as a widened sidewalk, which is a considerable improvement to the existing 1.85 m sidewalk and will translate in improved walkability for residents and neighbours walking along the west side of Hamilton Avenue adjacent to site.

Cyclists can use the vehicle roadway on Hamilton Avenue to access the bidirectional suggested route along Wellington Street West, or they can also use Hamilton Avenue to access the Scott Street eastbound cycletrack or westbound MUP via the 1536 Scott Street parking lot.

##### *Transit*

Transit service within the vicinity of the site is currently provided by OC Transpo Route #11 on Wellington Street West, which provides frequent all-day service. The closest existing bus stop (ID:2302) is located on Wellington Street West approximately 25 m to the west of Parkdale Avenue Albert Street and within a 300 m walk from all access doors of the proposed development. Walking routes to these stops would include: southbound on Hamilton Avenue west sidewalk; eastbound on Wellington Street W north sidewalk to the Parkdale Avenue intersection; and then crossing south on to the eastbound bus stop #2302 or continuing east on the north Wellington Street Sidewalk to westbound bus stop #6897.

Access to the Confederation LRT line is provided by the Tunney's Pasture Station located north of Scott Street at Holland Avenue. The station is at approximately 700 m walking distance from the site. Walking routes to the Tunney's Pasture Station would include either Hamilton Avenue through 1536 Scott Street parking lot on to Scott Street south sidewalk and west towards the Scott/Holland intersection cross walks; or Hamilton Avenue to Armstrong Street or Spencer Street onto Holland Avenue. Holland Avenue would then lead to the Scott/Holland intersection crosswalks.

##### *Vehicle Parking*

Vehicle parking is proposed in an underground parking lot with 60 stalls provided by 20 three-level mechanical car-lifts. These car lifts connect to a 6.0 m aisle at ground level and a 4.0 m two-way parking access. Proposed parking stalls are 5.2 m long and 2.6 m wide and are therefore meeting City of Ottawa parking By-Law requirements.

#### 4.1.2. CIRCULATION AND ACCESS

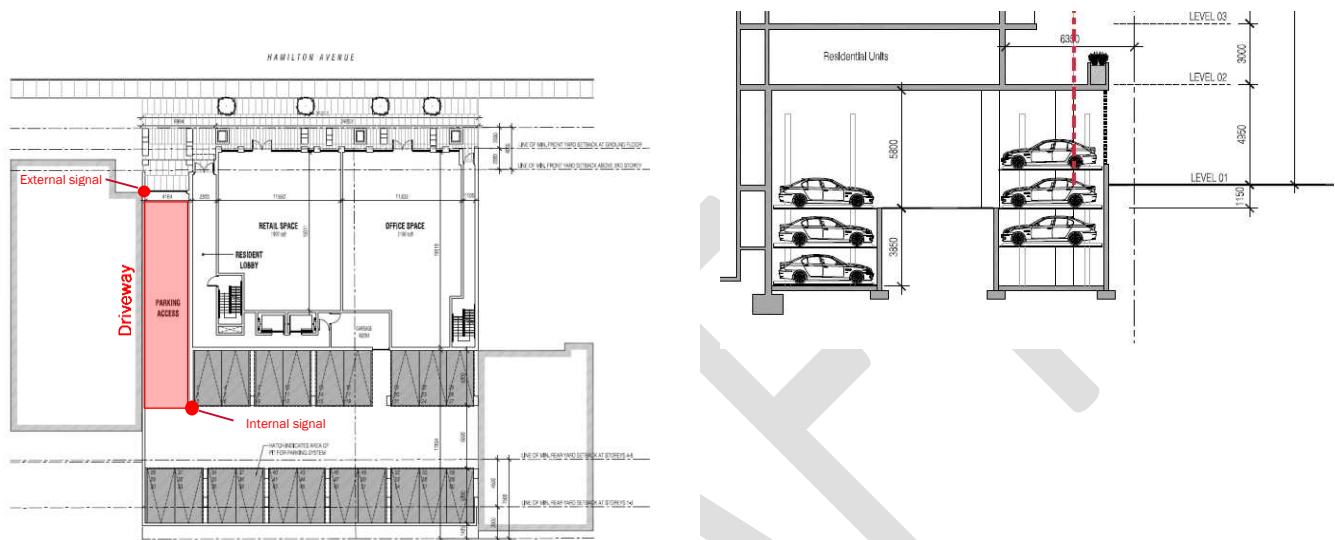
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The proposed frontage on Hamilton Avenue includes a 4.8 m wide street edge from property line to the nearest sidewalk edge. This proposed public realm includes green elements and a 4.0 m driveway connecting to the garage door. This added public realm will in practice act as a widened sidewalk, which is a considerable improvement to the existing 1.85 m sidewalk and will translate in improved walkability for residents and neighbours walking along the west side of Hamilton Avenue adjacent to site.

