



Ministry of Transportation

407 East Environmental Assessment

Alternative Methods Technical Report (Waste Contamination)

FINAL DRAFT

August 2007

Table of Contents

	Page
1. Introduction	1
1.1 Waste Contamination Study Team.....	2
2. Assessment and Evaluation of the Alternative Routes.....	2
2.1 Methodology	2
2.2 West Mainline – Brock Road to Audley Road.....	3
2.2.1 Net Effects Analysis	3
2.3 West Mainline – Audley Road to Ashburn Road.....	4
2.3.1 Net Effects Analysis	4
2.3.2 Evaluation Results	4
2.4 Central Mainline – Ashburn Road to Simcoe Street	4
2.4.1 Net Effects Analysis	4
2.5 Central Mainline – Simcoe Street to Enfield Road.....	5
2.5.1 Net Effects Analysis	5
2.5.2 Evaluation Results	5
2.6 East Mainline – Enfield Road to Hwy 35/115.....	6
2.6.1 Net Effects Analysis	6
2.6.2 Evaluation Results	9
2.7 West Link.....	9
2.7.1 Net Effects Analysis	9
2.7.2 Evaluation Results	12
2.8 East Link.....	13
2.8.1 Net Effects Analysis	13
2.8.2 Evaluation Results	17
3. Summary	18

1. Introduction

This report documents the assessment and evaluation of the short-listed alternative routes identified for the 407 East Environmental Assessment (EA) from the Waste Contamination perspective. Following completion of the screening phase, alternative routes were short-listed for detailed assessment and/or comparative evaluation. The short-listed routes were broken down into 5 sections:

- West Mainline
 - Brock Road to Audley Road – 1 route
 - Audley Road to Ashburn Road – 2 route alternatives
- Central Mainline
 - Ashburn Road to Simcoe Street – 1 route
 - Simcoe Street to Enfield Road – 2 route alternatives
- East Mainline
 - Enfield Road to Highway 35/115 – 12 route alternatives
- West Link
 - West Durham Link – 9 route alternatives
- East Link
 - East Durham Link – 13 route alternatives

This report is one of nine stand-alone documents that outline the evaluation of the alternative routes process from the perspective of each discipline. These reports will be used in concert with one another as supporting documents to the Alternative Methods Report. The following 9 discipline specific reports have been prepared and made available for comment:

- Natural Environment
- Noise
- Socio-economic
- Air Quality
- Agricultural
- Waste Contamination
- Archaeology
- Cultural Heritage
- Technical

The evaluation of alternative routes was a three-step process. The first step entailed a detailed field inventory of conditions associated with each alternative route. Each environmental feature was examined to determine the extent of impact and the findings of these were outlined within each of the disciplines Field Investigations Reports. The second step was to assess the findings of the field investigations against the established Criteria and Indicators listed in Table 1 (Appendix A of Alternative Methods Report) for each of the 5 Factor Areas (Natural, Social, Economic, Cultural and Technical). After determining the initial potential effects, standard mitigation, avoidance, enhancement and compensation measures were applied in order to determine the Net Effects.

The third step was the evaluation itself. This step involved a comparative analysis of the alternative routes considered to select a preferred alternative. At this stage, the relative importance of the environmental features was determined.

1.1 Waste Contamination Study Team

A study team consisting of Ecoplans staff undertook the Waste Contamination assessment and evaluation of route alternatives. The actual individuals and their specific roles are provided as follows:

- **Derek Stewart, B.Sc., P.Geo, Senior Hydrogeologist** - Property Contamination and Waste Project Manager
- **Neil Levesque, B.E.S., CEPIT, Environmental Scientist** – Project Staff (project coordination, reporting)
- **Katie Gaydon, B.Sc. (Env.), CEPIT, Environmental Scientist** – Project Staff (day-to-day coordination, reporting, technical support)

2. Assessment and Evaluation of the Alternative Routes

2.1 Methodology

The assessment and evaluation of the alternative routes was conducted in three steps:

Step 1: Confirm Evaluation Criteria and Indicators/Measures

The approved 407 East EA Terms of Reference (ToR) set out the draft criteria and indicators in **Table 5.2** for evaluating the 'alternative methods' in the EA. In addition, **Supporting Document C** of the 407 East EA ToR provided proposed data sources and measures for each of the indicators. As a result, the draft criteria, indicators, and measures provided for in the ToR were reviewed and modified appropriately to suit the evaluation of the alternative routes.

