



APPENDIX TSD#1-I

Traffic Component

February 2013

Traffic Component
Appendix TSD#1-I

**COMPARATIVE EVALUATION OF
ALTERNATIVE SITES**



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INTRODUCTION

Two properties that are owned or have been optioned by Taggart Miller have been identified for the proposed Capital Region Resource Recovery Centre (CRRRC) (the Alternative Sites). The Alternative Sites are described below:

- **North Russell Road Site (NRR Site)** – located in the northwest part of the Township of Russell about three kilometres east of the boundary with the City of Ottawa, and about five kilometres south of Provincial Highway 417 between the Boundary Road and Vars exits. The property consists of about 193 hectares (476 acres) of contiguous lands on Part of Lots 18 and 19, Concessions III and IV, Township of Russell.
- **Boundary Road Site (BR Site)** – located in the east part of the City of Ottawa, in the former Township of Cumberland and just southeast of the Highway 417/Boundary Road interchange. The property is on the east side of Boundary Road, east of an existing industrial park, north of Devine Road and west of Frontier Road. The property consists of about 175 hectares (430 acres) of land on Lots 23 to 25, Concession XI, Township of Cumberland.

The CRRRC is proposed to provide facilities and capacity for recovery of resources and diversion of material from disposal generated by the industrial, commercial and institutional (IC&I) and construction and demolition (C&D) sectors primarily in Ottawa and secondarily a portion of eastern Ontario, for management and utilization of surplus and contaminated soils, as well as landfill disposal capacity for material that is not diverted.

1.0 ASSESSMENT CRITERIA, INDICATORS AND DATA SOURCES

The traffic component compared the Alternative Sites using the following criterion:

- Which Site is preferred regarding potential effects from Site-related truck traffic?

The indicators for the criterion are:

- Proximity of Site to Highway interchange;
- Characteristics of road network between Highway interchange and Site; and
- Land use from Highway interchange to Site along the main haul route(s).

The data sources used were available road and intersection characteristics, and traffic count information on potential haul routes; historical traffic and collisions, if available; aerial photographic mapping and field reconnaissance; location and nature of potential receptors; and consultation with Russell Township and the City of Ottawa, as appropriate.

2.0 PRELIMINARY DESCRIPTION OF EXISTING ENVIRONMENT

The following sections describe the existing environmental conditions for the traffic component at each of the Alternative Sites based on the preliminary investigations and assessments.

2.1 North Russell Road Site

This Alternative Site for the CRRRC is located approximately three kilometres north of the village of Russell in the Township of Russell. The Site is on the east side of North Russell Road, and a portion of it was formerly the Site of the Hanson Brick quarry operations.

Roads within the vicinity of this Site are North Russell Road to the west of the Site which is a two-lane rural road, and Eadie Road to the east which is a two-lane secondary rural road. Both of these roads are under the jurisdiction of the Township of Russell. Approximately 1.3 kilometres north of the NRR Site is Route 100 which is a rural secondary road under the jurisdiction of the Township of Russell. Burton Road is located approximately three kilometres north of this Site and Frontier Road approximately 4.5 kilometres from the NRR Site. Both Burton Road and Frontier Road are two-lane collector roads under the jurisdiction of the City of Ottawa. During the spring thaw period (approximately six weeks in length), all Township of Russell roads and Frontier Road, which is under the jurisdiction of the City of Ottawa, are subject to seasonal load restrictions.

Further north from the NRR Site, Boundary Road and Devine Road are two-lane rural arterials under the City of Ottawa jurisdiction.

Initial peak hour traffic counts were taken along certain roads as part of obtaining baseline information for the CRRRC project, while other traffic count information was obtained from MTO or the City of Ottawa, as follows:

Table 2.1-1: Peak Hour Traffic Counts – NRR Site

| Location | Date & Source | Peak Hourly Traffic (vehicles per hour) | |
|---|----------------------------------|--|-----------------------------------|
| | | A.M. Peak Hour | P.M. Peak Hour |
| North Russell Road at Burton Road | April 14, 2010 (count) | 183 northbound, 36 southbound | 40 northbound, 133 southbound |
| St. Guillaume Road exit 96 at Highway 417 | September 20, 2007 (MTO) | 704 northbound, 331 southbound | 408 northbound, 887 southbound |
| Boundary Road exit 88 at Highway 417 | November 19, 2008 (MTO) | 552 northbound, 159 southbound | 239 northbound, 752 southbound |
| Boundary Road at Mitch Owens Road | June 1, 2011 (City of Ottawa) | 758 northbound, 196 southbound | 163 northbound, 642 southbound |
| Boundary Road at Devine Road | March 21, 2012 (count) | 698 northbound, 104 southbound | 171 northbound, 612 southbound |
| Devine Road at Frontier Road | March 21, 2012 (count) | 207 northbound, 36 southbound | 46 northbound, 164 southbound |

The lands in the proximity of the NRR Site are mainly rural agricultural.

