



Waste Management of Canada Corporation

# Environmental Assessment for a New Landfill Footprint at the West Carleton Environmental Centre

## TRANSPORTATION DETAILED IMPACT ASSESSMENT

*DRAFT FOR DISCUSSION AND COMMENT*

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# 1. Introduction

This report documents the transportation impact assessment of the Preferred Alternative Landfill Footprint for the Environmental Assessment (EA) for a new landfill footprint at the West Carleton Environmental Centre (WCEC). In the preceding Alternative Methods phase of the EA, a net effects analysis as well as a comparative evaluation of the four alternative landfill footprint options were carried out in order to identify a Preferred Alternative Landfill Footprint. The Preferred Alternative Landfill Footprint was determined to be Option #2. The potential environmental effects, mitigation or compensation measures to address the potential adverse environmental effects, and the remaining net effects following the application of the mitigation or compensation measures were identified for the Preferred Alternative Landfill Footprint.

The Preferred Alternative Landfill Footprint was refined based on stakeholder comments received and in order to further avoid or mitigate potential adverse environmental effects, and is illustrated in **Figure 1**.

A Facility Characteristics Report (FCR) as well as a description of the ancillary facilities associated with the WCEC have been prepared so that potential environmental effects and mitigation or compensation measures identified for the Preferred Alternative Landfill Footprint during the Alternative Methods phase of the EA can be more accurately defined, along with enhancement opportunities and approval requirements.

The discipline-specific work plans developed during the ToR outlined how impacts associated with the Preferred Alternative Landfill Footprint would be assessed. The results of these assessments have been documented in the following 10 standalone Detailed Impact Assessment Reports:

- Atmospheric (Air Quality, Noise, Odour, and Landfill Gas)
- Geology and Hydrogeology
- Surface Water
- Biology
- Archaeology
- Cultural Heritage
- Transportation<sup>1</sup>
- Land Use
- Agriculture
- Socio-Economic (including Visual)

Despite being standalone documents, there are; however, interrelationships between some of the reports, where the information discussed overlaps between similar disciplines. Examples of this include the following:

- Geology and Hydrogeology, Surface Water and Biology (Aquatic Environment); and
- Land Use, Agricultural, and Socio-Economic (including Visual).

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1. *In previous reports effects on airport operations with respect to bird strikes was included in the Transportation component. For the purposes of the Detailed Impact Assessment, this criteria is being address in a separate stand-alone Gull Management report.*