Specifically, the criteria, indicators and measures were modified in consultation with review agencies and the public to ensure that an appropriate level of scrutiny and rigour was applied in evaluating the short listed routes. By doing so, the results of the evaluation phase consist of clearly defined net effects for each "short listed" route that were suitable for comparison.

Step 2: Undertake the Net Effects Analysis

With the evaluation criteria, indicators and measures confirmed through the preceding step, a net effects analysis of the short listed alternative routes was carried out consisting of the following activities:

- Identify potential effects (based on measures) on the environment;
- Develop and apply avoidance/ mitigation/ compensation/ enhancement measures; and
- Determine net effects on the environment.

For contamination and waste, the number of properties with the potential for site contamination was identified for each short listed route alternative. This included properties located in urban and rural areas, as well as waste disposal sites. Each route alternative was evaluated based on the number of potentially contaminated properties impacted by a given alternative, and the overall potential for contamination of each property. In general, land use activities such as (but not limited to) fuel service stations, industrial facilities and waste disposal sites were classified as having a high potential for site contamination. All properties identified were ranked for potential contamination according to their land use activity (e.g. fuel service station), site observations (e.g. presence of fuel storage tanks, waste debris), and existing data (e.g. Ecolog ERIS information).

For the purposes of this report, a potentially contaminated site is defined as a site condition where the potential exists for a material or condition in soil, groundwater, surface water and/or buildings /structures, by way of current and/or past land use activities or operations could have an adverse effect on human health or the natural environment.

Step 3: Carry Out the Comparative Evaluation

In Step 3, the net effects identified for each short listed route alternative in Step 2 were compared to one another in order to identify a “recommended route alternative”. The comparison of net effects was completed using a “Reasoned Argument” or “Trade-off” evaluation methodology, as provided for in the approved 407 East EA ToR.

It should be noted that waste management facilities (e.g. waste disposal sites) were afforded a greater level of significance (i.e. high potential for site contamination) during the alternative route evaluation. This is due to the scale and nature of land use activities associated with waste management facilities (e.g. domestic and commercial waste, non hazardous waste), and the potential necessity for regulatory approval revisions associated with impacting these properties.

2.2 West Mainline – Brock Road to Audley Road

2.2.1 Net Effects Analysis

No properties with the potential for site contamination will be impacted in urban areas. However, two (2) properties with the potential for site contamination will be impacted in rural areas. The properties are a small waste debris area (low to moderate potential for contamination) and a gravel pit and debris area (low potential for contamination). No (known) operating or closed waste

management facilities will be disturbed by this route alternative. Plate 2.2-1 illustrates this portion of the West Mainline Route.

2.3 West Mainline – Audley Road to Ashburn Road

2.3.1 Net Effects Analysis

WM1

No properties with the potential for site contamination will be directly impacted by this route alternative in urban or rural areas. In addition, no (known) operating or closed waste management facilities will be disturbed Plate 2.3-1 illustrates route WM1.

WM2

No properties with the potential for site contamination will be directly impacted by this route alternative in urban or rural areas. A fuel service station in a rural area is located adjacent to an arterial road associated with this route alternative, but it will not be directly impacted.

One (1) closed waste disposal will be directly impacted by this route alternative. The closed waste disposal site has a high potential for site contamination. Under the Environmental Protection Act (EPA), no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister’s Order. Plate 2.3-1 illustrates route WM2.