The proposed development has a one-way driveway connection to Hamilton Avenue that is identified to be 4 m wide and 35 m long, measured from curb outer-edge to parking aisle central axis. According to By-law, the 4m driveway width would be acceptable only if the parking lot provided less than 20 spaces, otherwise a 6 m wide two-way driveway would be required. However, the proposed 60 space parking lot effectively functions as an approximate 20 space lot as outlined below.

Vehicle parking is proposed in a “surface” parking lot with 60 stalls provided by 20 three-level mechanical car-lifts. These car lifts connect to a 6 m aisle and the 4 m driveway (see Figure 5).

Figure 5: Proposed Car Lifts. Plan View and Side View.



- Travelling at 15 km/h, a vehicle will need approximately 10 seconds to travel the 35 m distance between the garage aisle and Hamilton Avenue Curb.
- According to our research of available car-lift operators, it is estimated that operation time for car-lifts to elevate/descend vehicles to aisle level will be approximately 90 seconds per car.

As such, given the car-lift elevate/descend time is much greater than travel needed to traverse the driveway, the site parking garage will in practice operate as an approximate 20-stall parking garage at any given moment. Convex mirrors are recommended.

The parking garage will include an automated door that will likely be activated by residents/employees with a remote control. Should monitoring indicate that there are operational issues with the proposed 4 m driveway, consideration could be given to installing a simple signal system to be integrated with the operation of the garage door (see Figure 5).

- The signalling system should include both internal and external lights and vehicle detectors able to detect direction of movement on the driveway;
- Internal light should be located at the parking aisle and that the external light is located at the garage door;
- The internal light would turn red when the garage door is called; and
- The external light would turn red when an outbound vehicle is already on the driveway.

Regarding garbage recollection, from the information provided it is our understanding that garbage bins will be rolled-out the garbage room onto Hamilton Avenue. Considering the proposed widened street edge mentioned before, no issues are anticipated.

Considering the above, the proposed 4.0 m wide driveway is considered sufficient to operate as per City of Ottawa parking By-Law requirements. If monitoring reveals any operational issues, a signalling system able to detect vehicles and direction of movement at the parking access is could be considered.

## 4.2. BOUNDARY STREET

The boundary street for the development is Hamilton Avenue. At this time, there has not been any complete street concepts prepared for Hamilton Avenue. The existing roadway’s geometry consists of the following features:

- Two-way 8.0 m roadway;
- 2.25 m southbound parking lane;
- 4.8 m ‘wide’ angled parking along the northbound side;
- 1.8 m concrete sidewalk on both sides of the roadway;
- More than 3,000 vehicles per day along Hamilton Avenue;
- Posted speed limit of 40 km/h, assumed operating speed of 40 to 50 km/h;
- No dedicated cycling facilities; and
- No dedicated transit facilities.

As part of the proposed development, the following facilities are planned along the site’s frontage to Hamilton Avenue:

- 4.8 m wide street edge measured from property line to sidewalk edge, that will act as widened sidewalk; and
- 4.0 m wide driveway; and

The multi-modal level of service analysis for the road segment along Hamilton Avenue adjacent to the site is summarized in Table 11, with detail analysis provided in Appendix C.

Table 7: MMLoS - Projected 2019 Brookfield Road Segment (South Side of Roadway)

Road Segment	Level of Service							
	Pedestrian (PLoS)		Bicycle (BLoS)		Transit (TLoS)		Truck (TkLoS)	
	PLoS	Target	BLoS	Target	TLoS	Target	TkLoS	Target
<b>Existing</b>								
Hamilton Avenue	C	A	D	D	-	No target	-	Not a truck route/no target
<b>Proposed Adjacent to Site</b>								
Hamilton Avenue	B	A	D	D	-	No target	-	Not a truck route/no target

Given the development’s location within 600 m of an existing Rapid Transit Station, the target levels of service for pedestrians are high (PLoS ‘A’). As the site is not located within a designated cycling route, the target levels of service for cyclists are PLoS‘D’. There are no transit priority plans for Hamilton Avenue and as such there is no TLoS target. Hamilton Avenue does not form part of the truck route, and as such, has no truck level of service (TkLoS) target.

