Durham/York Residual Waste Study

Executive Summary

Thermal Facility Site Selection Process
Results of Steps 1-5
Identification of the "Short-List" of Alternative Sites

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EXECUTIVE SUMMARY

Durham and York Regions (the Regions) have partnered to undertake a joint Residual Waste Environmental Assessment Study. Both municipalities are in need of a solution to manage the solid waste that remains for disposal after diversion (residual or post-diversion waste). The Regions are working together to address the social, economic, and environmental concerns of residents through an Environmental Assessment (EA) Study process to examine potential long-term residual waste management alternatives.

Shared Issues

Even with the expanded diversion efforts, Durham and York continue to face the challenges of managing residual waste that cannot be diverted. Both Regions face a shortage of available landfill capacity over the long term. In response to the closing of existing landfill sites in the Greater Toronto Area (GTA) and the inability to develop new landfill capacity, Durham and York, along with other GTA municipalities, have been forced to enter into contracts for the export of their residential waste to disposal facilities located primarily in the State of Michigan.

On August 31, 2006, Michigan Senators announced they had reached an agreement with the Province of Ontario to end shipments of Municipal Solid Waste (MSW) to Michigan by 2010. The shipment of MSW to Michigan will be phased out over the four year period, with a 20 percent reduction of Canadian trash within the first year, 40 percent reduction within two years and a complete end to these shipments within four years. Following 2010, Ontario Municipalities including Durham and York will no longer have the option of disposal of MSW in Michigan landfills.

Shared Opportunities

Facing common waste disposal issues, the Regions are acting to implement, as quickly as possible, a Durham/York based solution that: is socially and politically acceptable to both communities; maximizes environmental protection; and, fosters the wise management of potential resources which are currently lost by way of landfill in Michigan. In addition to solving long-term, residual waste management issues, Durham and York, recognize the growing need for additional sources of energy generation in Ontario. Both Regions recognize that there is an opportunity associated with the utilization of the waste stream as a fuel source to produce energy and have identified this opportunity as a key benefit associated with the subject waste disposal EA Study.

Purpose of this Report

This draft report entitled ***Thermal Facility Site Selection Process, Results of Steps 1-5, Identification of "Short-List" of Alternative Sites*** has been prepared as part of the Durham/York Residual Waste Study to document the step-by-step process followed in the identification of a "Long-List" of alternative sites and the evaluation process followed that has resulted in a "Short-List" of sites for consideration further in the process.

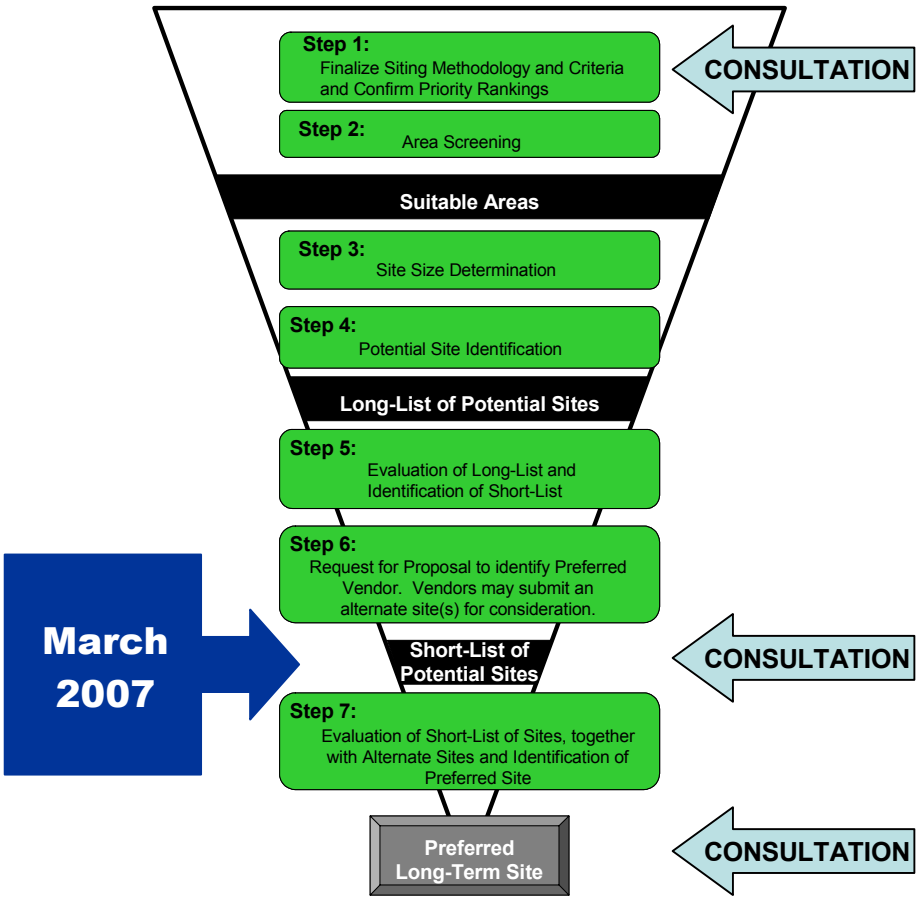
This report will form part of the supporting documentation and materials for stakeholder consultation in the evaluation of "Alternative Methods" and identification of the preferred facility location for the Durham/York Residual Waste Study. Public and agency input received

on this draft report will be considered when moving forward in the process and when preparing the EAA approval documentation.

ES-1 Step 1: Finalize Evaluation Methodology and Criteria

To identify a preferred site, a seven-step facility site selection process, outlined in Figure 1 is being applied. This step-by-step methodology was originally presented in the approved EA Terms of Reference.

ES Figure 1: Overview of the Facility Siting Process



The proposed methodology and criteria were confirmed through consultations with agencies, stakeholders and the public through a series of information sessions, workshops, and polling activities in September 2006. The site selection methodology and criteria, outlined in the approved EA Terms of Reference, were generally accepted by the consultation participants. However, the following four aspects of the site selection methodology have been refined based on input received during the consultations.