2.3.2 Evaluation Results

Route alternative WM1 will not result in any direct impacts to potentially contaminated sites in urban or rural areas, or to (known) operating or closed waste management facilities. Therefore, this route is anticipated to have no net effects. Route alternative WM2 will not result in any direct impacts to potentially contaminated sites in urban or rural areas, but will result in the direct disturbance of a closed waste disposal site. Given that the closed waste disposal site has a high potential for contamination, the net effect associated with route alternative WM2 is anticipated to be high. Route alternative WM1 is preferred over WM2, as it will have no anticipated net effects overall.

2.4 Central Mainline – Ashburn Road to Simcoe Street

2.4.1 Net Effects Analysis

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, one (1) property with the potential for site contamination will

be directly impacted by this route alternative in a rural area. The property is a landscaping and gardening supply centre with a high potential for site contamination.

One (1) former waste disposal site will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.4-1 illustrates this portion of the Central Mainline route.

2.5 Central Mainline – Simcoe Street to Enfield Road

2.5.1 Net Effects Analysis

CM1

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. One (1) property with the potential for site contamination will be directly impacted by this route alternative in rural areas. The property is a registered waste generator with a low potential for site contamination.

No (known) operating or closed waste management facilities will be disturbed. Plate 2.5-1 illustrates route CM1.

CM2

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. One (1) property with the potential for site contamination will be directly impacted by this route alternative in rural areas. The property is an agricultural equipment company and has a high potential for site contamination.

No (known) operating or closed waste management facilities will be disturbed. Plate 2.5-1 illustrates route CM2.

2.5.2 Evaluation Results

Route alternatives CM1 and CM2 will not result in any direct impacts to potentially contaminated sites in urban areas. Both route alternatives will impact one (1) property in a rural area. Neither alternative will result in a disturbance to (known) operating or closed waste management facilities.

It is anticipated that overall net effect of the agricultural equipment company on route alternative CM2 will be low, once mitigation measures have been applied. As such, route alternatives CM1 and CM2 are equally preferred as they will have no-or-low anticipated net effects overall.

2.6 East Mainline – Enfield Road to Hwy 35/115

2.6.1 Net Effects Analysis

EM1

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, two (2) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include an agricultural equipment company (high potential for site contamination) and a spill occurrence location (moderate potential for site contamination).

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-1 illustrates route EM1.

EM2

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, two (2) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include an agricultural equipment company (high potential for site contamination) and a spill occurrence location (moderate potential for site contamination).

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-2 illustrates route EM2.

EM3

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, two (2) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include an agricultural equipment company (high potential for site contamination) and a spill occurrence location (moderate potential for site contamination).

No (known) operating or closed waste management facilities will be disturbed. As such, no mitigation measures are required to address waste issues. Plate 2.6-3 illustrates route EM3.

EM4

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, two (2) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include an agricultural

Alternative Methods Technical Report (Waste Contamination)

equipment company (high potential for site contamination) and a spill occurrence location (moderate potential for site contamination).

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-4 illustrates route EM4.

EM5

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, six (6) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include an agricultural equipment company (high potential for site contamination), a transformer station (moderate potential for site contamination), two fuel service stations (high potential for site contamination), one spill location (moderate potential for site contamination) and an automotive garage (high potential for site contamination).

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-5 illustrates route EM5.

EM6

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, one (1) property with the potential for site contamination will be directly impacted by this route alternative in rural areas. The property is an agricultural equipment company and has a high potential for site contamination.

One (1) former waste disposal site will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.6-6 illustrates route EM6.

EM7

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, two (2) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include a spill location (moderate potential for site contamination) and an autowrecking and recycling facility (high potential for site contamination).

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-7 illustrates route EM7.

EM8

Alternative Methods Technical Report (Waste Contamination)

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, two (2) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include a spill location (moderate potential for site contamination) and an autowrecking and recycling facility (high potential for site contamination).