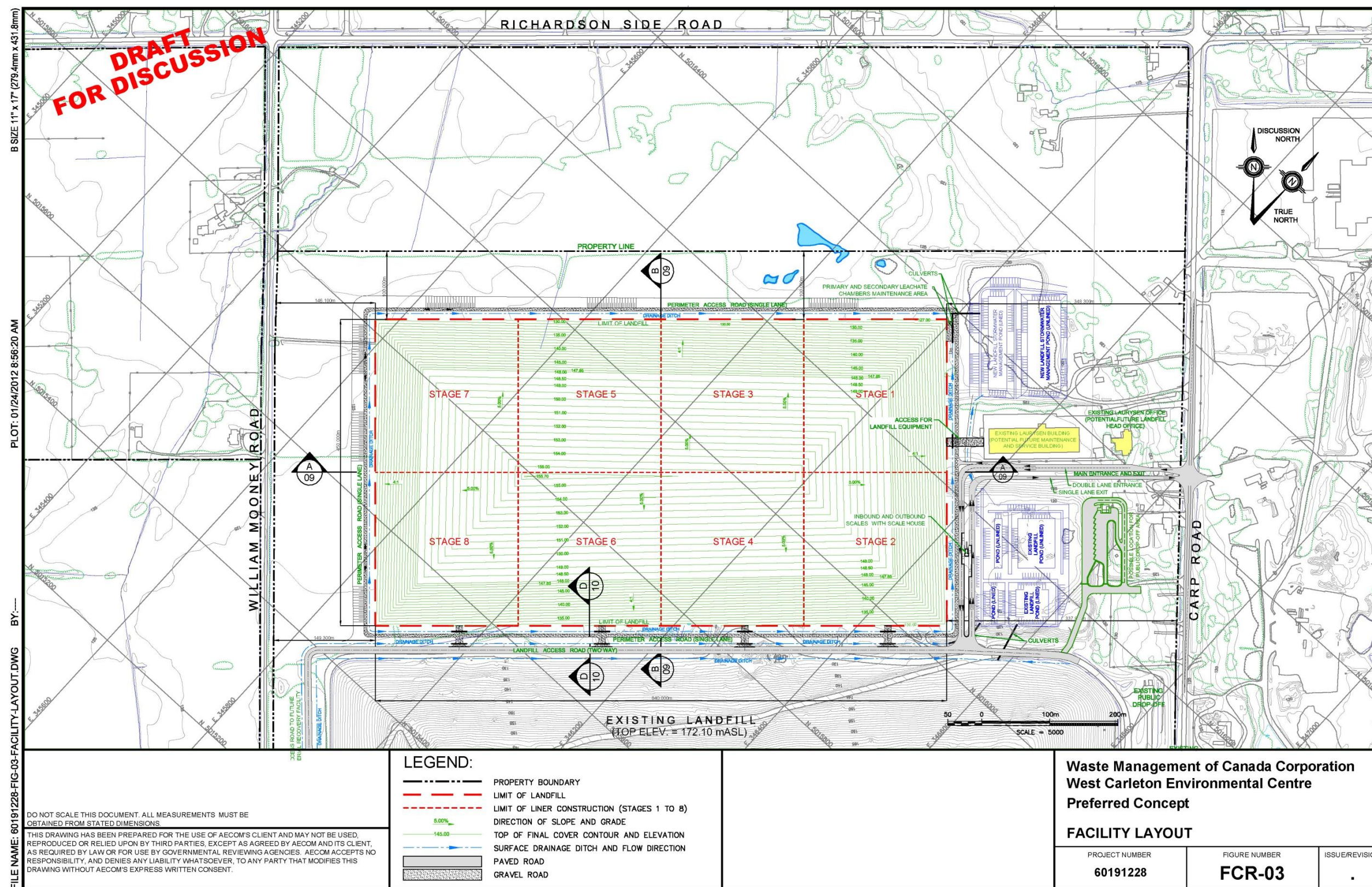


Figure 1. Preferred Alternative Landfill Footprint

## 1.1 Description of the Preferred Alternative Landfill Footprint

The southern half of the Preferred Alternative Landfill Footprint is on Waste Management (WM)-owned lands and the northern half is on lands that WM has options to purchase. A 100 m buffer is maintained between the north limit of the Preferred Landfill Footprint and the private lands to the north (e.g., lands which front onto Richardson Side Road) in accordance with Ontario Regulation 232/98, and an approximate 350 m buffer is maintained between the east limit of the footprint and Carp Road. A light industrial building (i.e., the Laurysen building) is situated in the eastern portion of the WM optioned lands, which WM anticipates using for equipment storage/maintenance or waste diversion activities in the future. An approximate 45 to 50 m buffer is maintained between the toe of slope of the existing and new landfill footprint, thus allowing sufficient area for a new waste haul road to the new footprint, and for maintenance and monitoring access. The location of the west limit of the Preferred Alternative Landfill Footprint was determined by maintaining the noted buffers and providing the required 6,500,000 m<sup>3</sup> of disposal capacity, while maintaining landfill elevation below 158 mASL (as reported in the CDR) and maintaining side slopes required by Ontario Regulation 232/98 (e.g., varying from 4H to 1V to 5%). This results in an approximate 146 m buffer between the west limit of the Preferred Footprint and William Mooney Road. This buffer preserves a portion of the existing woodlot within the west part of the WM-owned lands.

The final contours of the landfill are shown in **Figure 1** and reflect a rectangular landform with a maximum elevation (top of final cover) of 155.7 mASL. This elevation is approximately 30.7 m above the surrounding existing grade. By comparison, the maximum elevation of the existing Ottawa WMF landfill is approximately 172 mASL or approximately 47 m above the surrounding existing grade. The contours reflect maximum side slopes of 4H to 1V, and a minimum slope of 5%. The total footprint area of the new landfill is 37.8 ha.

## 1.2 Facility Characteristics Report

The FCR presents preliminary design and operations information for the Preferred Alternative Landfill Footprint (Option #2) and provides information on all main aspects of the landfill design and operations including:

- Site layout design;
- Surface water management;
- Leachate management;
- Gas management; and
- Landfill development sequence and daily operations.



The FCR also provides estimates of parameters relevant to the detailed impact assessment including estimates of leachate generation, contaminant flux through the liner system, landfill gas generation, and traffic levels associated with waste and construction materials haulage.

### **1.3 Other WCEC Facilities**

In addition to the new landfill footprint, the WCEC will also include other facilities not subject to EA approval. These include:

- A material recycling facility;
- A construction and demolition material recycling facility;
- An organics processing facility;
- Residential diversion facility;
- Community lands for parks and recreation;
- A landfill-gas-to-energy facility; and
- Greenhouses.

Although these facilities do not require EA approval, it is important to consider environmental impacts from all potential activities at the WCEC, not just the new landfill footprint. As such, the synergistic impacts of these facilities in relation to the Preferred Alternative Landfill Footprint will also be assessed in the EA.

### **1.4 Transportation Study Team**

The Transportation study team consisted of AECOM staff. The actual individuals and their specific roles are provided as follows:

- **Valerie McGirr** – Transportation Lead
- **Vanessa Skelton** – Senior Transportation Engineer
- **Laurisse Huijjer** – Transportation Designer



## 2. Study Area

The specific On-Site, Site-Vicinity, and Regional study areas for the Preferred Alternative Landfill Footprint at the WCEC are listed below:

- On-Site** ..... the lands required for the Preferred Alternative Landfill Footprint;
- Site-Vicinity** ..... the lands in the vicinity of the Preferred Alternative Landfill Footprint, extending about 500 m in all directions; and,
- Regional** ..... the lands within approximately 1 to 5 km of the Preferred Alternative Landfill Footprint for those disciplines that require a larger analysis area (i.e., socio-economic, odour, etc.).