- 1) – Removal of Separation Distances at the Step 2: Area Screening Stage
- 2) – Consideration of Siting Opportunities within the Greenbelt Plan Area
- 3) – Identification of Public and Private sites simultaneously
- 4) – Separation of the Siting Process from the Competitive Process

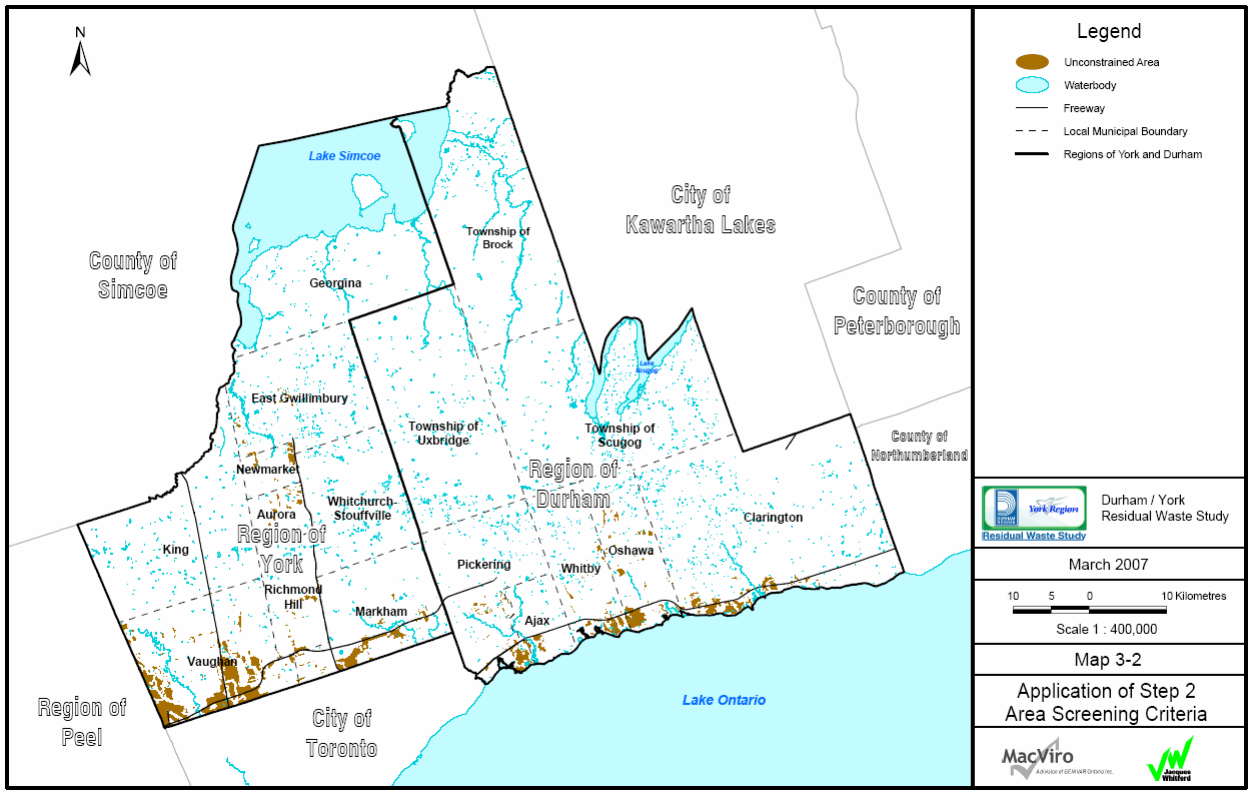
ES-2 Step 2: Area Screening Process

Following the confirmation of the siting evaluation methodology and criteria at Step 1, the next step was to define the boundaries in which a suitable site could be identified. Initiation of this area screening process began with the delineation of the limits of the broad area, within Durham and York that consists of features and land uses considered unsuitable for the establishment of a waste processing facility. It was important to conduct this high level screening early in the planning stage to ensure that only sites located within potentially suitable areas (i.e. unconstrained areas), such as designated industrial lands, undergo the detailed comparative evaluation process. This initial screening process ensures that unsuitable areas, such as significant natural features, agricultural lands and existing residential areas would not be considered further in the siting process.

The result of this second step is the identification of areas within Durham and York that are considered generally suitable for the purposes of locating the preferred thermal treatment facility.

Step 2 revealed that the areas considered as unconstrained make up a small percentage of the Durham and York Study Area. These areas are primarily located in Durham Region along the Highway 401 corridor and in York Region along the Highway 404 and Highway 407 corridors. These areas consist of primarily industrial and commercial land uses, located away from city centres and suburban communities. These areas are illustrated in the following ES Figure 2.

ES Figure 2: Areas Potentially Suitable to Site a Thermal Treatment Facility



ES-3 Step 3: Site Size Determination

To identify potential sites within the remaining areas considered potentially suitable for the establishment of a Thermal Treatment facility, the number of sites required and the minimum required site size were determined.