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-8 illustrates route EM8.

EM9

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. Seven (7) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include a transformer station (moderate potential for site contamination), two fuel service stations (high potential for site contamination), a spill location (moderate potential for site contamination), an autowrecking and recycling facility (high potential for site contamination), and two automotive garages (high potential for site contamination). In addition, an automotive garage is located in a rural area adjacent to this route alternative, but it will not be directly impacted.

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-9 illustrates route EM9.

EM10

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, one (1) property with the potential for site contamination will be directly impacted by this route alternative in rural areas. The property is an autowrecking and recycling facility and has a high potential for site contamination.

One (1) former waste disposal site will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.6-10 illustrates route EM10.

EM11

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, seven (7) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include an agricultural equipment company (high potential for site contamination), a transformer station (moderate potential for site contamination), two fuel service stations (high potential for site contamination), a spill location (moderate potential for site contamination), an automotive garage (high potential for contamination), and an automotive centre and storage yard (high potential for site contamination).

Alternative Methods Technical Report (Waste Contamination)

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-11 illustrates route EM11.

EM12

No properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. However, seven (7) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include a transformer station (moderate potential for site contamination), two fuel service stations (high potential for site contamination), a spill location (moderate potential for site contamination), an autowrecking and recycling facility (high potential for site contamination), an automotive garage (high potential for contamination), and an automotive centre and storage yard (high potential for site contamination).

No (known) operating or closed waste management facilities will be disturbed. Plate 2.6-12 illustrates route EM12.

2.6.2 Evaluation Results

Route alternatives EM1, EM2, EM3, EM4, EM6, EM7, EM8, and EM10 each impact one (1) or two (2) properties in rural areas. The potential for site contamination associated with these route alternatives is anticipated to range from low to high, given the number and type of properties impacted. Route alternatives EM5, EM9, EM11, and EM12 impact seven (7) properties in rural areas. The potential for site contamination associated with these route alternatives is anticipated to range from low to high, given the number and type of properties impacted. Route alternatives EM6 and EM10 will each impact one (1) former waste disposal site, with a high potential for site contamination.

Route alternatives EM1, EM2, EM3, EM4, EM7, and EM8 are equally preferred as they will have low to moderate anticipated net effects overall when compared to the other route alternatives, after mitigation measures have been applied. In addition, they will not impact any (known) operating or closed waste management facilities.

2.7 West Link**2.7.1 Net Effects Analysis****WL1**

One (1) property with the potential for site contamination will be directly impacted by this route alternative in urban areas. The property is a soil supply company with aboveground storage tanks

Alternative Methods Technical Report (Waste Contamination)

with a moderate potential for site contamination. In addition, a spill occurrence in an urban area is located adjacent to the alternative route, but it will not be directly impacted. One (1) property with the potential for site contamination will be directly impacted by this route alternative in a rural area. The property is a topsoil and aggregate supply company with a moderate potential for contamination.

No (known) operating or closed waste management facilities will be disturbed. Plate 2.7-1 illustrates route WL1.

WL2

No properties with the potential for site contamination will be directly impacted by this route alternative in rural or urban areas. A spill occurrence in an urban area is located adjacent to the alternative route, but it will not be directly impacted. In addition, no (known) operating or closed waste management facilities will be disturbed. Plate 2.7-2 illustrates route WL2.

WL3

No properties with the potential for site contamination will be directly impacted by this route alternative in rural or urban areas. A spill occurrence in an urban area is located adjacent to the alternative route, but it will not be directly impacted. In addition, no (known) operating or closed waste management facilities will be disturbed. Plate 2.7-3 illustrates route WL3.