For the transportation component, the study areas have not changed since they were established for the study of existing conditions.

For the “effects from truck transportation along access road”, the On-Site study area is as defined above. The boundary of the Site-Vicinity study area is:

- South of the Highway 417 eastbound ramps and ramp terminals on the south side of Highway 417;
- East of Carp Road, the Highway 417 westbound off ramp and eastbound on ramp;
- North of Richardson Side Road; and
- West of William Mooney Road, the Highway 417 westbound on ramp and the eastbound off ramp.

There is no Regional study area for the effects from truck transportation as the area of potential effects is contained within the Site-Vicinity study area. The On-site and Site Vicinity study areas for the effects from truck transportation along the access road are illustrated in **Figure 2**.





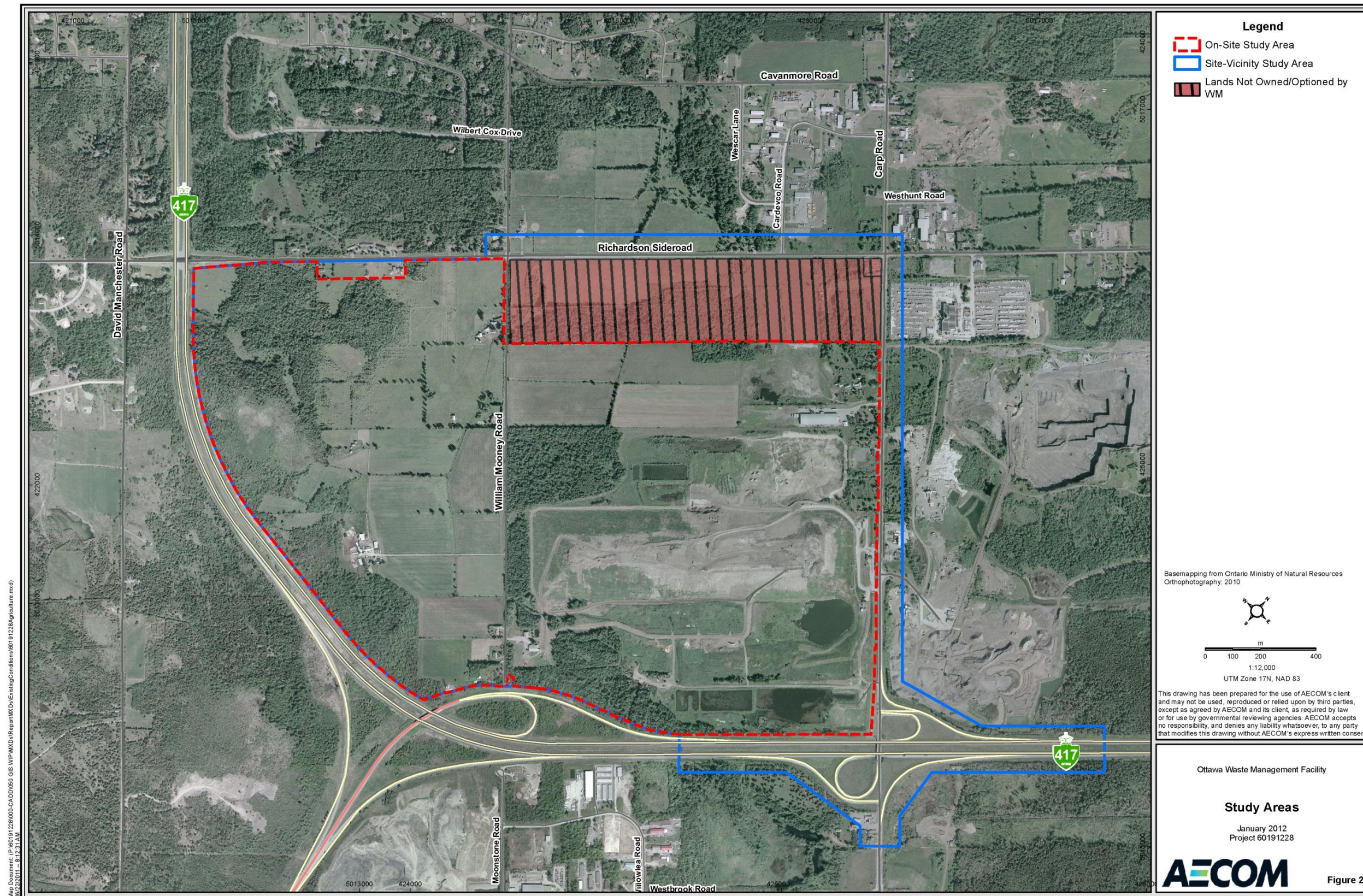


Figure 2. Truck Transportation Study Area

### **3. Methodology**

The assessment of impacts associated with the Preferred Alternative Landfill Footprint was undertaken through a series of steps that were based, in part, on a number of previously prepared reports (Transportation Existing Conditions Report and Transportation Comparative Evaluation Technical Report). The net effects associated with the four Alternative Landfill Footprint Options identified during the Alternative Methods phase of the EA were based on conceptual designs. These effects were reviewed within the context of the preliminary design plans developed for the Preferred Alternative Landfill Footprint, as identified in the FCR, to determine the type and extent of any additional investigations required to provide a comprehensive assessment of net effects. Additional investigations were then carried out, where necessary, in order to augment the previous work undertaken.

With these additional investigations in mind, the potential impact on the transportation environment of the Preferred Alternative Landfill Footprint was documented.

With a more detailed understanding of the transportation environment developed, the previously identified potential effects and recommended mitigation or compensation measures associated with the Preferred Alternative Landfill Footprint (documented in the Transportation Comparative Evaluation Technical Report, September 2011) were reviewed to confirm their accuracy in the context of the preliminary design for the preferred footprint. Based on this review, the potential effects, mitigation or compensation measures, and net effects associated with the Preferred Alternative Landfill Footprint were confirmed and documented. In addition to identifying mitigation or compensation measures, potential enhancement opportunities associated with the preliminary design for the Preferred Alternative Landfill Footprint were also identified, where possible.

Following this confirmatory exercise, the requirement for monitoring in relation to net effects was identified, where appropriate. Finally, any transportation approvals required as part of the implementation of the Preferred Alternative Landfill Footprint were identified.



## 4. Additional Investigations

### 4.1 Mapping

Mapping was obtained from WM to provide a basis for the design of the northbound left turn lane from Carp Road to the proposed WCEC site access road. The area was then reviewed in the field to check for any changes observed since the mapping was created, such as utility locations and drainage features.