Single versus Multiple Site Scenarios

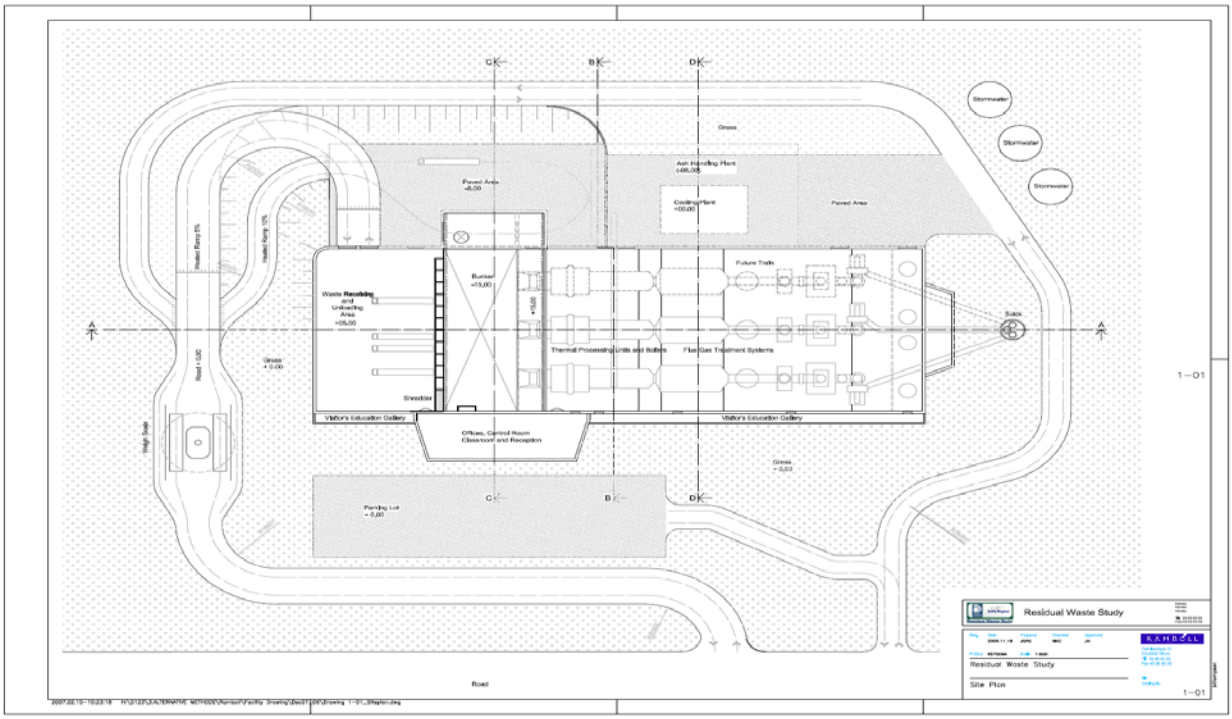
During the evaluation of technologies/systems it was determined that a 'single facility, single site' approach would be the best alternative for Durham/York based on the following rationale:

- A 'single facility, single site' system configuration represents the most efficient system configuration and would provide the economies of scale that are being sought in the Durham/York study;
- In general, a 'single facility, single site' configuration also represents the configuration which would be expected to have a lower potential for environmental and social impacts, as the total land area required and number of potential receptors that could be impacted by the systems increases as the number of sites required for each system increases.

Facility/Site Size Requirements

The ultimate capacity of the Thermal Treatment facility is estimated to be 400,000 tonnes per year of MSW, at the end of the 35-year planning period for the study. ES Figure 3 provides a conceptual layout of the proposed Thermal Treatment facility.

ES Figure 3: Conceptual Layout of the Proposed Thermal Treatment Facility



A "stand-alone" facility, such as that above, with provision for expansion from 250,000 to 400,000 tonnes per year, on-site ash processing, stormwater management features, parking for

100 vehicles, on-site roads for full management and queuing of waste and ash vehicles and buffer zones and set-backs would require approximately 13.7 hectares of developable area assuming a 100m buffer on all sides of the facility. However, a smaller parcel of land may still be capable of meeting the minimum facility size and infrastructure requirements where some required infrastructure may already exist on a companion site or where the potential exists for infrastructure sharing between neighbouring sites.

ES-4 Step 4: Site Identification Process

Following the identification of potentially suitable areas and the determination of the minimum site size and configuration requirements, Step 4 was completed to identify a list of potential sites. To establish this list of sites, siting opportunities were identified in the following order:

- Step 4.1 - Identification of Publicly Owned Sites
- Step 4.2 - Identification of Willing Seller Sites

It was decided at the outset of this process, based on comments received from a number of agencies that the Regions would undertake a review of both publicly owned sites, as well as willing seller sites to ensure that both public and private sector siting opportunities were explored.

To identify potential sites that met the willing seller criteria, the Regions undertook two (2) calls for willing sellers:

- November 2006 - Call for Willing Sellers
- February 2007 - Request for Expressions of Interest (REOI) – Potential Sites for a Proposed New Thermal Treatment Facility for the Regions of Durham and York. This REOI also addresses the siting component of Step 6 in the approved EA Terms of Reference.

Twelve (12) Sites Identified

The site identification process to identify public and privately owned sites resulted in the identification of twelve (12) siting opportunities as follows:

Public Sites
- East Gwillimbury (1)
- Clarington (2)

"Willing Seller" Sites
- Vaughan (1)
- Pickering (1)
- Whitby (1)
- Oshawa (2)
- Clarington (3)
- Brock Township (1)

The approved EA Terms of Reference also provided for additional site identification opportunities, if required, as outlined below.

- Step 4.3 - Identification of Additional Privately Owned Sites (Negotiated)
- Step 4.4 – Adjust Screening Criteria and Re-apply

There is no set guideline for what constitutes a reasonable number of sites on which to conduct preliminary investigation, however, following the completion of the above tasks it was determined that a suitable number of sites, offering a reasonable range of alternatives and features were identified and therefore the need to identify additional sites through Steps 4.3 and 4.4 (see above) were not required.

The sites identified above, primarily are located on the outer limits of urban development. Typically, when siting these types of facilities it is advantageous to locate the facility in close proximity to where the majority of the waste is being generated. However, due to size of the site required for this facility and the trends in urban growth in both Durham and York Region (ie. Residential neighbourhoods developing in close proximity to industrial lands), the siting opportunities within the "urban" industrial areas were limited.