WL4

No properties with the potential for site contamination will be directly impacted by this route alternative in the urban areas. A spill occurrence in an urban area is located adjacent to the alternative route, but it will not be directly impacted. One (1) property with the potential for site contamination will be directly impacted by the arterial road associated with this route alternative in a rural area. The property is a topsoil and aggregate supply company with a moderate potential for contamination.

No (known) operating or closed waste management facilities will be disturbed. Plate 2.7-4 illustrates route WL4.

WL5

Three (3) properties with the potential for site contamination will be directly impacted by this route alternative in the urban areas. These properties include a construction company (moderate potential for site contamination), a soil supply company with aboveground storage tanks (moderate potential for site contamination), and a fuel service station (high potential for site contamination). A spill occurrence in an urban area is located adjacent to the alternative route, but will not be directly impacted. Six (6) properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas. The properties include two spill locations (low/moderate

Alternative Methods Technical Report (Waste Contamination)

potential for contamination), a construction company (moderate potential for site contamination), resource extraction topsoil and aggregate supply company (moderate potential for site contamination), a home-base re-fuelling company (high potential for site contamination), and a hydro sub-station (low potential for site contamination).

One (1) waste disposal site/automotive wrecking facility will be disturbed by an arterial road associated with this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.7-5 illustrates Route WL5.

WL6

No properties with the potential for site contamination will be directly impacted by this route alternative in the urban areas. A spill occurrence in an urban area is located adjacent to the alternative route, but will not be directly impacted. However, three (3) properties with the potential for site contamination will be directly impacted by this route alternative in rural areas. The properties include a topsoil and aggregate supply company (moderate potential for site contamination), a home-based refuelling company (high potential for site contamination), and a hydro sub-station (low potential for site contamination).

One (1) waste disposal site/automotive wrecking facility will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.7-6 illustrates route WL6.

WL7

No properties with the potential for site contamination will be directly impacted by this route alternative in the urban areas. A spill occurrence in an urban area is located adjacent to the alternative route, but will not be directly impacted. However, one (1) property with the potential for site contamination will be directly impacted by this route alternative in a rural area. The property is a topsoil and aggregate supply company with a moderate potential for site contamination.

No (known) operating or closed waste management facilities will be disturbed. Plate 2.7-7 illustrates route WL7.

WL8

No properties with the potential for site contamination will be directly impacted by this route alternative in urban or rural areas. A spill occurrence in an urban area is located adjacent to the alternative route, but will not be directly impacted.

No (known) operating or closed waste management facilities will be disturbed. Plate 2.7-8 illustrates route WL8.

Alternative Methods Technical Report (Waste Contamination)

WL9

Two (2) properties with the potential for site contamination will be directly impacted by this route alternative in the urban area. The properties include a soil supply company with aboveground storage tanks (moderate potential for site contamination) and a fuel service station (high potential for site contamination). A spill occurrence in an urban area is located adjacent to the alternative route, but will not be directly impacted. Six (6) properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas. The properties include two spill locations (low/moderate potential for site contamination), a construction company (moderate potential for site contamination), a home-based refuelling company (high potential for site contamination), a topsoil and aggregate supply company (moderate potential for site contamination), and a hydro sub-station (low potential for site contamination).

One (1) waste disposal site/automotive wrecking facility will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.7-9 illustrates route WL9.

2.7.2 Evaluation Results

Route alternatives WL2, WL3, and WL8 do not impact any properties with the potential for site contamination in urban or rural areas. In addition, no (known) operating or closed waste management facilities will be disturbed. No net effects are anticipated associated with these route alternatives.

Route alternatives WL4 and WL7 impact one (1) property in a rural area. The potential for site contamination is anticipated to be moderate, given the type of property impacted. Route alternative WL1 impacts two (2) properties in an urban and rural area. The potential for site contamination is anticipated to be moderate, given the number and type of properties impacted.

Route alternative WL6 impacts three (3) properties in rural areas. The potential for site contamination is anticipated to range from low to high, given the number and type of properties impacted. In addition, one (1) waste disposal site/automotive wrecking facility will be impacted, and the potential for site contamination is considered to be high.