### 4.2 Traffic Volumes

The expected traffic volumes generated at the site were estimated in the Facility Characteristics Report (January 2012). The traffic volumes associated with Phase 2 Operations “Approaching Closure” were used in the analysis to match the timeline of the City of Ottawa traffic projections which have been prepared for the year 2031. This represents the maximum traffic on Carp Road and the second busiest period for site traffic, which together were considered “worst case” conditions for traffic. The City of Ottawa 2031 traffic projections are for the AM peak period only. Since traffic volumes are relatively similar northbound and southbound on Carp Road, volumes were reversed to undertake a PM peak analysis.

The number of trips entering and exiting the site in the analysis hour was estimated at 70 (35 entering and 35 exiting) and to this was added 45 trips during the peak AM and PM hours associated with the ancillary uses (35 entering and 10 exiting in the AM, reversed in the PM). Since few trips are expected to arrive at the site from the north, only 5 trips were assigned to this direction and the remainder were considered to arrive from the south as northbound left turning vehicles.

Traffic volumes for the driveway immediately east of the proposed site access were estimated in consultation with the business owner. Of the 25 employees estimated to arrive/leave in the peak hour, 20 were assigned from and to the south and 5 were assigned from and to the north. Few trucks use this driveway. Occasionally a truck from the north will turn left.

### 4.3 Left Turn Lane Design

The appropriate length of the Carp Road northbound left turn lane to the proposed WCEC site access was assessed using traffic volumes generated for the expected operating conditions with consideration for the ancillary facilities potentially present at the site as described above. The experience of WM with respect to the number of trucks potentially arriving at one time was also considered.



Using the left turn lane warrant graphs in the MTO Geometric Design Standards and the following data:

<b>Advancing Volume</b> .....	983
<b>Opposing Volume</b> .....	1016
<b>Left Turning Volume</b> .....	75
<b>Design Speed</b> .....	100 km/h
<b>% Trucks</b> .....	100%

the storage lane length for a left turn lane into the WCEC facility was determined to be 40 m. Normal geometric design standards would potentially underestimate the length of left turn lane required because of the concentration of trucks in the left turning stream at the WCEC and their operating characteristics, especially when fully loaded. These trucks need a larger gap to complete their turn. Once the percentage of trucks is considered, the length of the northbound left turn lane is increased to 75 m. In accordance with MTO standards, 230 m was added to provide a deceleration lane and a taper length.

For the southbound direction, a left turn lane was added opposite the northbound left turn lane. The southbound left turning volumes are expected to be small and consist mainly of passenger vehicles with some trucks. As a result, a minimum storage length of 15 m was applied to the design of the southbound left turn lane.

## **5. Detailed Description of the Environment Potentially Affected**

The environment in the study area was described as part of the existing conditions.

### **5.1 On-Site**

On-site transportation is included with the description of landfill operations and is not described in this section.