With regard to pedestrians, the narrow existing sidewalks, moderate traffic volumes and moderate traffic speeds on Hamilton Avenue, result in a lower level of service for pedestrians (PLoS ‘C’). Given the proposed development includes a widened street edge of 4.8 m plus sidewalk, which will operate as a widened sidewalk with boulevard, this results in PLoS ‘B’ which is still below area targets. To achieve the target level of service, the operating speed would have to be reduced to 30 km/h along Hamilton Avenue. Apart from lowering the current speeds of vehicles along Hamilton Avenue, a reduction of daily traffic to below 3000 vehicles would achieve PLoS‘A’ as well. However, this would be problematic, as Hamilton Avenue provides access to Parkdale Park and to Wellington Street W, and diverted traffic could have negative impacts on adjacent local roads.



With regard to cyclists, there are currently no dedicated cycling facilities along Hamilton Avenue, however, current and proposed conditions are meeting multi-modal level of service targets given that Hamilton Avenue adjacent to site is not part of any designated cycling route. Should the operating speed on Hamilton Avenue be reduced to 30 km/h, the resulting bicycle level of service (BLoS 'B') would exceed the target of BLoS 'D'.

## 4.3. ACCESS INTERSECTION DESIGN

### 4.3.1. LOCATION AND DESIGN OF ACCESS

There is one proposed 4.0 m wide, full-movement driveway connection to Hamilton Avenue to serve 16 Hamilton Avenue development. This driveway is located approximately 95 m north of Wellington Street W and 55 m south of Armstrong Street. Given the site-generated traffic of approximately 23 vehicles (5 in, 18 out) during the weekday morning peak hour and 23 vehicles (13 in, 10 out) during the weekday afternoon peak hour, no issues are anticipated at the adjacent unsignalized intersections. Considering the parking garage will be operated with 20 three-level car-lifts that require approximately 90 seconds to elevate/descend each vehicle to ground level, as mentioned in Section 4.1.2, the 4.0 m driveway with is considered sufficient and in-line with the high-quality pedestrian environment envisioned for the area. As such, minimal impact is anticipated on Hamilton Avenue within the horizon analysis, provided the recommendations found in Section 4.1.2 of the foregoing report.

## 4.4. TRANSIT

### 4.4.1. ROUTE CAPACITY

Figure 6 depicts the location of nearby transit stops and Table 8 summarizes the site-generated transit demand during weekday morning and afternoon peak hours.

Figure 6: Nearby Transit Stops Locations



Table 8: Site-Generated Transit Demand

Direction	Site-Generated Passengers/h	Single	Articulated	Double-Decker
Inbound	10	18%	13%	11%
Outbound	17	31%	23%	19%

As outlined within Section 3.1, the forecasted ‘new’ two-way transit trips are estimated to be 22 trips (5 in, 17 out) during the AM peak and 17 trips (10 in, 7 out) during the PM peak. During the AM peak, the outbound trips represent approximately 31% of a single bus (55 passengers), 23% of an articulated bus (75 passengers) and 19% of a double-decker bus (90 passengers). As such, no issues are anticipated regarding adjacent transit route capacity to serve the proposed 16 Hamilton Avenue development.

## 5. SUMMARY OF IMPROVEMENTS INDICATED AND MODIFICATION OPTIONS

Based on the results summarized herein the following transportation related conclusions are offered:

### Proposed Site

- The proposed site will consist of 75 residential units, 120 m<sup>2</sup> of retail and 260 m<sup>2</sup> of office, with a private driveway located on Hamilton Avenue;
- In total, the development is anticipated to generate approximately 54 and 47 two-way person trips during the AM and PM peak hours, respectively and split into the following modal shares:
  - 23 auto trips (5 in, 18 out) during the AM peak and 23 auto trips (13 in, 10 out) during the PM peak;
  - 22 transit trips (5 in, 17 out) during the AM peak and 17 transit trips (10 in, 7 out) during the PM peak; and
  - 6 active mode trips (1 in, 5 out) during the AM peak and 2 active mode trips (1 in, 1 out) during the PM peak.
- The proposed site is contained within 600 m of the Tunney’s Pasture LRT Station;
- A total of 60 parking spaces will be provided within the development, of which 6 will be designated as visitor parking; and
- A total of 39 bicycle parking spaces will be provided.