Route alternatives WL5 and WL9 impact nine (9) and six (6) properties in urban and rural areas, respectively. The potential for site contamination is anticipated to range from low to high, given the number and type of properties impacted. In addition, one (1) waste disposal site/automotive wrecking facility will be impacted by both route alternatives, and the potential for site contamination is considered to be high.

Route alternatives WL2, WL3, and WL8 are equally preferred as they will have no anticipated net effects overall when compared to the other route alternatives. In addition, they will not impact any (known) operating or closed waste management facilities.

2.8 East Link

2.8.1 Net Effects Analysis

EL1

Ten (10) properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. The properties include a former fuel service station (high potential for site contamination), two spill occurrences (low/moderate potential for site contamination), a contracting company (moderate potential for site contamination), a machine and robotics manufacturing company (moderate potential for site contamination), a waste management facility (high potential for site contamination), a steel rolling and drawing company (moderate potential for site contamination), a metal valve manufacturing company (moderate potential for site contamination), a search and rescue training facility (moderate potential for site contamination), and an automotive dealer exchange facility (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Two (2) former waste disposal sites will be disturbed by this route alternative, and each has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-1 illustrates route EL1.

EL2

Ten (10) properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. The properties include a former fuel service station (high potential for site contamination), two spill occurrences (low/moderate potential for site contamination), a contracting company (moderate potential for site contamination), a machine and robotics manufacturing company (moderate potential for site contamination), a waste management facility (high potential for site contamination), a steel rolling and drawing company (moderate potential for site contamination), a metal valve manufacturing company (moderate potential for site contamination), a search and rescue training facility (moderate potential for site contamination), and an automotive dealer exchange facility (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Two (2) former waste disposal sites will be disturbed by this route alternative, and each has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-2 illustrates route EL2.

EL3

Ten (10) properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. The properties include a former fuel service station (high potential for site contamination), two spill occurrences (low/moderate potential for site contamination), a contracting company (moderate potential for site contamination), a machine and robotics manufacturing company (moderate potential for site contamination), a waste management facility (high potential for site contamination), a steel rolling and drawing company (moderate potential for site contamination), a metal valve manufacturing company (moderate potential for site contamination), a search and rescue training facility (moderate potential for site contamination), and an automotive dealer exchange facility (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Two (2) former waste disposal sites will be disturbed by this route alternative, and each has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-3 illustrates route EL3.

EL4

Ten (10) properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. The properties include a former fuel service station (high potential for site contamination), two spill occurrences (low/moderate potential for site contamination), a contracting company (moderate potential for site contamination), a machine and robotics manufacturing company (moderate potential for site contamination), a waste management facility (high potential for site contamination), a steel rolling and drawing company (moderate potential for site contamination), a metal valve manufacturing company (moderate potential for site contamination), a search and rescue training facility (moderate potential for site contamination), and an automotive dealer exchange facility (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Two (2) former waste disposal sites will be disturbed by this route alternative, and each has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-4 illustrates route EL4.

EL5

Ten (10) properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. The properties include a former fuel service station (high potential for site contamination), two spill occurrences (low/moderate potential for site contamination), a contracting company (moderate potential for site contamination), a machine and robotics manufacturing company (moderate potential for site contamination), a waste management facility (high potential for site contamination), a steel rolling and drawing company (moderate potential for site contamination), a metal valve manufacturing company (moderate potential for site

Alternative Methods Technical Report (Waste Contamination)

contamination), a search and rescue training facility (moderate potential for site contamination), and an automotive dealer exchange facility (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Two (2) former waste disposal sites will be disturbed by this route alternative, and each has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-5 illustrates route EL5.