### **5.2 Site-Vicinity**

#### **5.2.1 Traffic Volumes**

The anticipated level of service for the traffic on Carp Road and for the traffic using the site access was assessed during the review of the preferred landfill footprint. Traffic volumes were



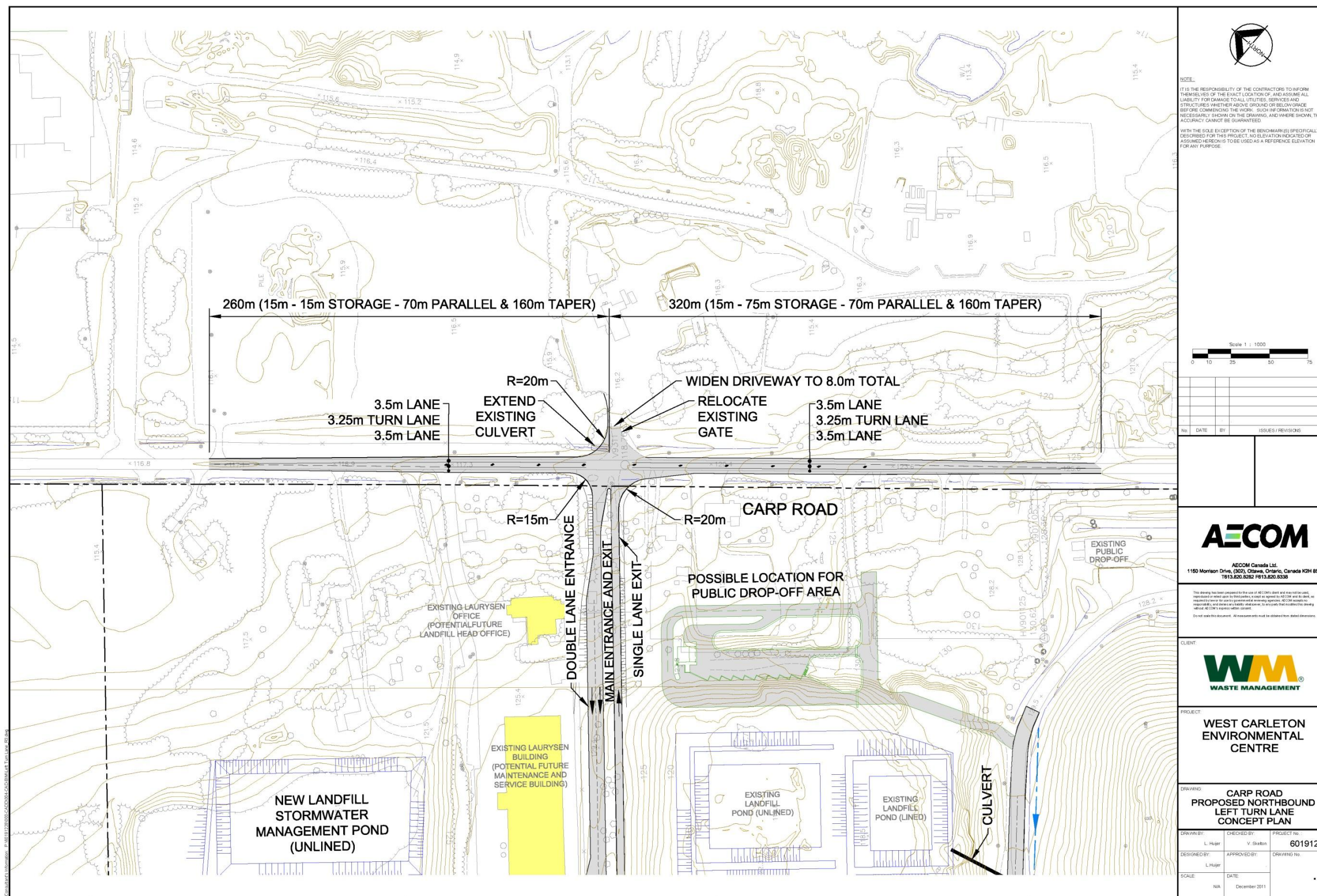


Figure 3. Carp Road Proposed Northbound Left Turn Lane Concept Plan

developed as described in Section 4 above. In addition, the impact of potential future widening of Carp Road from 2 to 4 lanes on traffic operations was assessed. While this widening is not included in the City’s Transportation Master Plan at this time, traffic volumes at Carp Road and Richardson Side Road indicate that this section may also require widening in the future if growth occurs in this area.

### 5.2.2 Traffic Operations and Level of Service

The results of the analysis are shown below in **Table 1** in terms of delay and the related level of service. The analysis was performed using the Synchro software version 7.0 and the results are taken from the SimTraffic model, which examined the operations of the proposed site access as well as the adjacent signalized intersections at Richardson Side Road and the eastbound Highway 417 ramp terminal intersection. The SimTraffic model is useful for analyzing the effects of signals on adjacent driveways as in this situation.

In the AM peak, no traffic is estimated to be leaving the east side driveway or turning left out of the WCEC.