2.1.1 Haul Routes

The haul route analysis has identified five possible haul route alternatives for the NRR Site. The five alternatives are described in the following sections:

Alternative 1 – Boundary Road Exit to North Russell Road Access

The first haul route alternative proposes the NRR Site access to be directly onto North Russell Road. The majority of Site traffic would travel from the Boundary Road exit at Highway 417 (Exit 96) to Devine Road, Frontier Road, Burton Road, and then to North Russell Road to enter this Site from the north. Through designation of haul routes, any traffic component of the Site would not travel through the Village of Russell to enter the Site from the south. The distance from the Site access to the Boundary/Highway 417 exit is approximately 10 kilometres. There are currently no signalized intersections.

Land uses along this haul route are mainly agricultural with some commercial/light industrial along Boundary Road between Mitch Owens Road and Highway 417. There are some residential homes/farm houses along North Russell Road between the NRR Site and Burton Road. There are approximately 21 to 30 residences along the haul route between Highway 417 and the Site, depending on the Site access location off North Russell Road. There are approximately 15 commercial/light industrial and 11 agricultural field access points along the haul route between Highway 417 and the Site. Depending on the Site access location, there is a cemetery located along North Russell Road.

Frontier Road and North Russell Road are subject to load restrictions during the spring thaw period.

Alternative 2 – Boundary Road Exit to Eadie Road Access

The second haul route alternative proposes the NRR Site entrance to be directly from Eadie Road, with most Site trips travelling from the Boundary Road/Highway 417 exit (Exit 96) to Burton Road and south along Eadie Road to the Site access. The haul route distance from the Highway 417 Exit 96 interchange to the Site is approximately 11.5 kilometres. There are currently no signalized intersections.

Land uses along the haul route are mainly agricultural with some commercial/light industrial along Boundary Road between Mitch Owens Road and Highway 417. There are approximately 14 residential homes/farm houses along Eadie Road between the northeast corner of the NRR Site and Burton Road, many of which are in close proximity to the roadway. There are approximately 30 residences along the haul route between Highway 417 and the Site. Approximately 15 commercial/light industrial and 21 agricultural field access points are located along the haul route between Highway 417 and the Site.

Eadie Road is a rural secondary road which currently does not carry any commercial truck traffic. Further investigation is required to determine if the roadway pavement has the structural capacity to carry the additional traffic from the NRR Site. Frontier Road and Eadie Road are subject to load restrictions during the spring thaw period.

Alternative 3 – Vars Exit to North Russell Road Access

The third haul route alternative would have Site trips originating from the east travelling along Burton Road from the Highway 417 exit (Exit 88) at St. Guillaume Road, then south along North Russell Road to the NRR Site. The distance of the haul route from the Highway 417 Exit 88 to the NRR Site access is approximately seven kilometres. There are currently no signalized intersections.

The land uses along the haul route are mainly agricultural with some commercial/light industrial along Burton Road immediately west of St. Guillaume Road. There are approximately 10 to 17 residences along the haul route between Highway 417 Exit 88 and the NRR Site, depending on the Site access location off North Russell Road. Approximately 11 commercial/light industrial and 16 agricultural field access points are located along the haul route between Highway 417 and the Site. Depending on the Site access location, there is a cemetery located along North Russell Road.

North Russell Road is subject to load restrictions during the spring thaw period.

Alternative 4 – Vars Exit to Eadie Road Access

The fourth alternative proposes the haul route to originate at the Vars exit of Highway 417 (Exit 88), and travel along Burton Road and south along Eadie Road to the NRR Site. The haul route distance from the Highway 417 Exit 88 interchange to the Site is approximately six kilometres. There are currently no signalized intersections.