EL6

Ten (10) properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. The properties include a former fuel service station (high potential for site contamination), two spill occurrences (low/moderate potential for site contamination), a contracting company (moderate potential for site contamination), a machine and robotics manufacturing company (moderate potential for site contamination), a waste management facility (high potential for site contamination), a steel rolling and drawing company (moderate potential for site contamination), a metal valve manufacturing company (moderate potential for site contamination), a search and rescue training facility (moderate potential for site contamination), and an automotive dealer exchange facility (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Two (2) former waste disposal sites will be disturbed by this route alternative, and each has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-6 illustrates route EL6.

EL7

Ten (10) properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. The properties include a former fuel service station (high potential for site contamination), two spill occurrences (low/moderate potential for site contamination), a contracting company (moderate potential for site contamination), a machine and robotics manufacturing company (moderate potential for site contamination), a waste management facility (high potential for site contamination), a steel rolling and drawing company (moderate potential for site contamination), a metal valve manufacturing company (moderate potential for site contamination), a search and rescue training facility (moderate potential for site contamination), and an automotive dealer exchange facility (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Two (2) former waste disposal sites and one (1) active waste disposal site (automotive junkyard) will be disturbed by this route alternative, and each have a high potential for site contamination.

Alternative Methods Technical Report (Waste Contamination)

Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-7 illustrates route EL7.

EL8

Ten (10) properties with the potential for site contamination will be directly impacted by this route alternative in urban areas. The properties include a former fuel service station (high potential for site contamination), two spill occurrences (low/moderate potential for site contamination), a contracting company (moderate potential for site contamination), a machine and robotics manufacturing company (moderate potential for site contamination), a waste management facility (high potential for site contamination), a steel rolling and drawing company (moderate potential for site contamination), a metal valve manufacturing company (moderate potential for site contamination), a search and rescue training facility (moderate potential for site contamination), and an automotive dealer exchange facility (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Two (2) former waste disposal sites and one (1) active waste disposal site (automotive junkyard) will be disturbed by this route alternative, and each have a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-8 illustrates route EL8.

EL9

Four (4) properties with the potential for site contamination will be directly impacted by this route alternative in the urban area. The properties include three spill occurrences (low to moderate potential for site contamination) and one home-based automotive garage (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

One (1) former waste disposal site will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-9 illustrates route EL9.

EL10

Four (4) properties with the potential for site contamination will be directly impacted by this route alternative in the urban area. The properties include three spill occurrences (low to moderate potential for site contamination) and one home-based automotive garage (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

Alternative Methods Technical Report (Waste Contamination)

One (1) former waste disposal site will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-10 illustrates route EL10.

EL11

Four (4) properties with the potential for site contamination will be directly impacted by this route alternative in the urban area. The properties include three spill occurrences (low to moderate potential for site contamination) and one home-based automotive garage (high potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

One (1) former waste disposal site will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-11 illustrates route EL11.

EL12

Three (3) properties with the potential for site contamination will be directly impacted by this route alternative in the urban area. The properties include three spill occurrences (low to moderate potential for site contamination). No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

One (1) former waste disposal site will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-12 illustrates route EL12.

EL13

Three (3) properties with the potential for site contamination will be directly impacted by this route alternative in the urban area. The properties include three spill occurrences with a low to moderate potential for site contamination. No properties with the potential for site contamination will be directly impacted by this route alternative in the rural areas.

One (1) former waste disposal site will be disturbed by this route alternative, and has a high potential for site contamination. Under the EPA, no land used for the disposal of waste may be used for any other purpose, if the waste disposal site has been closed for less than 25 years, without a Minister's Order. Plate 2.8-13 illustrates route EL13.

2.8.2 Evaluation Results

Alternative Methods Technical Report (Waste Contamination)

Route alternatives EL12 and EL13 impact three (3) properties in urban areas. The potential for site contamination is anticipated to be low to moderate, given the number and type of properties impacted. In addition, each route alternative will impact one (1) former waste disposal site, and the potential for site contamination is considered to be high.

