Environmental Assessment (EA) of the Proposed Expansion of the Boyne Road Landfill

WELCOME to Open House #2

We want your input!

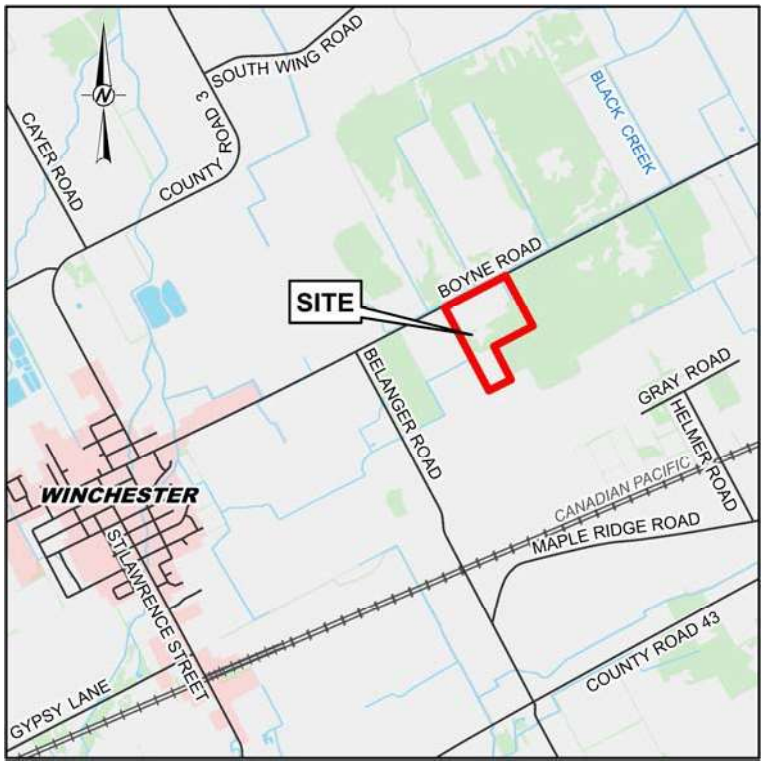
You are invited to browse the display material and talk to our staff and consultants

Please fill out a comment form so that we can include your questions or comments in the EA document

Comment forms are located at the sign-in table

The Proposed Project

- The proposed project is the expansion of the Boyne Road Landfill Site located south of Boyne Road, approximately 1.5 kilometres east of the Village of Winchester.
- The EA will consider options for the expansion that are called 'Alternative Methods'.
- Existing site-specific constraints limiting opportunities for expansion include:
  - The horizontal expansion of the landfill can only occur to the south of the site based on the availability of land owned by the Township.
- The additional landfill expansion volume being considered is 480,000 cubic metres to provide disposal capacity over a 25 year planning period to provide convenient disposal for residents, institutions and businesses within the Township of North Dundas.