### Site Plan, Access and Circulation

- The proposed frontage on Hamilton Avenue includes a 4.8 m wide street edge from property line to the nearest sidewalk edge. This added public realm is a considerable improvement to the existing 1.85 m sidewalk, is consistent with the high-quality pedestrian environment envisioned for the area and will provide improved walkability for residents and neighbours;
- Site garbage will be rolled-out of the on-site garbage room for recollection on Hamilton Avenue. Considering the proposed widened street edge mentioned before, no issues are anticipated;
- Vehicle parking is proposed in an underground parking lot with 60 stalls provided by 20 three-level mechanical car-lifts. Considering the car-lift elevate/descend time (90 seconds/veh) is expected to be significantly greater than the in-parking travel time (10 - 15 seconds), the parking garage will in practice operate as a 20-stall parking garage at any given moment;
- The proposal includes a one-way 4.0 m wide driveway with a 35 m long garage access. Given the parking garage will operate in practice as a 20-stall garage at any given moment, no issues are anticipated for parking access/egress; and

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- The parking garage will include an automated door that will likely be activated by residents/employees with a remote control. Should monitoring indicate that there are operational issues with the proposed 4 m driveway, consideration could be given to installing a simple signal system to be integrated with the operation of the garage door.

## Transit

- During the AM peak, the outbound trips represent approximately 31% of a single bus (55 passengers), 23% of an articulated bus (75 passengers) and 19% of a double-decker bus (90 passengers). As such, no issues are anticipated regarding adjacent transit route capacity to serve the proposed 16 Hamilton Avenue development.

## Boundary Street

- Given the development's location within 600 m of an existing Rapid Transit Station, the target levels of service for pedestrians are high (PLoS 'A'). As the site is not located within a designated cycling route, the target levels of service for cyclists are PLoS'D';
- With regard to pedestrians, given the proposed development includes a widened street edge of 4.8 m plus sidewalk, which will operate as a widened sidewalk with boulevard, this results in PLoS 'B' which is still below area targets. To achieve the target level of service, the operating speed would have to be reduced to 30 km/h along Hamilton Avenue; and
- With regard to cyclists, current conditions are meeting multi-modal level of service targets. Should the operating speed on Hamilton Avenue be reduced to 30 km/h, the resulting bicycle level of service (BLoS 'B') would exceed the target of BLoS 'D'.

Based on the foregoing conclusions, this report satisfies the TIA requirements for Surface Developments' 16 Hamilton Avenue development and is recommended to proceed from a transportation perspective.

Prepared By:

Reviewed By:

Andrés Pena, M.Sc.  
Transportation Analyst

Mark Baker, P.Eng.  
Senior Project Manager



# Appendix A

Screening Form

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City of Ottawa 2017 TIA Guidelines  
**TIA Screening Form**

Date 9/28/2018  
 Project 16 Hamilton  
 Project Number 908489

Results of Screening	Yes/No
Development Satisfies the Trip Generation Trigger	No
Development Satisfies the Location Trigger	Yes
Development Satisfies the Safety Trigger	No

Module 1.1 - Description of Proposed Development	
Municipal Address	16 Hamilton Avenue North
Description of location	Ward 15. Plan 58 PT Lots 3&4; Hamilton W.
Land Use	Residential; Retail; Office
Development Size	73; 120 sq.m; 260 sq.m.
Number of Accesses and Locations	1 Access on Loretta Avenue
Development Phasing	n/a
Buildout Year	2020
Sketch Plan / Site Plan	See attached

Module 1.2 - Trip Generation Trigger	
Land Use Type	Townhomes or Apartments
Development Size	73 Units
Trip Generation Trigger Met?	No

Module 1.3 - Location Triggers	
Development Proposes a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks (See Sheet 3)	No
Development is in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone. (See Sheet 3)	Yes Future TOD (Tunney's Pasture Mixed Use Centre)
Location Trigger Met?	Yes

Module 1.4 - Safety Triggers	
Posted Speed Limit on any boundary road	<80 km/h
Horizontal / Vertical Curvature on a boundary street limits sight lines at a proposed driveway	No
A proposed driveway is 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) or within auxiliary lanes of an intersection;	No
A proposed driveway makes use of an existing median break that serves an existing site	No
There is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development	No
The development includes a drive-thru facility	No
Safety Trigger Met?	No

# Appendix B

Collision Data Analysis

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Total Area

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	2	1	9	0	0	8	3	23	88%
Non-fatal injury	0	1	0	2	0	0	0	0	3	12%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	0	3	1	11	0	0	8	3	26	100%
	# 6 or 0%	# 3 or 12%	# 5 or 4%	# 1 or 42%	# 6 or 0%	# 6 or 0%	# 2 or 31%	# 3 or 12%		