**Table 1. Intersection Analysis Results**

AM	Carp Road						WM Access
	Northbound			Southbound			Eastbound
	Left	Through	Right	Left	Through	Right	Right
<b>Volume</b>	75	1016	20	5	983	5	45
<b>Delay (s)</b>	22	15	10	10	2	0	16
<b>LOS</b>	C	B	A	A	A	A	B

PM	Carp Road						WM Access	East Side Dwy		
	Northbound			Southbound			Eastbound		Westbound	
	Left	Through	Right	Left	Through	Right	Left	Right	Left	Right
<b>Volume</b>	45	1026	0	0	1053	0	5	75	20	5
<b>Delay (s)</b>	12	8	0	0	2	0	136	25	85	57
<b>LOS</b>	B	A	A	A	A	A	F	C	F	F

The delays estimated for through vehicles during the simulation indicate that they are required to slow down for vehicles in front of them turning right into driveways. Similarly, delays for right turning vehicles indicate that they are slowing down to complete their turns. The longest delays



are experienced by vehicles turning left to exit the WCEC and vehicles turning left to exit the east driveway due to the high volumes of through traffic on Carp Road with a single lane in each direction.

If the City of Ottawa widens Carp Road to two lanes in each direction, the level of service at the site access and east side driveway will improve and delays will be reduced.

The results of the analysis indicate that the traffic on Carp Road will continue to flow under good operating conditions. The trucks entering and exiting the WM site will experience delays, especially for vehicles electing to turn left.

### **5.2.3 Road Network**

The transportation road network in the vicinity of the WCEC is characterized by:

- Carp Road, which provides site access and a route to the north and south of the site;
- Highway 417, which provides a major route and connections to the east, west and north of the site; and
- Richardson Side Road, which provides access to the residential areas north and west of the site as well as an alternative east-west route to Kanata.

These roads were described in detail in the existing conditions.

Driveways to other industrial and commercial operations, including production of aggregates and precast concrete are located along Carp Road between Highway 417 and Richardson Side Road. These operations contribute to the level of truck traffic observed along Carp Road in the site vicinity. One driveway serving an industrial property east of Carp Road is located in the vicinity of the site access.

Construction of the expansion of Highway 417 in the site vicinity commenced in 2011. The rehabilitation and widening of the Carp Road bridge over Highway 417 will require one-way operation (signal controlled) during construction. This work is scheduled for completion before 2014, which is estimated to be the earliest that the landfill expansion would commence.

## **5.3 Regional**

The WCEC is located adjacent to Highway 417, a major provincial freeway and important regional transportation facility connecting the City of Ottawa with the City of Montreal to the east and to the west up the Ottawa valley.



## 6. Transportation Net Effects

As mentioned, the previously identified potential effects and recommended mitigation or compensation measures associated with the Preferred Alternative Landfill Footprint were reviewed to confirm their accuracy in the context of the preliminary design of the Preferred Alternative Landfill Footprint, based on the more detailed understanding of the transportation environment developed through the additional investigations. With this in mind, the confirmed potential effects, mitigation or compensation measures, and net effects are summarized in Table 2 and described in further detail in the sections below.

### 6.1 Potential Effects on Transportation

The following two criteria and four indicators were used to describe the potential effects on Transportation for the preferred landfill footprint alternative:

- Effects from truck transport along access roads
  - Potential for traffic collisions
  - Disturbance to traffic operations
  - Proposal road improvement requirements

### 6.2 Mitigation and/or Compensation Measures

With respect to the effects from truck transportation in the vicinity of the WCEC, a new site access is proposed that is further north of Highway 417 than the existing entrance (i.e., the new access would be closer to Richardson Side Road). The new access will include a northbound left turn lane on Carp Road, designed and constructed in accordance with the standards and practices of the City of Ottawa and the Province of Ontario and with consideration for the likely number of trucks that could be present at one time. The location selected for the access provides improved sight distance over the existing location.

This new left turn lane will improve safety by reducing conflicts between northbound left turning and through vehicles, by reducing driver frustration and by improving sight distances. Northbound through drivers will not be forced to wait behind a turning truck until a suitable gap is available for the truck driver to complete the turn.

This new left turn lane will similarly improve traffic operations by allowing through traffic to proceed around left turning vehicles, providing an improved level of service. Given the estimated northbound and southbound traffic volumes on Carp Road, the northbound left turn lane is warranted in accordance with provincial standards.





The inconvenience to the public during the construction of the left turn lane will be temporary and similar to that experienced during other similar road construction projects. Staging of traffic during construction will be done in accordance with City and provincial standards for safety of construction workers, vulnerable road users and vehicular traffic as well as for reasonable traffic operations.

### 6.3 Net Effects

With the planned mitigation measures, the resulting net effects on transportation will be as follows:

- There will be improved safety when compared with existing conditions with the separation of northbound through and left turning traffic and the relocation of the entrance to a location with improved sight distances;
- Operations will be improved for northbound through traffic in comparison with existing conditions since they will not have to wait behind left turning vehicles at the site access; and
- During construction of the proposed left turn lane, minor temporary effects will remain.