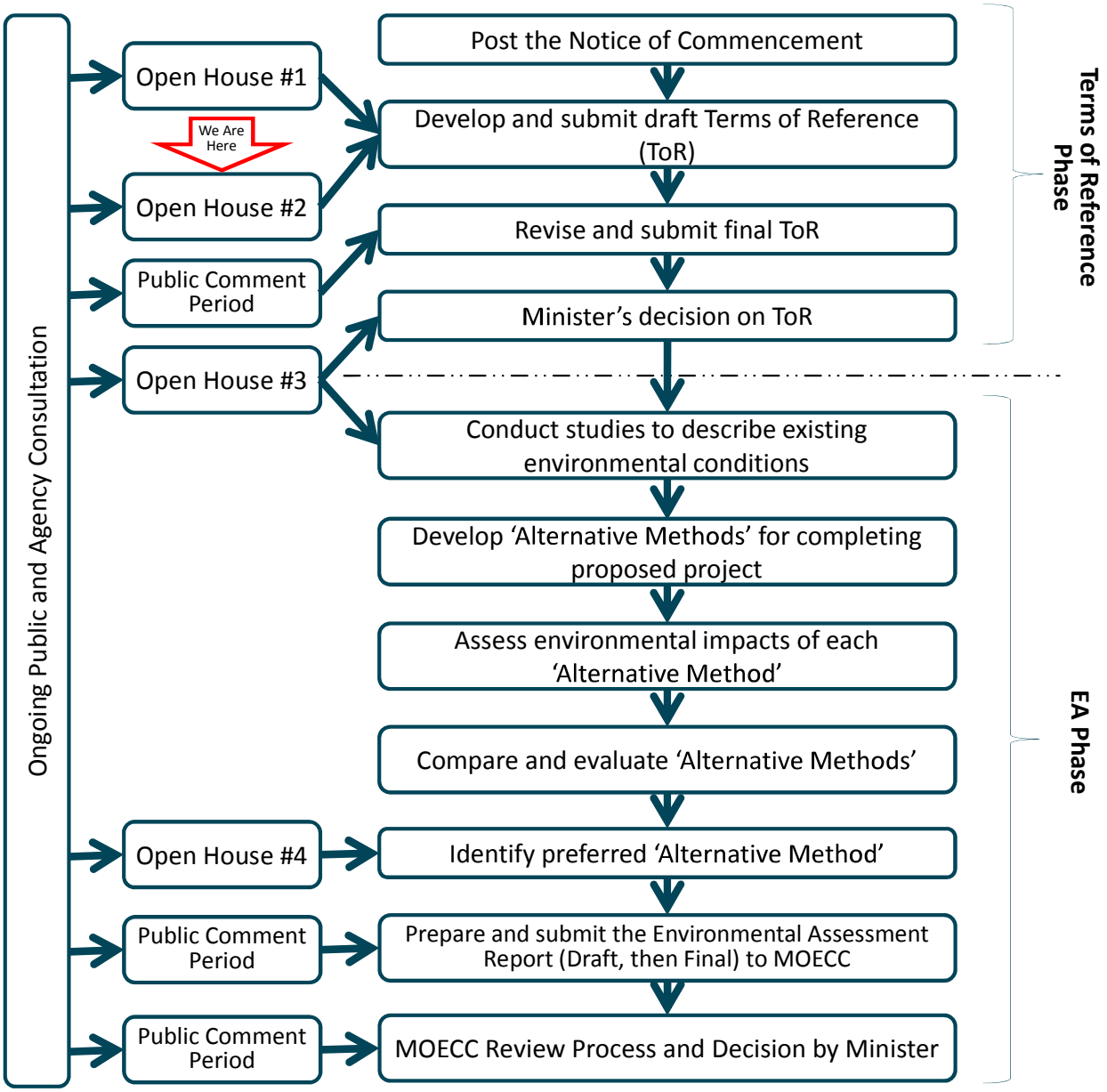
Proposed Expansion

- The proposed area for landfill expansion is shown below, as well as the existing Contaminant Attenuation Zone and Buffer lands.

EA Legislation and Process

The Waste Management Projects Regulation (O. Reg. 101/07) under the Ontario Environmental Assessment Act (EAA) designates some waste management projects that are subject to an EA

- According to Section 4 of O. Reg. 101/07, this project is subject to an individual EA under the Ontario EAA
- The EA is a planning study that assesses environmental effects, advantages and disadvantages of the proposed landfill expansion