WELLINGTON ST / HAMILTON AVE

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	16	12,857	1825	0.68

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	1	1	8	0	0	1	2	13	81%
Non-fatal injury	0	1	0	2	0	0	0	0	3	19%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	0	2	1	10	0	0	1	2	16	100%
	0%	13%	6%	63%	0%	0%	6%	13%		

HAMILTON AVE N / ARMSTRONG ST

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	4	6,437	1825	0.34

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	1	0	1	0	0	2	0	4	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	0	1	0	1	0	0	2	0	4	100%
	0%	25%	0%	25%	0%	0%	50%	0%		

HAMILTON AVE N, ARMSTRONG ST to WELLINGTON ST W

Years	Total # Collisions	24 Hr AADT Veh Volume	Days	Collisions/MEV
2012-2016	6	4,580	1825	0.72

Classification of Accident	Rear End	Turning Movement	Sideswipe	Angle	Approaching	Single Vehicle (other)	Single vehicle (Unattended vehicle)	Other	Total	
P.D. only	0	0	0	0	0	0	5	1	6	100%
Non-fatal injury	0	0	0	0	0	0	0	0	0	0%
Non reportable	0	0	0	0	0	0	0	0	0	0%
Total	0	0	0	0	0	0	5	1	6	100%



# City Operations - Transportation Services

## Collision Details Report - Public Version

**From:** January 1, 2013 **To:** December 31, 2017

**Location:** HAMILTON AVE N btwn ARMSTRONG ST & WELLINGTON ST W

**Traffic Control:** No control

**Total Collisions:** 10

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2013-Jul-28, Sun,16:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	
2014-Aug-22, Fri,13:49	Clear	SMV unattended vehicle	P.D. only	Dry	North	Unknown	Unknown	Unattended vehicle	
2015-Sep-05, Sat,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	
2016-Apr-04, Mon,12:58	Clear	Other	P.D. only	Dry	North	Reversing	Pick-up truck	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2016-May-25, Wed,11:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	
2016-Jul-07, Thu,19:38	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle	
2016-Dec-02, Fri,08:59	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Overtaking	Automobile, station wagon	Other motor vehicle	

2017-May-22, Mon,14:15	Rain	SMV unattended vehicle	P.D. only	Wet	West	Reversing	Automobile, station wagon	Unattended vehicle
2017-Aug-10, Thu,19:54	Clear	SMV unattended vehicle	P.D. only	Dry	North	Going ahead	Pick-up truck	Unattended vehicle
2017-Oct-21, Sat,22:24	Clear	Angle	P.D. only	Dry	East	Reversing	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle

**Location:** WELLINGTON ST @ HAMILTON AVE

**Traffic Control:** Stop sign

**Total Collisions:** 16

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2013-Jul-26, Fri,13:20	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2013-Oct-03, Thu,15:36	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Cyclist	
					East	Going ahead	Bicycle	Other motor vehicle	
2013-Nov-19, Tue,10:25	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2013-Nov-15, Fri,12:45	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

2013-Nov-30, Sat,12:21	Clear	Angle	Non-fatal injury	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jun-05, Thu,17:48	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Aug-15, Fri,15:43	Clear	SMV unattended vehicle	P.D. only	Dry	South	Turning left	School bus	Unattended vehicle
2016-Sep-23, Fri,08:46	Rain	Angle	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jan-19, Thu,13:33	Clear	Angle	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jan-30, Mon,14:59	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2017-May-09, Tue,12:47	Clear	Other	P.D. only	Dry	South	Reversing	Truck - closed	Other motor vehicle
					North	Stopped	Passenger van	Other motor vehicle
2017-Jun-19, Mon,13:20	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle

					South	Turning right	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jul-14, Fri,13:22	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Passenger van	Other motor vehicle
2017-Aug-24, Thu,08:10	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Truck - dump	Other motor vehicle
2017-Dec-01, Fri,20:01	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Motorcycle	Other motor vehicle
2017-Dec-20, Wed,16:15	Clear	Other	P.D. only	Packed snow	South	Reversing	Construction equipment	Other motor vehicle
					South	Going ahead	Passenger van	Other motor vehicle



# Appendix C

Correspondence

---

From: [Dubyk, Wally](#)  
To: [Pena-cabra, Andres](#)  
Cc: [Gauthier, Steve](#)  
Subject: RE: 16 Hamilton Ave N - Screening Form  
Date: Tuesday, October 16, 2018 8:19:16 AM

---

Andres,

Please include Module 4.5 – Transportation Demand Management in the report and explain how you arrived at 60 auto trips (am/pm peak period?). Please note that this site is within a busy market area and address the availability of on-street parking. Revise the Scoping report and proceed with Step 3 – Forecasting.