**Table 2. Potential Effects, Proposed Mitigation and Compensation Measures, and Resulting Net Effects**

ID #	Potential Effect	Mitigation/ Compensation	Net Effect
1.	<p>Potential for traffic collisions</p> <ul style="list-style-type: none"> <li>• More conflicts between left turning trucks and through traffic on Carp Road.</li> <li>• Truck traffic volumes will be similar to those during previous operations; however, the volume of through traffic will increase over time.</li> </ul>	<ul style="list-style-type: none"> <li>• The volume of traffic northbound and southbound on Carp Road, combined with the expected left turning volume at the site entrance when the landfill is in operation, requires construction of a left turn lane into the site to maintain an appropriate traffic level of service on Carp Road. This will minimize driver frustration and separate conflicting movements to maximize safety and operations. The proposed intersection also improves access to the industrial driveway on the east side of Carp Road at the same location..</li> </ul>	<ul style="list-style-type: none"> <li>• Improved safety in comparison with existing conditions with the separation of northbound through and left turning traffic.</li> </ul>



**Table 2. Potential Effects, Proposed Mitigation and Compensation Measures, and Resulting Net Effects**

ID #	Potential Effect	Mitigation/ Compensation	Net Effect
2.	<p>Disturbance to traffic operations.</p> <ul style="list-style-type: none"> <li>Increased delay for northbound traffic on Carp Road due to left turning trucks waiting in the roadway to complete their turn.</li> <li>Truck traffic volumes will be similar to those during previous operations; however, the volume of through traffic will increase.</li> </ul>	<ul style="list-style-type: none"> <li>The volume of traffic northbound and southbound on Carp Road, combined with the expected left turning volume at the site entrance when the landfill is in operation, requires construction of a left turn lane into the site to maintain an appropriate traffic level of service on Carp Road. This will minimize driver frustration and separate conflicting movements to maximize safety and operations. The proposed intersection also improves access to the industrial driveway on the east side of Carp Road at the same location..</li> </ul>	<ul style="list-style-type: none"> <li>Improved operations for northbound through traffic in comparison with existing conditions.</li> </ul>
3.	<p>Proposed road improvement requirements.</p> <ul style="list-style-type: none"> <li>Proposed northbound left turn lane will add a minor amount of paved surface with minimal effect on runoff, maintenance and related activities.</li> <li>Other improvements on Carp Road by the MTO and the City of Ottawa are planned to address traffic operations issues resulting from non-site-related traffic at locations adjacent to the Site.</li> </ul>	<ul style="list-style-type: none"> <li>Design and construct road improvements in accordance with City policies, standards and practices.</li> </ul>	<ul style="list-style-type: none"> <li>Minor temporary construction-related effects.</li> </ul>

## 7. Impact Analysis of Other WCEC Facilities

During the a.m. and p.m. peak hour, traffic for other WCEC facilities was assumed as follows:

- A material recycling facility (8 truck trips – 4 in and 4 out in both peak periods);
- A construction and demolition material recycling facility (additional 12 trips by trucks – 6 in and 6 out – during the peak periods as contractors deliver their own C&D waste to the facility at the end of their day rather than have WM collect from bins);



- An organics processing facility (traffic included with waste haulage numbers);
- Residential diversion facility (traffic included with waste haulage numbers);
- Community lands for parks and recreation (no peak traffic during landfill operations as these community lands would function after landfill closure only);
- A landfill-gas-to-energy facility (10 trips in the peak periods – 10 in during the a.m. and 10 out during the p.m., representing staff arrival and departures); and
- Greenhouses (15 trips in the peak periods – 15 in during the a.m. and 15 out during the p.m., representing staff arrival and departures).

These traffic numbers are reflected in the analysis undertaken for the calculation of the length of the northbound left turn lane on Carp Road where it was assumed that the traffic impacts could overlap.

## 8. Monitoring and Commitments for the Undertaking

To ensure that the mitigation measures identified in **Section 6** are implemented as envisioned, a strategy and schedule was developed for monitoring environmental effects. With these mitigation or compensation measures and monitoring requirements in mind, commitments have also been proposed for ensuring that they are carried out as part of the construction, operation, and maintenance of the landfill.

### 8.1 Monitoring Strategy and Schedule

As mentioned, a monitoring strategy and schedule was developed based on the Transportation Impact Assessment carried out for the Preferred Alternative Landfill Footprint to help ensure that:

1. Predicted net negative effects are not exceeded;
2. Unexpected negative effects are addressed; and
3. The predicted benefits are realized.



### 8.1.1 Environmental Effects Monitoring

Monitoring of road transportation infrastructure is the responsibility of the road authority, the City of Ottawa (for City roads) and the Ministry of Transportation of Ontario (for Highway 417 and associated interchanges). The City reviews collision experience on a regular basis for all its roads to identify collision-prone areas where counter-measures may be required. The proposed left turn lane will eliminate conflicts, reduce driver frustration and thereby improve safety.