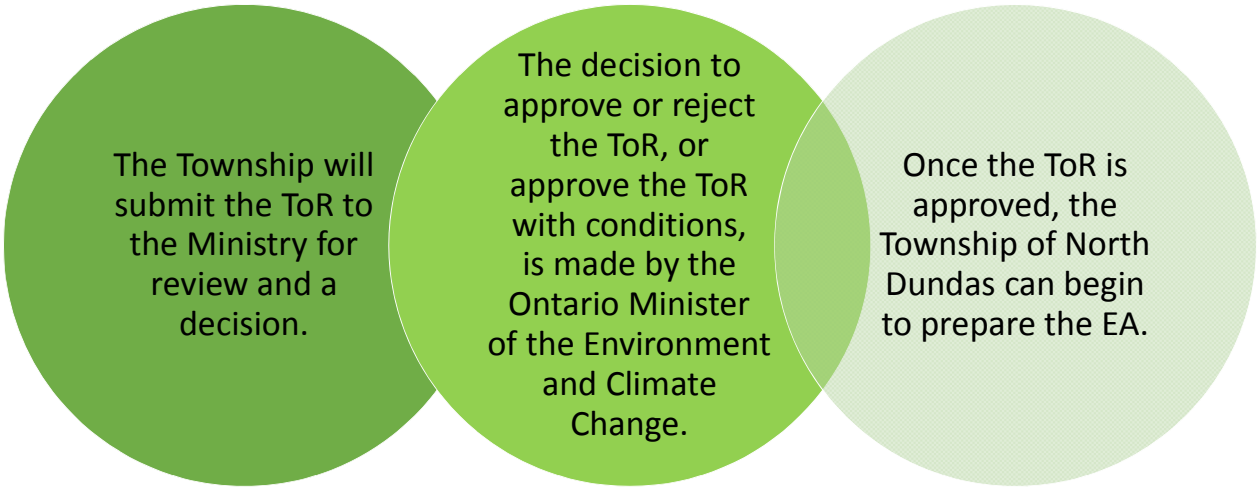
Terms of Reference

- The Terms of Reference (ToR) is the first step in the EA application process. It is a framework for the preparation and evaluation of the EA and will be drafted in consultation with local residents, businesses and other stakeholders.

The ToR identifies:

- The proponent (the Township)
- The project
- Previous studies and activities describing the rationale for the project and the alternatives considered
- Studies required to describe existing environmental conditions
- Methods to estimate and assess potential effects of the project on the environment
- 'Alternative Methods' for implementing the project and how they will be assessed
- How mitigation measures will be considered
- Consultation activities throughout the ToR preparation process and how consultation will be conducted during the EA

Approval Process:



Flexibility

- The Ministry of the Environment Code of Practice states that it is important to incorporate flexibility into the ToR to accommodate new circumstances that may arise throughout the development of the EA

ToR Submission Statement

- Section 6(2) of the EAA requires that the ToR include a submission statement indicating whether the EA will be prepared in accordance with section 6.1(2) or another regulatory process

The Township of North Dundas proposes to prepare and submit an EA to the MOECC for review and approval in accordance with the approved ToR as required by subsection 6.1(1) of the EAA and in accordance with the requirements of subsection 6.1(2) of the EAA

The subsections that will be addressed by the EA are:

- Description of purpose of undertaking (in other words the project)
- Description of undertaking
- Statement of rationale for undertaking
- Description and statement of rationale for 'Alternative Methods'
- Description of environment that will be affected
- Description of effects that will be caused
- Required actions or mitigation measures
- Evaluation of advantages and disadvantages
- Description of consultation

The exception is subsection 6.1(2)(b)(iii), which describes and provides the rationale for the 'Alternatives To' the undertaking. The 'Alternatives To' requirement will be fully addressed by the ToR

Justification for Submitting a Focused EA

- Sections of the EAA enable proponents to 'focus' the EA to their particular circumstances

The 'Focused' Approach

- The Township of North Dundas proposes to submit the ToR as a 'focused' EA, which means that an assessment of the 'need' for the project and an assessment of 'Alternatives To' the project will be included in the ToR phase
- The reason for this is that the Township has previously undertaken its own assessment of the 'need' for the project and 'Alternatives To' the project, including a 'do nothing' alternative
- Traffic studies are not proposed for the EA. The justification for excluding traffic studies from the EA is that the Boyne Road Landfill is currently approved to receive waste from the entire Township and no change in service area or increase in the rate of fill is being sought for the proposed landfill expansion
- A bird hazard assessment is not proposed for the EA. The justification is that the Ottawa airport is a sufficient distance from the Boyne Road Landfill.

Purpose and Rationale

- The purpose of the proposed undertaking, which is the subject of the EA, is to provide environmentally safe and cost-effective disposal capacity for the Township of North Dundas by expanding and continuing to operate the Boyne Road Landfill to meet the residual waste disposal needs of the Township of North Dundas for a period of approximately 25 years.