Thank you,

Wally Dubyk  
Project Manager - Transportation Approvals  
Development Review, Central & South Branches  
613-580-2424 x13783

---

**From:** Pena-cabra, Andres <Andres.Pena-cabra@parsons.com>  
**Sent:** Thursday, October 04, 2018 3:17 PM  
**To:** Baggs, Rosanna <Rosanna.Baggs@ottawa.ca>  
**Cc:** Baker, Mark <Mark.Baker@parsons.com>; Dubyk, Wally <Wally.Dubyk@ottawa.ca>  
**Subject:** RE: 16 Hamilton Ave N - Screening Form

Hi Rosanna,

Please find attached the Screening and Scoping Report for the proposed development located at 16 Hamilton Avenue North.

Considering the proposal includes 60 parking spaces provided via parking elevators, for 73 residential units, we do not anticipate any parking related issue.

Regards,

Andrés Pena  
E.I.T  
1223 Michael St, Suite 100, Gloucester, ON K1J7T2  
[andres.pena-cabra@parsons.com](mailto:andres.pena-cabra@parsons.com) +1 613.738.4160

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**From:** Baggs, Rosanna <[Rosanna.Baggs@ottawa.ca](mailto:Rosanna.Baggs@ottawa.ca)>  
**Sent:** Monday, October 01, 2018 1:08 PM  
**To:** Pena-cabra, Andres <[Andres.Pena-cabra@parsons.com](mailto:Andres.Pena-cabra@parsons.com)>  
**Cc:** Baker, Mark <[Mark.Baker@parsons.com](mailto:Mark.Baker@parsons.com)>; Dubyk, Wally <[Wally.Dubyk@ottawa.ca](mailto:Wally.Dubyk@ottawa.ca)>  
**Subject:** RE: 16 Hamilton Ave N - Screening Form

Hi Andres,

Please proceed with Step 2.

Please note that since the Trip Gen trigger is not satisfied, only the Design Review Component (mods 4.1-4.4) will be required for the Strategy report (Step 4).

Regards,

**Rosanna Baggs, C.E.T.**

Project Manager, Infrastructure Approvals | GPRJ Approbation demandes infrastructure  
Development Review West Branch | Dir Services d'examen des demandes  
Tel | Tél. : 613-580- 2424 ext. | poste 26388

---

**From:** Pena-cabra, Andres <[Andres.Pena-cabra@parsons.com](mailto:Andres.Pena-cabra@parsons.com)>  
**Sent:** Monday, October 01, 2018 12:52 PM  
**To:** Baggs, Rosanna <[Rosanna.Baggs@ottawa.ca](mailto:Rosanna.Baggs@ottawa.ca)>  
**Cc:** Baker, Mark <[Mark.Baker@parsons.com](mailto:Mark.Baker@parsons.com)>  
**Subject:** FW: 16 Hamilton Ave N - Screening Form

Good afternoon Rosanna,

I received a bounce back email from Wally directing me in your direction.  
Please find attached the Screening Form for the proposed development located at 16 Hamilton Avenue North.

Thank you,

Andrés Pena  
E.I.T  
1223 Michael St, Suite 100, Gloucester, ON K1J7T2  
[andres.pena-cabra@parsons.com](mailto:andres.pena-cabra@parsons.com) +1 613.738.4160

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**From:** Pena-cabra, Andres  
**Sent:** Monday, October 01, 2018 12:47 PM  
**To:** 'Dubyk, Wally' <[Wally.Dubyk@ottawa.ca](mailto:Wally.Dubyk@ottawa.ca)>  
**Cc:** Baker, Mark <[Mark.Baker@parsons.com](mailto:Mark.Baker@parsons.com)>  
**Subject:** 16 Hamilton Ave N - Screening Form

Good afternoon Wally,

Please find attached the Screening Form for the proposed development located at 16 Hamilton Avenue North.

Feel free to write or call me if you would like to discuss.

Thank you,

Andrés Pena  
E.I.T  
1223 Michael St, Suite 100, Gloucester, ON K1J7T2  
[andres.pena-cabra@parsons.com](mailto:andres.pena-cabra@parsons.com) +1 613.691.1606

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