Five (5) Sites Removed from Further Consideration

Application of the Area Screening process and Site Size requirements to the twelve public and privately owned potential sites removed five (5) sites from further consideration as follows:

- **Vaughan (1)** - Constrained by Natural Features
- **Pickering (1)** - Insufficient area (6.3 hectares)
- **Oshawa (2)** - Constrained by Natural Features
- **Brock Township (1)** - Designated Agricultural land and Constrained by Natural Features

ES-5 Step 5: "Long-List" Evaluation Process

Seven (7) Sites Remain for Further Evaluation

Completion of the preceding steps resulted in the identification of seven (7) sites that form the "Long-List" of alternative sites. The purpose of establishing and evaluating a "Long-List" of prospective sites is to reduce the number of sites to a "Short-List" that will then be compared in greater detail. For each of the "Long-List" sites, data was collected, reviewed and applied in accordance with the "Long-List" evaluation factors identified below:

- Proximity to Required Infrastructure
- Site Accessibility
- Potential Impacts of Haul Route(s)
- Site Size
- Land Use Compatibility
- Site Availability
- Potential Impacts on Unregulated Airports

Overview of "Long-List" Sites Relative Advantages and Disadvantages

In accordance with the approved EA Terms of Reference, the evaluation of the "Long-List" of alternative sites incorporates a comparative evaluation process. Table 1 below presents the relative comparison of each of the sites based on their respective advantages and disadvantages.

Table1: Comparison of "Long-List" Sites Relative Advantages and Disadvantages

EVALUATION CRITERIA	"LONG-LIST" OF ALTERNATIVE SITES						
	CLARINGTON 01	CLARINGTON 02	CLARINGTON 03	CLARINGTON 04	CLARINGTON 05	WHITBY 01	EAST GWILLIMBURY 01
Proximity to Required Infrastructure	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE
Site Accessibility	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE
Potential Impact of Haul Route	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	DISADVANTAGE	ADVANTAGE
Property Size	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE
Land Use Compatibility	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	DISADVANTAGE	ADVANTAGE*
Availability of Site	ADVANTAGE	ADVANTAGE	DISADVANTAGE	DISADVANTAGE	DISADVANTAGE	DISADVANTAGE	ADVANTAGE
Proximity to Unregulated Airports	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE	ADVANTAGE

* Refer to Section ES-7, "Short-List" Site: East Gwillimbury 01

ES-6 Results of the "Long-List" Evaluation Process and Identification of the "Short-List" of Sites

The evaluation of the "Long-List" of sites resulted in the following:

One (1) Site Considered Significantly Disadvantaged

One (1) site exhibited a significant number of disadvantages relative to other sites on the "Long-List" and was therefore removed from further consideration as follows:

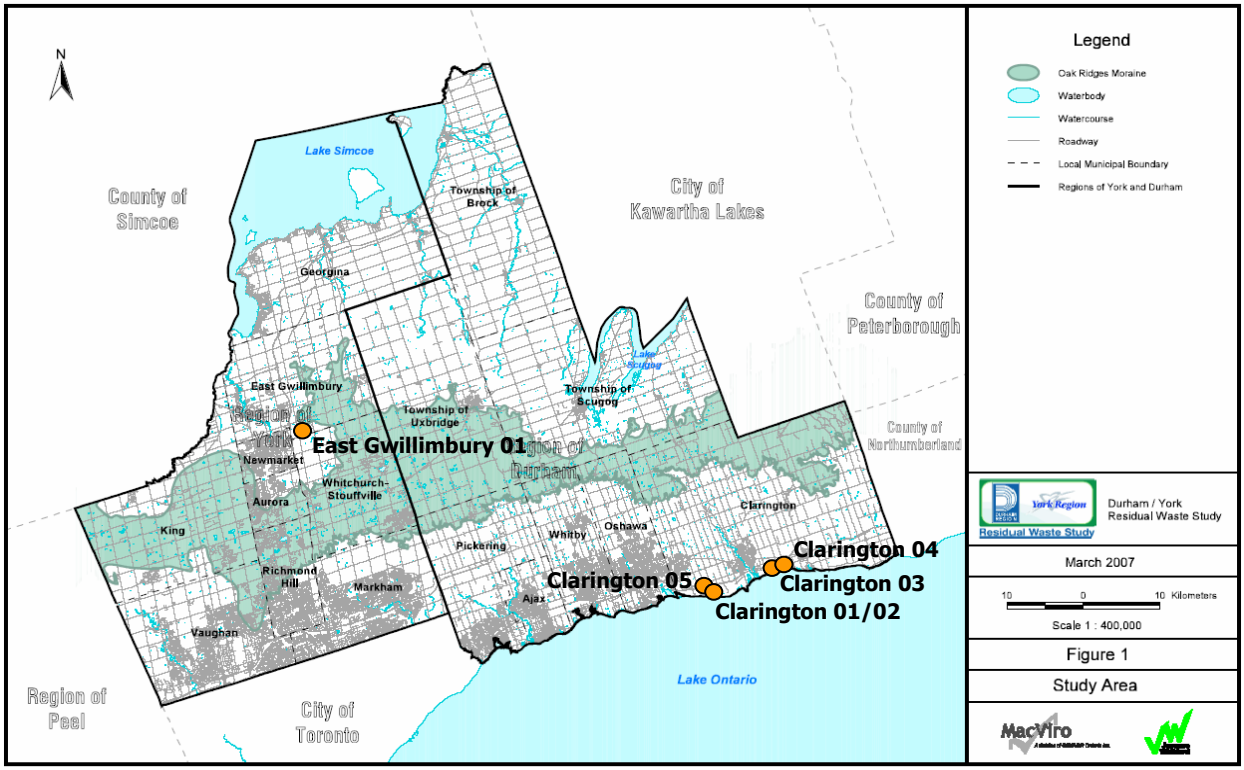
- **Site Whitby 01** – This site is located near Natural Heritage Features including; ANSIs, ESAs, Wetlands, community parks and residential areas.

Pairing of Clarington 01 and Clarington 02 sites

Based on a more detailed review of sites Clarington 01 and Clarington 02, it was determined that these sites should be considered as a single site made up of two (2) parcels for the purposes of evaluation of the "Short-List" of sites. These sites are very similar in size, location, ownership, natural features, and proximity to required infrastructure.

Removal of this one (1) site from further consideration and the pairing of two (2) Clarington sites results in a "Short-List" of five (5) sites to be carried forward into the "Short-List" evaluation process. ES Figure 4 identifies the location of these sites within the Regions of Durham and York.