The ToR can include a preliminary description of the undertaking and the rationale for it if the information is available. It is acceptable for the rationale for the proposed undertaking to be a result of other processes or initiatives

Rationale for the Proposed Undertaking

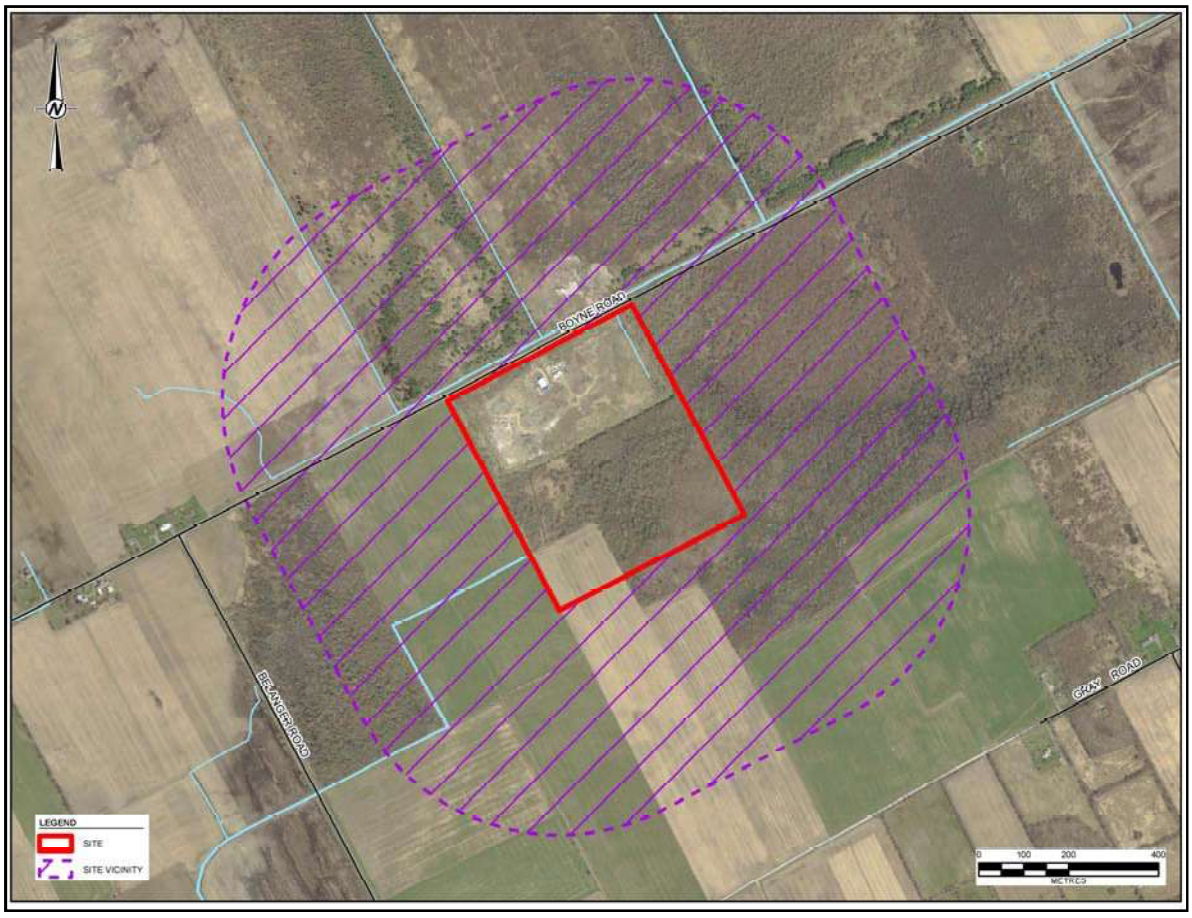
- 2014 – the MOECC advised the Township that the approved site capacity based on the original 1971 registration of the site as a landfill had been exceeded and the site was in an overfill situation.

- The Township applied for and the MOECC issued an Emergency ECA to allow the Township to continue operating until January 2016. One of the conditions of the Emergency ECA was that the Township undertake an evaluation of waste management alternatives and identify the preferred course of action to provide long term waste management services to the Township.

- 2015 - the Township undertook an evaluation of long term waste management alternatives during which Council decided that their preferred alternative is to expand the Boyne Road Landfill site, and passed a resolution on November 10, 2015 to direct staff to commence the EA process required to obtain approval for the expansion.