The 2008 Transportation Master Plan (TMP) update by the City of Ottawa identified the need to widen Carp Road from Highway 417 to Hazeldean Road in the next few years. No requirements for widening of Carp Road north of Highway 417 were identified to the year 2031. The City of Ottawa normally completes a TMP update every 5 years with a planning horizon in the order of 20 years. This way the need for infrastructure improvements to address future level of service deficiencies can be proactively identified and planned. The proposed left turn lane will improve operations by eliminating the delay associated with through vehicles waiting behind left turning vehicles.

The proposed northbound left turn lane will be constructed on right-of-way owned and managed by the City of Ottawa. The existing right-of-way is about 27 m wide in the vicinity of the new site access. This should be adequate for the proposed work; however, the need for additional right-of-way must be determined during design of the roadworks. The City may request that WM dedicate a strip of property along Carp Road for future improvements to the roadway during the approval process.

**Table 3. Proposed Monitoring Requirements**

ID Number/ Potential Effect	Proposed Monitoring Requirement	Associated Licences, Permits or Authorizations
Potential for traffic collisions <ul style="list-style-type: none"> <li>• More conflicts between left turning trucks and through traffic on Carp Road.</li> <li>• Truck traffic volumes will be similar to those during previous operations; however, the volume of through traffic will increase over time.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>City of Ottawa will maintain its database of collision experience and identify collision-prone areas in accordance with its ongoing programs. If remedial action is needed, the City of Ottawa will identify and implement recommended measures.</i></li> </ul>	None
Disturbance to traffic operations. <ul style="list-style-type: none"> <li>• Increased delay for northbound traffic on Carp Road due to left turning trucks waiting in the roadway to complete their turn.</li> <li>• Truck traffic volumes will be similar to those during previous operations; however, the volume of through traffic will increase.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>City of Ottawa will assess the existing and future level of service as part of its regular program of travel demand forecasting. Future need for improvements to the road network will be determined by the City.</i></li> </ul>	None



ID Number/ Potential Effect	Proposed Monitoring Requirement	Associated Licences, Permits or Authorizations
<p>Proposed road improvement requirements.</p> <ul style="list-style-type: none"> <li>Proposed northbound left turn lane will add a minor amount of paved surface with minimal effect on runoff, maintenance and related activities.</li> <li>Other improvements on Carp Road by the MTO and the City of Ottawa are planned to address traffic operations issues resulting from non-site-related traffic at locations adjacent to the Site.</li> </ul>	<ul style="list-style-type: none"> <li><i>The City of Ottawa will review the design plans for the left turn lane and provide municipal consent in advance of construction. They will require as-built drawings to be provided in a format consistent with their systems.</i></li> </ul>	<p>City of Ottawa approval</p>

### 8.1.2 Development of an Environmental Management Plan

An Environmental Management Plan (EMP) or Plans will be prepared following approval of the undertaking by the Minister of the Environment and prior to construction. The EMP will include a description of the proposed mitigation measures, commitments, and monitoring.

## 8.2 Commitments

The following commitments have been proposed for ensuring that the identified mitigation or compensation measures and monitoring requirements are carried out as part of the construction, operation, and maintenance of the undertaking:

- a) WM will construct a northbound left turn lane in consultation with the City of Ottawa.

## 9. Transportation Approvals Required for the Undertaking

The City of Ottawa's approval to construct the northbound left turn lane is required. The process for this construction is:

- WM will prepare a functional design of the proposed new left turn lane and related background information, and submit to the City;
- The City will circulate for review and provide comments;
- WM will prepare a detailed design reflecting the City's comments;



- The City will prepare the Roadway Modifications Approval (RMA) Report. For this the City will require a conceptual cost estimate, a Key Plan and a Conceptual Design of the proposed modifications. The proposed roadway modifications will require delegated authority approval from the Manager of Development Review, Suburban Services;
- After RMA approval has been given and after property rezoning is approved, WM will submit final design plans for Municipal Consent (MC). The City will circulate the drawings for the MC;
- WM will prepare construction specifications using City of Ottawa standard specifications and special provisions in accordance with City practices;
- WM will hire a contractor to undertake the roadwork;
- Once Municipal Consent has been received, the City will hold a pre-construction meeting and issue a Commence Work Letter that will allow the contractor to apply for a road cut permit and commence construction;
- The City will send out inspectors periodically to review the work as it progresses. WM will be responsible for day to day inspection of construction; and
- City inspectors will be responsible for final review prior to City acceptance.

The proposed site access location, which is further north along Carp Road than the existing site entrance, is beyond 395 m from the controlled access highway and hence approval of the Ministry of Transportation of Ontario is not required under the *Public Transportation and Highway Improvement Act*. Signage that is visible from the controlled access highway will require approval. Corridor Management at the Ottawa Area office of the Ministry of Transportation of Ontario is the group responsible for reviewing applications within the ministry.

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