ES Figure 4: The "Short-List" of Alternative Sites



ES-7 The "Short-List" of Sites

The following provides a more detailed description of each of the "Short-List" of alternative sites based on the information collected and evaluation process followed.

"Short-List" Site: Clarington 01/02

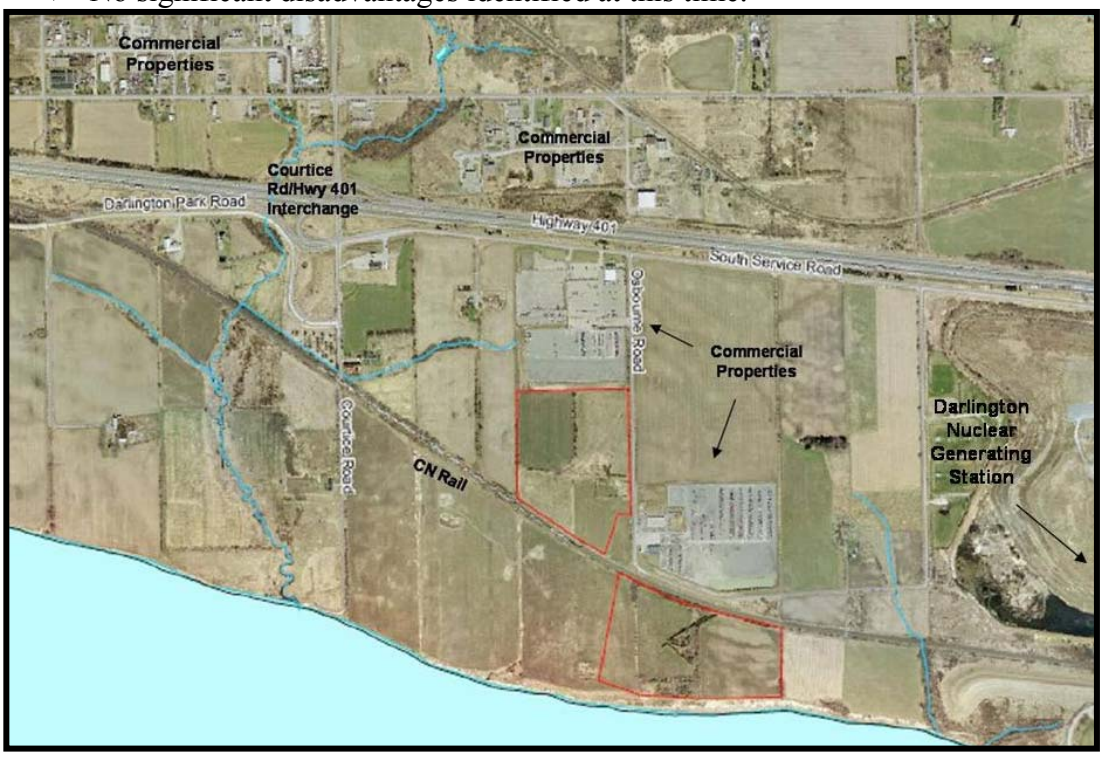
Site Clarington 01/02 is made up of two parcels (undeveloped lands), south of Highway 401 in the Municipality of Clarington. Parcel 01 is located between Courtice Road and Osbourne Road and Parcel 02 is located south of Osbourne Road, north of Lake Ontario. The CN Rail is adjacent to the south side of Parcel 01 and to the north side of Parcel 02. There are commercial Sites north of both parcels. The lands east and west of the sites are undeveloped and are currently used for agricultural purposes. The Courtice Water Pollution Control Plant, which is scheduled to be completed in 2007, is being built just south of Parcel 01 and west of Parcel 02. The Darlington Nuclear Generating Station is located approximately 0.5 km to the east of Parcels 01 and 02. The nearest major intersection is Highway 401 and Courtice Road which is approximately 1.7 km from the Parcels. Each Parcel is approximately 12.1 hectares in area and are both located in the Clarington Energy Park.

Advantages Identified – "Long-List" Evaluation

- Potential access to heat load (Courtice Water Pollution Control Plant)
- Close proximity to Highway 401
- Existing Industrial Area
- Part of Clarington Energy Park
- Site Owned by Durham Region

Disadvantages Identified – "Long-List" Evaluation

- No significant disadvantages identified at this time.