The land uses along the haul route are mainly agricultural with some commercial/light industrial along Burton Road immediately west of St. Guillaume Road. There are approximately 14 residential homes/farm houses along Eadie Road between the Site and Burton Road, many of which are in close proximity to the roadway. There are approximately 16 residential homes along the haul route between Highway 417 and the NRR Site. Approximately 11 commercial/light industrial and 18 agricultural field access points are located along the haul route between Highway 417 and the Site.

Eadie Road is a rural secondary road which currently does not carry any commercial truck traffic. Further investigation is required to determine if the roadway pavement has the structural capacity to carry the additional traffic from the NRR Site. Eadie Road is subject to load restrictions during the spring thaw period.

Alternative 5 – Vars Exit to Unopened Road Allowance Access

The fifth alternative proposes the haul route to originate at the Highway 417 exit at Vars (Exit 88), with Site trips travelling along Burton Road and turning south along a new road constructed along an unopened road allowance located approximately 1.5 kilometres east of Eadie Road. The haul route distance from the Highway 417 Exit 88 interchange to the Site is approximately 4.5 kilometres. There are currently no signalized intersections.

The land uses along the haul route are mainly agricultural with some commercial/light industrial along Burton Road immediately west of St. Guillaume Road. There would be no residential houses fronting onto the new road. There are no residences along the haul route between Highway 417 and the Site. Approximately ten commercial/light industrial and two agricultural field access points are located along the haul route between Highway 417 and the Site.

Alternative 5 would require the construction of a new road along the unopened road allowance. The road would be approximately 2.5 kilometres in length and would be constructed to provide the structural capacity for the expected truck traffic.

2.1.2 Summary of NRR Site Traffic Considerations

Table 2.1-2: Summary of NRR Site Traffic Considerations

| Component | Summary of Site Considerations |
|-----------|---|
| Traffic | <ol style="list-style-type: none"> 1) Five haul route scenarios were examined. Two alternatives assumed traffic to originate from the Boundary Road/Highway 417 interchange, and three alternatives from the Vars/Highway 417 interchange. 2) Alternative 1 – The haul route is 10 km in length with spring thaw load restrictions along the route. There are approximately 21 to 30 residences, 15 commercial/light industrial, 11 agricultural field access points and possibly one cemetery adjacent to the haul route. 3) Alternative 2 – The haul route is 11.5 km in length with spring thaw load restrictions along the route. The structural capacity of Eadie Road must be examined for truck traffic. There are approximately 30 residences, 15 commercial/light industrial and 21 agricultural field access points adjacent to the haul route, many in close proximity to the road. 4) Alternative 3 – The haul route is seven km in length with spring thaw load restrictions along the route. There are approximately 10 to 17 residences, 11 commercial/light industrial, 16 agricultural field access points and possibly one cemetery adjacent to the haul route. 5) Alternative 4 – The haul route is six km in length with spring thaw load restrictions along the route. The structural capacity of Eadie Road must be examined for truck traffic. There are approximately 16 residences, 11 commercial/light industrial and 16 agricultural field access points adjacent to the haul route. 6) Alternative 5 – The haul route is 4.5 km in length. A new 2.5 km-road would be constructed along an unopened road allowance. No residences, ten commercial/light industrial and two agricultural field access points are adjacent to the haul route. |

2.2 Boundary Road Site

The BR Site is located at the northeast quadrant of the intersection of Boundary Road and Devine Road. Both Boundary Road (Ottawa Road 41) and Devine Road (Ottawa Road 8) are two-lane rural arterial roads under the jurisdiction of the City of Ottawa. The access to the BR Site could potentially be off Boundary Road on the west side, or from Frontier Road on the east side of the property. Frontier Road is a rural collector road under the jurisdiction of the City of Ottawa.

Initial peak hour traffic counts were taken along certain roads as part of obtaining baseline information for the CRRRC project, while other traffic count information was obtained from MTO or the City of Ottawa, as follows:

Table 2.2-1: Peak Hour Traffic Counts – BR Site

| Location | Date & Source | Peak Hourly Traffic (vehicles per hour) | |
|--------------------------------------|----------------------------------|--|-----------------------------------|
| | | A.M. Peak Hour | P.M. Peak Hour |
| Boundary Road exit 88 at Highway 417 | November 19, 2008 (MTO) | 552 northbound, 159 southbound | 239 northbound, 752 southbound |
| Boundary Road at Mitch Owens Road | June 1, 2011 (City of Ottawa) | 758 northbound, 196 southbound | 163 northbound, 642 southbound |
| Boundary Road at Devine Road | March 21, 2012 (count) | 698 northbound, 104 southbound | 171 northbound, 612 southbound |
| Devine Road at Frontier Road | March 21, 2012 (count) | 207 northbound, 36 southbound | 46 northbound, 164 southbound |

The lands in the proximity of the Site are rural agricultural and commercial/light industrial land uses.