EA Study Areas

- The study area is the area within which activities associated with the proposed project will occur and where potential environmental effects will be studied. Two generic study areas for the assessment have been identified.
  - Site – The lands owned by the Township of North Dundas that consist of the existing Boyne Road Landfill waste footprint and an area 300 metres to the south of the existing waste footprint
  - Site-vicinity – The lands in the vicinity of the site as described above extending 500 metres in all directions
- Each component studied will consider and modify their study area as appropriate (e.g., the surface water component will likely develop a study area that extends to capture the entire subwatershed).



Overview of Existing Conditions

Atmosphere

- Within the site-vicinity, air quality is typical of eastern Ontario with transportation and agricultural activities contributing to baseline air quality/odour and noise levels.
- Landfills can emit two types of odours: refuse odour and landfill gas odour. Refuse odour is generated by recently disposed waste, and landfill gas odour is generated during the anaerobic decomposition of organic waste material within the landfill.

Geology and Hydrogeology

- Based on subsurface conditions encountered during borehole drilling programs completed at the Site, overburden generally consists of topsoil or peat, underlain by a discontinuous silt/clay unit, and then by a silty sand/sandy silt glacial till unit. Bedrock consists of limestone interbedded with shale.
- Locally, groundwater elevations may be influenced by leachate mounding within the existing waste disposal area. Groundwater flow in the soil is generally from the disposal area towards both the north/northwest and south/southwest. No consistent direction of groundwater flow within the bedrock unit is evident.
- The existing groundwater monitoring program confirms that landfill leachate impacts on groundwater have been detected by the existing monitoring well network, but no impacts extend beyond the existing property boundary or CAZ limits.

Surface Water

- Surface water runoff from the site discharges locally into the Boyne Road roadside ditch system that flows east and discharges into Black Creek, approximately 1.5 kilometres east of the landfill site.
- Black Creek is a tributary of the East Castor River.

Overview of Existing Conditions – Continued

Biology

- The site consists of deciduous and thicket swamp, deciduous forest, deciduous hedgerows, small disturbed areas and edge habitats. The southwestern portion of the site is an agricultural row crop field.
- There is a constructed watercourse (drainage ditch) that follows the perimeter of the current landfill along the west, south and east sides, connecting at its northeast corner through a culvert with the larger naturalized roadside ditch on the north side of Boyne Road. There is also a feeder ditch that flows into this constructed watercourse from the south.

Land Use

- Within the site-vicinity, there is a mix of agricultural and vacant uses. The lands directly north and east of the site are vacant vegetated lands while there are existing agricultural fields to the west and south of the site.

Archeology

- The site is situated within the South Nation River drainage basin, which is known to have been occupied by Indigenous populations since at least the Woodland Period (950 BCE – 1550 CE). Nine archaeological sites have been registered within a nine kilometre radius of the proposed landfill expansion area, providing evidence of previous historic land use and occupation within the general project landscape. The absence of occupation sites within 300 metres of the project area may be attributed to the paucity of archaeological investigations in the area rather than a reflection of the past Indigenous demographic patterns throughout the region.
- The presence of Black Creek to the east of the proposed project footprint will trigger archaeological potential for a portion of the proposed landfill expansion area. Additional triggers that may be identified include 19th century occupation and historical transportation routes within the immediate vicinity.

Overview of Existing Conditions - Continued

Cultural Heritage

- The Euro-Canadian cultural heritage of the Township began around 1800. Settlers cleared land in the area for farming and the Township has remained primarily an agricultural area for the last two centuries.
- Villages including Chesterville, Winchester, and Winchester Springs developed and over time small family farms were combined into large specialized farms as agricultural practices changed.
- There are no formally identified cultural heritage resources in the proposed landfill expansion area.

Socio-economic

- Between December 2015 and November 2016, the Boyne Road Landfill was used to dispose of approximately 10,360 cubic metres of the Township's residual waste. The cost to operate the Boyne Road Landfill includes personnel costs, administrative expenses, materials, supplies, maintenance and purchased services. The Boyne Road Landfill costs approximately $55,000 annually to operate (Golder, 2015), excluding capital costs.
- The landfill site is located in an area of flat lying to gently undulating farmland. There are no residences within 500 metres of the site; there are only six residences between 500 and 1,000 metres from the site. A visual assessment has never been completed at the site.

Alternative Methods of Landfill Expansion

In EA terminology, 'Alternative Methods' are different ways of doing the same activity.