"Short-List" Site: Clarington 03

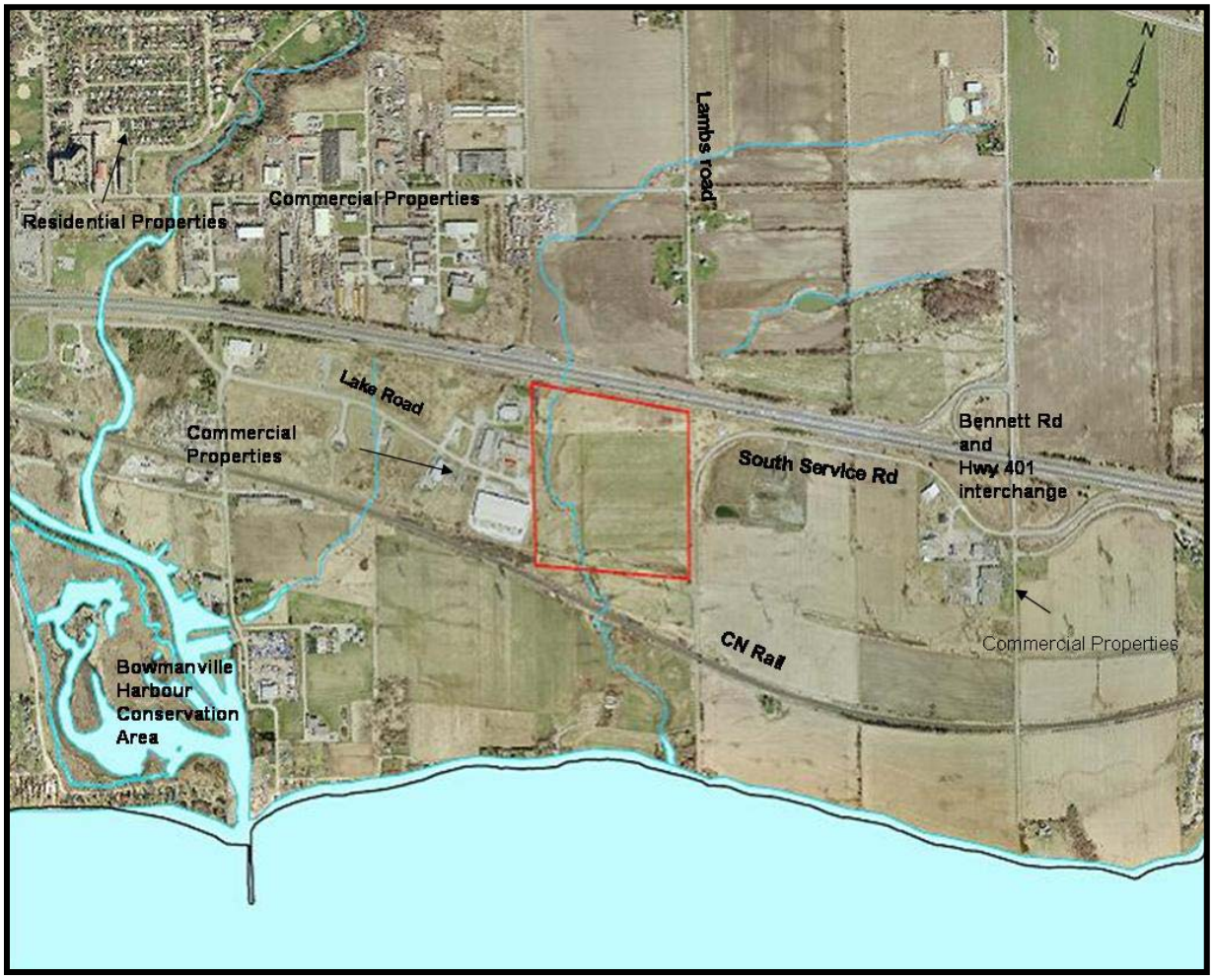
Site Clarington 03 is undeveloped land in the Municipality of Clarington, located south of Highway 401 (between Highway 401 and East Beach Road) and west of South Service Road. There are commercial properties located on the lands east and west of the property. The CN Rail is located south of the site, with potential residential development between the CN Rail line and Lake Ontario. A number of residences and farms are located north of the property on the north side of Highway 401 as well as south of the property on the south side of the CN Rail. A creek appears to run along the inner west edge of the property. The nearest major intersection is Highway 401 and Bennett Road which is approximately 1.6 km from the site. The site size is approximately 18 hectares.

Advantages Identified – "Long-List" Evaluation

- Close proximity to Highway 401
- Existing planned industrial/ commercial area

Disadvantages Identified – "Long-List" Evaluation

- Site acquisition required
- Potential issues with on-site Natural Features
- Potential issues with planned residential development to the south of the site



"Short-List" Site: Clarington 04

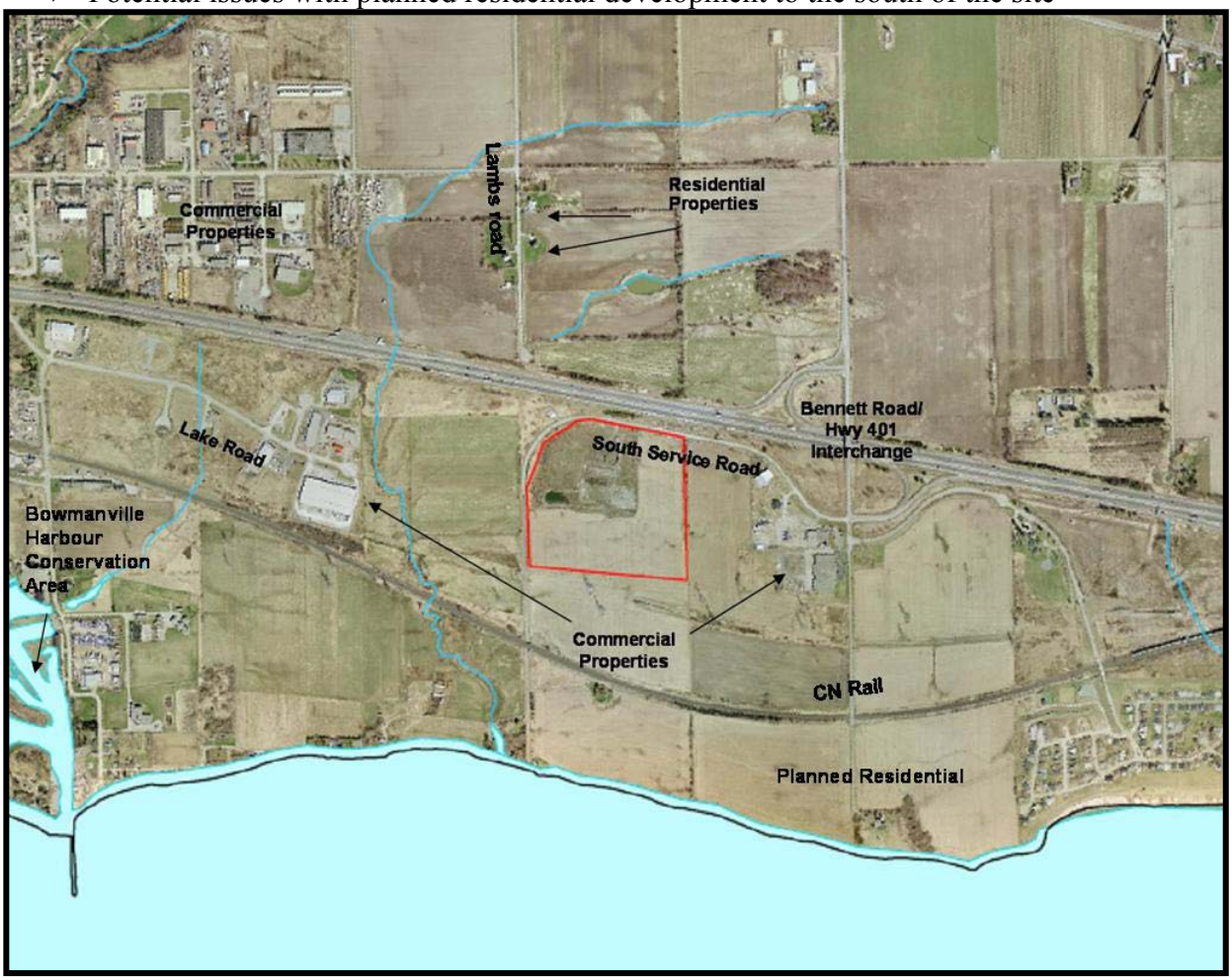
Site Clarington 04 is undeveloped land, south of Highway 401 between Bennett road and South Service Road, in the Municipality of Clarington. The lands east and west of the site are undeveloped and are currently used for agricultural purposes. The CN Rail is located south of the site, with potential residential development between the CN Rail line and Lake Ontario. There are commercial properties located on east and west, non-adjacent sides of the property. A number of residences and farms are located north of the property on the north side of Highway 401. The nearest major intersection is Highway 401 and Bennett Road which is approximately 1.1 km from the site. The site size is approximately 15 hectares.