2.2.1 Haul Routes

The majority of the Site-related trips would travel to the BR Site along Boundary Road from Highway 417 Exit 96. The distance to the BR Site access will depend on the location of the access, and so could range from around 1 to 2 kilometres if accessed off Boundary Road, to about 3.5 kilometres to the Devine/Frontier Road intersection. There are currently no signal-controlled intersections. Land uses along Boundary Road are mainly commercial/light industrial, with a few houses interspersed. Lands along Devine Road west of Frontier Road are vacant.

Mitch Owens Road intersects Boundary Road from the west opposite the southern portion of the BR Site, approximately 1.8 kilometres from Highway 417. Lands along Mitch Owens Road to the west are mainly vacant or agricultural, with a small amount of commercial and rural residential.

There are approximately nine residences along Boundary Road between Highway 417 (Exit 96) and Devine Road. Approximately 14 commercial/light industrial properties are located along the haul route between Highway 417 and Devine Road.

Both Devine Road and Boundary Road are arterial roads under the jurisdiction of the City of Ottawa. The haul route would not be subject to any spring thaw load restrictions.

2.2.2 Summary of BR Site Traffic Considerations

Table 2.2-2: Summary of BR Site Traffic Considerations

| Component | Summary of Site Considerations |
|-----------|--|
| Traffic | <ol style="list-style-type: none"> 1) The roads which would form the main haul route for the BR Site-related truck traffic are classified as rural arterial roads. 2) The majority of the Site trips would be from/to Highway 417, which depending on Site access location could correspond to a travel distance of about 1 to 3.5 km from the Boundary Road Exit 96. 3) Land uses along the haul route are mainly commercial/light industrial. Approximately nine residences are along the haul route and 14 commercial/light industrial properties. |

3.0 SITE COMPARISON – TRAFFIC

3.1 Comparison of Sites

The Sites were compared following an examination of the length of the haul route, type of roads and possible load restrictions, and impact on residences, commercial properties and agricultural access fronting on the road.

North Russell Road Site

Five alternative scenarios were prepared, which proposed the location of the Site access and the haul route for the majority of Site-related trips. Alternative 3, which proposed the haul route from the Highway 417 Vars exit (Exit 88) to an entrance on North Russell Road, would provide the average haul distance of all the routes, and would have a lower potential impact on the adjacent residential homes than an Eadie Road access which has residential homes in closer proximity to the road. Alternative 3 would not require possible reconstruction of Eadie Road to increase the structural capacity of the road. Alternative 3 has roughly the average number of agricultural land use access points along the haul route. The commercial/light industrial land uses along the proposed haul routes are all comparable. Alternatives 1 to 4 all include roads on which there are spring thaw load restrictions. Alternative 5, which proposes a new road along an unopened road allowance would provide the shortest haul distance and minimal impact on residential homes and agricultural access locations in the area, but would require the construction of a new 2.5-kilometre haul road. Alternative 5 would be the preferred NRR Site alternative due to the shortest haul route from Highway 417 and lowest potential traffic related impact on the surrounding community. Alternative 5 would be expected to be the most expensive alternative due to the construction of the new road.

Boundary Road Site

The BR Site has only one main haul route from Highway 41 using the Boundary Road exit. The haul route from the Highway 417-Boundary Road interchange (Exit 96) has a comparatively short haul distance, with a limited number of residences along the route. The haul route would be along arterial roads, which currently carry truck traffic. There would be no spring thaw load restrictions along the route.

3.2 Results of Site Comparison

Following a comparison of the main haul routes associated with the two Alternative Sites, the BR Site is the clearly preferred Site from a traffic perspective, providing the shortest haul route along roads designated as arterial roads that currently carry truck traffic and with adjacent land uses that are mainly commercial/light industrial or vacant with a limited number of houses.