- During the initial stage of the EA, different landfill expansion alternatives will be developed and described at a sufficient level of detail so that the potential effects of the expanded landfill on each environmental component can be assessed and the alternatives compared. It is expected that the following factors will be considered in design of the alternative expansion considerations:
  - Provision of buffer widths between the landfill footprint and the landfill property limits as required by O.Reg. 232/98
  - Because of the high groundwater table and the need to provide separation between it and the base of the waste, it is expected that there will be little if any excavation to shape the base of the expansion. It may be necessary to raise the base of the landfill expansion area by filling
  - The expansion geometry will provide an additional 480,000 m^3 of airspace for the 2022 – 2047 planning period
  - Side slope and top slope angles will meet the requirements of O.Reg. 232/98
  - The height of the expansion, which will be governed by geotechnical and geometrical factors as well as potential visual impact from off-site vantage points
  - Stormwater management system as required by O.Reg. 232/98

Based on the previous preliminary expansion concept (Golder, 2015) and the factors described above, it is anticipated that the number of different expansion configurations to be evaluated in the EA will be limited to two or three.

Comparative Evaluation Criteria

Component	Sub-component	Indicator(s)
Atmosphere	Air quality (including greenhouse gases, odour)	Expected concentrations of air quality indicator compounds (air contaminants) at the property boundary.
	Noise	Expected noise levels beyond the project property boundary and at the discrete off-site sensitive Points of Reception (PORs).
Geology and hydrogeology	Groundwater quality	Expected groundwater concentrations in overburden and bedrock at the downgradient boundaries of the CAZ. Expected compliance with Reasonable Use Guideline B-7.
Surface Water	Surface water quality	Expected effect on surface water quality within the site-vicinity.
	Surface water quantity	Expected change in peak flows off-site (to Boyne Road ditch).
Biology	Aquatic ecosystems	Expected impacts of any change in surface water quality on aquatic biota and habitat in the off-site ditch system.
	Terrestrial ecosystems	Expected impacts on terrestrial vegetation communities, wildlife habitat and wildlife, including species at risk on-site and within the site-vicinity.
Land Use	Current and planned future land uses	Expected impacts on sensitive land uses (i.e., dwellings, churches, parks) within the site-vicinity potentially affected.
	Agricultural land and agricultural operations	Expected impacts on agricultural operations within the site-vicinity potentially affected.
Archaeology	Archaeological Resources	Expected impacts to potential archaeological resources.
Cultural Heritage	Cultural landscapes	Expected impacts to potential cultural landscapes.
	Cultural heritage resources	Expected impacts to potential cultural heritage resources.
Socio-economics	Continued service to residents	Expected total site capacity and site life.
	Landscape and views	Visibility of project features from selected receptor locations.

Proposed EA Work Plans

Component Sub-component		Description of Existing Conditions	Qualitative Evaluation of 'Alternative Methods'	Prediction of Potential Effects for the Preferred 'Alternative Method'
Atmosphere	Air quality (including greenhouse gases, odour)	• Compile and interpret existing Environment Canada or MOECC's air quality monitoring data and meteorological data. • Review aerial photographic mapping. • Complete air and odour emission estimates based on published emission factors and available literature, as well as a site-specific landfill gas generation model. Calculated emissions will be used as input to the air dispersion modelling assessment.	• Identify the differences in air emission sources (i.e., distance and direction to nearest receptors and property boundary). • Describe the differences between 'Alternative Methods' and rank each alternative.	• Execute an air quality dispersion model for the currently approved landfill and for the preferred expanded landfill. • Predict worst-case air quality and odour effects for off-site receptors based on preferred expanded landfill operations scenario including mitigation.
	Noise	• Compile and interpret existing data. • Review aerial photographic mapping. • Conduct baseline noise monitoring for the existing operations at the established or identified Points of Reception (PORs).	• Identify the differences in proximity to the off-site sensitive PORs. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Consult with the MOECC to decide on the noise generating sources to be evaluated in the model that are suitable for the scale and scope of the proposed project. • Execute a single noise model for the currently approved landfill and for the preferred alternative method for the expanded landfill. • Predict worst-case noise effects for off-site receptors and vacant lots based on preferred expanded landfill operations and including relevant mitigation.