Advantages Identified – "Long-List" Evaluation

- Close proximity to Highway 401
- Existing planned industrial/ commercial area

Disadvantages Identified – "Long-List" Evaluation

- Site acquisition required
- Potential issues with planned residential development to the south of the site



"Short-List" Site: Clarington 05

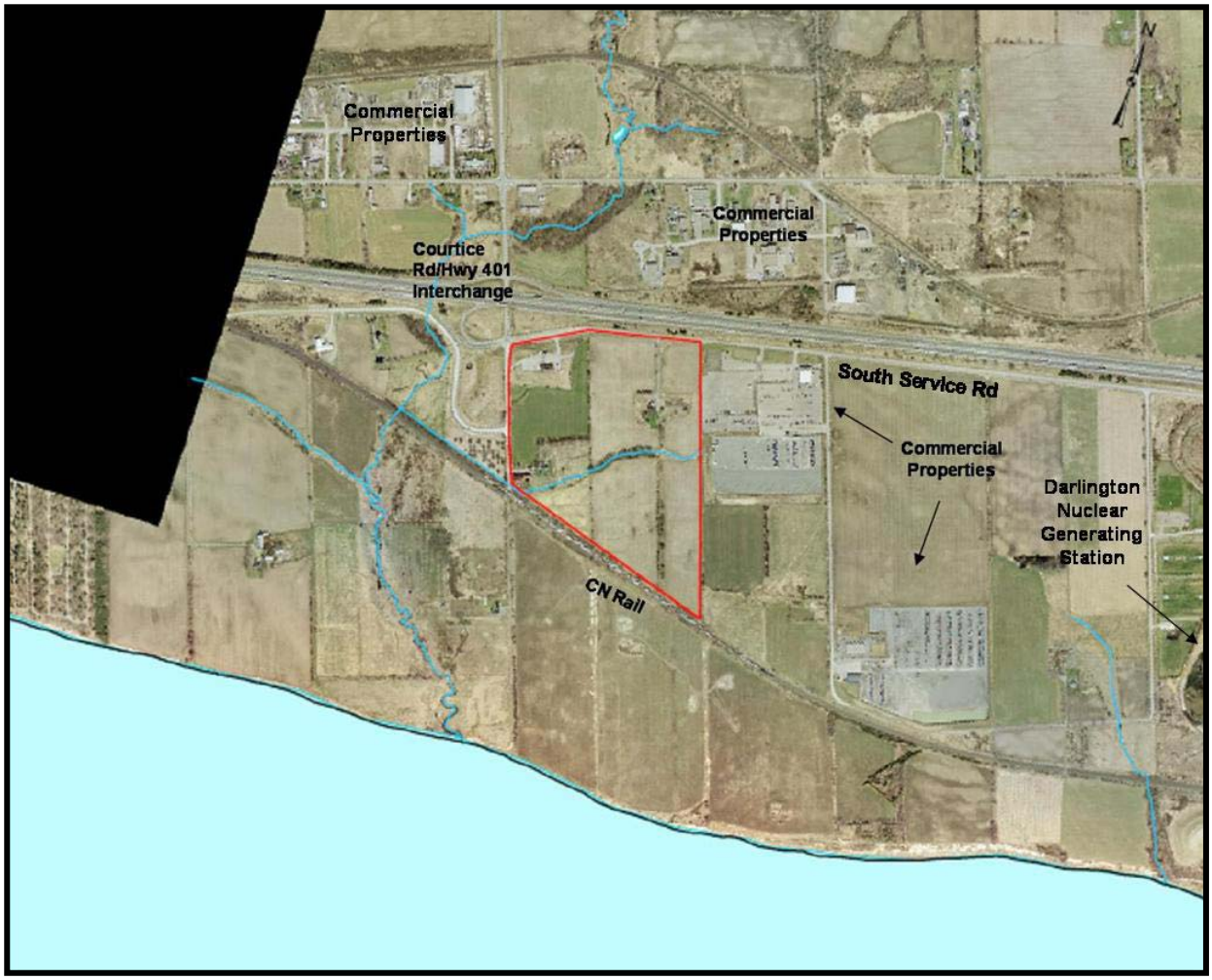
Site Clarington 05 is undeveloped land, south of Highway 401 between Courtice Road and Osbourne Road, in the Municipality of Clarington. Commercial properties are located north of the site, north of Highway 401. The CN Rail is located south of the site. The lands east and west of the site are undeveloped and are currently used for agricultural purposes. The nearest major intersection is Highway 401 and Courtice Road, which is approximately 0.2 km from the site. The site size is approximately 26 hectares. This site is located in the Clarington Energy Park.

