

M E M O R A N D U M

TO: WEST BURLINGTON FILE

FROM: FRANK GIORNO

RE: TRANSPORTATION FACTORS (OWMC) MILTON SITE

DATE: FEBRUARY 2, 1987

PURPOSE

The purpose of the Site Selection Process Phase 3B - Selection of Candidate Sites Transportation Report is to assist the OWMC in developing and applying transportation-related factors to the process of selecting candidate sites for special waste treatment facilities.

SCOPE AND METHODS

- Identify site areas using constraint mapping
- Identify potential sites by screening site areas
- Identify candidate sites through initial comparative evaluation of potential sites.

Transportation factors were developed based on goals and objectives defined in Phase 3 Report: Facilities Development Process, pp. 7, 38, 79.

• Site Areas Were Identified

Using the transportation constraint mapping process 20 maps were produced showing the location and controls imposed by airports, utility transmission lines, arterial roadways and railway lines on the candidate areas. Topographic maps and information were obtained from various agencies responsible for the operation of these facilities, such as municipal/provincial/federal governments, utility companies and railway companies.

Factors were scaled for use in the combined constraint mapping. Following the combined constraint mapping, 152 site areas were identified.

• Identify Potential Sites

By comparing the transport costs and accident probabilities for each cluster it was possible to identify those areas with the minimum transportation cost and accident probability. On this basis potential site options were identified.

• Identify Candidate Site

Following the selection of potential site options, transportation comparative evaluation factors were developed and applied to produce a ranking of the potential site options. The activities in this step include analysis of alternative site access routes, refinement of site screening factors and further enhancement of model outputs for application in comparative evaluation (see pp. 75 and 76 for more detail).

Access route analysis investigated:

- transportation safety of local and regional routes which could be used to reach the site from the freeway.
Indicators considered for local access included
 - i) proximity to arterial roads
 - ii) number of local railway crossings
 - iii) transportation safety was compared on the basis of the possibility of an accident, distance to freeway, number of level railway crossings, number of intersections where a turn is required and haul distance between PI and LF site combinations;
- a number of factor refinements were applied on a site-by-site basis in the comparative evaluation, including:
 - i) proximity to railways, arterial roads and freeways
 - ii) height restrictions near airports
 - iii) implications of local road closures and the condition of local access roads
 - iv) local utility relocation requirements

A ranking of potential sites in terms of their transportation required was compiled.

CONCLUSIONS

There is inadequate transportation data at this point to select one specific site option as being superior to the other; however, it is possible to indicate groups of site options which are potentially more suitable for candidate sites than others.

Site options ranking high in regional access factors were weighted more than those who ranked lower.

Two site options have emerged superior in terms of regional access with low or moderate constraints at other levels and both with potential railway access.

Based on discussions with Transport Canada the integrated potential site LF-4N (100 m high incinerator smoke stack) should have only minimal operational impact on the operations of the

Burlington airport. The partially integrated site option of PI-1N/LF-4N avoids any airport conflicts using LF-4N as a landfill site.

The minor pipeline constraint near the north border of the site does not pose a major threat to locating facilities within the site boundaries.

The two following site options are rated as most suitable: LF-4N and PI-1N/LF-4N.

Site LF-4N had the following attributes:

- Site Factors
 - No road closures would be required
 - No utility relocations would be required
 - The site is on an arterial access route.
- Site Vicinity Factors
 - There is a possible conflict with the incinerator smokestack and the Burlington airport
 - There may be a need to upgrade 3.2 km of the Fourth Line
 - There are no grade level rail crossings on local access route to site
 - Rail access is 1.0 km away (arterial road crossing required at Themaine Rd. and RR. 22)
- Regional Factors
 - Haul distance from LF-4N to Highway 401 is 11.2 km, and to QEW is 14.3 km
 - The Transport Cost Index is \$1.0 million per year and based on 24.99 million tonne-kilometres (applicable only to hazardous waste)
 - LF-4N is ranked 1 of 17 site option for cost
 - Accident Probability Index represents the relative transportation safety and is calculated on a 5 year average accident rate for each road class and the annual tonne-kilometres of special waste haulage on each road class. Site LF-4N had the lowest Accident Probability Index and was the most desirable in terms of safety
 - LF-4N was ranked #1 in the Composite Index.

Site PI/LF-4N had the following attributes:

- Site Factors
 - No road closures required
 - No utility relocations are required at LF-4N, a Sun Oil pipeline runs through PI-1N in an east-west direction
 - PI-1N/LF-4N is located on a major arterial road.

- Site Vicinity Factors

- Some effect on local navigation possible from the incinerator stack as a result of the Burlington airport being 2 km away.
- Possible need to upgrade 3.2 km of Fourth Line Road
- There are no grade level crossings on access route to the site
- Rail access is available from the CNR Line adjacent to PI-1N
- The haul distance from PI to landfill is 1 km.

- Regional Access Factors

- Haul distance to PI site from Highway 401 is 8.6 km and from the QEW it is 10.6 km
- PI ranks number 2 in transport costs
- The Accident Probability Index is 1.05 ranking PI second behind LF-4N
- Composite ranks PI-1N/LF-4N second to LF-4N (integrated site)

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