Proposed EA Work Plans - Continued

Component / Sub-component		Description of Existing Conditions	Qualitative Evaluation of 'Alternative Methods'	Prediction of Potential Effects for the Preferred 'Alternative Method'
Geology and Hydrogeology	Groundwater quality	• Utilize information available from published sources, site-specific subsurface investigation and ongoing monitoring programs to describe the geological and hydrogeological conditions.	• Identify the differences in groundwater flow regimes or contaminant source strength. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Confirm results of existing predictive model of leachate contaminant transport for preferred alternative method for the expanded landfill including mitigation.
Surface Water	Surface water quality	• Utilize available information to describe surface water system within which the Boyne Road site is located. • Use surface water quality information from annual monitoring program within the Boyne Road ditch to summarize existing surface quality upstream and downstream of the proposed landfill expansion.	• Identify the differences related to direct discharge to surface water. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Predict potential impacts of the proposed landfill expansion alternatives on surface water quality including mitigation.
	Surface water quantity	• Estimate surface water runoff and peak flows in the area of the proposed landfill expansion under existing conditions, using design storms as set out in O. Reg. 232/98 using a hydrological model.	• Identify the differences in landfill mound configuration and footprint. • Identify the differences in expected on-site conveyance or mitigation measures. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Predict and assess future surface water peak flows and quantity conditions associated with the preferred landfill expansion alternative for a range of storm events as required by O. Reg. 232/98, as well as consideration of climate change effects. • Evaluate the need for stormwater management infrastructure to meet O. Reg. 232/98, and prepare EA level design for stormwater management system.

Proposed EA Work Plans - Continued

Component / Sub-component		Description of Existing Conditions	Qualitative Evaluation of 'Alternative Methods'	Prediction of Potential Effects for the Preferred 'Alternative Method'
Biology	Aquatic ecosystems	• Review published information sources, including annual monitoring reports. • Complete an aquatic habitat assessment and fish community survey. • Gather information necessary to complete a Headwater Drainage Features assessment. • Compare existing habitat conditions to species at risk habitat requirements and determine the likelihood for occurrences.	• Identify the differences in surface water quality or quantity that could impact aquatic biota. • Identify the differences in surface water flow inputs into the off-site ditch system. • Identify the differences in potential effects to species at risk. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Assess the effects of any changes in surface water quality or quantity on aquatic biota and habitat.
	Terrestrial ecosystems	• Review published information sources, including annual monitoring reports. • Complete field investigations to document the vegetation communities and habitat types on-site. • Compare existing habitat conditions to species at risk habitat requirements and determine the likelihood for occurrences. • Complete taxa-specific surveys for vegetation and wildlife including: 3-season botanical inventory, breeding birds, breeding amphibians, bat acoustic monitoring; crepuscular breeding birds; visual encounter surveys.	• Identify the differences between 'Alternative Methods' on potential effects to vegetation communities and wildlife. • Identify the differences in potential effects to species at risk. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Quantify the area of land impacted. • Quantify vegetation communities and habitat types directly affected by the expansion. • Identify any indirect effects on wildlife within the site and site-vicinity. • Assess the effects of any changes in vegetation communities and habitat on terrestrial wildlife, including species at risk.

Proposed EA Work Plans - Continued

Component / Sub-component		Description of Existing Conditions	Qualitative Evaluation of 'Alternative Methods'	Prediction of Potential Effects for the Preferred 'Alternative Method'
Land Use	Current and planned future land uses	• Compile and interpret information from the Provincial Policy Statement 2014, MOE Guideline D-4, as well as applicable Official Plans, Master Plans (including any Recreational or Cultural Master Plans), Zoning By-laws. • Collaborate with Township officials and discuss with local agricultural organizations to characterize known agricultural operations, as well as known and probable development and land uses, including any applications for approval currently submitted within the site-vicinity.	• Identify differences in the proximity of the nearest sensitive land uses. • Identify differences in the potential effects on sensitive land uses within the site-vicinity. • Identify differences in certain and probable future land use within the site-vicinity. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Identify any known or probable incompatible land uses and sensitive land uses within the site-vicinity. • Assess the effects of the expansion on these land uses within the site-vicinity.
	Agricultural land and agricultural operations		• Identify differences in the proximity of the nearest agricultural operations. • Identify differences in the potential effects on agricultural operations within the site or site-vicinity. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Identify any known or probable agricultural operations that could be incompatible with the project within the site-vicinity. • Assess the effects of the expansion on these agricultural operations within the site-vicinity.

Proposed EA Work Plans - Continued

Component	Sub-component	Description of Existing Conditions	Qualitative Evaluation of 'Alternative Methods'	Prediction of Potential Effects for the Preferred 'Alternative Method'
Archaeology	Archaeological Resources	• Review historic maps, atlases and aerial photographs • Review topographic maps • Field reconnaissance of the study area • Review relevant environmental, historical and archaeological literature • Review of the updated Ministry of Tourism, Culture and Sport site database • Complete Stage 1 archaeological assessment.	• Identify areas of archaeological potential that may require Stage 2 field assessments. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Predict effects on archaeological resources.
Cultural Heritage	Cultural landscapes	• Review heritage registers/inventories • Contact local municipality to inquire about known or potential cultural heritage sites on or immediately adjacent to the study area • Review historic maps, atlases and aerial photographs • Complete Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes checklist.	• Identify known or potential cultural landscapes that may require Cultural Heritage Evaluation or Heritage Impact Assessment. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Predict potential effects on cultural landscapes.
	Cultural heritage resources (including built heritage)		• Identify known or potential cultural heritage resources that may require Cultural Heritage Evaluation or Heritage Impact Assessment. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Predicted potential effects on cultural heritage resources.

Proposed EA Work Plans - Continued

Component	Sub-component	Description of Existing Conditions	Qualitative Evaluation of 'Alternative Methods'	Prediction of Potential Effects for the Preferred 'Alternative Method'
Socio-economics	Continued service to residents	• Review the ECA and the annual monitoring report to determine the remaining site life.	• Identify the differences in predicted capacity. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Predicted site life and ability to provide continued service to residents.
	Landscape and views	• Acquire digital terrain model data and digital surface model data with surface features. • Review aerial photographic mapping. • Conduct a GIS desktop viewshed analysis. • Visual site reconnaissance of the landscape and take photographs of the site from up to 3 off-Site viewpoint locations chosen during the viewshed analysis. • Geographic information and observations of viewing conditions for each photo will be recorded and compiled into an inventory of existing conditions as a baseline for the assessment of potential visual impacts.	• Two-dimensional line-of-site profile figures will be created as an initial qualitative way to compare the expansion alternatives. • An evaluation of the visual change relative to the existing baseline conditions will be determined. • Describe the differences between 'Alternative Methods' and rank each alternative.	• Create a 3D model of the overall preferred landfill expansion design with Visual Nature Studio (VNS) 3D visualization software from the 3D AutoCAD facility design and the surrounding digital terrain. • Identify mitigation measures to avoid or minimize the potential effects of the project. • Render images in VNS that use the same coordinates and horizontal field of view as that of the digital photographs taken from each viewpoint. • Superimpose the VNS images into the photographs in Adobe Photoshop, extract the landfill expansion design and any mitigation features from the VNS image and pull any existing vegetation or buildings into the foreground as necessary to create an accurate portrayal.

Next Steps

Open House #3
2018
- Present Approved Terms of Reference
- Overview of the EA activities

Open House #4
2019
- Predicted effects of expansion
- Comparison of expansion alternatives
- Identification of preferred alternative

- The next steps for the Terms of Reference (ToR) are:
  - After we receive your comments, we will consider, address and incorporate your comments in the draft ToR.
  - The Township will submit the draft ToR to the Ministry in late 2017 or early 2018.
  - There will be another opportunity for you to provide comments on the ToR after it is submitted.
  - We will post information on the project website as it becomes available:

    http://northdundas.com/landfillea/

  - The Minister of the Environment and Climate Change will make a decision on the ToR.
  - Once the ToR is approved, the Township can begin to prepare the EA.

How to Get Involved

Attend an Open House

- A third open house is proposed for 2018 to present the approved Terms of Reference and an overview of the EA activities
- Details of the open house will be posted in the local media and on the project website.

Visit the Project Website

http://northdundas.com/landfillea/

- Watch the project website for news and updates.
- Submit any comments or questions at this event in a comment sheet or via the email at the addresses provided:

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