Advantages Identified – "Long-List" Evaluation

- Potential access to heat load (Courtice Water Pollution Control Plant)
- Close proximity to Highway 401
- Existing Industrial Area
- Part of Clarington Energy Park

Disadvantages Identified – "Long-List" Evaluation

- Site acquisition required



"Short-List" Site: East Gwillimbury 01

Site East Gwillimbury 01 is located in the Town of East Gwillimbury, 2.6 km from the nearest major intersection – Highway 404 and Davis Drive. The site is undeveloped land surrounded by commercial/ industrial properties to the West, East, and South. The York Region Waste Management Centre which consists of a new Materials Recycling Facility and Waste Transfer Station is located immediately West of the site. York Region's Household Hazardous Waste and Recycling Depot is situated south of the site. The land north of the site is undeveloped and is currently used for agricultural purposes. The site is approximately 11 hectares in size.

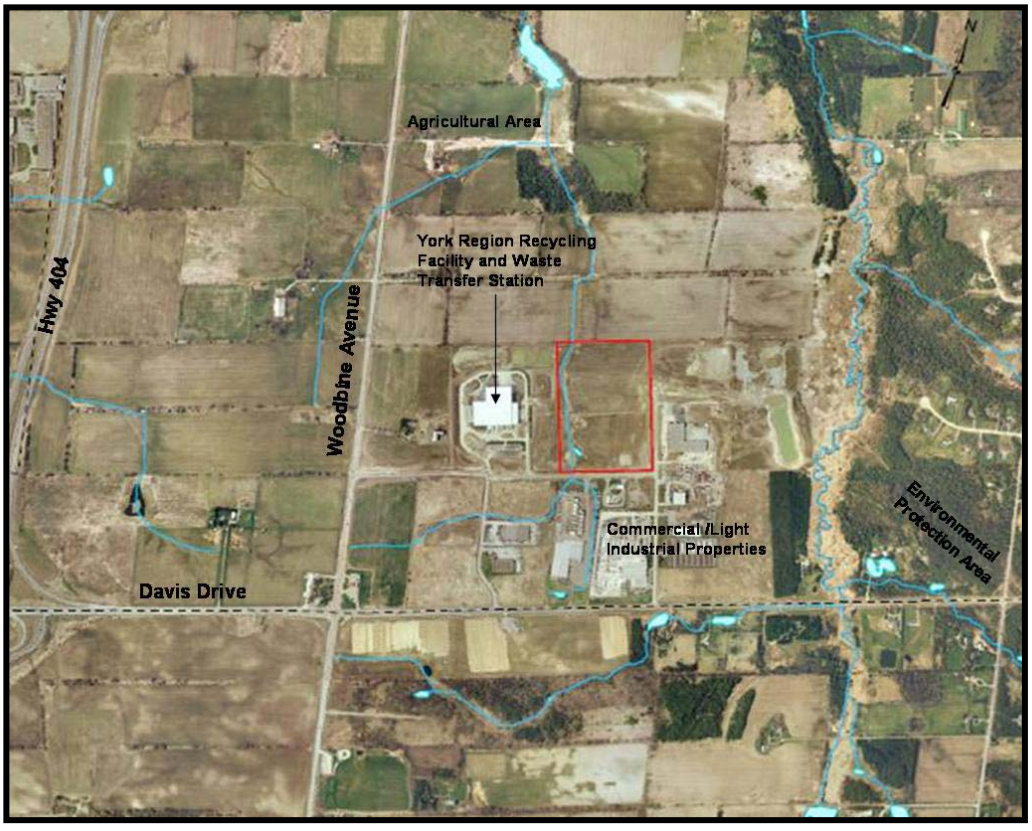
Advantages Identified – "Long-List" Evaluation

- Close proximity to Highway 404
- Existing industrial/commercial area
- Potential for shared infrastructure with York Region's Waste Management Centre
- Site owned by York Region

Disadvantages Identified – "Long-List" Evaluation

- No significant disadvantages identified at this time

Note: This site is located within areas covered under the Greenbelt Plan. Consideration of potential development of a waste management facility is allowed on this site due to the site-specific Official Plan and zoning by-law approvals that were issued before the Greenbelt Plan took effect. Inclusion of this site on the short-list is to allow for public consultation on this matter along with other criteria to be used in the comparative evaluation of the other short-listed sites.



Next Steps

Consultation on the "Short-List" of Sites

Following the authorization from both Regional Councils to consult on the "Short-List" of sites, a detailed announcement and consultation strategy will be implemented. This plan includes consultation with:

- Adjacent Landowners;
- The Government Review Team, Agencies and Stakeholders;
- The General Public; and,
- First Nations.

As with the announcement of the preferred "Alternative to", the "Short-List" of sites will be presented to all parties initially as the "Consultants Conclusion".

Evaluation of the "Short-List" of Sites and Identification of the "Preferred" Site

Following the consultation on the "Short-List" of sites, a detailed comparative evaluation of the "Short-List" of sites will be initiated. The assessment will consider the sites as well as the haul routes, transfer requirements and requirements for additional infrastructure to develop the site. Sites will be compared based on a broad range of criteria to identify the preferred Durham/York site.

The comparative evaluation criteria to be applied at this Step have been assembled under 5 categories:

- Public Health and Safety and Natural Environment;
- Social/Cultural Considerations;
- Economic / Financial Considerations
- Technical Considerations; and
- Legal Considerations.

The preferred site will be the one with the preferred balance of advantages and disadvantages relative to the established category priorities and rankings. This decision will be based on the priorities and professional judgement exercised by both Regions and in consideration of the technical database, advice from technical experts and input received from stakeholders (i.e., public, neighbours, agencies, etc.)

Ultimately, both Regional Councils will be responsible for approval of the "Preferred" site.