Route alternatives EL9, EL10, and EL11 impact four (4) properties in urban areas. The potential for site contamination is anticipated to range from low to high, given the number and type of properties impacted. In addition, each route alternative will impact one former (1) waste disposal site, and the potential for contamination is considered to be high.

Route alternatives EL1, EL2, EL3, EL4, EL5, EL6, EL7, and EL8 impact ten (10) properties in urban areas. The potential for site contamination is anticipated to range from low to high, given the number and type of properties impacted. In addition, route alternatives EL7 and EL8 impact two (2) former waste disposal sites and one (1) active waste disposal site (automotive junkyard) with a high potential for site contamination. Route alternatives EL1 through EL6 impact two (2) former waste disposal sites with a high potential for site contamination.

Route alternatives EL12 and EL13 are both preferred as they will have lower anticipated net effects overall when compared to the other route alternatives, once mitigation measures have been applied.

3. Summary

For the West Mainline (Brock Road to Audley Road), there is only one (1) route alternative. This route will not result in any potential contaminated site impacts in urban areas. However, two (2) properties will be impacted in rural areas. The net effect is anticipated to be low for this route alternative.

For the West Mainline (Audley Road to Ashburn Road), route alternative WM1 is the preferred option. This route will not result in any potential contaminated site impacts in urban or rural areas, or (known) operating or closed waste disposal sites. There is no net effect anticipated for this route alternative.

For the Central Mainline (Ashburn Road to Simcoe Street), there is only one (1) route alternative. This route will not result in any potential contaminated site impacts in urban areas. However, one (1) property will be impacted in a rural area with a high potential for site contamination. In addition, one (1) property with a former waste disposal site may be impacted by this route alternative. It is anticipated that there will be a high net effect for this route alternative.

For the Central Mainline (Simcoe Street to Enfield Road), route alternatives CM1 and CM2 are both the preferred option. CM1 and CM2 will each impact one (1) property in rural areas. In addition, neither route will impact any (known) operating or closed waste management facilities. It is anticipated that there will be no or low net effects for these route alternatives, once mitigation measures have been applied.

Alternative Methods Technical Report (Waste Contamination)

For the East Mainline (Enfield Road to Hwy 35/115), route alternatives EM1, EM2, EM3, EM4, EM7 and EM8 are all equally preferred. These routes will impact two (2) properties in rural areas, and will not impact any (known) operating or closed waste management facilities. The net effects are anticipated to be low to moderate when compared to the other route options, once mitigation measures have been applied, as they impact the least number of potential contaminated sites.

For the West Link, route alternatives WL2, WL3 and WL8 are all equally preferred. These routes will not impact any potential contaminated sites in urban or rural areas, or any (known) operating or closed waste management facilities. There are no net effects anticipated for these route alternatives when compared to the other route options.

For the East Link, route alternatives EL12 and EL13 are both the preferred option. These routes will impact only three (3) properties in urban areas with a low to moderate potential for site contamination. In addition, each route will impact only one (1) former waste disposal site with a high potential for site contamination. It is anticipated that the net effects for these route alternatives will be lower when compared to other route options, as they impact the least number of potential contaminated sites or (known) operating or closed waste management facilities.

Glossary of Terms

Potential for Site Contamination – site condition where the potential exists for a material or condition in soil, groundwater, surface water and/or buildings /structures, by way of current and/or past land use activities or operations could have an adverse effect on human health or the natural environment.

Small waste debris area – a localized area used for the storage of debris or other material, sometimes found on private properties.

Closed waste management facility – A waste management (disposal) facility that was registered with the Ministry of the Environment as a licenced waste disposal site, but is no longer active (i.e. does not receive waste).

Environmental Protection Act (EPA) – Ontario Environmental Protection Act, R.S.O. 1990.

Registered waste generator - Ontario Regulation 347 of the Ontario EPA defines a waste generator as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes.